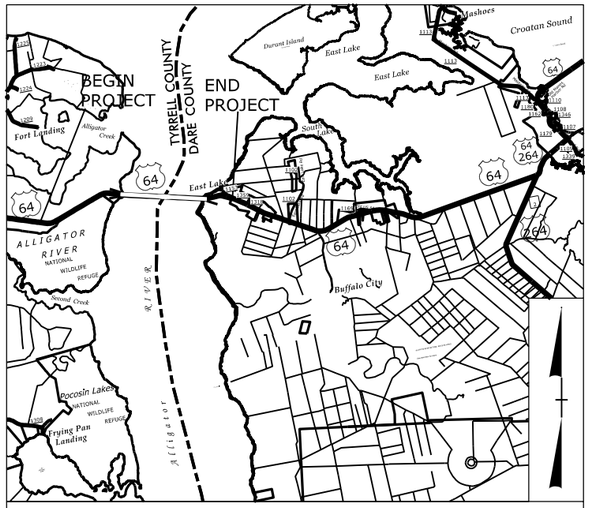
09/08/99

TIP PROJECT: HB-0001

CONTRACT:

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Symbols
See Sheet 1C-1 For Survey Control Sheet



VICINITY MAP

THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TYRRELL & DARE COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HB-0001	1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
49475.1.1	NHPB-0001(156)	PE
49475.2.1	NHPB-0001(156)	ROW

ROW PLAN SET

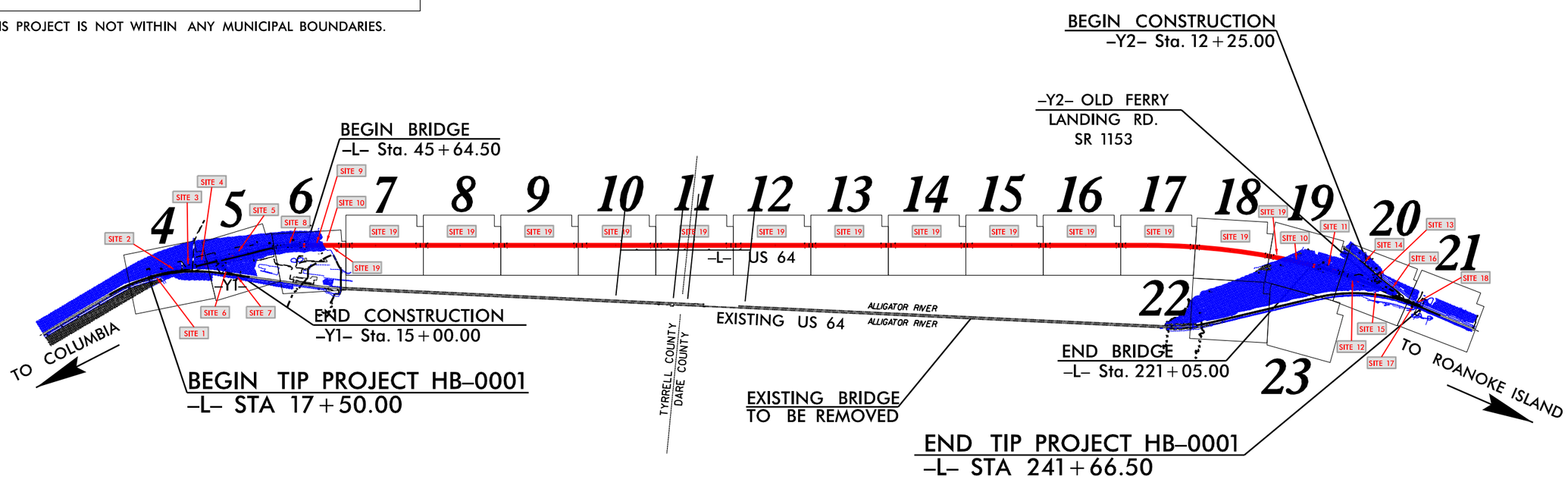
LOCATION: REPLACE BRIDGE #7 ON US 64 IN TYRRELL AND DARE COUNTIES OVER THE ALLIGATOR RIVER

TYPE OF WORK: STRUCTURE, GRADING, PAVING, DRAINAGE

WETLAND AND SURFACE WATER IMPACTS PERMIT

PERMIT DRAWING
SHEET 1 OF 79

NAD 83 (CORS 96)



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

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 2023 = 5734/9645**
ADT 2043 = 10400/13200**
K = 10 %
D = 60 %
T = 7 % *
V = 60 MPH
* TTST =4% DUAL 3%
FUNC CLASS =
PRINCIPAL ARTERIAL
REGIONAL TIER
**WEEKDAY/WEEKEND

PROJECT LENGTH

TIP PROJECT HB-0001 ROADWAY LENGTH = 0.924 MILES
TIP PROJECT HB-0001 STRUCTURES LENGTH = 3.322 MILES
TIP PROJECT HB-0001 TOTAL PROJECT LENGTH = 4.246 MILES

NCDOT CONTACT: JOHN CONFORTI, REM
PROJECT MANAGER

Prepared in the Office of:
SUMMIT DESIGN AND ENGINEERING SERVICES FIRM NO. P-0339
320 Executive Ct.
Hillsborough, NC 27278-8551
Voice: (919) 732-3883
Fax: (919) 732-6776
www.summitde.net

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 16, 2022

LETTING DATE:
OCTOBER 2024

NEIL J. DEAN, PE
PROJECT ENGINEER

FAITH E. JAHNKE, PE
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

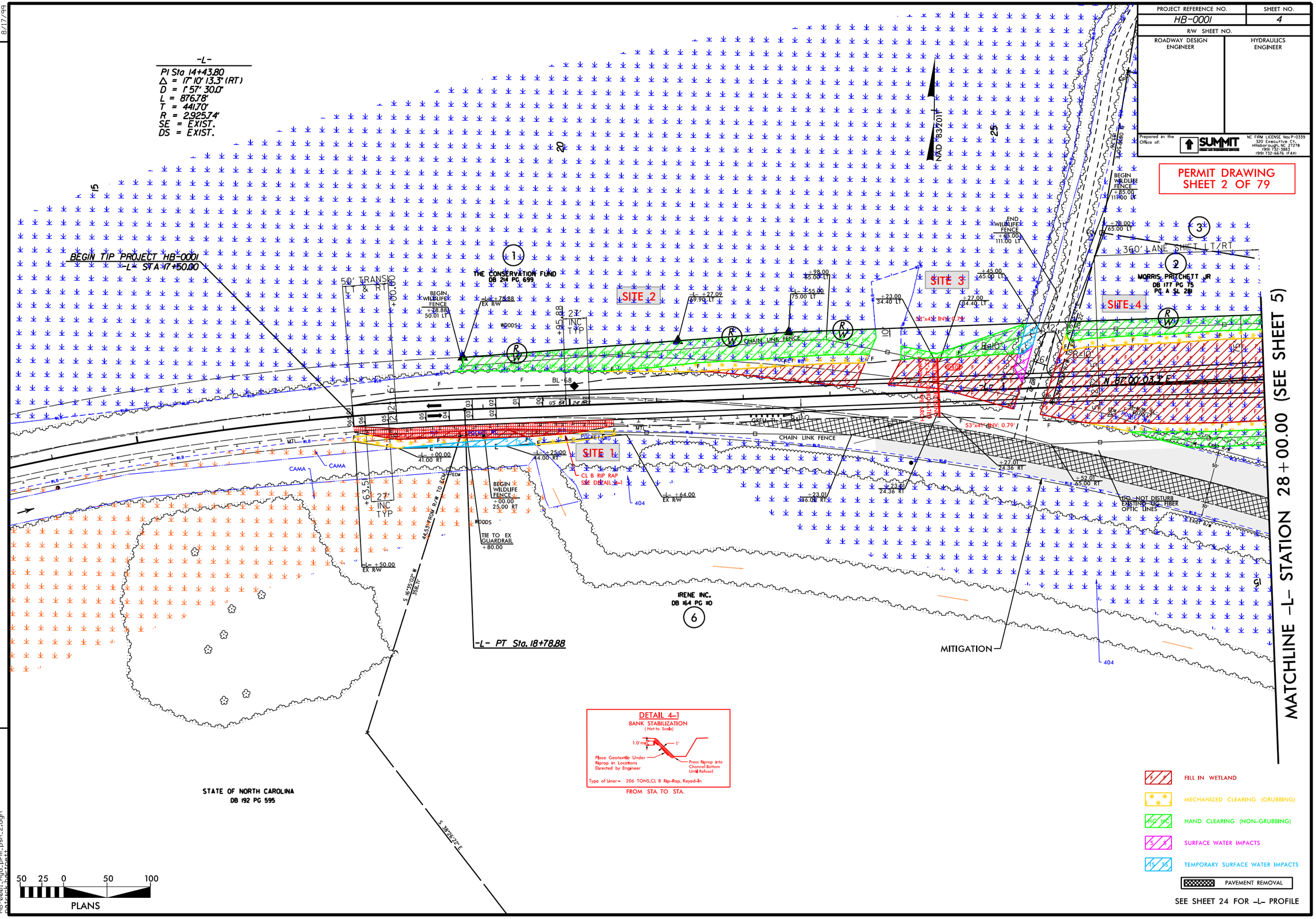
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

05-JUN-2023 13:05
HB-0001_hyd_prm_tsh.dgn
patrick.hartnett

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 2 OF 79



SEE SHEET 24 FOR -L- PROFILE

REVISIONS

8/17/99

08-JUN-2023 13:05
HB0001_sht_plan_psh_2.dgn
ostuck.hgt.prt

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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(919) 732-3883
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PERMIT DRAWING
SHEET 3 OF 79

-L-
PI Sta 14+43.80
Δ = 17° 10' 13.3" (RT)
D = 1° 57' 30.0"
L = 876.78'
T = 441.70'
R = 2,925.74'
SE = EXIST.
DS = 2° EXIST.

BEGIN TIP PROJECT HB-0001
-L- STA 17+50.00

50' TRANSL L & RT

THE CONSERVATION FUND
DB 214 PG 699

WORRIS, PRITCHETT JR
DB 177 PG 75
PC A SL 29

IRENE INC.
DB 164 PG 110

STATE OF NORTH CAROLINA
DB 192 PG 595

SITE 1
SITE 2
SITE 3
SITE 4

360' LANE SHIFT LT/RT

BEGIN WILDLIFE FENCE
END WILDLIFE FENCE

CHAIN LINK FENCE
WOODS
CAMA
CL B RIP RAP
SEE DETAIL 4-1
TIE TO EX GUARDRAIL
DO NOT DISTURB EXISTING UG FIBER OPTIC LINES
MITIGATION
-L- PT Sta. 18+78.88
N 87°00'03" E
S 16°25'02" W 598.17'
S 38°52'22" E
NAD 83/2011

MATCHLINE -L- STATION 28+00.00 (SEE SHEET 5)

DETAIL 4-1
BANK STABILIZATION
(Not to Scale)
1.0' min
1'
Place Geotextile Under Riprap in Locations Directed by Engineer
Press Riprap into Channel Bottom (Until Refusal)
Type of Liner= 206 TONS,CL B Rip-Rap, Keyed-In
FROM STA. TO STA.

FILL IN WETLAND
MECHANIZED CLEARING (GRUBBING)
HAND CLEARING (NON-GRUBBING)
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
PAVEMENT REMOVAL

SEE SHEET 24 FOR -L- PROFILE

50 25 0 50 100
PLANS

REVISIONS

8/17/99

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hb0001_plan_sht_3.dgn
pstuck

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
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Hillsborough, NC 27278
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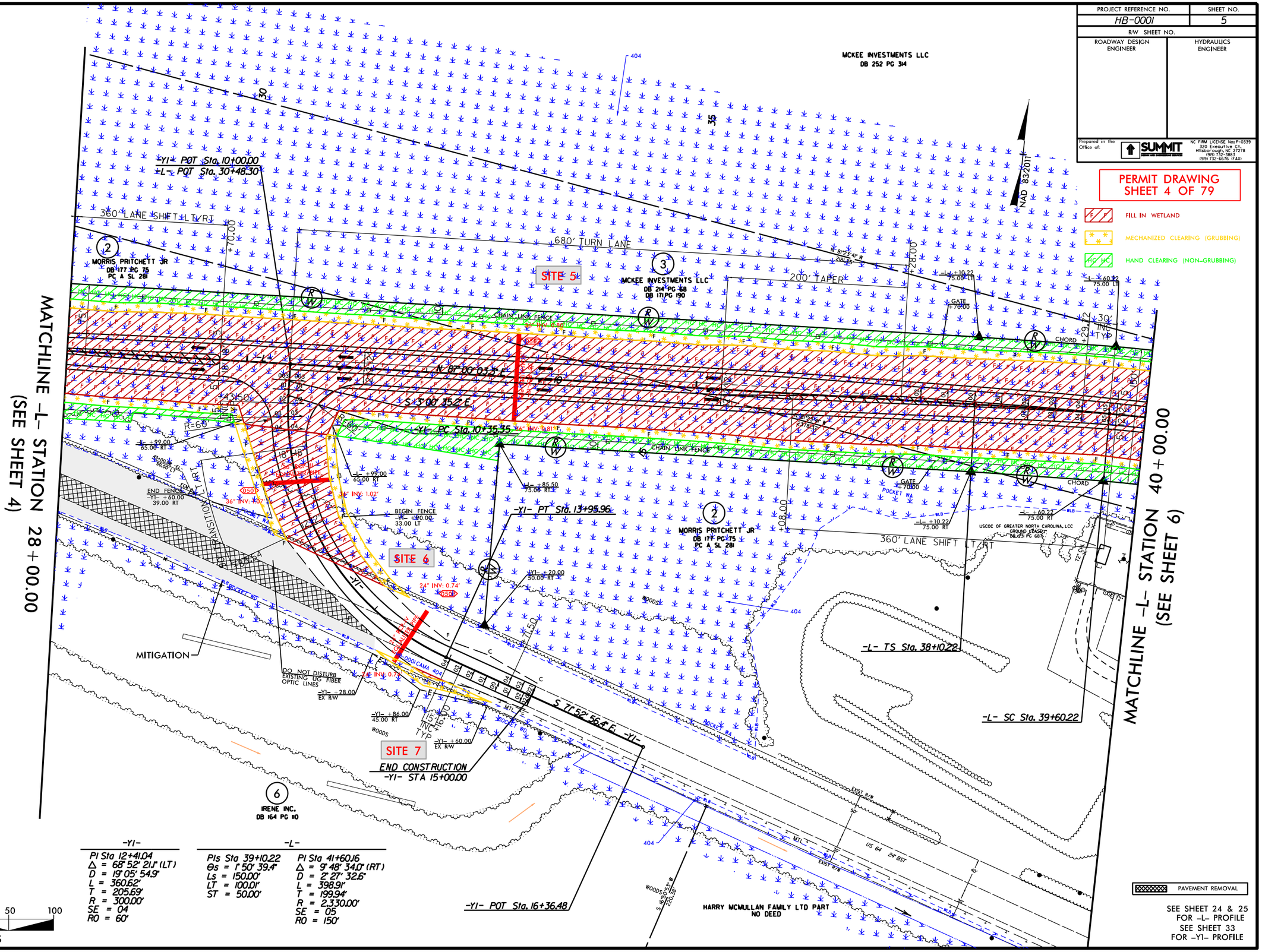
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 4 OF 79

FILL IN WETLAND
MECHANIZED CLEARING (GRUBBING)
HAND CLEARING (NON-GRUBBING)



-Y1-	-L-	
PI Sta 12+41.04	PIs Sta 39+10.22	PI Sta 41+60.16
Δ = 68° 52' 21.1" (LT)	Θs = 1° 50' 39.4"	Δ = 9° 48' 34.0" (RT)
D = 19° 05' 54.9"	Ls = 150.00'	D = 2° 27' 32.6"
L = 360.62'	LT = 100.01'	L = 398.91'
T = 205.69'	ST = 50.00'	T = 199.94'
R = 300.00'		R = 2,330.00'
SE = 04		SE = 05
RO = 60'		RO = 150'

REVISIONS

8/17/99

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pcarter

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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320 Executive Ct.
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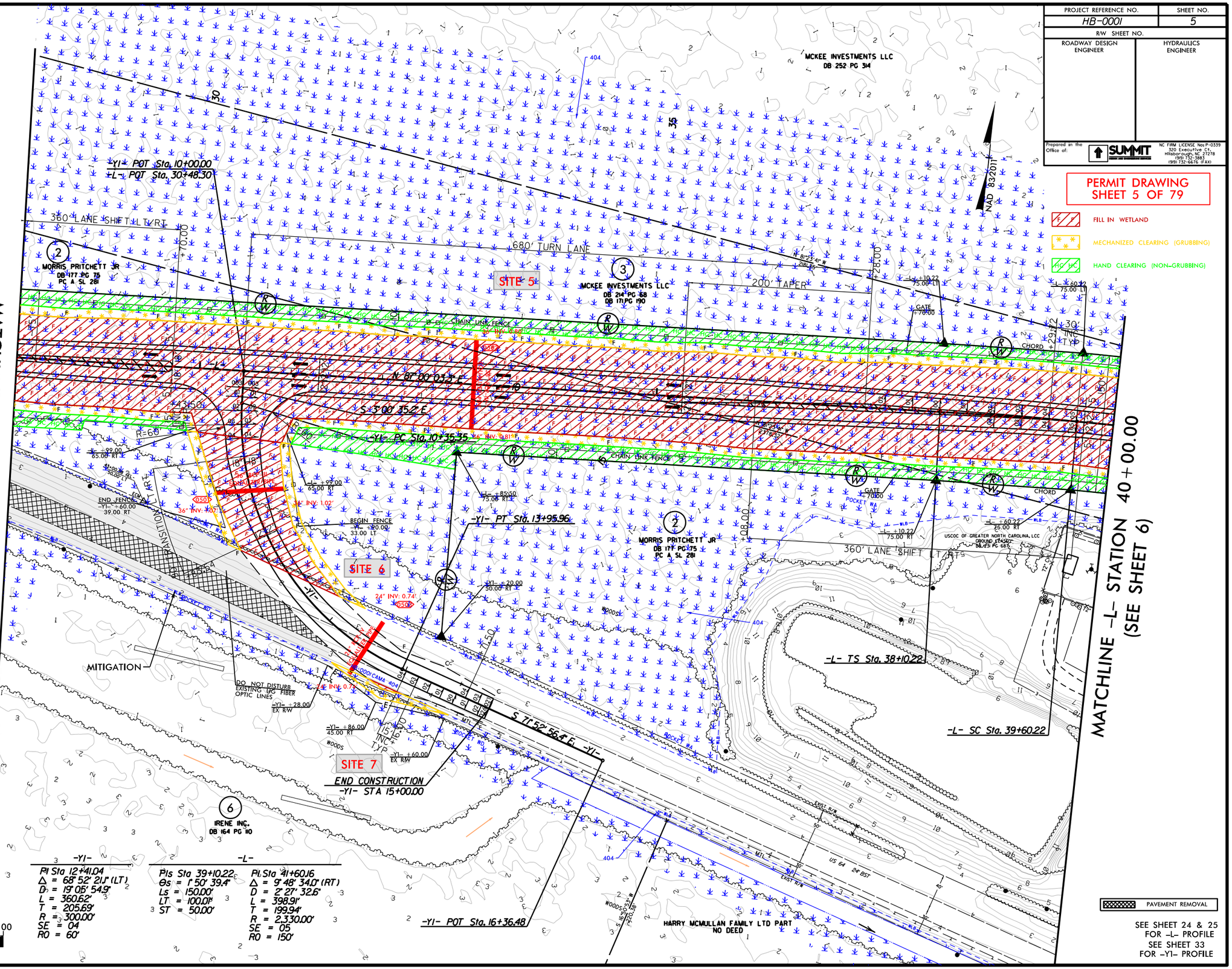
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 5 OF 79

FILL IN WETLAND
MECHANIZED CLEARING (GRUBBING)
HAND CLEARING (NON-GRUBBING)



-Y1-
PI Sta 12+41.04
Δ = 68° 52' 21.1" (LT)
D = 19° 05' 54.9"
L = 360.62'
T = 205.69'
R = 300.00'
SE = 04
RO = 60'

-L-
PIs Sta 39+10.22
Θs = 1° 50' 39.4"
Ls = 150.00'
LT = 100.01'
ST = 50.00'

PI Sta 41+60.16
Δ = 9° 48' 34.0" (RT)
D = 2° 27' 32.6"
L = 398.91'
T = 199.94'
R = 2,330.00'
SE = 05
RO = 150'

50 25 0 50 100
PLANS

PAVEMENT REMOVAL

SEE SHEET 24 & 25
FOR -L- PROFILE
SEE SHEET 33
FOR -Y1- PROFILE

REVISIONS

8/17/99

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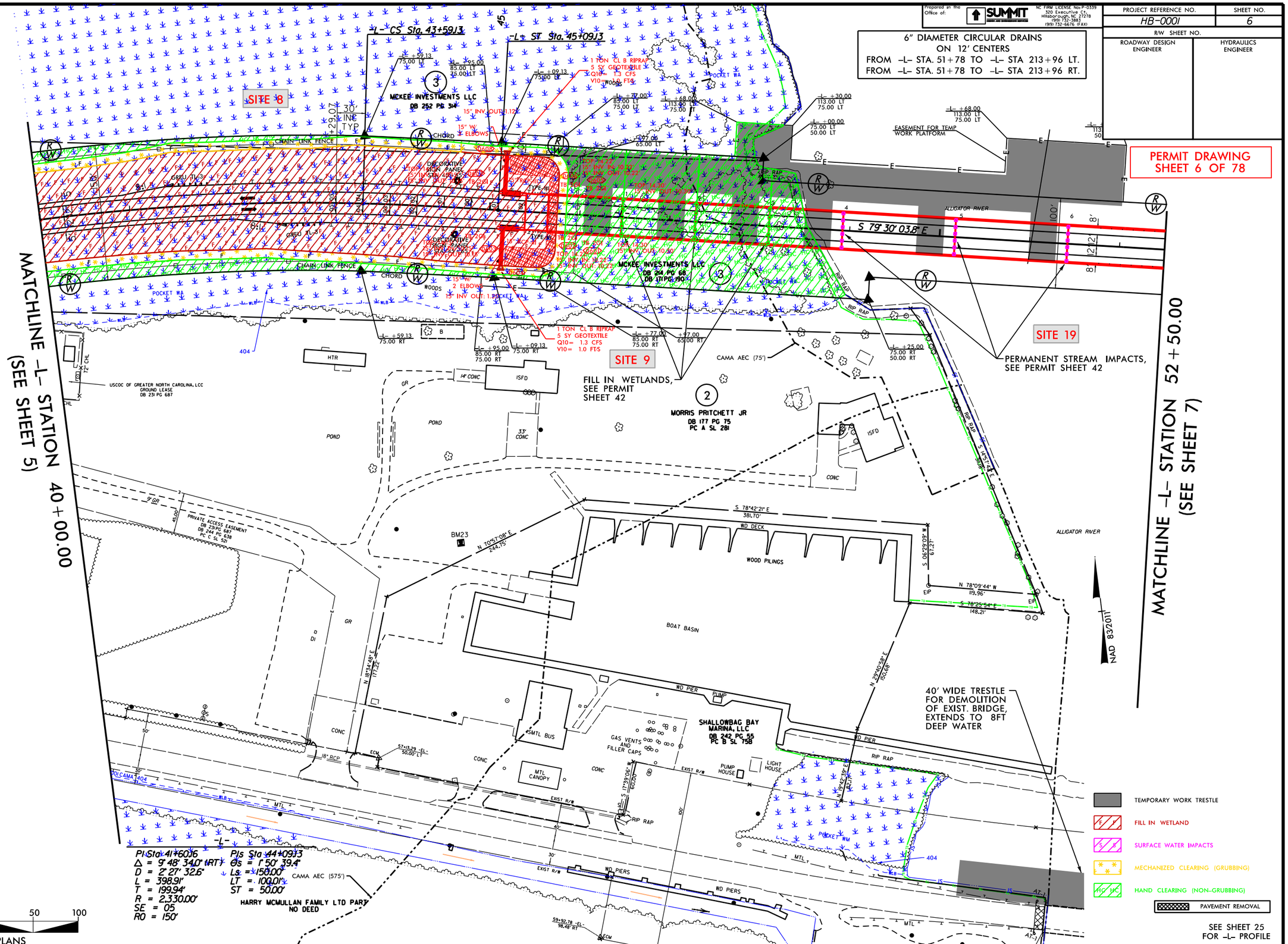
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 6 OF 78

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



PI Sta 41+60.16
Δ = 9°48'34.0" (RT)
D = 2°27'32.6"
L = 398.91'
T = 199.94'
R = 2,330.00'
SE = 05
RO = 150'

PIs Sta 44+09.13
Θs = 1°50'39.4"
Ls = 150.00'
LT = 100.01'
ST = 50.00'

HARRY MCMULLAN FAMILY LTD PART
NO DEED

50 25 0 50 100
PLANS

REVISIONS

8/17/99

05-JUN-2023 13:06
mcmullan_bridge_prm_psh_6.dgn

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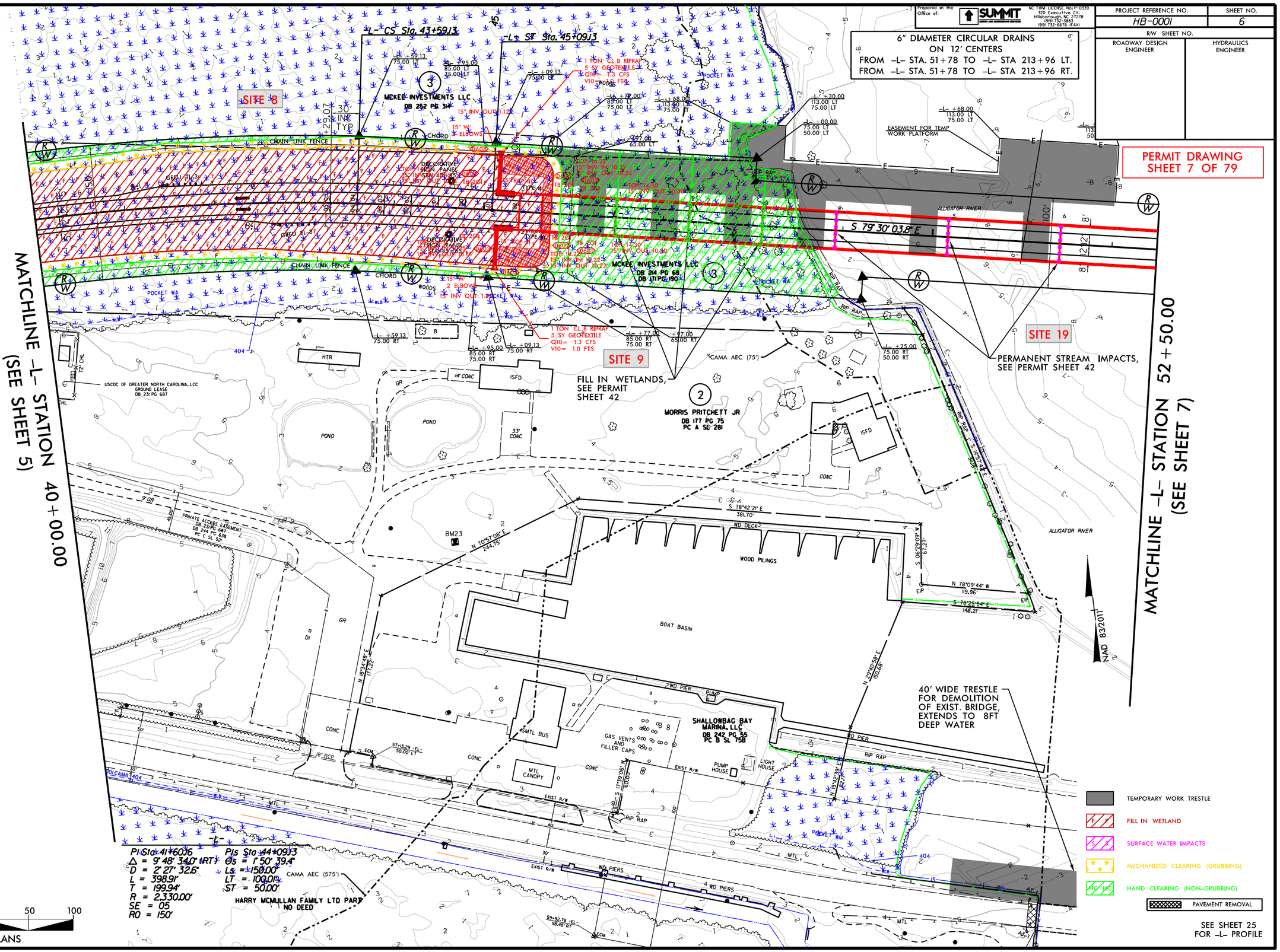
(919) 732-6676 (FAX)

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 7 OF 79

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



TEMPORARY WORK TRESTLE
FILL IN WETLAND
SURFACE WATER IMPACTS
MECHANIZED CLEARING (GRUBBING)
HAND CLEARING (NON-GRUBBING)
PAVEMENT REMOVAL

SEE SHEET 25
FOR -L- PROFILE

REVISIONS
8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
HB-0001	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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NC FIRM LICENSE No: P-0339
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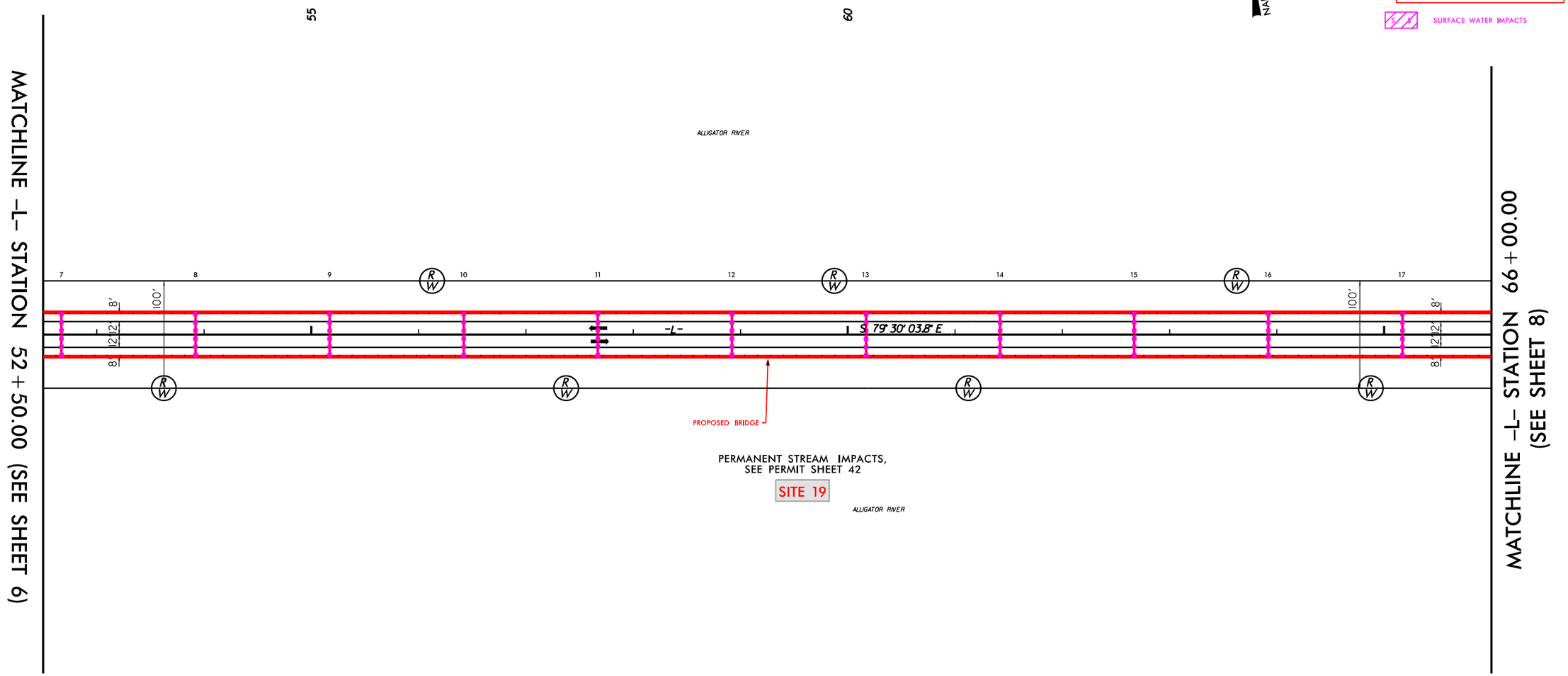
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 8 OF 79

SURFACE WATER IMPACTS



REVISIONS

8/17/99

50 25 0 50 100
PLANS

SEE SHEET 25 FOR -L- PROFILE

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Patrick Hagerty

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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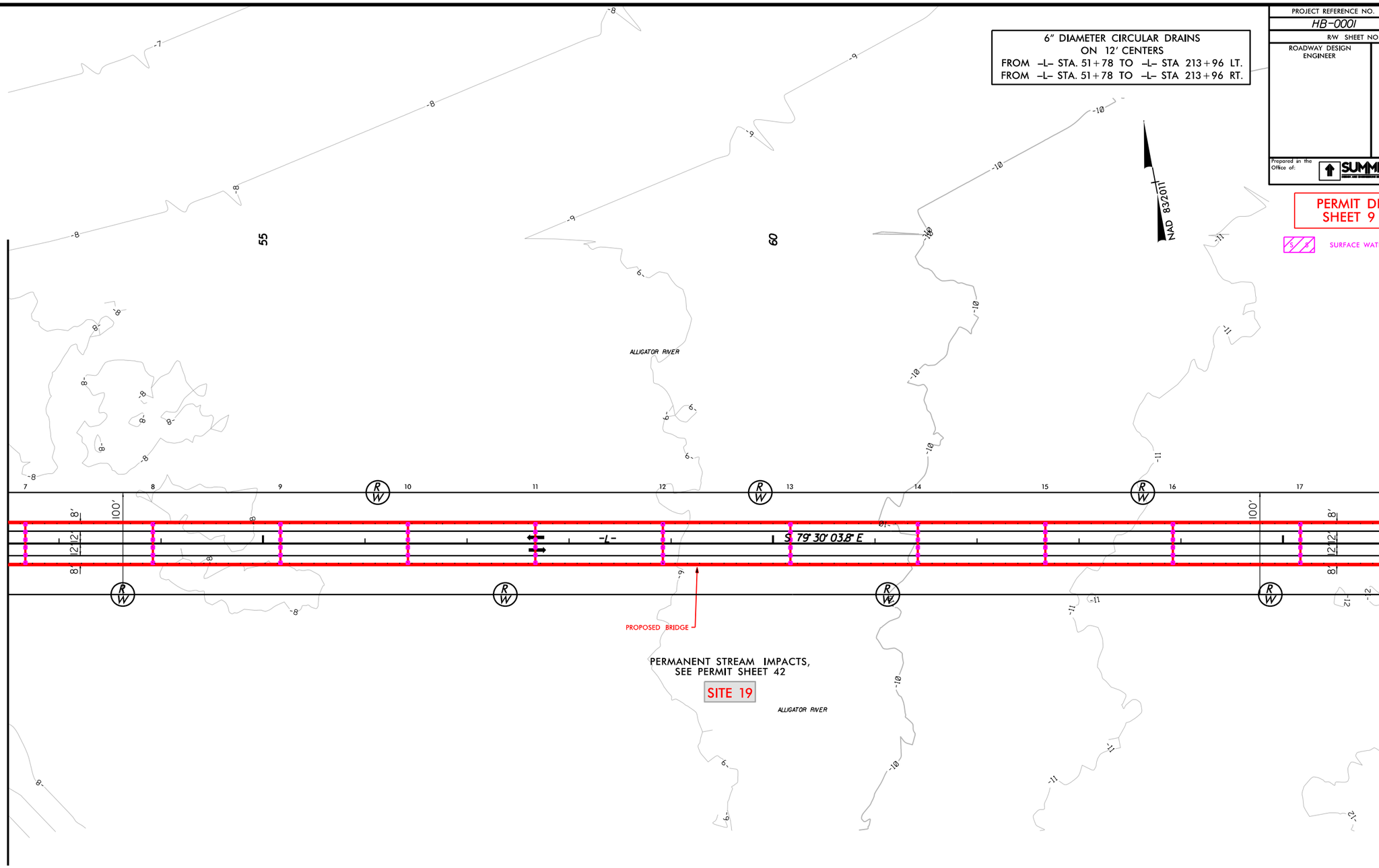
NC FIRM LICENSE Nos P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 9 OF 79

SURFACE WATER IMPACTS



REVISIONS

8/17/99

50 25 0 50 100
PLANS

SEE SHEET 25 FOR -L- PROFILE

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Patrick Hargett

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

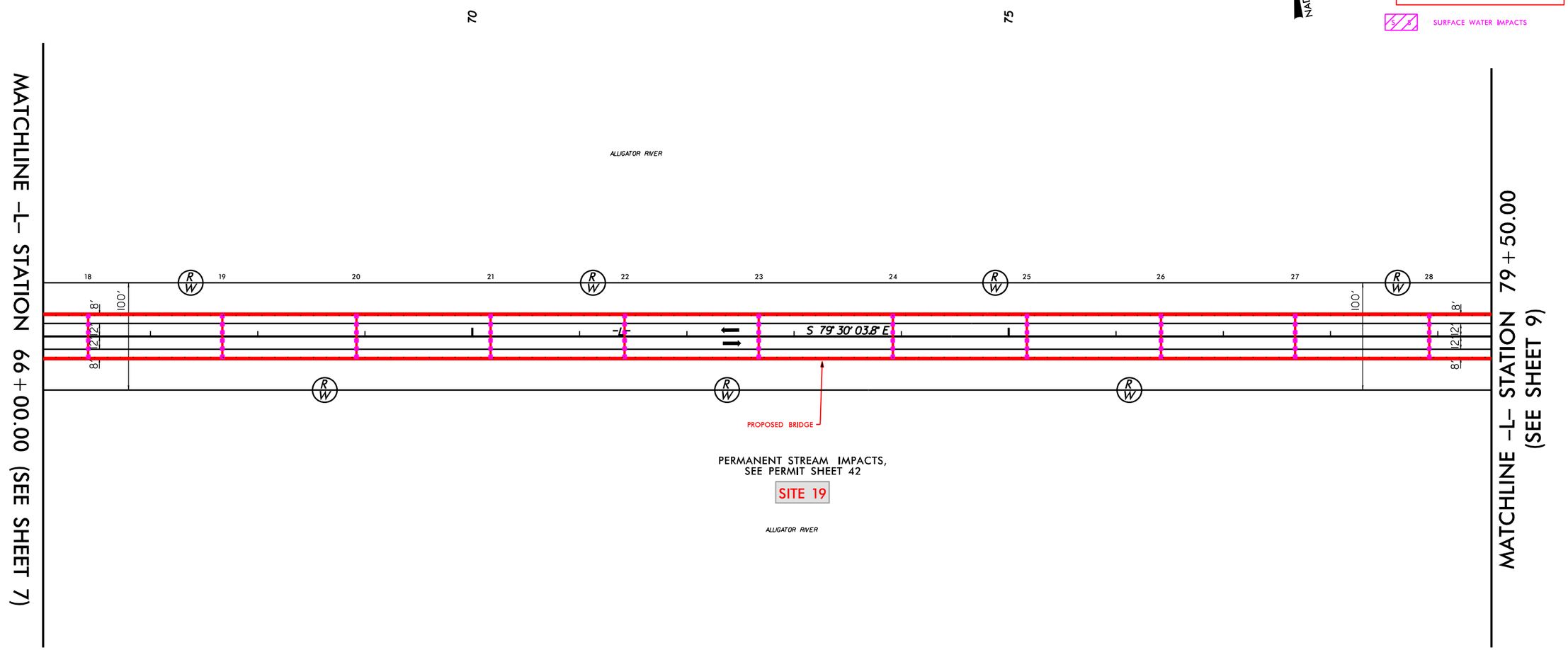
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 10 OF 79

SURFACE WATER IMPACTS

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

NAD 83/2011



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PLANS

SEE SHEET 26 FOR -L- PROFILE

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
HB-0001	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
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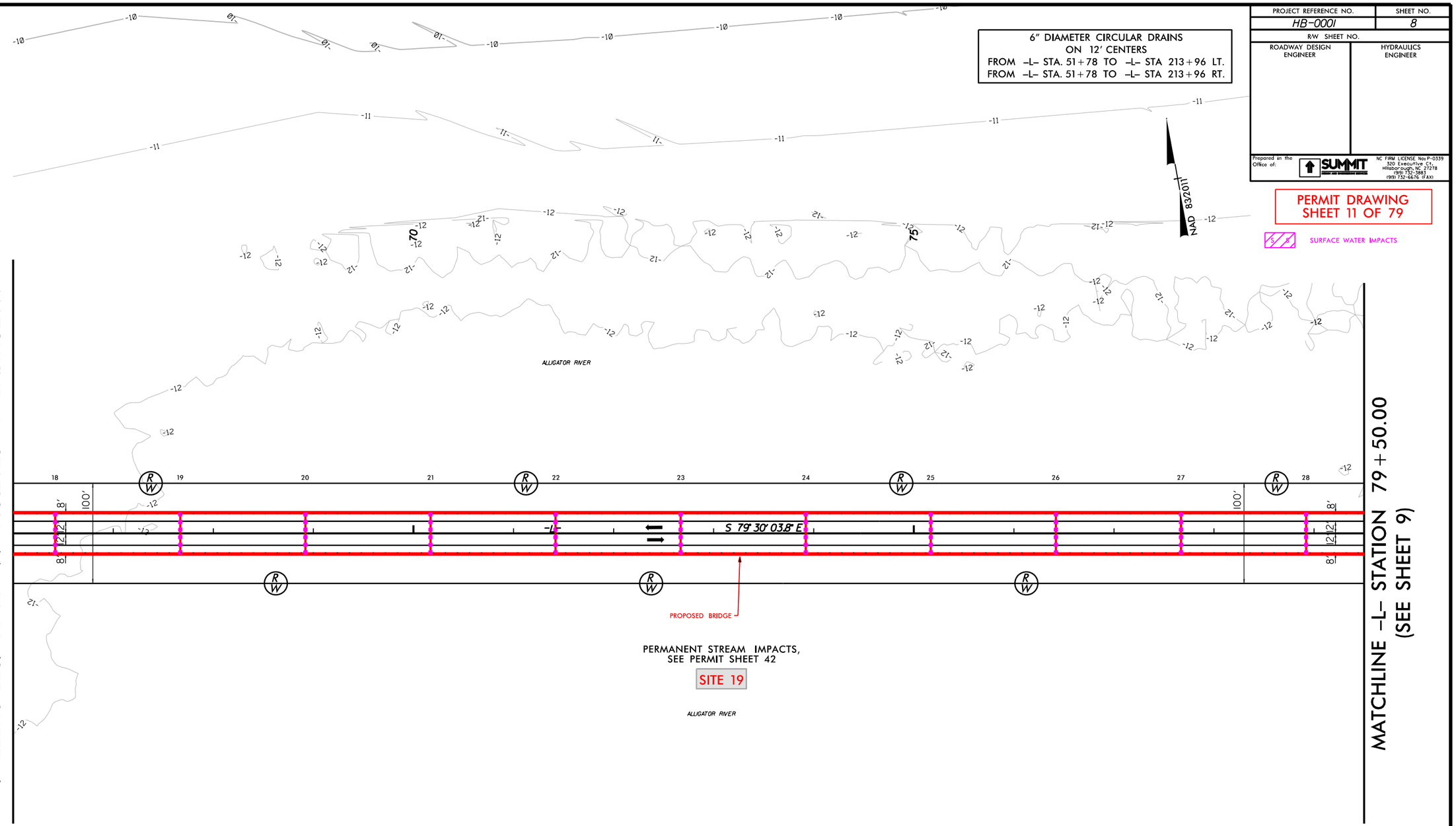
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 11 OF 79

SURFACE WATER IMPACTS

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



REVISIONS

8/17/99

08-JUN-2023 13:06
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PLANS

SEE SHEET 26 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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Hillsborough, NC 27278
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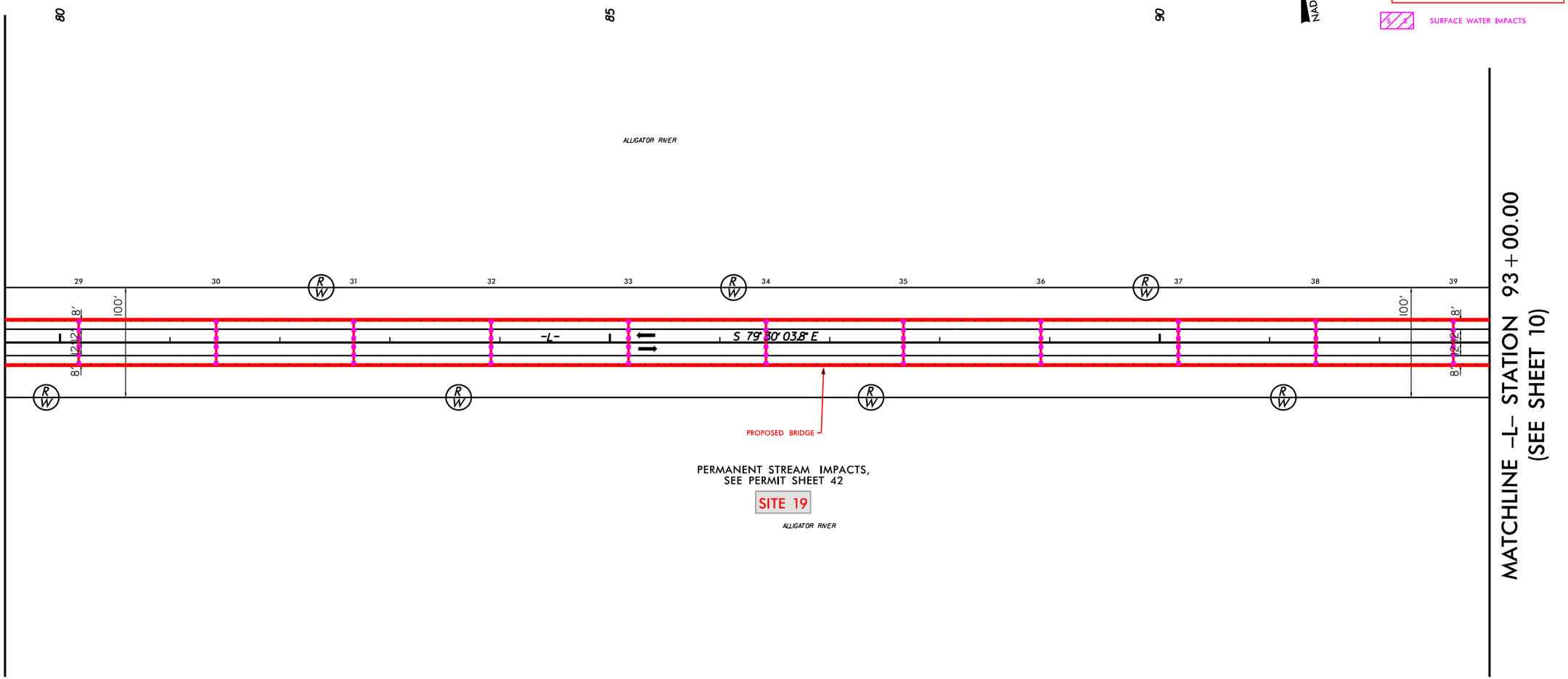
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 12 OF 79

SURFACE WATER IMPACTS

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



50 25 0 50 100
PLANS

SEE SHEET 26 FOR -L- PROFILE

REVISIONS

8/17/99

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HB0001_Hydro_psh_12.dgn
01206 hydraulics

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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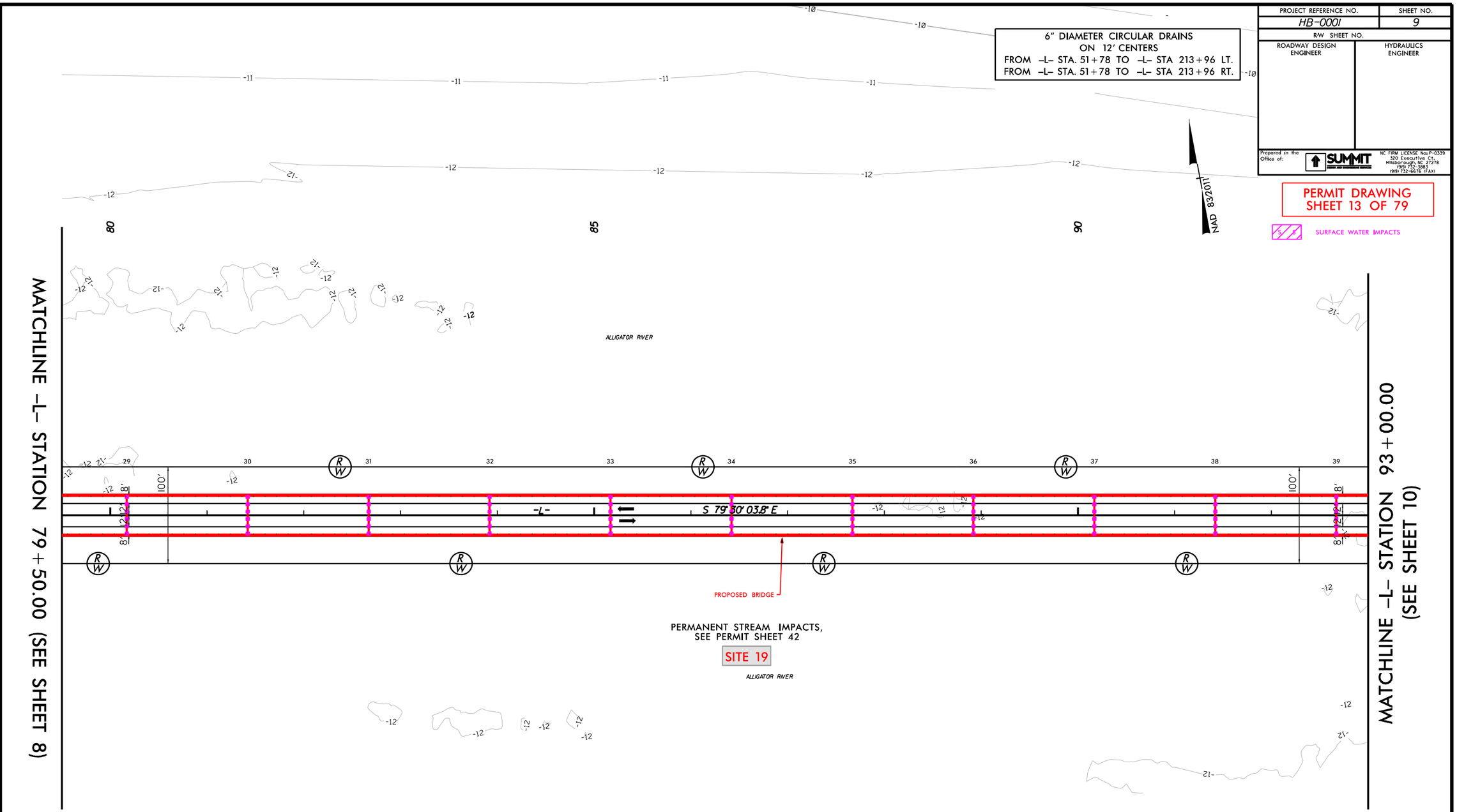
(919) 732-3883
(919) 732-6676 (FAX)

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 13 OF 79

SURFACE WATER IMPACTS



REVISIONS

8/17/99

08-JUN-2023 13:06
jdavis@summitpe.com
psh_13.dgn

50 25 0 50 100
PLANS

SEE SHEET 26 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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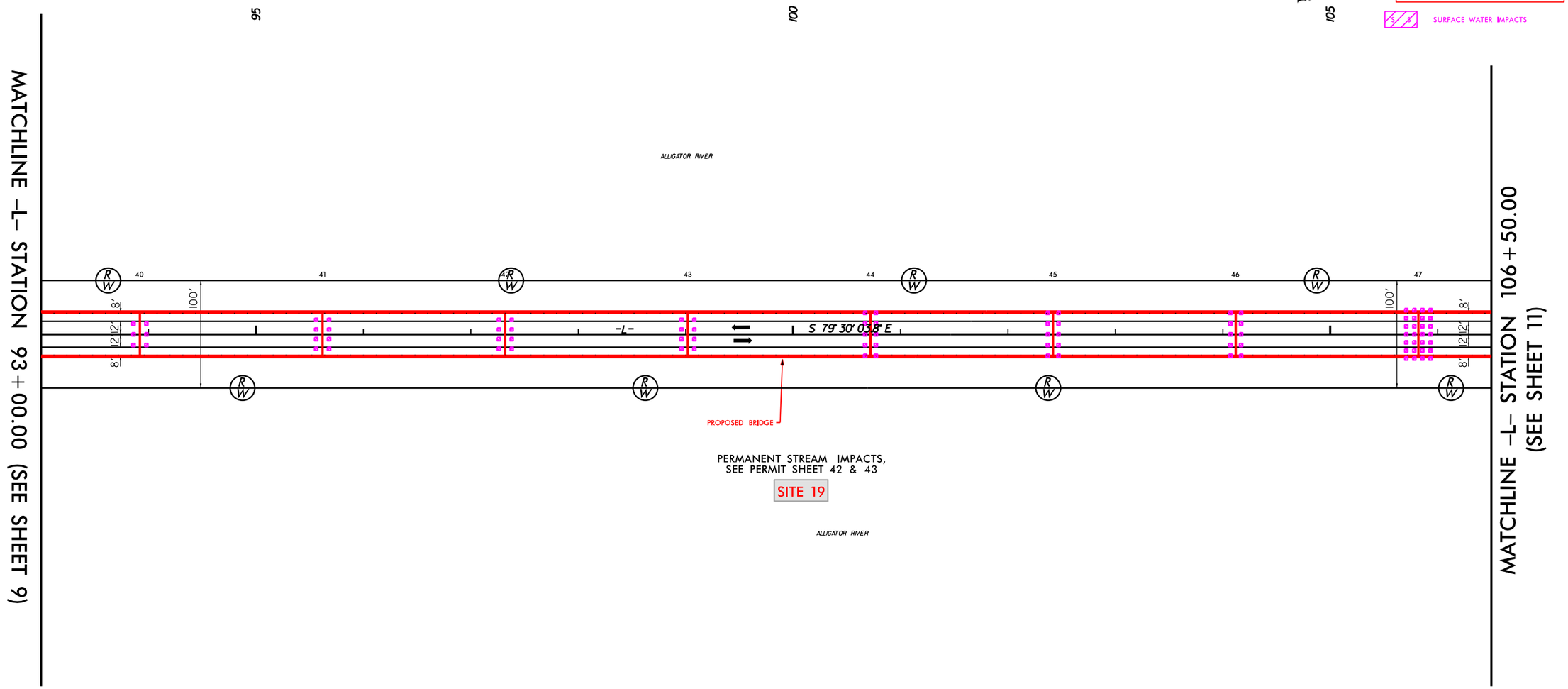
PERMIT DRAWING
SHEET 14 OF 79

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

NAD 83/2011

SURFACE WATER IMPACTS



REVISIONS

8/17/99

50 25 0 50 100
PLANS

SEE SHEET 26 & 27 FOR -L- PROFILE

05-JUN-2023 13:06
hydraulics\prm_psh_14.dgn

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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(919) 732-3883
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6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 15 OF 79

SURFACE WATER IMPACTS

NAD 83/2011

MATCHLINE -L- STATION 93+00.00 (SEE SHEET 9)

MATCHLINE -L- STATION 106+50.00 (SEE SHEET 11)

ALLIGATOR RIVER

-L-

S 79°30'03.8" E

PROPOSED BRIDGE

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42 & 43

SITE 19

ALLIGATOR RIVER

REVISIONS

8/17/99

05-JUN-2023 13:06
HB0001_Hydraulics_psh_15.dgn

50 25 0 50 100
PLANS

SEE SHEET 26 & 27 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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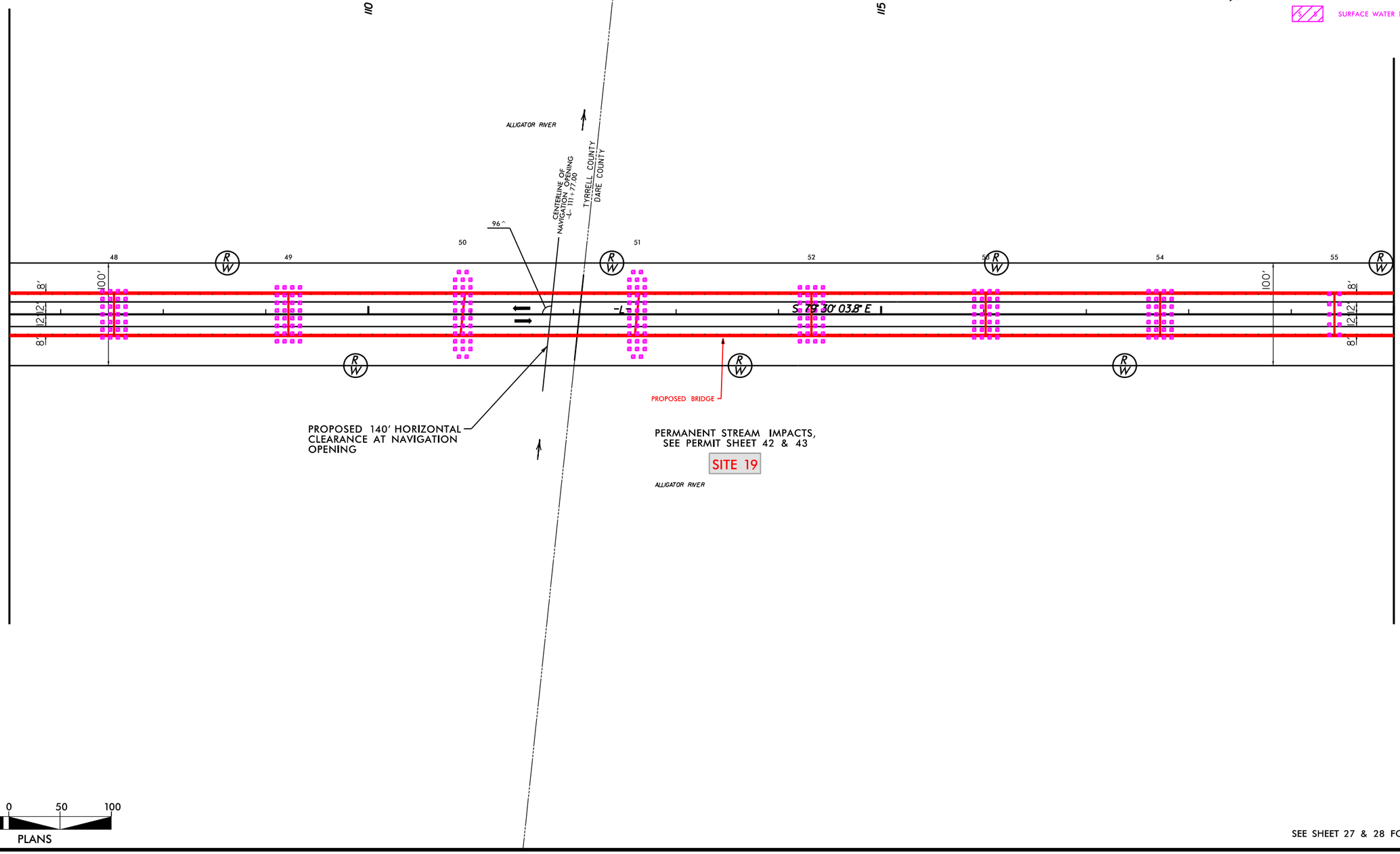
PERMIT DRAWING
SHEET 16 OF 79

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

NAD 83/2011

SURFACE WATER IMPACTS



50 25 0 50 100
PLANS

SEE SHEET 27 & 28 FOR -L- PROFILE

REVISIONS

8/17/99

05-JUN-2023 13:06
HB-0001_NW_prm_psh_16.dgn

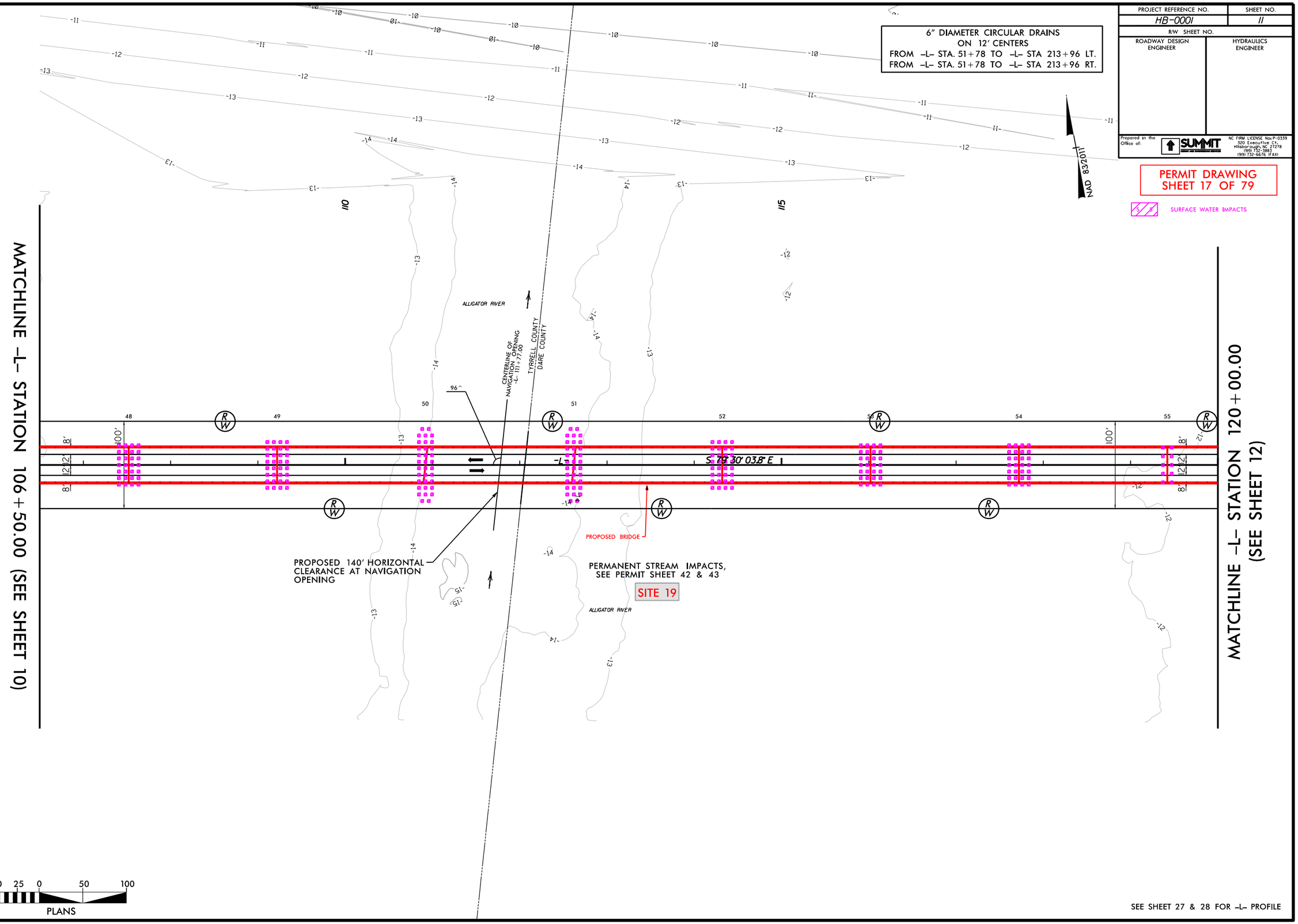
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 17 OF 79

SURFACE WATER IMPACTS



50 25 0 50 100
PLANS

SEE SHEET 27 & 28 FOR -L- PROFILE

REVISIONS

8/17/99

05-JUN-2023 13:07
S:\Project Data\HB0001\Plans\Bridge\Hydraulics\Permit\psh_17.dgn

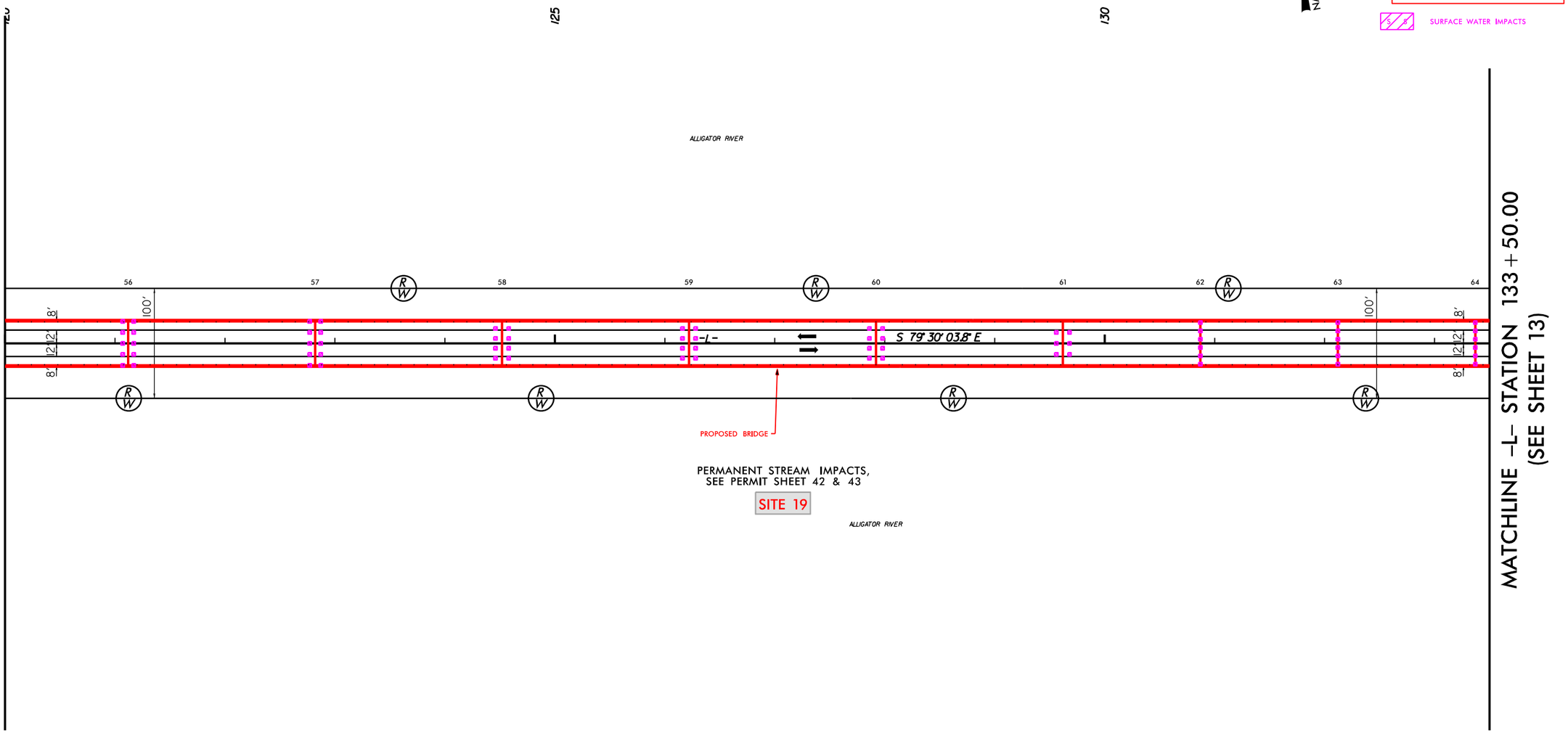
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE Nos P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 18 OF 79

SURFACE WATER IMPACTS



50 25 0 50 100
PLANS

SEE SHEET 28 & 29 FOR -L- PROFILE

REVISIONS

8/17/99

05-JUN-2023 13:07
HB0001_NWD.dgn
pdetrick1 pm_psh_18.dgn

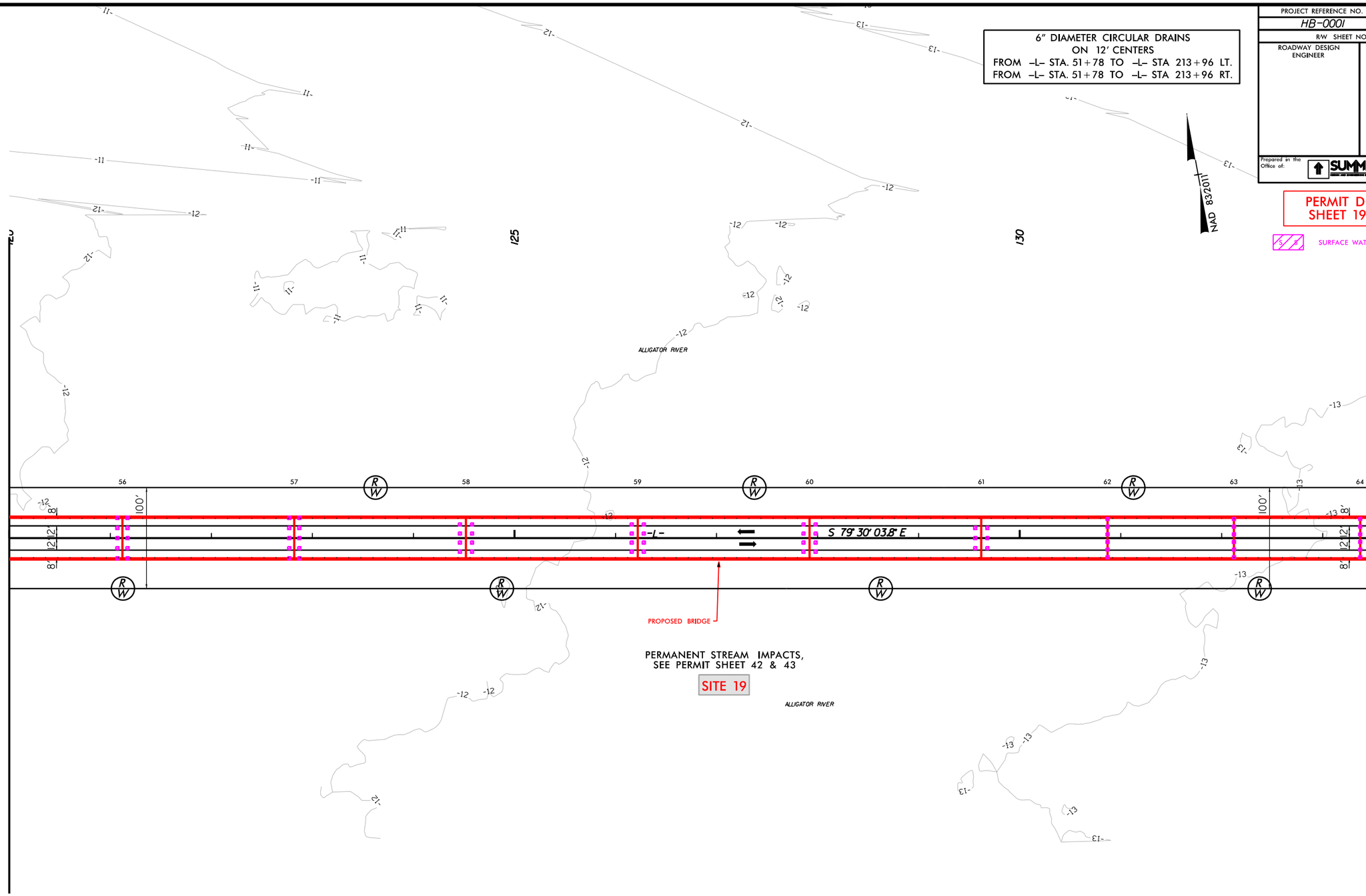
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE Nos P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 19 OF 79

SURFACE WATER IMPACTS



REVISIONS

8/17/99

05-JUN-2023 13:07
HB-0001_RW_02.dgn
pdot_ut_pm_psh_19.dgn

50 25 0 50 100
PLANS

SEE SHEET 28 & 29 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

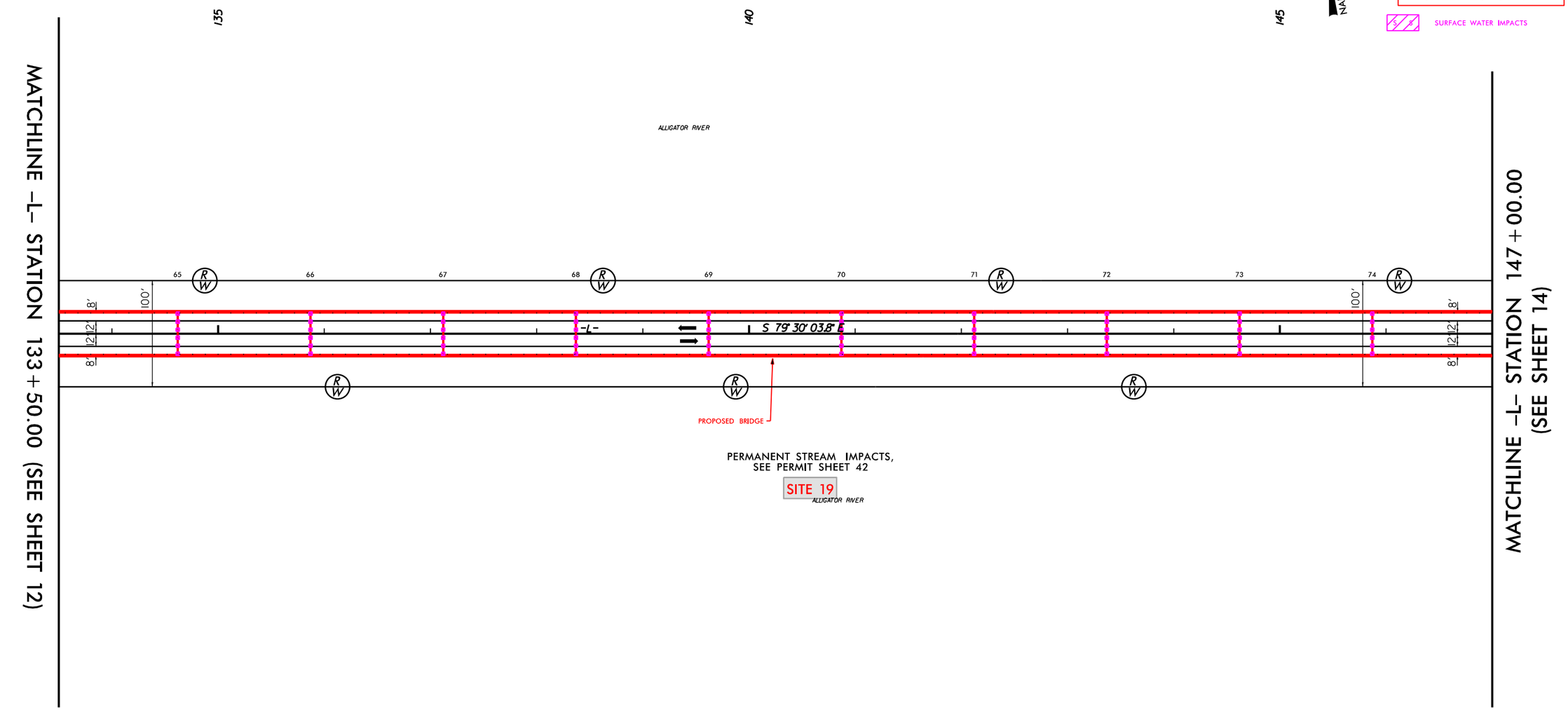
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 20 OF 79

SURFACE WATER IMPACTS

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

NAD 83/2011



50 25 0 50 100
PLANS

SEE SHEET 29 FOR -L- PROFILE

REVISIONS

8/17/99

08-JUN-2023 13:07
HB0001_HYD_PP_psh_20.dgn
ostrich\hydraulic

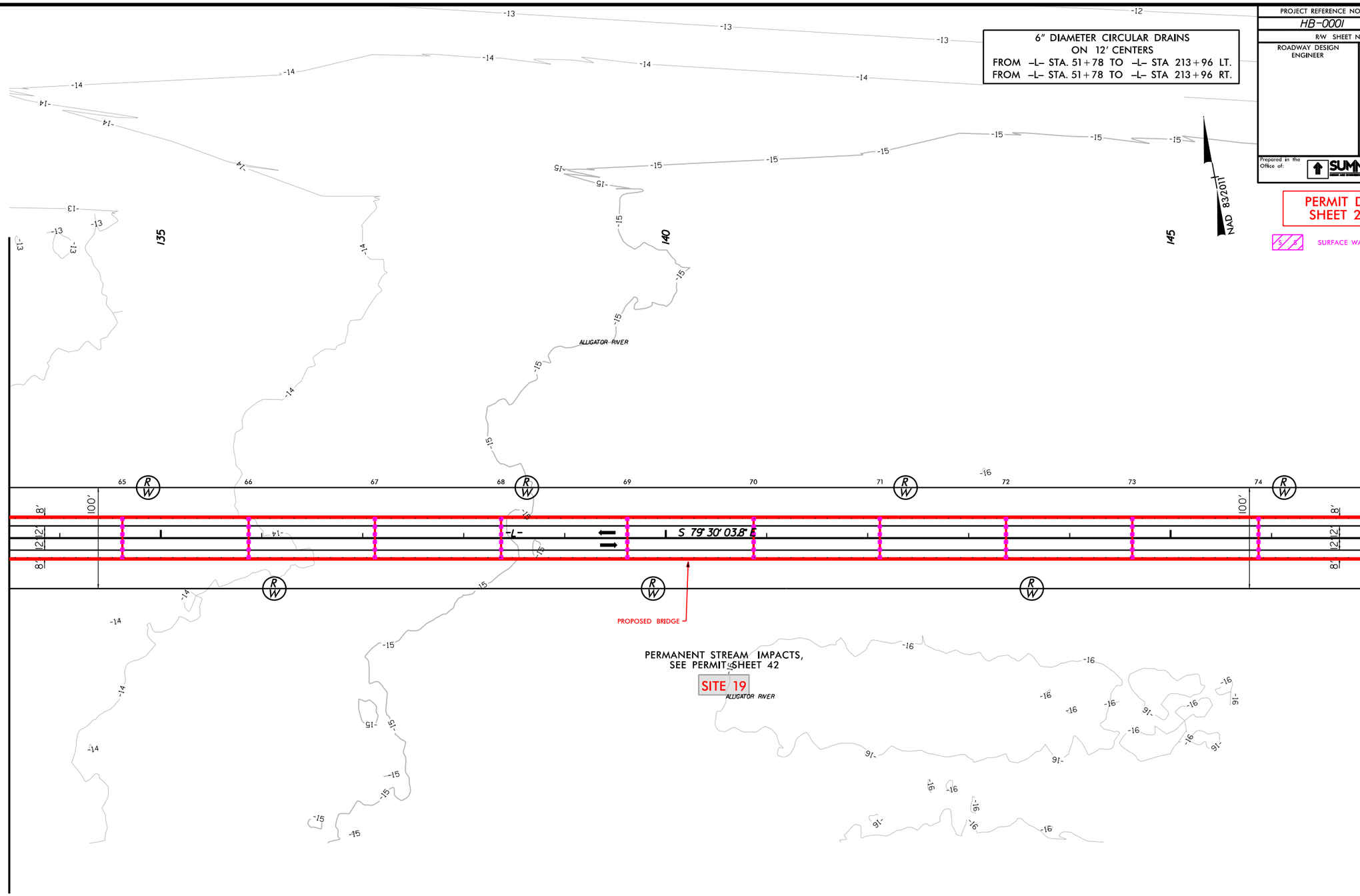
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 21 OF 79

SURFACE WATER IMPACTS

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



MATCHLINE -L- STATION 133+50.00 (SEE SHEET 12)

MATCHLINE -L- STATION 147+00.00 (SEE SHEET 14)

50 25 0 50 100
PLANS

SEE SHEET 29 FOR -L- PROFILE

REVISIONS

8/17/99

08-JUN-2023 13:07
hb0001_hydr_psh_21.dgn
patrick.hazlett

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

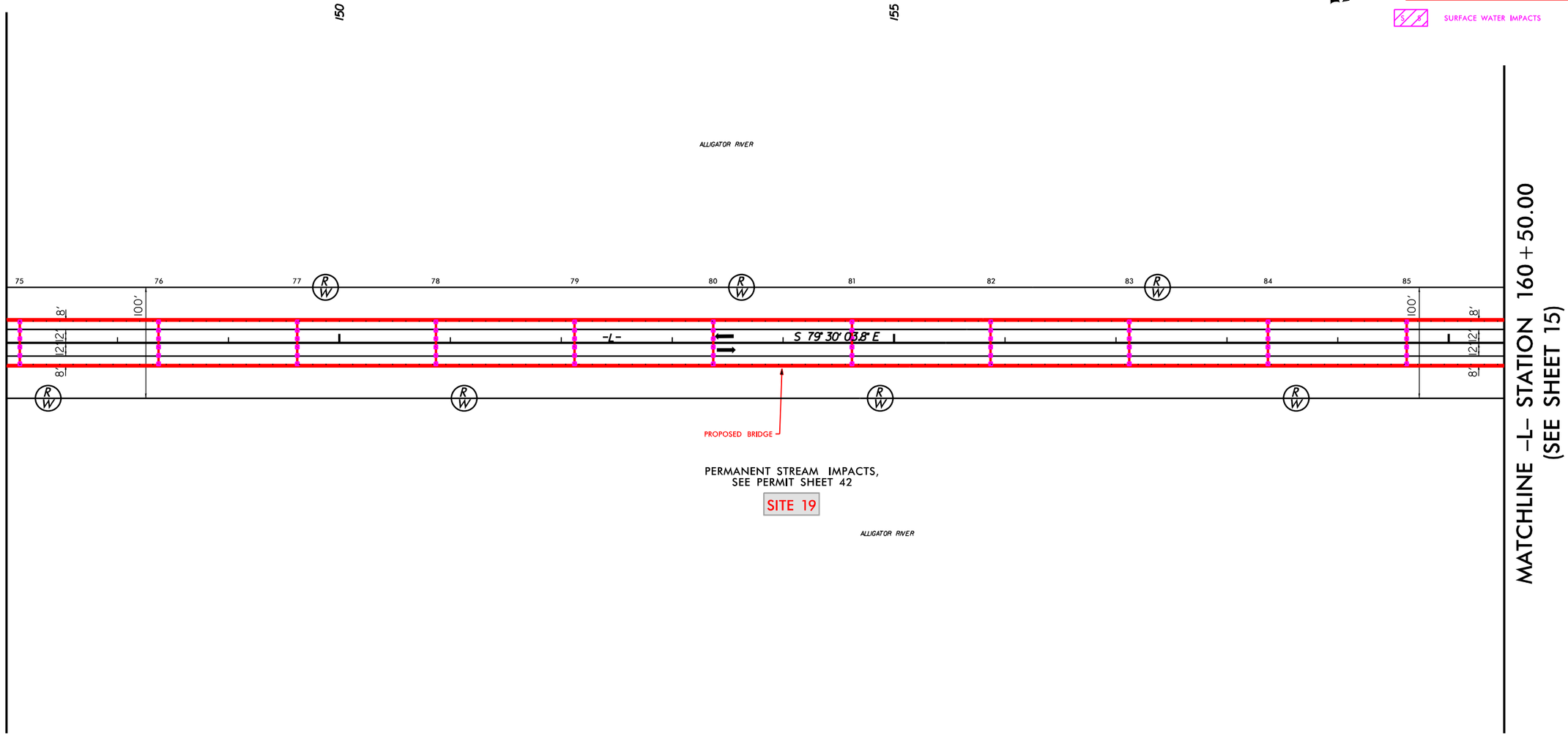
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 22 OF 79

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

NAD 83/2011

SURFACE WATER IMPACTS



50 25 0 50 100
PLANS

SEE SHEET 29 & 30 FOR -L- PROFILE

REVISIONS

8/17/99

05-JUN-2023 13:07
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pdotrack\jwatson1

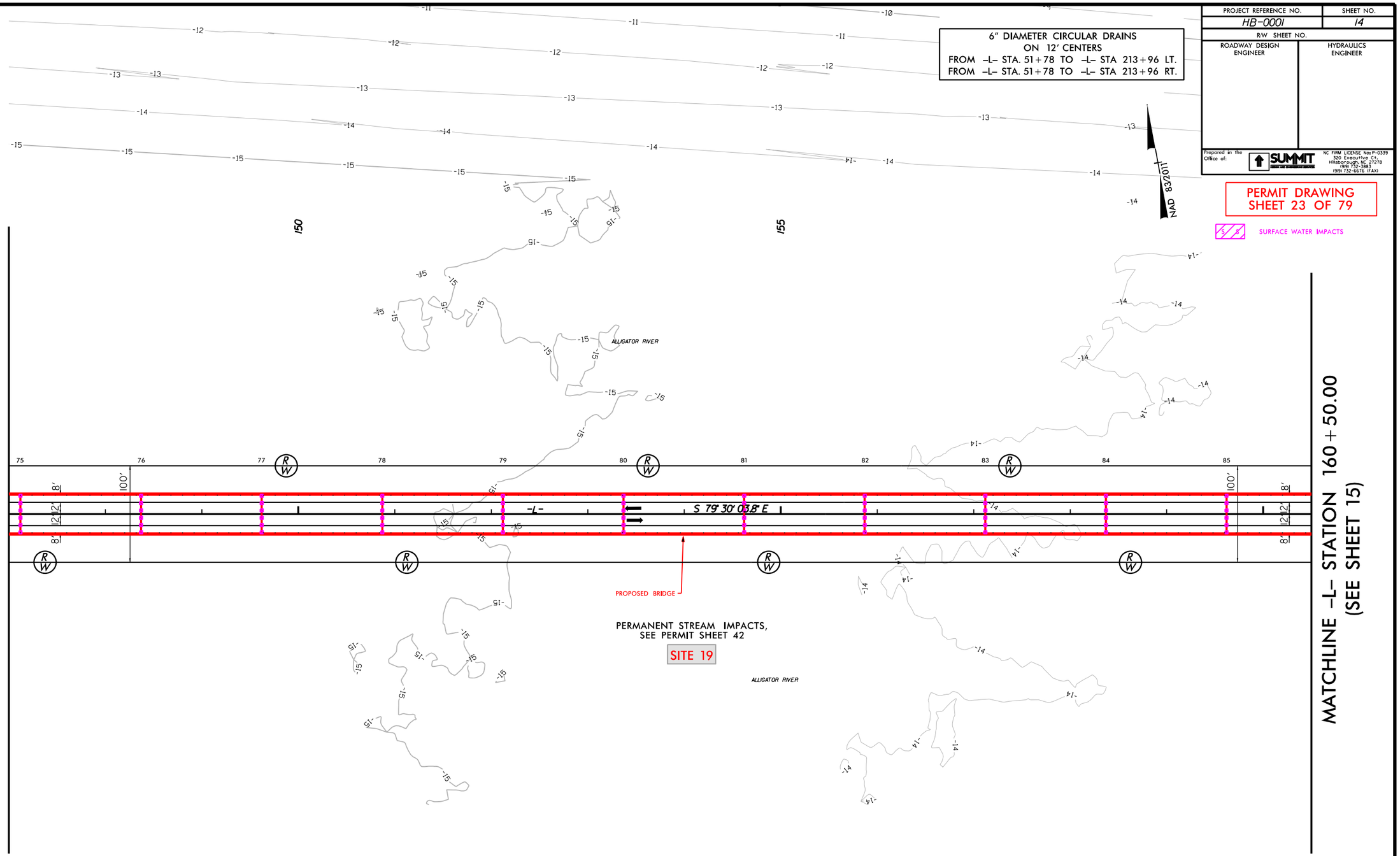
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 23 OF 79

SURFACE WATER IMPACTS



50 25 0 50 100
PLANS

SEE SHEET 29 & 30 FOR -L- PROFILE

REVISIONS

8/17/99

05-JUN-2023 13:07
R:\Roadway\Proj\0001_psh_23.dgn
rdarock1 kjarrett

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

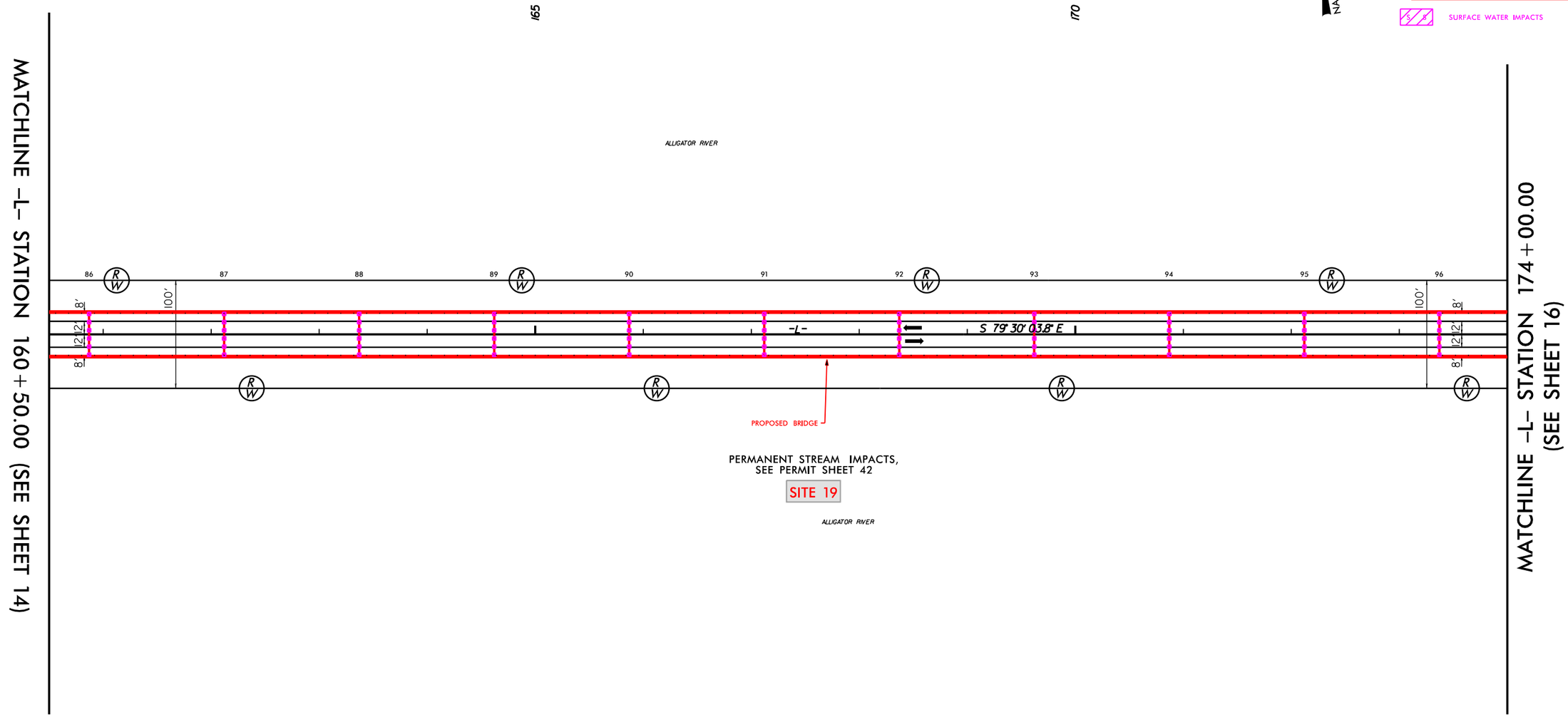
Prepared in the Office of: SUMMIT Design and Engineering Services
NC FIRM LICENSE No: P-0339
520 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 24 OF 79

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

NAD 83/2011

SURFACE WATER IMPACTS



50 25 0 50 100
PLANS

SEE SHEET 30 FOR -L- PROFILE

REVISIONS

8/17/99

05-JUN-2023 13:07
HB-0001_Rev.dgn
pdetrick1 pw:_psh_24.dgn

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	15
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT Design and Engineering Services
NC FIRM LICENSE No: P-0339
520 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 25 OF 79

SURFACE WATER IMPACTS

NAD 83/2011

165

170

ALLIGATOR RIVER

MATCHLINE -L- STATION 160+50.00 (SEE SHEET 14)

MATCHLINE -L- STATION 174+00.00 (SEE SHEET 16)

86 87 88 89 90 91 92 93 94 95 96

R/W

100' 8' 12' 12' 8'

-L-

S 79°30'03.8" E

PROPOSED BRIDGE

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 19

ALLIGATOR RIVER

REVISIONS

8/17/99

05-JUN-2023 13:07
SR-0001-HB-0001_pen_psh_25.dgn
pbrock:bridgepen_psh_25.dgn

50 25 0 50 100
PLANS

SEE SHEET 30 FOR -L- PROFILE

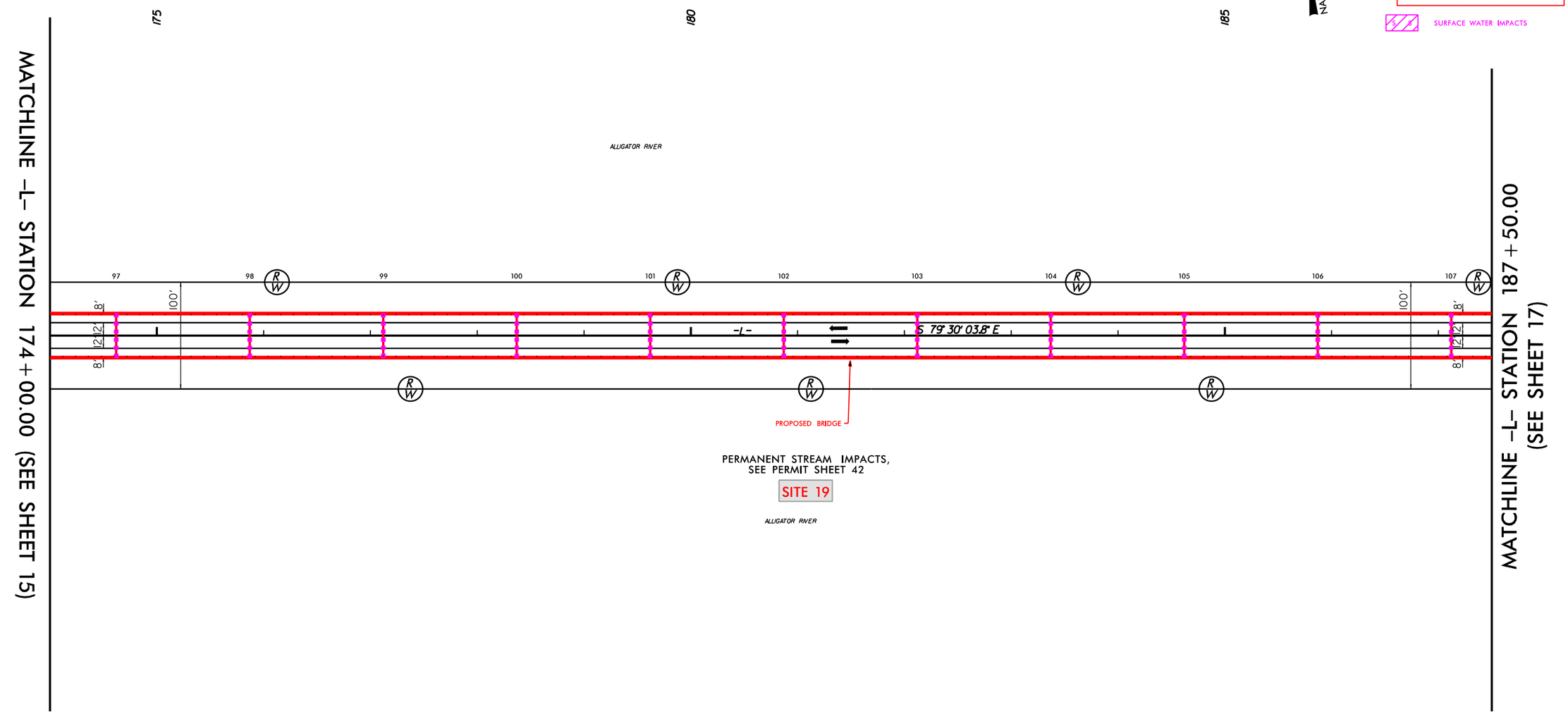
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 26 OF 79

SURFACE WATER IMPACTS

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



50 25 0 50 100
PLANS

SEE SHEET 30 & 31 FOR -L- PROFILE

REVISIONS

8/17/99

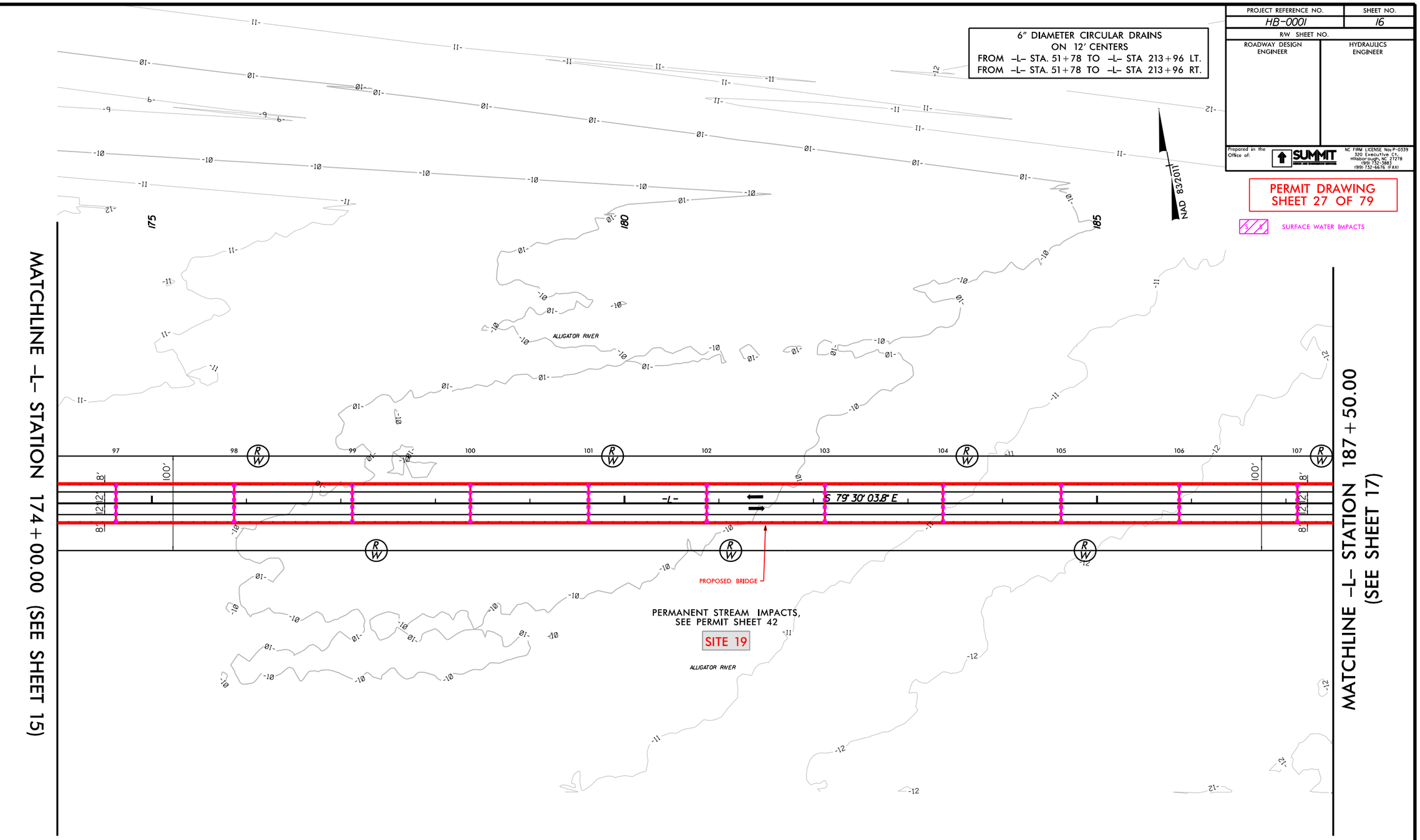
05-JUN-2023 13:07
HB0001_Hydraulics_psh_26.dgn
pbrock1@summit

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	16
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 27 OF 79

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



50 25 0 50 100
PLANS

SEE SHEET 30 & 31 FOR -L- PROFILE

REVISIONS

8/17/99

05-JUN-2023 13:07
R:\Roadway\Proj\psh_27.dgn
pbrock1hydrpt

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE Nos P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 28 OF 79

SURFACE WATER IMPACTS

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

-L-
PI Sta 207+58.97
Δ = 14° 37' 40.0" (RT)
D = 0° 28' 38.9"
L = 3,063.63'
T = 1,540.19'
R = 12,000.00'
SE = NC

NAD 83/2011

190

195

ALLIGATOR RIVER

MATCHLINE -L- STATION 187+50.00 (SEE SHEET 16)

MATCHLINE -L- STATION 200+50.00 (SEE SHEET 18)

-L- +18.78
50.00 LT

-L- +18.78
50.00 RT

108 109 110 111 112 113 114 115 116 117

RW

S 79° 30' 03.8" E

-L-

8' 12' 12' 8'

100'

PROPOSED BRIDGE

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 19

ALLIGATOR RIVER

-L- PC Sta. 192+18.78

50 25 0 50 100
PLANS

SEE SHEET 31 FOR -L- PROFILE

REVISIONS

8/17/99

05-JUN-2023 13:07
HB-0001_hyd_prm_psh_28.dgn
pstreck_hydpro

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	17
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE Nos P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 29 OF 79

SURFACE WATER IMPACTS

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

-L-
PI Sta 207+58.97
Δ = 14° 37' 40.0" (RT)
D = 0° 28' 38.9"
L = 3,063.63'
T = 1,540.19'
R = 12,000.00'
SE = NC

NAD 83/2011

MATCHLINE -L- STATION 187+50.00 (SEE SHEET 16)

MATCHLINE -L- STATION 200+50.00 (SEE SHEET 18)

ALLIGATOR RIVER

-L- +18.78
50.00 LT

-L- +18.78
50.00 RT

S 79° 30' 03.8" E

-L-

PROPOSED BRIDGE

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 19

-L- PC Sta. 192+18.78

SEE SHEET 31 FOR -L- PROFILE

50 25 0 50 100
PLANS

REVISIONS

8/17/99

05-JUN-2023 13:07
HB-0001_hydr_prm_psh_29.dgn
pbrock1

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 30 OF 79

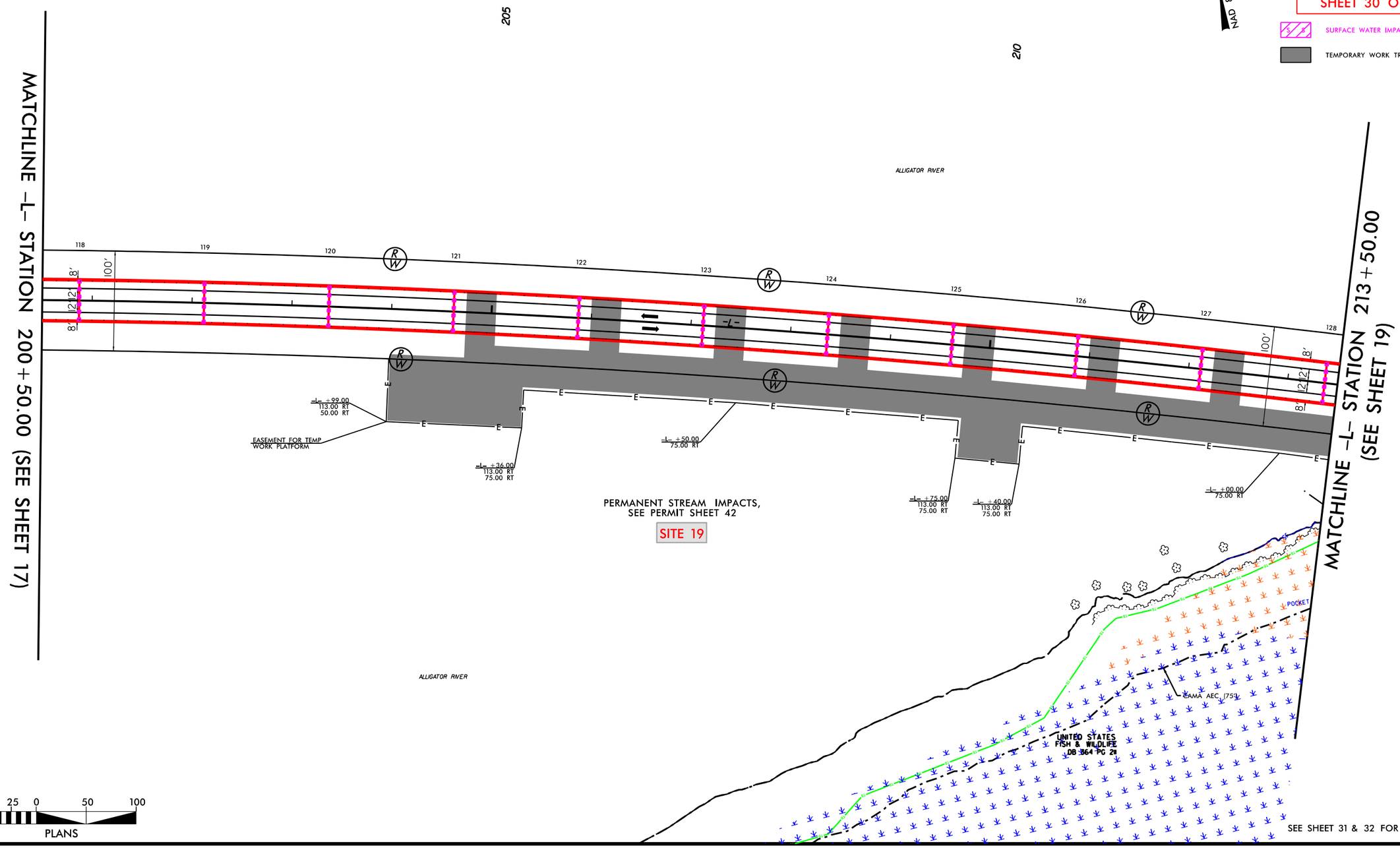
SURFACE WATER IMPACTS

TEMPORARY WORK TRESTLE

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

-L-
PI Sta 207+58.97
Δ = 14° 37' 40.0" (RT)
D = 0° 28' 38.9"
L = 3,063.63'
T = 1,540.19'
R = 12,000.00'
SE = NC

NAD 83/2011



50 25 0 50 100
PLANS

SEE SHEET 31 & 32 FOR -L- PROFILE

REVISIONS

8/17/99

08-JUN-2023 13:07
H:\hydro\HB0001_pnr_psh_30.dgn
Patrick.Hagerty

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 31 OF 79

SURFACE WATER IMPACTS

TEMPORARY WORK TRESTLE

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

-L-
PI Sta 207+58.97
Δ = 14° 37' 40.0" (RT)
D = 0° 28' 38.9"
L = 3,063.63'
T = 1,540.19'
R = 12,000.00'
SE = NC

NAD 83/2011

MATCHLINE -L- STATION 200+50.00 (SEE SHEET 17)

MATCHLINE -L- STATION 213+50.00 (SEE SHEET 19)

ALLIGATOR RIVER

EASEMENT FOR TEMP WORK PLATFORM

-L- +99.00 113.00 RT 50.00 RT

-L- +36.00 113.00 RT 75.00 RT

-L- +50.00 75.00 RT

-L- +75.00 113.00 RT 75.00 RT

-L- +40.00 113.00 RT 75.00 RT

-L- +00.00 75.00 RT

PERMANENT STREAM IMPACTS, SEE PERMIT SHEET 42

SITE 19

POCKET

CAMA AEC (75')

UNITED STATES FISH & WILDLIFE DB 364 PG 28

50 25 0 50 100
PLANS

SEE SHEET 31 & 32 FOR -L- PROFILE

REVISIONS

8/17/99

08-JUN-2023 13:07
HB-0001_hydraulic_plan_psh_31.dgn
petrick.bethany

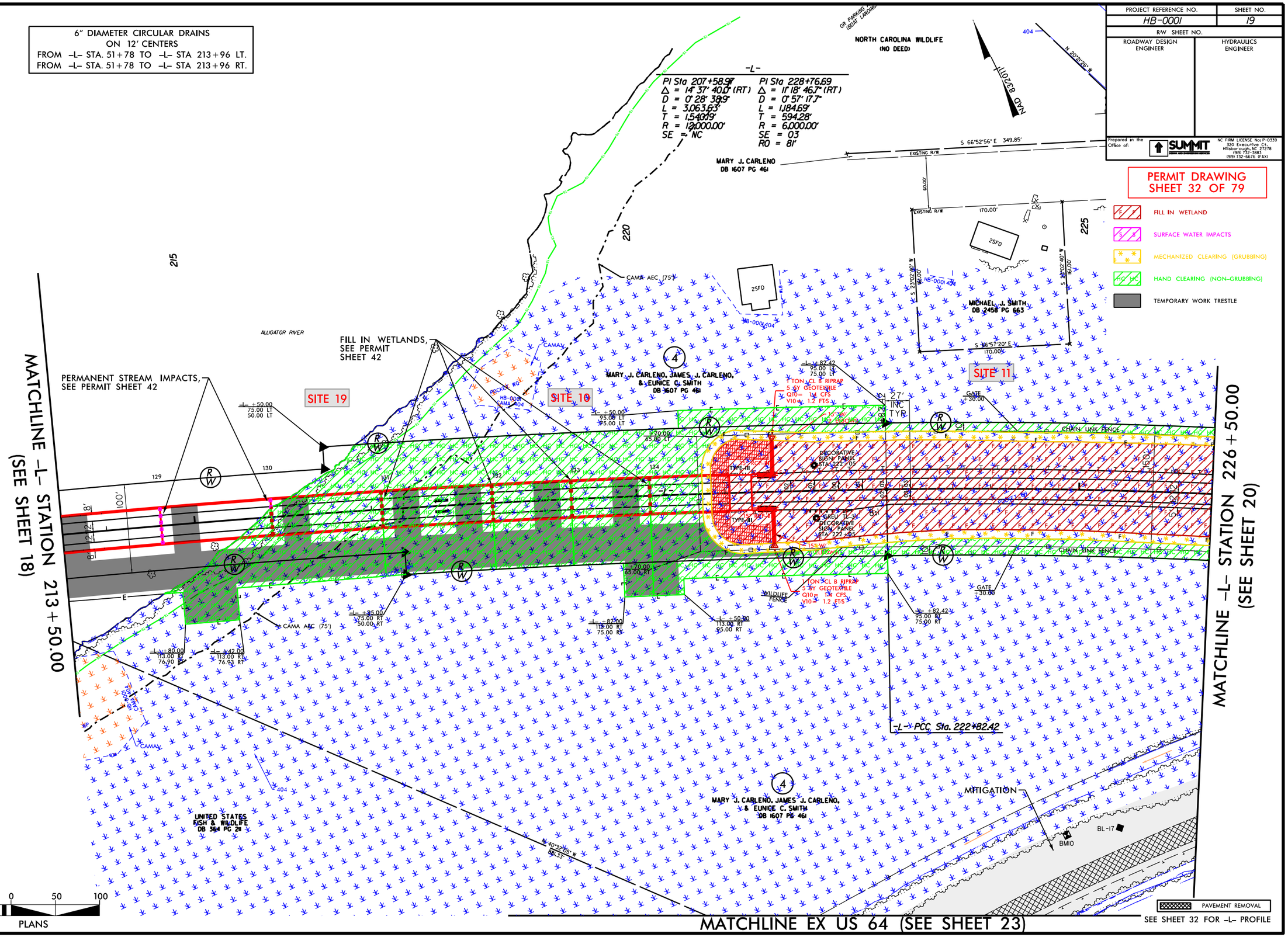
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE Nos P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 32 OF 79

FILL IN WETLAND
SURFACE WATER IMPACTS
MECHANIZED CLEARING (GRUBBING)
HAND CLEARING (NON-GRUBBING)
TEMPORARY WORK TRESTLE

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



REVISIONS

8/17/99

08-JUN-2023 13:07
R:\Roadway\Proj\HB0001_psh_32.dgn
$$$$USER$$$$

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	19
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE Nos P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 33 OF 79

FILL IN WETLAND
SURFACE WATER IMPACTS
MECHANIZED CLEARING (GRUBBING)
HAND CLEARING (NON-GRUBBING)
TEMPORARY WORK TRESTLE

6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

MATCHLINE -L- STATION 213+50.00 (SEE SHEET 18)

MATCHLINE -L- STATION 226+50.00 (SEE SHEET 20)

MATCHLINE EX US 64 (SEE SHEET 23)

PI Sta 207+58.97
Δ = 14° 37' 40.0" (RT)
D = 0° 28' 39.9"
L = 3,063.63'
T = 1,540.09'
R = 12,000.00'
SE = NC

PI Sta 228+76.69
Δ = 11° 18' 46.7" (RT)
D = 0° 57' 17.7"
L = 1,184.69'
T = 594.28'
R = 6,000.00'
SE = 03
RO = 81'

-L- PCC Sta. 222+82.42

NORTH CAROLINA WILDLIFE (NO DEED)

MARY J. CARLENO DB 1607 PG 461

MICHAEL J. SMITH DB 2458 PG 663

MARY J. CARLENO, JAMES J. CARLENO, & EUNICE C. SMITH DB 1607 PG 461

UNITED STATES FISH & WILDLIFE DB 364 PG 211

ALLIGATOR RIVER

FILL IN WETLANDS, SEE PERMIT SHEET 42

PERMANENT STREAM IMPACTS, SEE PERMIT SHEET 42

SITE 19

SITE 10

SITE 11

MITIGATION

CHAIN LINK FENCE

WILDLIFE FENCE

DECORATIVE SIGN PANEL STA 222+05

TYPE III

GATE

CAMA AEC (75')

CAMA

PAVEMENT REMOVAL

SEE SHEET 32 FOR -L- PROFILE

PLANS

REVISIONS

8/17/99

08-JUL-2023 13:08
R:\Hydraulics\Permits\psh_33.dgn
$$$$USER$$$$

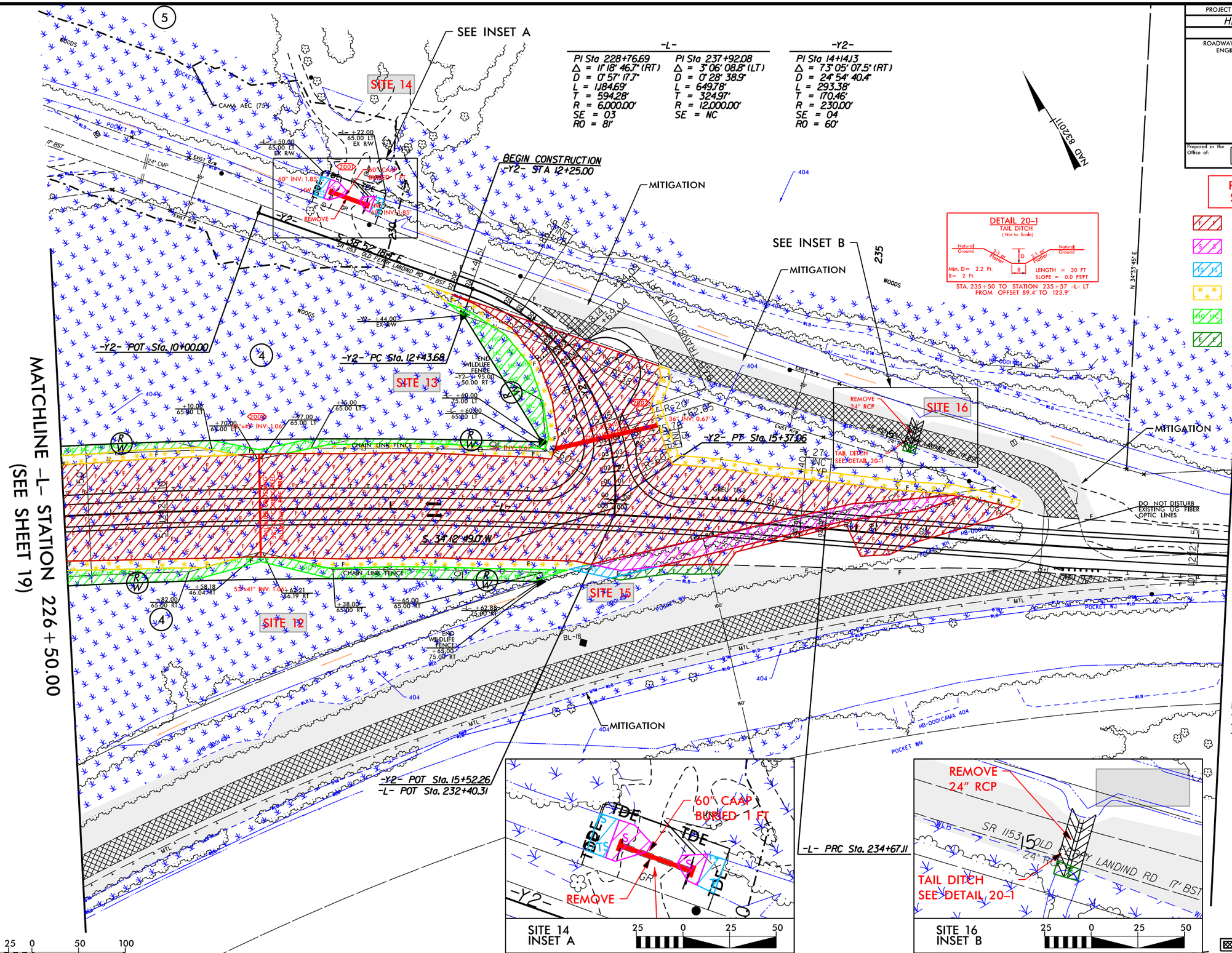
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 34 OF 79

-L-	
PI Sta 228+76.69	PI Sta 237+92.08
Δ = 11° 18' 46.7" (RT)	Δ = 3° 06' 08.8" (LT)
D = 0° 57' 17.7"	D = 0° 28' 38.9"
L = 1,184.69'	L = 649.78'
T = 594.28'	T = 324.97'
R = 6,000.00'	R = 12,000.00'
SE = 03	SE = NC
RO = 81'	

-Y2-
PI Sta 14+14.13
Δ = 73° 05' 07.5" (RT)
D = 24° 54' 40.4"
L = 293.38'
T = 170.46'
R = 230.00'
SE = 04
RO = 60'



SEE SHEET 32 & 33 FOR -L- PROFILE
SEE SHEET 34 FOR -Y2- PROFILE

REVISIONS

8/17/99

05-JUN-2023 13:08
H:\Hydraulics\prm_psh_34.dgn

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	20
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
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Hillsborough, NC 27278
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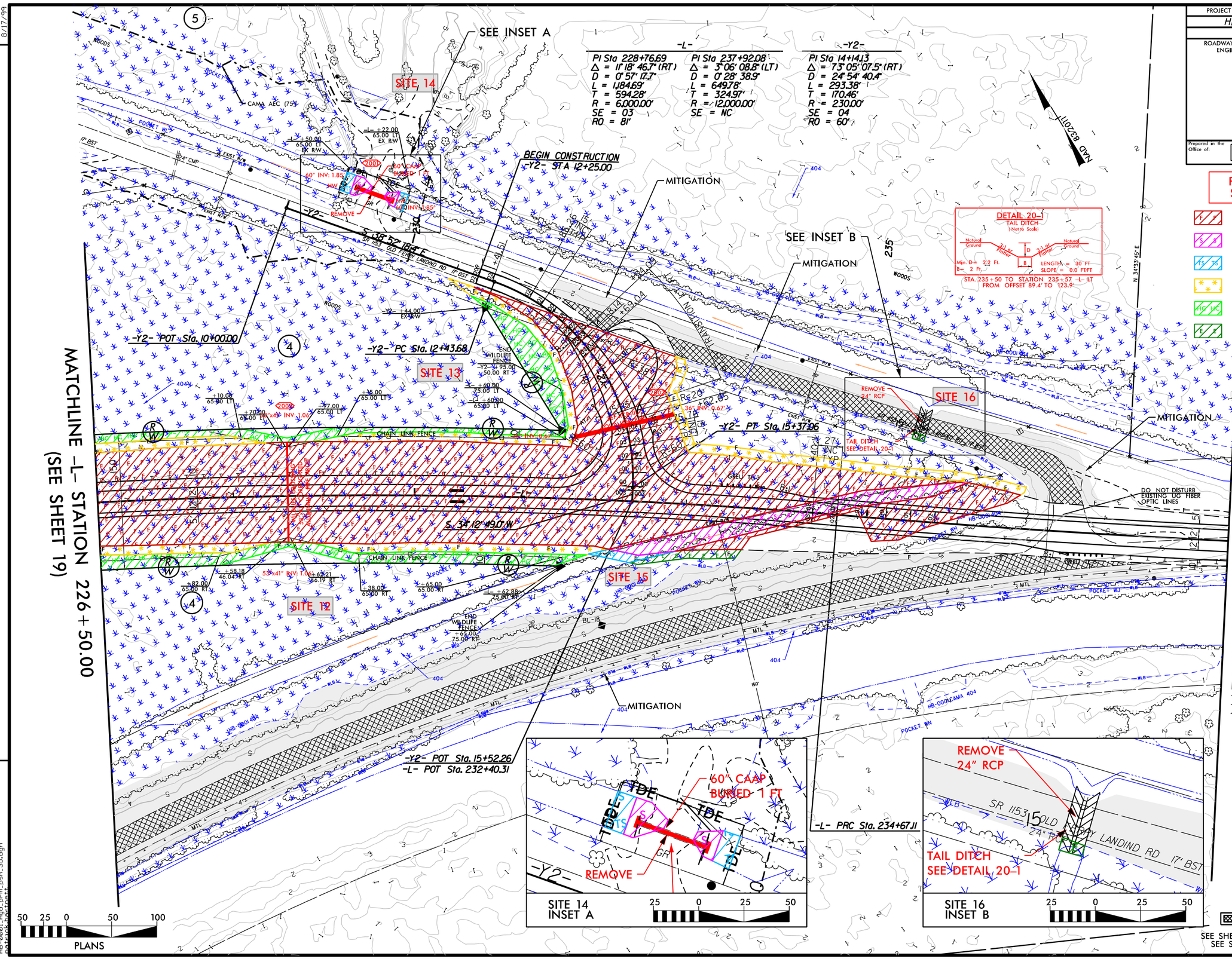
PERMIT DRAWING
SHEET 35 OF 79

F F	FILL IN WETLAND
S S	SURFACE WATER IMPACTS
TS TS	TEMPORARY SURFACE WATER IMPACTS
* *	MECHANIZED CLEARING (GRUBBING)
HC HC	HAND CLEARING (NON-GRUBBING)
E E	WETLAND EXCAVATION



SEE SHEET 32 & 33 FOR -L- PROFILE
SEE SHEET 34 FOR -Y2- PROFILE

REVISIONS

8/17/99

08-JUL-2023 13:08
HB0001_SHEET_PLAN_psh_35.dgn

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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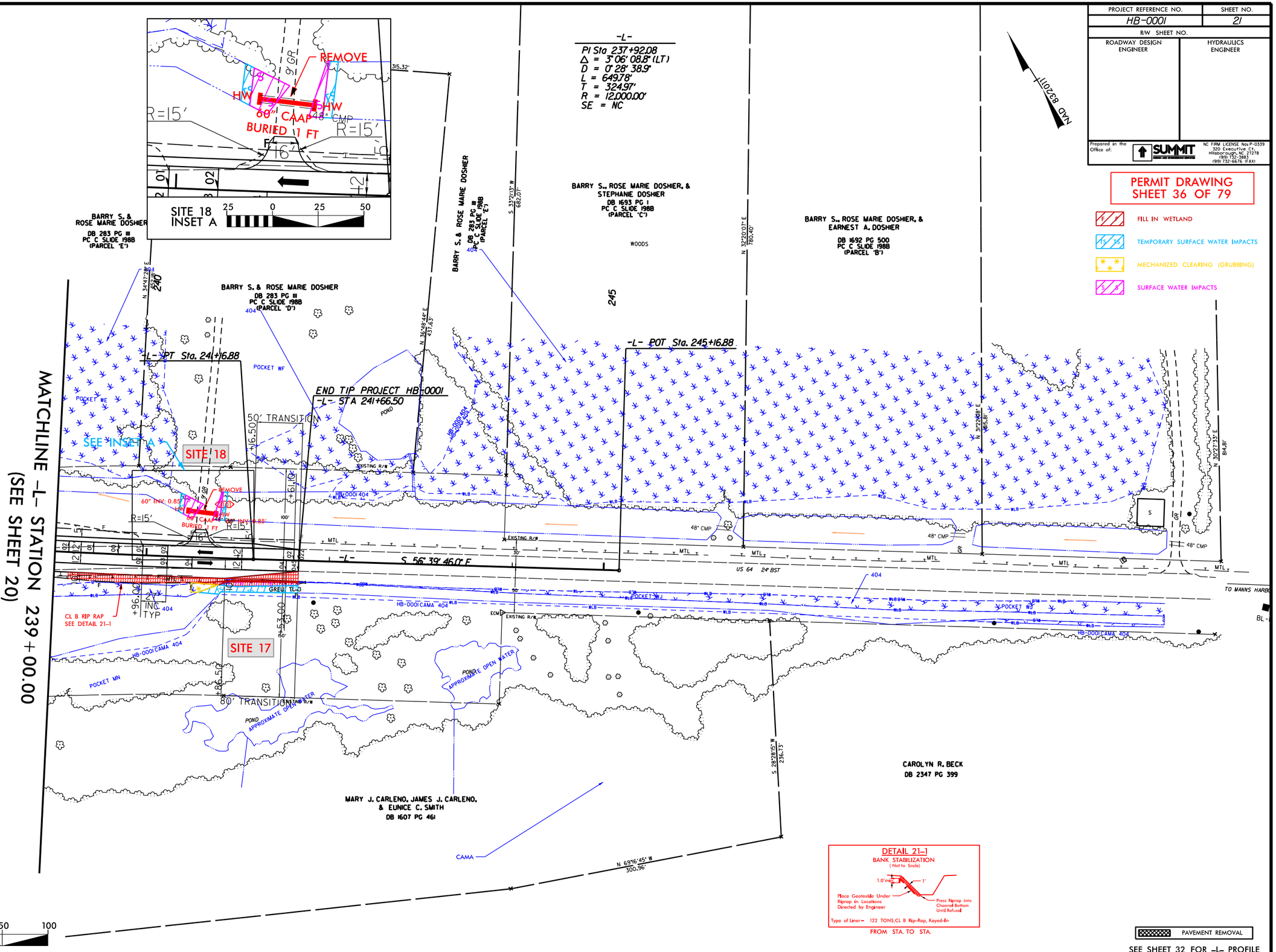
PERMIT DRAWING
SHEET 36 OF 79

FILL IN WETLAND
TEMPORARY SURFACE WATER IMPACTS
MECHANIZED CLEARING (GRUBBING)
SURFACE WATER IMPACTS



SEE SHEET 32 FOR -L- PROFILE

REVISIONS

8/17/99

08-JUN-2023 13:08
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Dev01_hydr_PRT

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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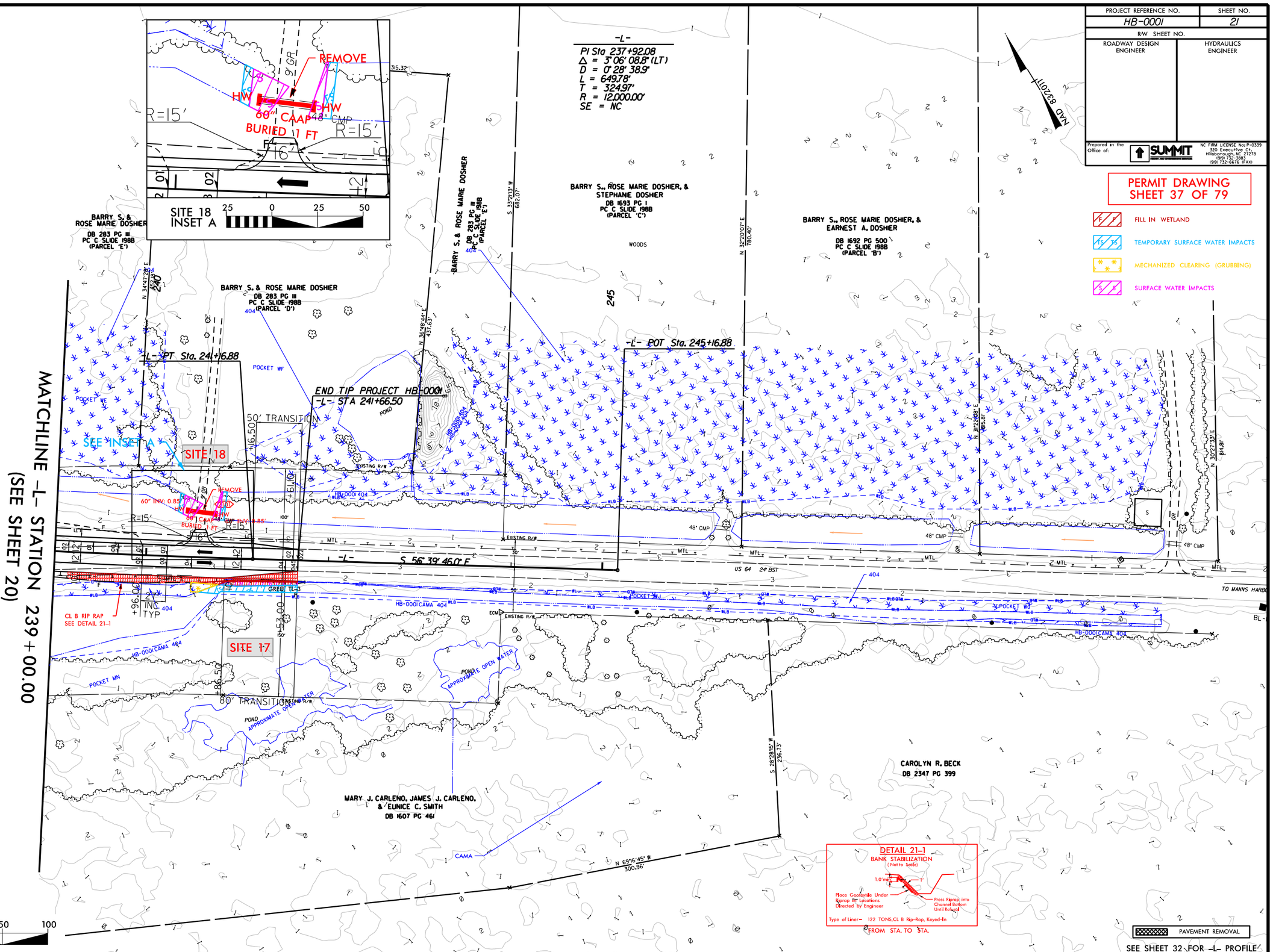
PERMIT DRAWING
SHEET 37 OF 79

FILL IN WETLAND
TEMPORARY SURFACE WATER IMPACTS
MECHANIZED CLEARING (GRUBBING)
SURFACE WATER IMPACTS



REVISIONS

8/17/99

05-JUN-2023 13:09
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pdetrick, hydro_psh

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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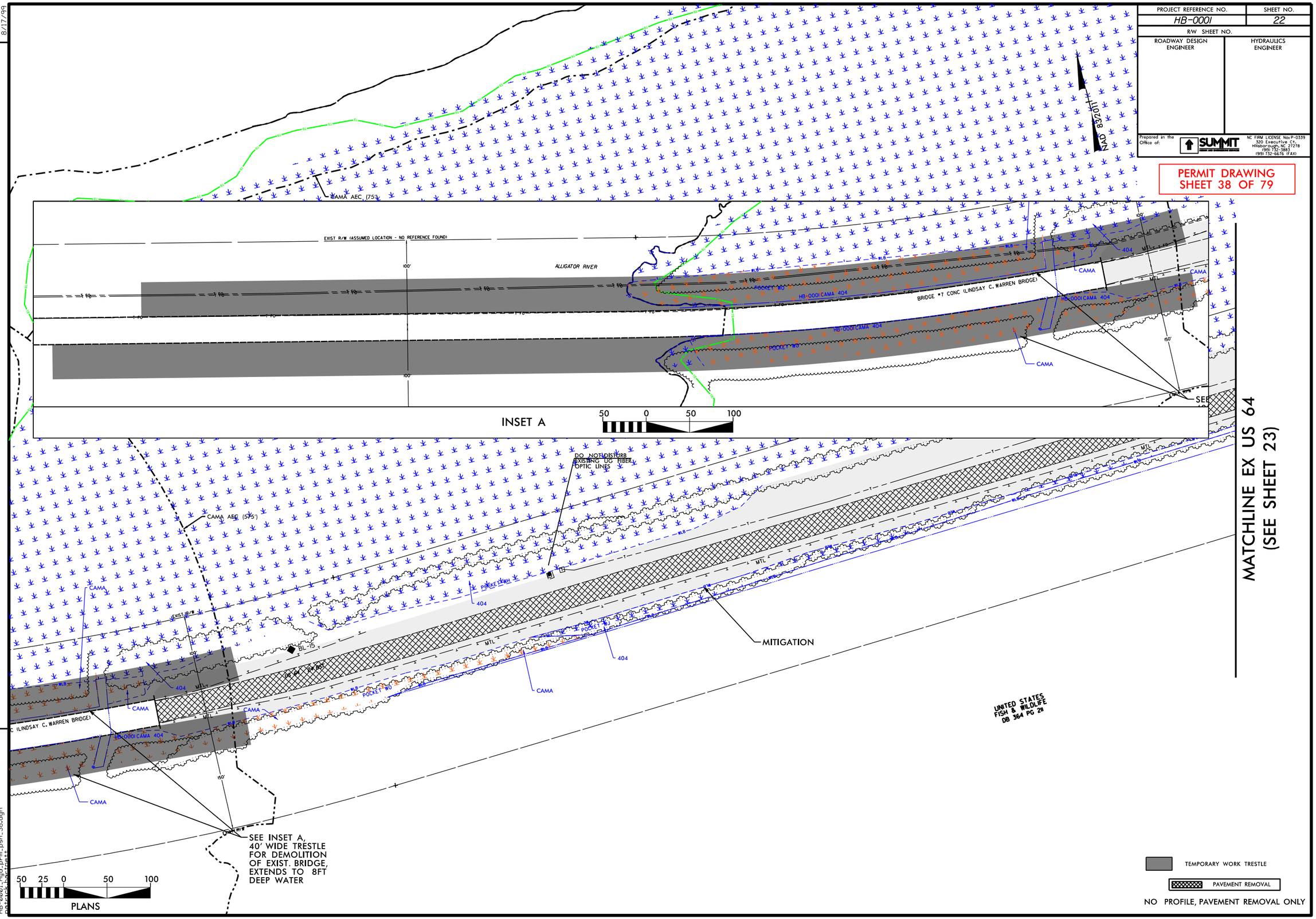
PERMIT DRAWING
SHEET 38 OF 79



REVISIONS

8/17/99

05-JUN-2023 13:09
HB0001_Hydro_psh_38.dgn

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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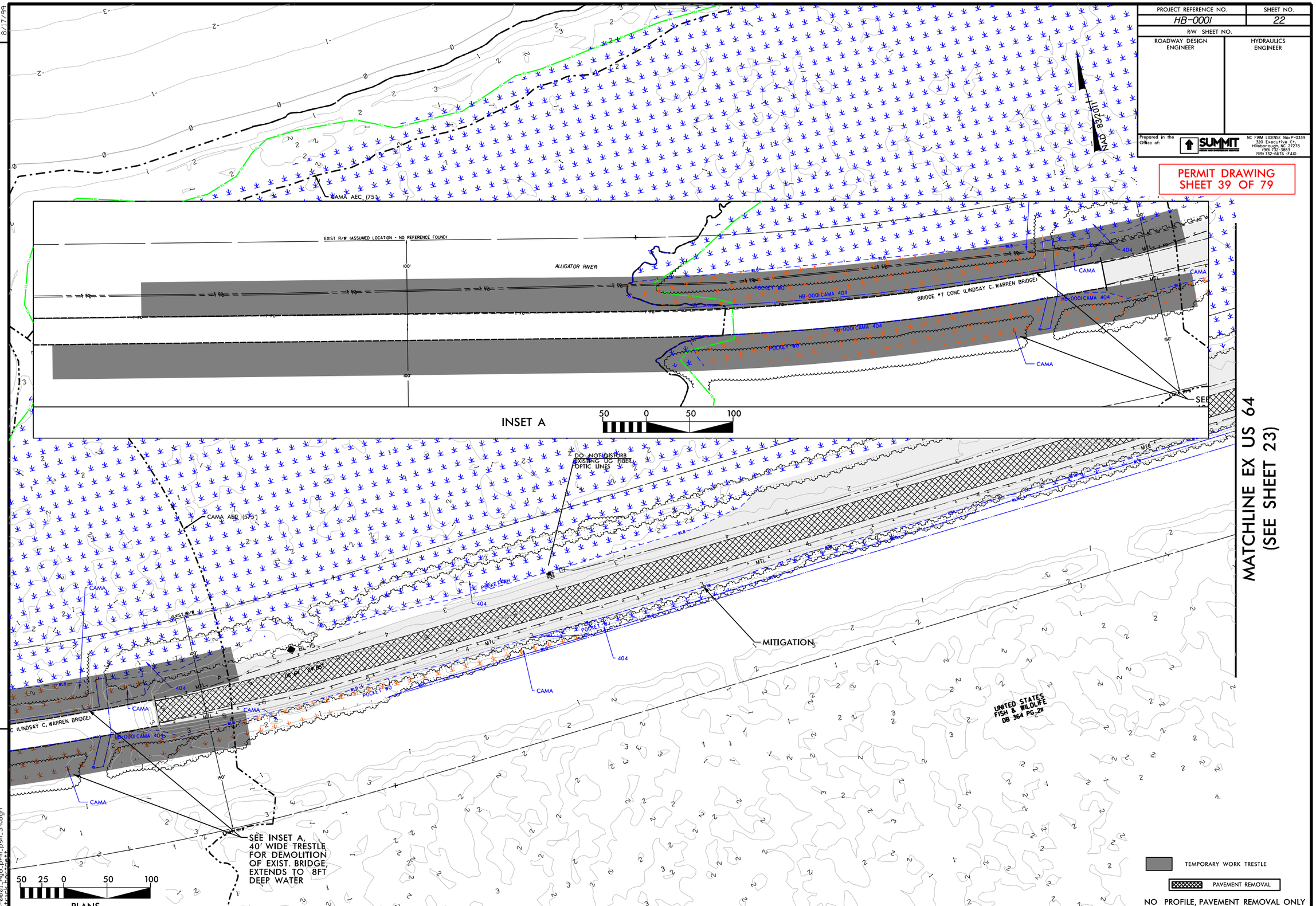
PERMIT DRAWING
SHEET 39 OF 79



REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
HB-0001	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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Hillsborough, NC 27278
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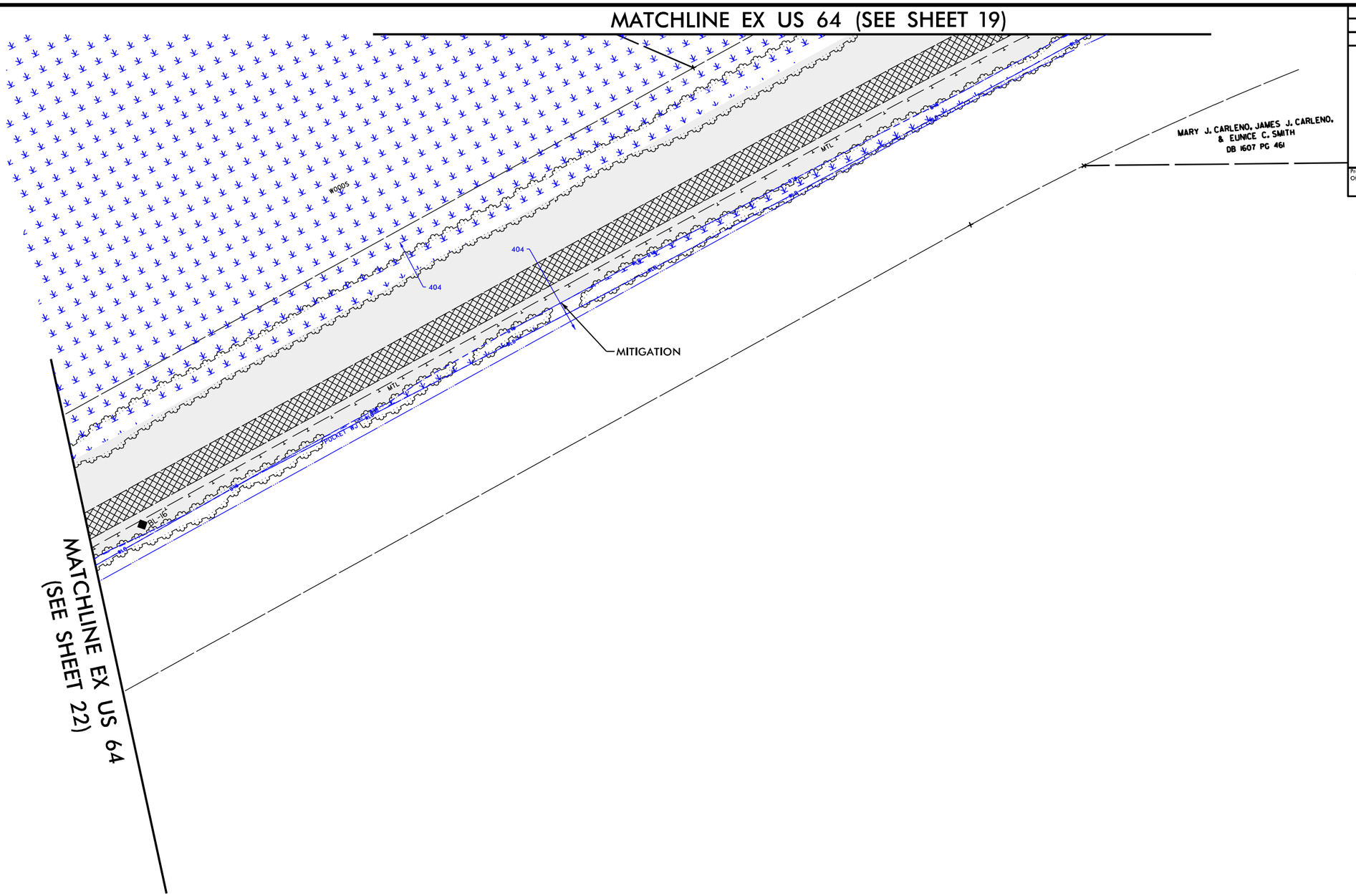
PERMIT DRAWING
SHEET 40 OF 79



REVISIONS

8/17/99

05-JUN-2023 13:09
HB0001_PR_pm_psh_40.dgn
pattick.hughes

50 25 0 50 100
PLANS

PAVEMENT REMOVAL

NO PROFILE, PAVEMENT REMOVAL ONLY

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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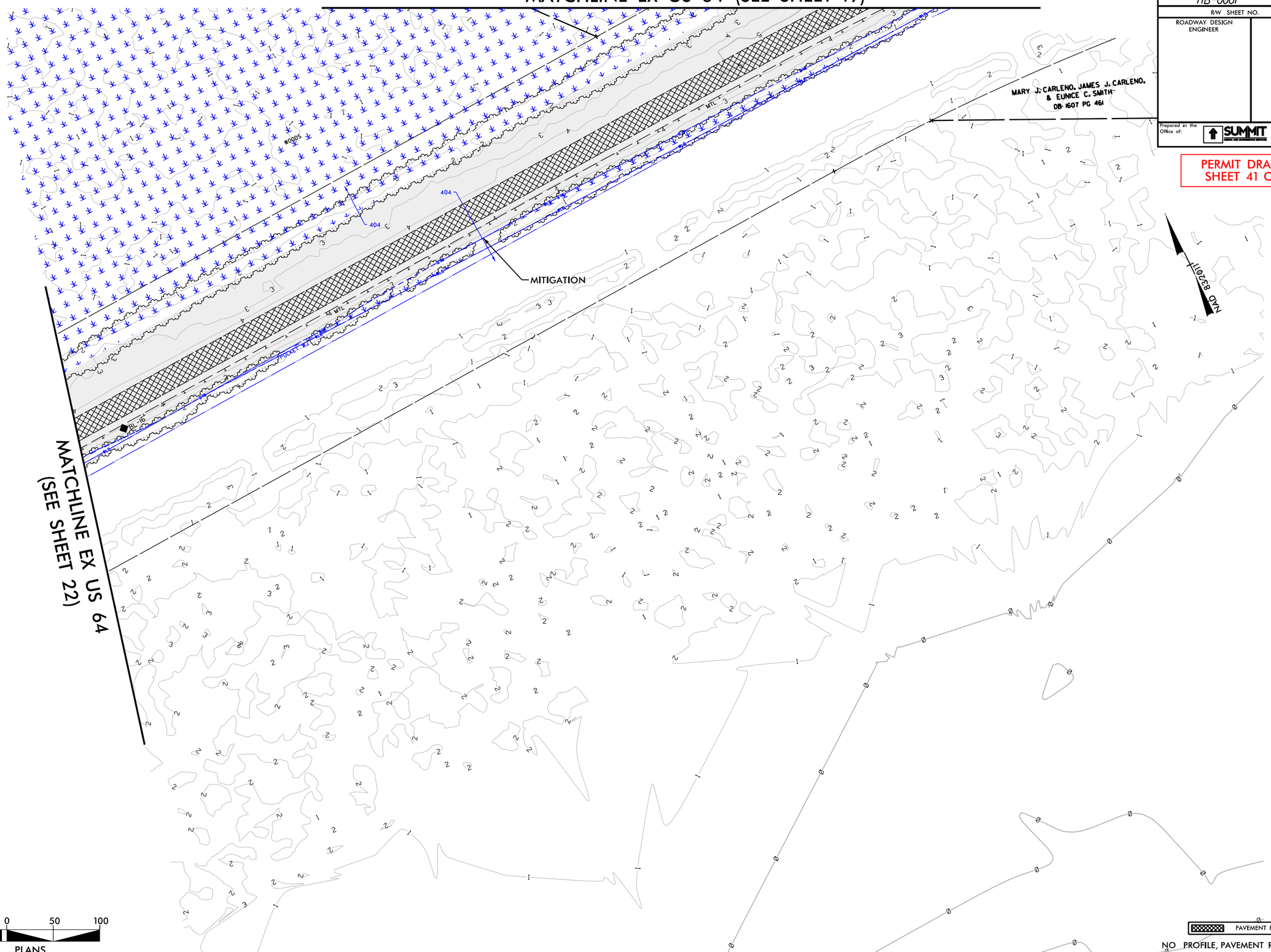
PERMIT DRAWING
SHEET 41 OF 79



REVISIONS

8/17/99

05-JUN-2023 13:09
HB0001_hyd_pm_psh_41.dgn
pdtuck bhuggins

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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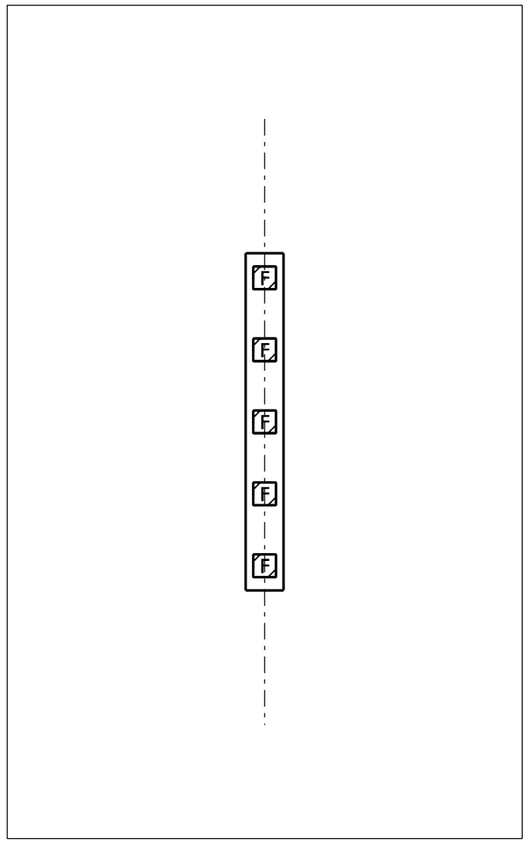
PERMIT DRAWING
SHEET 42 OF 79

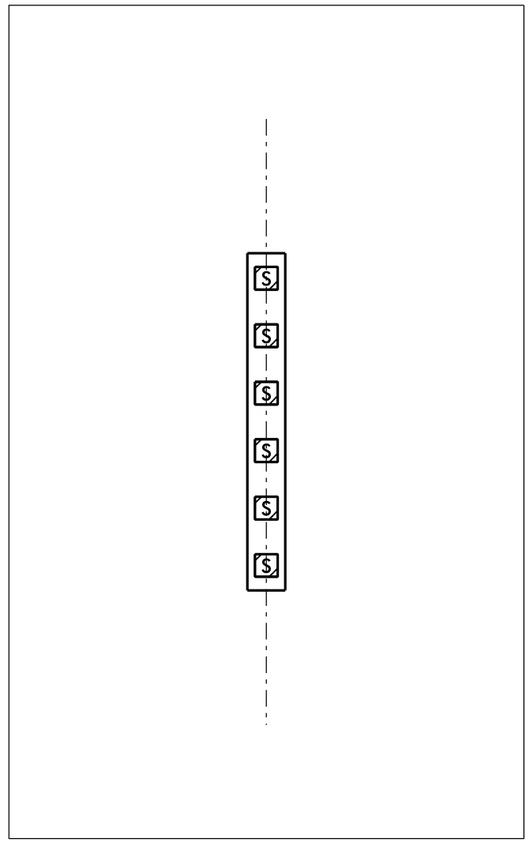
BENT TYPICAL IMPACTS

F/F FILL IN WETLAND

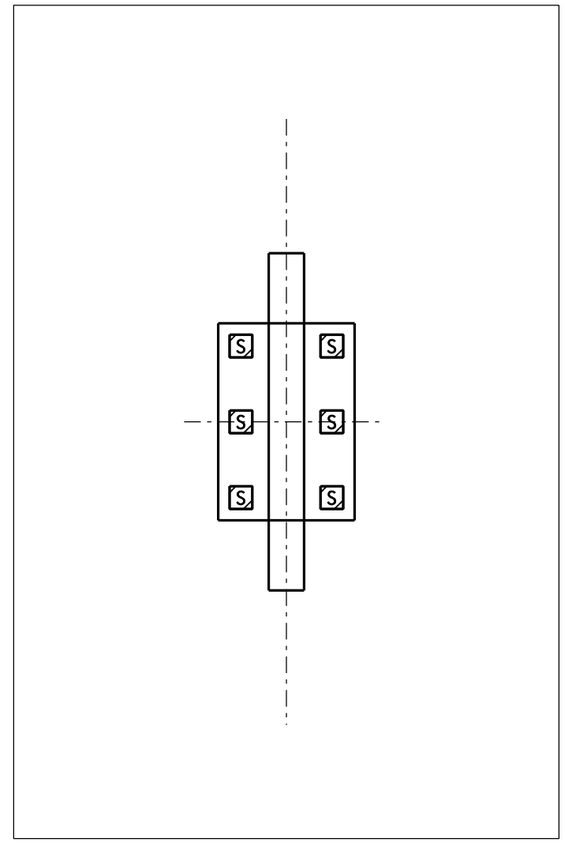
S/S SURFACE WATER IMPACTS



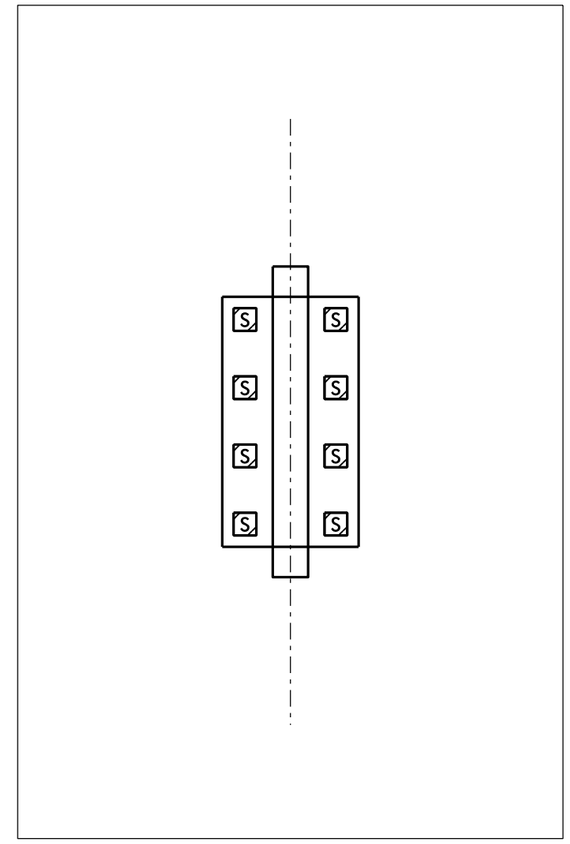
BENTS 1–3, 133–134
44′–6″ x 5′–0″
36″ PRESTRESSED CONCRETE PILE



BENTS 4–39, 62–132
44′–6″ x 5′–0″
36″ PRESTRESSED CONCRETE PILE



BENTS 40 & 61
26′–0″ x 18′–0″
36″ PRESTRESSED CONCRETE PILE



BENTS 41–43, 58–60
33′–0″ x 18′–0″
36″ PRESTRESSED CONCRETE PILE

10 5 0 10 20
PLANS

REVISIONS

8/17/99

05-JUN-2023 13:09
HB0001_TYP_psh_42.dgn
pbrock

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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320 Executive Ct.
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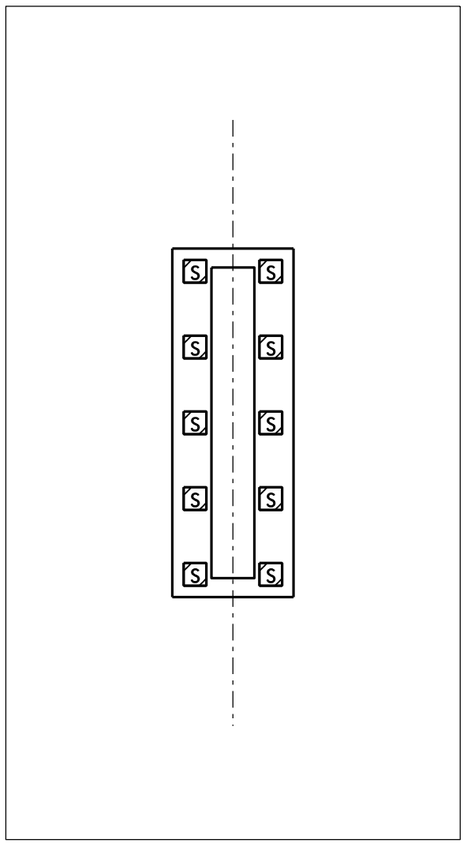
(919) 732-3883
(919) 732-6676 (FAX)

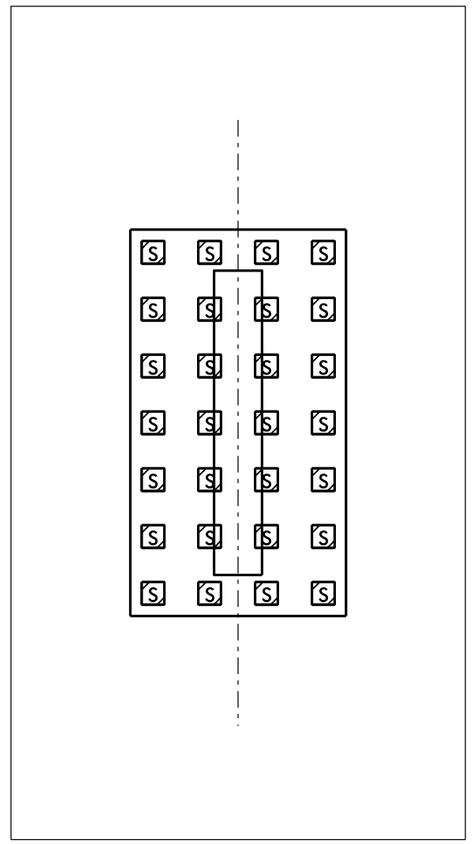
PERMIT DRAWING
SHEET 43 OF 79

BENT TYPICAL IMPACTS

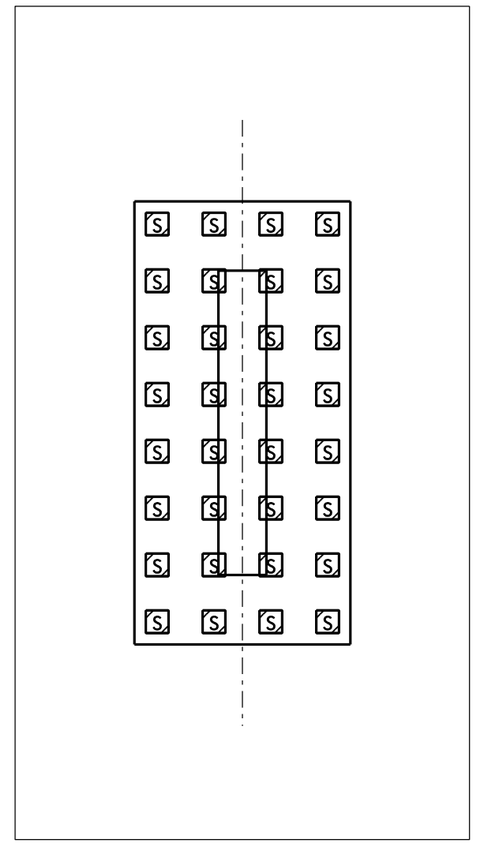
S S SURFACE WATER IMPACTS



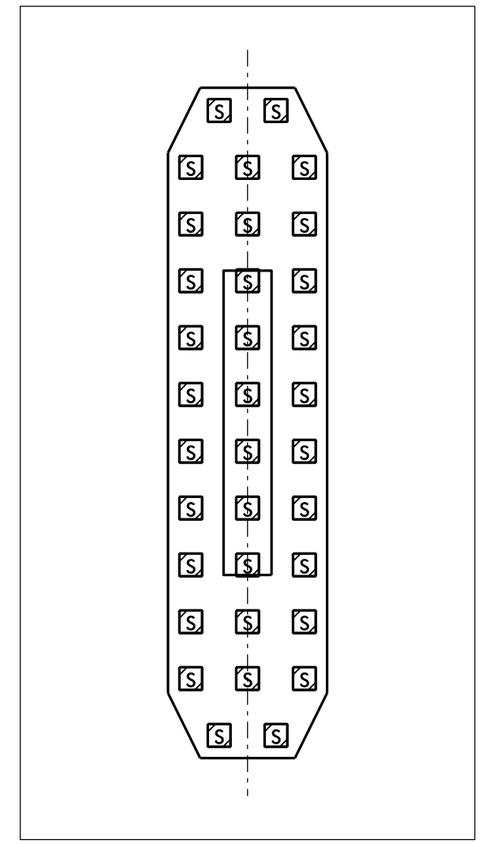
BENTS 44–46, 55–57
46′–0″ x 16′–0″
36″ PRESTRESSED CONCRETE PILE



BENTS 47–48, 53–54
51′–0″ x 28′–6″
36″ PRESTRESSED CONCRETE PILE



BENTS 49 & 52
58′–6″ x 28′–6″
36″ PRESTRESSED CONCRETE PILE



BENTS 50 & 51
88′–6″ x 21′–0″
36″ PRESTRESSED CONCRETE PILE

10 5 0 10 20
PLANS

REVISIONS

8/17/99

05-JUN-2023 13:10
HB0001_psh_43.dgn
TYP_psh_43.dgn

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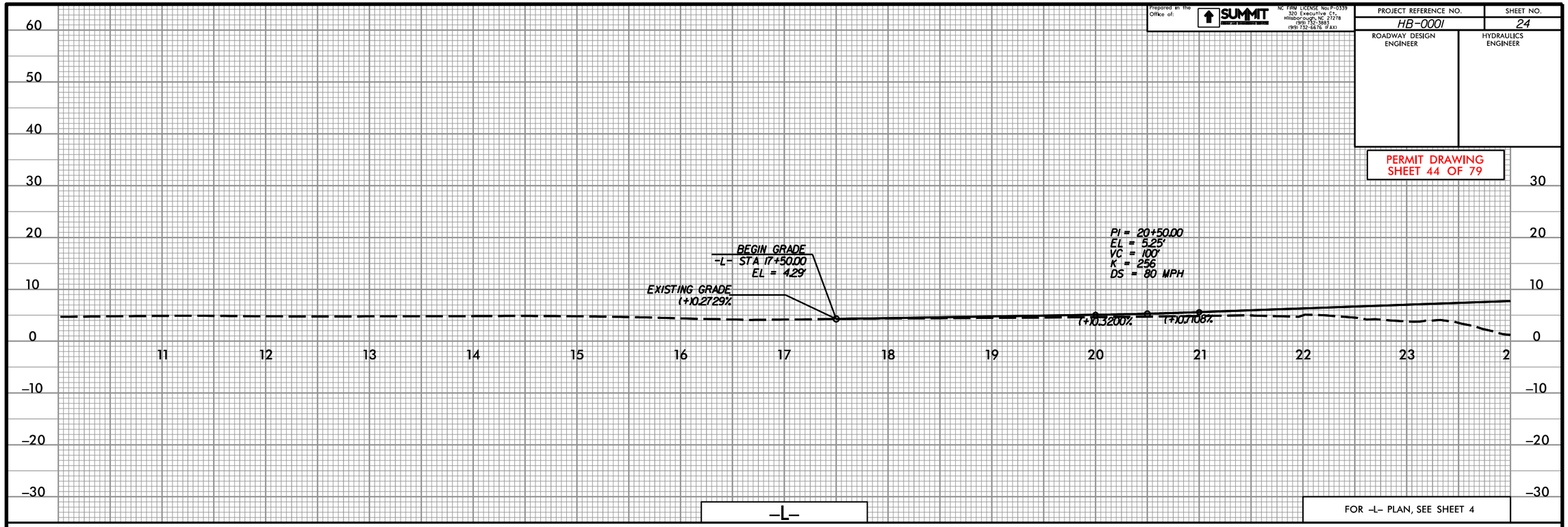
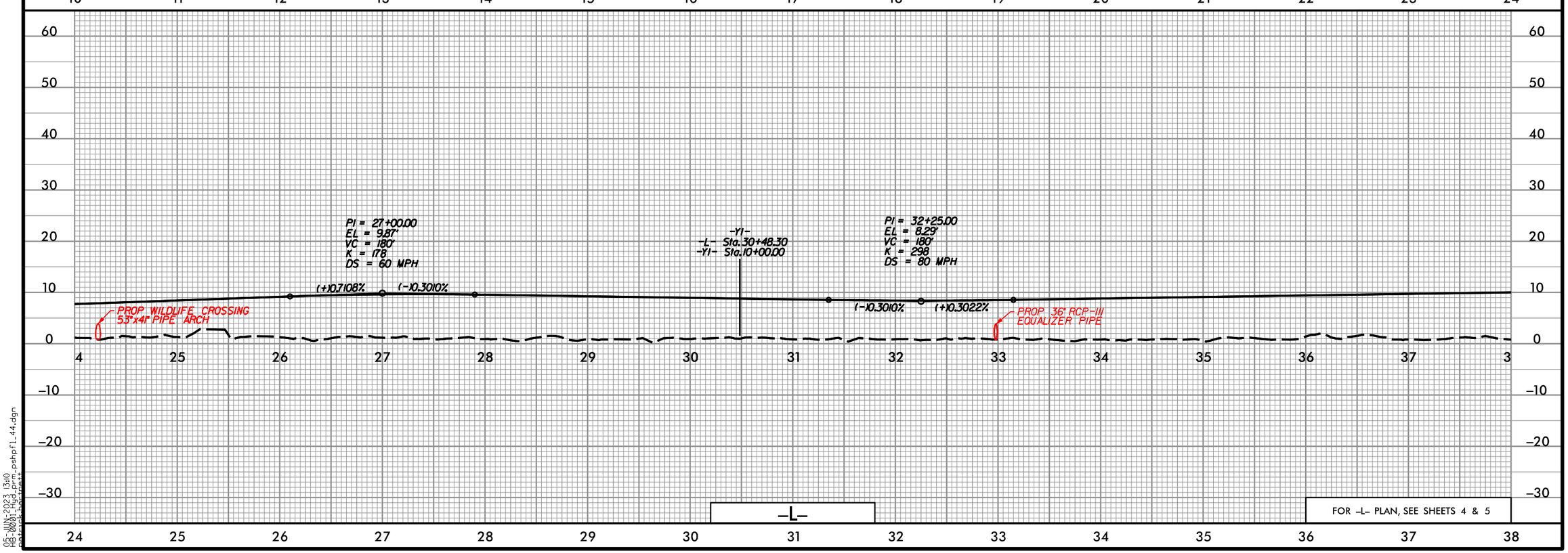
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	24

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 44 OF 79





05-JUN-2023 13:10
HB-0001_Hyd_Prm_pshp01_44.dgn

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NC FIRM LICENSE No: P-0339
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Hillsborough, NC 27278
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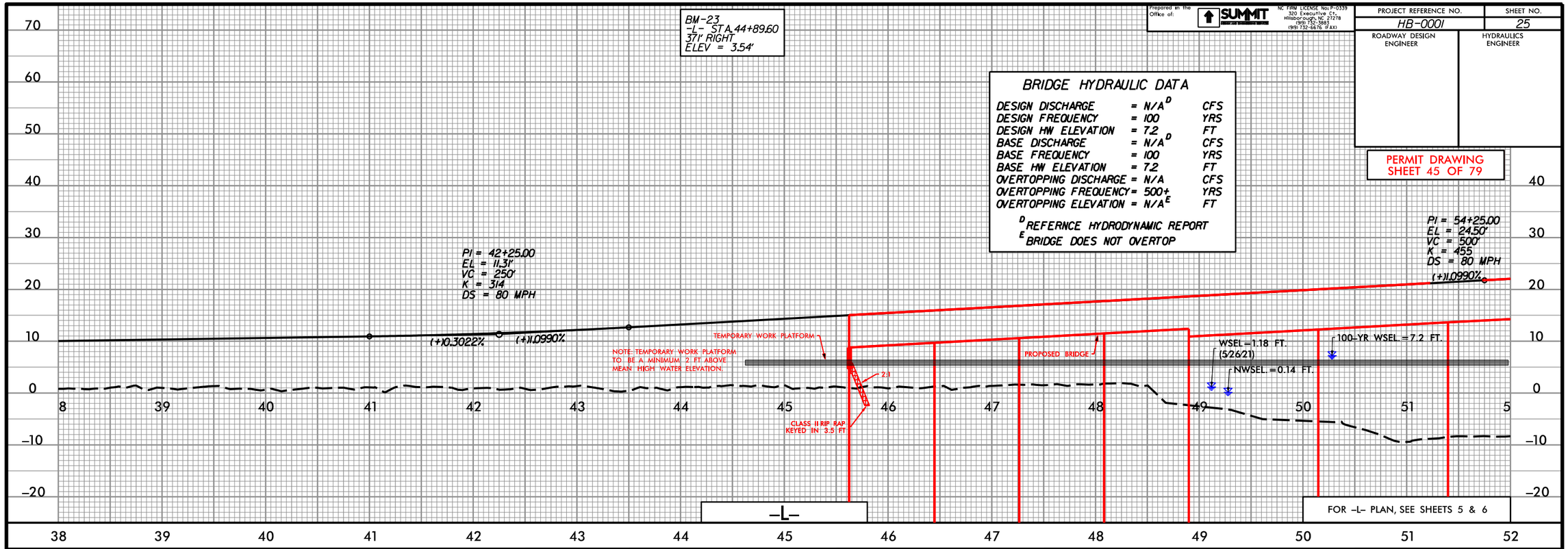
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	25

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 45 OF 79



05-JUN-2023 13:10
HB0001_Hyd_prm_pshp01_45.dgn

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NC FIRM LICENSE No: P-0339
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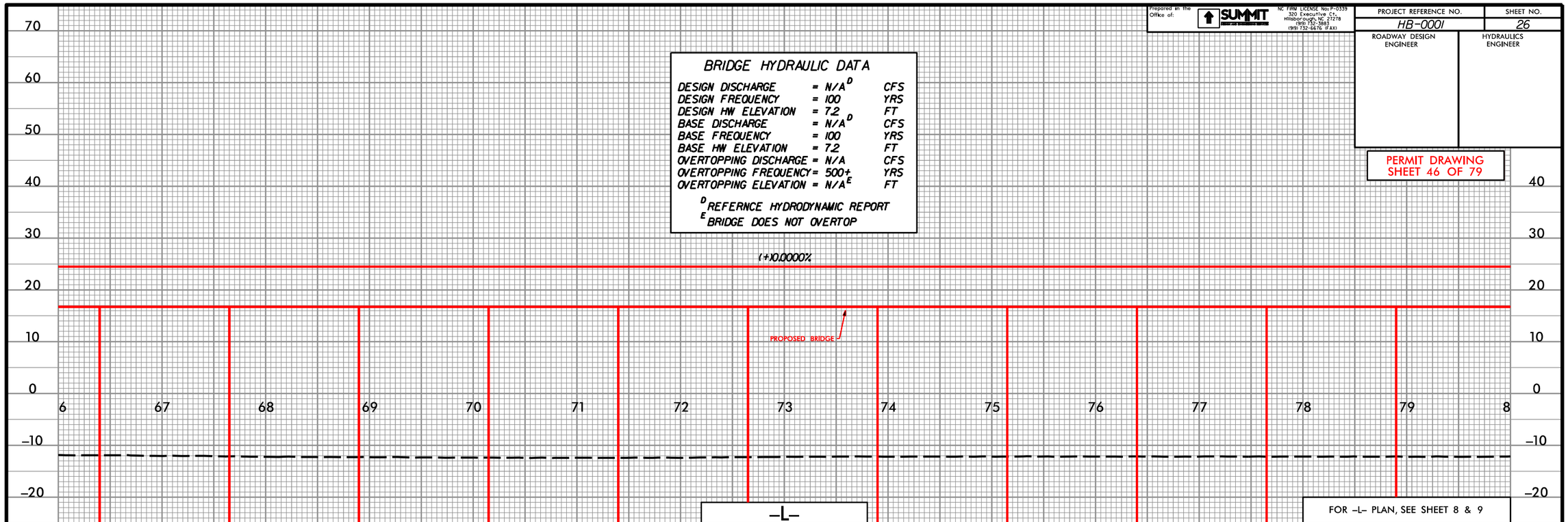
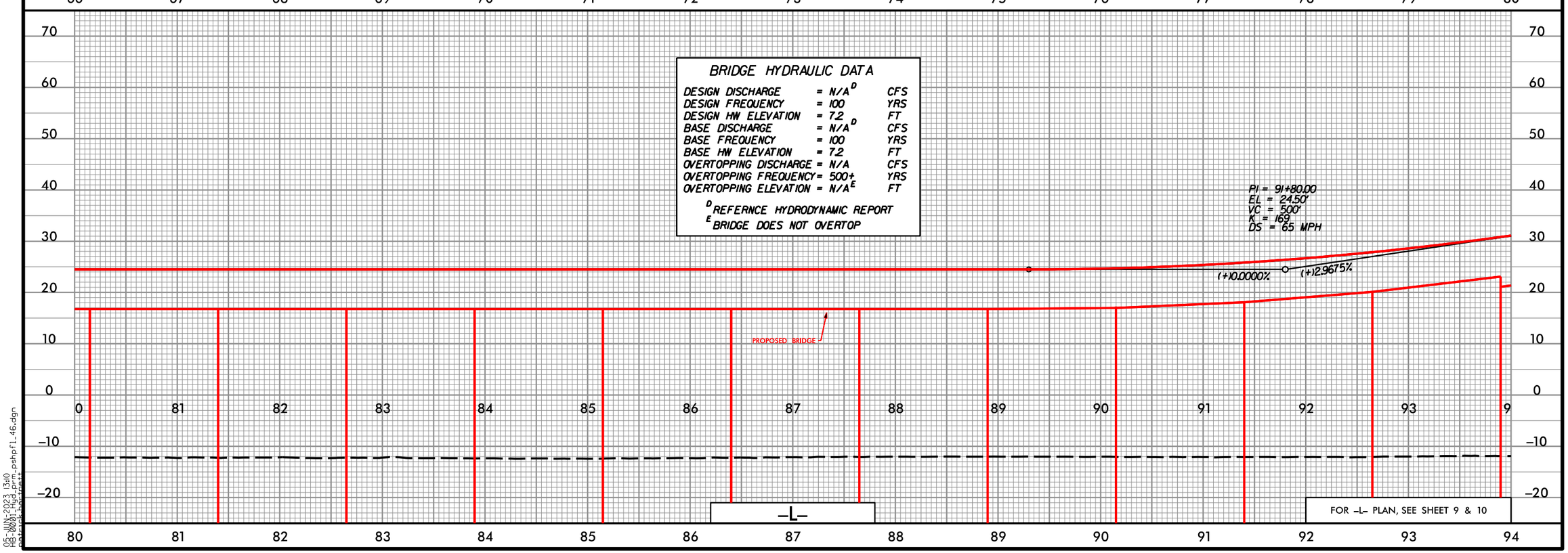
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 46 OF 79





05-JUN-2023 13:10
HB0001_Hyd_Prm_pshp01_46.dgn

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NC FIRM LICENSE No: P-0339
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Hillsborough, NC 27278
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(919) 732-6676 (FAX)

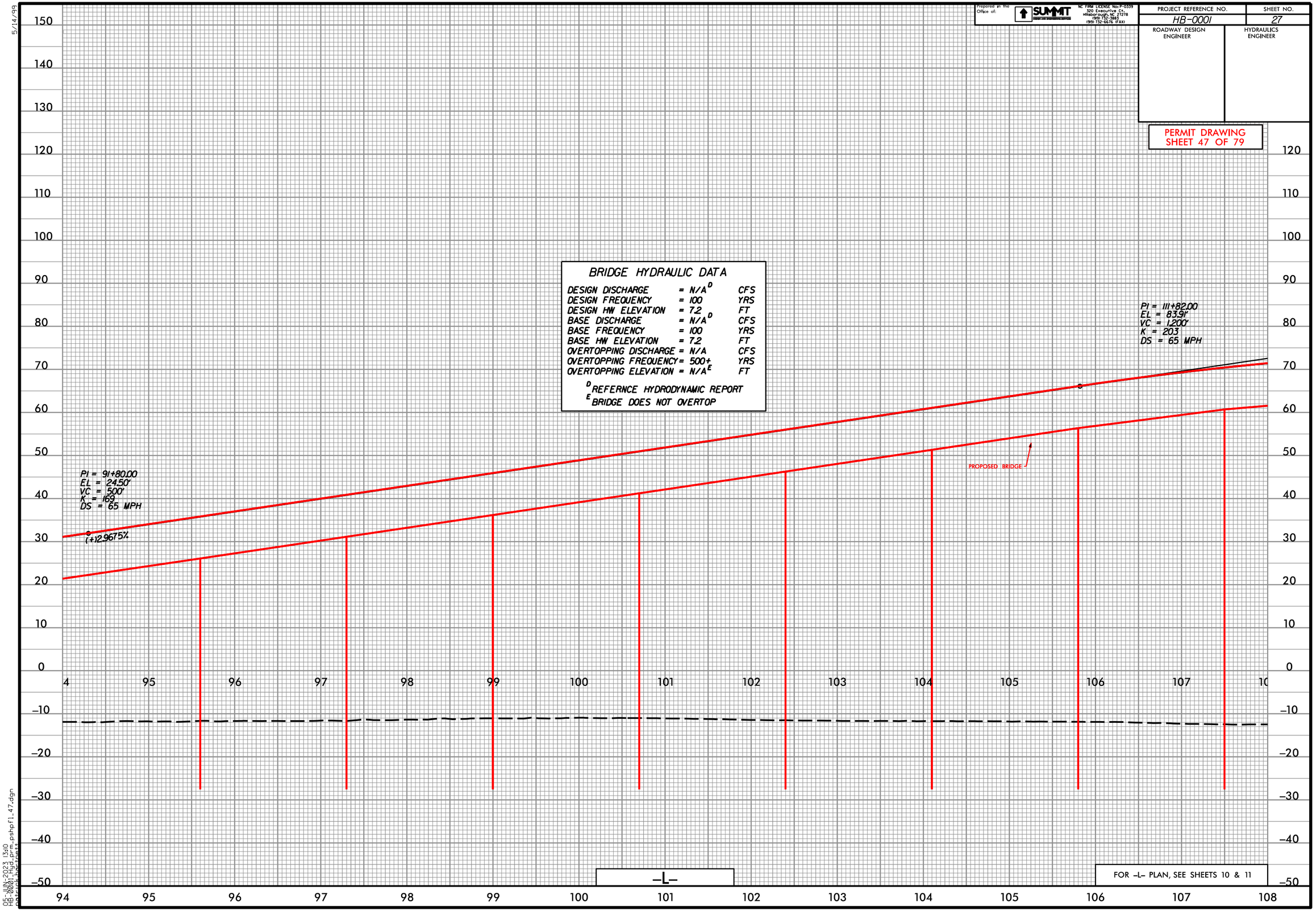
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 47 OF 79

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= N/A[D]	CFS
DESIGN FREQUENCY	= 100	YRS
DESIGN HW ELEVATION	= 7.2	FT
BASE DISCHARGE	= N/A[D]	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 7.2	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= N/A[E]	FT

[D] REFERNCE HYDRODYNAMIC REPORT
[E] BRIDGE DOES NOT OVERTOP



05-JUN-2023 13:10
HB0001_Hyd_PrPm_pshpfl_47.dgn

5/14/99

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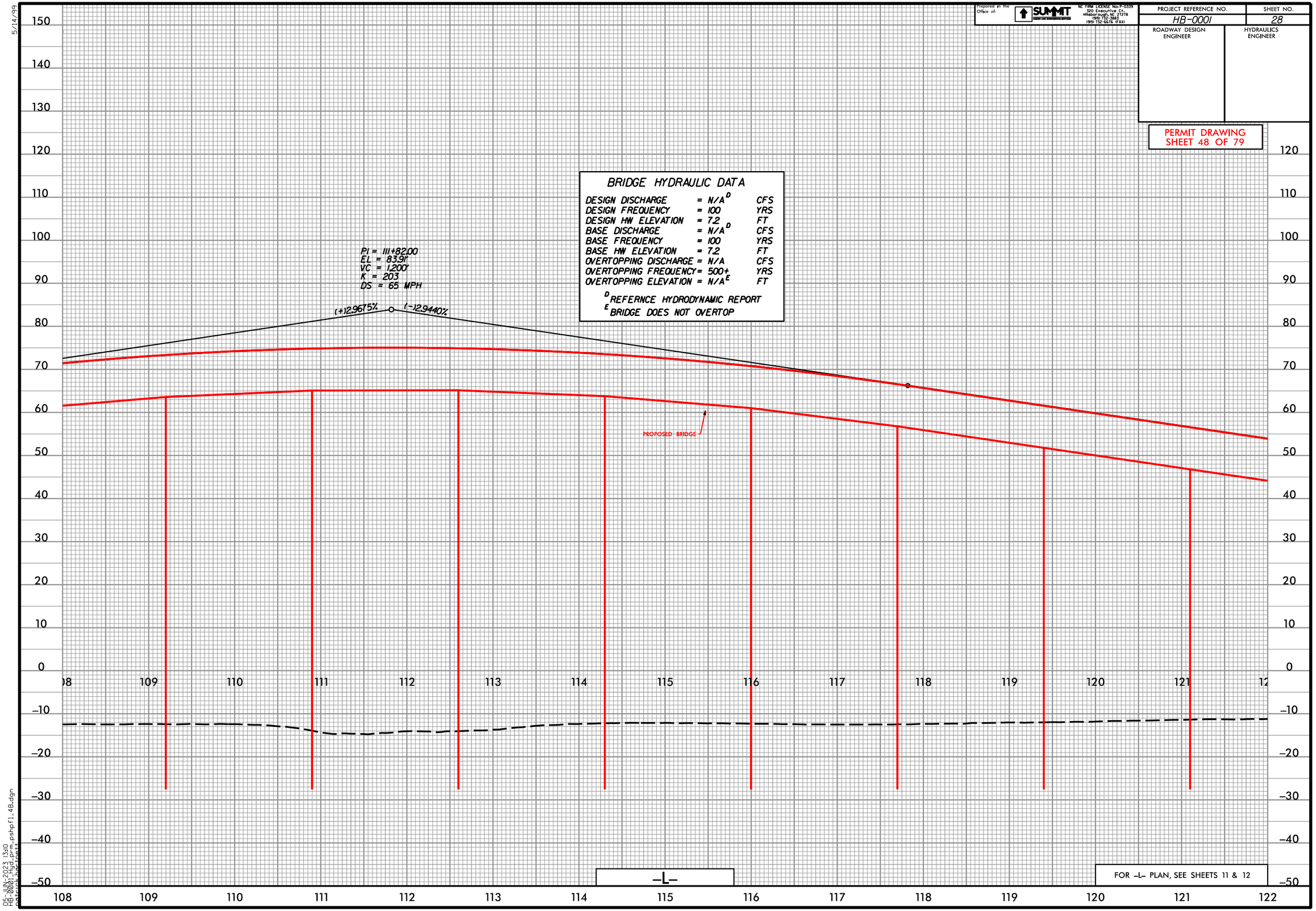
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	28
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 48 OF 79



08-JUN-2023 13:10
hb0001_hyd_prm_pshpf1_48.dgn

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NC FIRM LICENSE No: P-0339
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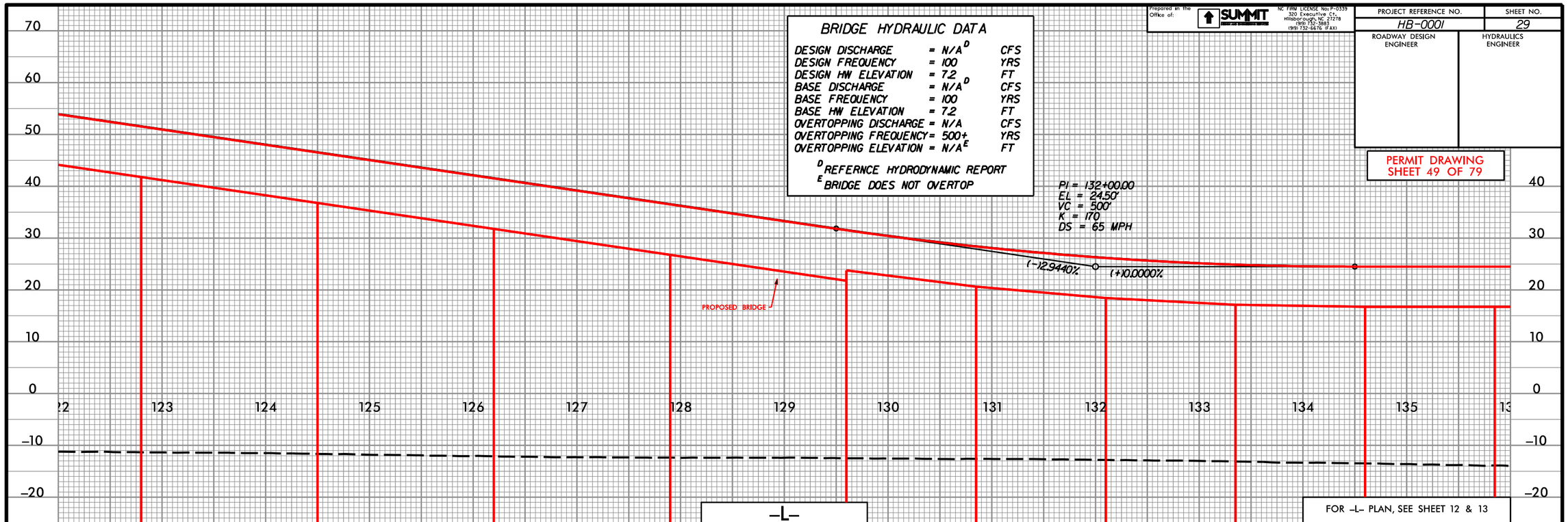
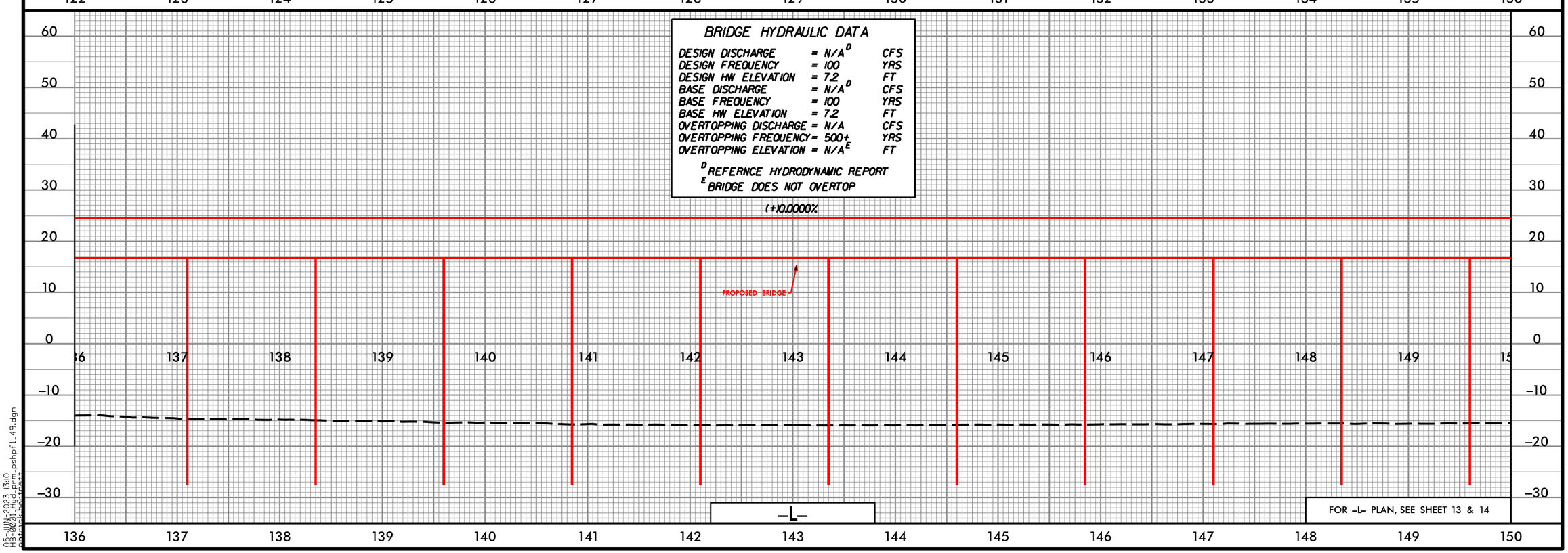
(919) 732-6676 (FAX)

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 49 OF 79





05-JUN-2023 13:10
HB0001_Hyd_Prm_pshp11_49.dgn

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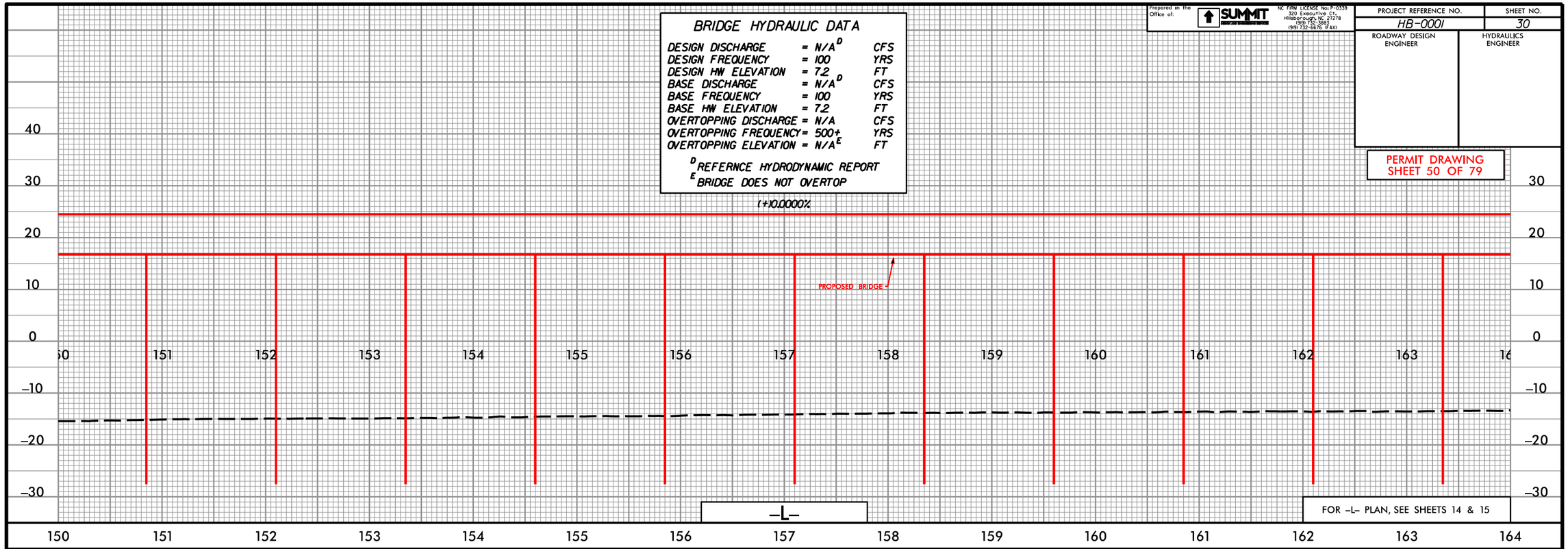
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 50 OF 79

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= N/A[D]	CFS
DESIGN FREQUENCY	= 100	YRS
DESIGN HW ELEVATION	= 7.2	FT
BASE DISCHARGE	= N/A[D]	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 7.2	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= N/A[E]	FT

[D] REFERNCE HYDRODYNAMIC REPORT
[E] BRIDGE DOES NOT OVERTOP

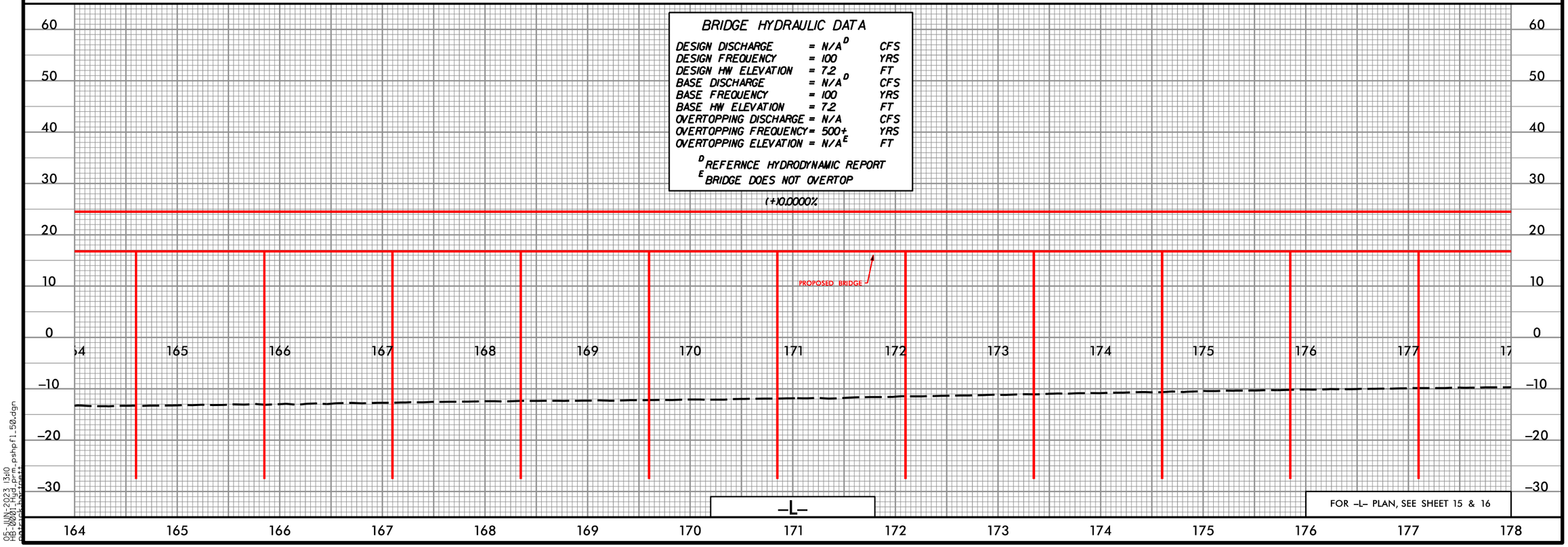


FOR –L– PLAN, SEE SHEETS 14 & 15

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= N/A[D]	CFS
DESIGN FREQUENCY	= 100	YRS
DESIGN HW ELEVATION	= 7.2	FT
BASE DISCHARGE	= N/A[D]	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 7.2	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= N/A[E]	FT

[D] REFERNCE HYDRODYNAMIC REPORT
[E] BRIDGE DOES NOT OVERTOP



FOR –L– PLAN, SEE SHEET 15 & 16

05-JUN-2023 13:10
HB-0001_Hyd_Prm_pshp11_50.dgn

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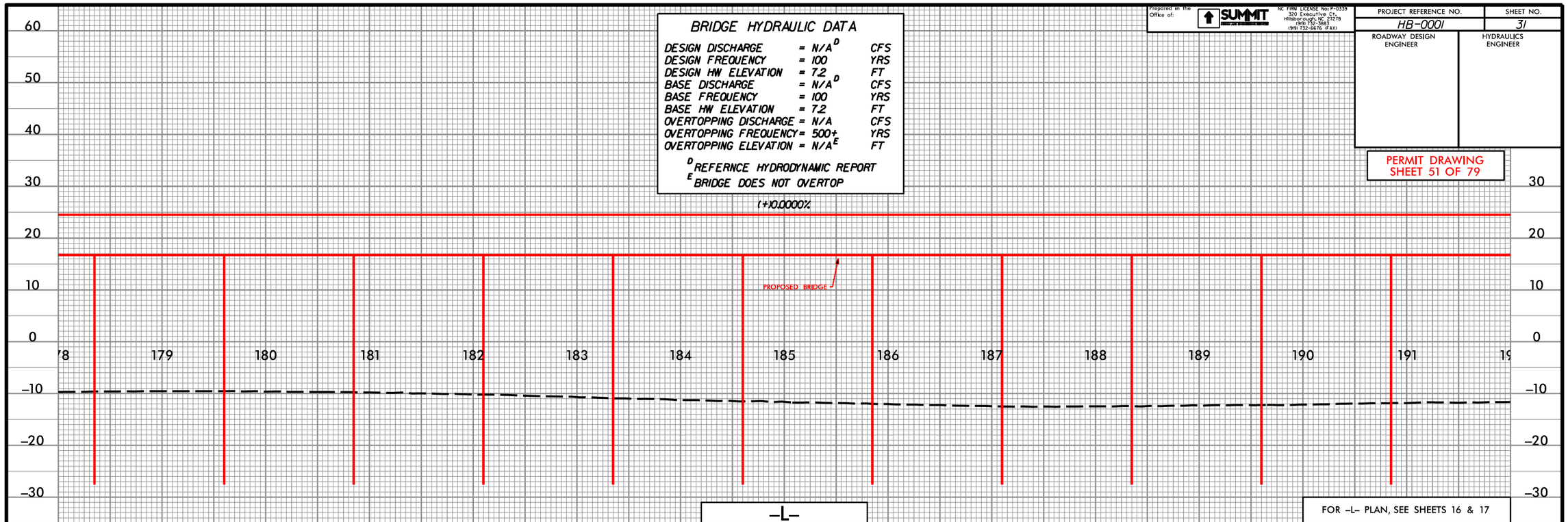
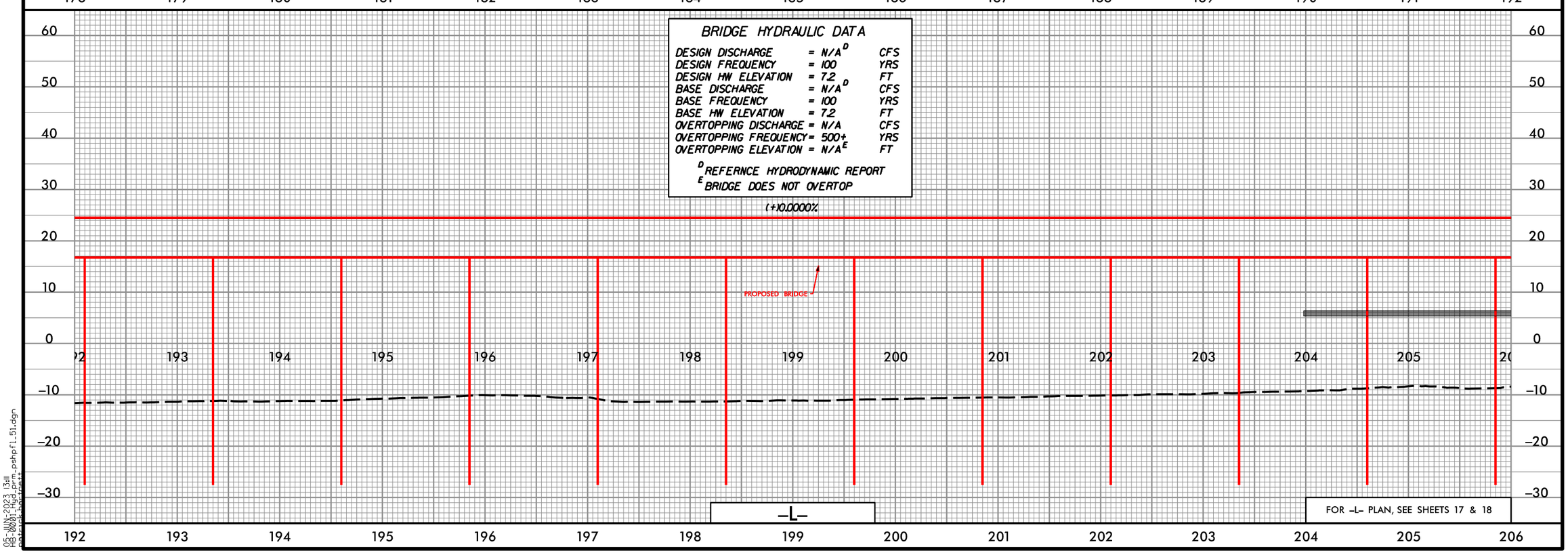
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	31
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 51 OF 79





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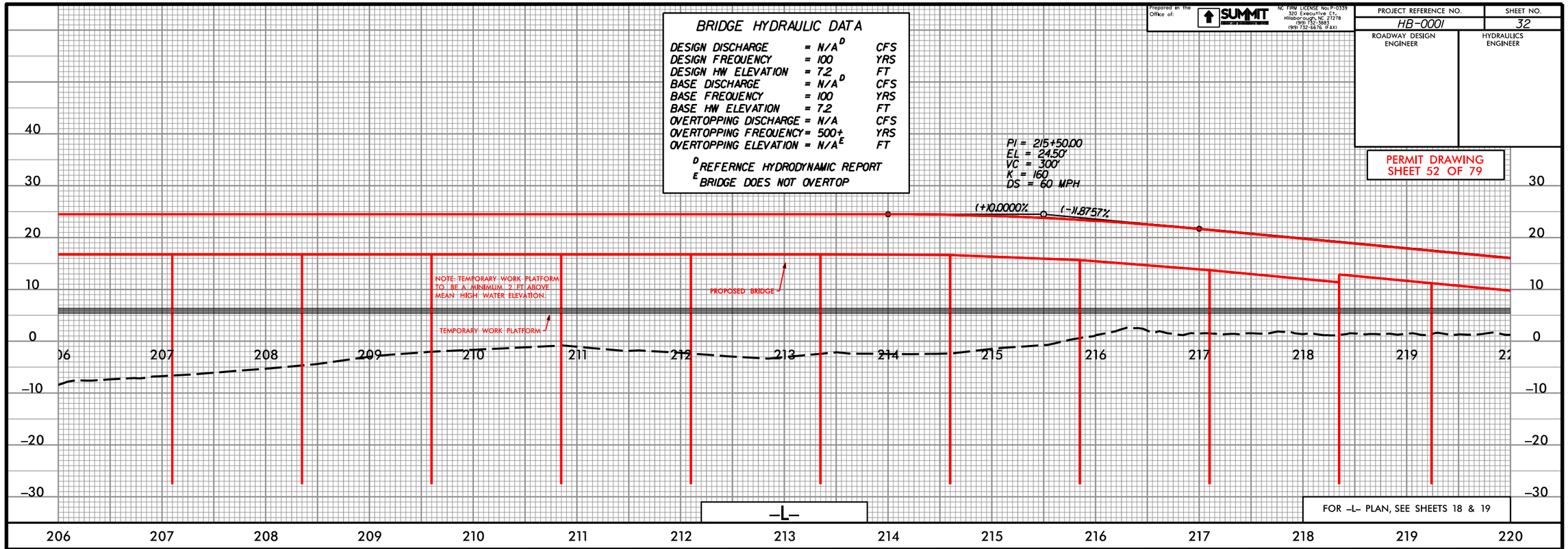
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 52 OF 79

BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= N/A[D]	CFS
DESIGN FREQUENCY	= 100	YRS
DESIGN HW ELEVATION	= 7.2	FT
BASE DISCHARGE	= N/A[D]	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 7.2	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= N/A[E]	FT

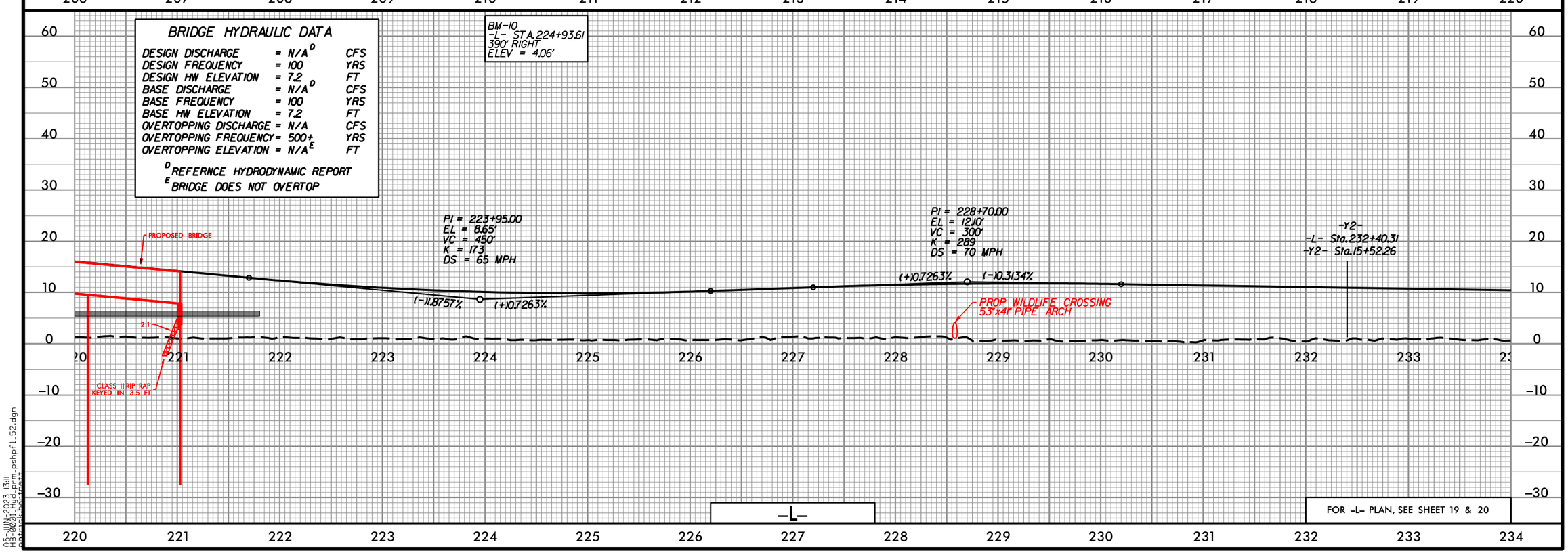
[D] REFERNCE HYDRODYNAMIC REPORT
[E] BRIDGE DOES NOT OVERTOP



BRIDGE HYDRAULIC DATA

DESIGN DISCHARGE	= N/A[D]	CFS
DESIGN FREQUENCY	= 100	YRS
DESIGN HW ELEVATION	= 7.2	FT
BASE DISCHARGE	= N/A[D]	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 7.2	FT
OVERTOPPING DISCHARGE	= N/A	CFS
OVERTOPPING FREQUENCY	= 500+	YRS
OVERTOPPING ELEVATION	= N/A[E]	FT

[D] REFERNCE HYDRODYNAMIC REPORT
[E] BRIDGE DOES NOT OVERTOP



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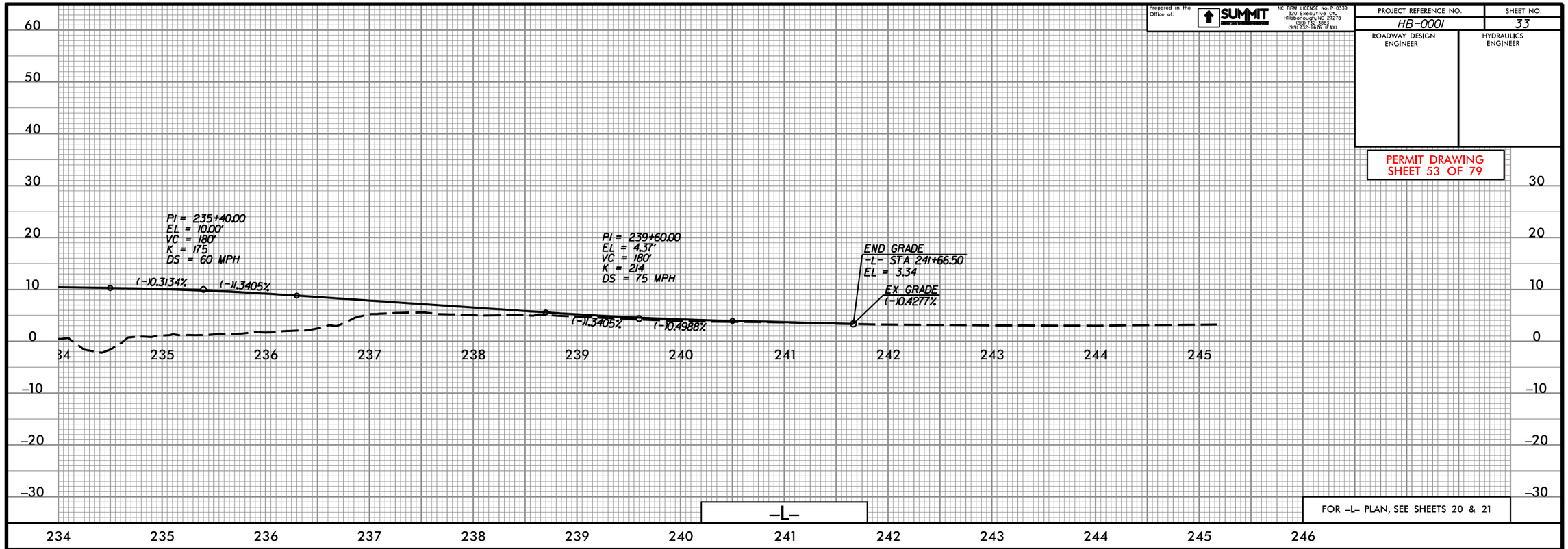
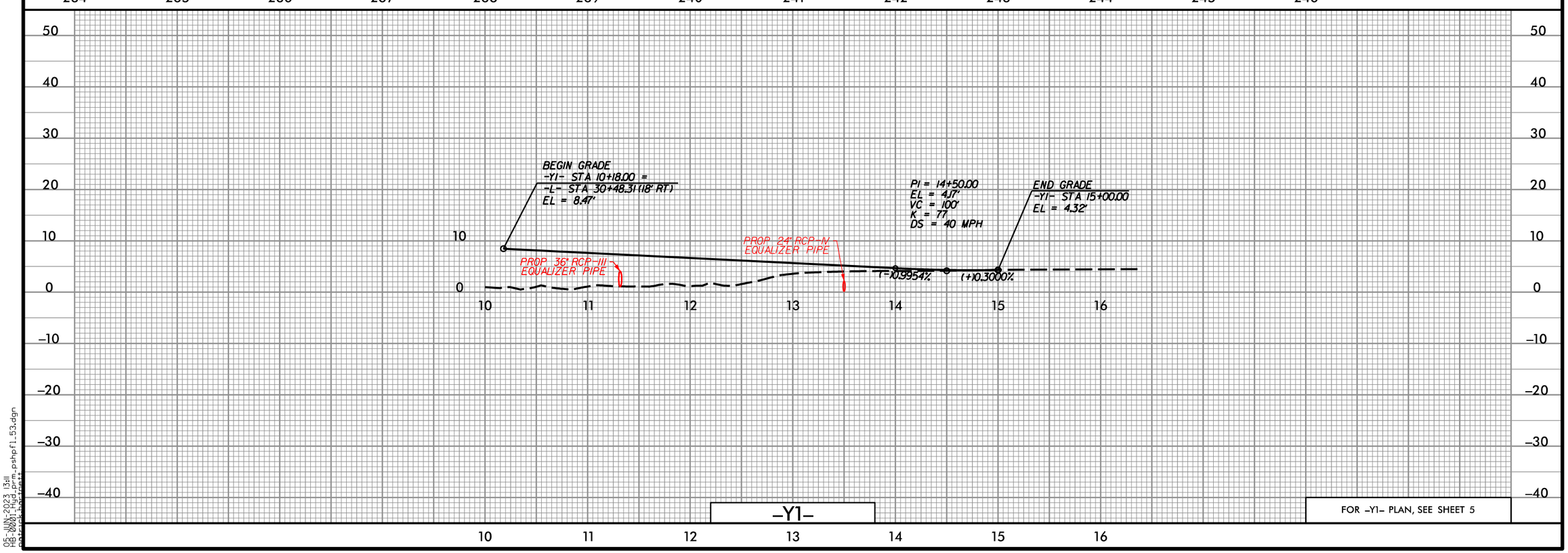
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	33

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 53 OF 79





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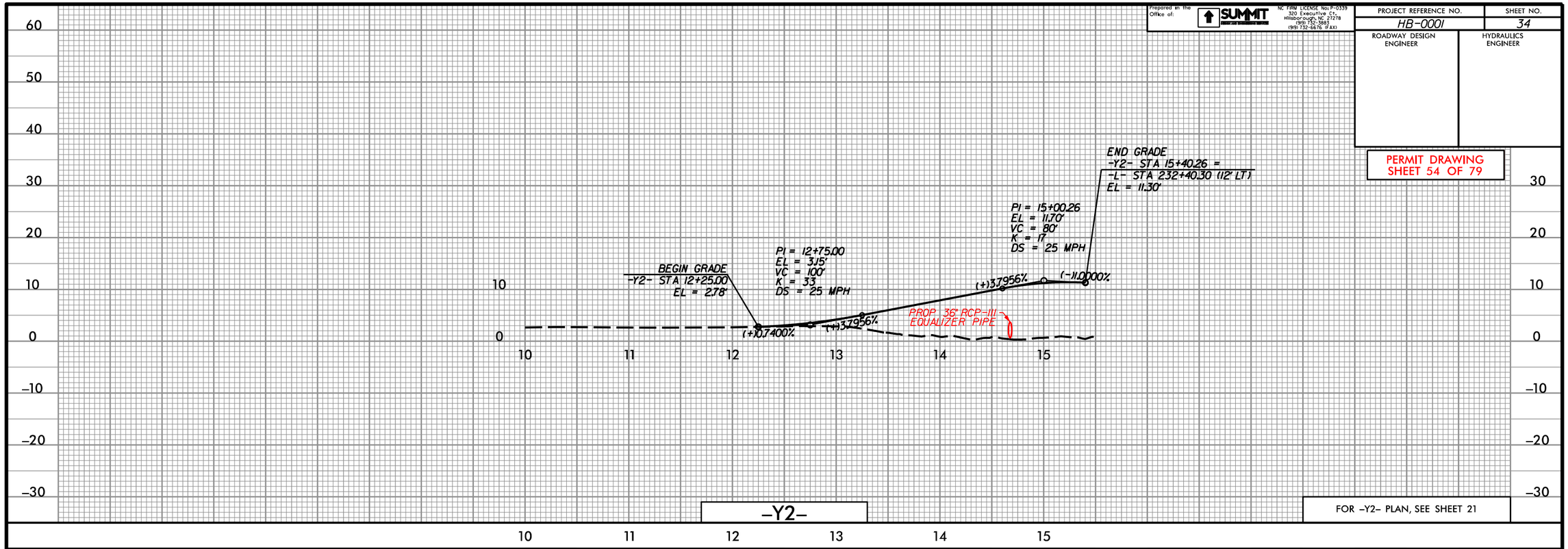
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	34

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 54 OF 79



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dpierce_hydro

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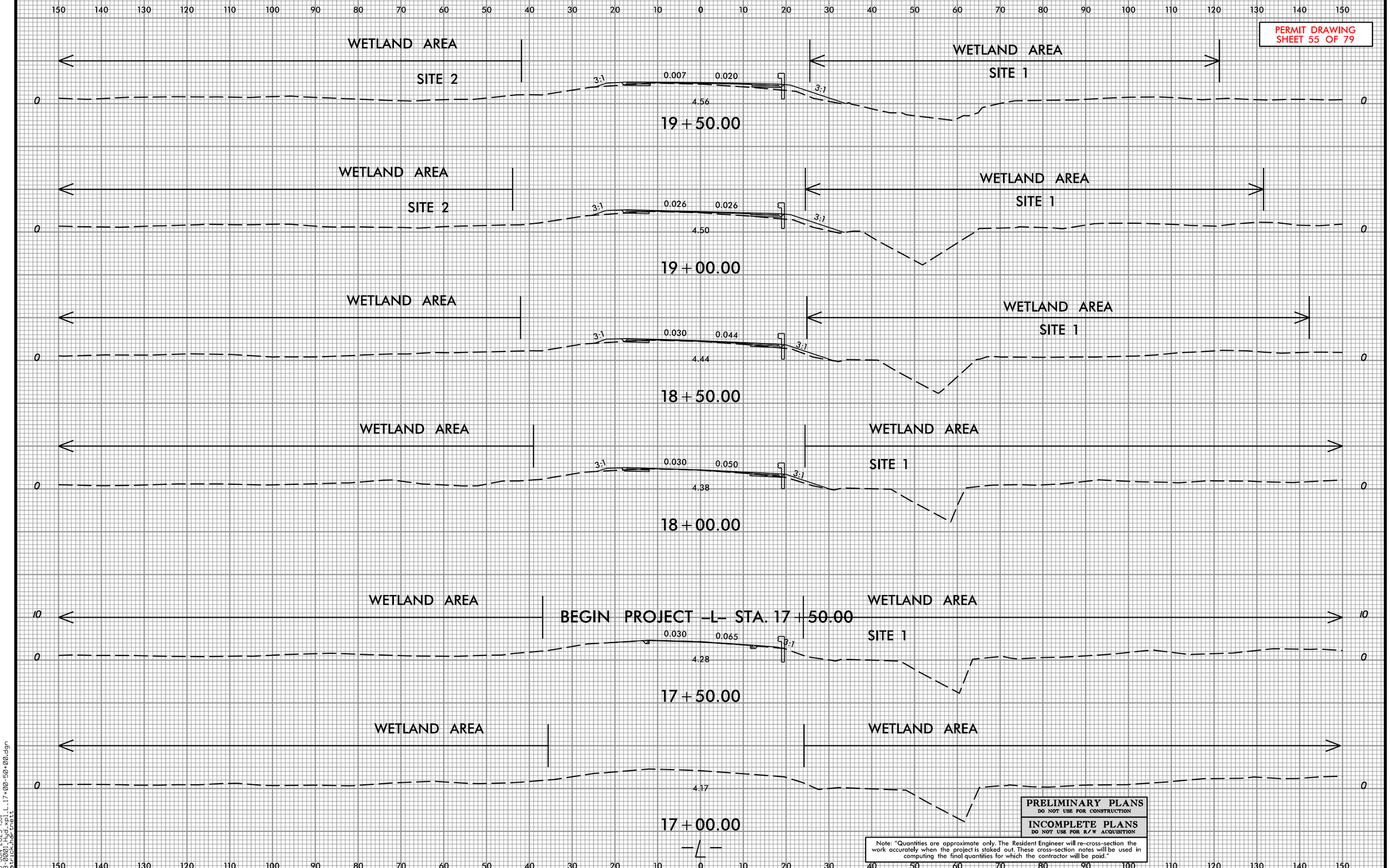
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-1

PERMIT DRAWING
SHEET 55 OF 79



PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

Note: "Quantities are approximate only. The Resident Engineer will re-cross-section the work accurately when the project is staked out. These cross-section notes will be used in computing the final quantities for which the contractor will be paid."

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HB0001_X1_L_17+00-50+00.dgn
patrick.harris

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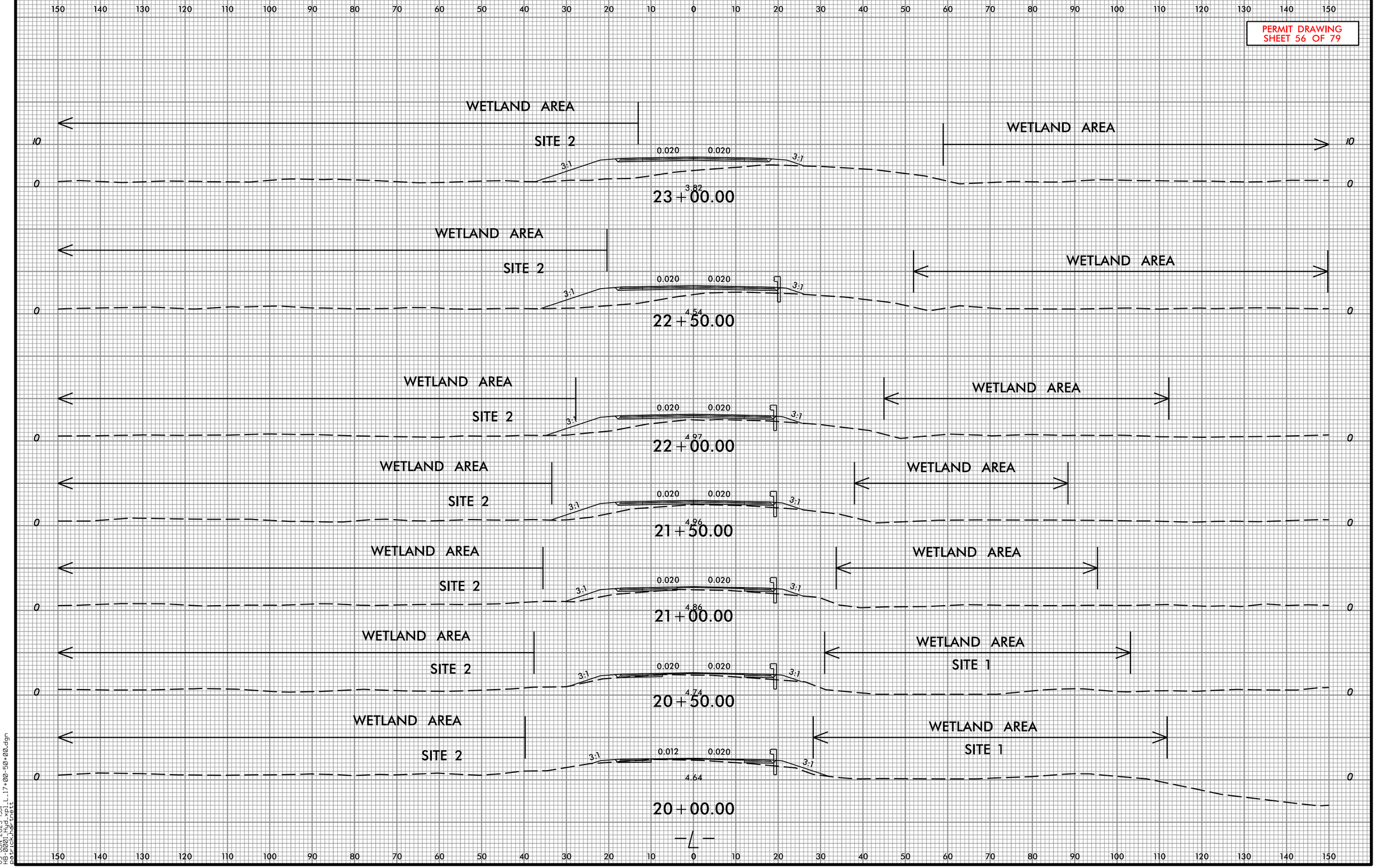
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-2

PERMIT DRAWING
SHEET 56 OF 79



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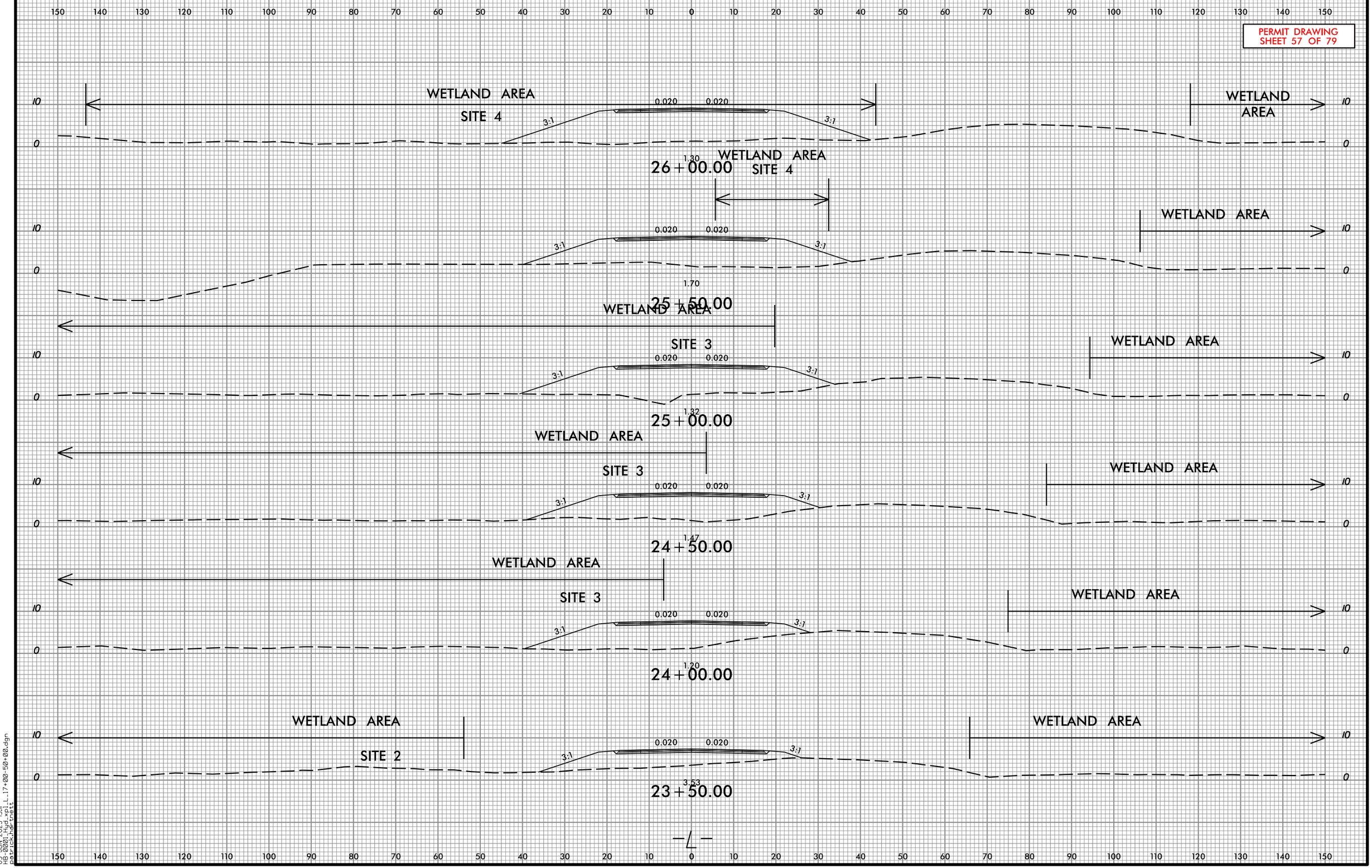
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-3

PERMIT DRAWING
SHEET 57 OF 79



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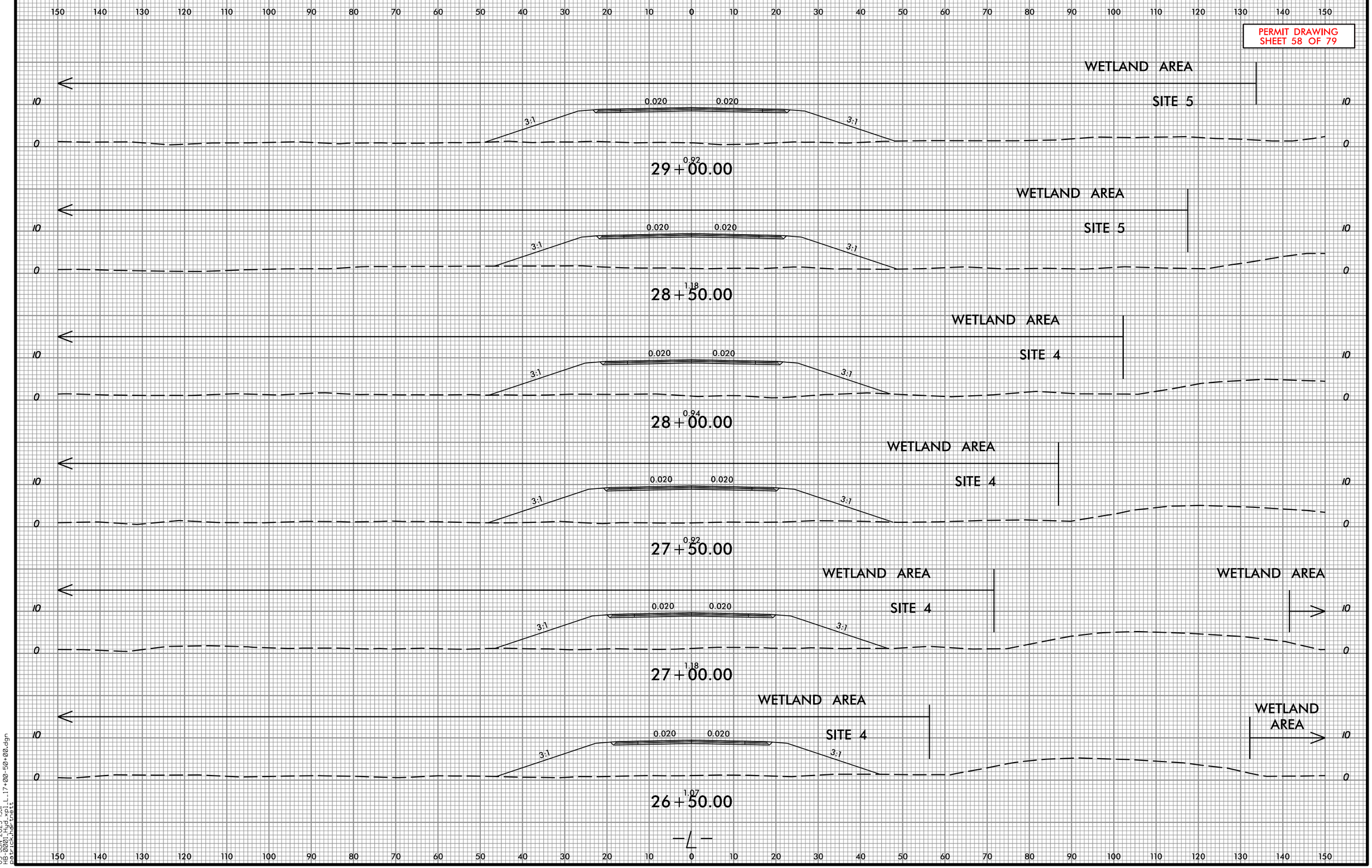
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HB-0001	X-4

PERMIT DRAWING
SHEET 58 OF 79



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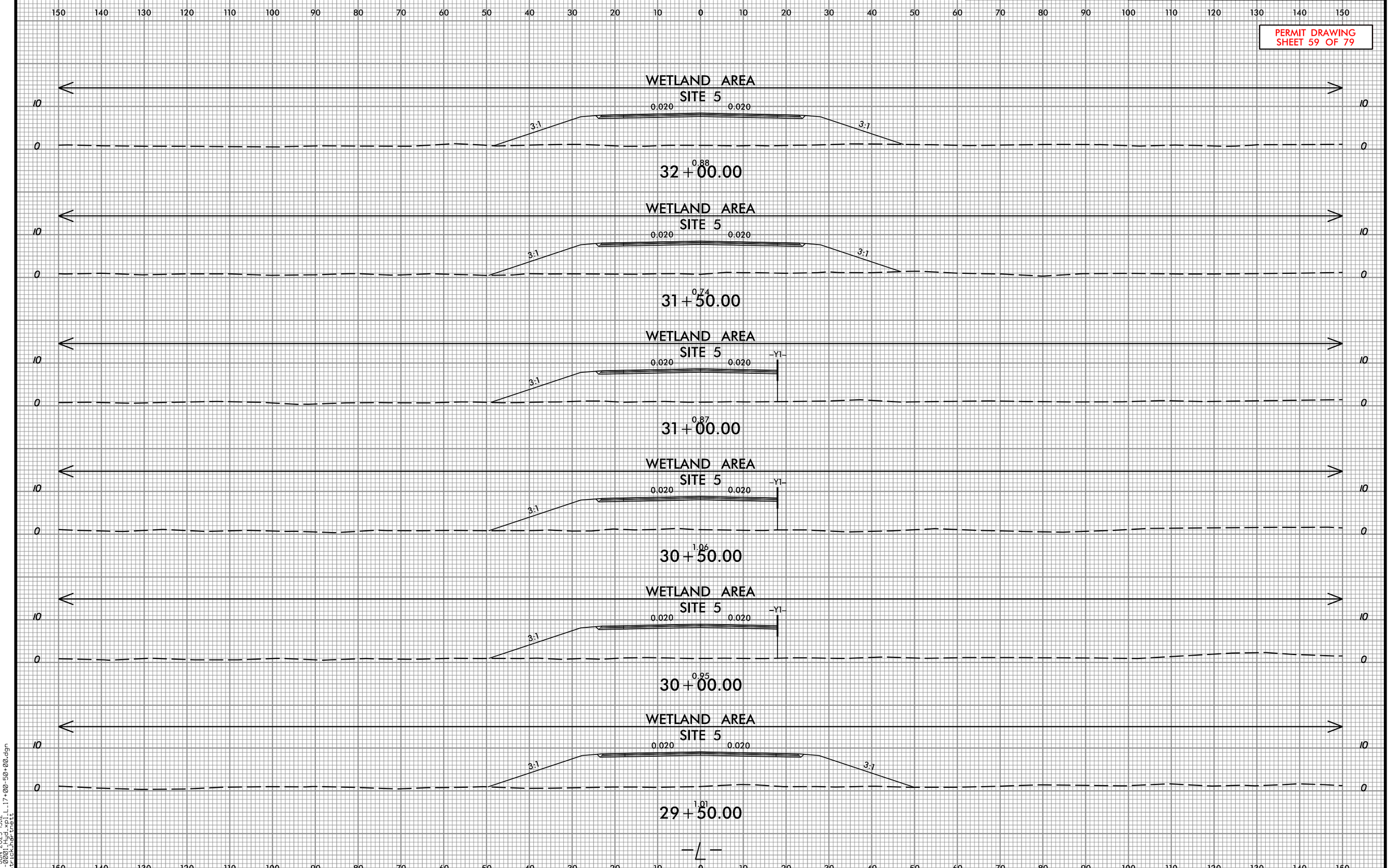
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-5

PERMIT DRAWING
SHEET 59 OF 79



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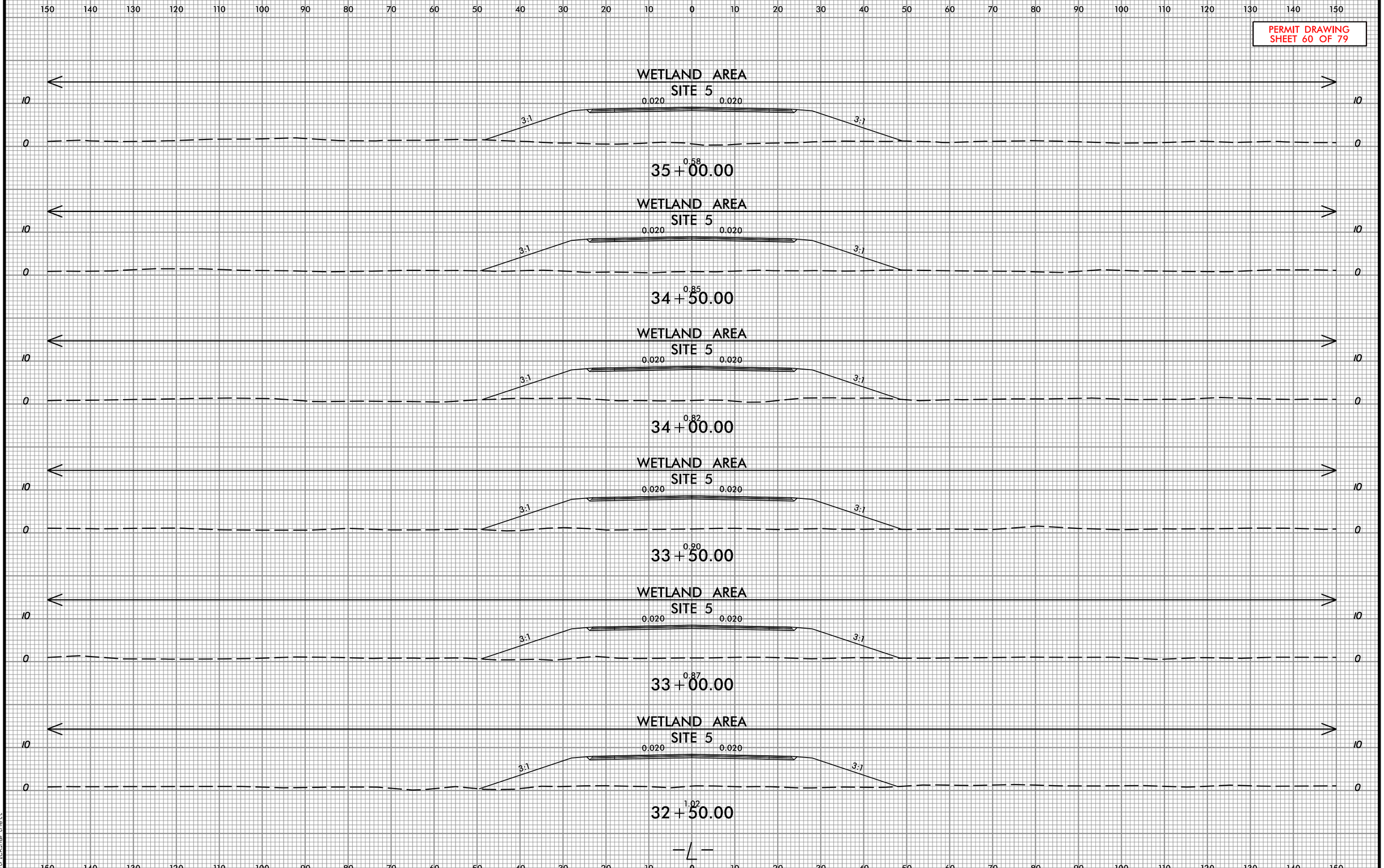
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-6

PERMIT DRAWING
SHEET 60 OF 79



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patrick.hardnett
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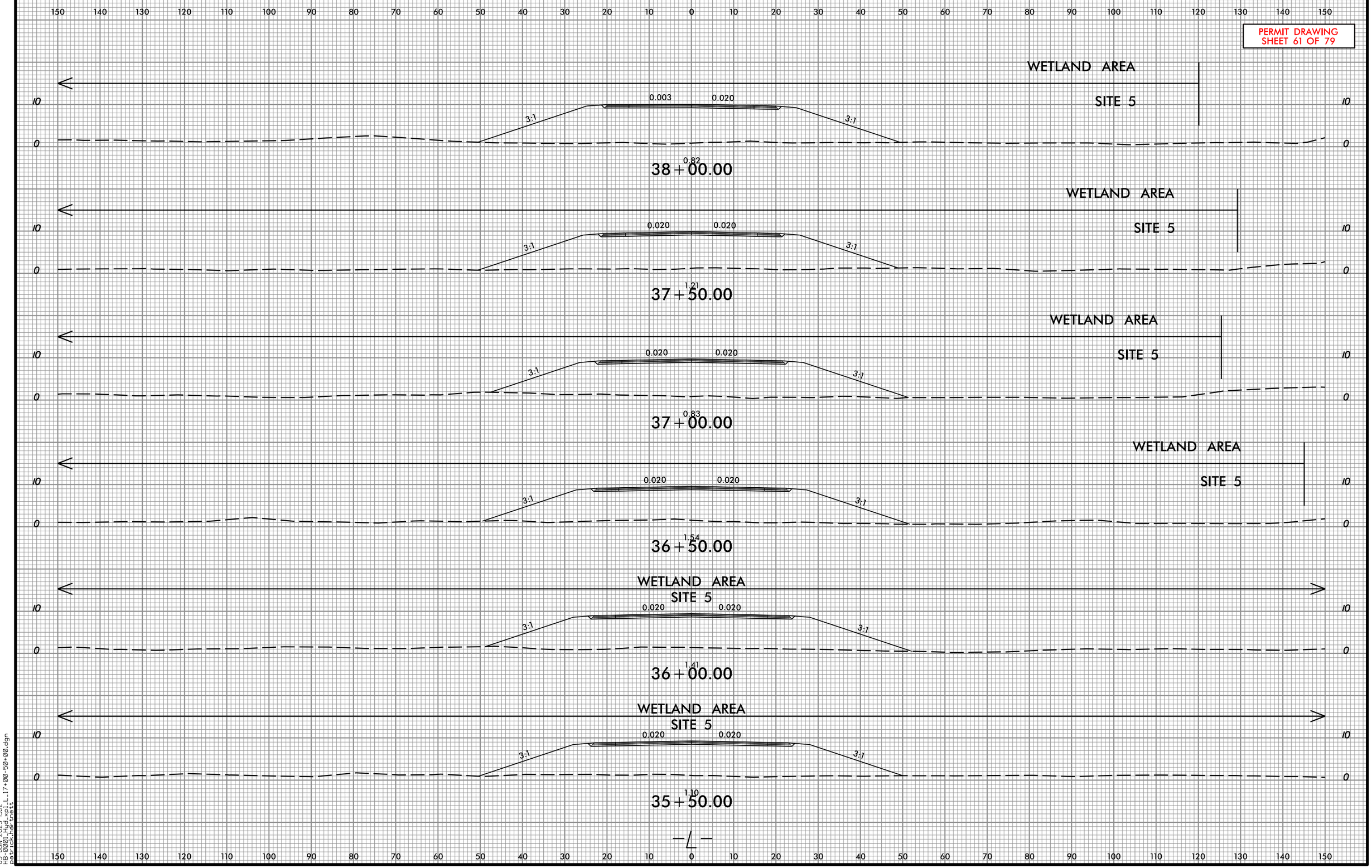
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-7

PERMIT DRAWING
SHEET 61 OF 79



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patrick.hardwick

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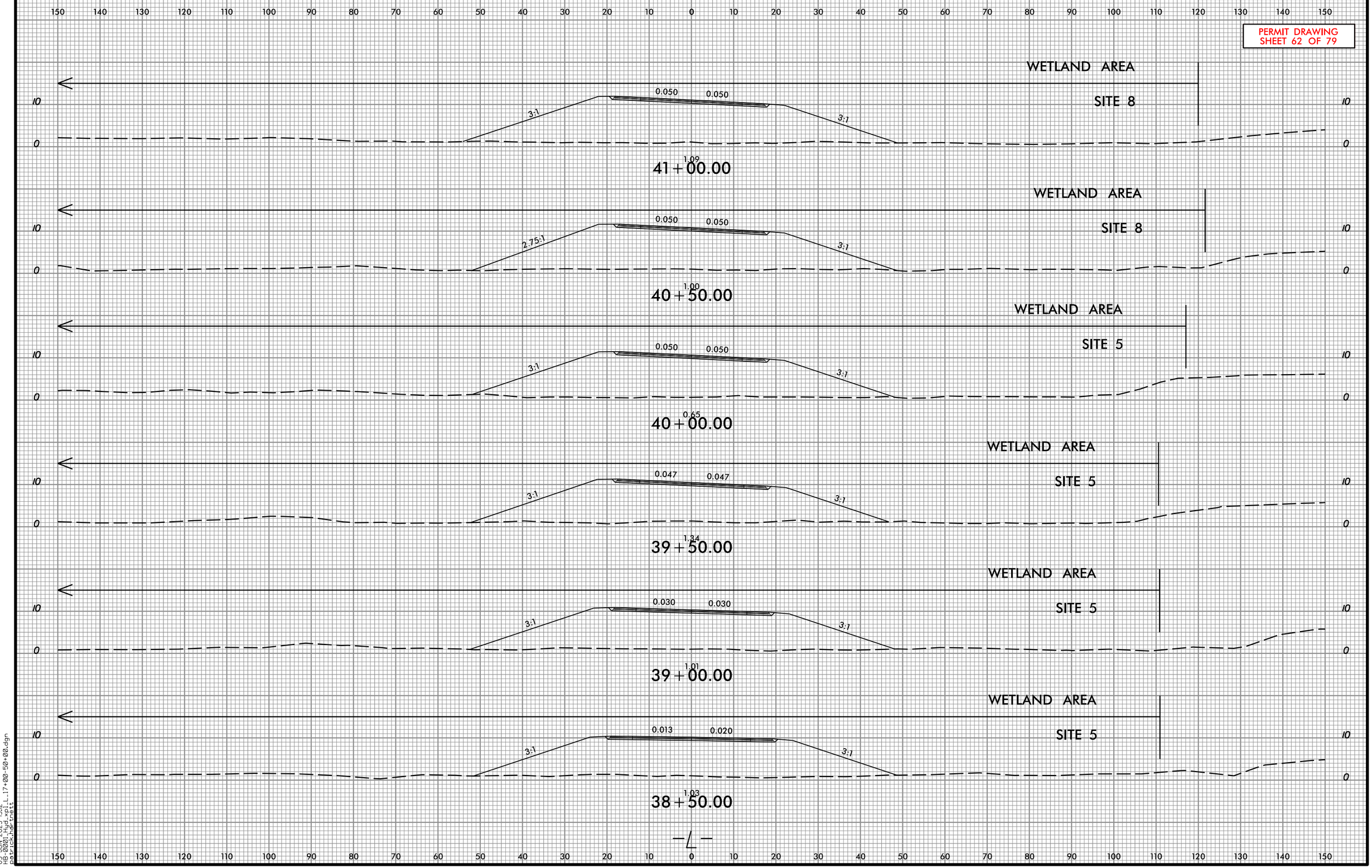
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-8

PERMIT DRAWING
SHEET 62 OF 79



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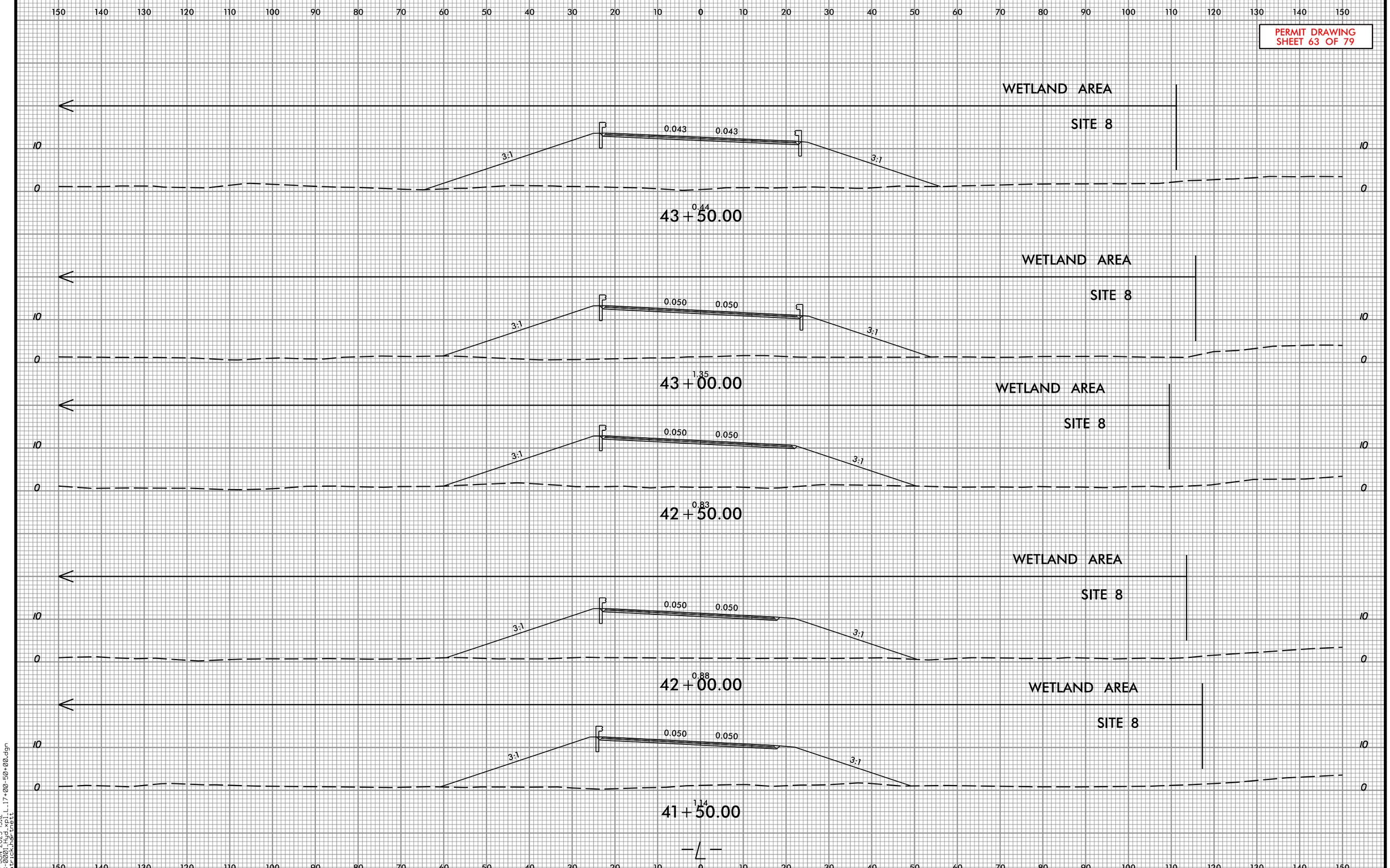
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-9

PERMIT DRAWING
SHEET 63 OF 79



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patrickbennett

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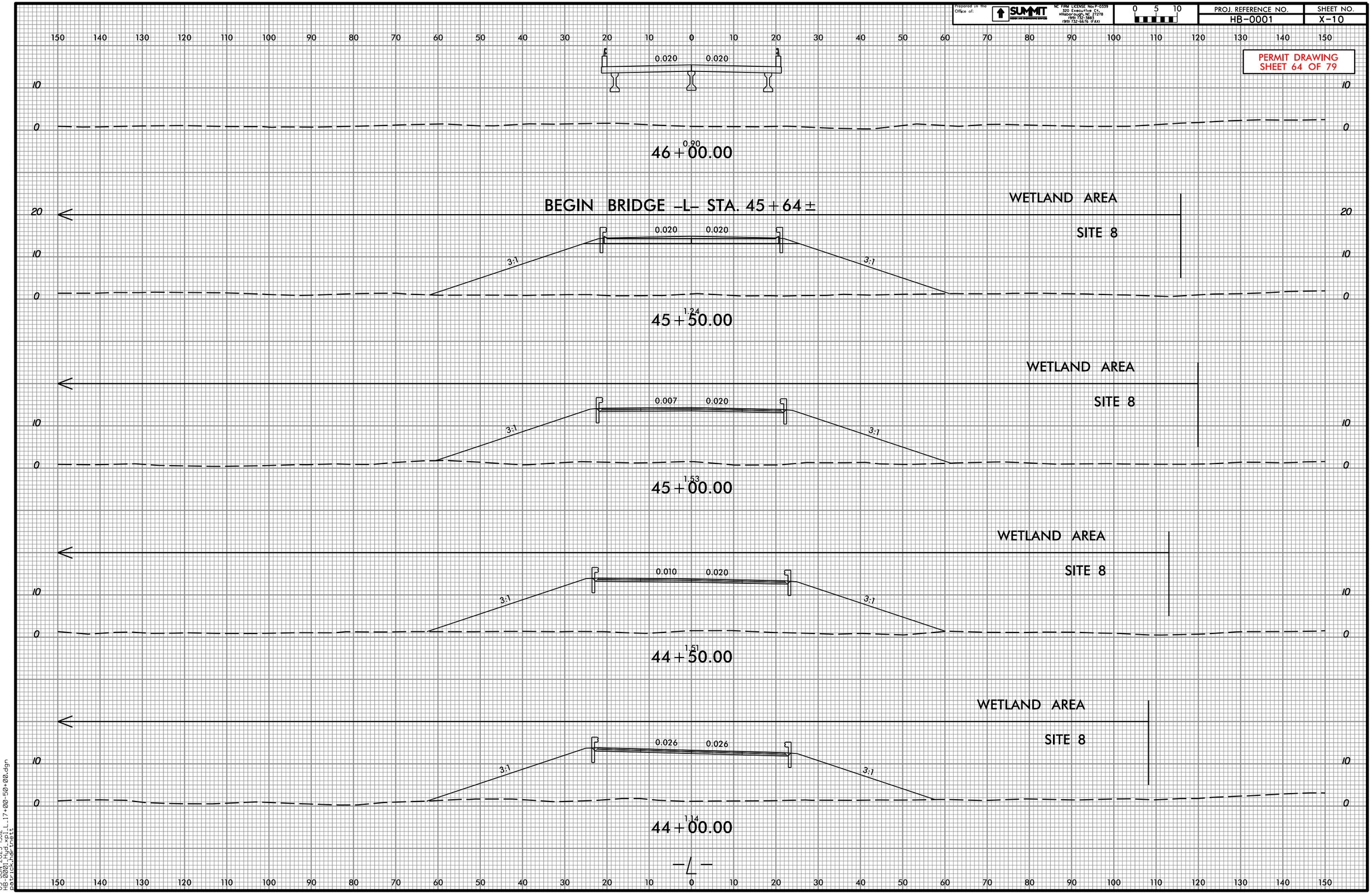
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-10

PERMIT DRAWING
SHEET 64 OF 79



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patrick.herbert

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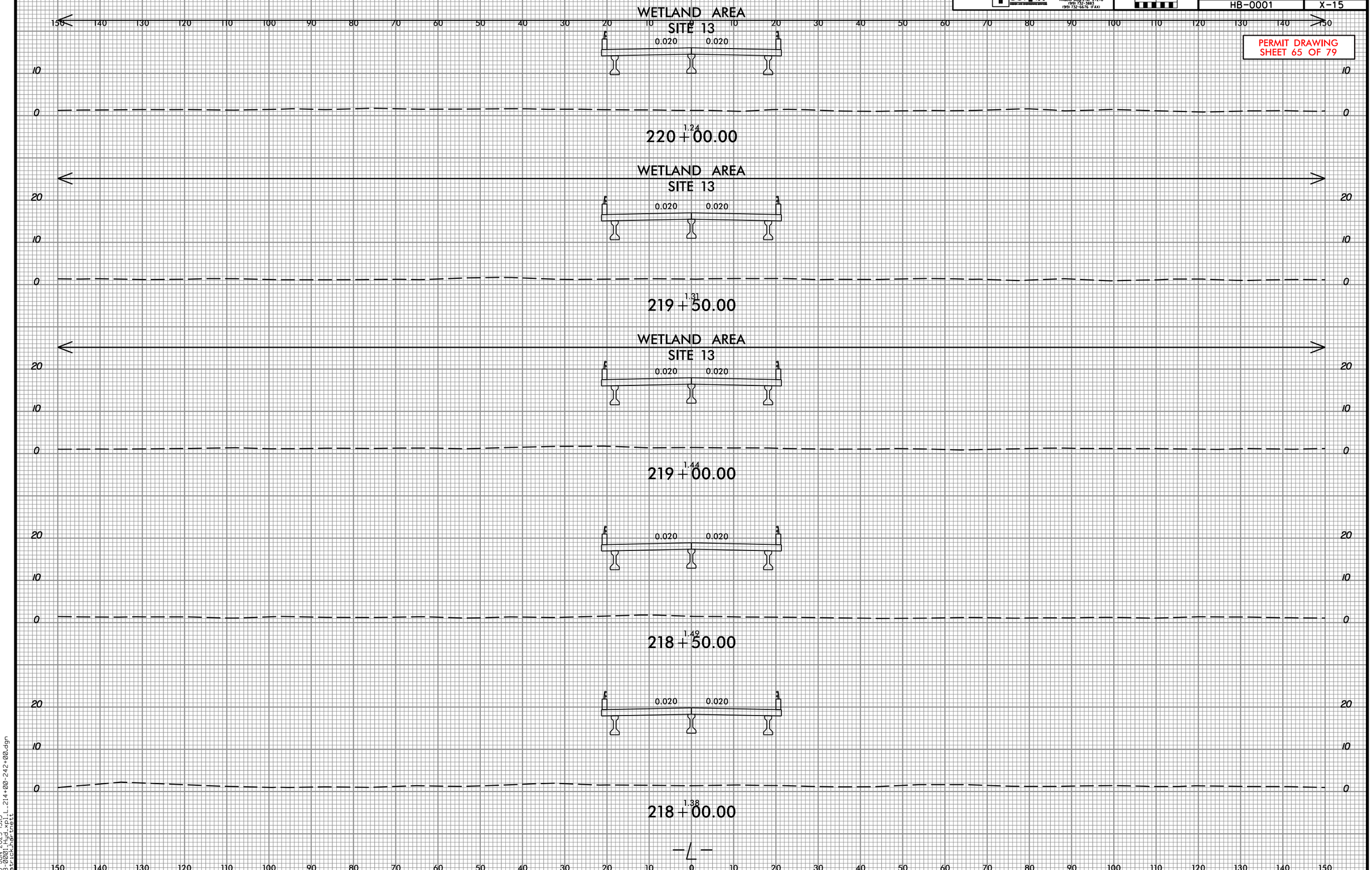
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-15

PERMIT DRAWING
SHEET 65 OF 79



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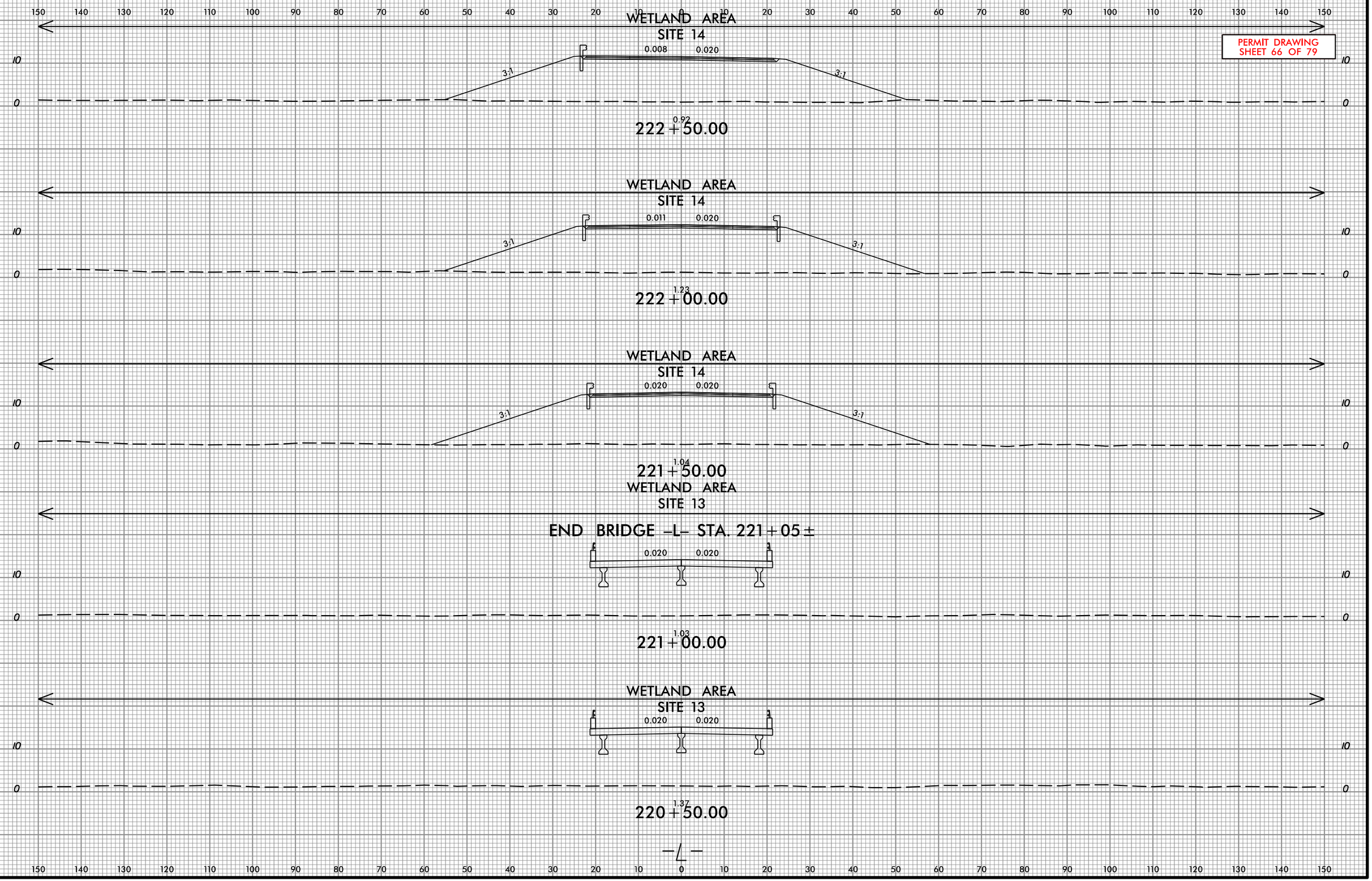
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-16

PERMIT DRAWING
SHEET 66 OF 79



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patrick.herrmann

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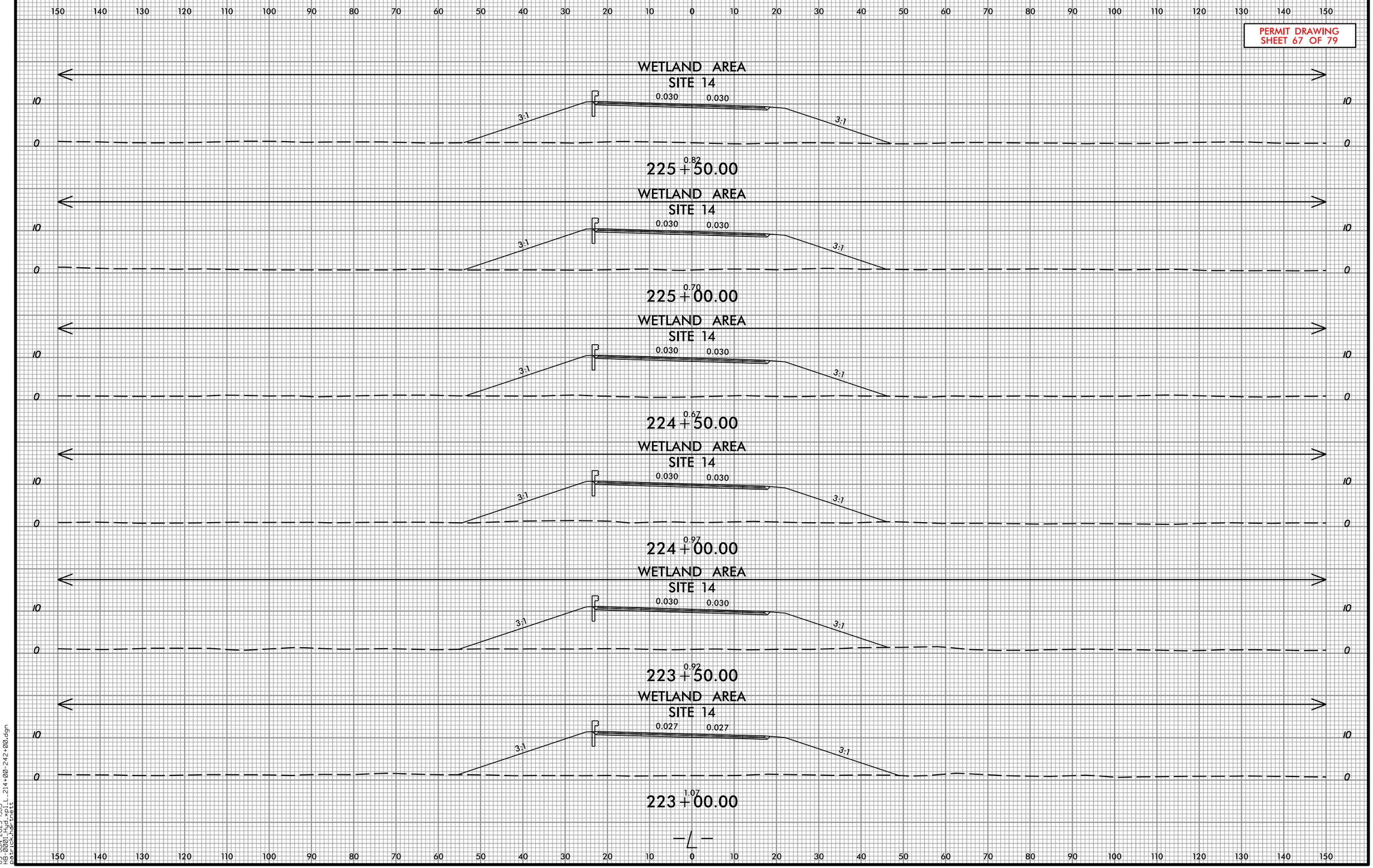
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-17

PERMIT DRAWING
SHEET 67 OF 79



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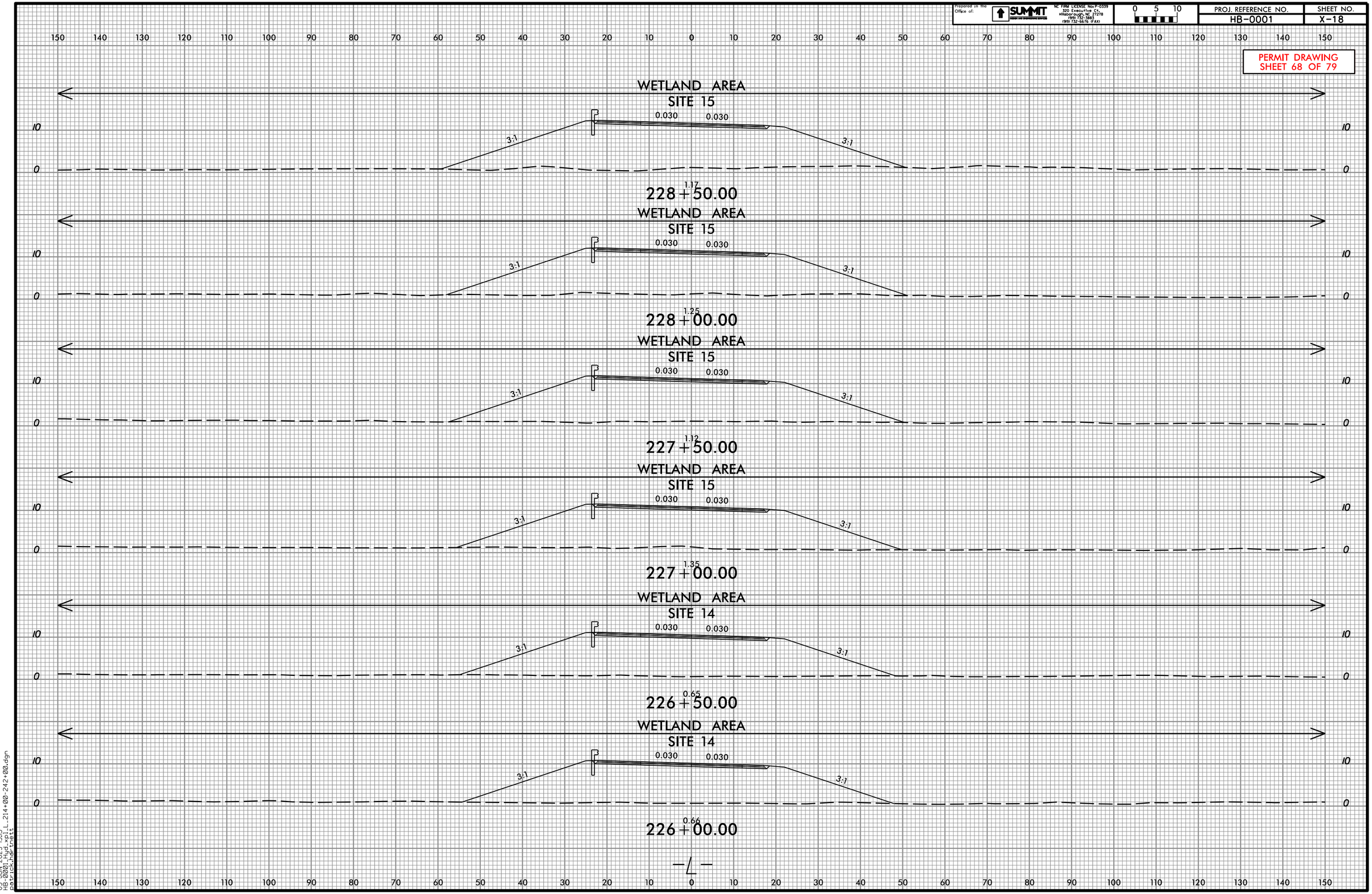
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-18

PERMIT DRAWING
SHEET 68 OF 79



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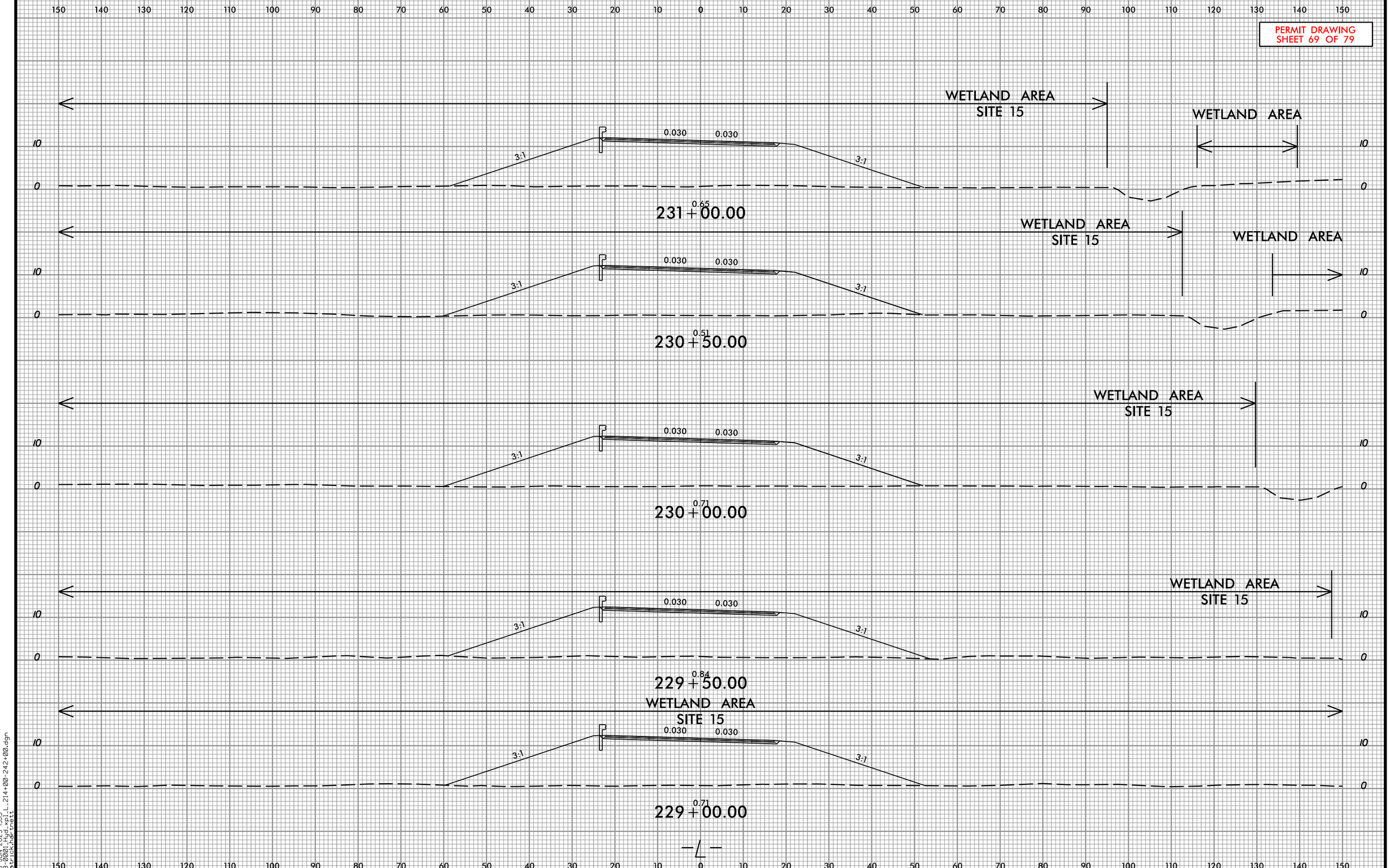
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-19

PERMIT DRAWING
SHEET 69 OF 79



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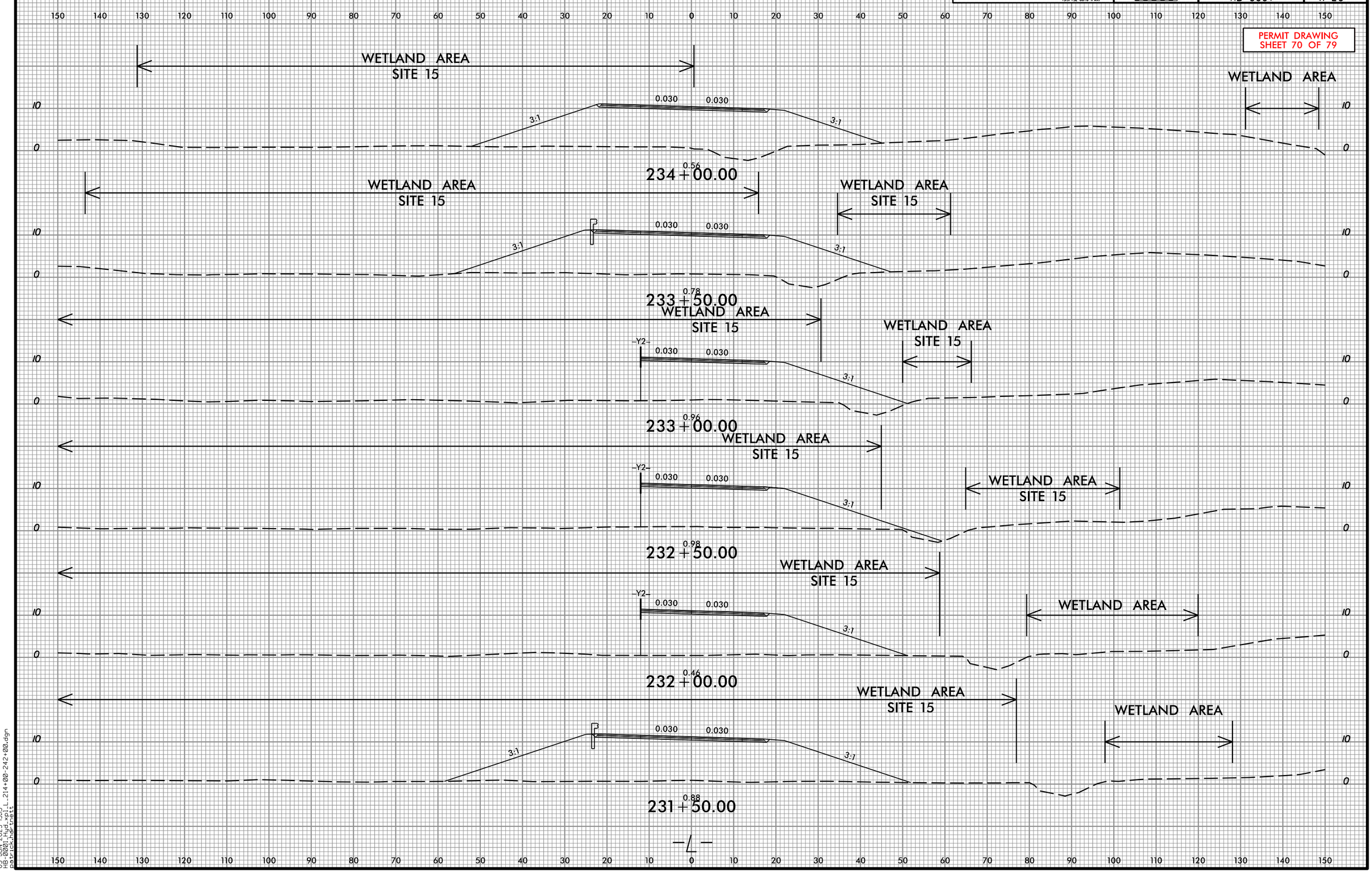
	HB-0001	X-20

PERMIT DRAWING
SHEET 70 OF 79



05-JUN-2023 13:13
H:\HB0001_Hydro_Alt_214+00-242+00.dgn
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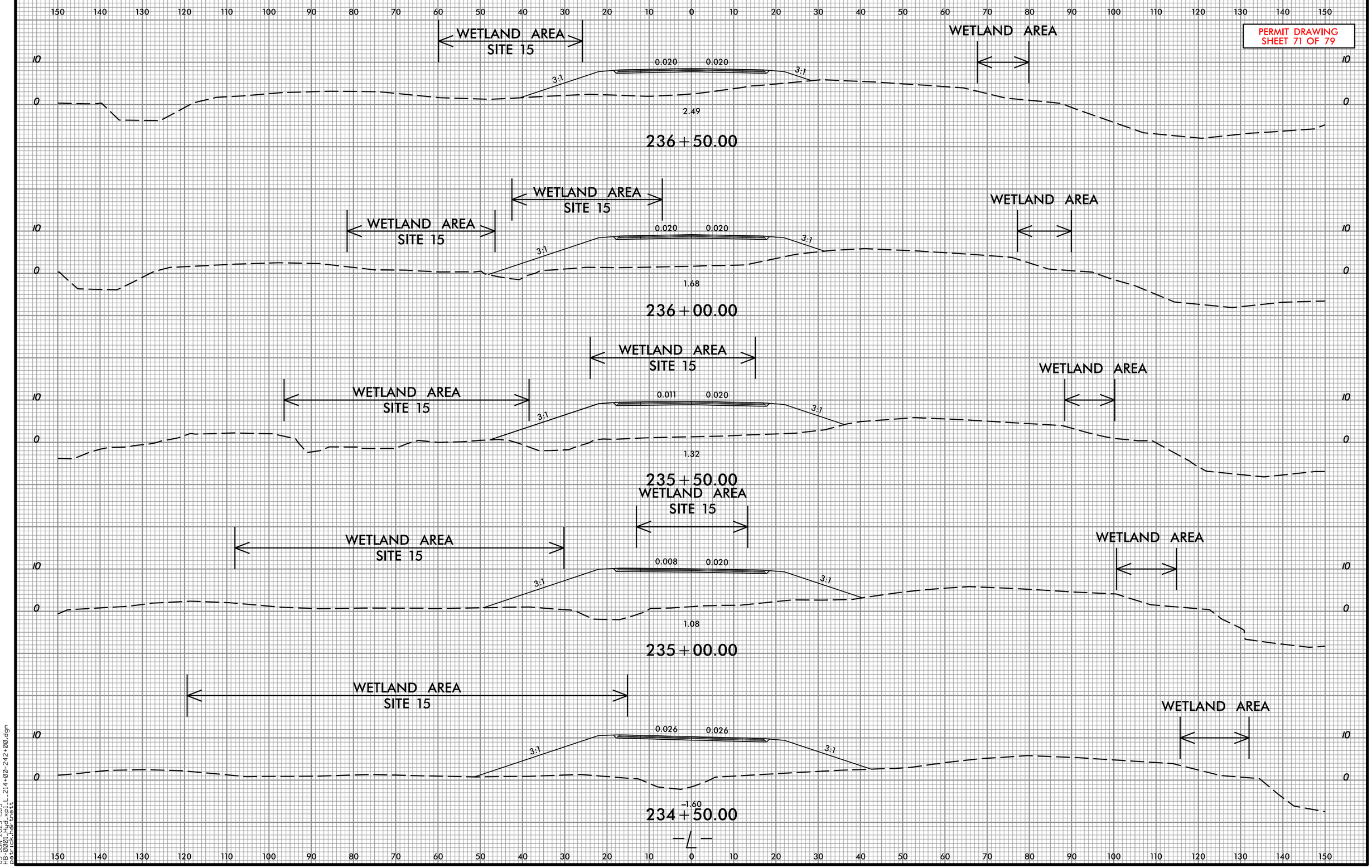
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-21

PERMIT DRAWING
SHEET 71 OF 79



05-JUN-2023 13:13
H:\0001\HB0001_L_214+00-242+00.dgn
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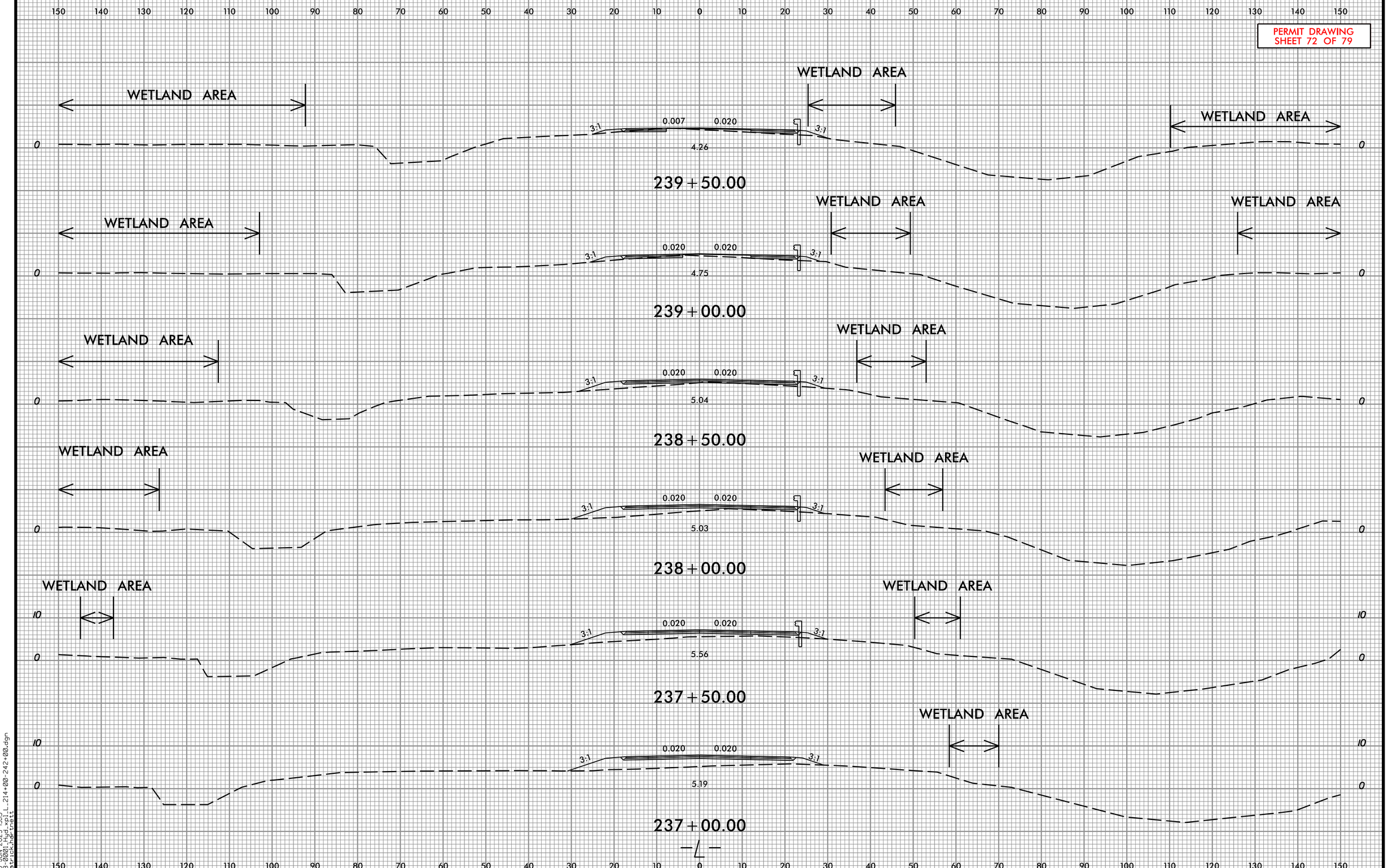
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-22

PERMIT DRAWING
SHEET 72 OF 79



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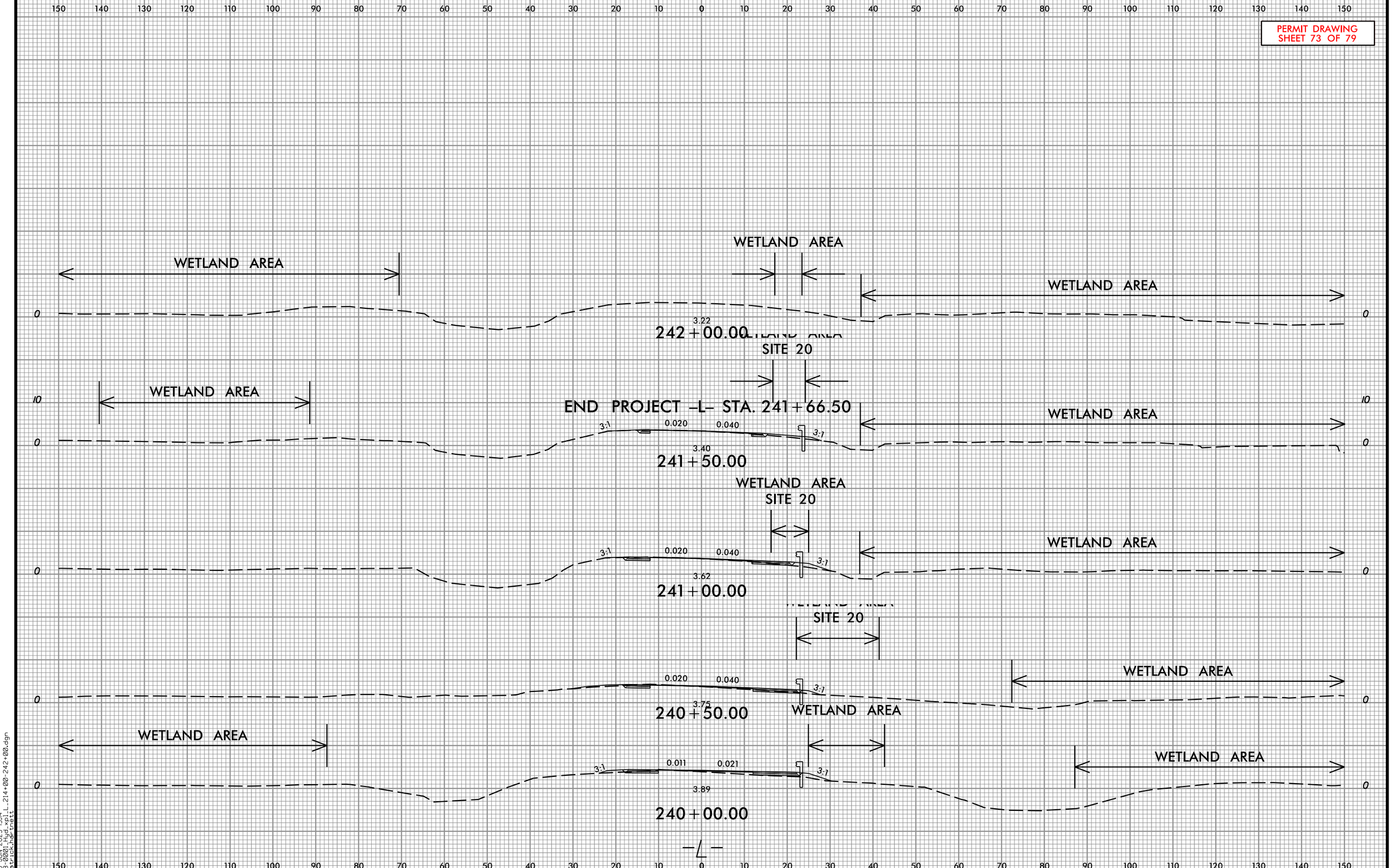
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-23

PERMIT DRAWING
SHEET 73 OF 79



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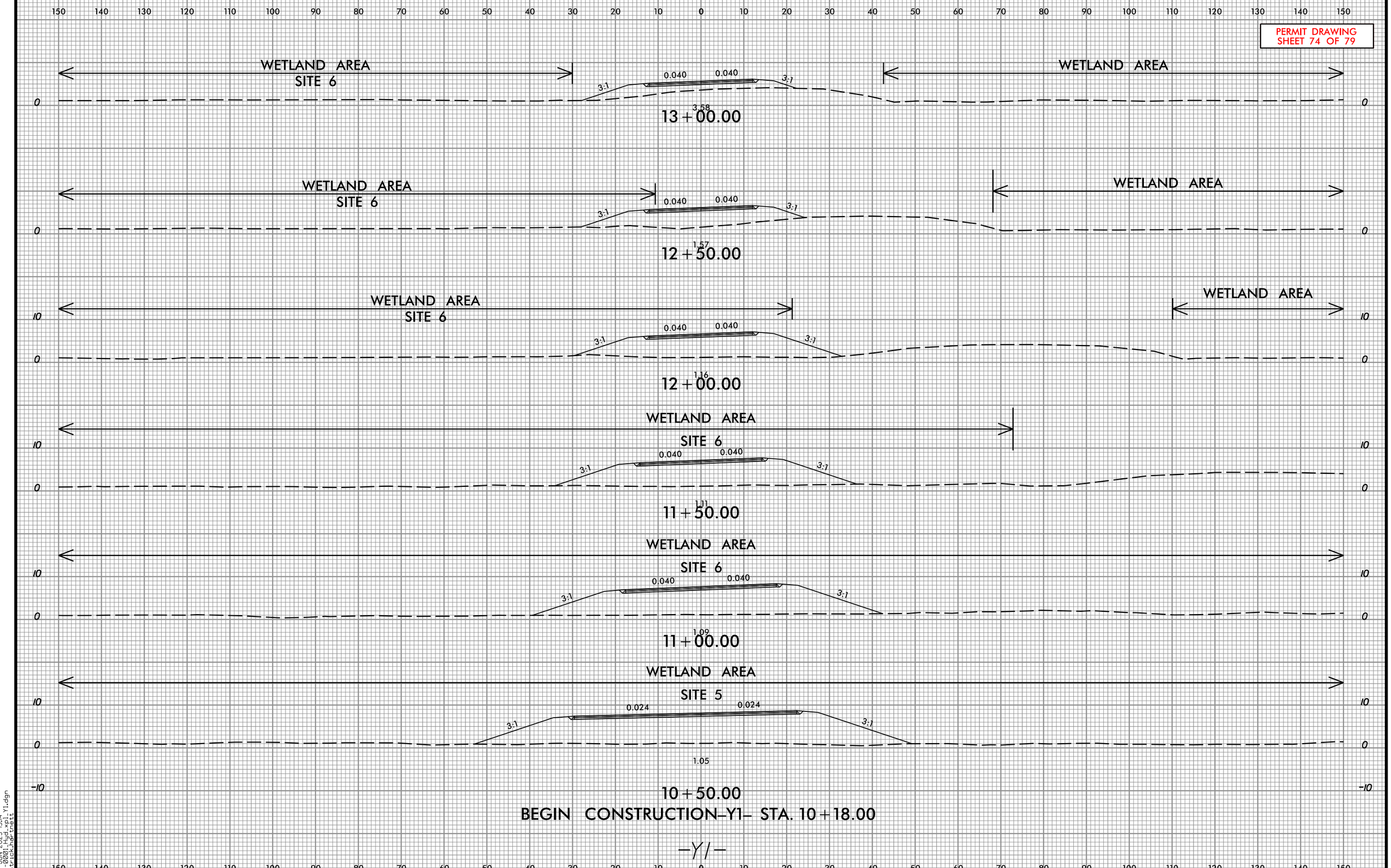
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-24

PERMIT DRAWING
SHEET 74 OF 79



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patrick.harnett

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NC FIRM LICENSE No: F-0339
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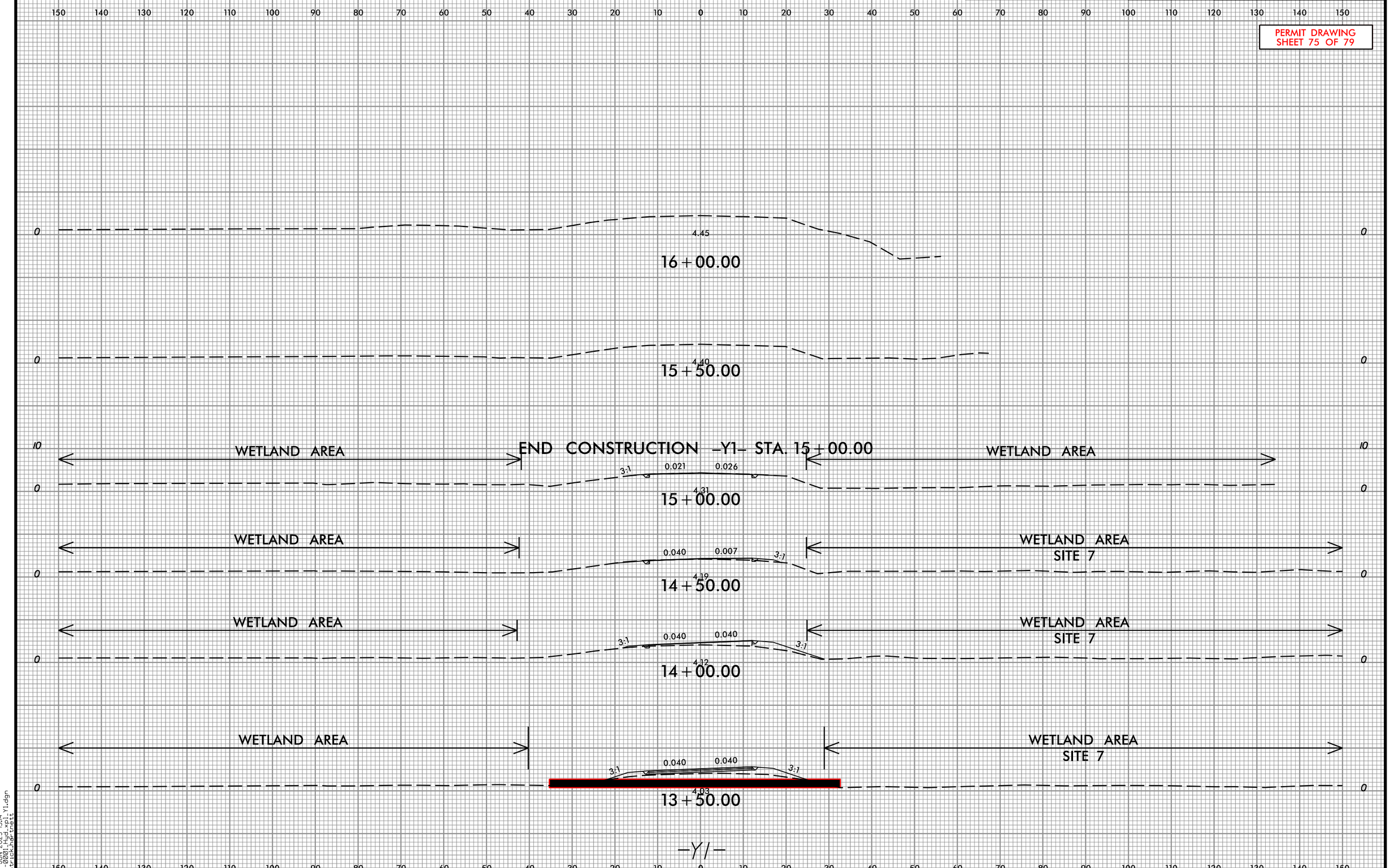
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-25

PERMIT DRAWING
SHEET 75 OF 79



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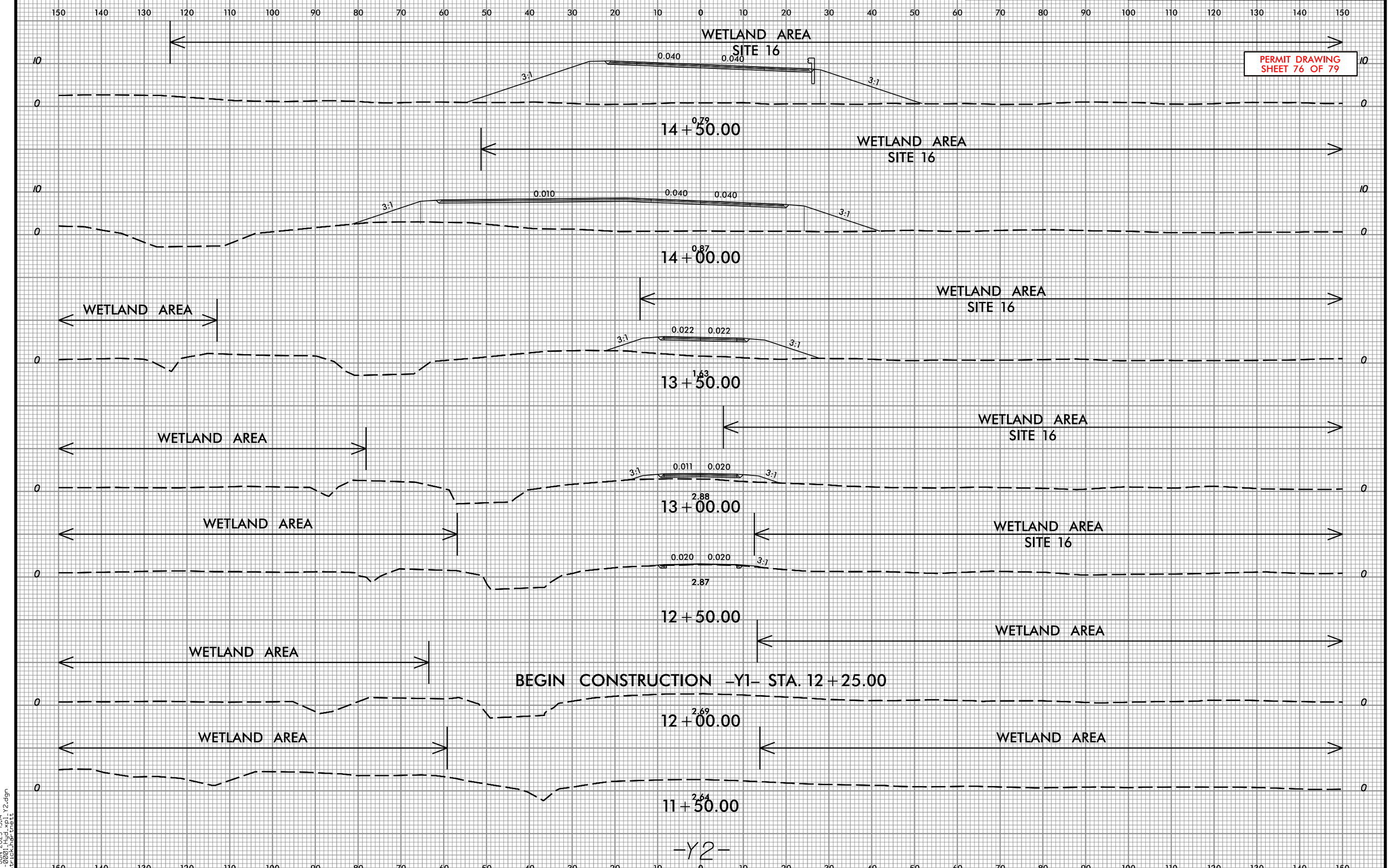
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-26

PERMIT DRAWING
SHEET 76 OF 79



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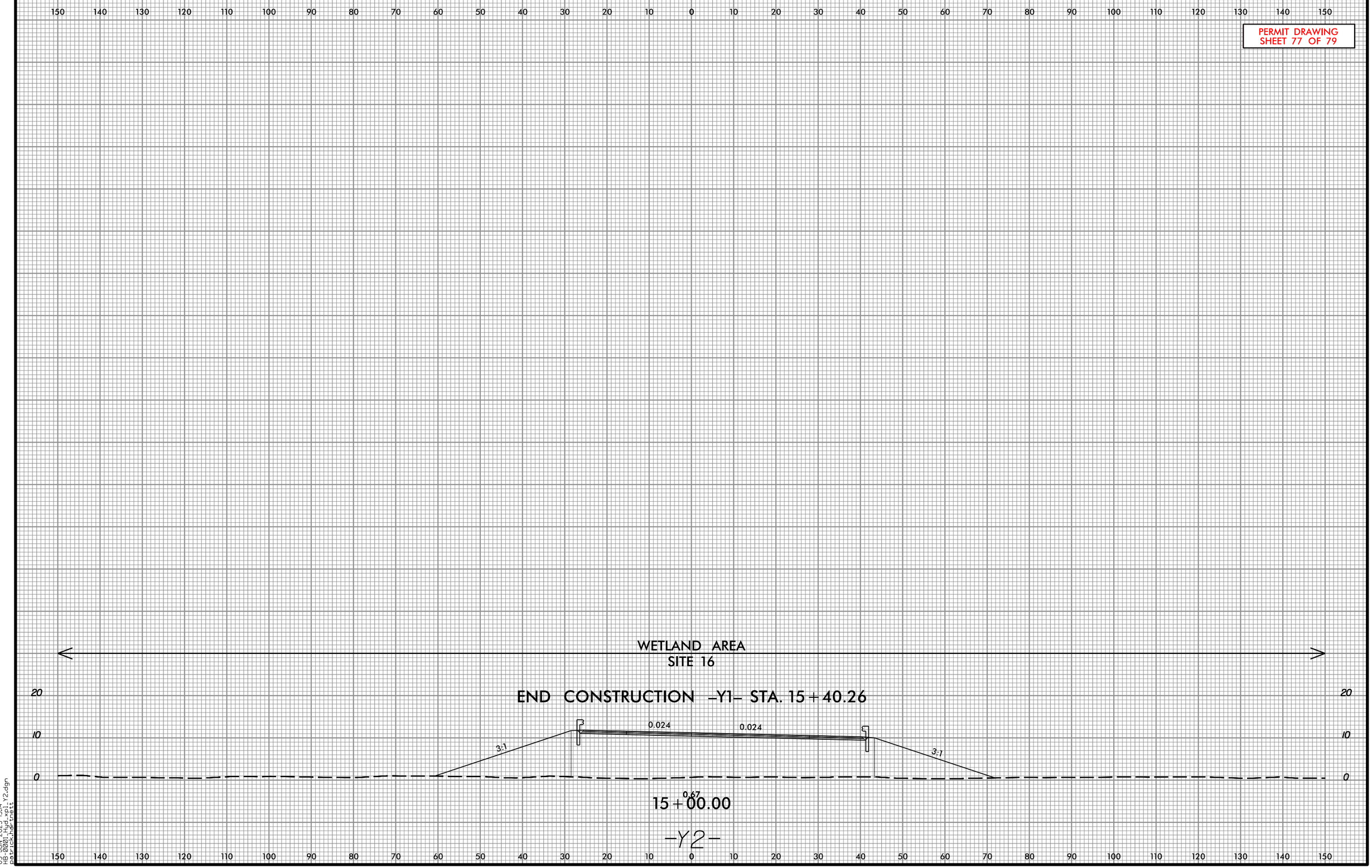
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-27

PERMIT DRAWING
SHEET 77 OF 79



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HB-0001_Hydraulics_Y2.dgn
patrick.hardwick

WETLAND AND SURFACE 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	17+58 to 20+39 -L- RT	Roadway Fill/Bank Stabilization	0.036			0.048			0.018			
2	18+70 to 23+55 -L- LT	Roadway Fill	0.061			0.057	0.282					
3	23+67 to 25+43 -L- LT/RT	Roadway Fill	0.142				0.052	0.009	0.010			
4	25+41 to 28+00 -L- LT/RT	Roadway Fill	0.512			0.095	0.145					
5	28+00 to 40+00 -L- LT/RT	Roadway Fill	2.770			0.533	0.840					
6	10+63 to 13+22 -Y1- LT/RT	Roadway Fill	0.257			0.076						
7	13+13 to 14+56 -Y1- RT	Roadway Fill	0.002			0.021						
8	40+00 to 45+85 -L- LT/RT	Roadway Fill	1.498			0.291	0.210					
9	45+85 to 48+97 -L- LT/RT	Proposed Bridge					0.345					
10	214+68 to 220+74 -L- LT/RT	Proposed Bridge					0.621					
11	220+74 to 226+50 -L- LT/RT	Roadway Fill	1.361			0.283	0.452					
12	226+50 to 236+74 -L- LT/RT	Roadway Fill	2.082			0.293	0.235	0.139	0.012			
13	11+95 to 14+97 -Y2- LT/RT	Roadway Fill	0.324			0.073	0.086					
14	10+50 to 11+22 -Y2- LT	60" CAAP						0.011	0.010			
15	232+40 to 233+60 -L- RT	Clean Water Diversion			0.023							
16	235+43 to 235+58 -L- LT	Proposed Tail Ditch			0.002							
17	239+15 to 241+66 -L- RT	Roadway Fill/Bank Stabilization	0.004			0.004		0.008	0.017			
18	240+34 to 240+87 -L- LT	60" CAAP						0.010	0.006			
19	46+47 to 220+15 -L- LT/RT	Bent Installation	0.008					0.198				
TOTALS*:			**9.057**	**0.00**	**0.02**	**1.776**	**3.27**	**0.376**	**0.072**	**0**	**0**	**0**

*Rounded totals are sum of actual impacts

NOTES:

The following bridge bent impacts are in addition to the impact quanitites shown in the table. Permanent linear stream impacts from bridge bents accounted for as longest bent length of 89 feet.

The following CAMA impacts are included in the impact quantities shown in the table. Permanent fill in CAMA wetlands total 0.026 acres. Mechanized Clearing impacts in CAMA wetlands total 0.028 acres. These impacts occur at Site 1.

On-Site Mitigation impacts total 8.262 acres.

Please note, for sites 1, 3, 12, 14 and 18 the "Surface Water" impacts are considered "Open Water" impacts and do not have an associated impact length.

Revised 2018 Feb

NC DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

6/5/2023

TYRRELL/DARE COUNTIES
HB-0001
BRIDGE REPLACEMENT ON US-64 OVER ALLIGATOR RIVER