



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-2707D	County(ies):	Cleveland	Page	1	of	5
General Project Information									
WBS Element:	34497.1.F56	TIP Number:	R-2707D	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):	4.09	Surrounding Land Use:	Urban, Residential, Light Industrial						
	Proposed Project			Existing Site					
Project Built-Up Area (ac.)	62.0	ac.	11.9 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). -Y1-: 2-12' lanes with 6' shoulders (9' with guardrail, 2' paved) -Y2-: 2-12' lanes with 8' shoulders (11' with guardrail, 4' paved)			Existing US 74 (-L-): 2 paved lanes (total 24') with 15' grassed median, 10' outside and 6' inside shoulders -Y1-: 2-9' lanes with 2' grassed shoulders -Y2-: 2-11' lanes with 2' grassed shoulders -Y3-: 2-10' lanes with 2' grassed 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-2707D project involves constructing the section of proposed US 74 (Shelby bypass) from East of NC 150 to Existing US 74, West of SR 2238 (Long Branch Rd). There are four proposed major structures involved with the construction of R-2707D, one is a bridge replacement over Buffalo Creek and the other 3 are box culverts at new locations. The proposed structure, over Buffalo Creek, is a multiple span, dual bridge. The bridge is a 3 span (1@110', 1@130', 1@80'), 72" pre-stressed concrete girders with 4' end bent caps. The proposed bridge will have spill through rip rap abutments. In the project limits, Buffalo Creek is a FEMA detailed studied stream with non-encroachment widths established. This structure will not discharge deck drains over open water and will utilize deck drain dissipator pads into the overbanks to prevent erosion. The three box culverts (1@7'x7', 2@8'x8' and 1@12'x6') will utilize sills and baffles and be backfilled with native material and maintain existing bed geometry. Hazardous spill basins will be utilized for -L- line roadway runoff in areas that are within 1 mile and drain to Kings Mountain Reservoir (Begin Project to 691+00 -L-). Dry detention basins are utilized at locations throughout the project to attenuate increased peak flows and provide treatment. 2:1 slopes will be used in areas to reduce impacts to surrounding wetlands and jurisdictional streams.								
Waterbody Information									
Surface Water Body (1):	Buffalo Creek (Kings Mountain Reservoir)			NCDWR Stream Index No.:	9-53-(2.9)				
NCDWR Surface Water Classification for Water Body	Primary Classification:			Water Supply III (WS-III)		CA			
	Supplemental Classification:								
Other Stream Classification:									
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)									



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WBS Element: 34497.1.F56 TIP No.: R-2707D County(ies): Cleveland Page 2 of 5

Additional Waterbody Information

Surface Water Body (2):	Buffalo Creek	NCDWR Stream Index No.:	9-53-(5)
NCDWR Surface Water Classification for Water Body	Primary Classification:	Class C	
	Supplemental Classification:		
Other Stream Classification:			
Impairments:	None		
Aquatic T&E Species?	Comments:		
NRTR Stream ID:		Buffer Rules in Effect:	N/A
Project Includes Bridge Spanning Water Body?	Yes	Deck Drains Discharge Over Buffer?	No
Deck Drains Discharge Over Water Body?	No	Dissipator Pads Provided in Buffer?	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)	

Surface Water Body (3):		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?	
Deck Drains Discharge Over Water Body?		Dissipator Pads Provided in Buffer?	
(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)	

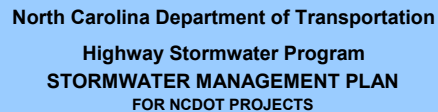
Surface Water Body (4):		NCDWR Stream Index No.:	
NCDWR Surface Water Classification for Water Body	Primary Classification:		
	Supplemental Classification:		
Other Stream Classification:			
Impairments:			
Aquatic T&E Species?	Comments:		
NRTR Stream ID:		Buffer Rules in Effect:	
Project Includes Bridge Spanning Water Body?		Deck Drains Discharge Over Buffer?	
Deck Drains Discharge Over Water Body?		Dissipator Pads Provided in Buffer?	
(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)	

Surface Water Body (5):		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?	
Deck Drains Discharge Over Water Body?		Dissipator Pads Provided in Buffer?	
(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)	



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* Refer to the NCDOT Best Management Practices Toolbox (2014), NCDOT Standards, the Federal Highway Administration (FHWA) Hydraulic Engineering Circular No. 14 (HEC-14), Third Edition, Hydraulic Design of Energy Dissipators for Culverts and Channels (July 2006), as applicable, for design guidance and criteria.



TIP No.: R-2707D

County(ies): Cleveland

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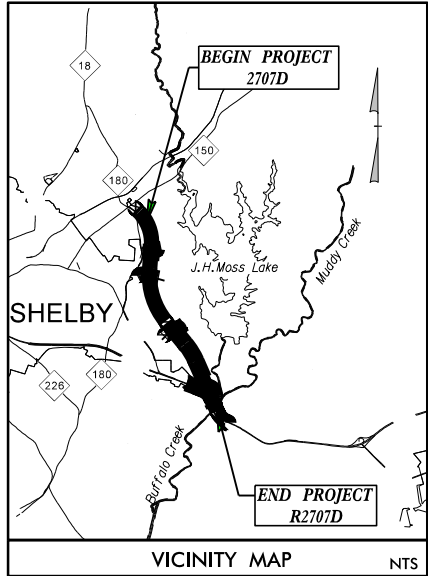
Additional Comments

09/08/99

TIP PROJECT: R-2707D

CONTRACT:

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



65% PLAN SUBMITTAL

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

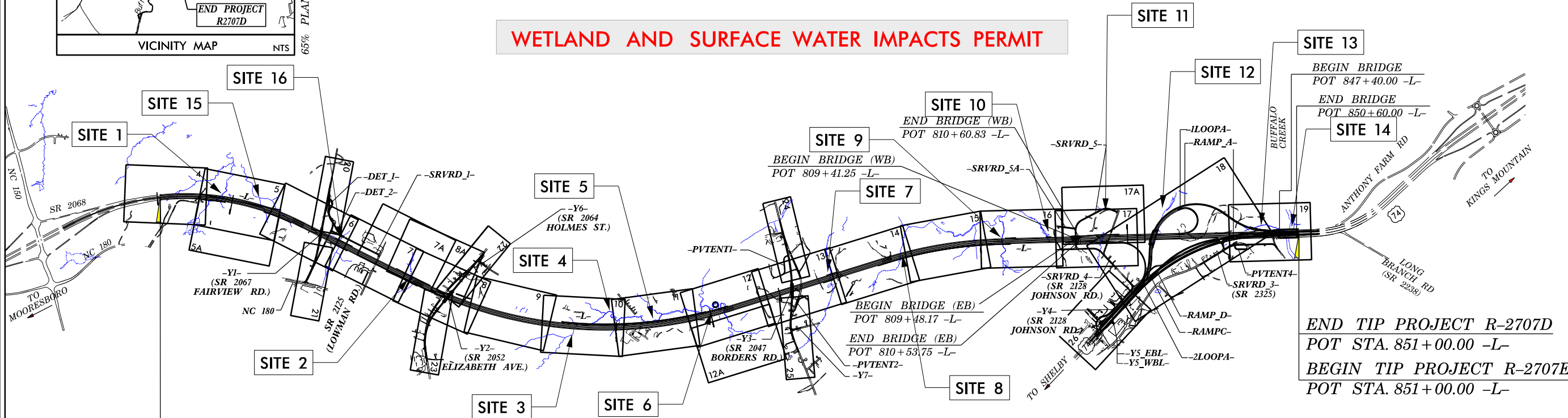
PERMIT DRAWING
SHEET 1 OF 49

CLEVELAND COUNTY

LOCATION: US 74, SHELBY BYPASS FROM EAST OF NC 150
TO EXISTING US 74, WEST OF SR 2238
(LONG BRANCH ROAD)

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

WETLAND AND SURFACE WATER IMPACTS PERMIT



END TIP PROJECT R-2707C

POC STA. 635+00.00 -L-

BEGIN TIP PROJECT R-2707D

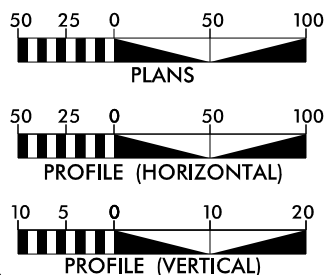
POC STA. 635+00.00 -L-

THIS PROJECT IS NOT WITHIN ANY CITY LIMITS

THIS IS A CONTROLLED ACCESS PROJECT
WITH ACCESS BEING LIMITED TO INTERCHANGES

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

GRAPHIC SCALES



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

PROJECT LENGTH

LENGTH OF ROADWAY TIP PROJECT R-2707D = 4.008 MI.
LENGTH OF STRUCTURE TIP PROJECT R-2707D = 0.083 MI.
TOTAL LENGTH OF TIP PROJECT R-2707D = 4.091 MI.

STRUCTURE LENGTHS BASED ON WB LANES



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. P-0072

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 LINDGREN, P.E.
PROJECT DESIGN ENGINEER

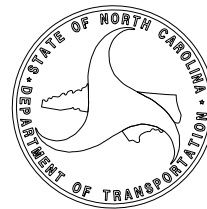
THAD DUNCAN, P.E.
NCDOT DIVISION 12

HYDRAULICS ENGINEER

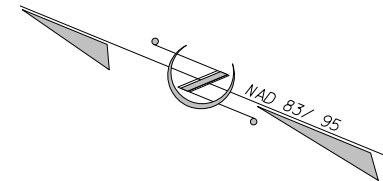
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ROADWAY DESIGN
ENGINEER

SIGNATURE: _____ P.E.



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2707D	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
34497.1.F56	N/A	P.E.	
34497.1.F56	N/A	R/W & UTIL	



END TIP PROJECT R-2707D

POT STA. 851+00.00 -L-

BEGIN TIP PROJECT R-2707E

POT STA. 851+00.00 -L-

INCOMPLETE PLANS

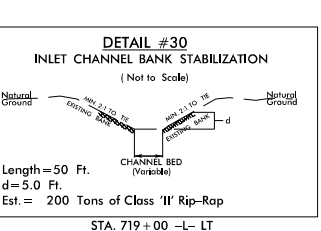
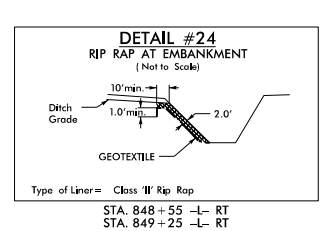
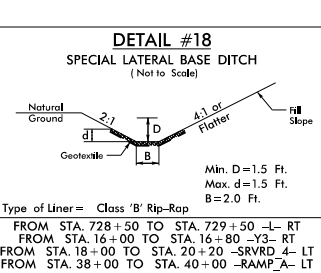
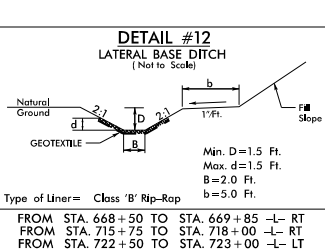
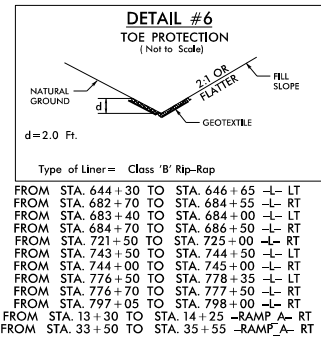
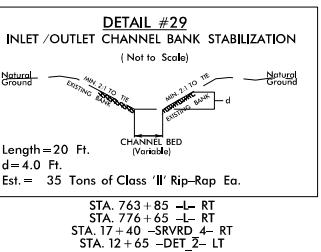
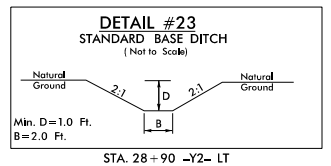
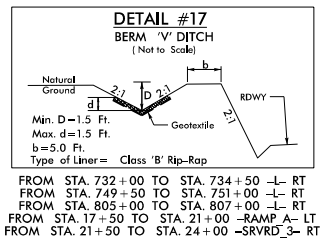
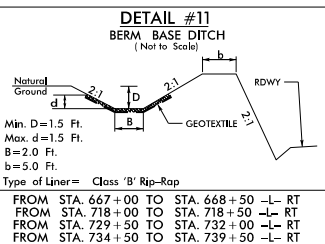
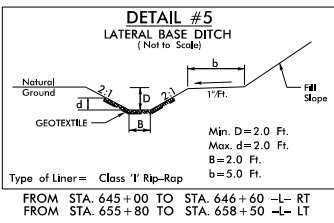
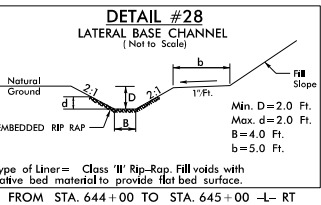
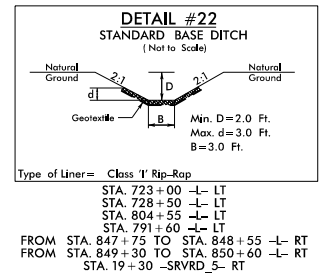
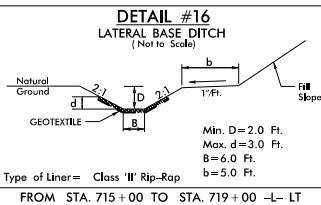
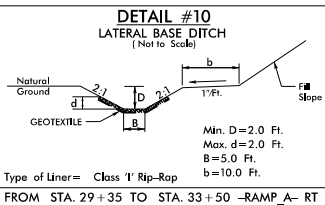
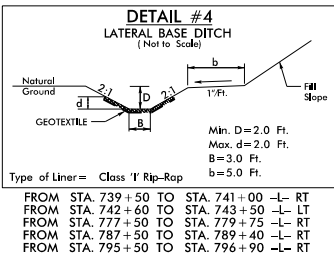
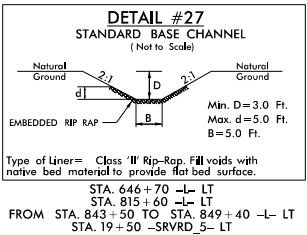
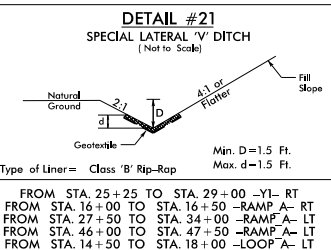
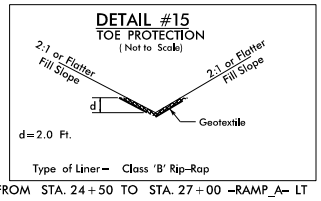
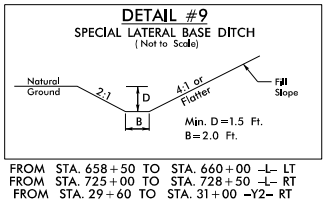
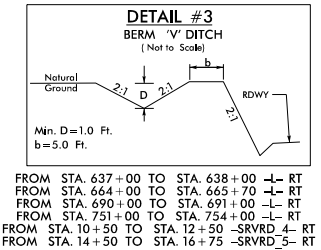
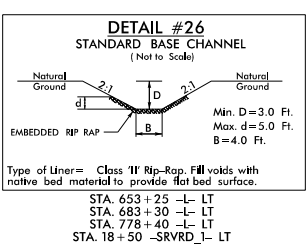
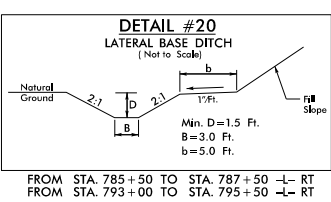
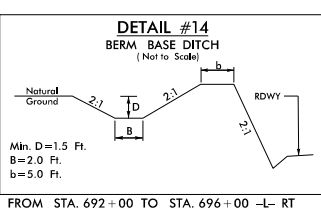
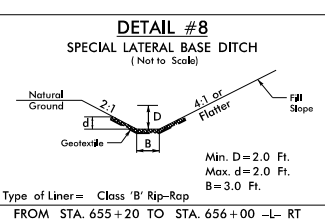
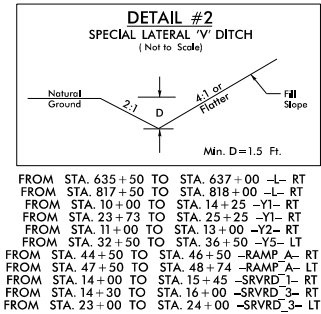
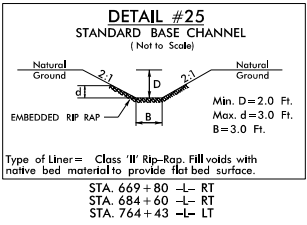
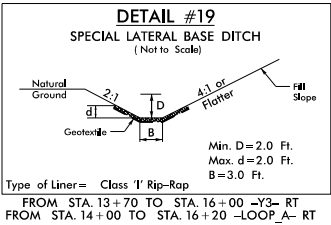
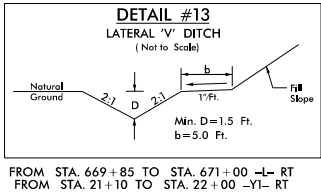
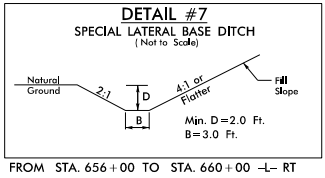
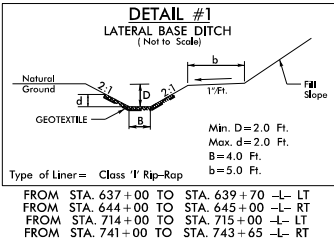
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

7/24/2018
R2707D_Hyd.prm_wet.psh-01.dgn
jharvey

PERMIT DRAWING
SHEET 2 OF 49

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



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

NOT TO SCALE



SIDE 2

PLAN VIEW

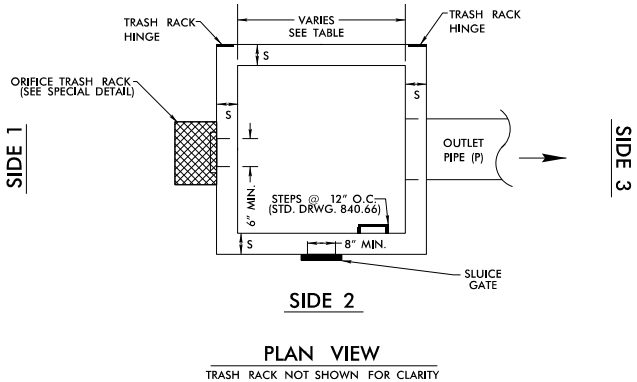
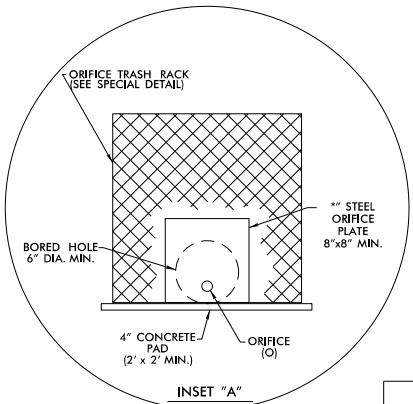
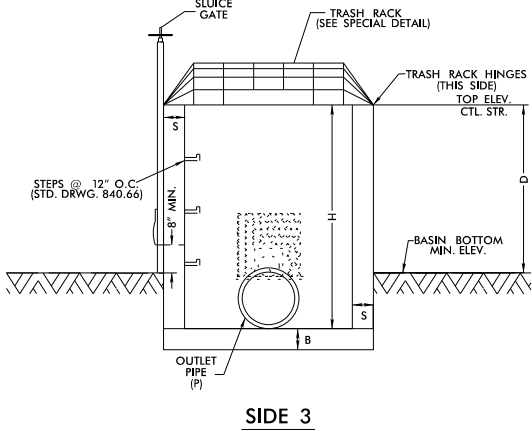
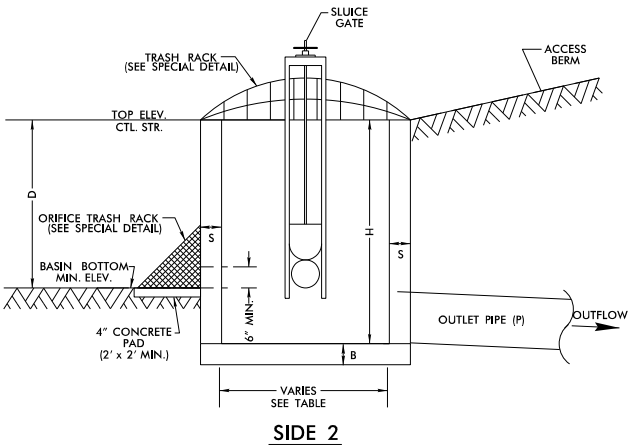
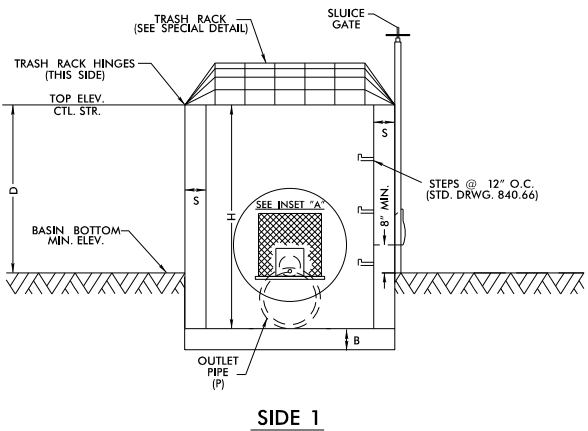
TRASH RACK NOT SHOWN FOR CLARITY

1. THE BASIN SHOULD BE DESIGNED TO HOLD THE HAZARDOUS SPILL VOLUME ABOVE THE WATER QUALITY VOLUME (WQV) ELEVATION.
2. TOP ELEVATION OF CONTROL STRUCTURE (WEIR ELEVATION) SHOULD BE SET AT THE WQV ELEVATION.
3. 15" MINIMUM DIAMETER FOR OUTLET PIPE.
4. 2" MINIMUM DIAMETER ORIFICE. IF ORIFICE IS GREATER THAN 6", A STEEL PLATE IS NOT REQUIRED.
5. NO BEDDING MATERIAL TO BE USED. THEREFORE, DO NOT FOLLOW STANDARD DRAWINGS FOR METHOD OF PIPE INSTALLATION FOR OUTLET PIPE THROUGH EMBANKMENT.
6. 8" MIN. 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.
7. 22" MIN. SLUICE GATE AT THE OUTLET PIPE IS FOR SPILL CONTAINMENT AND SHOULD REMAIN OPEN DURING NORMAL OPERATION.
8. SLUICE GATE SHALL PROVIDE WATERTIGHT SEAL. PROVIDE ADEQUATE CLEARANCE FOR GATE OPERATION AND FOR PROPER SEATING OF GATE OVER PIPE.
9. SELECT BOX STANDARD AS REQUIRED TO ACCOMMODATE SLUICE GATE AND ORIFICE TRASH RACK WIDTH.
10. ENSURE TRASH RACK OPENS FREELY AND WITHOUT INTERFERENCE WITH SLUICE GATES.
11. ADJUST FOOTER DIMENSIONS AS NEEDED FOR ANTI-FLOTATION.
12. 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
641 + 74 -L- LT	0406	6"	18"	854.0	858.0	4.0'	852.0	5.0' X 5.0' X 6.0'	2.5"	854.0	30"
668 + 44 -L- LT	0615	6"	18"	867.0	870.0	3.0'	865.0	5.0' X 5.0' X 5.0'	2.0"	867.0	24"

**PERMIT DRAWING
SHEET 4 OF 49**

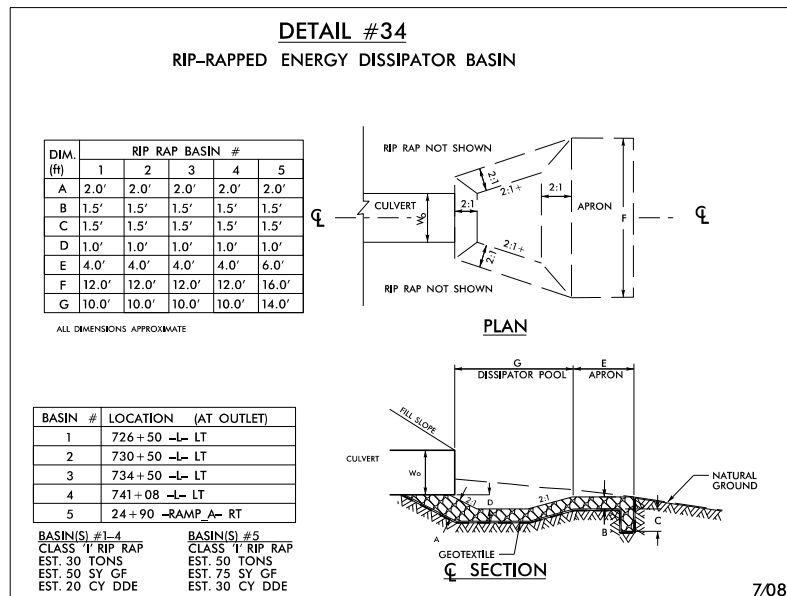
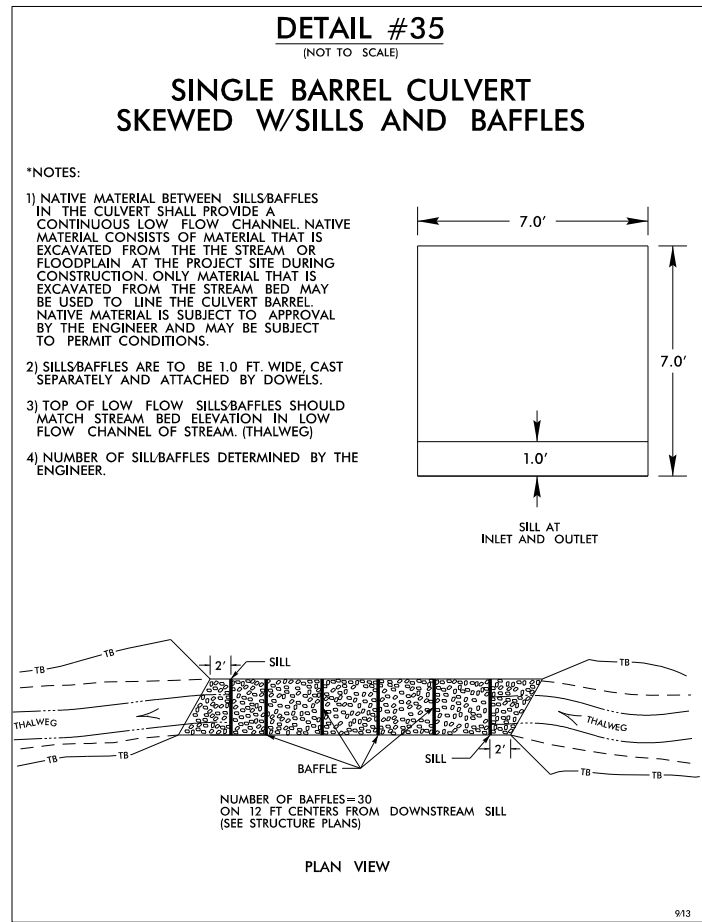
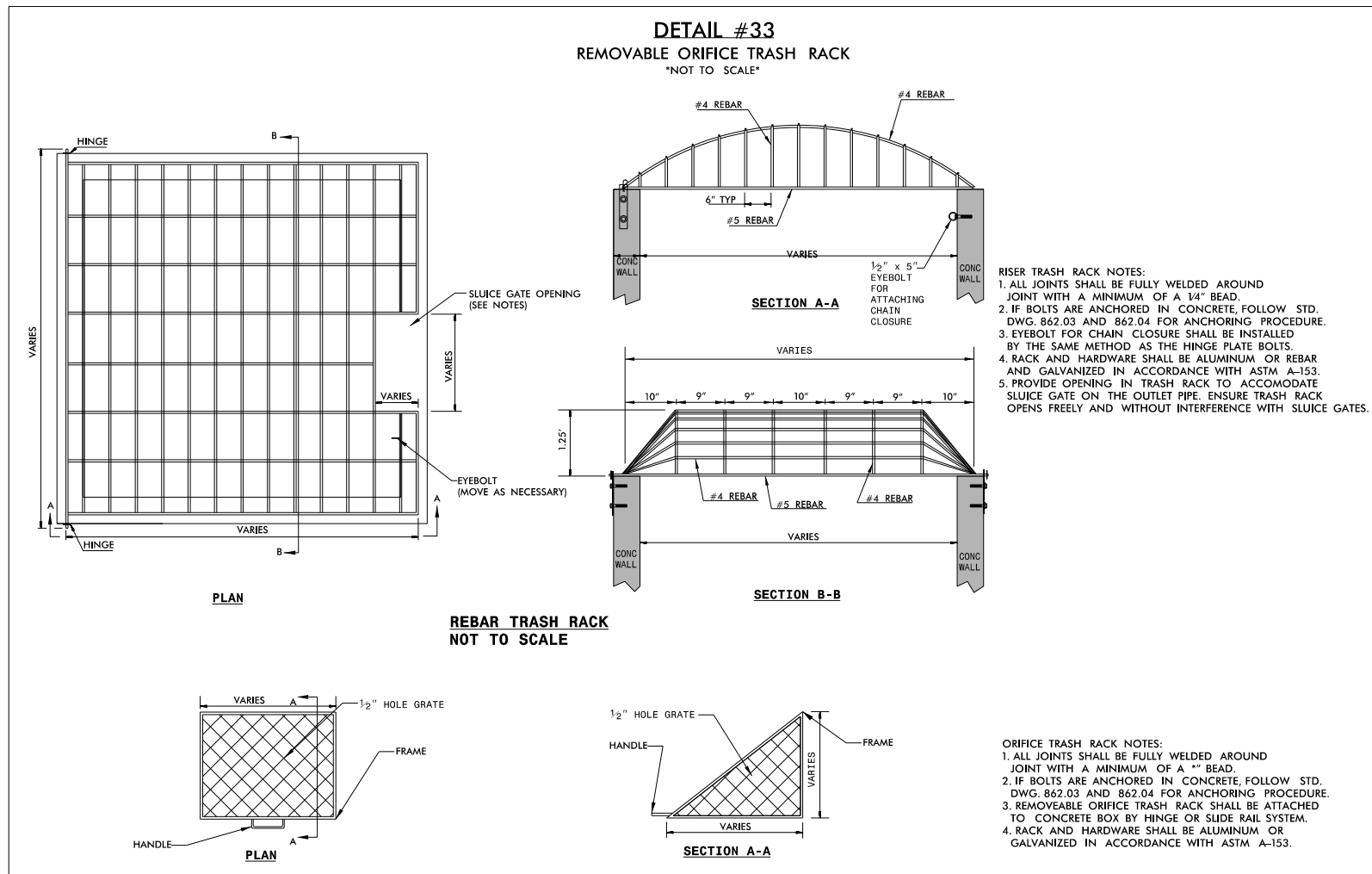
DETAIL #32
DRY DETENTION BASIN DRAWDOWN STRUCTURE
 NOT TO SCALE



- 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. 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-FLOATION.
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
780+44 -L- RT	1511	6"	18"	726.0	730.0	4.0'	724.0	5.0' X 5.0' X 6.0'	2.5"	726.0	30"
813+94 -L- LT	1728	6"	18"	714.0	719.0	5.0'	712.0	5.0' X 5.0' X 7.0'	3.0"	714.0	36"

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	2D-4
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER



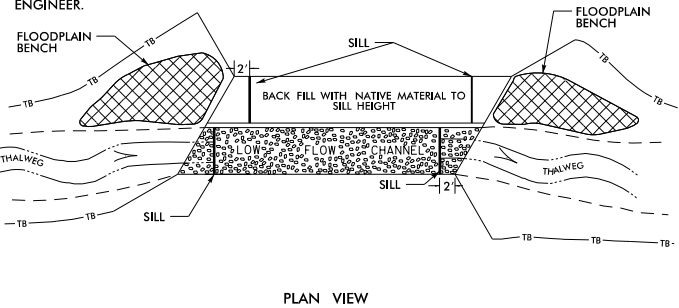
PERMIT DRAWING
SHEET 6 OF 49

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	2D-5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

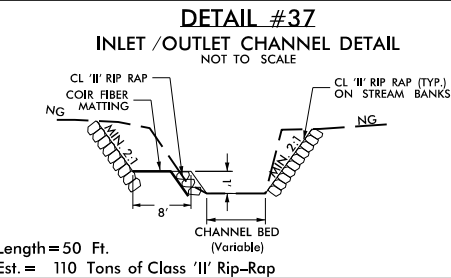
DETAIL #36
(NOT TO SCALE)
SKEWED MULTI-BARREL CULVERT
LOW FLOW CHANNEL,SILLS
AND FLOOD PLAIN

*NOTES:

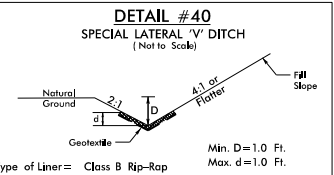
- 1) NATIVE MATERIAL BETWEEN SILLS/BAFFLES IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE THE STREAM OR FLOODPLAIN AT THE PROJECT SITE DURING CONSTRUCTION. ONLY MATERIAL THAT IS EXCAVATED FROM THE STREAM BED MAY BE USED TO LINE THE LOW FLOW CULVERT. BARREL RIP-RAP MAY BE USED TO SUPPLEMENT THE NATIVE MATERIAL IN THE HIGH FLOW CULVERT BARREL(S). IF RIP-RAP IS USED TO LINE THE HIGH FLOW CULVERT BARREL(S), NATIVE MATERIAL SHOULD BE PLACED ON TOP TO FILL VOIDS AND PROVIDE A FLAT SURFACE FOR ANIMAL PASSAGE. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT CONDITIONS.
- 2) SILLS/BAFFLES ARE TO BE 1.0 FT. WIDE, CAST SEPARATELY AND ATTACHED BY DOWELS.
- 3) TOP OF LOW FLOW SILLS/BAFFLES SHOULD MATCH STREAM BED ELEVATION IN LOW FLOW CHANNEL OF STREAM. (THALWEG)
- 4) DO NOT SET ELEVATION OF HIGH SILLS/BAFFLES ABOVE BANK FULL.
- 5) NUMBER OF SILLS/BAFFLES DETERMINED BY THE ENGINEER.



2@7' X 7' RCBC AT STA. 743+19 -L-



STA. 742+50 -L- LT
STA. 743+50 -L- RT

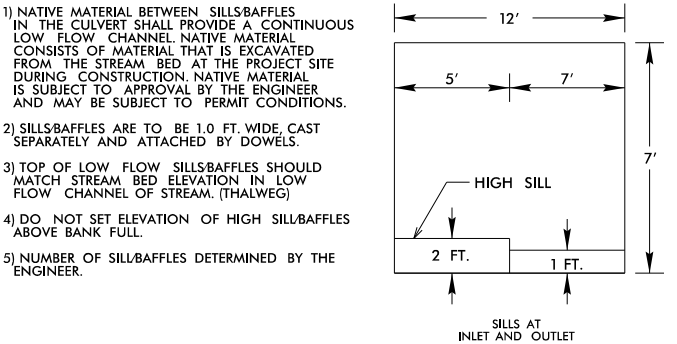


FROM STA. 10+00 TO STA. 12+75 -Y1- LT
FROM STA. 20+00 TO STA. 23+00 -SRVRD 1- LT
FROM STA. 18+50 TO STA. 20+20 -SRVRD 4- RT

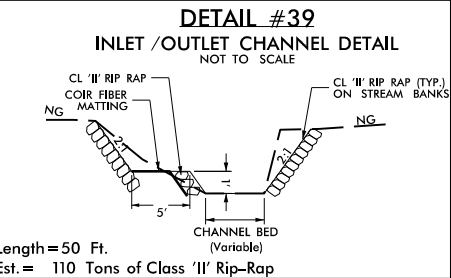
DETAIL #38
(NOT TO SCALE)
SINGLE BARREL CULVERT
LOW FLOW
CHANNEL AND SILLS

*NOTES:

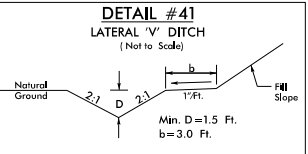
- 1) NATIVE MATERIAL BETWEEN SILLS/BAFFLES IN THE CULVERT SHALL PROVIDE A CONTINUOUS LOW FLOW CHANNEL. NATIVE MATERIAL CONSISTS OF MATERIAL THAT IS EXCAVATED FROM THE STREAM BED AT THE PROJECT SITE DURING CONSTRUCTION. NATIVE MATERIAL IS SUBJECT TO APPROVAL BY THE ENGINEER AND MAY BE SUBJECT TO PERMIT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



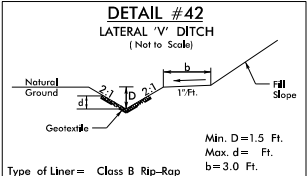
1@12' X 6' RCBC AT STA. 796+86 -L-



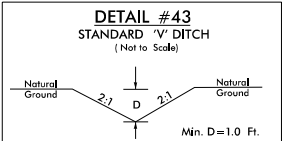
STA. 796+75 -L- LT
STA. 796+95 -L- RT



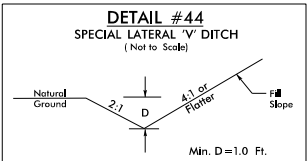
FROM STA. 15+00 TO STA. 17+00 -Y1- RT
FROM STA. 16+00 TO STA. 19+00 -Y2- RT



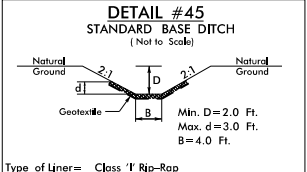
FROM STA. 17+00 TO STA. 18+50 -Y1- RT
FROM STA. 23+00 TO STA. 25+20 -SRVRD 1- LT
FROM STA. 21+35 TO STA. 22+50 -Y2- LT



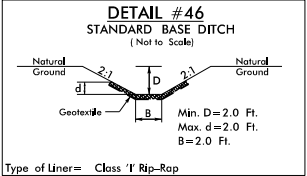
STA. 16+70 -Y1- LT



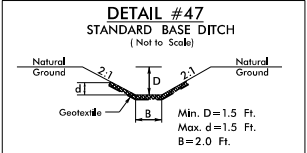
FROM STA. 26+60 TO STA. 29+25 -Y2- RT
FROM STA. 26+60 TO STA. 29+00 -Y2- LT
FROM STA. 28+00 TO STA. 30+00 -Y3- LT
FROM STA. 28+00 TO STA. 32+00 -Y3- RT
FROM STA. 9+90 TO STA. 13+00 -Y4- RT
FROM STA. 20+00 TO STA. 21+00 -SRVRD 1- RT
FROM STA. 10+00 TO STA. 12+00 -DET 1- LT
FROM STA. 11+50 TO STA. 13+70 -DET 1- RT



STA. 640+50 -L- LT

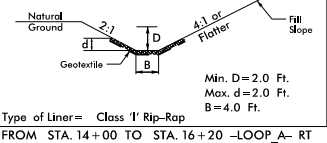


STA. 641+00 -L- LT



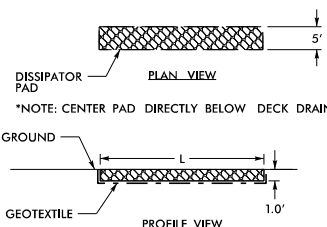
STA. 16+80 -Y3- LT
STA. 18+00 -SRVRD 4- LT
STA. 10+60 -SRVRD 5A- RT

DETAIL #48
SPECIAL LATERAL BASE DITCH
(Not to Scale)



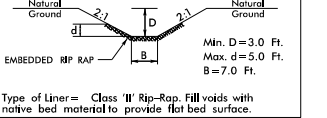
FROM STA. 14+00 TO STA. 16+20 -LOOP A- RT

DETAIL #49
DECK DRAIN DISSIPATOR PAD
(Not to Scale)

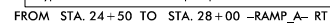
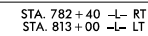
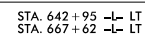


FROM STA. 847+60 TO STA. 848+45 -L- LT
FROM STA. 847+60 TO STA. 848+45 -L- RT
FROM STA. 847+97 TO STA. 848+33 -L- MED LT
FROM STA. 847+97 TO STA. 848+33 -L- MED RT
FROM STA. 850+11 TO STA. 850+37 -L- MED LT
FROM STA. 850+11 TO STA. 850+37 -L- MED RT
FROM STA. 850+11 TO STA. 850+37 -L- LT
FROM STA. 850+11 TO STA. 850+37 -L- RT

DETAIL #50
OUTLET BASE CHANNEL
(Not to Scale)



STA. 719+20 -L- LT

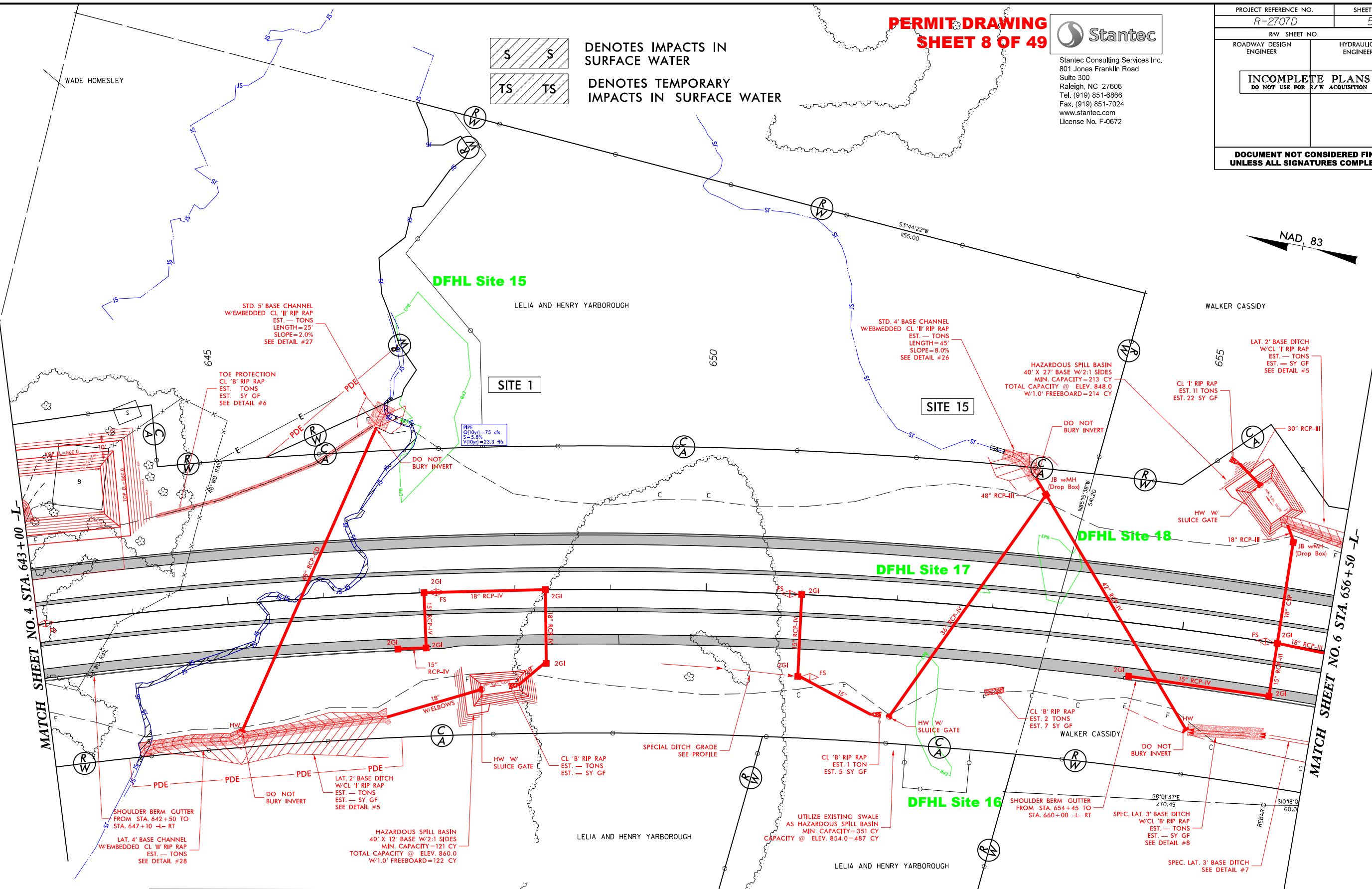


**PERMIT DRAWING
SHEET 8 OF 49**



DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER



MATCH SHEET NO. 5A

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO.27

7/24/2018
 12:27:07_H:\jd_prm_wet_wet.pst.005.dgn
 harveu
 8/17/99

**PERMIT DRAWING
SHEET 9 OF 49**



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DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

NAD 83

DFHL Site 15

LELIA AND HENRY YARBOROUGH

SITE 1

SITE 15

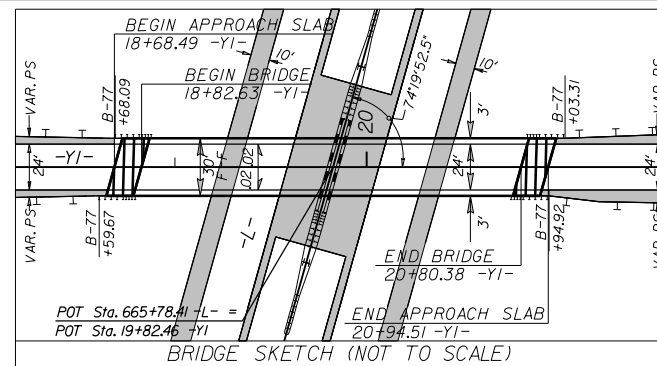
DFHL Site 18

DFHL Site 17

DFHL Site 16

MATCH SHEET NO. 5A

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO.27

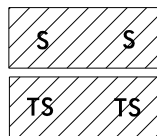
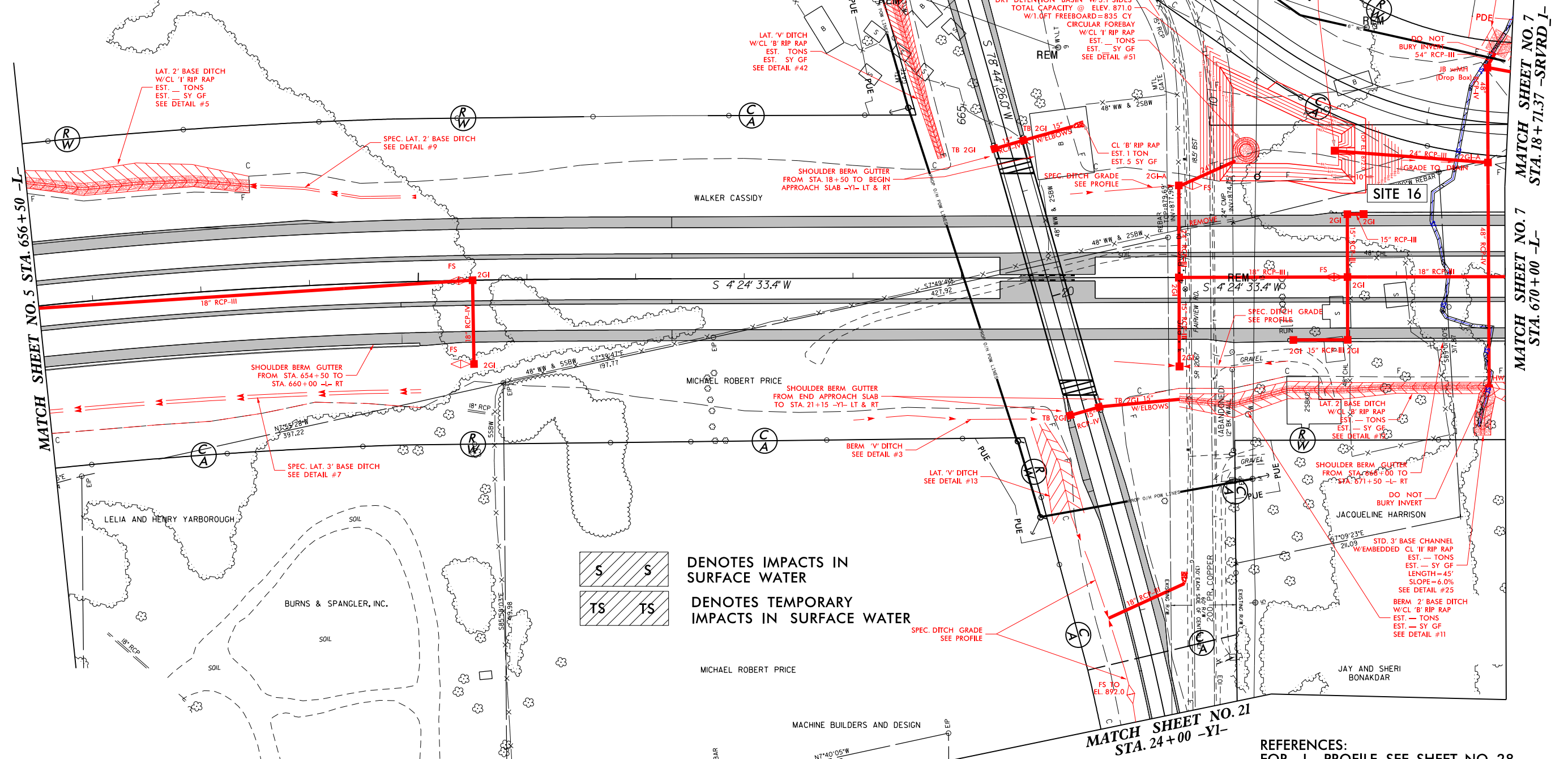


PERMIT DRAWING **SHEET 10 OF 49**

NAD 83



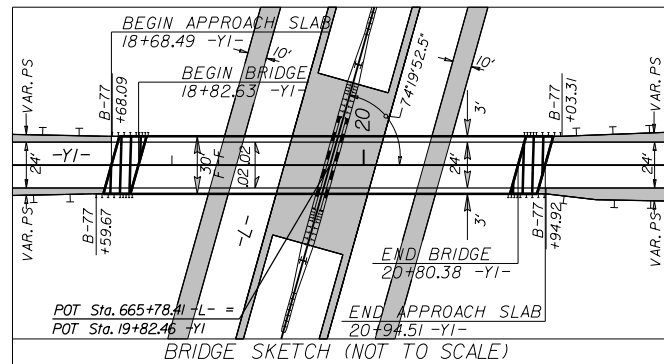
PROJECT REFERENCE NO.	SHEET NO.
R-2707D	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

REFERENCES:
 FOR -L- PROFILE, SEE SHEET NO. 28
 FOR -YI- PROFILE, SEE SHEET NO. 44
 FOR -SRVRD 1- PROFILE, SEE SHEET NO. 50
 FOR -DET 2- PROFILE, SEE SHEET NO. 2B-2

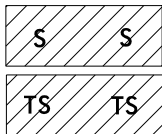
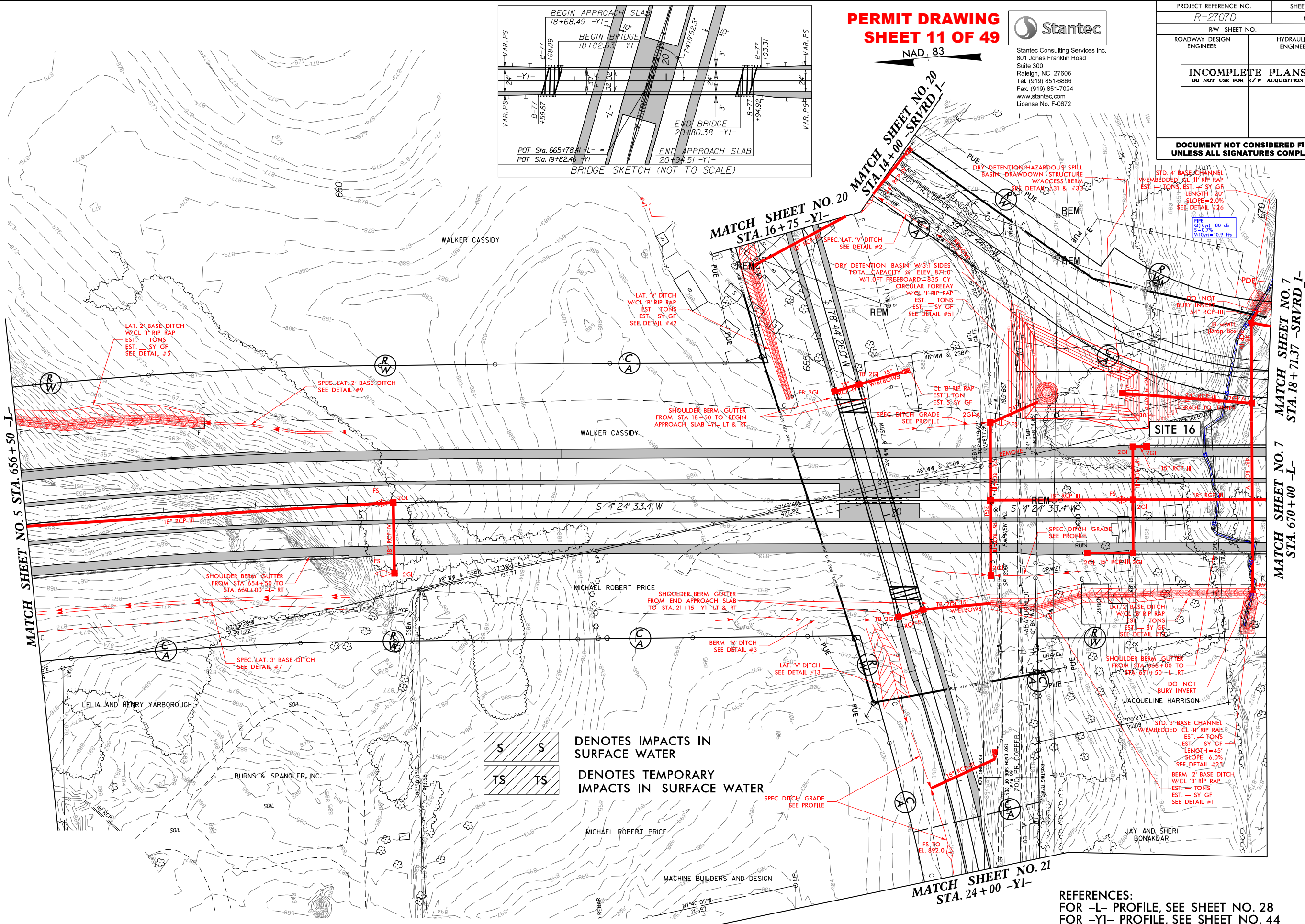


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SHEET 11 OF 49**

NAD 83

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PROJECT REFERENCE NO. <i>R-2707D</i>		SHEET NO. <i>6</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			



Denotes Impacts in Surface Water

Denotes Temporary Impacts in Surface Water

**MATCH SHEET NO. 21
STA. 24+00 -YI-**

REFERENCES:
FOR -L- PROFILE, SEE SHEET NO. 28
FOR -YI- PROFILE, SEE SHEET NO. 44
FOR -SRVRD 1- PROFILE, SEE SHEET NO. 50
FOR -DET 2- PROFILE, SEE SHEET NO. 2B-2

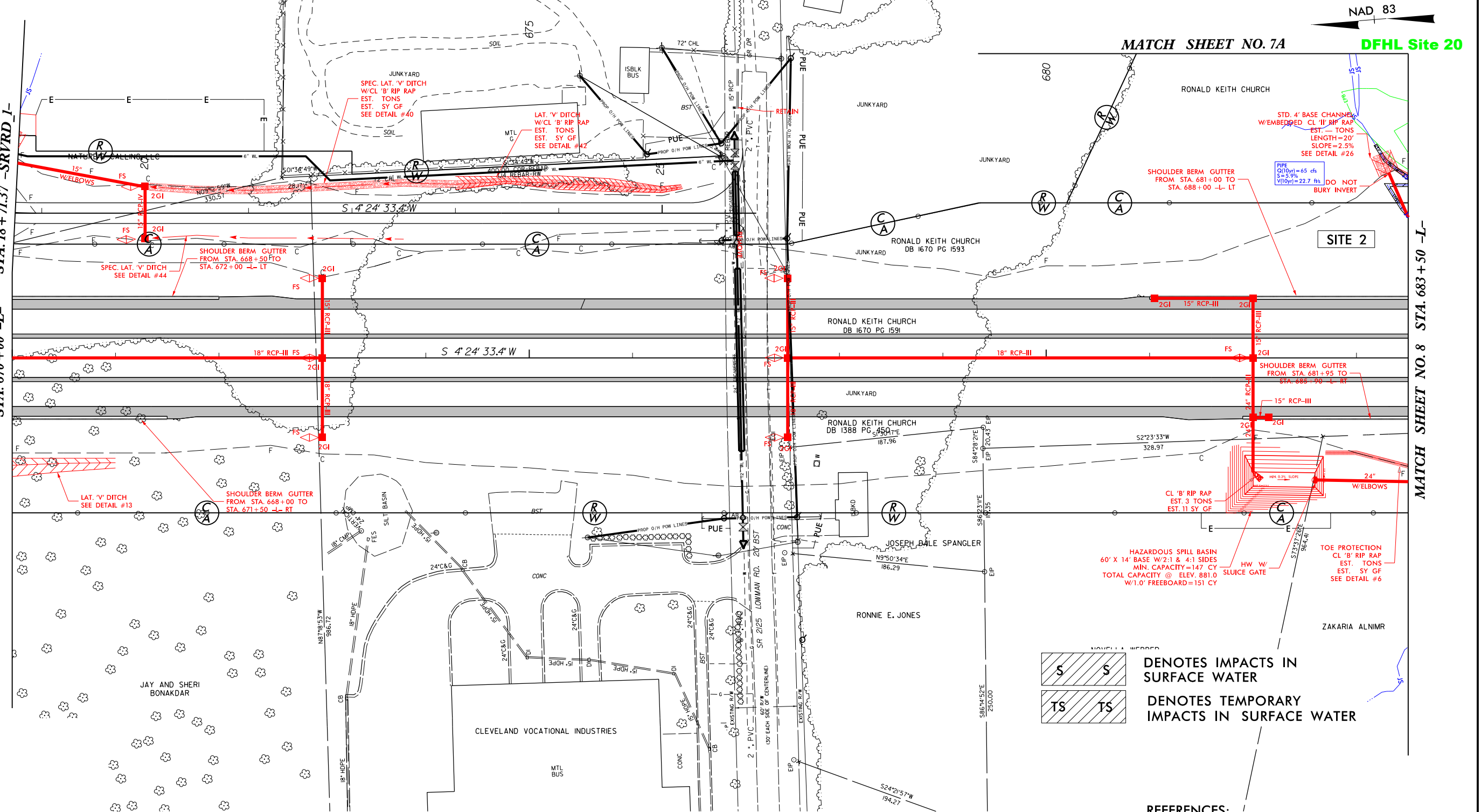
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SHEET 12 OF 49**

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PROJECT REFERENCE NO. <i>R-2707D</i>		SHEET NO. <i>7</i>
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		

MATCH SHEET NO. 6
STA. 18+00 -L-
STA. 670+00 -L-
STA. 18+71.37 -SRVRD_1-



LEGEND

S **TS**
DENOTES IMPACTS IN
SURFACE WATER

TS
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

REFERENCES:
FOR -L- PROFILE, SEE SHEET NO. 28
FOR -SRVRD_1- PROFILE, SEE SHEET NO. 50

7/24/2018
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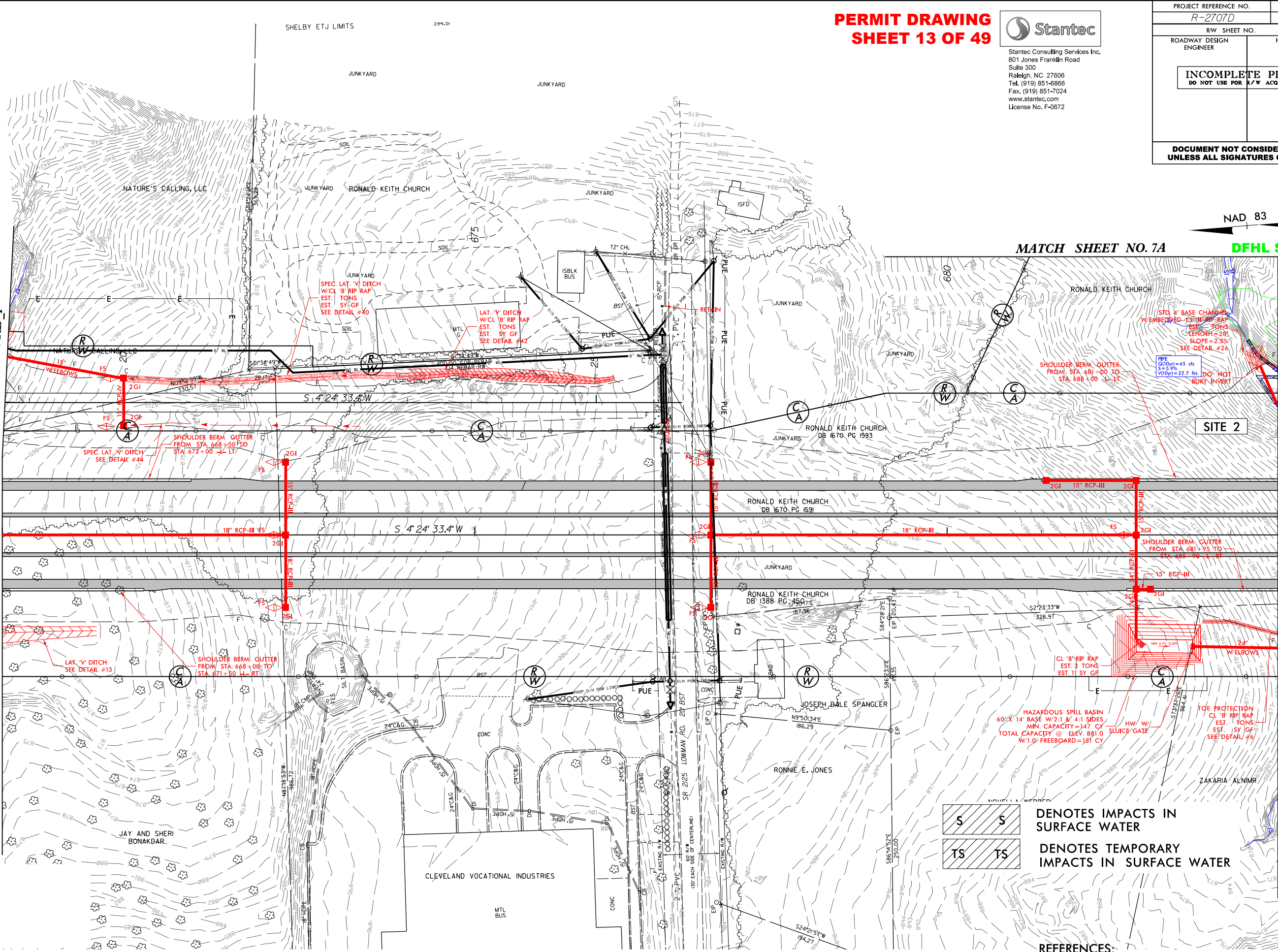
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SHEET 13 OF 49

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	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	

MATCH SHEET NO. 6
STA. 18+71.37 -SRVRD 1-
STA. 670+00 -L-



MATCH SHEET NO. 8
STA. 683+50 -L-

NAD 83
DFHL Site 20

 DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

REFERENCES:
FOR -L- PROFILE, SEE SHEET NO. 28
FOR -SRVRD 1- PROFILE, SEE SHEET NO. 50

1/24/2018
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7/24/2018 R2707D Hyd.prm-wet.psh_08.dgn

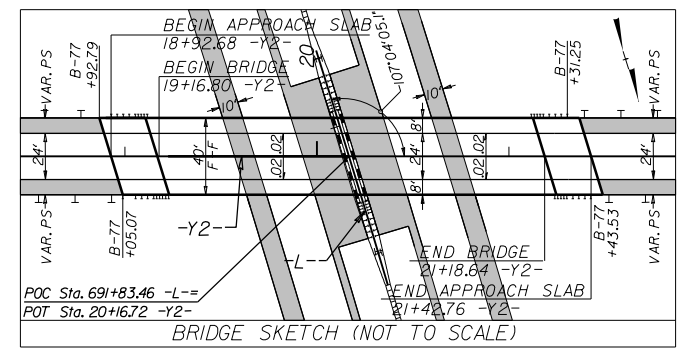
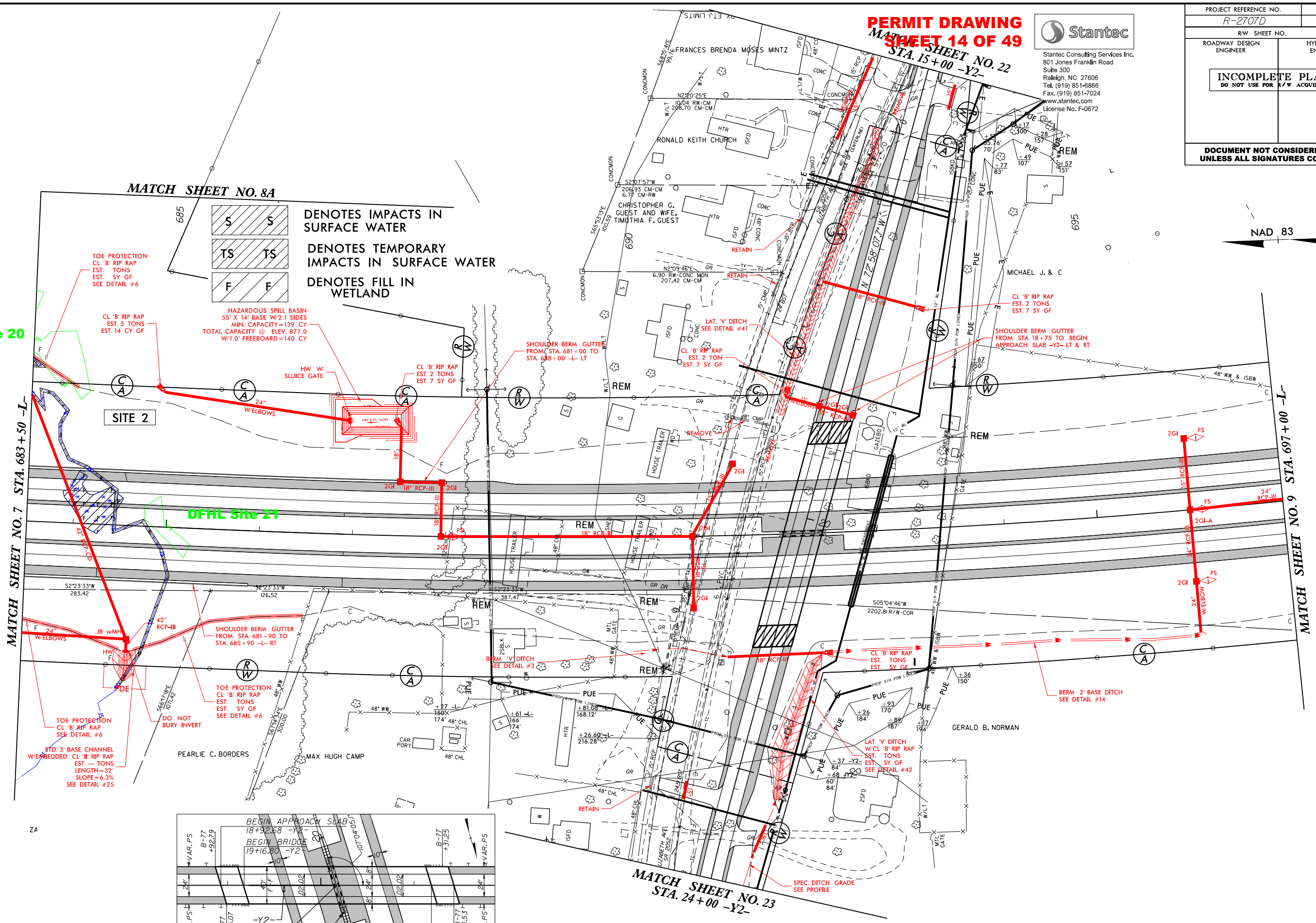
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SHEET 14 OF 49

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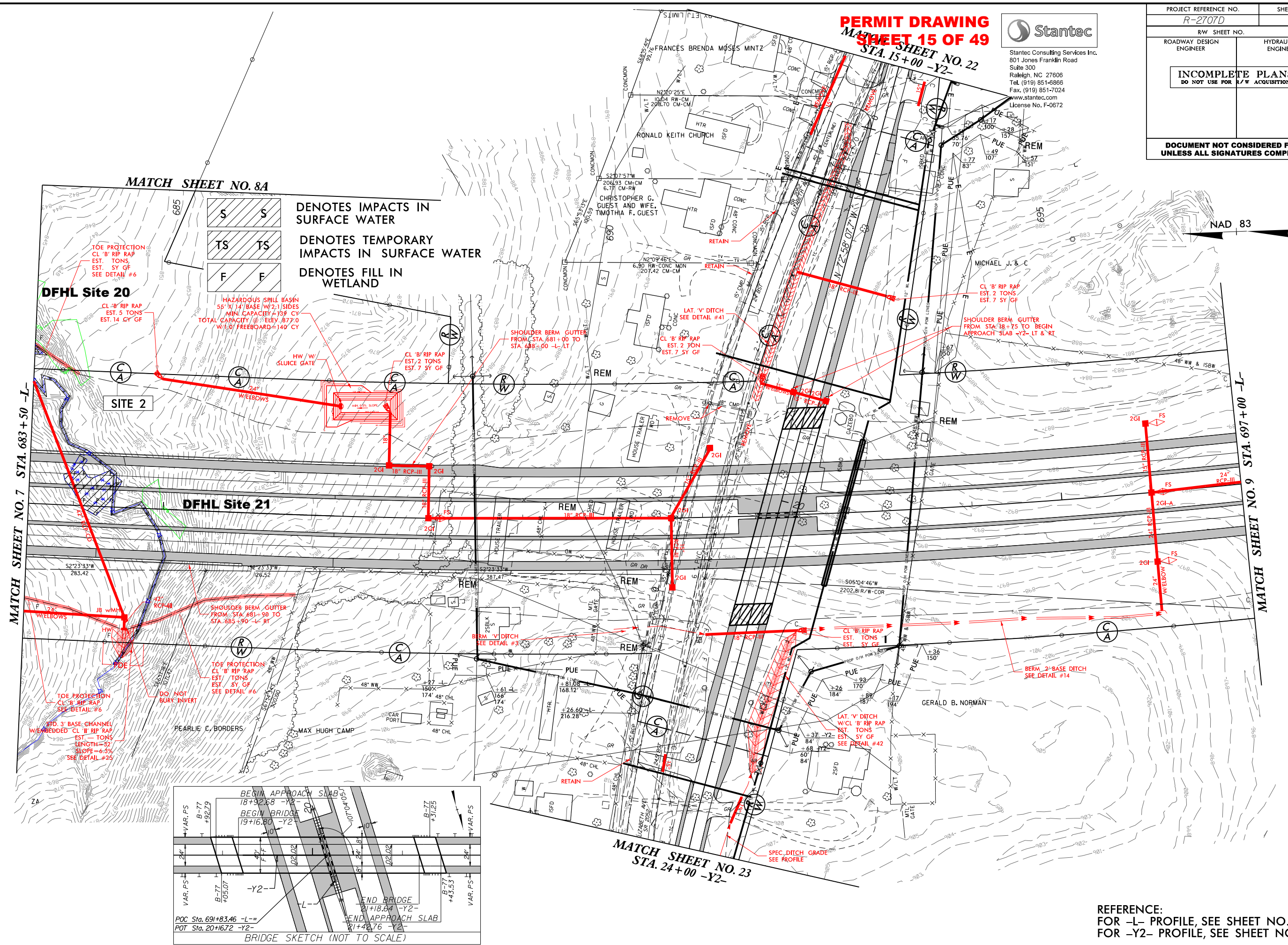
PROJECT REFERENCE NO. <i>R-2707D</i>		SHEET NO. <i>8</i>	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

DFHL Site 20

DFHL Site 21



REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 29
FOR -Y2- PROFILE, SEE SHEET NO. 45



REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 29
FOR -Y2- PROFILE, SEE SHEET NO. 45

6/23/16

290

280

270

260

250

240

230

220

210

200

190

180

170

160

150

140

130

120

110

100

90

80

70

60

50

40

30

20

10

0

10

PERMIT DRAWING
SHEET 16 OF 49



PROJ. REFERENCE NO.
R2707-D

SHEET NO.
X-36

900

890

880

870

860

850

840

830

900

890

880

870

860

850

840

830

684 + 50.00

0.020

5.984:1

6:1

888.78

842.41

SITE 2

900

890

880

870

860

850

840

900

890

880

870

860

850

840

2:1

0.020

6:1

6:1

888.79

851.97

IMPACTS IN
SURFACE WATER

FILL IN WETLAND

WETLAND

WETLAND

684 + 00.00

7/24/2018
R2707D_Hyd.prm.wet.psh_08b.xpl.dgn
jharvey

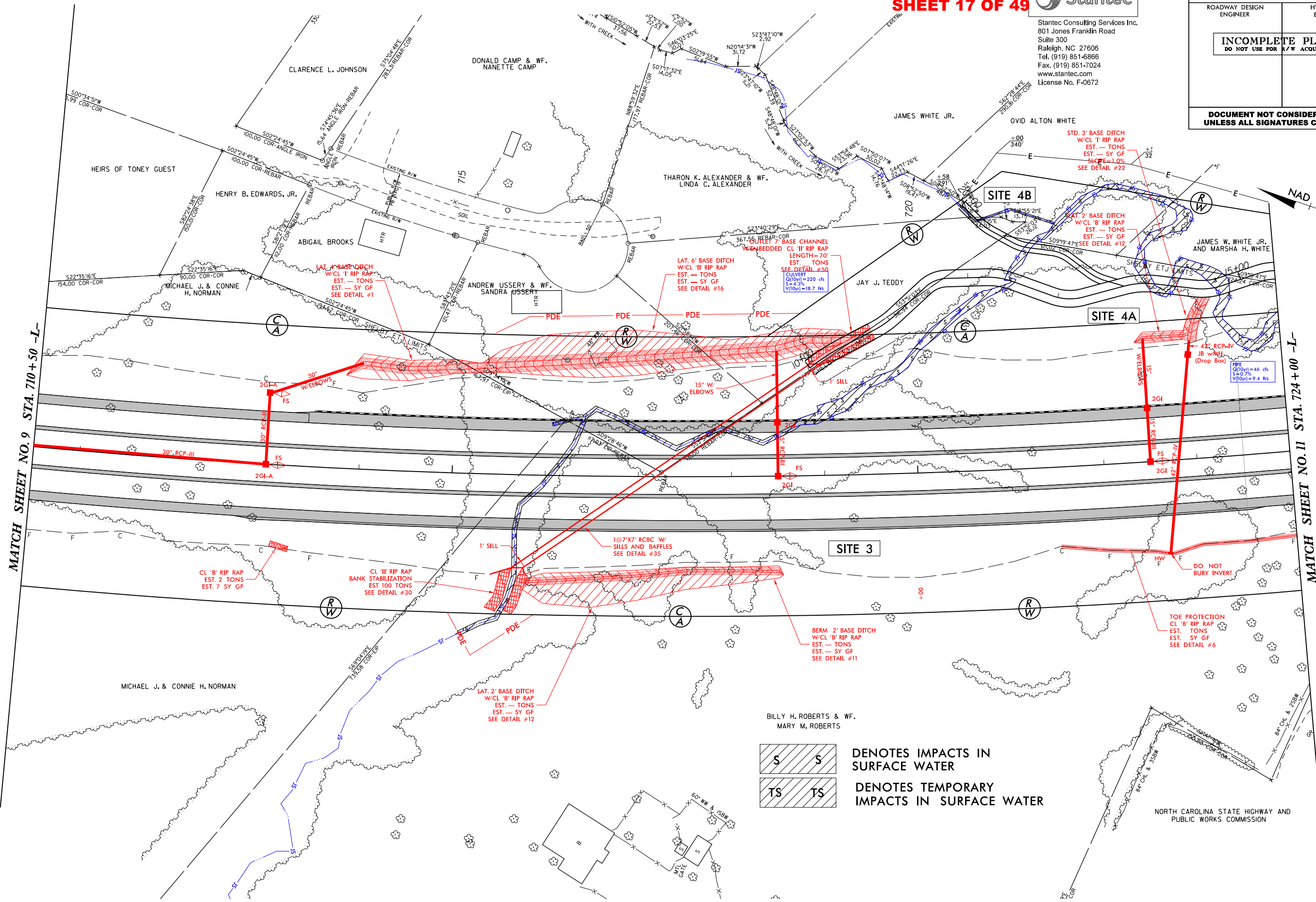
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SHEET 17 OF 49

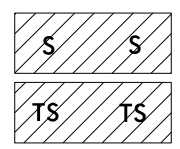


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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



BILLY H. ROBERTS & WF.
MARY M. ROBERTS



DENOTES IMPACTS IN
SURFACE WATER
DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

NORTH CAROLINA STATE HIGHWAY AND
PUBLIC WORKS COMMISSION

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 30

1/24/2018
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bclm

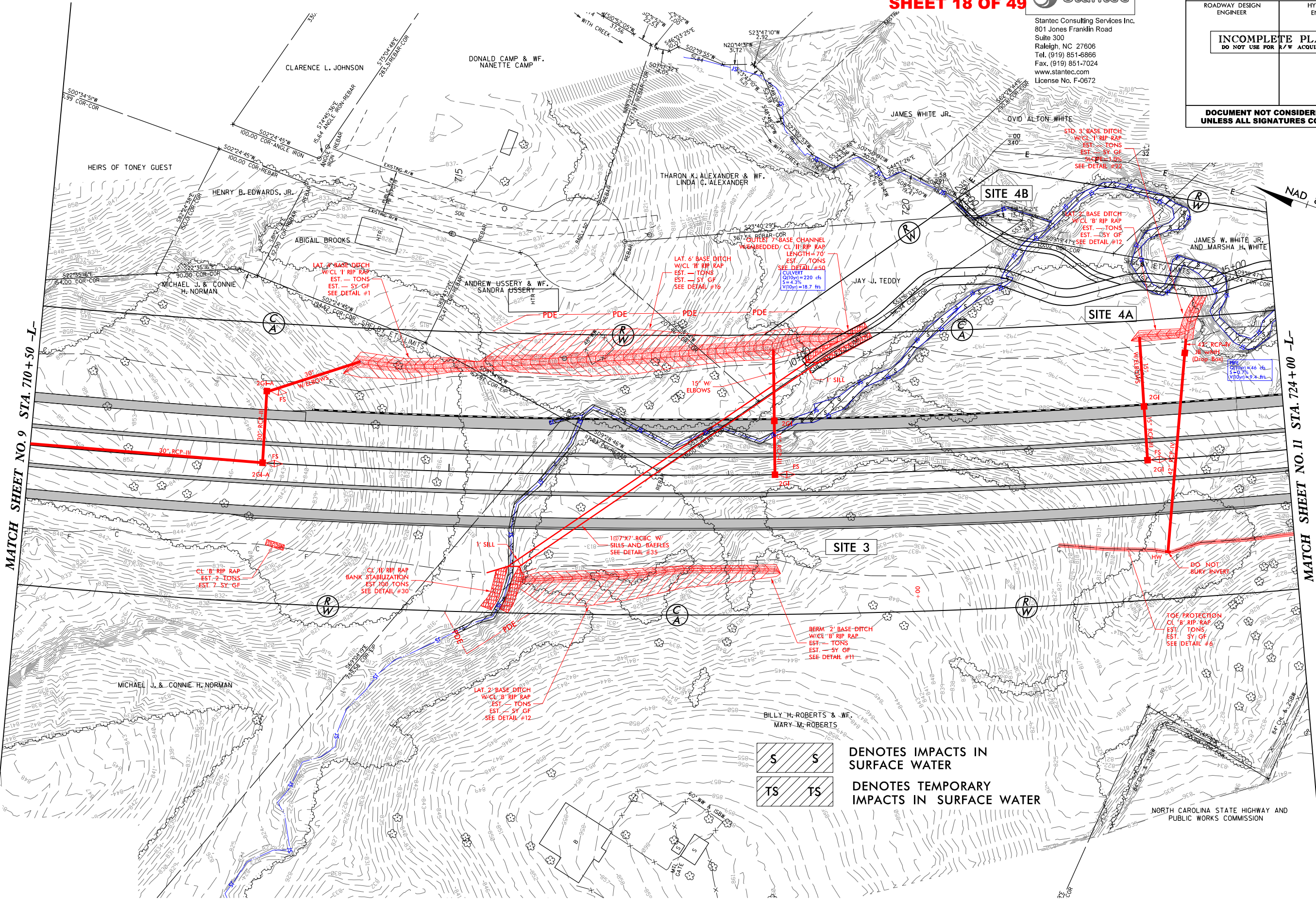
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SHEET 18 OF 49



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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	10
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	

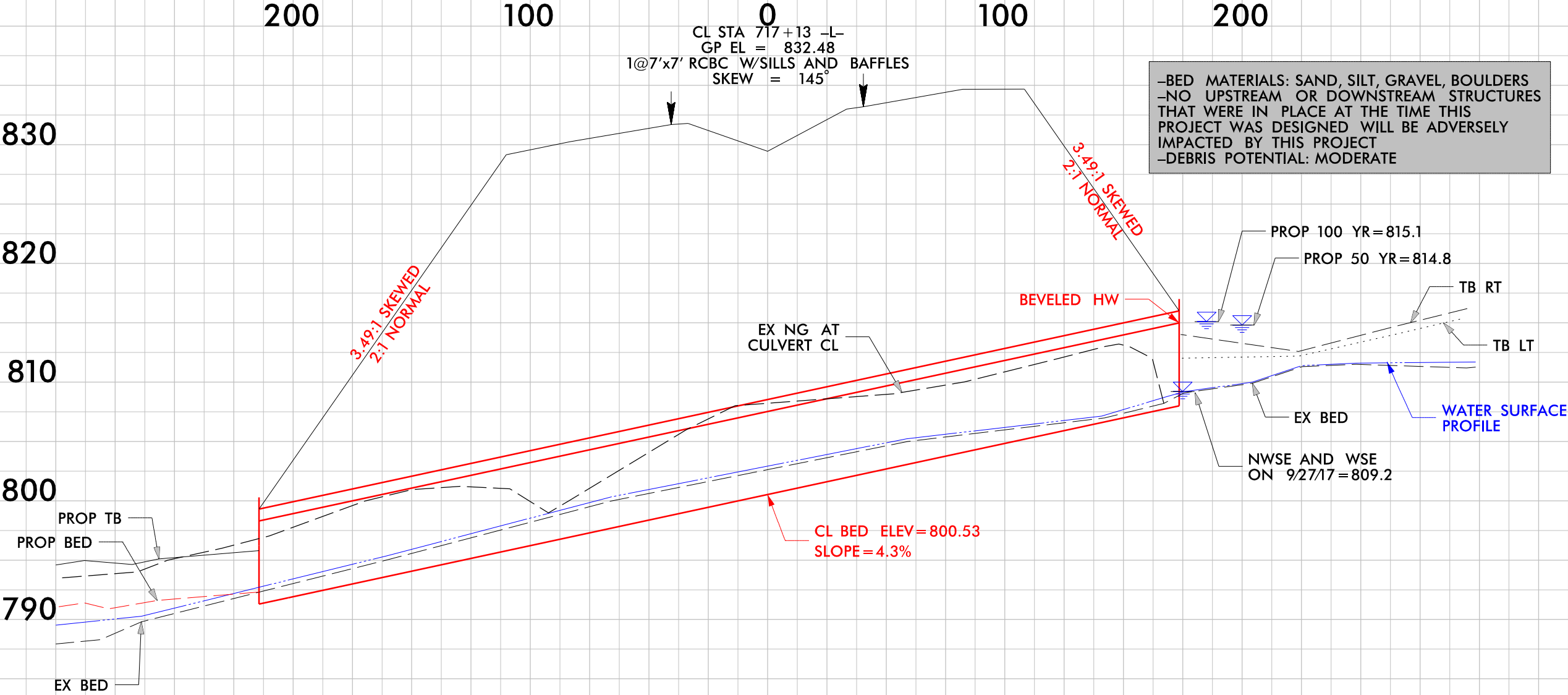


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REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 30

PERMIT DRAWING
SHEET 19 OF 49

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	10B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

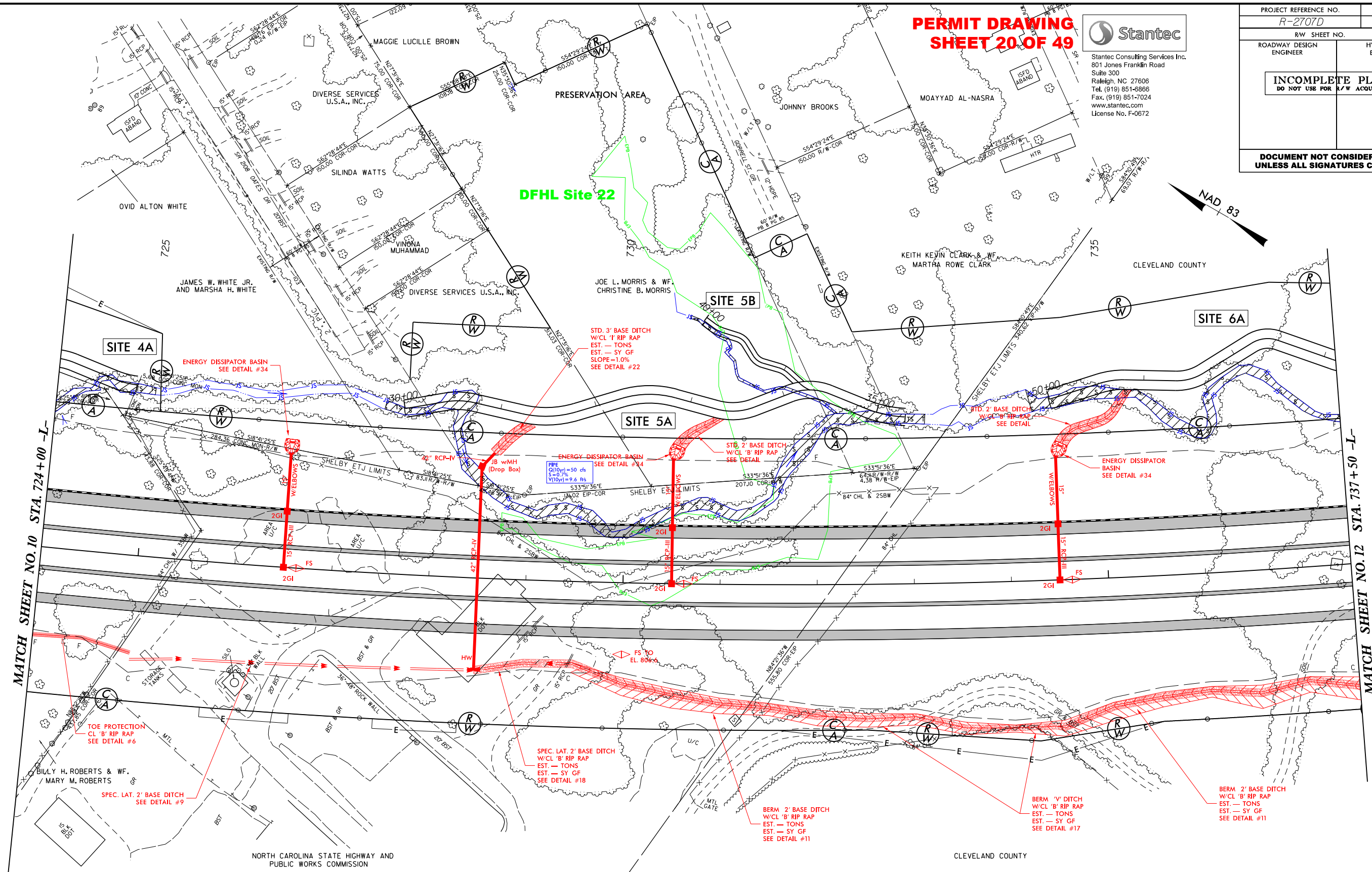


8/17/99

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SHEET 20 OF 49**

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	11
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	



 DENOTES IMPACTS IN SURFACE WATER
 DENOTES TEMPORARY IMPACTS IN SURFACE WATER

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 30

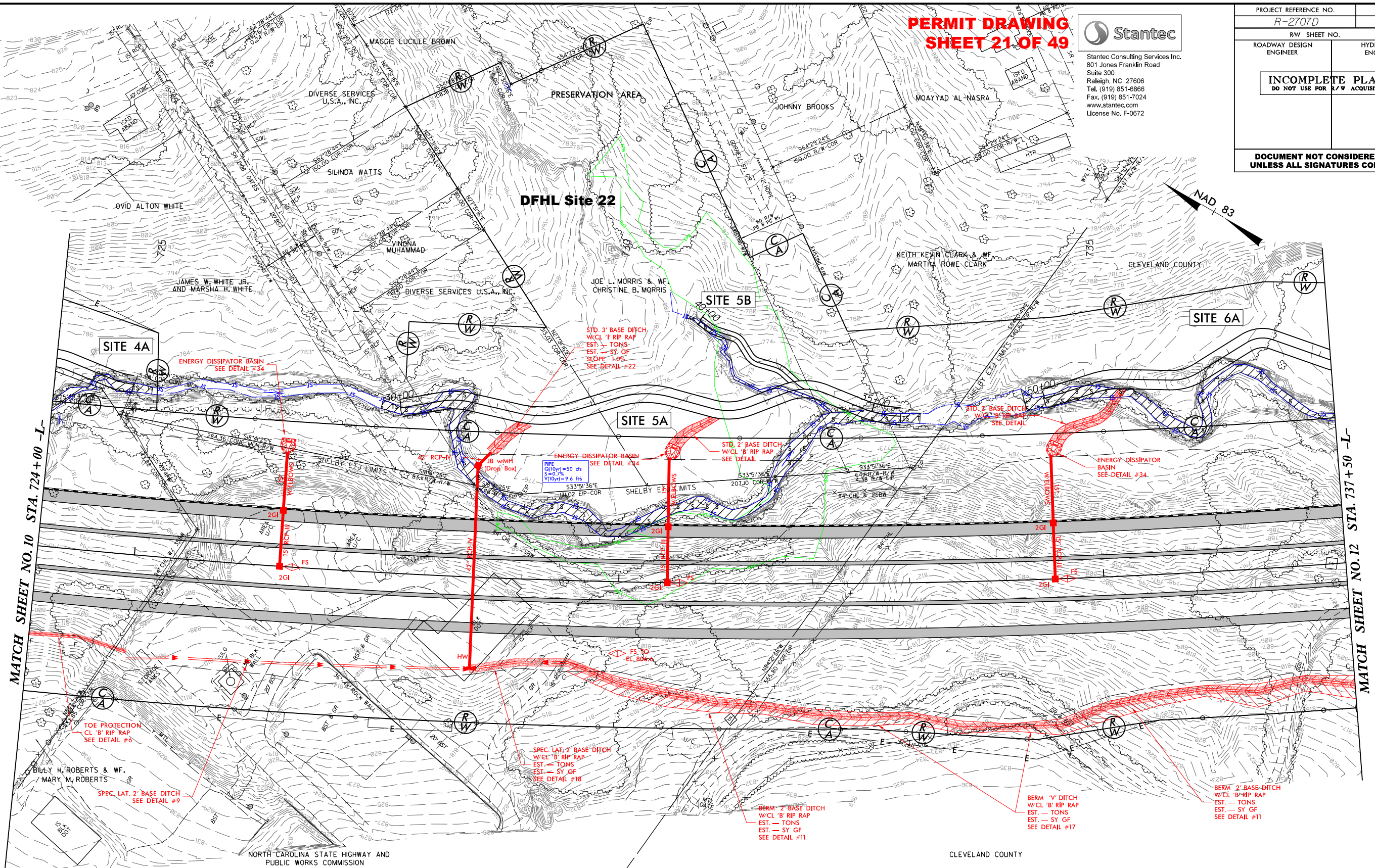
7/24/2018
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8/17/99

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SHEET 21 OF 49**

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License No. F-0672

PROJECT REFERENCE NO. <i>R-2707D</i>		SHEET NO. <i>11</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			



S **S** DENOTES IMPACTS IN SURFACE WATER
TS **TS** DENOTES TEMPORARY IMPACTS IN SURFACE WATER

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 30

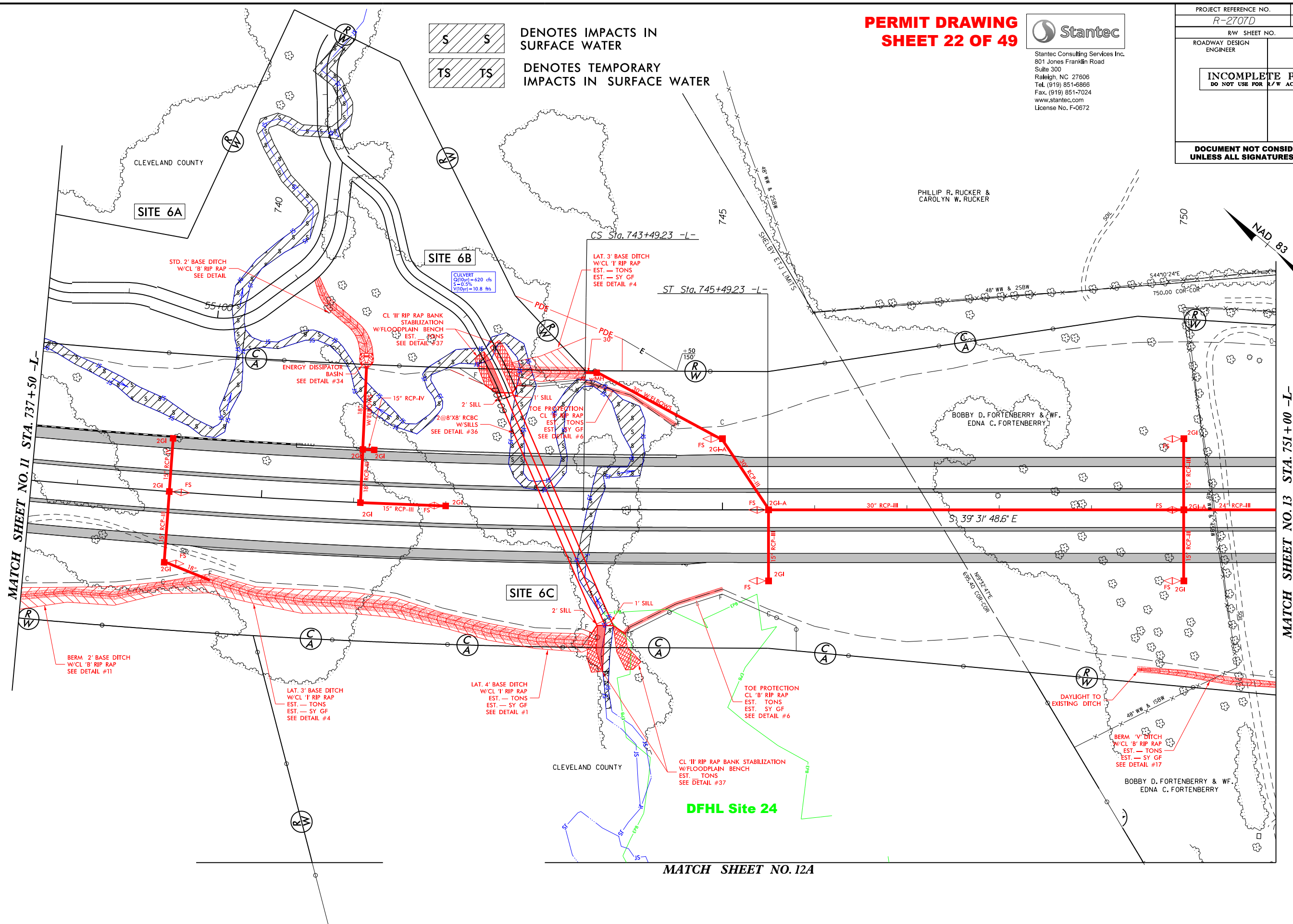
8/17/99

1/24/2018
R2707D_Hyd_prm_wet_psh_12.dgn
bclm

**PERMIT DRAWING
SHEET 22 OF 49**

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PROJECT REFERENCE NO.	SHEET NO.
R-2707D	12
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	

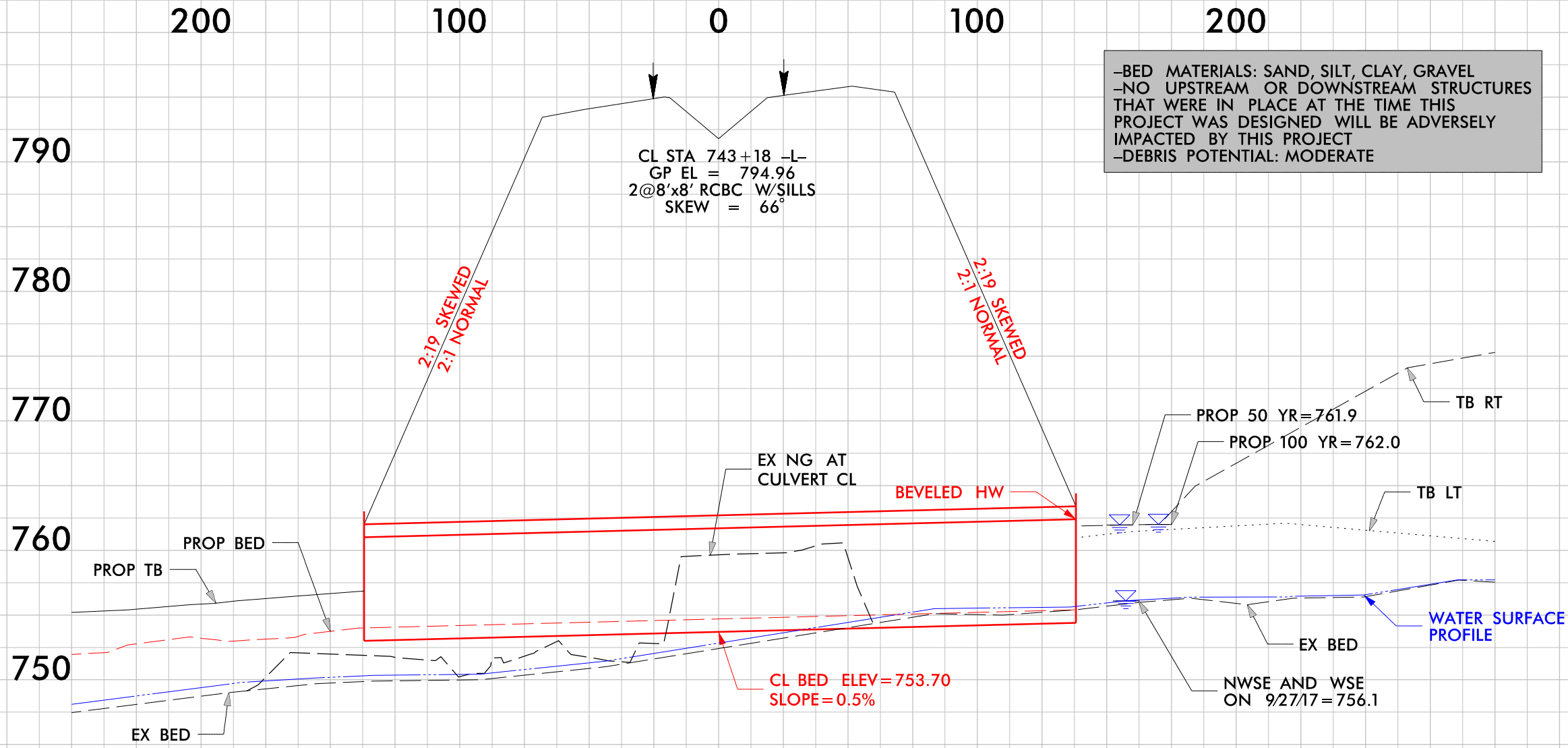


REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 31

5/14/99

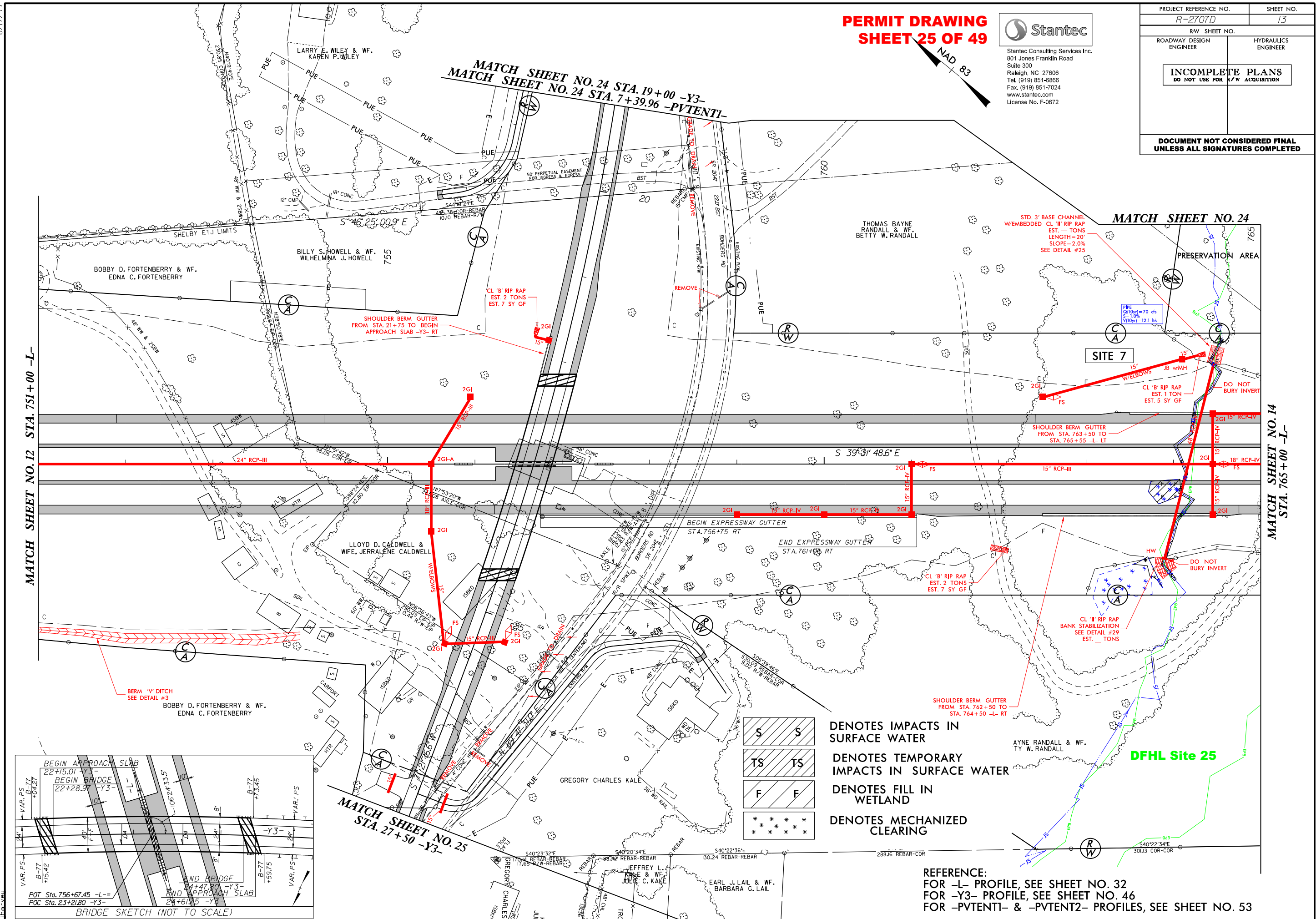
PERMIT DRAWING
SHEET 24 OF 49

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	12B
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



7/24/2018
R-2707D
Hyd.prm_wet_psh_12b.dgn
12b.dgn

NAD 83

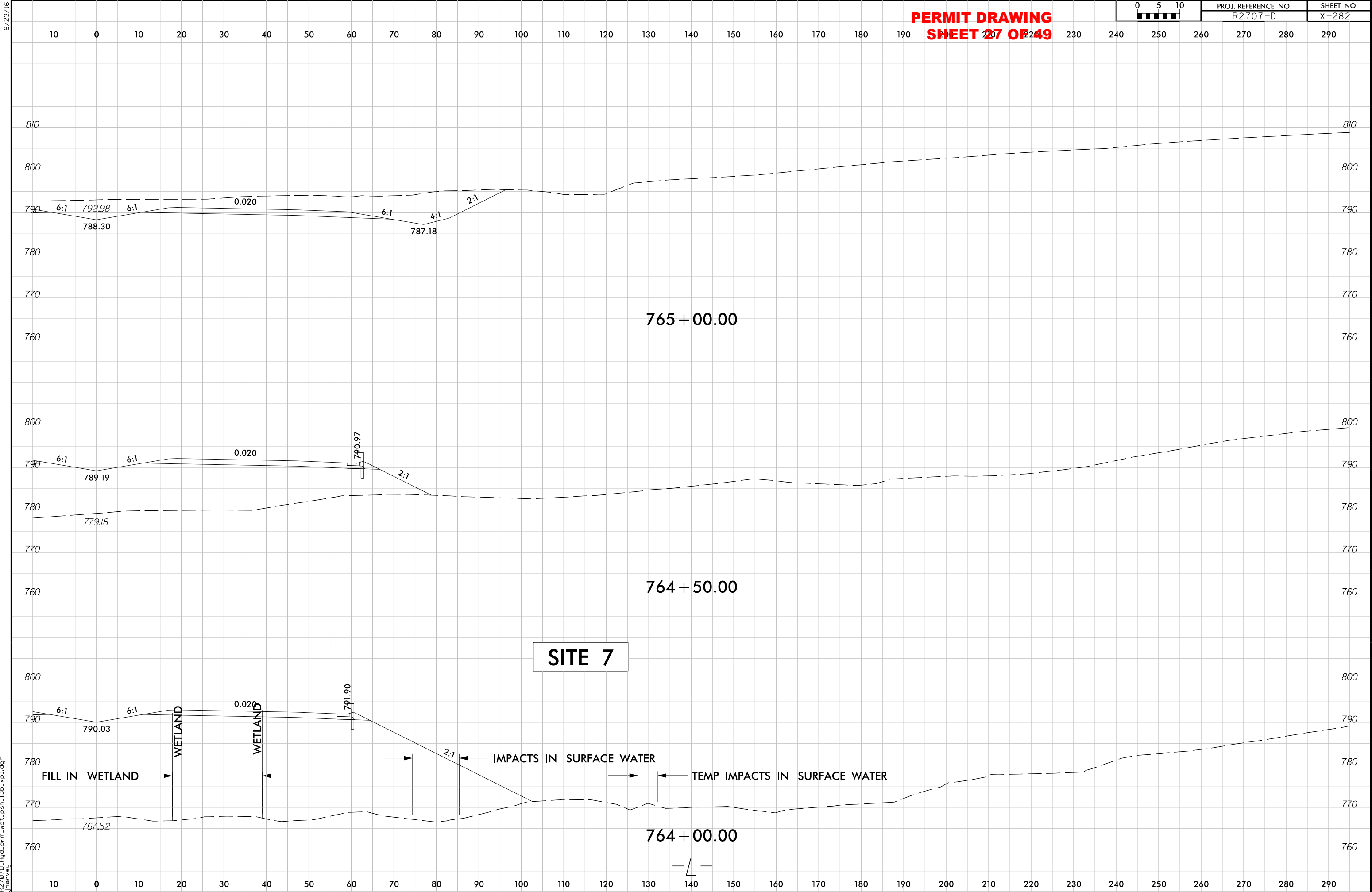


6/23/16

PERMIT DRAWING
SHEET 27 OF 49



PROJ. REFERENCE NO.	SHEET NO.
R2707-D	X-282



7/24/2018
R2707D_Hyd_prm_wet_psh_13b_xpl.dgn
harvey



THOMAS BAYNE RANDALL & WF.
BETTY W. RANDALL

MATCH SHEET NO. 24

MATCH SHEET NO. 13
STA. 765+00 - L-

MATCH SHEET NO. 15
STA. 779+00 -L-

DFHL Site 25**DFHL Site 26**DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

DENOTES FILL IN
WETLAND

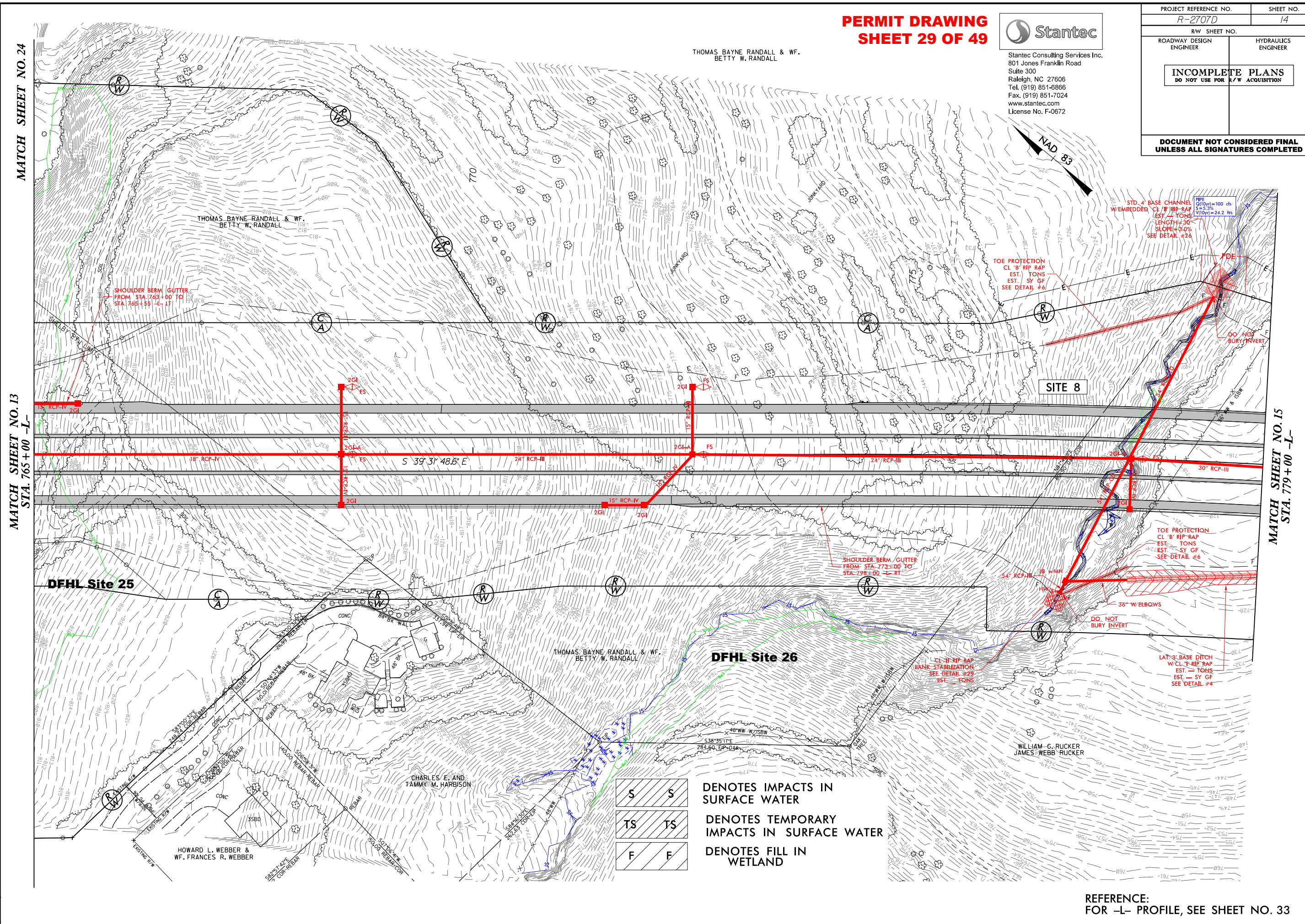
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FOR -L- PROFILE, SEE SHEET NO. 33

7/24/2018
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barreau

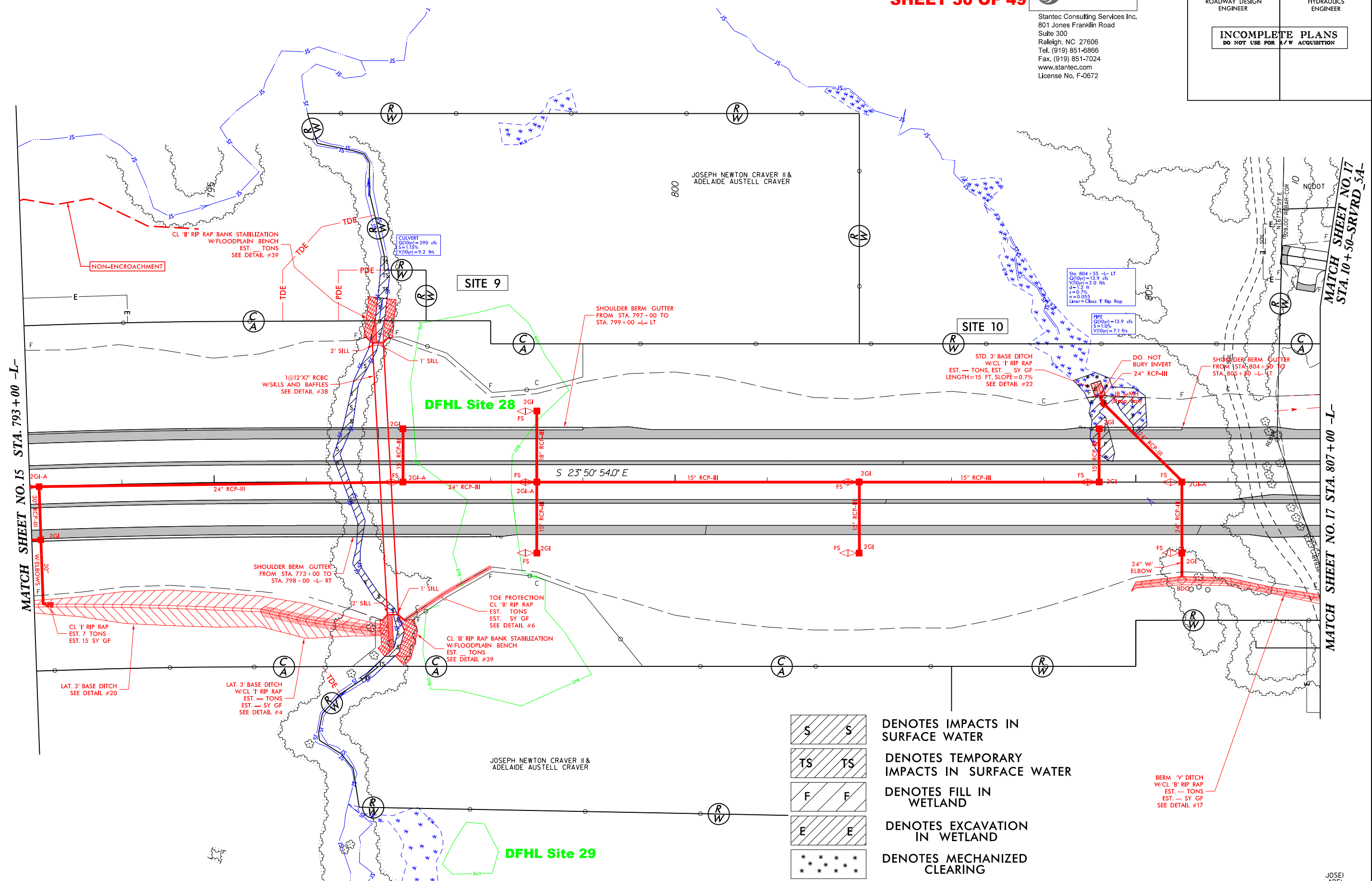
**PERMIT DRAWING
SHEET 29 OF 49**



PROJECT REFERENCE NO.	SHEET NO.
<i>R-2707D</i>	<i>14</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	



REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 33

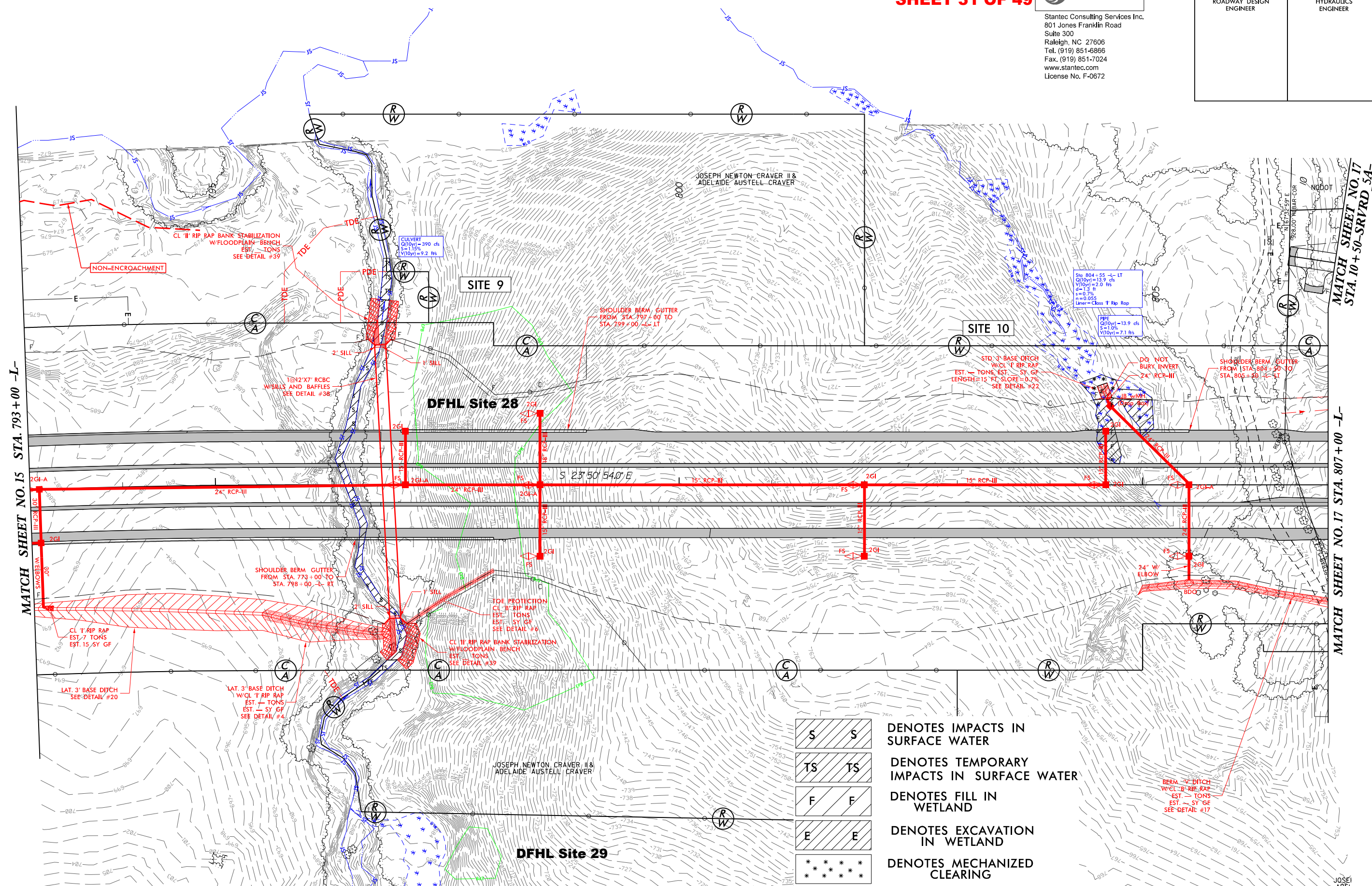


REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 34
FOR -SRVRD 5A- PROFILE, SEE SHEET NO. 52

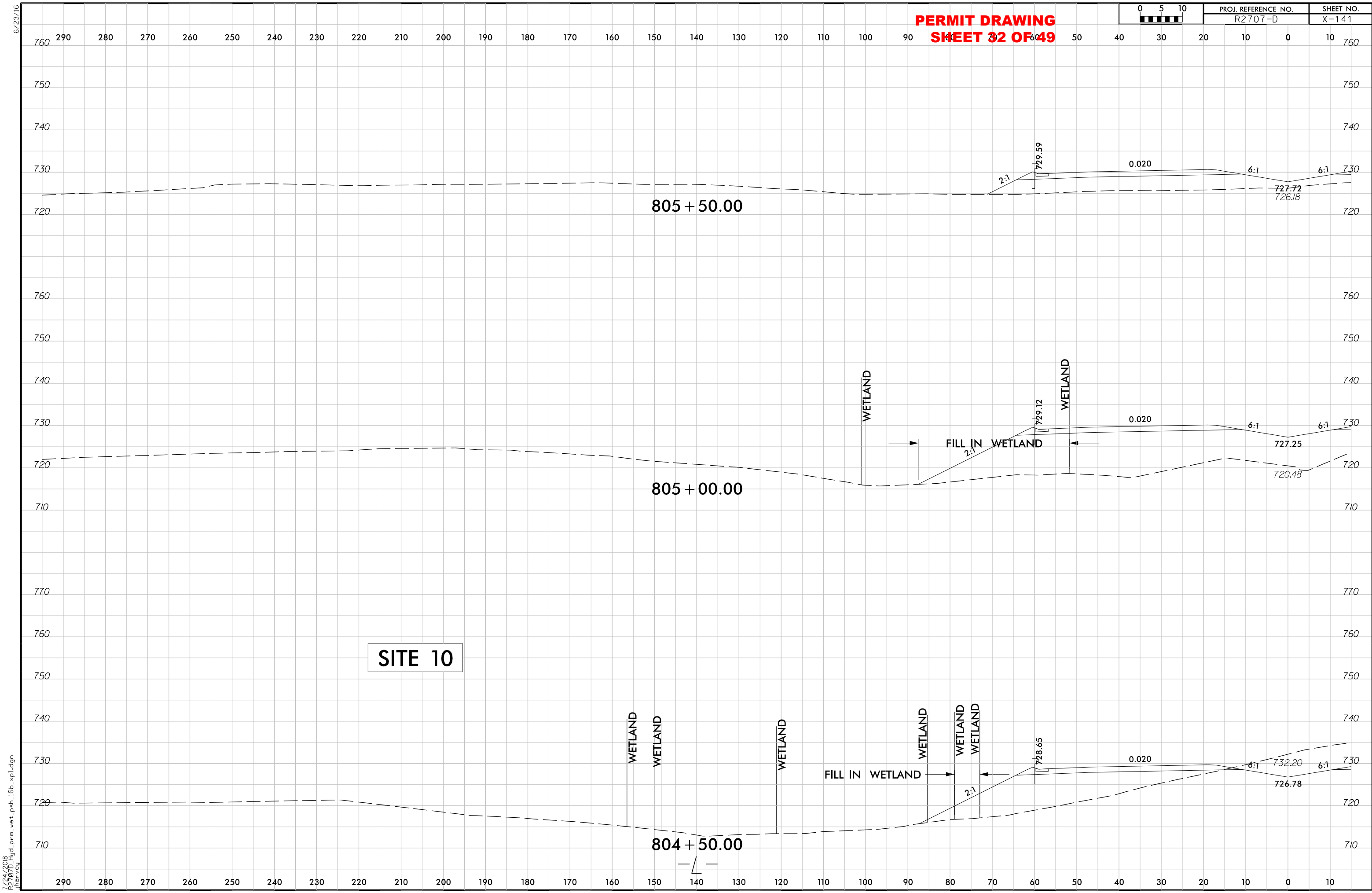
**PERMIT DRAWING
SHEET 31 OF 49**



PROJECT REFERENCE NO.	SHEET NO.
R-2707D	16
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

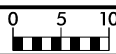


REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 34
FOR -SRVRD 5A- PROFILE, SEE SHEET NO. 52



**PERMIT DRAWING
SHEET 32 OF 49**

PROJ. REFERENCE NO.	SHEET NO.
R2707-D	X-141



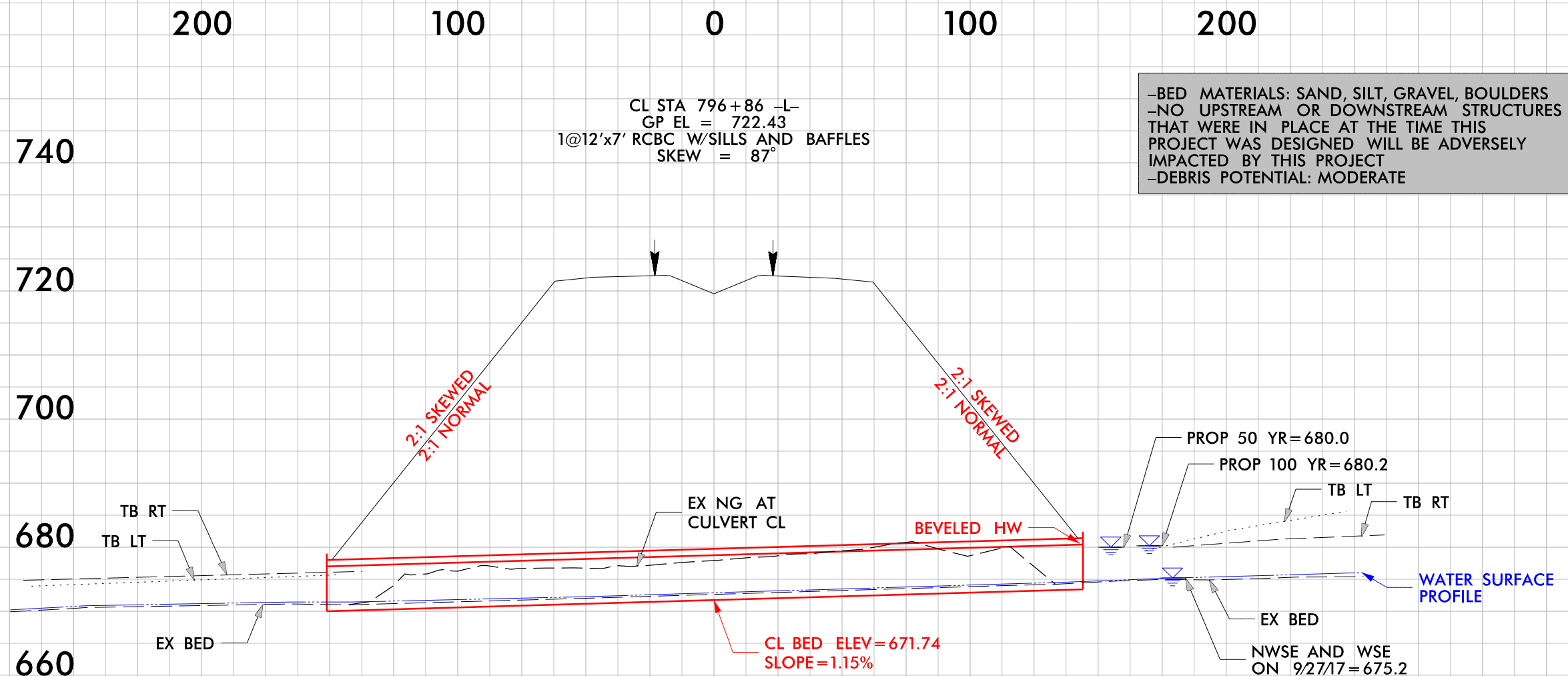
SITE 10

7/24/2018
R2707-D_Hyd.prm_wet_psh_16t_xpl.dgn
Harvey

5/14/99

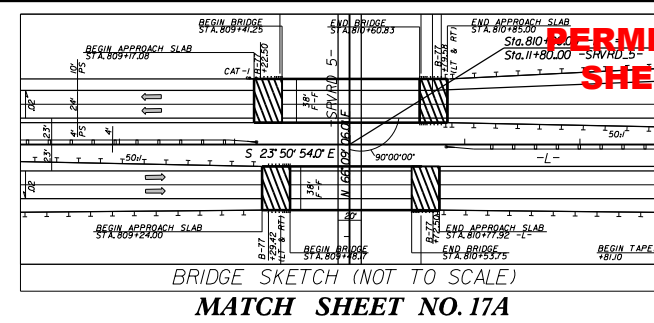
**PERMIT DRAWING
SHEET 33 OF 49**

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	16C
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



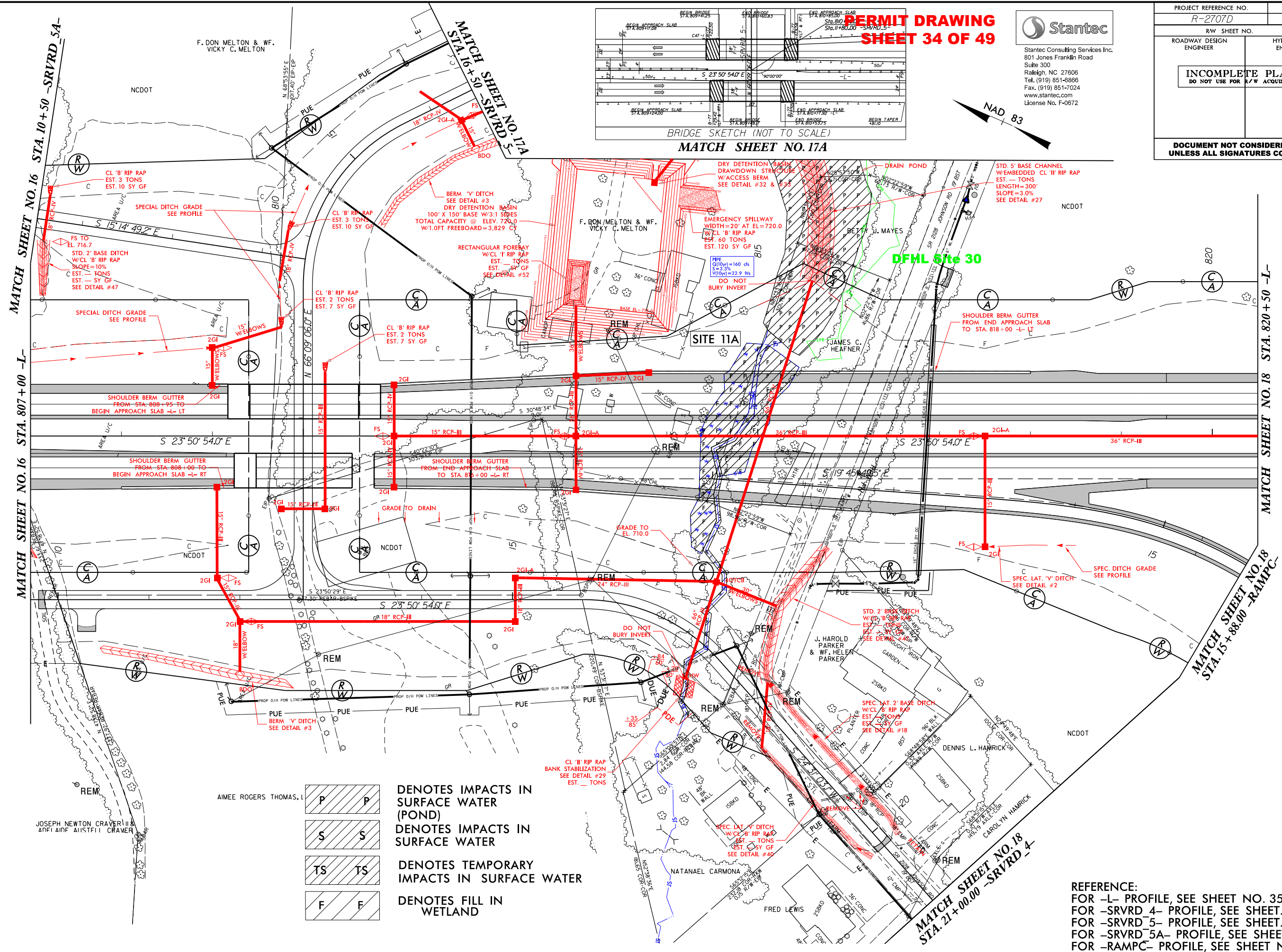
7/24/2018
R-2707D Hyd-prm-wet-psh-16c.dgn
16c.dgn

PERMIT DRAWING
SHEET 34 OF 49



~~NAD 8~~

MATCH SHEET NO. 17A



REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 35
FOR -SRVRD 4- PROFILE, SEE SHEET. NO. 51
FOR -SRVRD 5- PROFILE, SEE SHEET. NO. 52
FOR -SRVRD 5A- PROFILE, SEE SHEET. NO.52
FOR -RAMP- PROFILE, SEE SHEET NO. 42

DENOTES IMPACTS IN
SURFACE WATER
(POND)

DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

DENOTES FILL IN
WETLAND

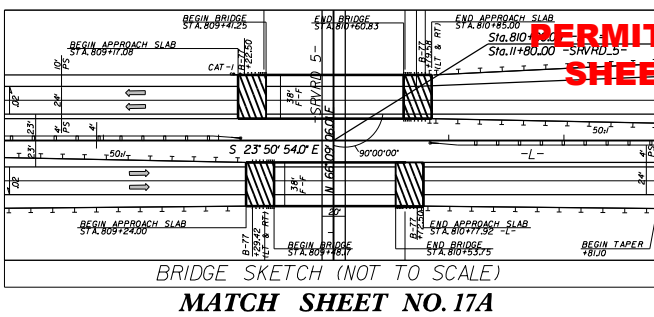
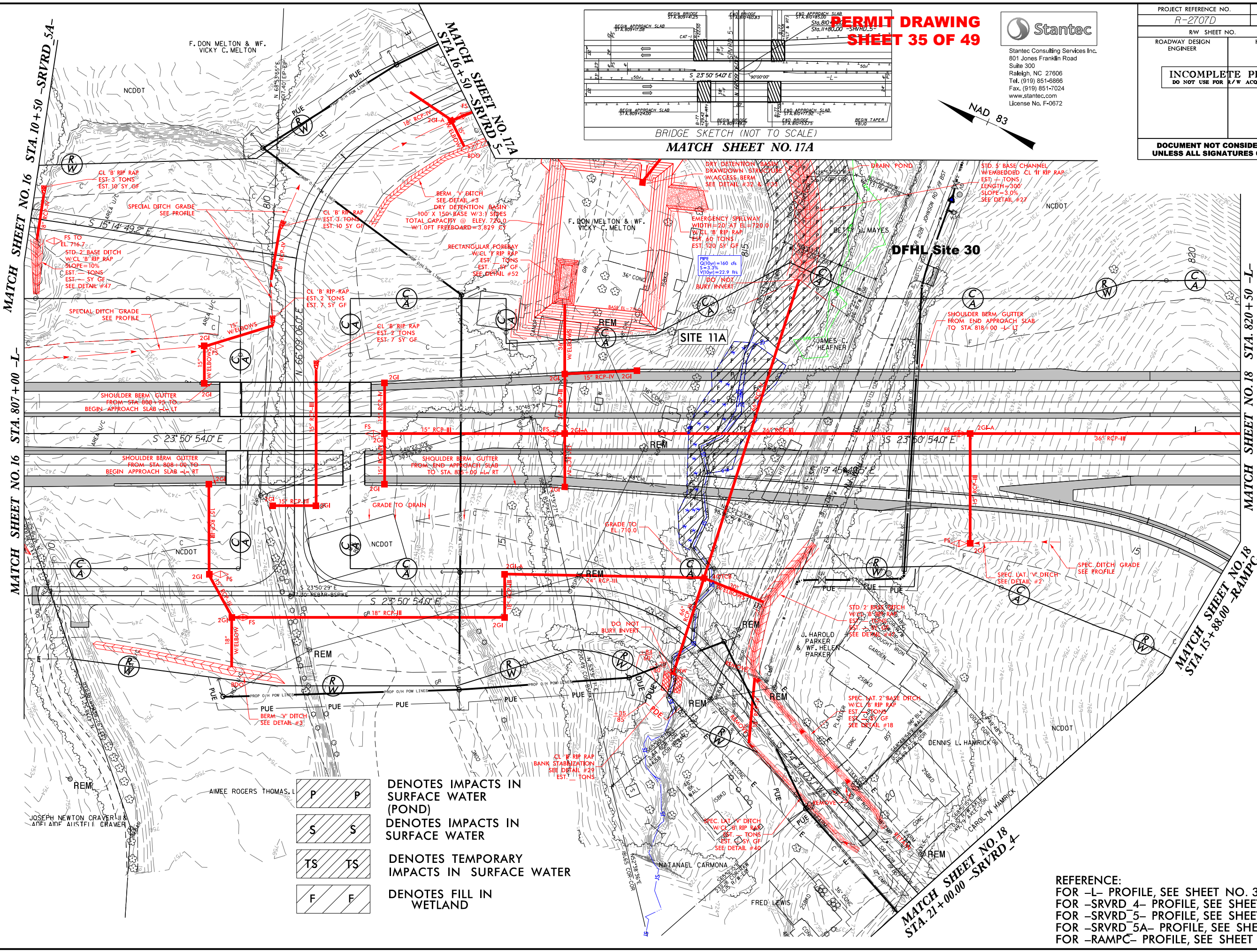
AIMEE ROGERS THOMAS, I

JOSEPH NEWTON CRAVER II &
ΔΦΙ ΔΙΦ ΑΙΙΤΦΙΙ CRAVER

2707D-Hyd-prm_wet_psh_17.dgn

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7/24/2018 R2707D Hyd.prm_wet.psh_17a.dgn



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PROJECT REFERENCE NO. <i>R-2707D</i>		SHEET NO. <i>17</i>	
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			

- DENOTES IMPACTS IN SURFACE WATER (POND)
- DENOTES IMPACTS IN SURFACE WATER
- DENOTES TEMPORARY IMPACTS IN SURFACE WATER
- DENOTES FILL IN WETLAND

MATCH SHEET NO. 18
STA. 21+00.00 -SRVRD_4

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 35
FOR -SRVRD_4- PROFILE, SEE SHEET. NO. 51
FOR -SRVRD_5- PROFILE, SEE SHEET. NO. 52
FOR -SRVRD_5A- PROFILE, SEE SHEET. NO.52
FOR -RAMPC- PROFILE, SEE SHEET NO. 42

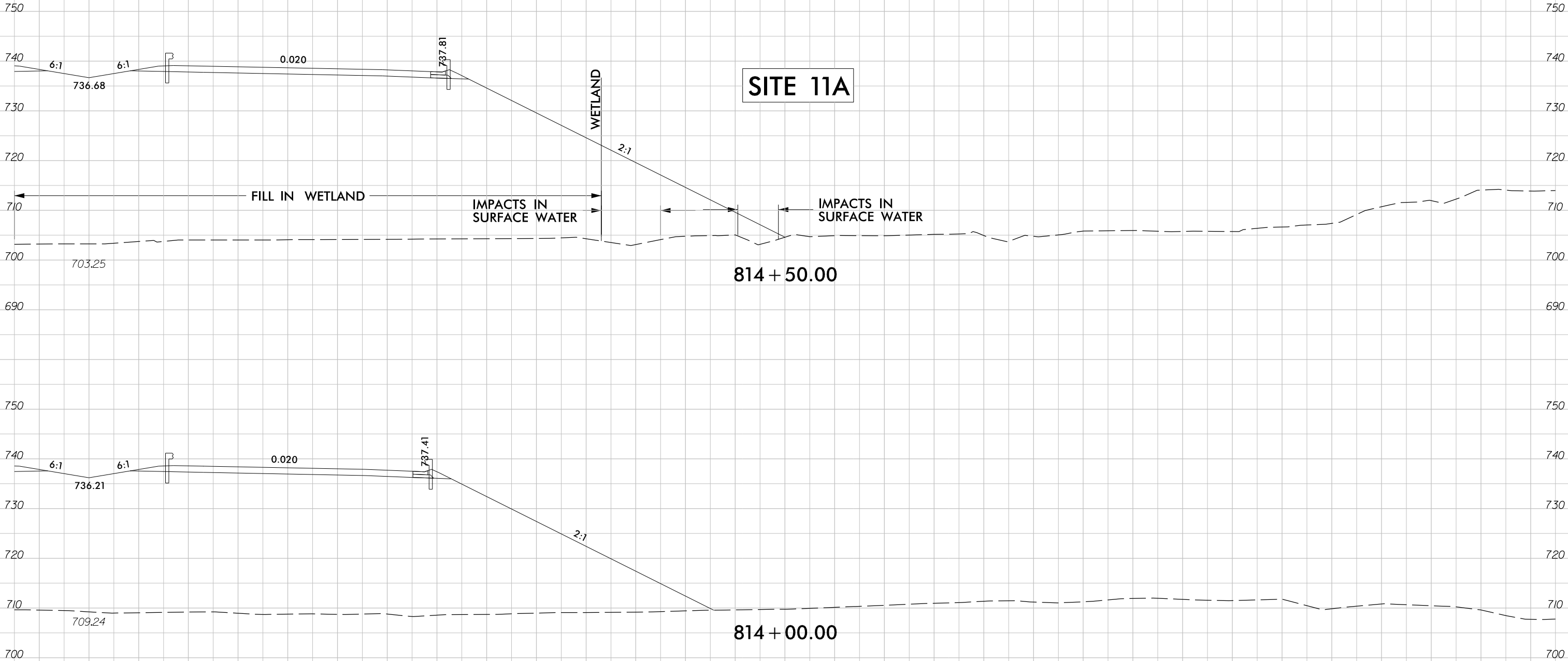
6/23/16

10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290

PERMIT DRAWING
SHEET 36 OF 49

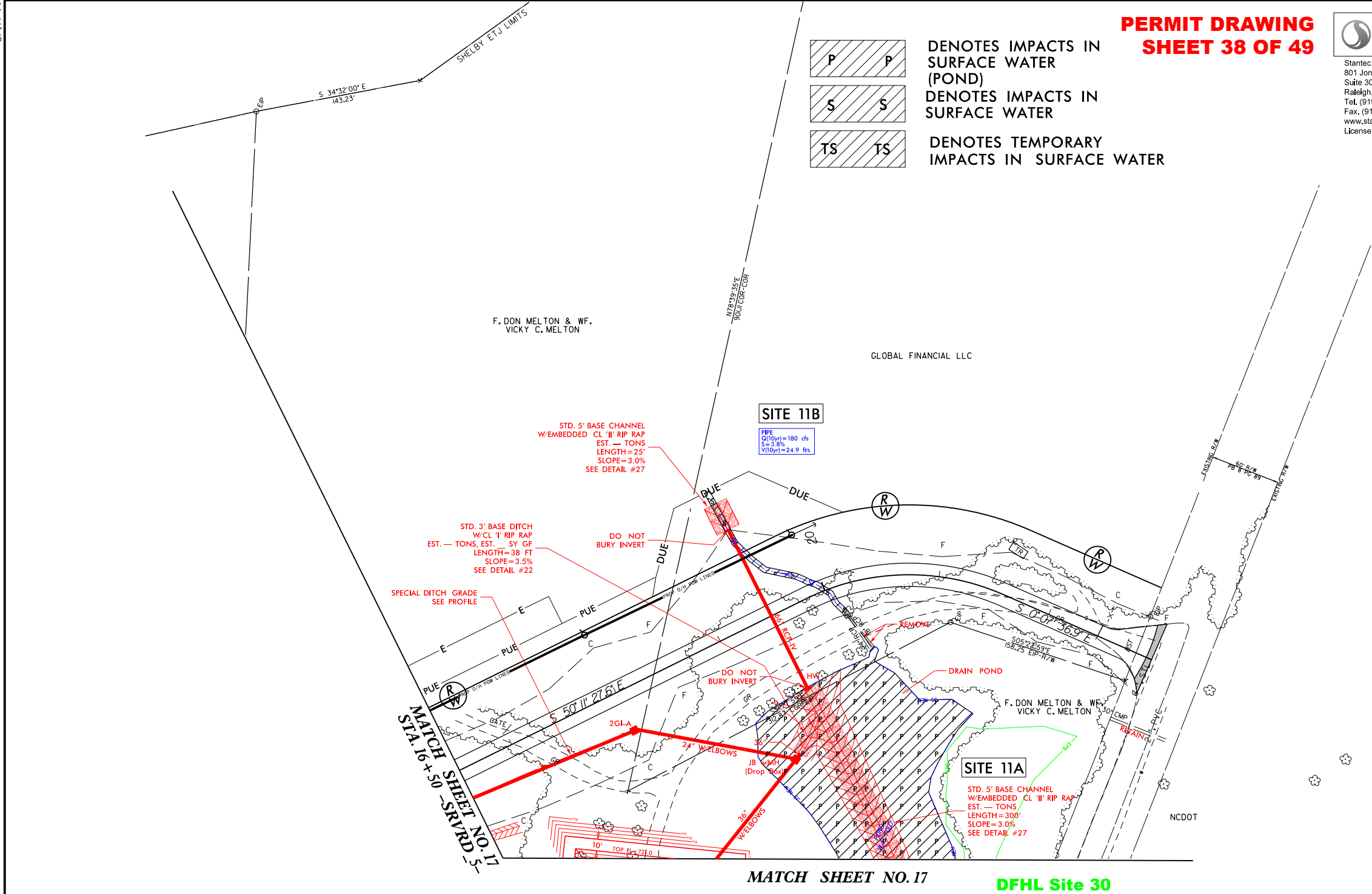


PROJ. REFERENCE NO.	SHEET NO.
R2707-D	X-327



8/17/99

7/24/2018
R2707D_Hyd_prm_wet.psh_17.dfd(17A).dgn
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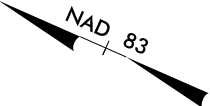


**PERMIT DRAWING
SHEET 38 OF 49**

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- | | | |
|--|----|--|
| | P | Denotes Impacts in Surface Water (Pond) |
| | S | Denotes Impacts in Surface Water |
| | TS | Denotes Temporary Impacts in Surface Water |

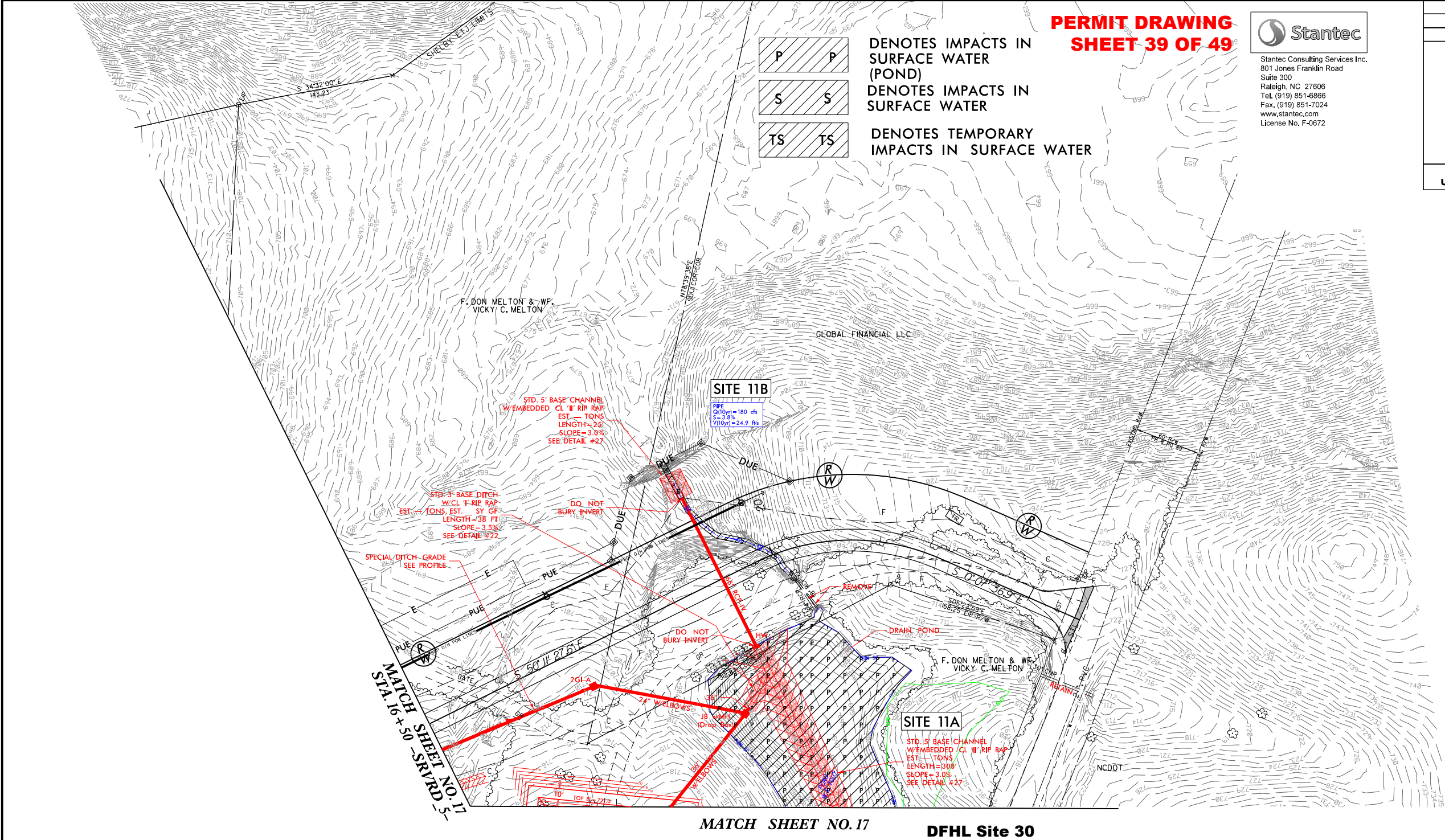
PROJECT REFERENCE NO.		SHEET NO.	
R-2707D		17A	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



REFERENCE:
FOR -SRVRD_5- PROFILE, SEE SHEET NO. 52

8/17/99

7/24/2018
R2707D Hyd.prm_wet.psh_17.drd(17A).dgn
10:45:40



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PROJECT REFERENCE NO. <i>R-2707D</i>		SHEET NO. <i>17A</i>	
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			



REFERENCE:
FOR -SRVRD_5- PROFILE, SEE SHEET NO. 52

5/14/99

PERMIT DRAWING
SHEET 40 OF 49

PROJECT REFERENCE NO.	SHEET NO.
R-2707D	17DB
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

CL STA 19+50 -SRVRD5-
1@66" RCP

710

700

690

680

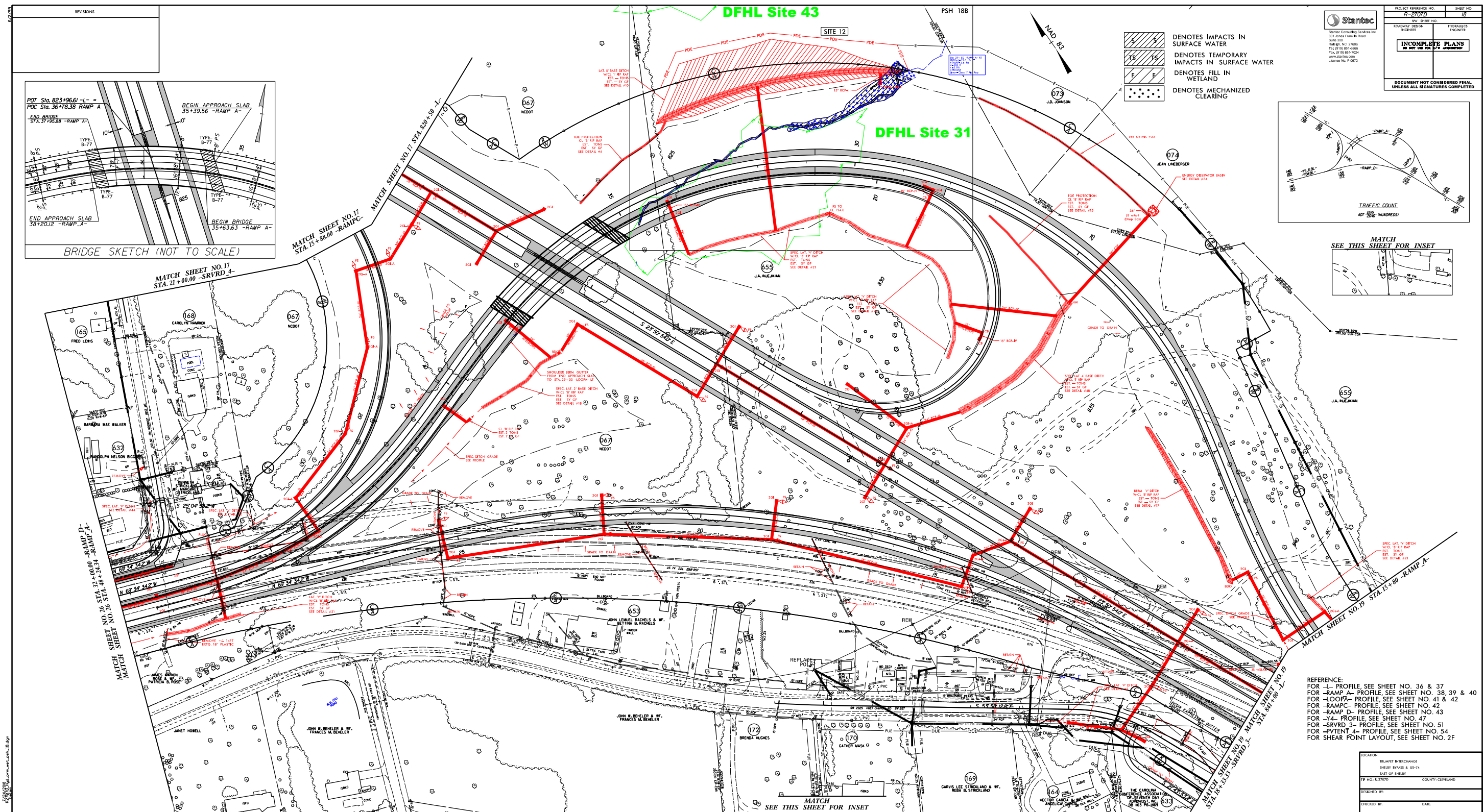
670

EXISTING POND
TO BE DRAINED

66" RCP
SLOPE = 3.8%

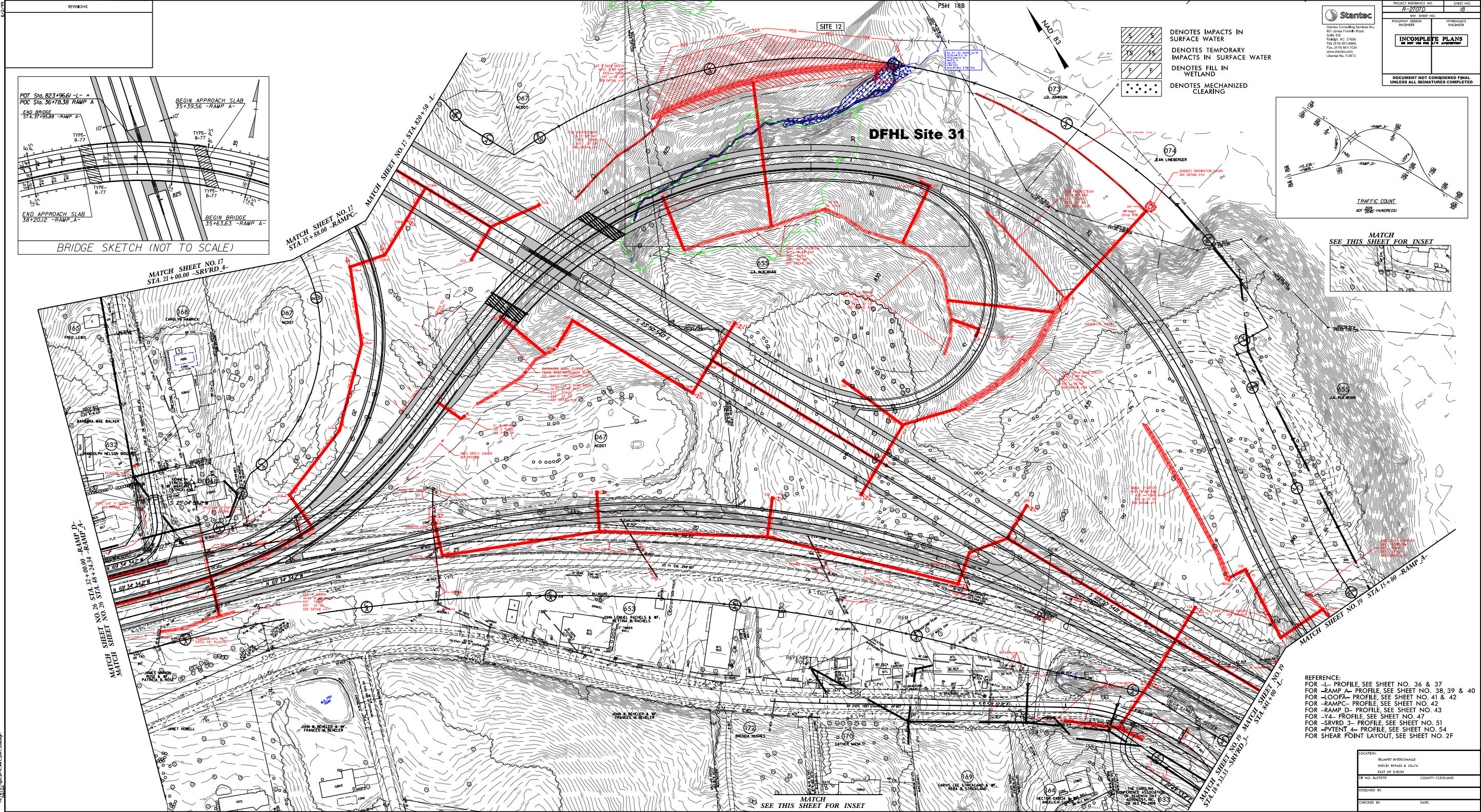
PROPOSED BED PROFILE

**PERMIT DRAWING
SHEET 41 OF 49**



PERMIT DRAWING
SHEET 42 OF 49

DFHL Site 43

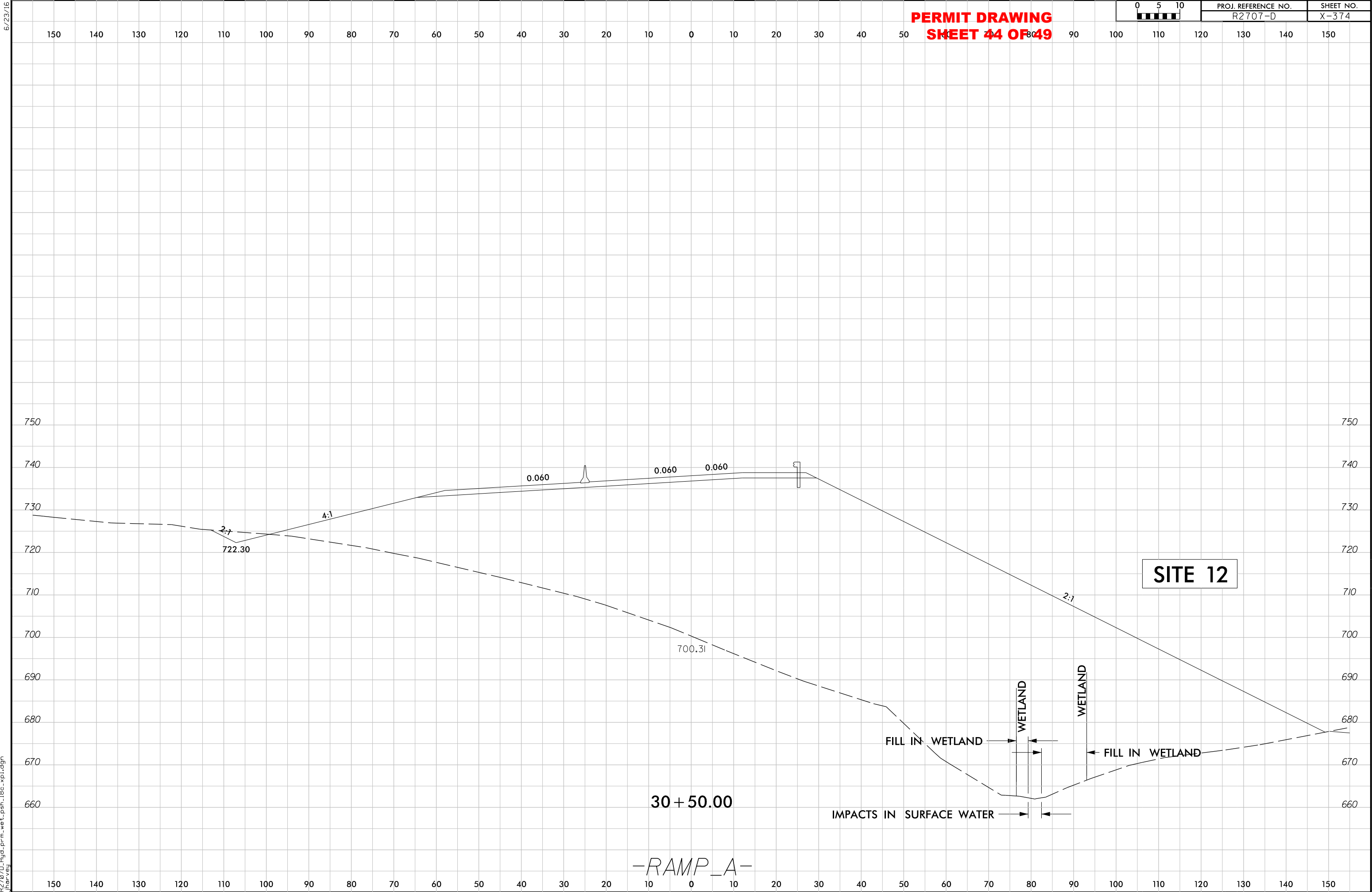


6/23/16

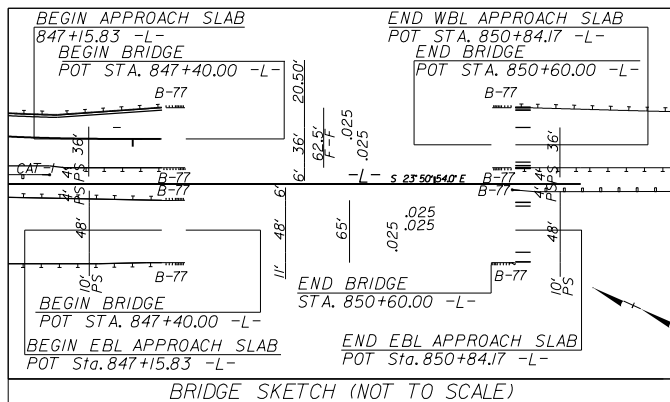
PERMIT DRAWING
SHEET 44 OF 49



PROJ. REFERENCE NO.	SHEET NO.
R2707-D	X-374



8/17/99



DENOTES IMPACTS IN
SURFACE WATER



DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

**PERMIT DRAWING
SHEET 45 OF 49**



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PROJECT REFERENCE NO. SHEET NO.

R-2707D 19

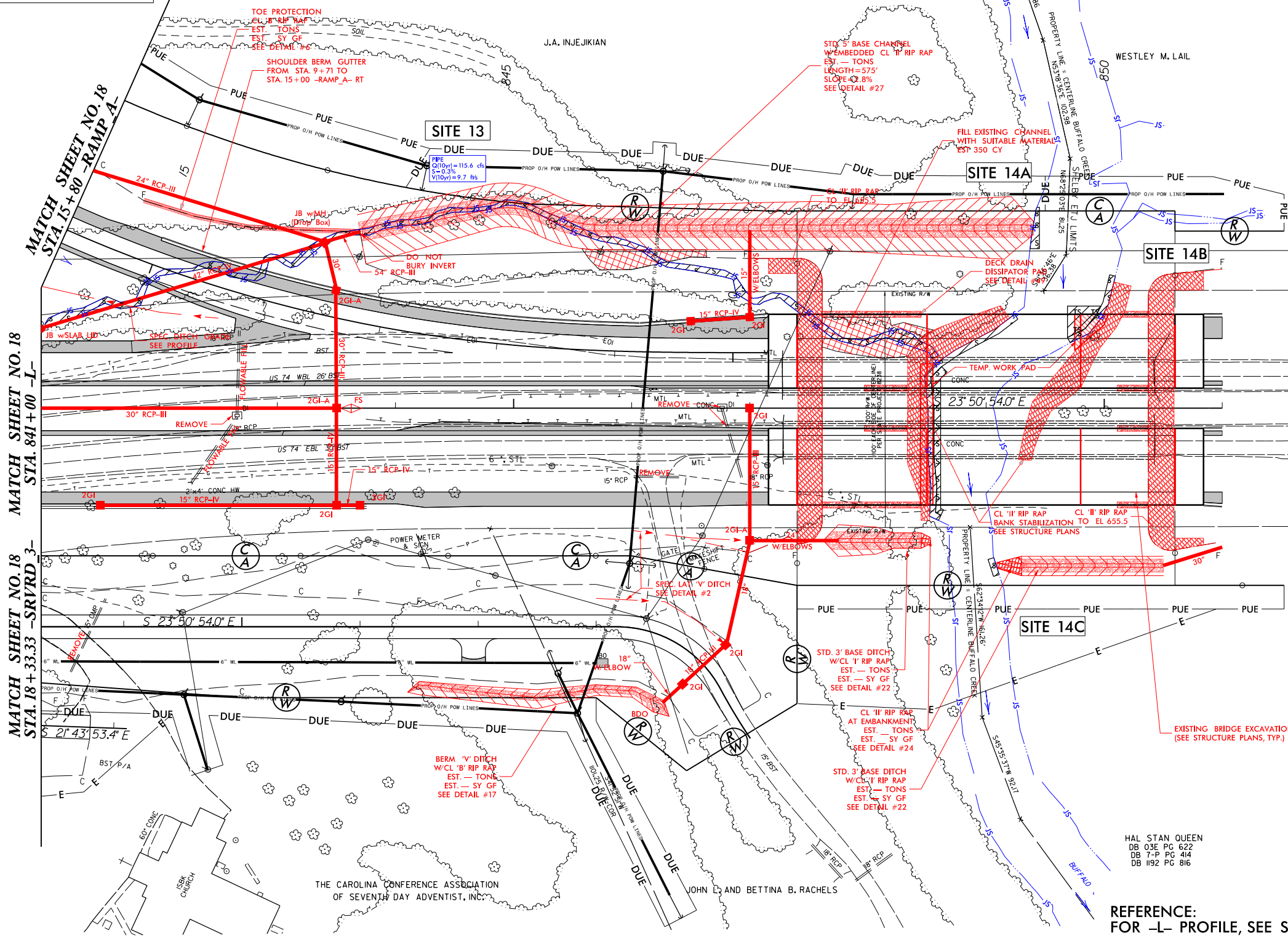
RW SHEET NO.

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR A/W ACQUISITION

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

NAD 83

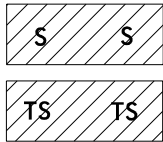
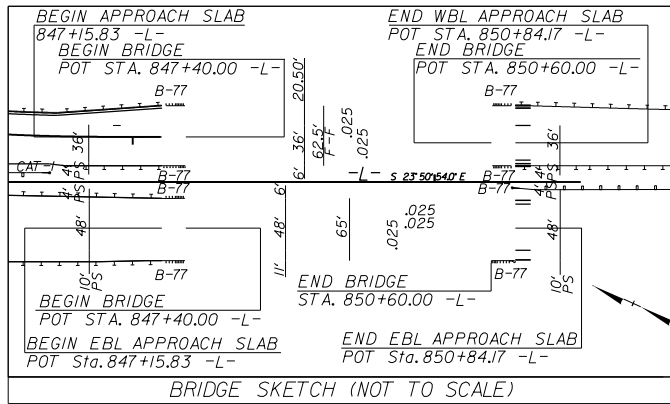


HAL STAN QUEEN
DB 03E PG 622
DB 7-9 PG 414
DB 1192 PG 816

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 37
FOR -RAMP A- PROFILE, SEE SHEET NO. 38
FOR -SRVRD 3- PROFILE, SEE SHEET NO. 51
FOR -PVNT 4- PROFILE, SEE SHEET NO. 54

7/24/2018
R2707D_Hyd.prm_wet.psh_19.dgn

8/17/99



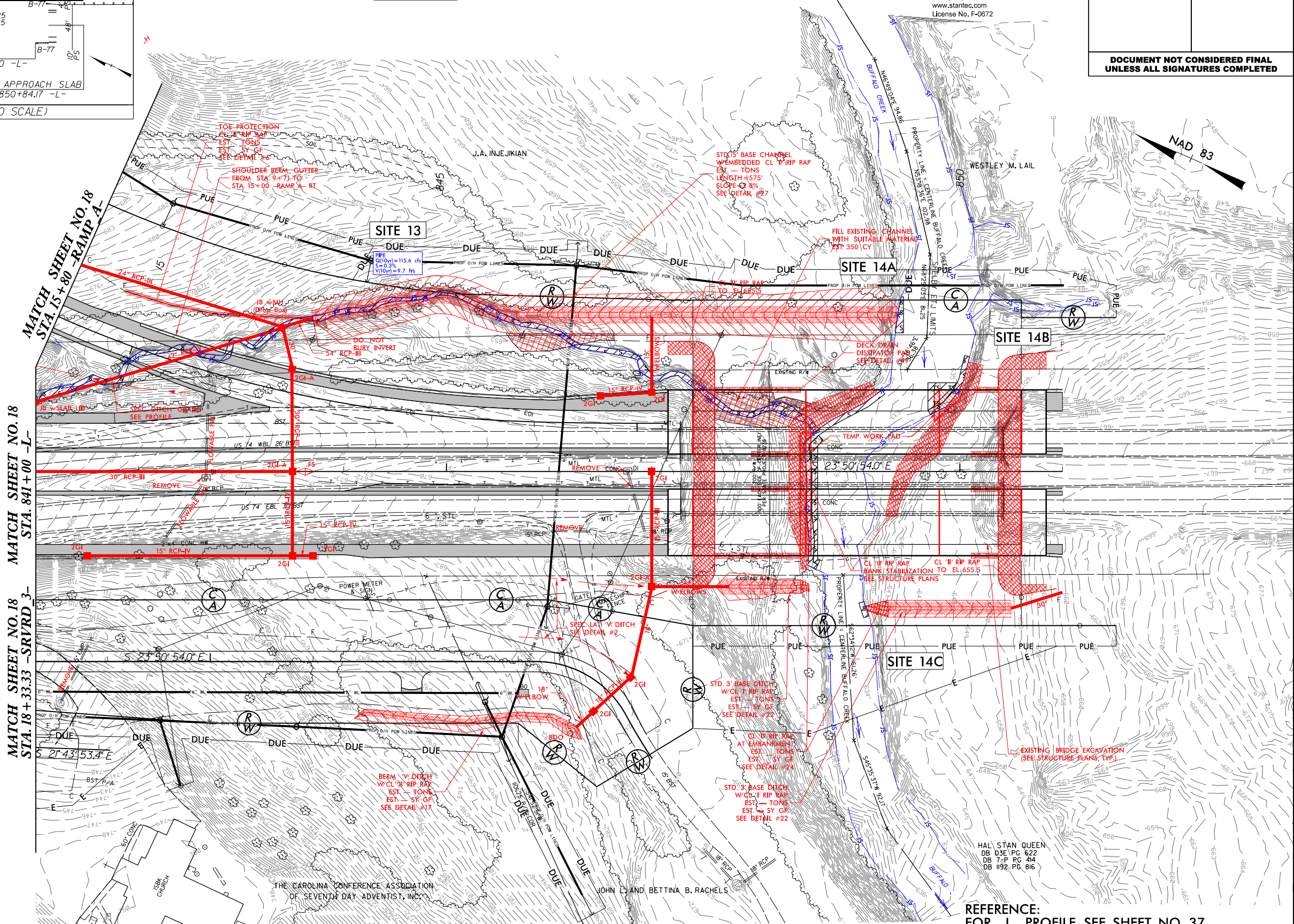
DENOTES IMPACTS IN
SURFACE WATER

DENOTES TEMPORARY
IMPACTS IN SURFACE WATER

PERMIT DRAWING
SHEET 46 OF 49

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PROJECT REFERENCE NO. <i>R-2707D</i>		SHEET NO. <i>19</i>	
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			



HAL STAN QUEEN
DB 03E PG 622
DB 7-9 PG 414
DB 1192 PG 816

REFERENCE:
FOR -L- PROFILE, SEE SHEET NO. 37
FOR -RAMP A- PROFILE, SEE SHEET NO. 38
FOR -SRVRD 3- PROFILE, SEE SHEET NO. 51
FOR -PVNT 4- PROFILE, SEE SHEET NO. 54

7/24/2018
R2707D_Hyd_prm_wet_psh_19a.dgn
19a

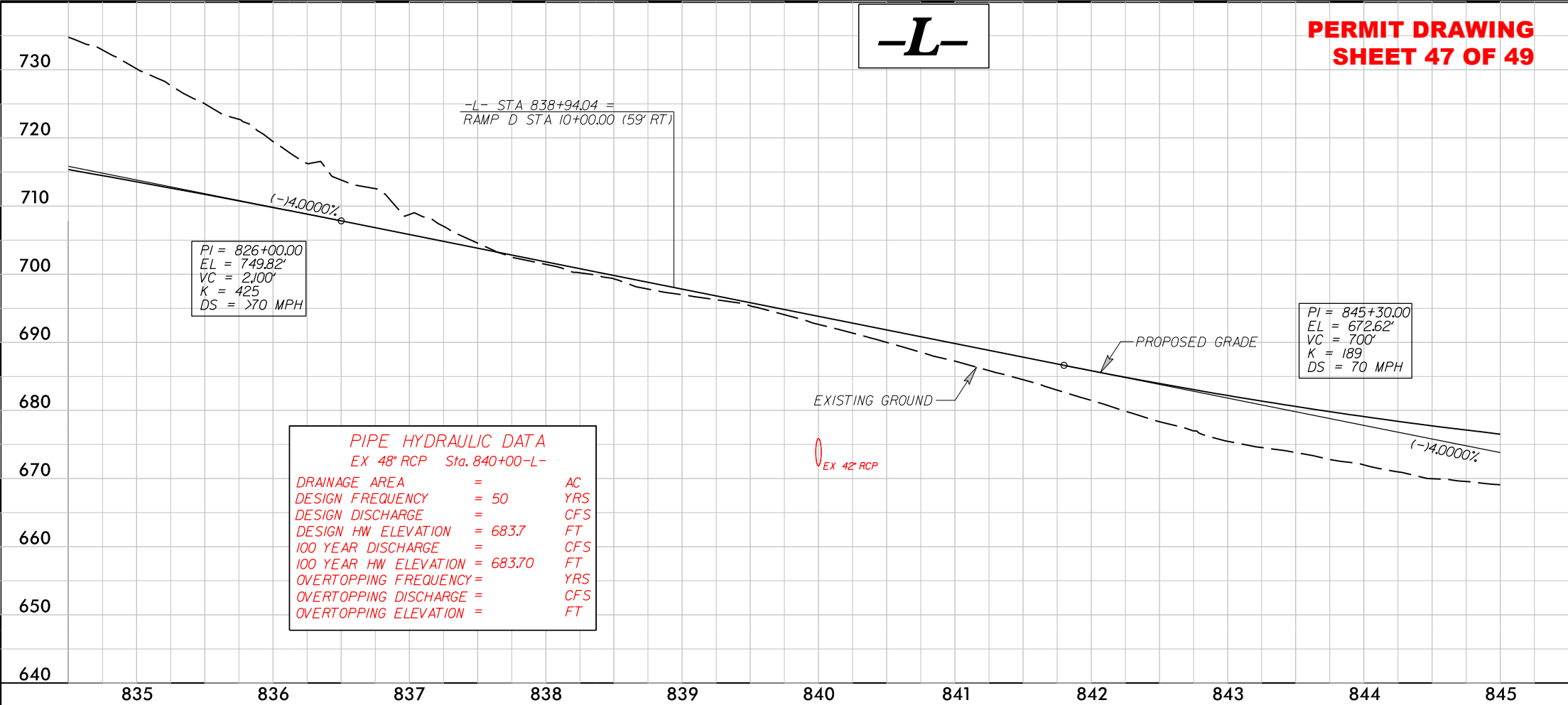
5/28/99

-L-

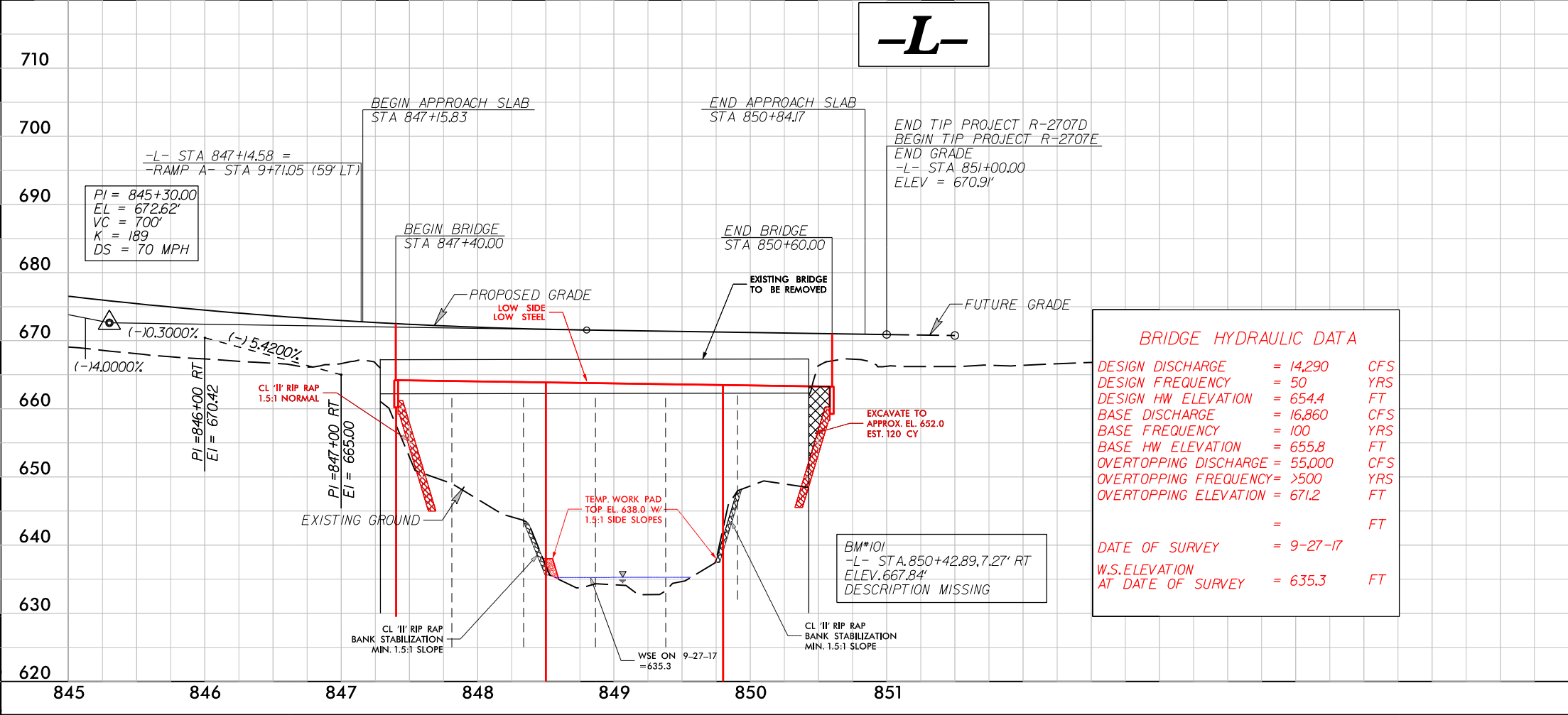
PERMIT DRAWING
SHEET 47 OF 49

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PROJECT REFERENCE NO.		SHEET NO.	
R-2707D		37	
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			



-L-



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)
1	643+78 to 647+11-L-	48" RCP						0.05		572		
		INLET/OUTLET CHANNEL						< 0.01	< 0.01	47	20	
2	683+16 to 685+09-L-	42" RCP	0.05					0.04		507		
		INLET/OUTLET CHANNEL						< 0.01	< 0.01	63	20	
3	715+09 to 720+05-L-	1@7'x7' RCBC						0.09	< 0.01	633	52	
		BANK STABILIZATION						< 0.01		50		
4A	720+05 to 725+00-L-LT	CHANNEL RELOCATION						0.15	< 0.01	806	20	621
4B	720+52 to 721+60-L-LT	CHANNEL RELOCATION						< 0.01	< 0.01	109	7	199
5A	727+99 to 732+97-L-LT	CHANNEL RELOCATION						0.16	< 0.01	664	40	530
5B	730+88 to 732+24-L-LT	CHANNEL RELOCATION						0.01	< 0.01	186	15	134
6A	734+37 to 740+78-L-LT	CHANNEL RELOCATION						0.30	0.01	1178	35	878
6B	739+73 to 742+83-L-LT	CHANNEL RELOCATION						0.12		468		316
6C	742+83 to 744+14-L-	2@8'x8' RCBC						0.17	< 0.01	597	40	
		BANK STABILIZATION						0.01		50		
7	763+53 to 764+51-L-	48" RCP	0.02			< 0.01		0.02	< 0.01	268	10	
		OUTLET CHANNEL						< 0.01	< 0.01	20	10	
		BANK STABILIZATION						< 0.01		20		
8	776+56 to 778+61-L-	54" RCP	< 0.01					0.03	< 0.01	483	10	
		OUTLET CHANNEL						< 0.01	< 0.01	32	10	
		BANK STABILIZATION						< 0.01		20		
9	796+29 to 797+06-L-	1@12'x7' RCBC						0.05	0.02	323	85	
		BANK STABILIZATION						0.02		100		
SHEET 1 SUBTOTALS*:			0.07			< 0.01		1.24	0.06	7196	374	2678

*Rounded totals are sum of actual impacts

NOTES:

Site 4A: 1@7'x7' RCBC Outlet Channel Stabilization = 70ft

Site 6B: 2@8'x8' RCBC Outlet Bank Stabilization = 50ft

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)
10	804+32 to 805+12-L-LT	ROADWAY FILL / 24" RCP	0.05		< 0.01	0.02						
11A	814+26 to 816+25-L-	66" RCP	0.22					0.05	< 0.01	438	29	
		POND						0.87				
		BANK STABILIZATION						< 0.01		20		
11B	19+48 to 20+13-SRVRD5-	66" RCP						0.02		134		
		OUTLET CHANNEL						< 0.01	< 0.01	25	12	
12	29+17 to 34+77-RAMPA-	ROADWAY FILL	0.12			0.01		0.05	< 0.01	682	14	
13	841+05 to 848+66-L-LT	42" RCP						0.04		308		
		OUTLET CHANNEL						0.06		534		
14A	849+42-L-LT	BANK STABILIZATION						< 0.01		35		
14B	848+50 to 850+05-L-	BANK STABILIZATION						0.03		250		
		TEMP. WORKPAD							0.03			
14C	849+06-L-RT	BANK STABILIZATION						< 0.01		15		
15	652+82 to 652+98-L-LT	OUTLET CHANNEL							< 0.01		15	
16	669+32 to 670+07-L-	48" RCP						0.03		367		
		INLET/OUTLET CHANNEL						< 0.01	< 0.01	58	15	
SHEET 1 SUBTOTALS*:			0.07			< 0.01		1.24	0.06	7196	374	2678
SHEET 2 SUBTOTALS*:			0.39		< 0.01	0.03		1.15	0.03	2866	85	
GRAND TOTALS*:			0.46		< 0.01	0.04		2.40	0.09	10062	459	2678

*Rounded totals are sum of actual impacts

NOTES:

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
7-24-18
CLEVELAND
R-2707D
34497.1.F56