North Carolina Department of Transportation

Highway Stormwater Program

STORMWATER MANAGEMENT PLAN

FOR NCDOT PROJECTS

(Version 2.06; Released June 2016)

WBS Element:	40212.1.3	**TIP No.:**	B-4863	**County(ies):**	Carteret	**Page**	1	**of**	1

General Project Information

WBS Element:	40212.1.3	**TIP Number:**	B-4863	**Project Type:**	Bridge Replacement	**Date:**	8/30/2018
NCDOT Contact:	Hon Yeung, PE			**Contractor / Designer:**	Will Weathersbee, PE		
Address:	1037 W.H. Smith Blvd Greenville, NC 27835			**Address:**	1520 South Blvd, Suite 200 Charlotte, NC 28203		
Phone:	252-439-2827			**Phone:**	704-940-4715		
Email:	hfyeung@ncdot.gov			**Email:**	will.weathersbee@rsandh.com		
City/Town:	Harkers Island			**County(ies):**	Carteret		
River Basin(s):	N/A			**CAMA County?**	Yes		
Wetlands within Project Limits?	Yes						

Project Description

Project Length (lin. miles or feet):	0.853 MI.	**Surrounding Land Use:**	Coastal Marsh, Open Water (Sound), Woods, Residential, Recreational				
	Proposed Project			**Existing Site**			
Project Built-Upon Area (ac.)	5.0	ac.		3.7	ac.		
Typical Cross Section Description:	A 40-foot wide typical section will be used, providing two 12-foot travel lanes and two 8-foot shoulder, 4-feet of the shoulder is paved.			The existing 20-foot wide typical section features two 10-foot travel lanes			
Annual Avg Daily Traffic (veh/hr/day):	Design/Future:	4200	Year: 2040	Existing:	3300	Year:	2019

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

B-4863 involves the replacement of Bridge 73 and 96 in Carteret County. Bridge 73 is an existing moveable swing span bridge along SR 1335 Harkers Island Road spanning The Straits. Bridge 96 is an existing fixed span bridge also spanning The Straits. Together these bridges provide the only vehicular access across The Straits waterway to Harkers Island. Both bridges are proposed to be replaced by a single fixed span bridge. A closed deck drainage system will be used to capture stormwater from a portion of the bridge. The captured stormwater will be directed to two separate swales, one on the mainland side and one on the island side, for treatment and controlled release. The proposed swales treat all the possible bridge runoff on the island side, and all the bridge runoff that the storm system can handle on the mainland side. The remaining stormwater will be released into The Straits through deck drains which are located a minimum of 14' above the MHW elevation. Specific natural environment avoidance and minimization measures include the use of retaining walls, on both sides of the bridge, to minimize fill in wetlands and surface water.

Waterbody Information

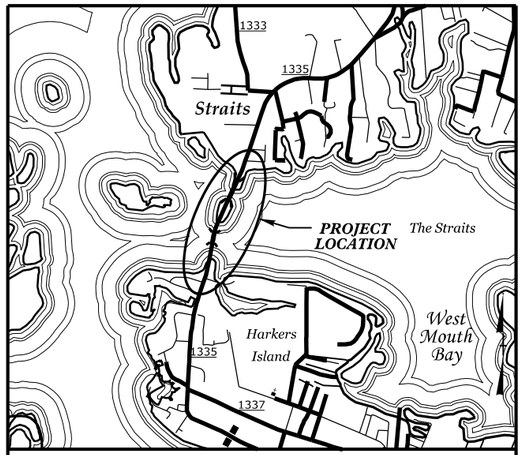
Surface Water Body (1):	The Straits		**NCDWR Stream Index No.:**	21-35-1-12		
NCDWR Surface Water Classification for Water Body		**Primary Classification:**	Class SA			
		Supplemental Classification:	High Quality Waters (HQW)			
Other Stream Classification:	None					
Impairments:	None					
Aquatic T&E Species?	Yes	Comments:	American Alligator, Green Sea Turtle, Hawksbill Sea Turtle, Kemp's Ridley Sea Turtle, Leatherback Sea Turtle, Loggerhead Sea Turtle, Shortnose Sturgeon, West Indian Manatee and Atlantic Sturgeon.			
NRTR Stream ID:	The Straits			**Buffer Rules in Effect:**	N/A	
Project Includes Bridge Spanning Water Body?	Yes	**Deck Drains Discharge Over Buffer?**	No	**Dissipator Pads Provided in Buffer?**	No	
Deck Drains Discharge Over Water Body?	Yes	(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)						

09/08/99

TIP PROJECT: B-4863

CONTRACT:

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



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CARTERET COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4863	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
40212.1.3	N/A	PE, R/W, UTL

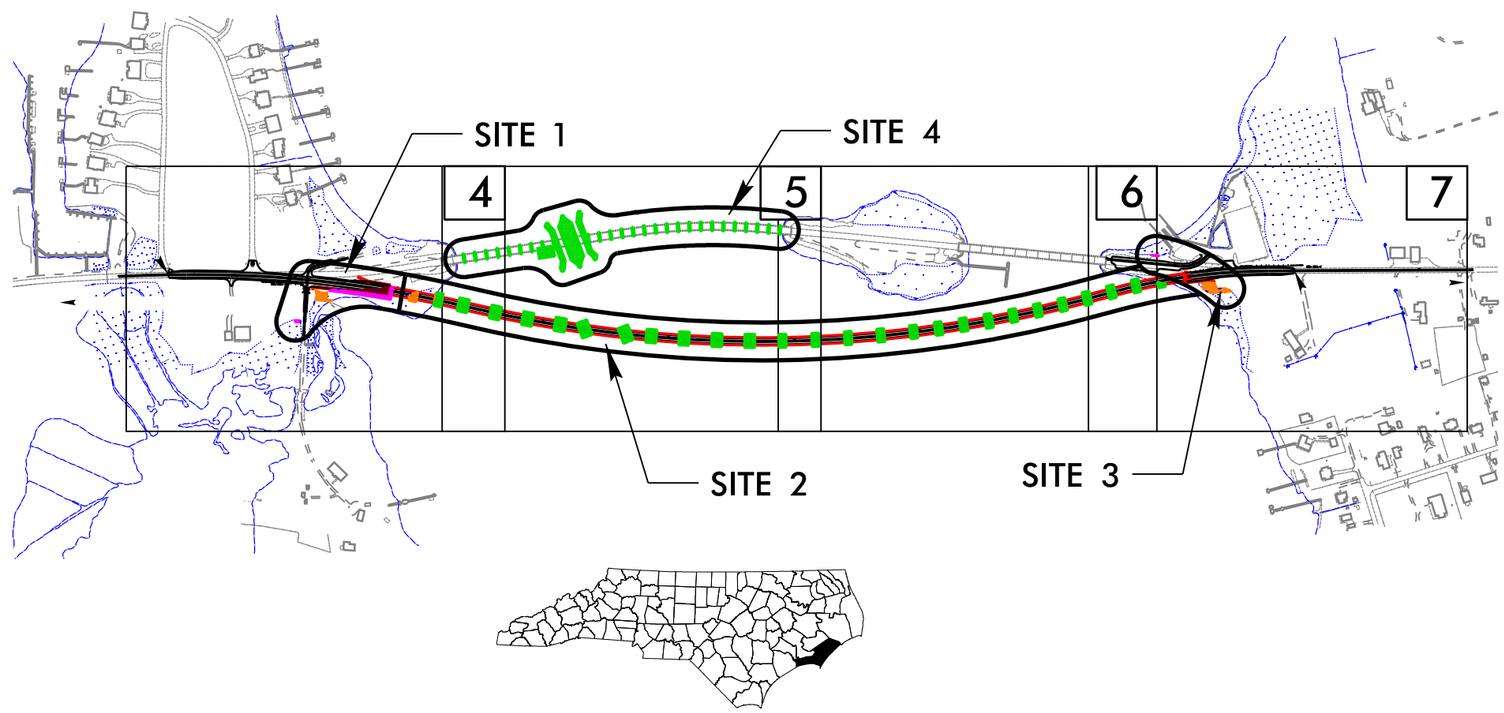
PERMIT DRAWING
SHEET 1 OF 15

LOCATION: REPLACEMENT OF BRIDGE NOS. 73 AND 96 CARRYING SR 1335 (HARKERS ISLAND RD) OVER THE STRAITS

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND STRUCTURE

WETLAND AND SURFACE WATER IMPACTS PERMIT

NAD 83/
NA 2011



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

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2019 = 3,300
ADT 2040 = 4,200
K = 10 %
D = 60 %
T = 4 % *
V = 50 MPH
*(TTST=2% + DUAL=2%)
FUNC CLASS = MAJOR COLLECTOR

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4863	=	0.247 MILE +/-
LENGTH STRUCTURE TIP PROJECT B-4863	=	0.606 MILE +/-
TOTAL LENGTH TIP PROJECT B-4863	=	0.853 MILE +/-

PLANS PREPARED BY:
RS&H
1520 SOUTH BLVD, SUITE 200
CHARLOTTE, NC 28203
704-752-0610
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
JULY 10, 2018

LETTING DATE:
OCTOBER 15, 2019

JENNIFER FARINO, PE
PROJECT ENGINEER

DREW MORROW, PE
PROJECT DESIGN ENGINEER

MARIA ROGERSON, PE
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

30-AUG-2018 08:09
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_01_tsh.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4863	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 2 OF 15

NAD 83/NA 2011

SITE 1

SITE 4

RIGHT SIDE APPROACH:
PLACE 6" DECK DRAINS AS FOLLOWS:
-L- STA. 21+31 RT TO -L- STA. 21+67 RT @ 12' CTS. AND
-L- STA. 21+71 RT TO -L- STA. 21+83 RT @ 12' CTS. AND
-L- STA. 21+87 RT TO -L- STA. 21+99 RT @ 4' CTS.

NOTE: ALL DECK DRAINS ON THE BRIDGE APPROACH SIDE ARE PART OF A CLOSED DECK DRAINAGE SYSTEM EXCEPT FOR THE TWO HORZONTAL DECK DRAINS @ -L- STA. 26+03 AND 26+15

BEGIN PROJECT
B-4863 -L- Sta. 10+00.00

DO NOT DISTURB
EXIST. STONE COLUMN

DO NOT DISTURB
EXIST. STONE COLUMN

END CONSTRUCTION
-DRIVE- Sta. 11+40.00

END CONSTRUCTION
-Y- Sta. 11+60.00

MAXWELL DR. 19' BST

HARKERS POINT DR. 19' BST

HARKERS ISLAND RD. 20' BST

PUBLIC BEACH ACCESS

NO ASSOCIATED RECORDS OR UTILITY LINES FOUND FOR THIS WATER VALVE

BENT 1 STA 19+75.75

BENT 2 STA 20+76.00

BENT 3 STA 21+76.25

MATCH TO SHEET 5 -L- STA. 22+00

EXIST. SUBAQUATIC VEGETATION (SAV) BOUNDARY (AS SURVEYED ON JULY 27, 2017

SITE 2

TEMPORARY WORK PLATFORM

DENOTES FILL IN WETLAND

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES TEMPORARY FILL IN WETLAND

DENOTES HAND CLEARING

50' 0' 50'

REVISIONS

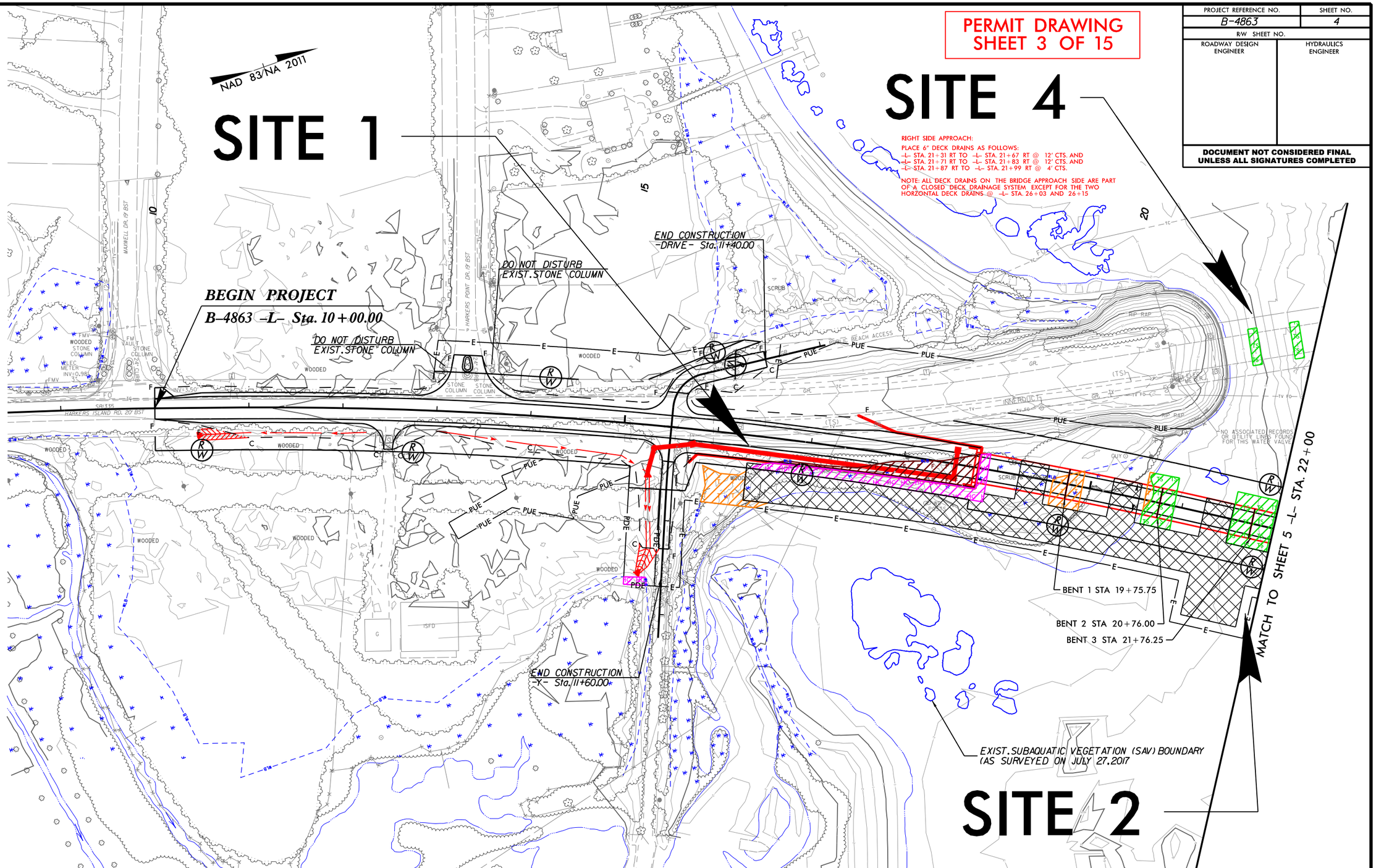
8/17/99

30-AUG-2018 08:10
R:\Hydraulics\PERMITS\###\###\###
Permit\Drawings\B4863_hyd_prm_02_psh_04.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4863	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PERMIT DRAWING
SHEET 3 OF 15



TEMPORARY WORK PLATFORM

DENOTES FILL IN WETLAND

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES TEMPORARY FILL IN WETLAND

DENOTES HAND CLEARING

REVISIONS

8/17/99

30-AUG-2018 08:10
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_03_psh_04_con.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4863	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

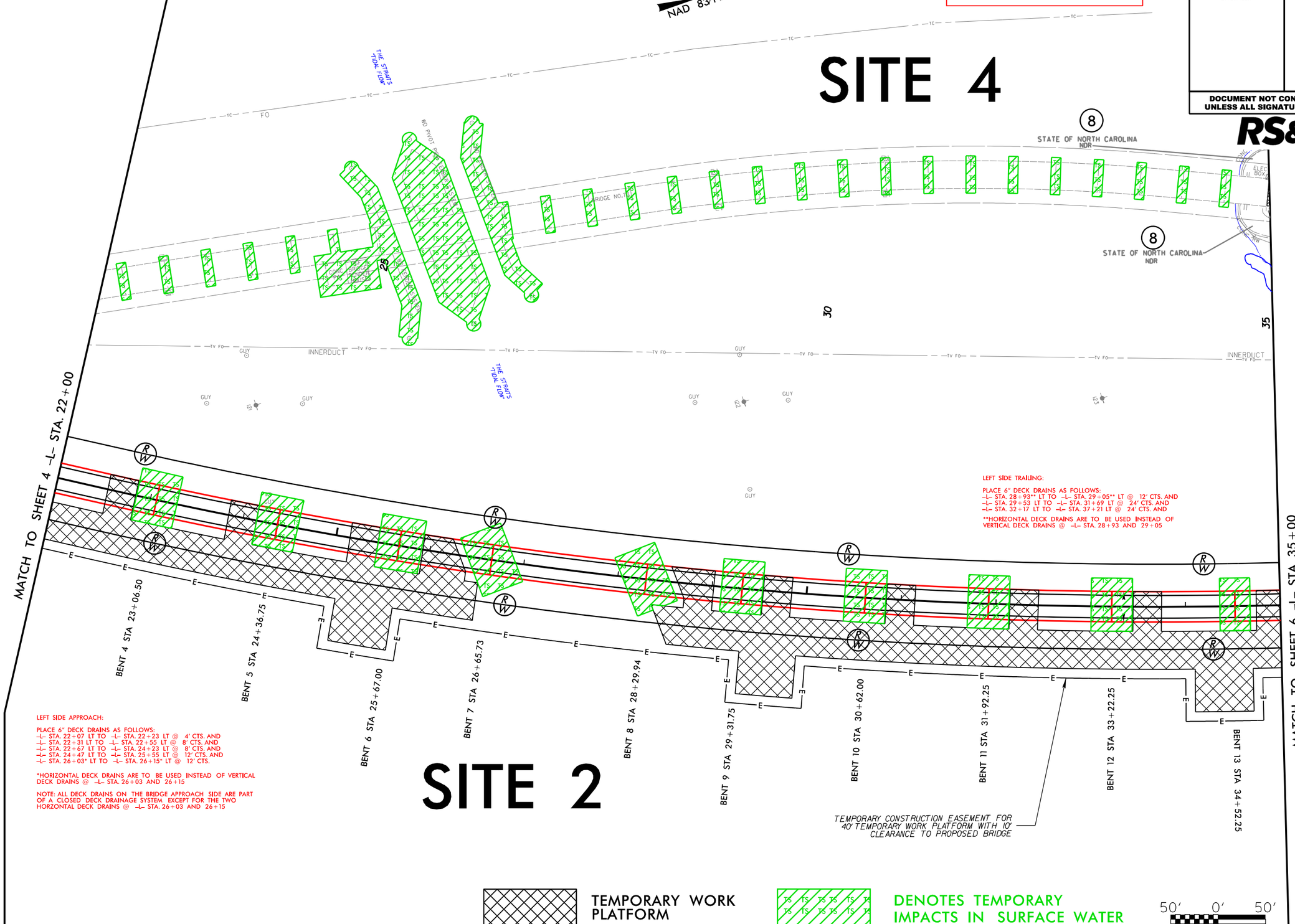
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PERMIT DRAWING
SHEET 4 OF 15

NAD 83/NA 2011

SITE 4



REVISIONS

8/17/99

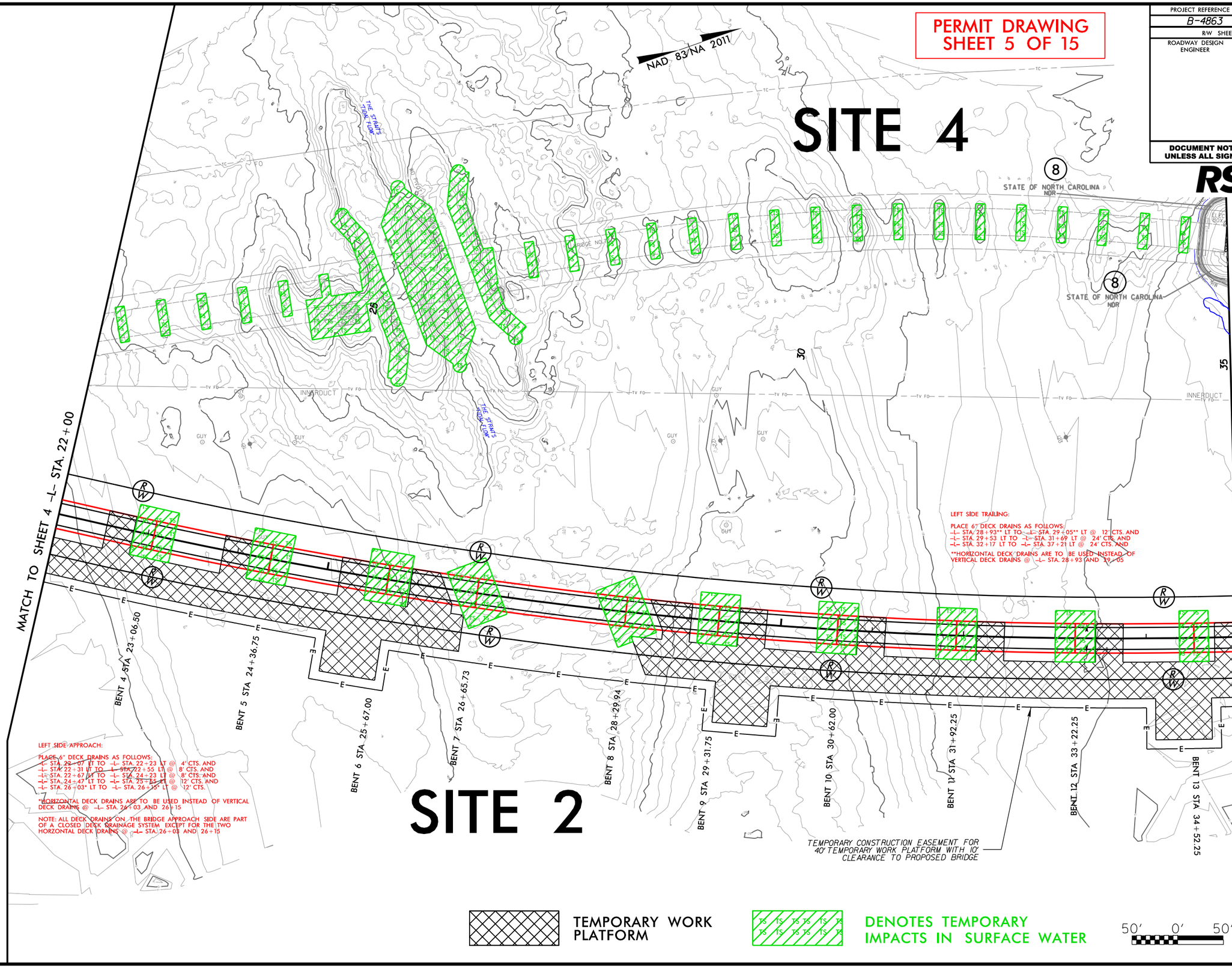
30-AUG-2018 08:10
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_04_psh_05.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4863	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PERMIT DRAWING
SHEET 5 OF 15



REVISIONS

8/17/99

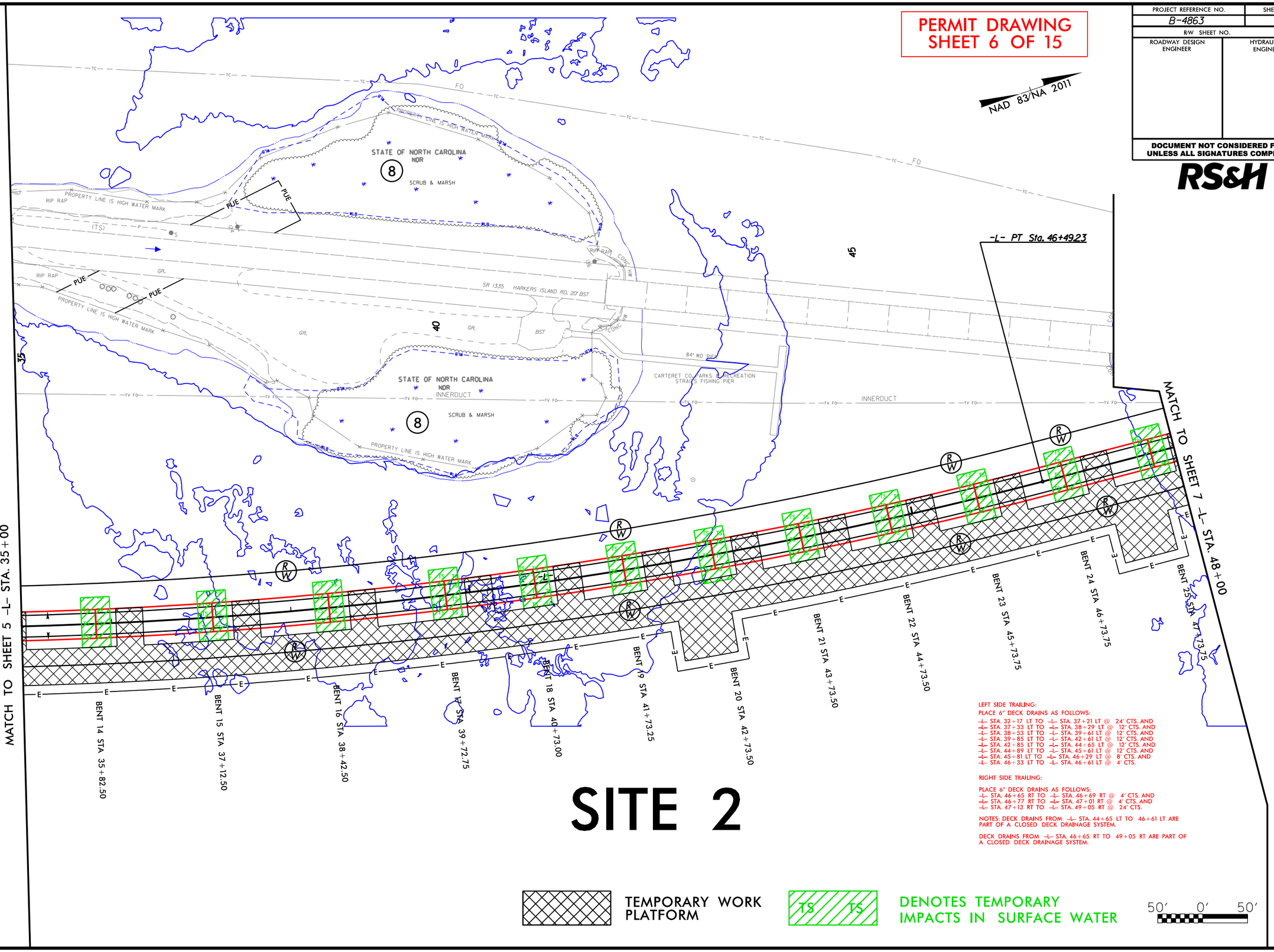
30-AUG-2018 08:10
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_05_psh_05_con.dgn
$$$$USERNAME$$$$

PERMIT DRAWING
SHEET 6 OF 15

PROJECT REFERENCE NO.	SHEET NO.
B-4863	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H



LEFT SIDE TRAILING:

PLACE 6" DECK DRAINS AS FOLLOWS:

-L- STA. 32+17 LT TO -L- STA. 37+21 LT @ 24' CTS. AND
-L- STA. 37+33 LT TO -L- STA. 38+29 LT @ 12' CTS. AND
-L- STA. 38+53 LT TO -L- STA. 39+61 LT @ 12' CTS. AND
-L- STA. 39+85 LT TO -L- STA. 42+61 LT @ 12' CTS. AND
-L- STA. 42+85 LT TO -L- STA. 44+65 LT @ 12' CTS. AND
-L- STA. 44+89 LT TO -L- STA. 45+61 LT @ 12' CTS. AND
-L- STA. 45+81 LT TO -L- STA. 46+29 LT @ 8' CTS. AND
-L- STA. 46+33 LT TO -L- STA. 46+61 LT @ 4' CTS.

RIGHT SIDE TRAILING:

PLACE 6" DECK DRAINS AS FOLLOWS:

-L- STA. 46+65 RT TO -L- STA. 46+69 RT @ 4' CTS. AND
-L- STA. 46+77 RT TO -L- STA. 47+01 RT @ 4' CTS. AND
-L- STA. 47+13 RT TO -L- STA. 49+05 RT @ 24' CTS.

NOTES: DECK DRAINS FROM -L- STA. 44+65 LT TO 46+61 LT ARE PART OF A CLOSED DECK DRAINAGE SYSTEM.

DECK DRAINS FROM -L- STA. 46+65 RT TO 49+05 RT ARE PART OF A CLOSED DECK DRAINAGE SYSTEM.

SITE 2

REVISIONS

8/17/99

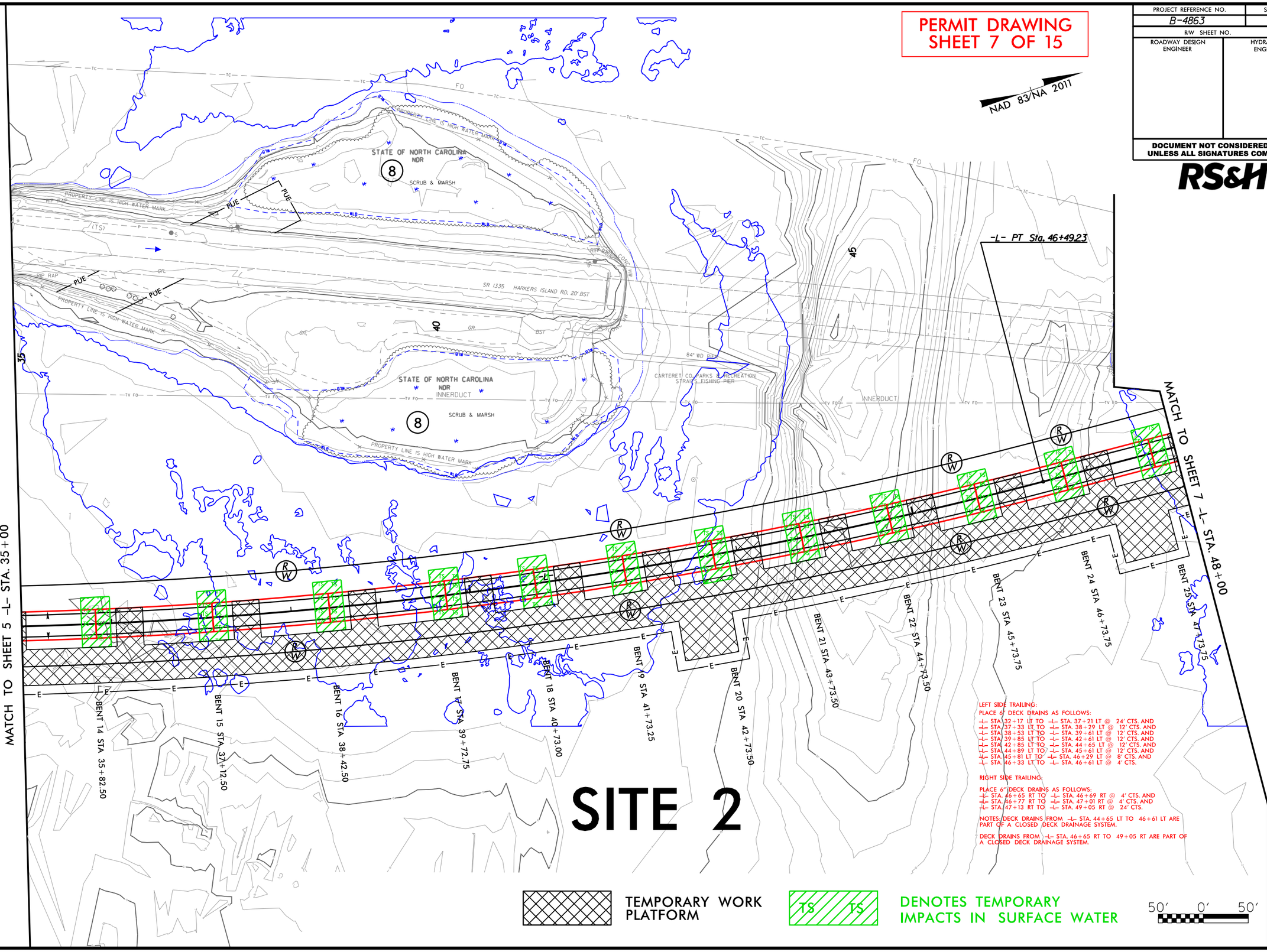
30-AUG-2018 08:10
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_06_psh_06.dgn
$$$$USERNAME$$$$

PERMIT DRAWING
SHEET 7 OF 15

PROJECT REFERENCE NO.	SHEET NO.
B-4863	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H



LEFT SIDE TRAILING:
PLACE 6" DECK DRAINS AS FOLLOWS:
-L- STA. 32+17 LT TO -L- STA. 37+21 LT @ 24' CTS. AND
-L- STA. 37+33 LT TO -L- STA. 38+29 LT @ 12' CTS. AND
-L- STA. 38+53 LT TO -L- STA. 39+61 LT @ 12' CTS. AND
-L- STA. 39+85 LT TO -L- STA. 42+61 LT @ 12' CTS. AND
-L- STA. 42+85 LT TO -L- STA. 44+65 LT @ 12' CTS. AND
-L- STA. 44+89 LT TO -L- STA. 45+61 LT @ 12' CTS. AND
-L- STA. 45+81 LT TO -L- STA. 46+29 LT @ 8' CTS. AND
-L- STA. 46+33 LT TO -L- STA. 46+61 LT @ 4' CTS.

RIGHT SIDE TRAILING:
PLACE 6" DECK DRAINS AS FOLLOWS:
-L- STA. 46+65 RT TO -L- STA. 46+69 RT @ 4' CTS. AND
-L- STA. 46+77 RT TO -L- STA. 47+01 RT @ 4' CTS. AND
-L- STA. 47+13 RT TO -L- STA. 49+05 RT @ 24' CTS.

NOTES: DECK DRAINS FROM -L- STA. 44+65 LT TO 46+61 LT ARE PART OF A CLOSED DECK DRAINAGE SYSTEM.

DECK DRAINS FROM -L- STA. 46+65 RT TO 49+05 RT ARE PART OF A CLOSED DECK DRAINAGE SYSTEM.

REVISIONS

8/17/99

30-AUG-2018 08:10
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_07_psh_06_con.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4863	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PERMIT DRAWING
SHEET 8 OF 15

NAD 83/NA 2011

END GRADE
-PARK- Sta.14+14.48

BEGIN GRADE
-PARK- Sta.10+20.90

END PROJECT
B-4863 STA. 55+05.00
END CONSTRUCTION
B-4863 STA. 55+40.00

MATCH TO SHEET 6 -L- STA. 48+00

BENT 26 STA 48+74.00

BENT 27 STA 49+74.25

STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA

GERTRUDE C HAMILTON

DAVID CHRISTOPHER MILLER

WILLIAM F. SUTTON, et ux

JEFFREY L. CHADWICK, et ux

JEFFREY L. CHADWICK, et ux

ALLEN JONES, et ux

DAVID CHRISTOPHER MILLER

SR 1335 HARKERS ISLAND RD. 20' BST

N 18°55'07.9" E

RIGHT SIDE TRAILING:

PLACE 6" DECK DRAINS AS FOLLOWS:
-L- STA. 47+13 RT TO -L- STA. 49+05 RT @ 24' CTS.

DECK DRAINS FROM -L- STA. 46+65 RT TO 49+05 RT ARE PART OF A CLOSED DECK DRAINAGE SYSTEM.

SITE 2

SITE 3

DENOTES TEMPORARY FILL IN WETLAND

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES HAND CLEARING

TEMPORARY WORK PLATFORM

50' 0' 50'

REVISIONS

8/17/99

30-AUG-2018 08:10
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_08_psh_07.dgn
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4863	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PERMIT DRAWING
SHEET 9 OF 15

NAD 83/NA 2011

END GRADE
-PARK- Sta.14+14.48

BEGIN GRADE
-PARK- Sta.10+20.90

END PROJECT
B-4863 STA. 55+05.00
END CONSTRUCTION
B-4863 STA. 55+40.00

MATCH TO SHEET 6 -L- STA. 48+00

BENT 26 STA 48+74.00

BENT 27 STA 49+74.25

STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA

STATE OF NORTH CAROLINA

GERTRUDE C. HAMILTON

DAVID CHRISTOPHER MILLER

WILLIAM F. SUTTON, et ux

JEFFREY L. CHADWICK, et ux

JEFFREY L. CHADWICK, et ux

DAVID CHRISTOPHER MILLER

ALLEN JONES, et ux

N 18°55'07.9" E

SR 1335 HARKERS ISLAND RD. 20' BST

RIGHT SIDE TRAILING:

PLACE 6" DECK DRAINS AS FOLLOWS:
-L- STA. 47+13 RT TO -L- STA. 49+05 RT @ 24' CTS.

DECK DRAINS FROM -L- STA. 46+65 RT TO 49+05 RT ARE PART OF A CLOSED DECK DRAINAGE SYSTEM.

SITE 2

SITE 3

DENOTES TEMPORARY FILL IN WETLAND

DENOTES TEMPORARY IMPACTS IN SURFACE WATER

DENOTES HAND CLEARING

TEMPORARY WORK PLATFORM

50' 0' 50'

REVISIONS

8/17/99

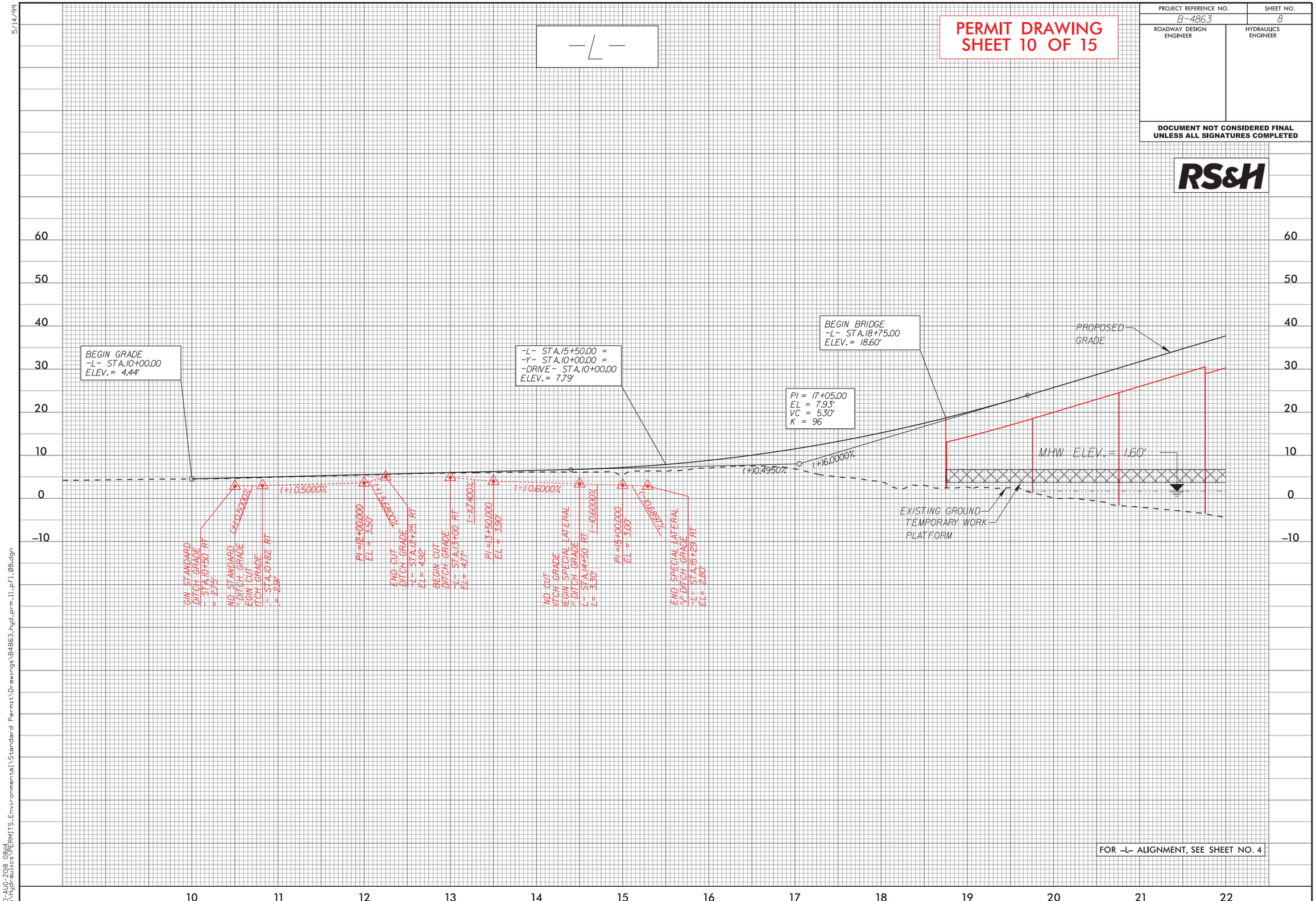
30-AUG-2018 08:10
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_09_psh_07_con.dgn
$$$$CELLNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B-4863	8
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PERMIT DRAWING
SHEET 10 OF 15



FOR -L- ALIGNMENT, SEE SHEET NO. 4

5/14/99

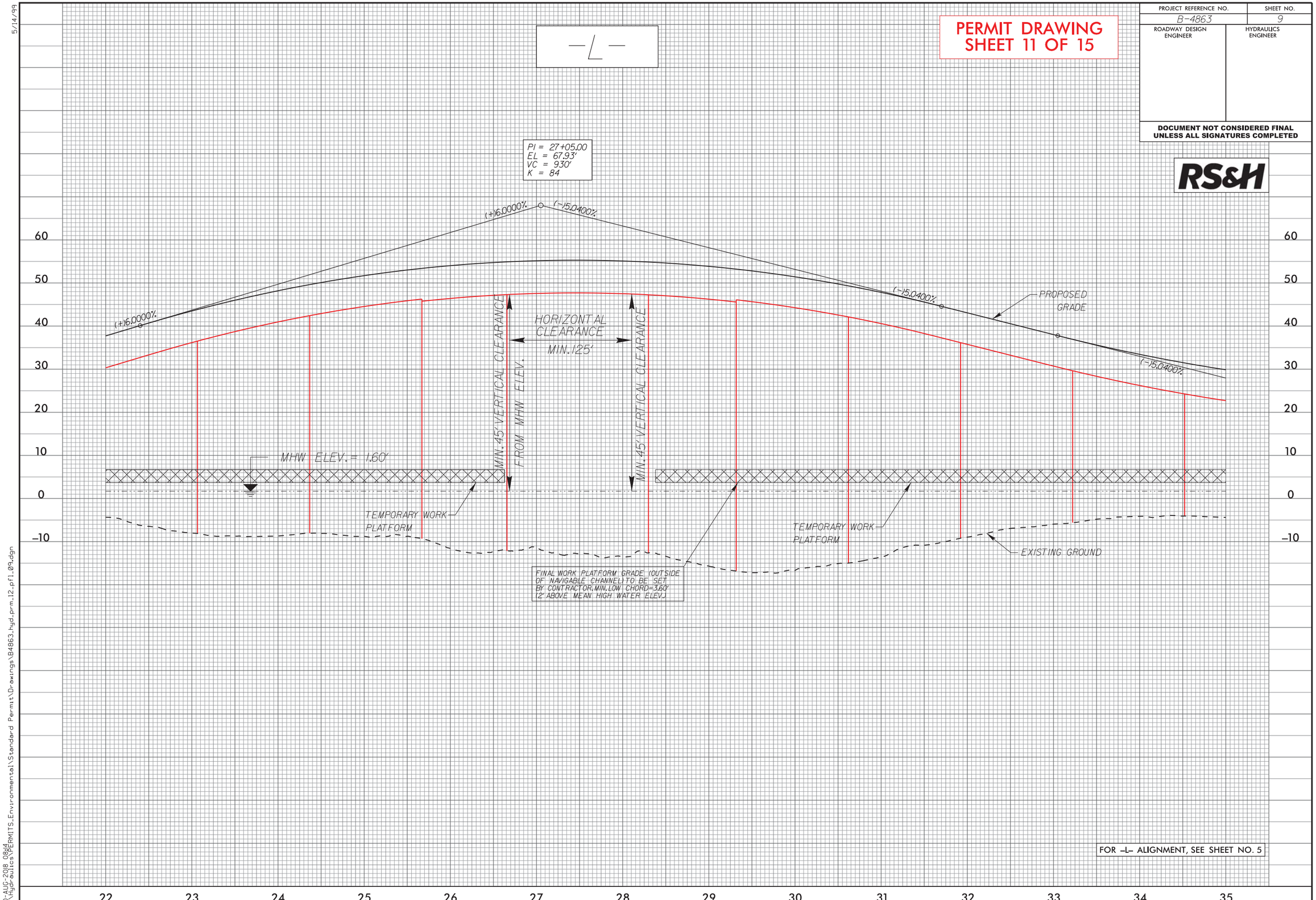
30-AUG-2018 08:44
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_11_pf1_08.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-4863	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PERMIT DRAWING
SHEET 11 OF 15



FOR -L- ALIGNMENT, SEE SHEET NO. 5

5/14/99

30-AUG-2018 08:14
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_12_pf1_09.dgn

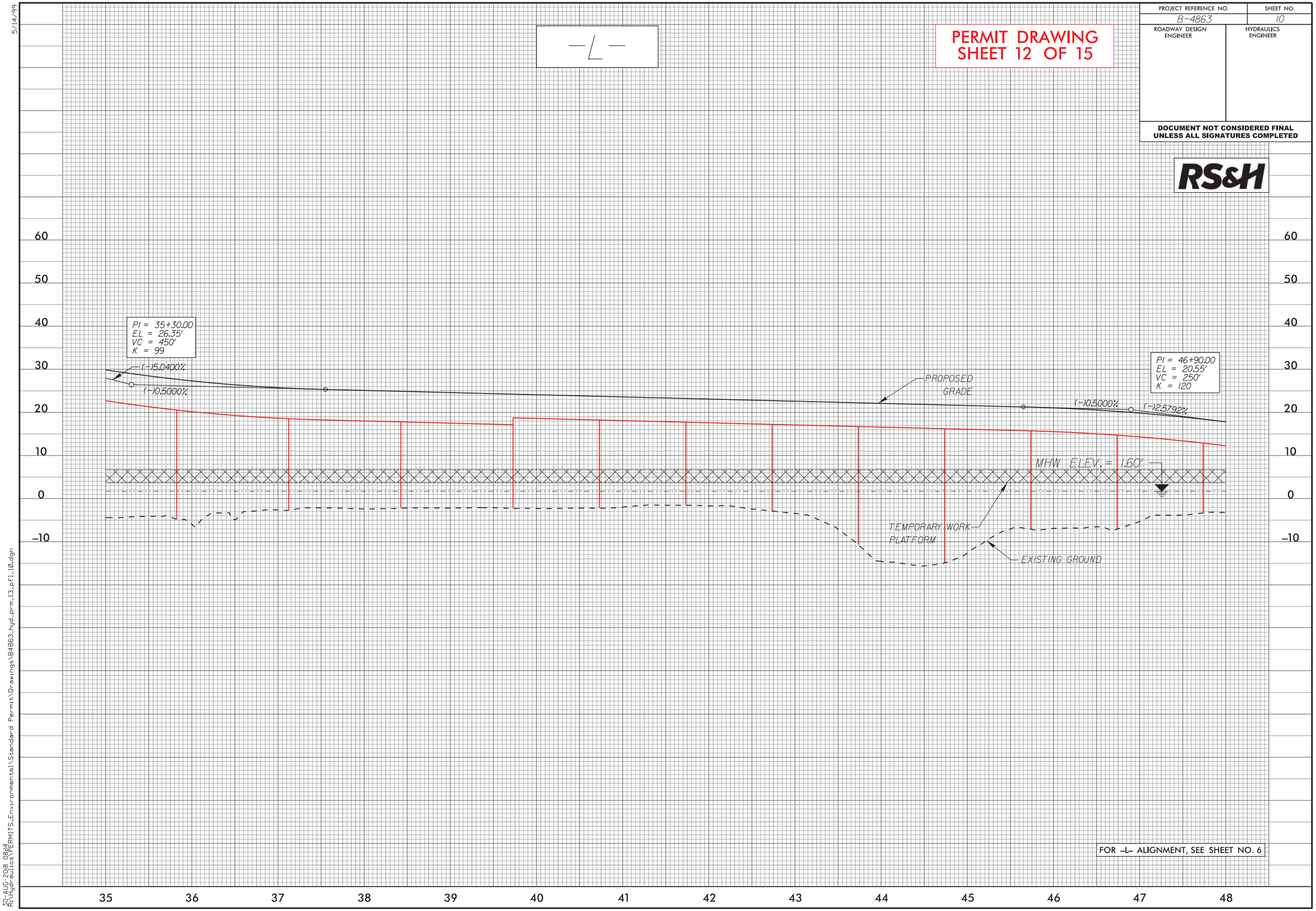
PROJECT REFERENCE NO.	SHEET NO.
B-4863	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PERMIT DRAWING
SHEET 12 OF 15

-L-



FOR -L- ALIGNMENT, SEE SHEET NO. 6

5/14/99

30-AUG-2018 08:04
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_13_pf1_10.dgn

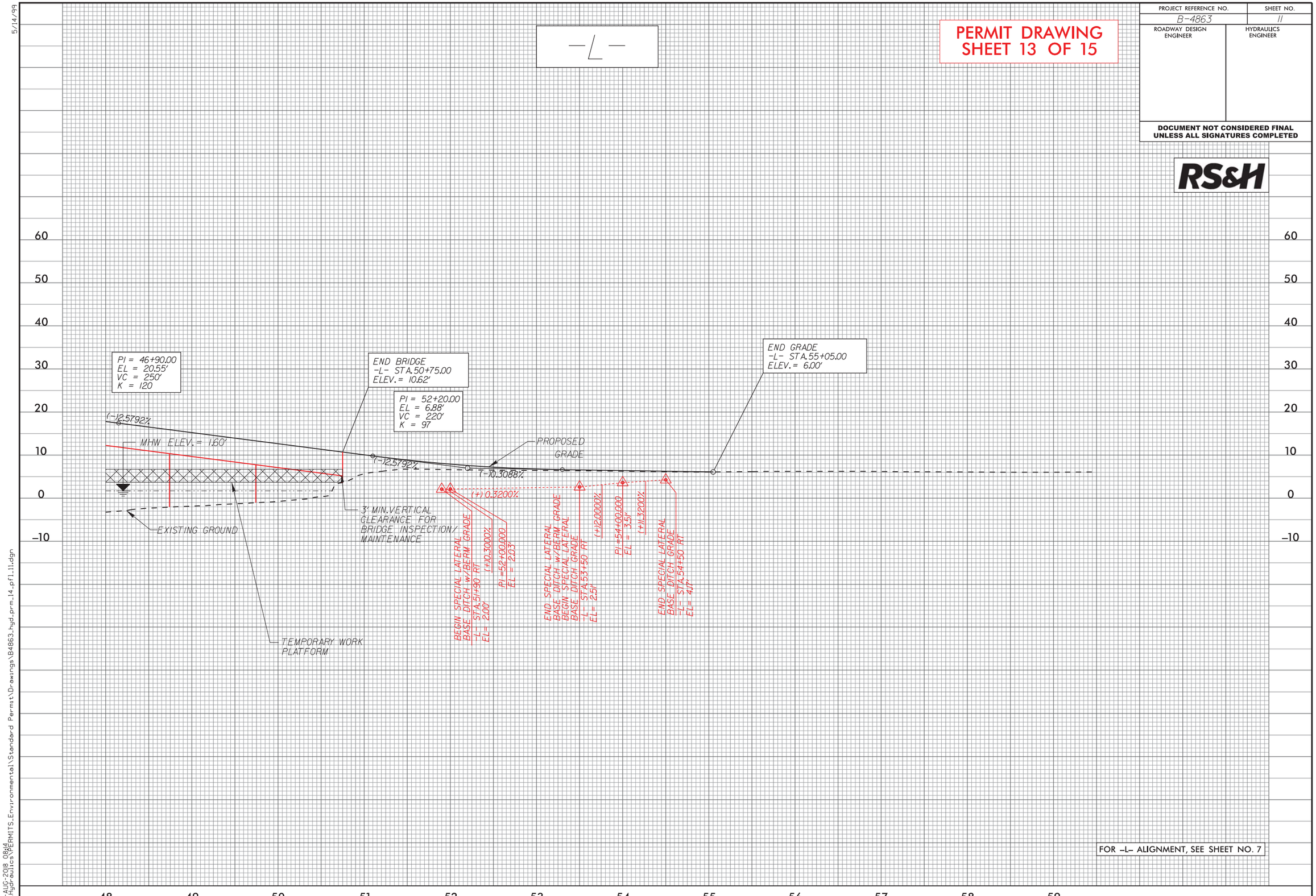
5/14/99

PROJECT REFERENCE NO.	SHEET NO.
B-4863	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

RS&H

PERMIT DRAWING
SHEET 13 OF 15

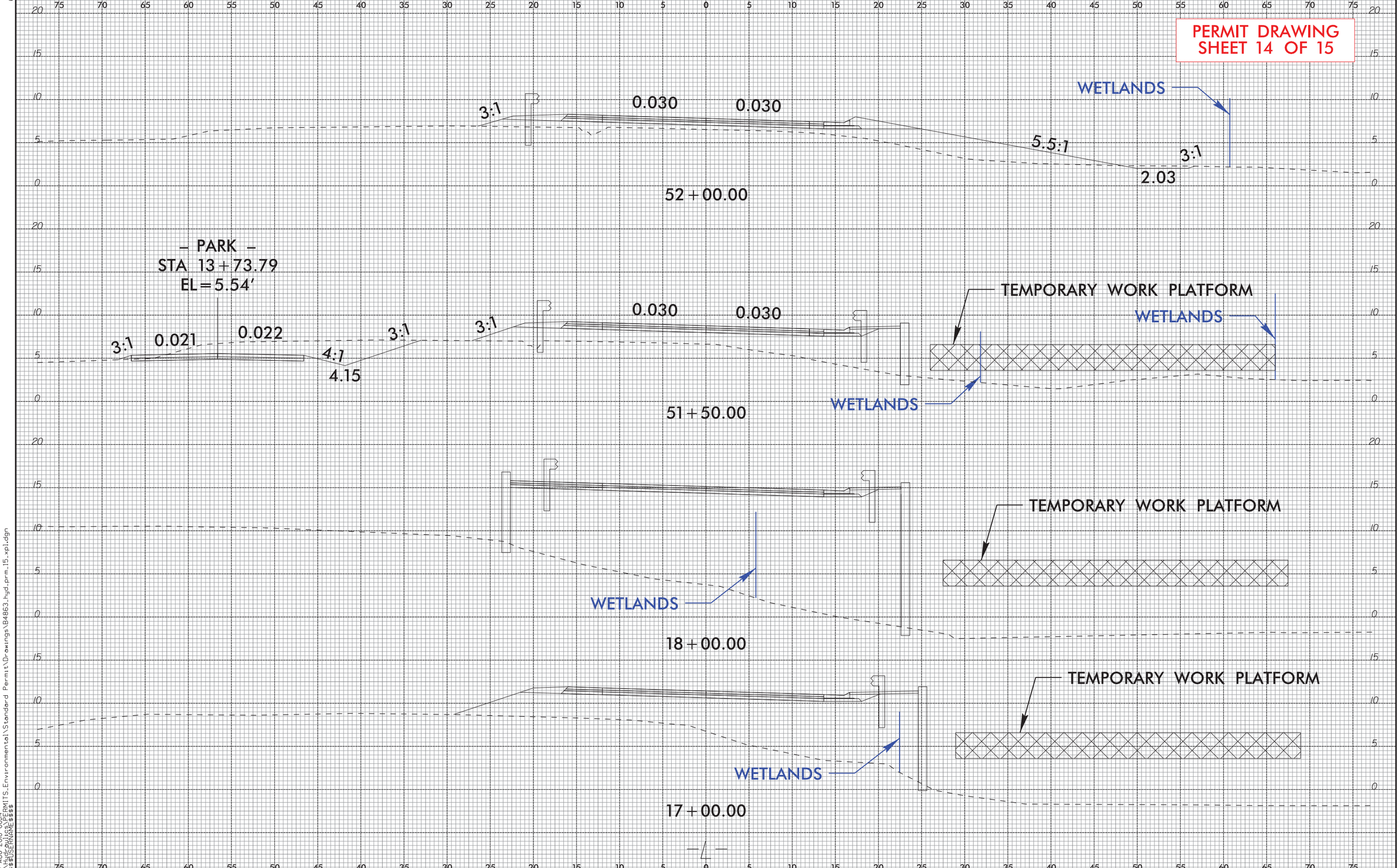


FOR -L- ALIGNMENT, SEE SHEET NO. 7

30-AUG-2018 08:14
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_14_pf1_11.dgn

PROJ. REFERENCE NO.	SHEET NO.
B-4863	X-1

PERMIT DRAWING
SHEET 14 OF 15



6/23/16
30-AUG-2018 08:14
R:\Hydraulics\PERMITS_Environmental\Standard Permit\Drawings\B4863_hyd_prm_15_xpl.dgn
$$$$USERNAME$$$$

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	-Y- 11+66 RT	Prop Rip Rap Pad Instal					< 0.01					
1	-L- 15+90 to 16+60 RT	Temp Work Platform Access		0.04								
1	-L- 16+40 to 18+90	Prop Bridge Approach	0.07				0.07					
2	-L- 18+90 to 15+50	Proposed Bridge	< 0.01	0.04				0.02	1.39			
2	-L- 16+35 to 51+37	Temp Work Platform							0.56			
3	-L- 49+72 LT	Parking Lot Clearing Limits					< 0.01					
3	-L- 51+37 to 52+50 RT	Temp Work Platform Access		0.06								
4	-L- 21+20 to 34+75 LT	Existing Bridge Removal							0.72			
TOTALS*:			0.07	0.14			0.08	0.02	2.67	0	0	0

*Rounded totals are sum of actual impacts

NOTES:

Total Permanent SW Impacts = 767 sq.ft.

Total Permanent Fill in Wetlands = 2,943 sq.ft.

Total Hand Clearing = 3,270 sq.ft.

Temp Work Platform

20' spans @ 3,080' = 156 pile rows. Each Pile Row has 100 sq.ft. of Temp SW Impacts. Main platform has 156*100 sq.ft = 15,600 sq.ft. Temp SW Impacts

Finger and Turnarounds calculated by the same method with 6,075 sq.ft and 2,700 sq.ft. of Temp SW Impacts respectively. Total = 15,600 + 6,075 + 2,700 = 24,375 sq.ft.

Revised 2016 09 09

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
8/30/18
Carteret County
B-4863
40212.1.3