STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. R. "JOEY" HOPKINS
SECRETARY

January 5, 2024

ATTN: N.C. Division of Coastal Management
Mr. Greg Daisey, NCDOT Coordinator
401 South Griffin St, Ste 300
Elizabeth City, NC 27909

SUBJECT: **Request for Permit Modification of CAMA Major Development Permit** for the Proposed Replacement of the Lindsay C. Warren Bridge (Tyrrell County Bridge No. 7) on U.S. 64 over the Alligator River/Atlantic Intracoastal Waterway in Tyrrell and Dare Counties, North Carolina. STIP Project No. HB-0001; Federal Aid Project No. NHPB-0001.

REFERENCE: CAMA Major Development Permit, Permit No. 136-23. Issued November 30, 2023.

Dear Sir:

The North Carolina Department of Transportation (NCDOT) proposes to replace the Lindsay C. Warren Bridge (Tyrrell County Bridge No. 7) on U.S. 64 over the Alligator River portion of the Atlantic Intracoastal Waterway in Tyrrell and Dare Counties, North Carolina (at Atlantic Intracoastal Waterway Mile 84.2). The project will replace the existing 2.83-mile-long swing-span drawbridge with a modern 3.32-mile, two-lane, fixed-span, high-rise bridge north of the existing alignment. The new structure will be comprised of either driven piles or drilled piers, Florida I-beam concrete girders, concrete deck panels, and a drivable wearing surface will provide a vertical navigable channel clearance of 65 feet and a navigational channel horizontal clearance of 140 feet.

An application was submitted for the project on June 27, 2023 and a CAMA Major Development Permit was subsequently issued on November 30, 2023. Since that time, additional activities have been proposed as part of the project. These additions include:

- Installation of exploratory test piles at multiple proposed in-water bent locations to collect pile driving data and to validate proposed installation options.
- Use of mooring piles for securing barges in place for test pile study and bridge construction.

The purpose of this letter is to request modification of the existing CAMA Major Development Permit to include these activities. In addition to this letter, revised permit drawings showing test pile locations and impacts, mapping and a construction detail of mooring pile locations, and a construction detail of test piles are also included.

Test Pile Program

The purpose of the test pile program is to install exploratory test piles at multiple proposed in-water bent locations along the proposed bridge alignment. These test piles would be installed to collect pile driving data and to validate proposed installation options.

Test piles will be driven at 15 locations and will consist of either 36-inch square precast concrete piles (listed as 36" Pile below) or a combination of 36-inch concrete piles and 48-inch steel pipe piles (listed as 48" P-Pile below). The test piles being installed at each location are listed below; proposed pile installation locations are both listed below and shown on the attached detail. Some piles would be driven within a temporary 60-inch steel casing; test piles driven in casings will be selected based on pile driving data collected during the operation. Due to the upcoming in-water work moratorium (from July 15 – September 30 for the entire river; February 15 – June 30 for the deepwater channel), the test piles at Bent 47 will be driven first. A variety of diesel and hydraulic hammers will be assessed during the program.

Test pile locations and types of pile at each location are as follows (locations also shown on attached revised permit drawings):

- **Bent 6:** 1 ea. 36" Pile Station 51+62 @ CL
- **Bent 8:** 1 ea. 36" Pile Station 54+12 @ CL
- **Bent 19:** 1 ea. 36" Pile Station 67+87 @ CL
- **Bent 30:** 1 ea. 36" Pile Station 81+62 @ CL
- **Bent 37:** 1 ea. 36" Pile Station 90+37 @ CL
  1 ea. 36" Pile Station 90+37 @ 8' LT of CL
  1 ea. 48" P-Pile Station 90+37 @ 16' LT of CL
- **Bent 47:** 1 ea. 36" Pile Station 106+13.25 @ CL
  1 ea. 36" Pile Station 106+13.25 @ 8' LT of CL
  1 ea. 48" P-Pile Station 106+13.25 @ 16' LT of CL
- **Bent 62**: 1 ea. 36" Pile Station 131+07 @ CL
- **Bent 66:** 1 ea. 36" Pile Station 136+07 @ CL
- **Bent 73:** 1 ea. 36" Pile Station 144+82 @ CL
- **Bent 91:** 1 ea. 36" Pile Station 167+32 @ CL
- **Bent 95:** 1 ea. 36" Pile Station 172+32 @ CL
  1 ea. 36" Pile Station 172+32 @ 8' LT of CL
- **Bent 100:** 1 ea. 36" Pile Station 177+32 @ CL
- **Bent 102:** 1 ea. 36" Pile Station 181+07 @ CL
- **Bent 108:** 1 ea. 36" Pile Station 188+57 @ CL
- **Bent 119:** 1 ea. 36" Pile Station 202+32 @ CL

Test piles will be cut below mudline after use. The test piles will result in an increase in **permanent surface water impacts of 0.004 acres**.

Mooring Piles

The use of temporary mooring piles is proposed for securing barges in place for test pile study and bridge construction. Thirty-inch steel pipe piles will be installed approximately 60 feet apart, from coordinates 35.91082, -76.01831 to 35.91320, -76.01610, total 19 mooring piles. The pile installation will span approximately 1,080 linear feet. Please see attached mapping showing the proposed mooring pile locations and mooring pile detail.

The mooring location has sufficient water depths for barges and tugboats and is outside any navigation channels that could conflict with boat traffic. Once the project is complete, these mooring piles will be removed.

Regulatory Approvals

CAMA: NCDOT requests a modification to the CAMA Major Development Permit, Permit No. 136-23, to include the above-described activities. Authorization to debit the $475.00 Permit Application Fee from WBS Element 49475.1.1 is hereby given.

A copy of this permit modification request and its distribution list will be posted on the NCDOT website at: https://connect.ncdot.gov/resources/Environmental

Thank you for your assistance with this project. If you have any questions or need additional information, please contact Paul Williams at pcwilliams2@ncdot.gov or (252) 482-1861.

Sincerely,

Jason L Dilday

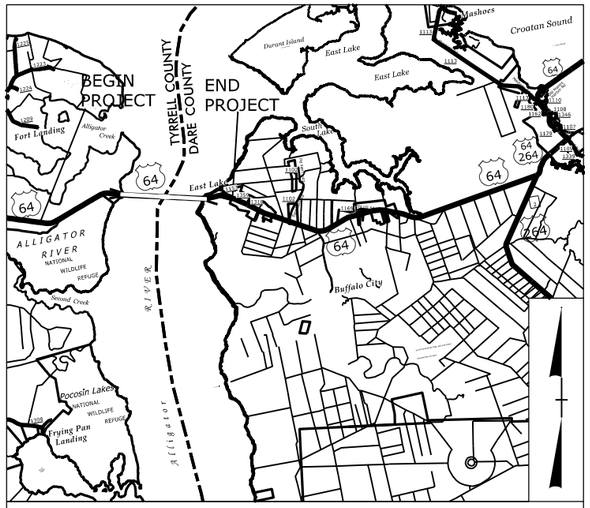
Jason L Dilday
NCDOT ECAP Eastern Region Lead

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

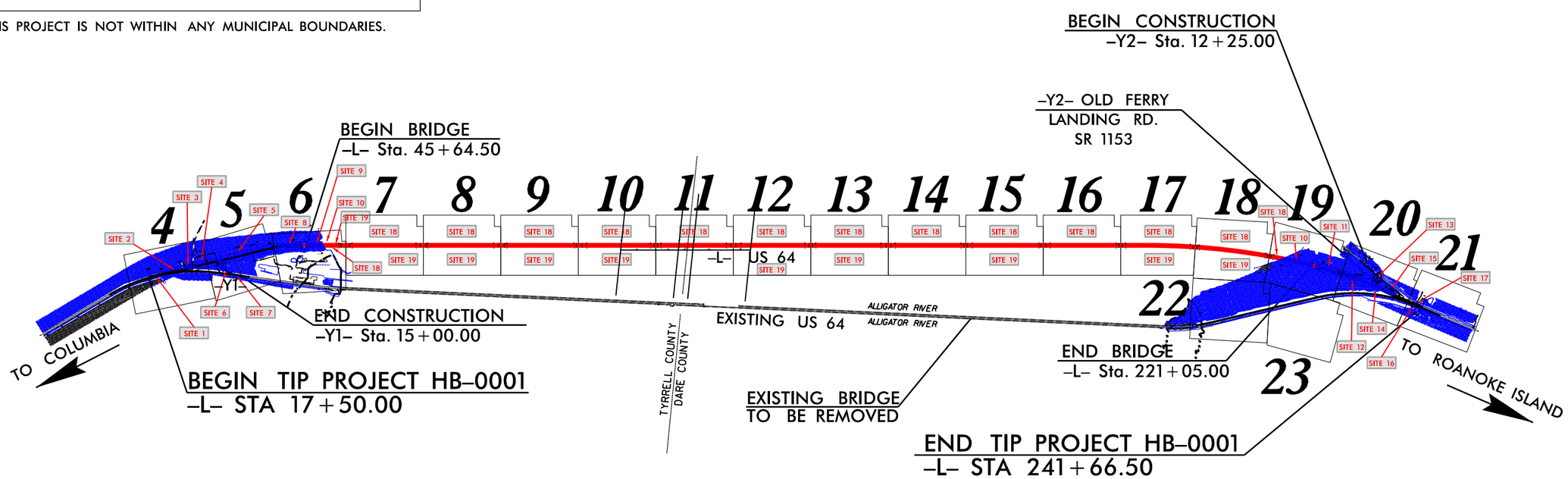
LOCATION: REPLACE BRIDGE #7 ON US 64 IN TYRRELL AND DARE COUNTIES OVER THE ALLIGATOR RIVER

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

28-DEC-2023 12:55
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

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320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 2 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 = EXIST.

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

EXISTING FIBER OPTIC CABLES TO REMAIN IN PLACE

THE CONSERVATION FUND
DB 214 PG 699

MCKEE INVESTMENTS, LLC
DB 244 PG 644

MUTUAL GIN COMPANY
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

50' TRANS LT & RT

BEGIN WILDLIFE FENCE
END WILDLIFE FENCE

CHAIN LINK FENCE

CAMA

WOODS

TIE TO EX GUARDRAIL +80.00

CL B RIP RAP
SEE DETAIL 4-1

-L- PT Sta. 18+78.88

MITIGATION

NAD 83/2011

N 87°00'03" E

S 16°25'02" W 598.17'

44.53' FROM R/W TO ECM

S 38°26'22" E

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

DETAIL 4-1
BANK STABILIZATION
(Not to Scale)

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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ostuck.hgt.prt

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

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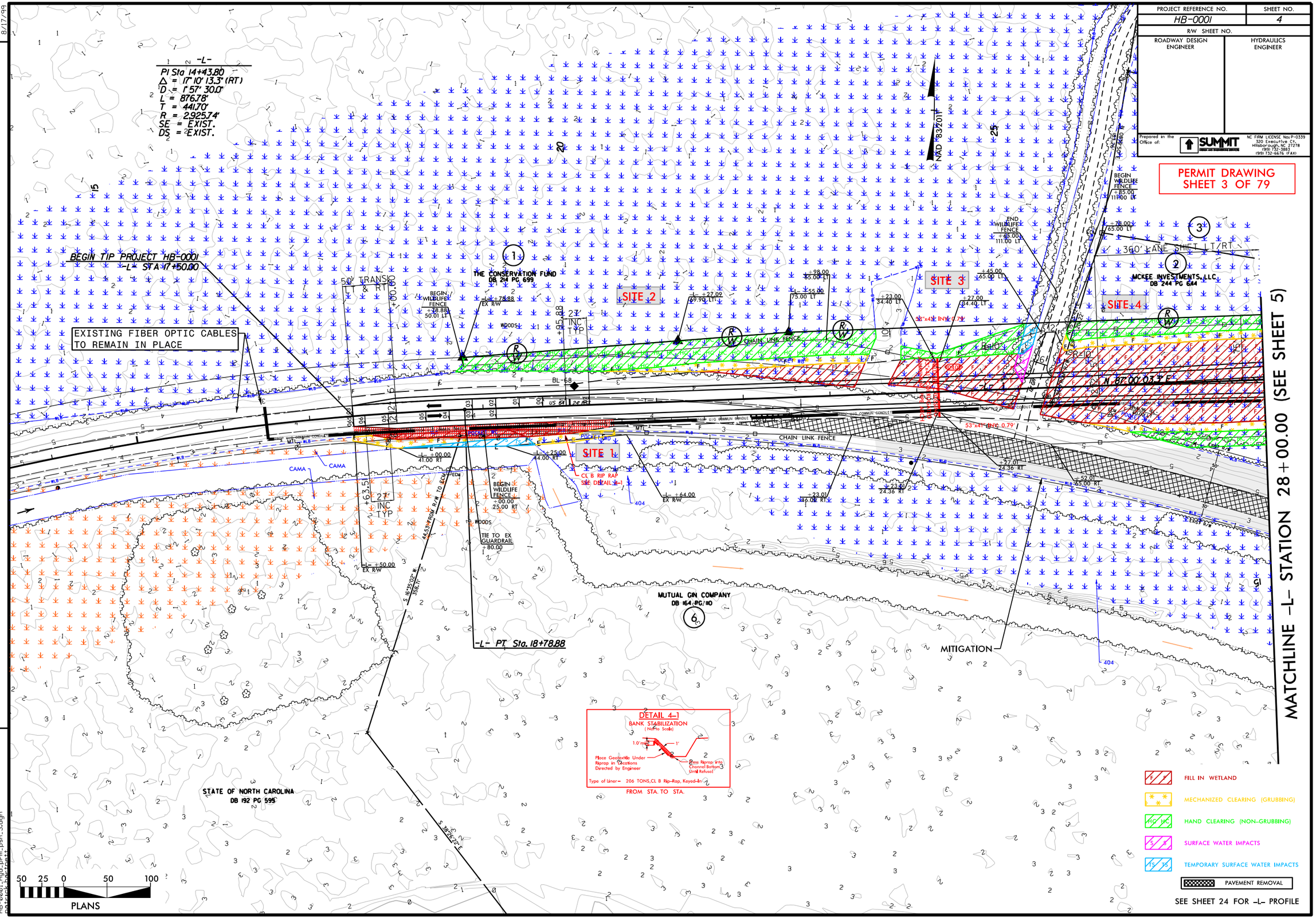
PERMIT DRAWING
SHEET 3 OF 79



REVISIONS

8/17/99

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hb0001_sht_plan_prop_psh_3.dgn
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PROJECT REFERENCE NO.	SHEET NO.
HB-0001	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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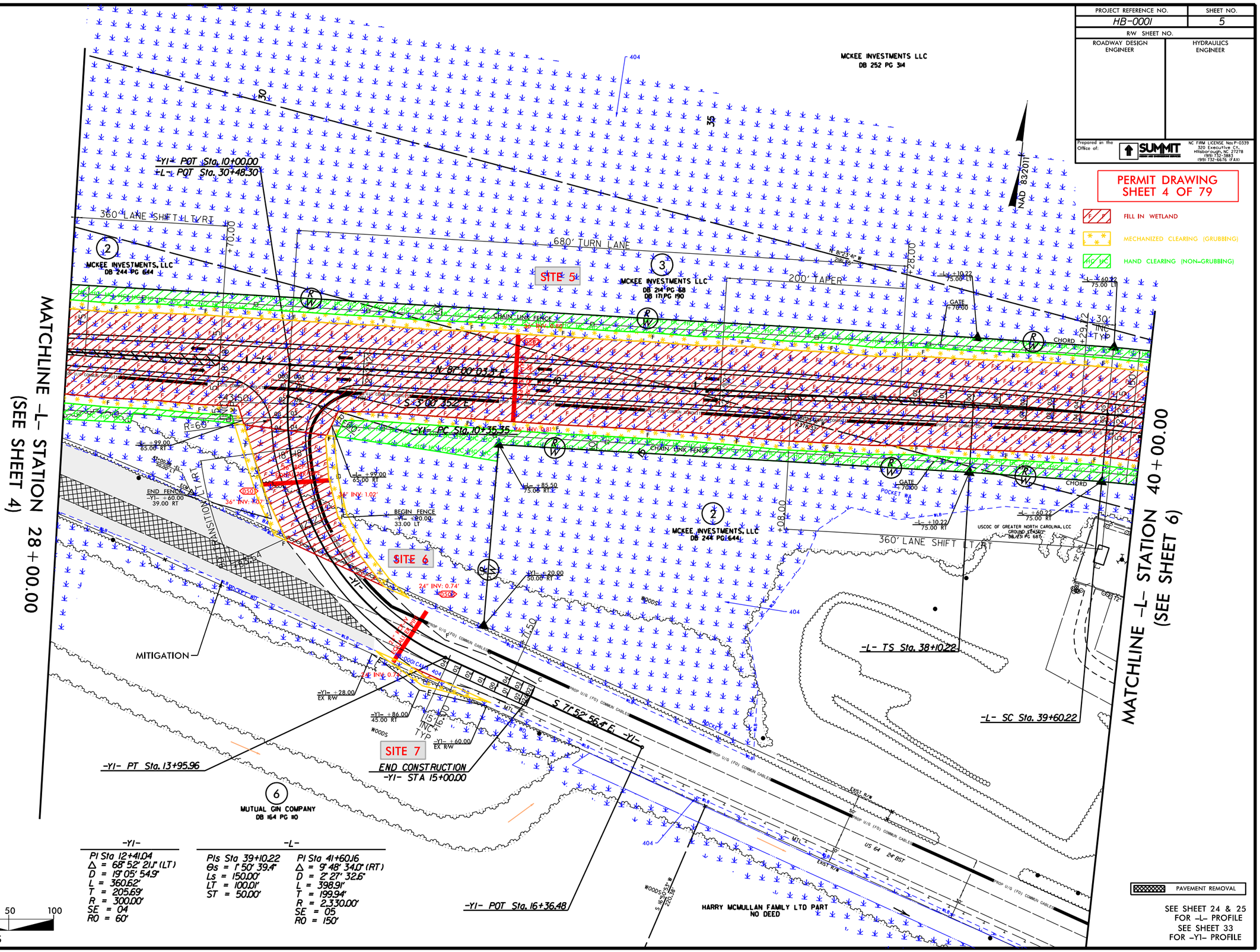
PERMIT DRAWING
SHEET 4 OF 79

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

REVISIONS

8/17/99

28-DEC-2023 12:55
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PROJECT REFERENCE NO.	SHEET NO.
HB-0001	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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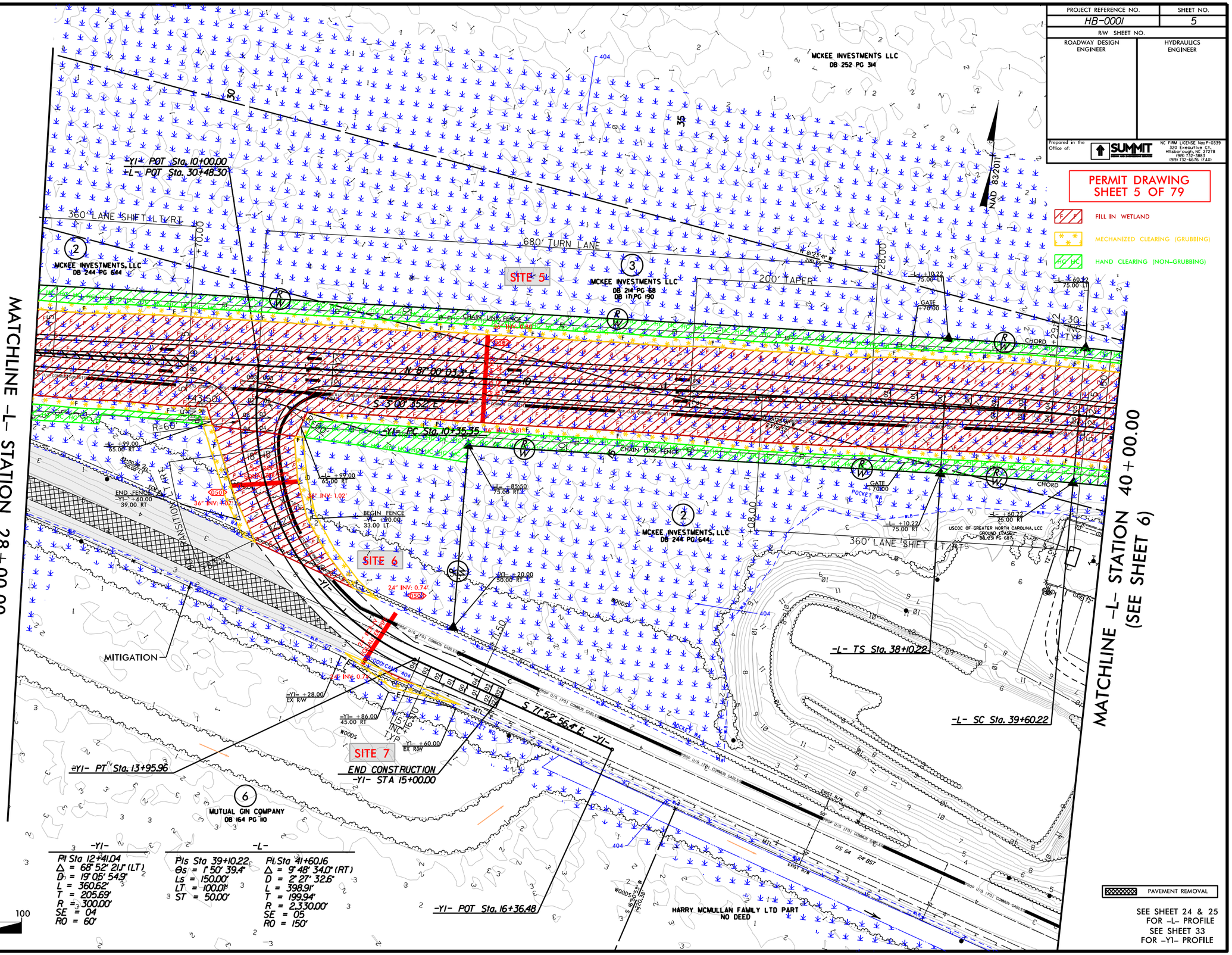
PERMIT DRAWING
SHEET 5 OF 79

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
R0 = 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
R0 = 150'

50 25 0 50 100
PLANS

PAVEMENT REMOVAL

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

REVISIONS

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28-DEC-2023 12:55
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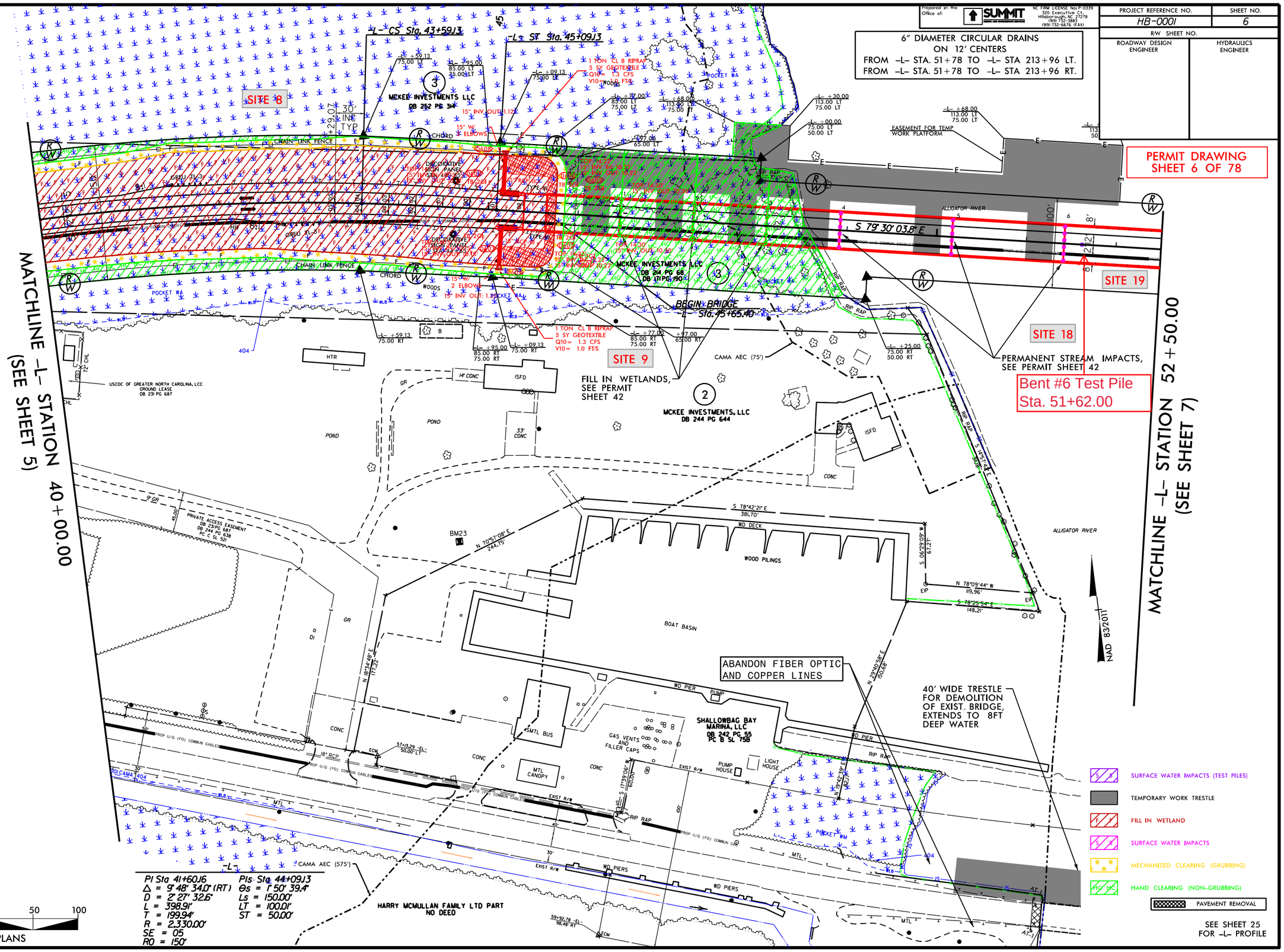
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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.



REVISIONS

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28-DEC-2023 12:55
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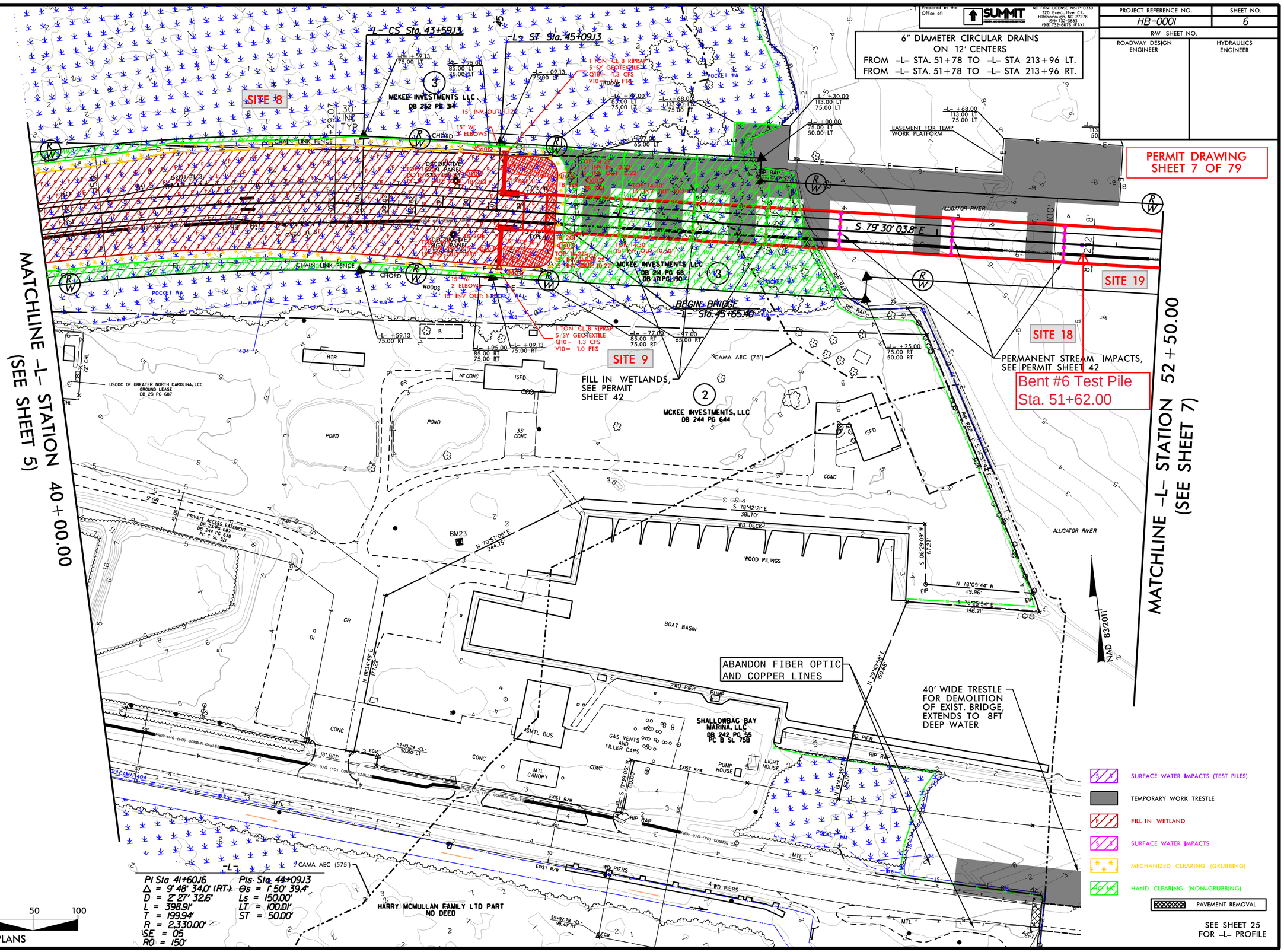
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	6
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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 7 OF 79



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'

50 25 0 50 100
PLANS

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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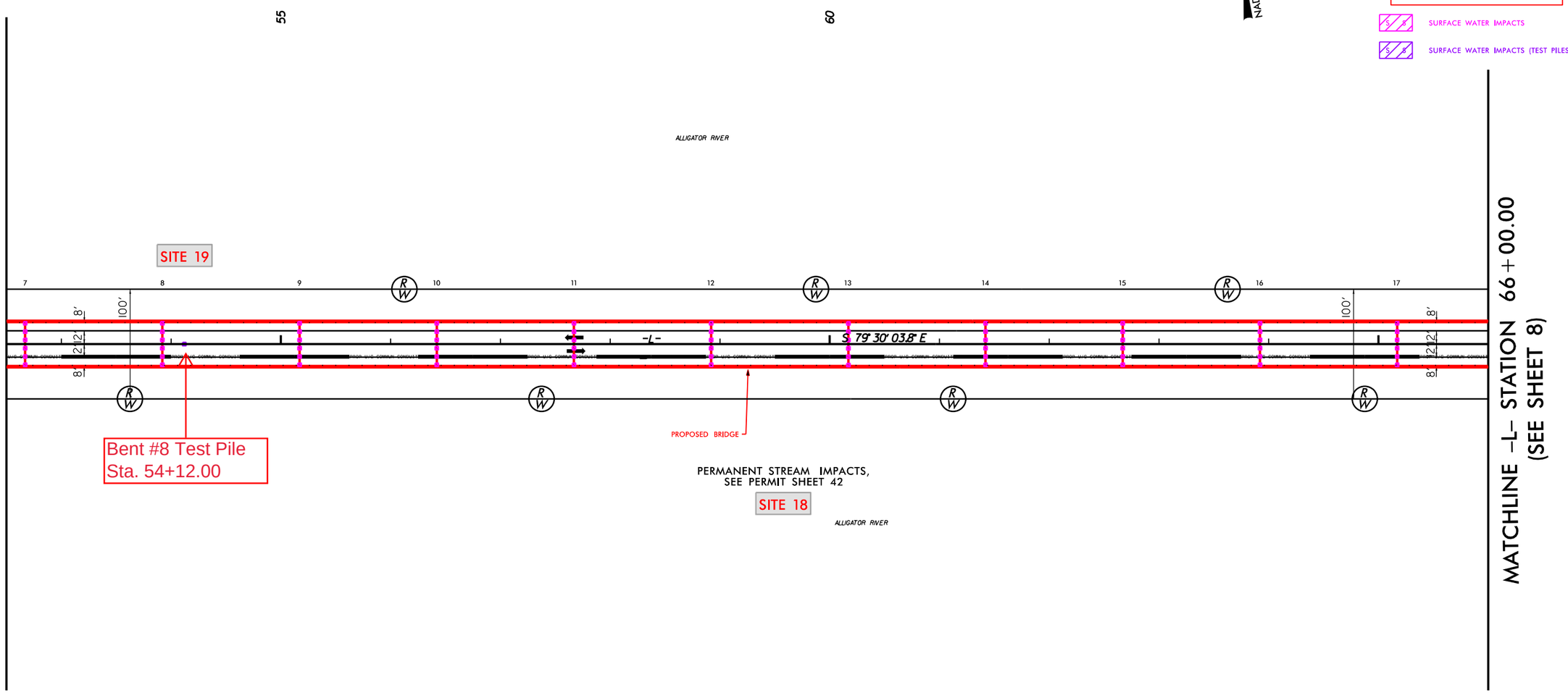
PERMIT DRAWING
SHEET 8 OF 79

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

SURFACE WATER IMPACTS (TEST PILES)



50 25 0 50 100
PLANS

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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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

SURFACE WATER IMPACTS (TEST PILES)

NAD 83/2011

MATCHLINE -L- STATION 52+50.00 (SEE SHEET 6)

MATCHLINE -L- STATION 66+00.00 (SEE SHEET 8)

55

60

ALLIGATOR RIVER

SITE 19

SITE 18

Bent #8 Test Pile
Sta. 54+12.00

PROPOSED BRIDGE

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

-L-

S 79° 30' 03.8" E

100'

8'

12'

PLANS

50 25 0 50 100

SEE SHEET 25 FOR -L- PROFILE

REVISIONS

8/17/99

28-DEC-2023 12:55
HB0001_Hydro_Prop_psh_9.dgn
Quickbird_Part_11

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

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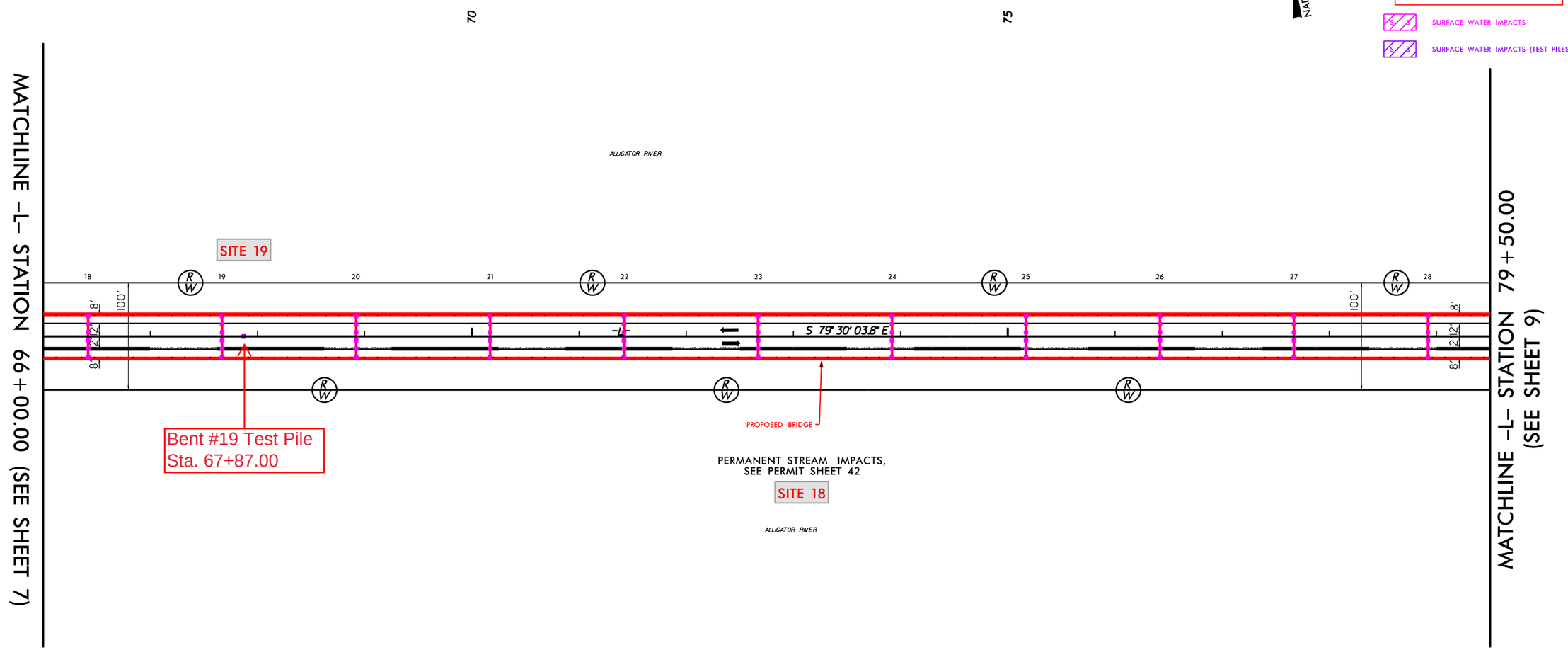
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

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 10 OF 79

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)



50 25 0 50 100
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

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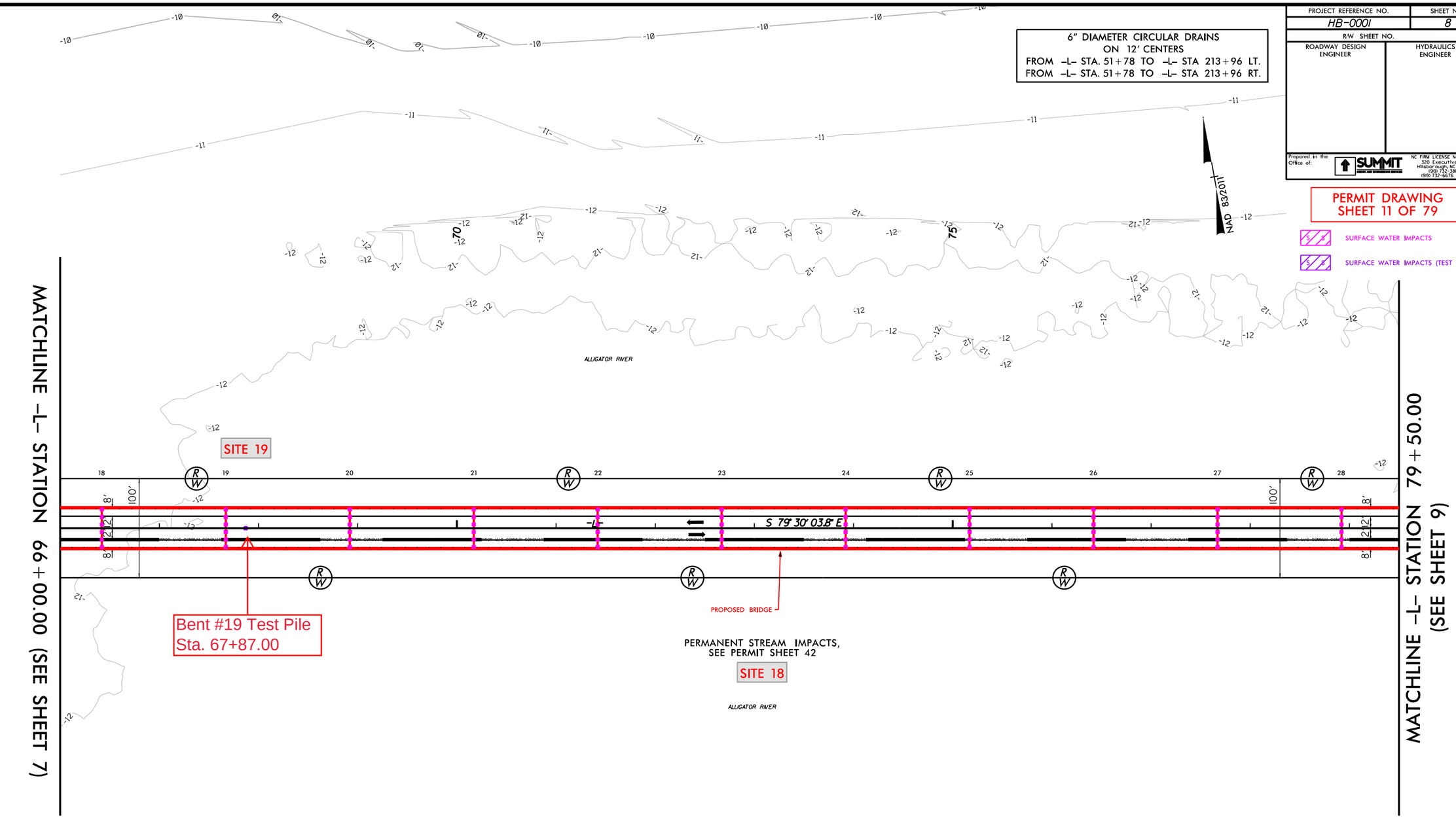
PERMIT DRAWING
SHEET 11 OF 79

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)

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 26 FOR -L- PROFILE

REVISIONS

8/17/99

28-DEC-2023 12:55
HB0001_HYD_PRP_psh_11.dgn
Quick Report

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

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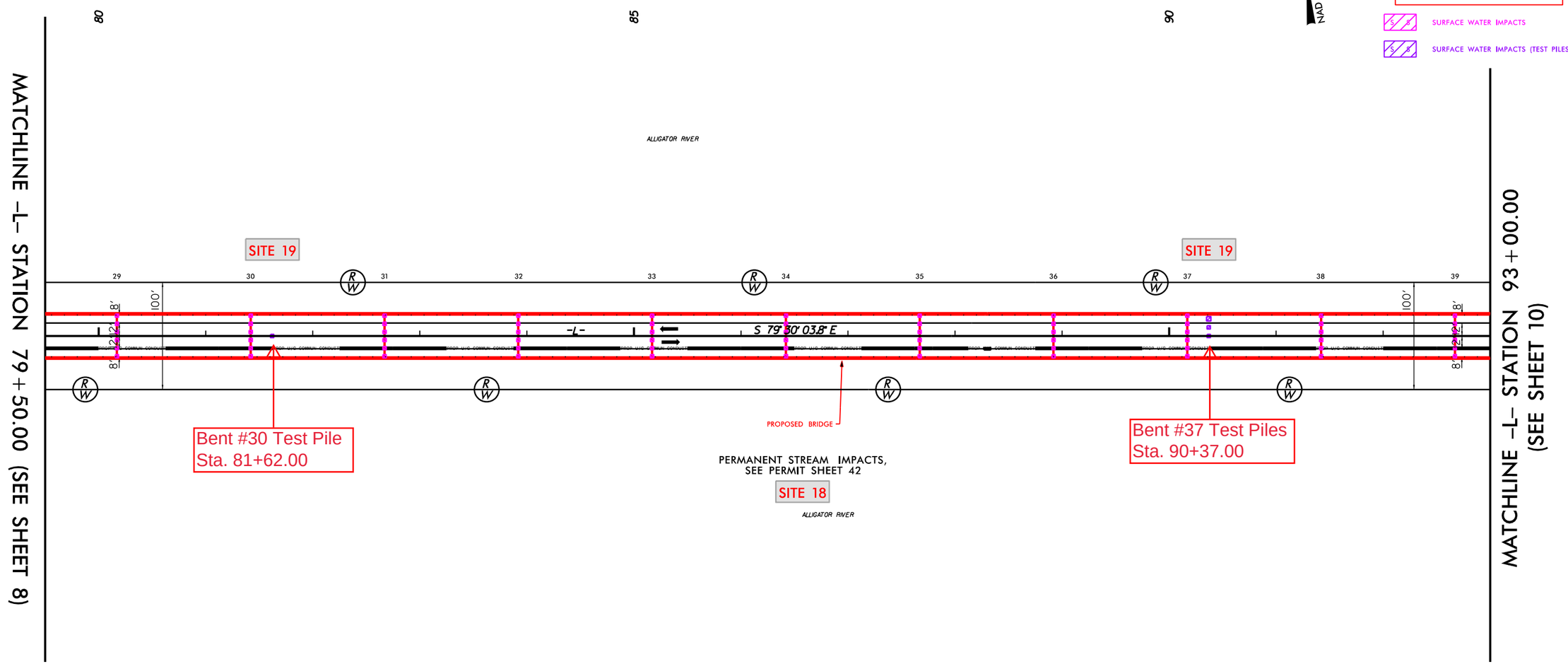
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 12 OF 79

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)

NAD 83/2011



50 25 0 50 100
PLANS

SEE SHEET 26 FOR -L- PROFILE

REVISIONS

8/17/99

28-DEC-2023 12:55
HB0001_Hydr_prm_psh_12.dgn
Quickbeam User

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	9
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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 13 OF 79

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)

NAD 83/2011

REVISIONS

8/17/99

MATCHLINE -L- STATION 79+50.00 (SEE SHEET 8)

MATCHLINE -L- STATION 93+00.00 (SEE SHEET 10)

80 85 90

ALLIGATOR RIVER

SITE 19

SITE 19

29 30 31 32 33 34 35 36 37 38 39

100' 8' 12' 12' 8' 100'

-L-

S 79°30'03.8" E

PROP. U/G COMMUN. CONDUIT

PROPOSED BRIDGE

Bent #30 Test Pile
Sta. 81+62.00

Bent #37 Test Piles
Sta. 90+37.00

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 18

ALLIGATOR RIVER

-10 -11 -12

28-DEC-2023 12:55
HB0001_NW_plan_psh_13.dgn
01:20:04 PM

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

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)

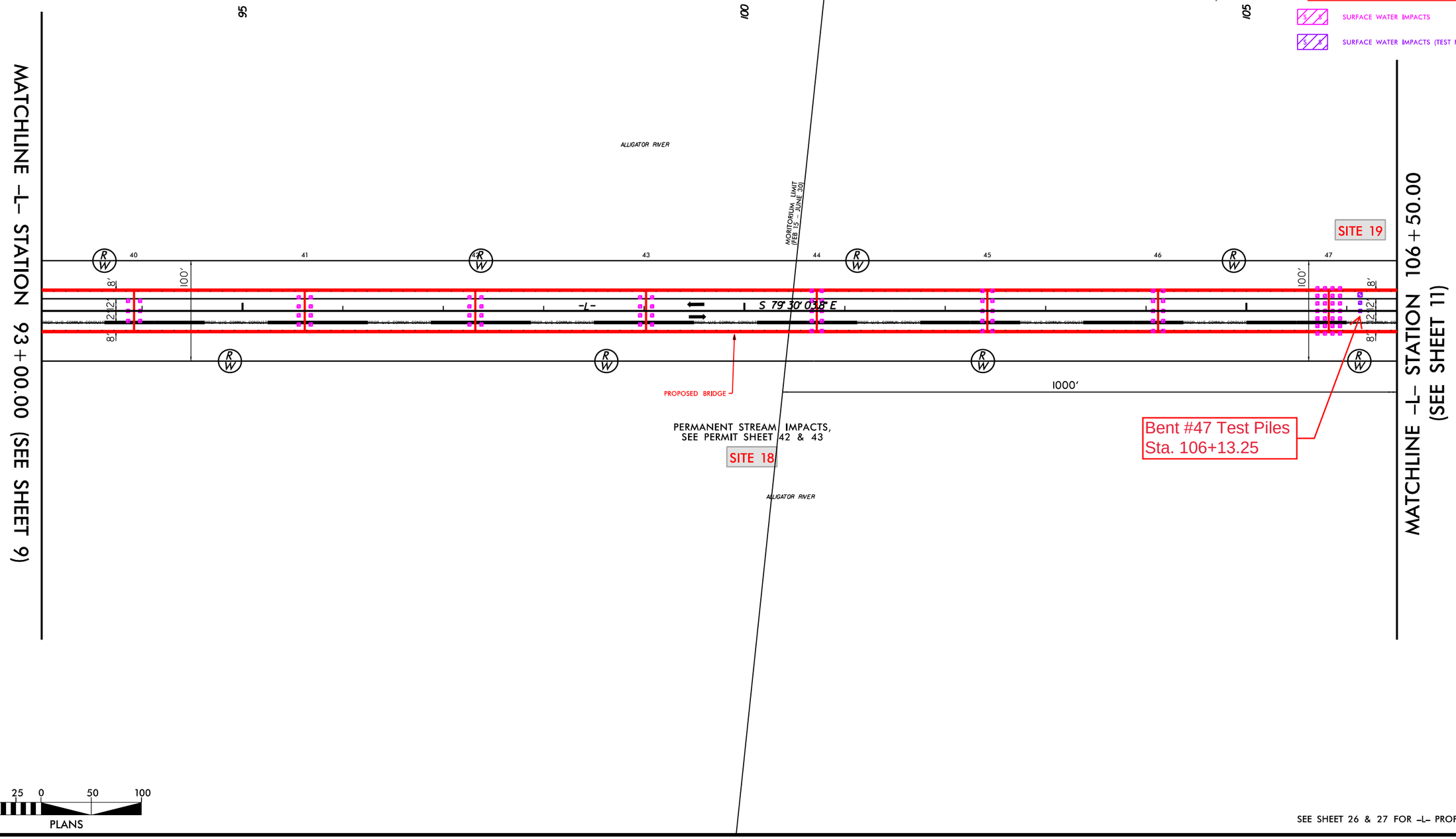
PERMIT DRAWING
SHEET 14 OF 79

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

SURFACE WATER IMPACTS (TEST PILES)



50 25 0 50 100
PLANS

SEE SHEET 26 & 27 FOR -L- PROFILE

REVISIONS

8/17/99

02-JAN-2024 10:19
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pstreck1

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

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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 15 OF 79

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)

NAD 83/2011

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

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

ALLIGATOR RIVER

MORITORIUM LIMIT (FEB 15 - JUNE 30)

-L-

S 79°30'03.8" E

PROPOSED BRIDGE

1000'

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42 & 43

SITE 18

SITE 19

Bent #47 Test Piles
Sta. 106+13.25

REVISIONS

8/17/99

02-JAN-2024 10:19
HB0001_PL_prm_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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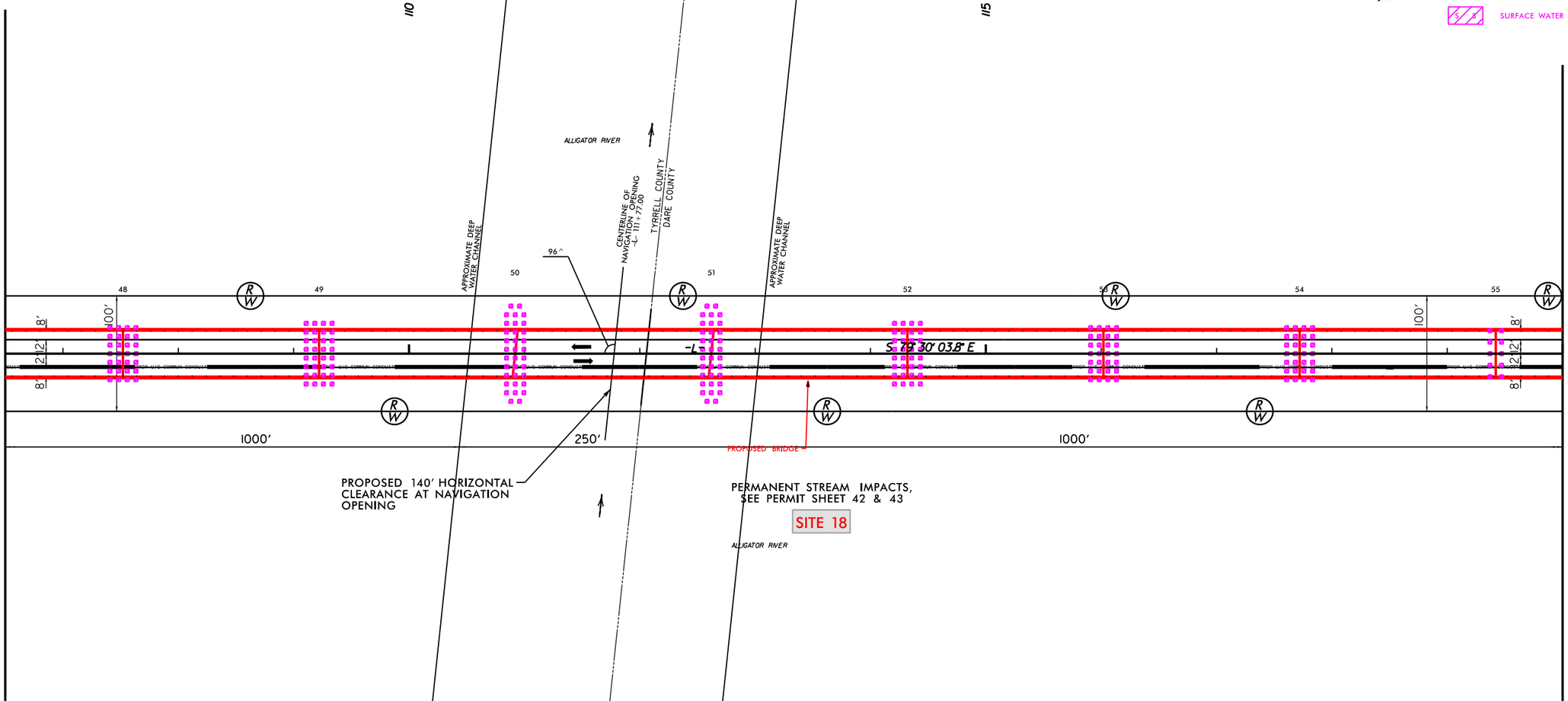
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

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



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PLANS

SEE SHEET 27 & 28 FOR -L- PROFILE

REVISIONS

8/17/99

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

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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 17 OF 79

SURFACE WATER IMPACTS

NAD 83/2011

MATCHLINE -L- STATION 106+50.00 (SEE SHEET 10)

MATCHLINE -L- STATION 120+00.00 (SEE SHEET 12)

110

115

ALLIGATOR RIVER

TYRRELL COUNTY
DARE COUNTY

CENTERLINE OF NAVIGATION OPENING -L- 111+77.00

APPROXIMATE DEEP WATER CHANNEL

APPROXIMATE DEEP WATER CHANNEL

48 49 50 51 52 53 54 55

R/W

-L-

S 79° 30' 03.8" E

8' 12' 100' 100' 12' 8'

1000' 250' 1000'

PROPOSED BRIDGE

PROPOSED 140' HORIZONTAL CLEARANCE AT NAVIGATION OPENING

PERMANENT STREAM IMPACTS, SEE PERMIT SHEET 42 & 43

SITE 18

ALLIGATOR RIVER

50 25 0 50 100
PLANS

SEE SHEET 27 & 28 FOR -L- PROFILE

REVISIONS

8/17/99

02-JAN-2024 10:19
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PROJECT REFERENCE NO.	SHEET NO.
HB-0001	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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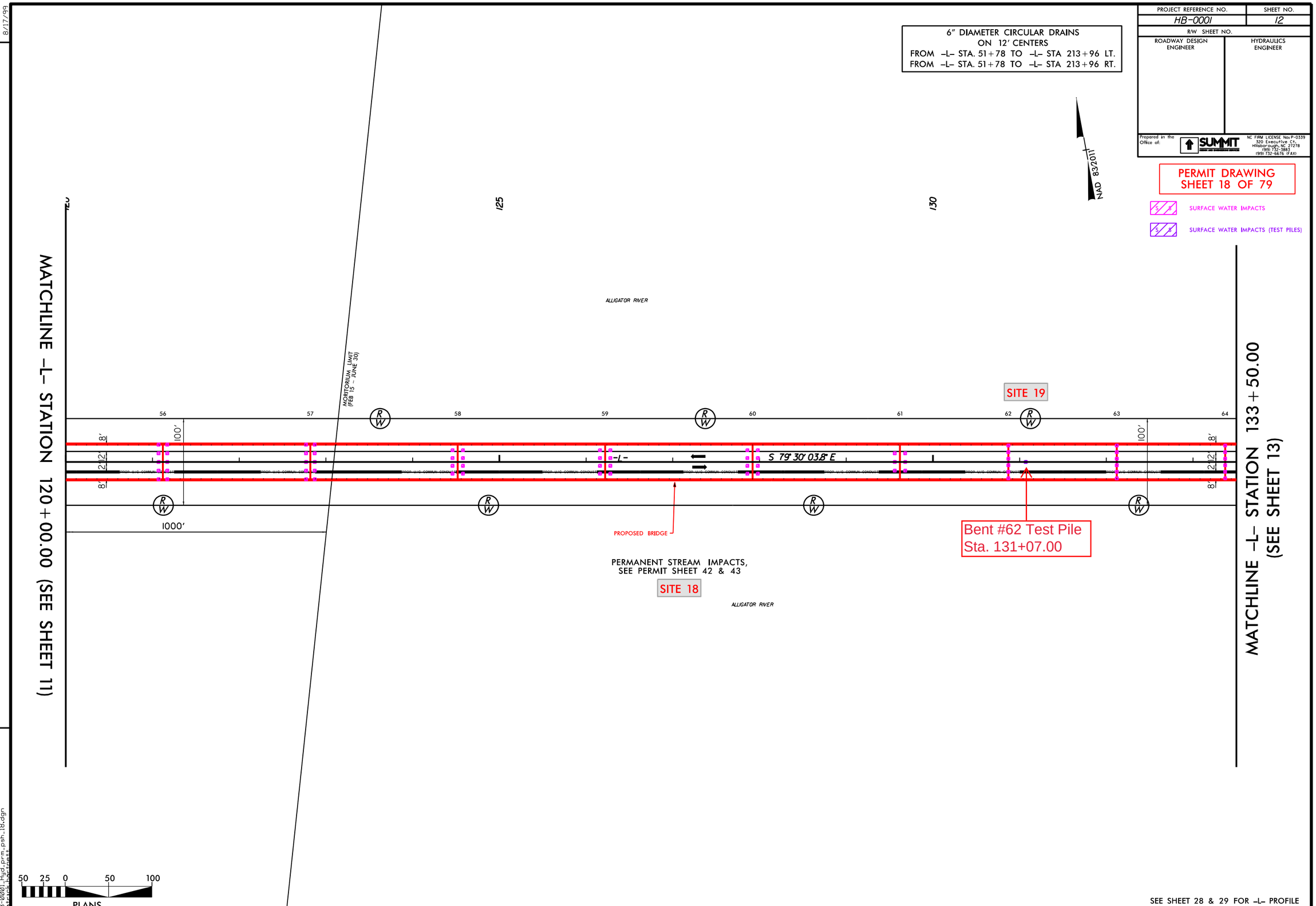
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 18 OF 79

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)

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.



SEE SHEET 28 & 29 FOR -L- PROFILE

REVISIONS

8/17/99

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

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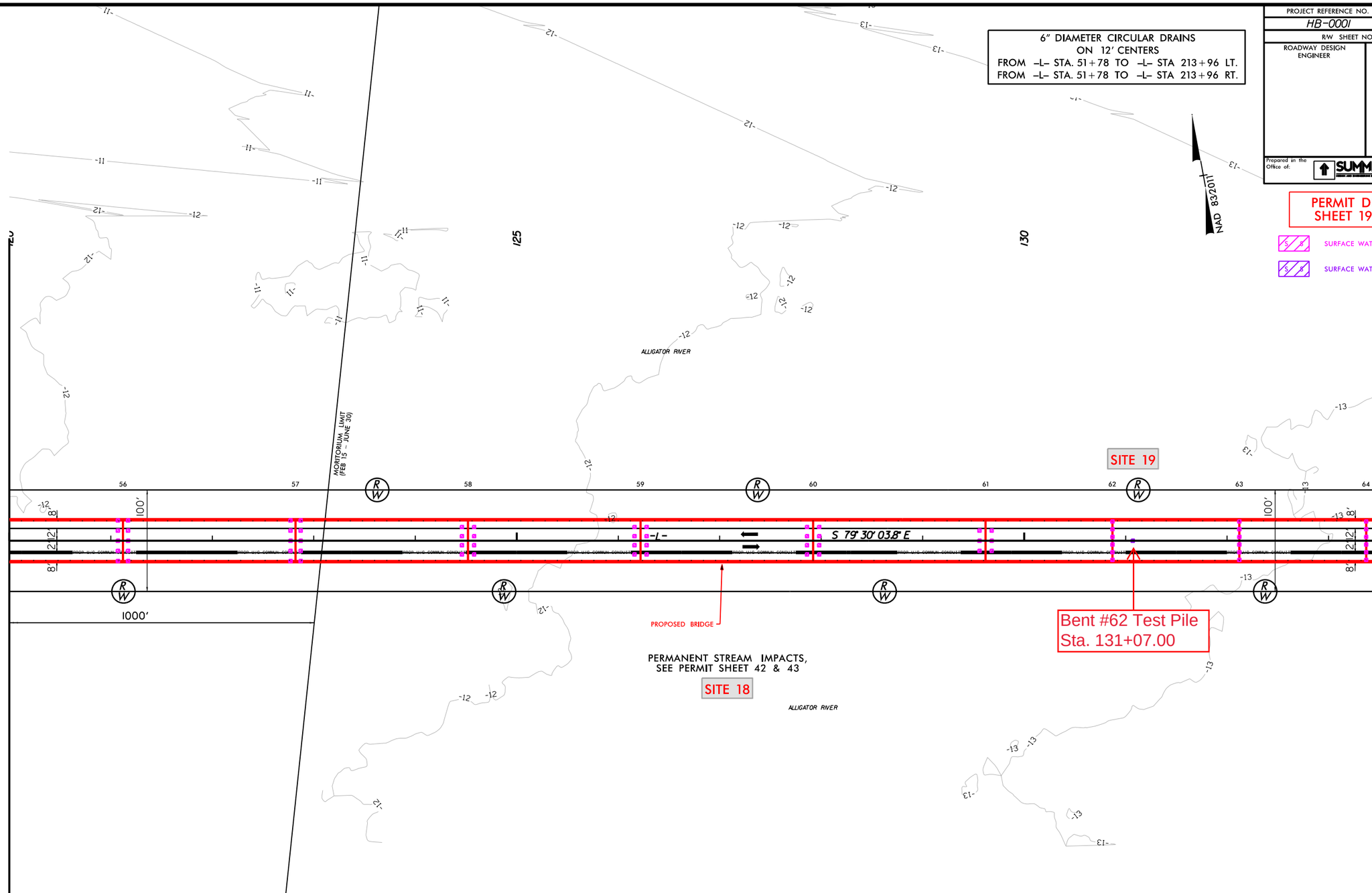
(919) 732-3883
(919) 732-6676 (FAX)

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 19 OF 79

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)



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PLANS

SEE SHEET 28 & 29 FOR -L- PROFILE

REVISIONS

8/17/99

02-JAN-2024 10:19
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PROJECT REFERENCE NO.	SHEET NO.
HB-0001	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

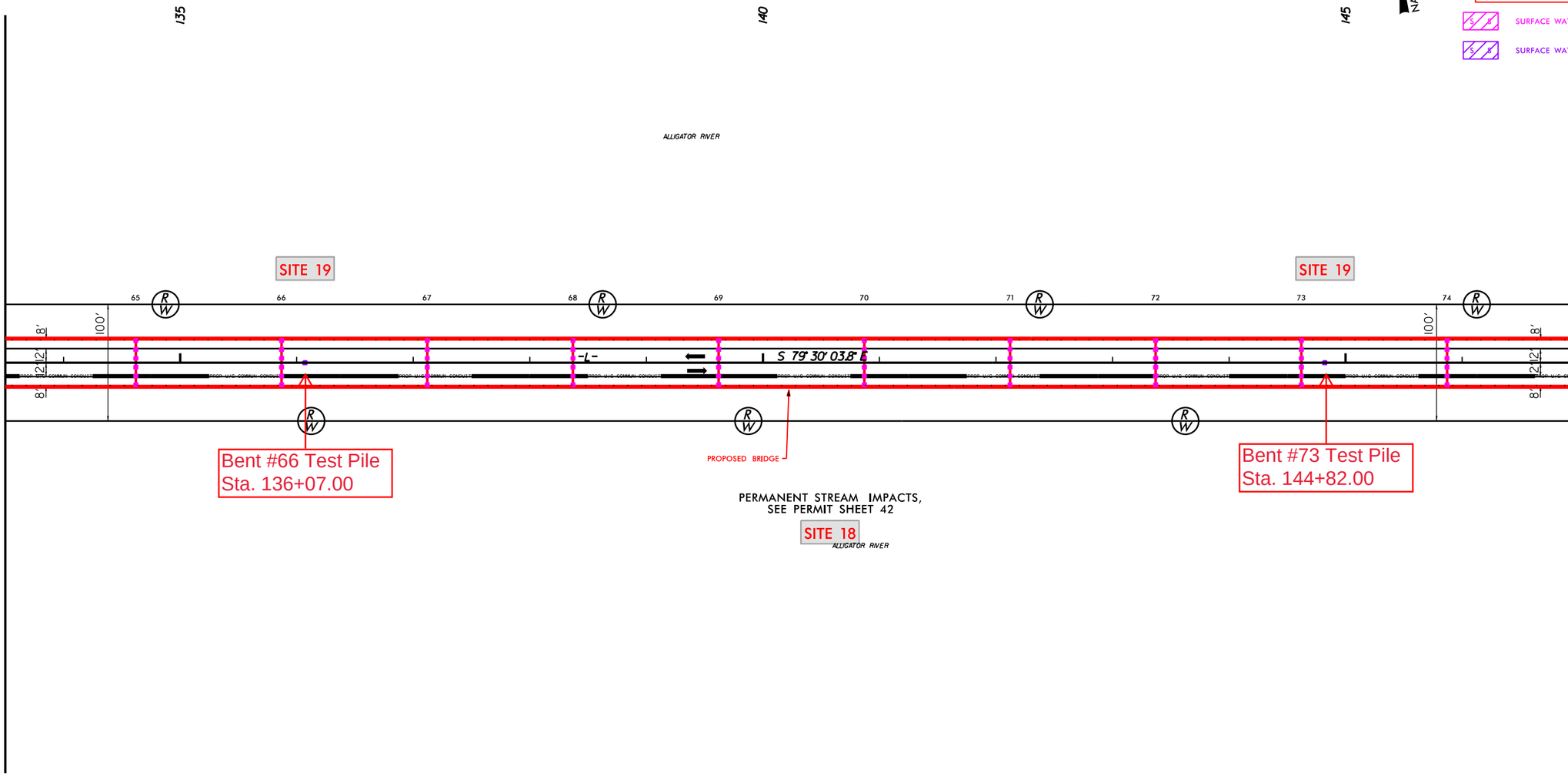
PERMIT DRAWING
SHEET 20 OF 79

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

SURFACE WATER IMPACTS (TEST PILES)



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

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

REVISIONS

8/17/99

28-DEC-2023 12:56
HB0001_hyd_prm_psh_20.dgn
ottock.hydraulics

50 25 0 50 100
PLANS

SEE SHEET 29 FOR -L- PROFILE

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	13
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 21 OF 79

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)

NAD 83/2011

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

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

SITE 19

SITE 19

SITE 18

ALLIGATOR RIVER

ALLIGATOR RIVER

-L-

S 79° 30' 03.8" E

PROP. U/G COMMUN. CONDUIT

PROPOSED BRIDGE

Bent #66 Test Pile
Sta. 136+07.00

Bent #73 Test Pile
Sta. 144+82.00

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

100'

8'

12'

12'

8'

65 66 67 68 69 70 71 72 73 74

135 140 145

REVISIONS

8/17/99

28-DEC-2023 12:56
HB-0001_Hydraulics_Permit_Psh_21.dgn
ostruck, hydraulics

50 25 0 50 100
PLANS

SEE SHEET 29 FOR -L- PROFILE

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

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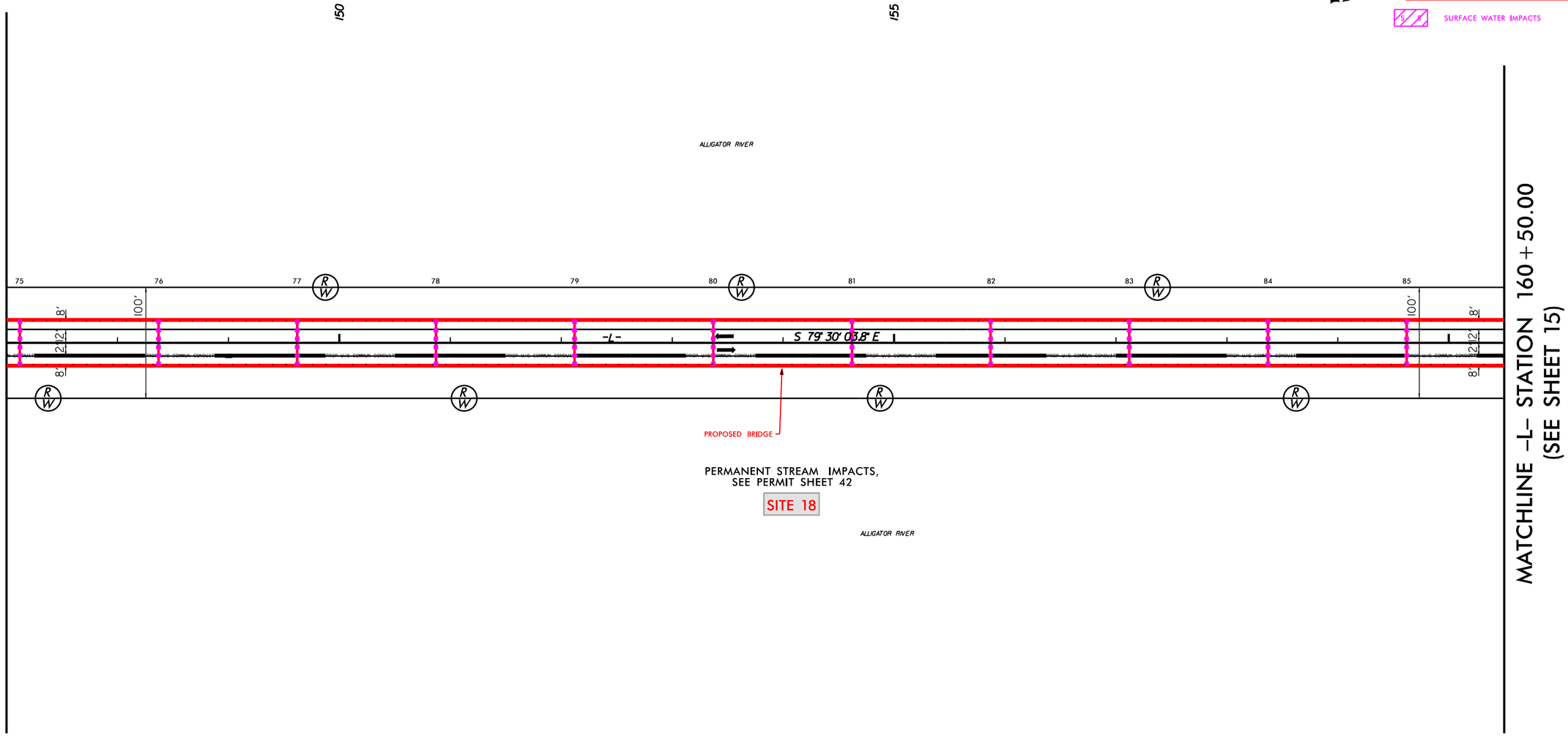
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 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



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PLANS

SEE SHEET 29 & 30 FOR -L- PROFILE

REVISIONS

8/17/99

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pdarock1 hydraulics

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

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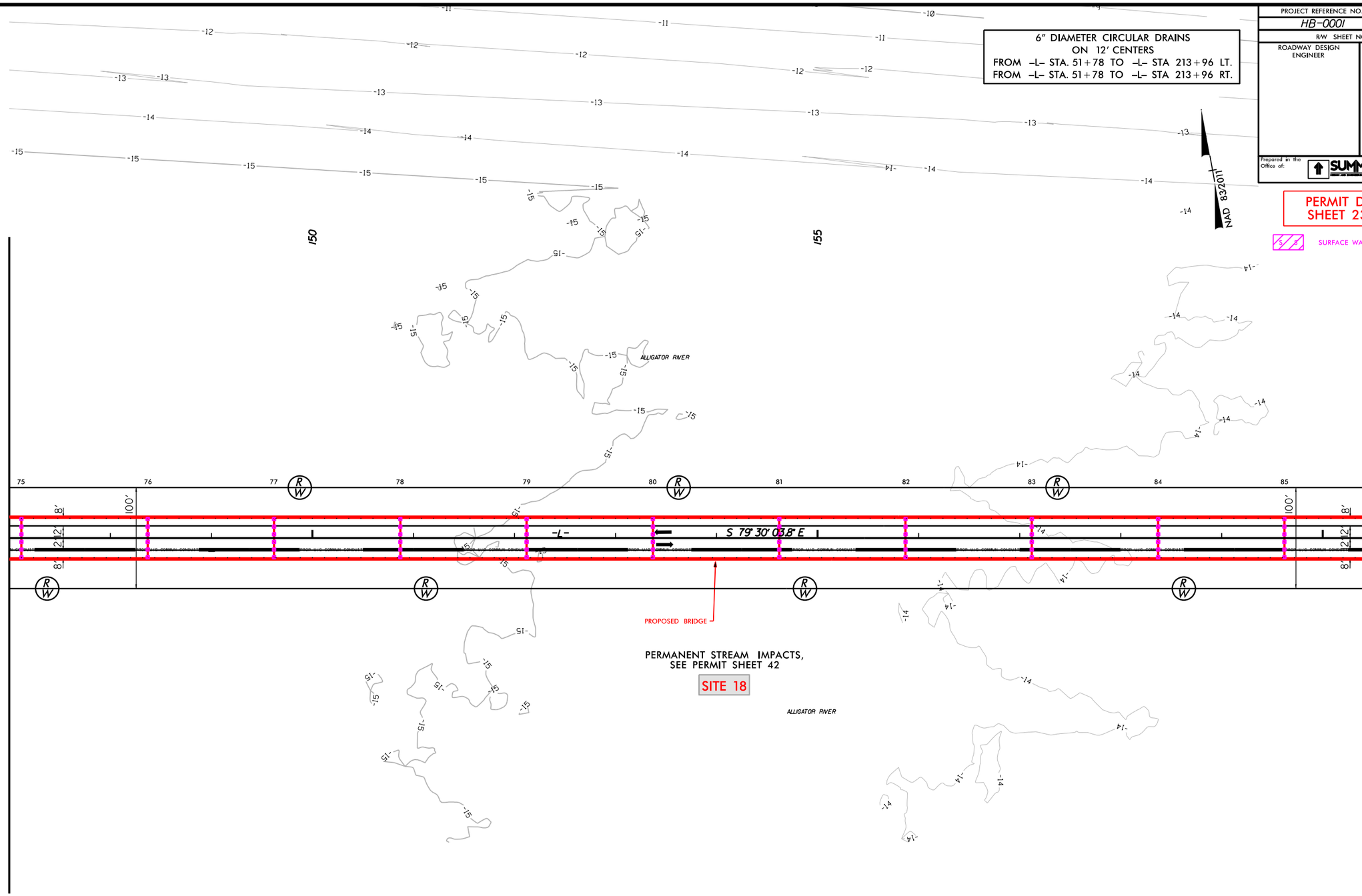
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 23 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.



REVISIONS

8/17/99

50 25 0 50 100
PLANS

SEE SHEET 29 & 30 FOR -L- PROFILE

28-DEC-2023 12:56
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pdetrick hydraulics psh_23.dgn

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

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Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

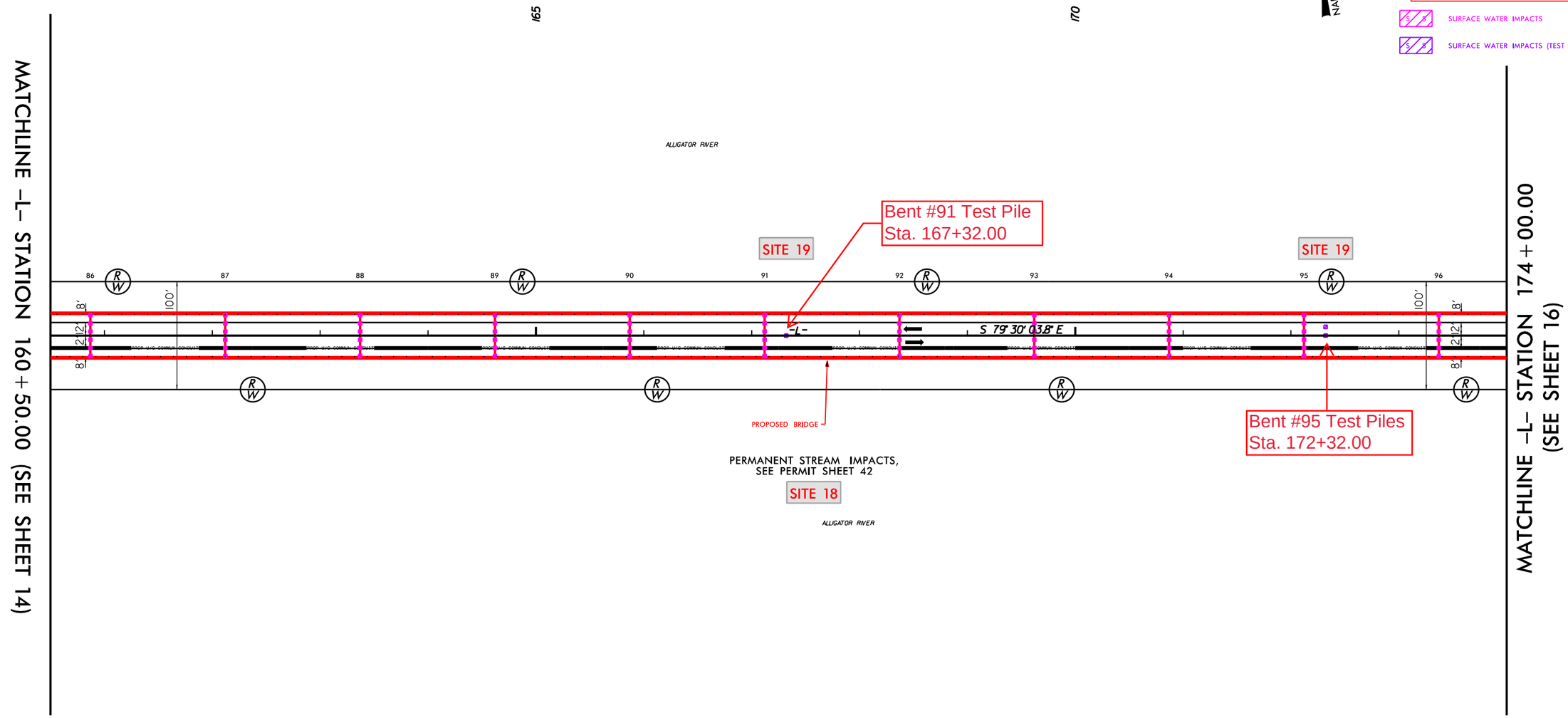
6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 24 OF 79

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)

NAD 83/2011



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PLANS

SEE SHEET 30 FOR -L- PROFILE

REVISIONS

8/17/99

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

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320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

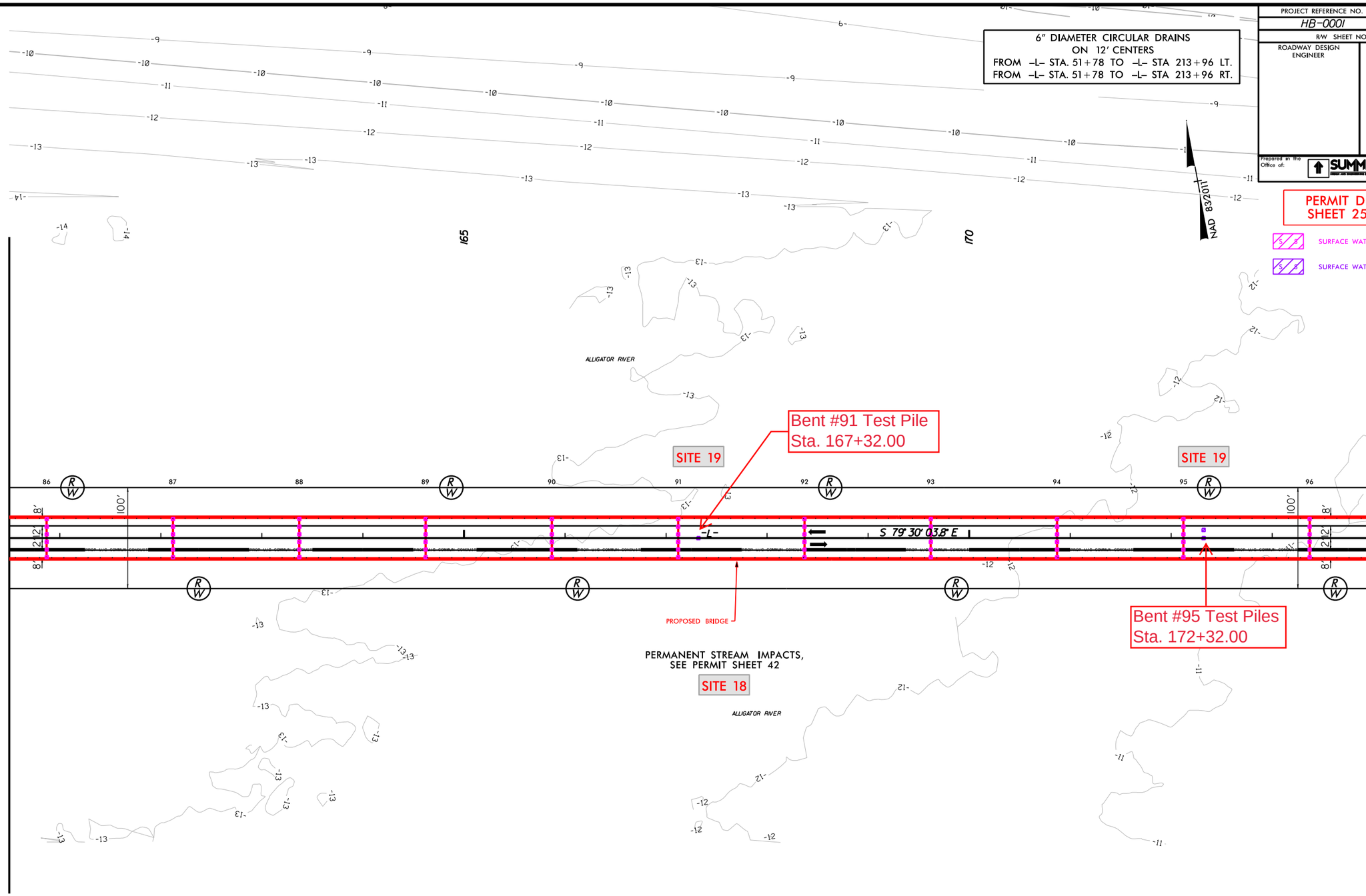
6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 25 OF 79

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)

NAD 83/2011



REVISIONS

8/17/99

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PLANS

SEE SHEET 30 FOR -L- PROFILE

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

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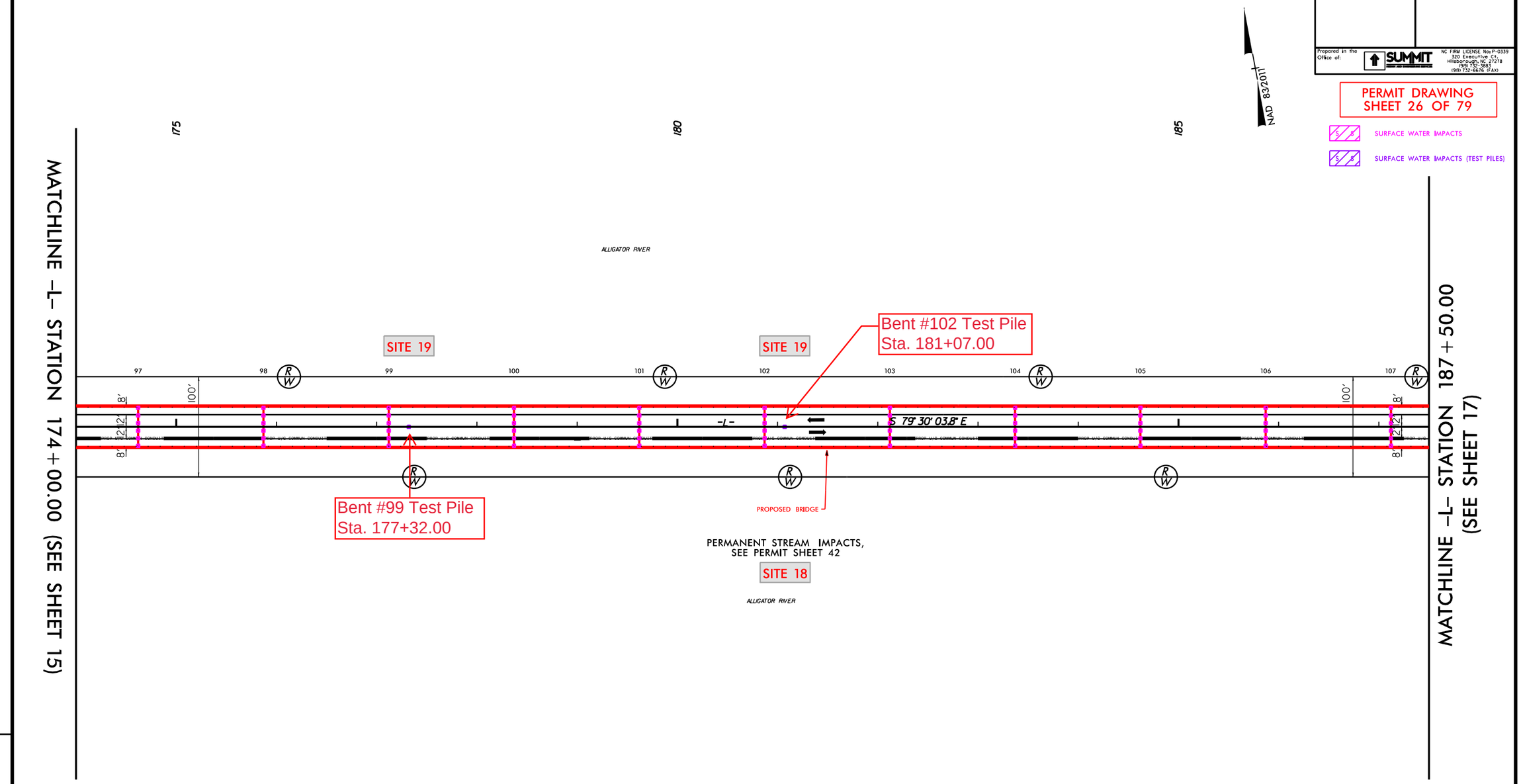
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 26 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.



REVISIONS

8/17/99

28-DEC-2023 12:56
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pbrock1.bentley.com

50 25 0 50 100
PLANS

SEE SHEET 30 & 31 FOR -L- PROFILE

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

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320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

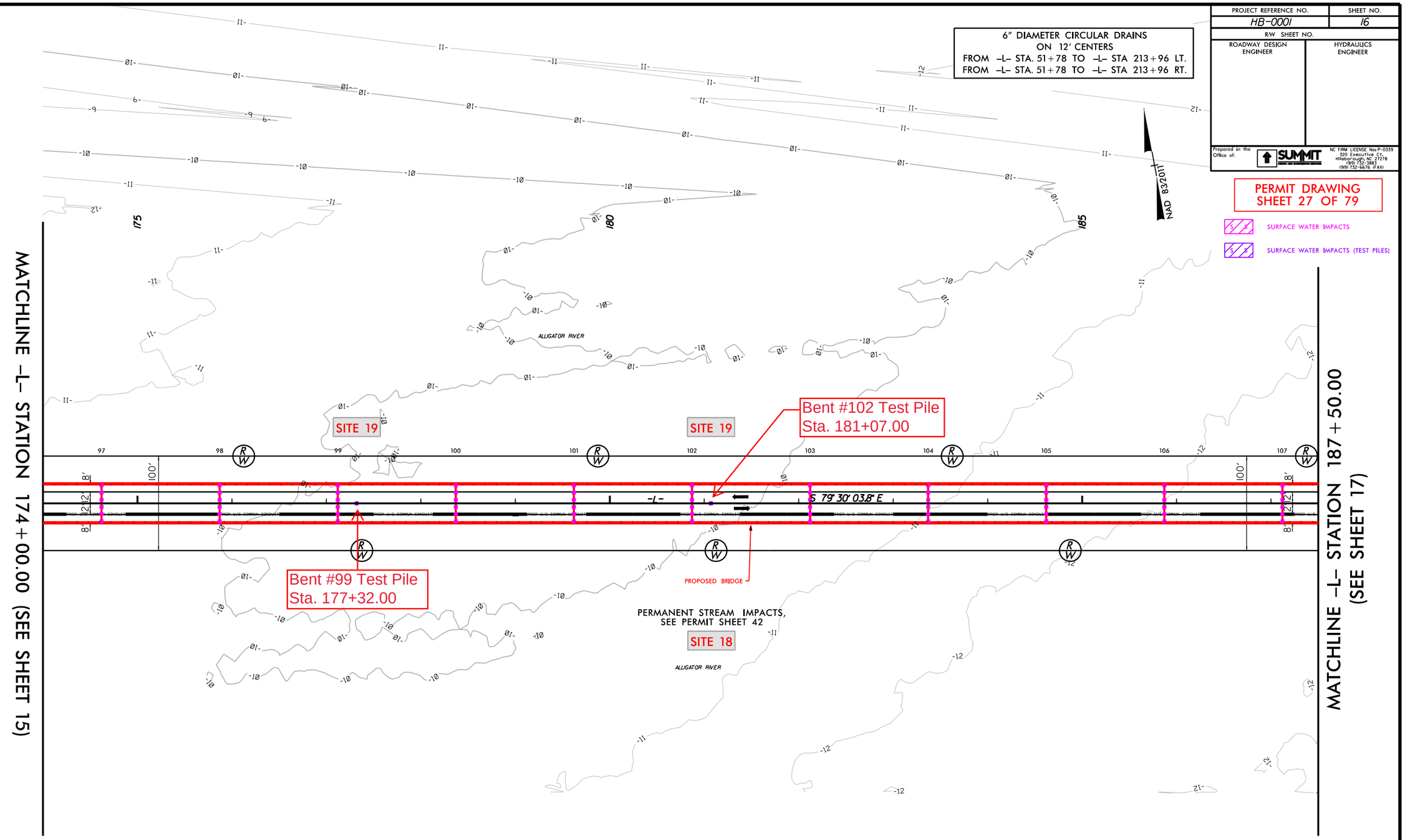
6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMIT DRAWING
SHEET 27 OF 79

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)

NAD 83/2011



50 25 0 50 100
PLANS

SEE SHEET 30 & 31 FOR -L- PROFILE

REVISIONS

8/17/99

28-DEC-2023 12:56
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pbrock1@ncdot.gov

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
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Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 28 OF 79

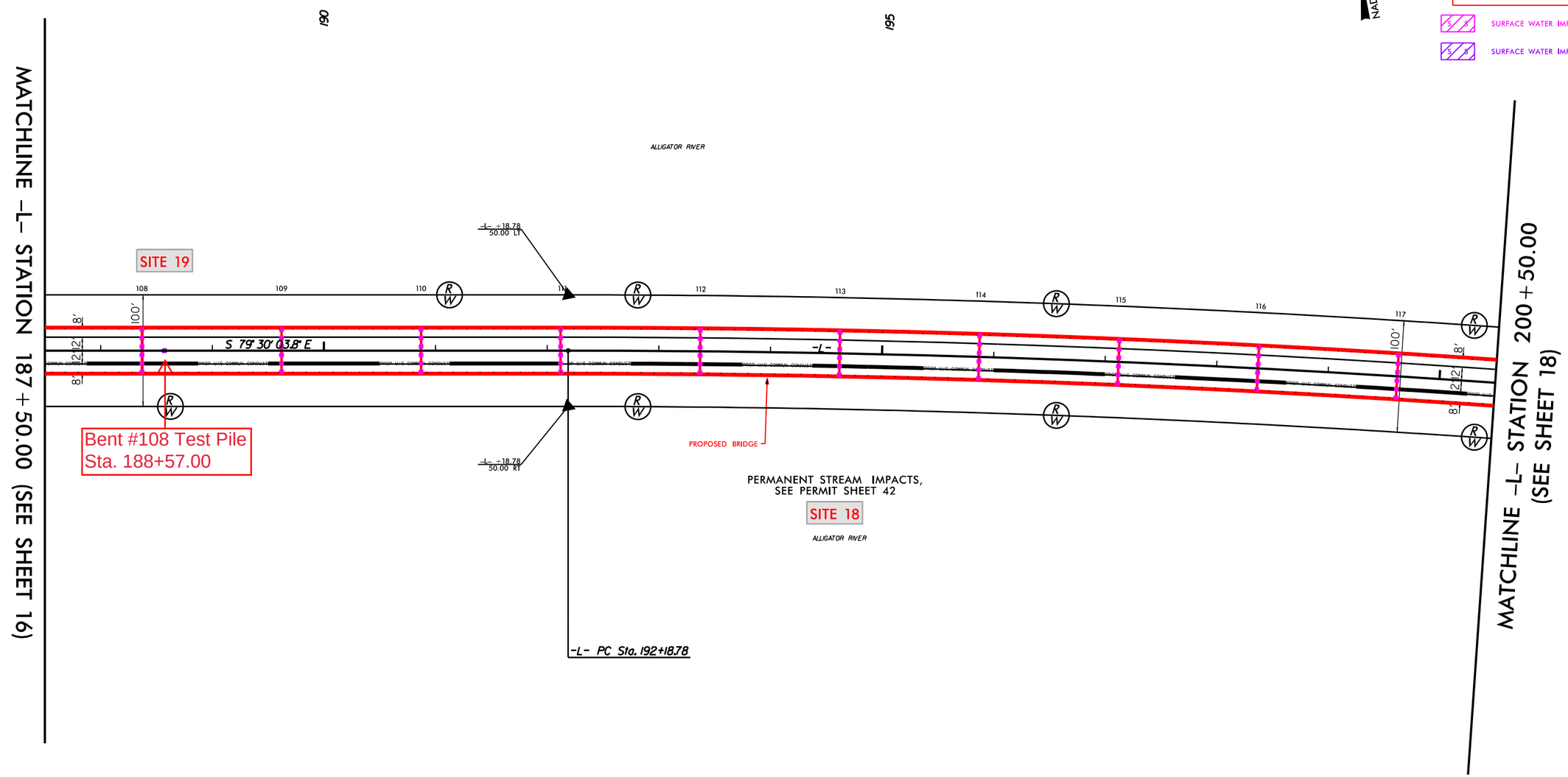
6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

-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

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)



50 25 0 50 100
PLANS

SEE SHEET 31 FOR -L- PROFILE

REVISIONS

8/17/99

28-DEC-2023 12:56
HB0001_hydr_psh_28.dgn
pbrock

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

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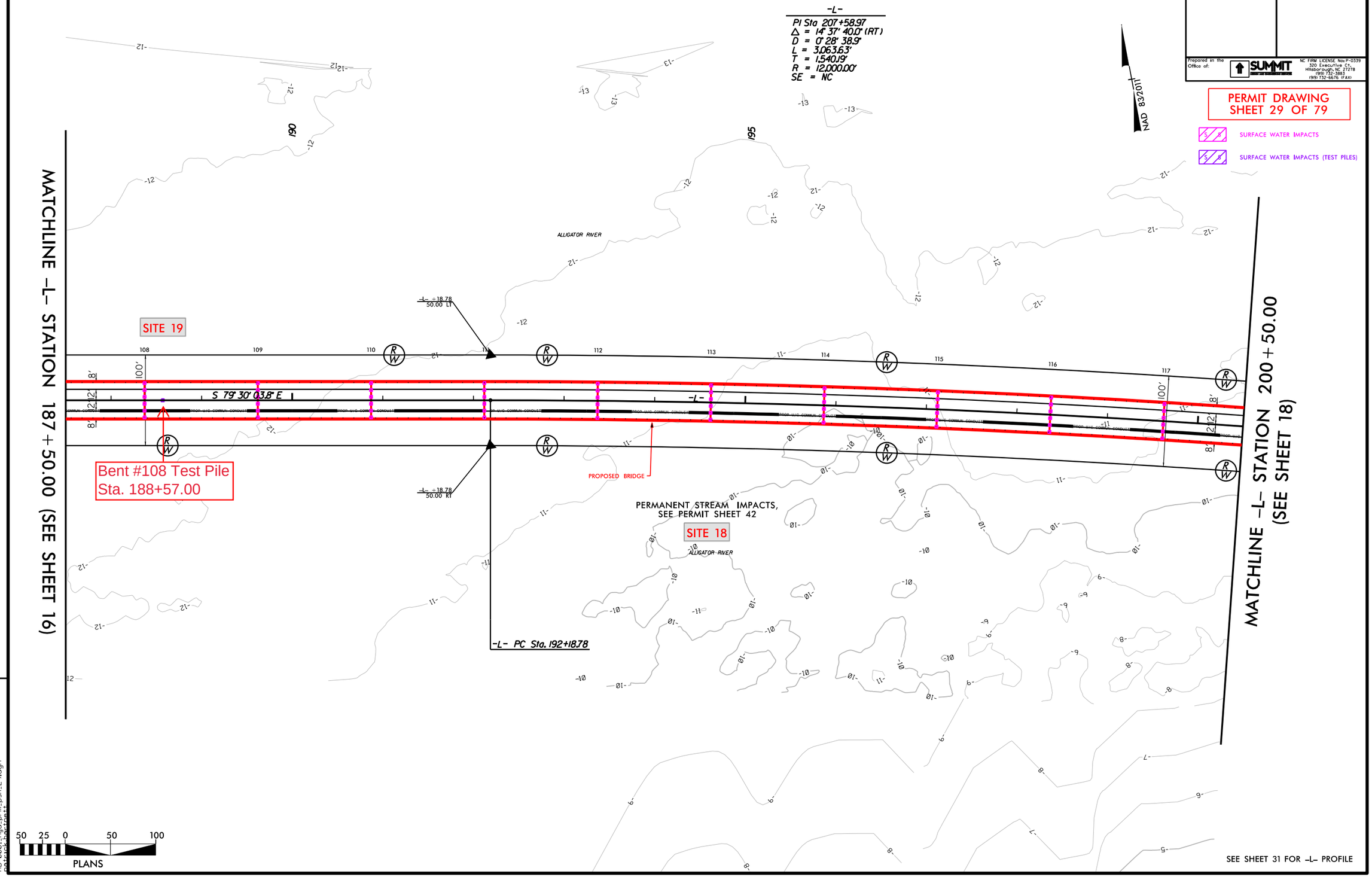
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

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 29 OF 79

SURFACE WATER IMPACTS

SURFACE WATER IMPACTS (TEST PILES)



SEE SHEET 31 FOR -L- PROFILE

REVISIONS

8/17/99

28-DEC-2023 12:56
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PROJECT REFERENCE NO.	SHEET NO.
HB-0001	18
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 30 OF 79

SURFACE WATER IMPACTS
SURFACE WATER IMPACTS (TEST PILES)
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

205

210

ALLIGATOR RIVER

SITE 19

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

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

118 119 120 121 122 123 124 125 126 127 128

100' 8' 12' 12' 8'

Bent #119 Test Pile
Sta. 202+32.00

-L- +99.00
113.00 RT
50.00 RT

EASEMENT FOR TEMP WORK PLATFORM

-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 18

ALLIGATOR RIVER

POCKET

CAMA AEC (75')

UNITED STATES
FISH & WILDLIFE
DB 364 PG 21

50 25 0 50 100
PLANS

SEE SHEET 31 & 32 FOR -L- PROFILE

REVISIONS

8/17/99

04-JAN-2024 13:48
H:\2001\HB-0001\Hydro\pm_psh_30.dgn
Q:\2001\HB-0001\

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

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

SURFACE WATER IMPACTS
SURFACE WATER IMPACTS (TEST PILES)
TEMPORARY WORK TRESTLE

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

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

SITE 19

SITE 18

Bent #119 Test Pile
Sta. 202+32.00

EASEMENT FOR TEMP WORK PLATFORM

-L- +99.00 113.00 RT 50.00 RT
-L- +50.00 75.00 RT
-L- +36.00 113.00 RT 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

ALLIGATOR RIVER

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

04-JAN-2024 13:48
hb0001_hyd_prm_psh_31.dgn
pctock,bejones

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.

-L-
PI Sta 207+58.97
Δ = 14° 37' 40.0" (RT)
D = 0° 28' 38.9"
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'

NORTH CAROLINA WILDLIFE
(NO DEED)

GR PARKING
(BOAT LANDING)

NAD 83/2011

N 32°02'02" W

S 66°52'56" E 349.85'

MARY J. CARLENO
DB 1607 PG 461

EXISTING R/W

60.00'

170.00'

2SFD

MICHAEL J. SMITH
DB 2458 PG 663

S 66°57'20" E
170.00'

S 23°02'40" W
160.00'

S 23°02'40" W
160.00'

HB-0001 404

215

220

225

ALLIGATOR RIVER

FILL IN WETLANDS,
SEE PERMIT
SHEET 42

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

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

SITE 18

SITE 19

SITE 11

CAMA AEC (75')

CAMA

PROTECTED WOODS

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

-L- +50.00
75.00 LT
50.00 LT

-L- +70.00
65.00 LT

-L- +50.00
95.00 LT
75.00 LT

-L- +82.42
95.00 LT
75.00 LT

-L- +95.00
75.00 RT
50.00 RT

-L- +82.00
113.00 RT
75.00 RT

-L- +50.00
113.00 RT
95.00 RT

-L- +80.00
113.00 RT
76.90 RT

-L- +42.00
113.00 RT
76.93 RT

-L- +70.00
65.00 RT

-L- +82.42
95.00 RT
75.00 RT

129

130

134

182

100'

8'

12'

8'

1 TON CL B RIPRAP
5 SY GEOTEXTILE
Q10 = 1.4 CFS
V10 = 1.2 FPS

15" W
2 ELBOWS

27'
INC
TYP

GATE
30.00

CHAIN LINK FENCE

DECORATIVE
SIGN PANEL
STA 222+05

GREU
DECORATIVE
SIGN PANEL
STA 222+85

TYPE III

WILDLIFE
FENCE

END BRIDGE
-L- Sta. 221+05.00

-L- PCC Sta. 222+82.42

MITIGATION

ABANDON EXISTING
FIBER OPTIC CABLES

BMIO

BL-17

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

UNITED STATES
FISH & WILDLIFE
DB 364 PG 211

N 40°32'05" W
98.33'

404

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

MATCHLINE EX US 64 (SEE SHEET 23)

50 25 0 50 100
PLANS

PAVEMENT REMOVAL

SEE SHEET 32 FOR -L- PROFILE

REVISIONS

8/17/99

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pgilchrist

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.

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'

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

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)

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

FILL IN WETLANDS,
SEE PERMIT
SHEET 42

SITE 18

SITE 10

SITE 11

END BRIDGE
-L- Sta. 221+05.00

-L- PCC Sta. 222+82.42

ABANDON EXISTING
FIBER OPTIC CABLES

MITIGATION

CHAIN LINK FENCE

WILDLIFE FENCE

DECORATIVE SIGN PANEL
STA. 222+05

GREEN DECORATIVE SIGN PANEL
STA. 222+85

1 TON CL B RIPRAP
5 SY GEOTEXTILE
Q10 = 14 CFS
V10 = 1.2 FPS

CAMA AEC (75')

PAVEMENT REMOVAL

SEE SHEET 32 FOR -L- PROFILE

50 25 0 50 100
PLANS

REVISIONS

8/17/99

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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

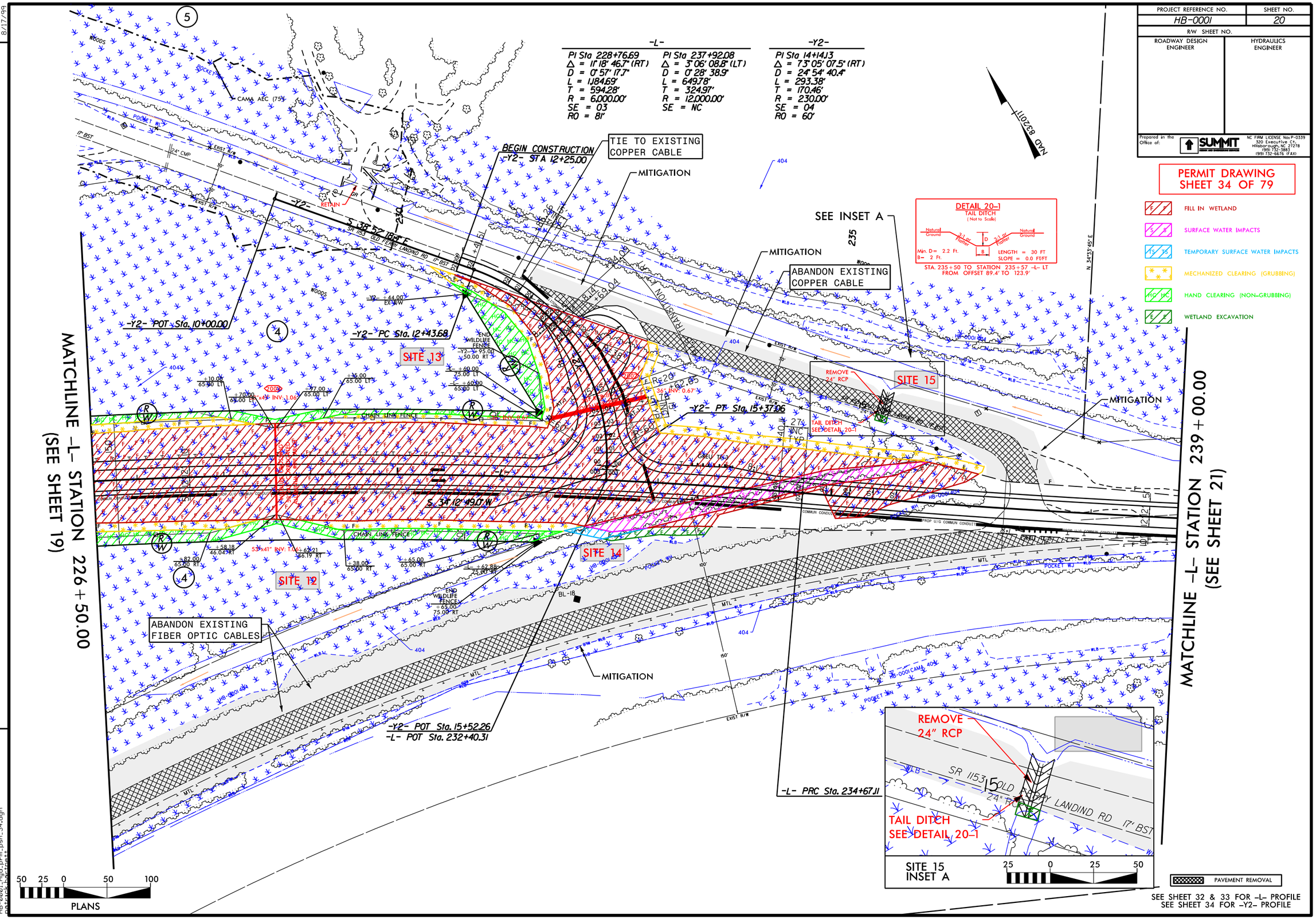
FILL IN WETLAND
SURFACE WATER IMPACTS
TEMPORARY SURFACE WATER IMPACTS
MECHANIZED CLEARING (GRUBBING)
HAND CLEARING (NON-GRUBBING)
WETLAND EXCAVATION

-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'



REVISIONS

8/17/99

28-DEC-2023 12:56
HB0001_SHEET_PLAN_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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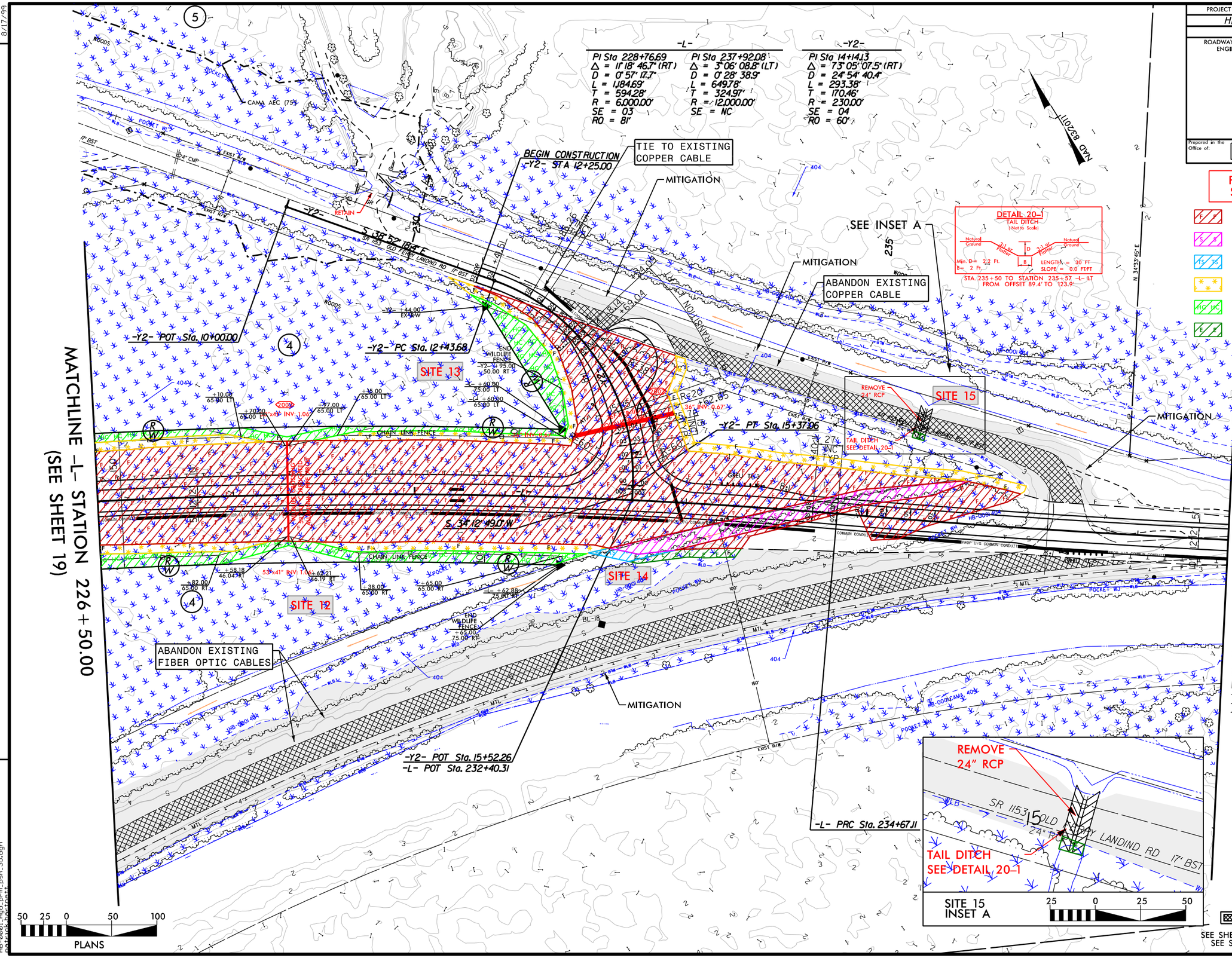
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

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

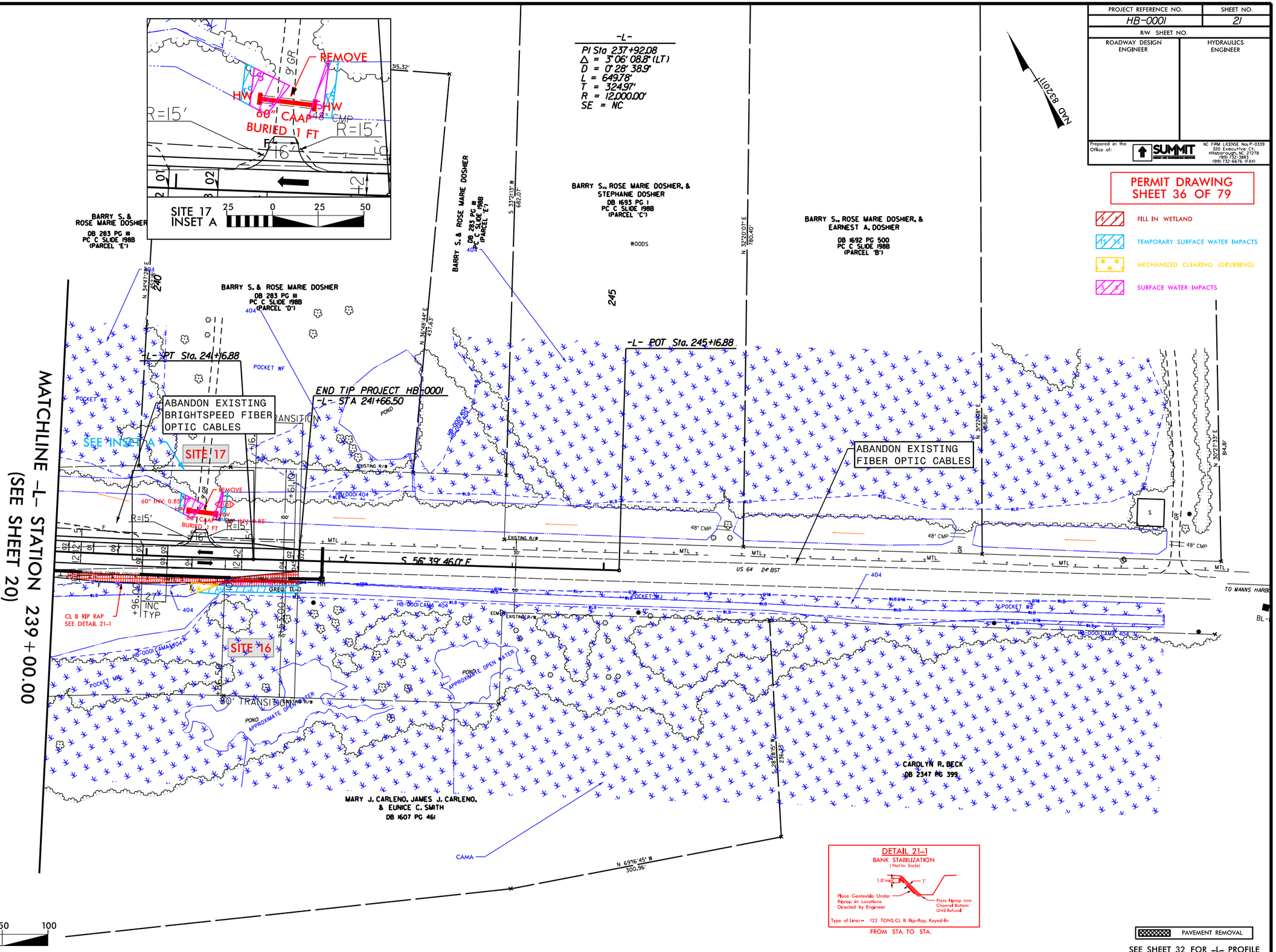
28-DEC-2023 12:56
HB0001_Hydraulic_Plan_psh_35.dgn
pbrock

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	21
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 36 OF 79

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



DETAIL 21-1
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= 122 TONS,CL B Rip-Rap, Keyed-In

FROM STA. TO STA.

50 25 0 50 100
PLANS

SEE SHEET 32 FOR -L- PROFILE

REVISIONS

8/17/99

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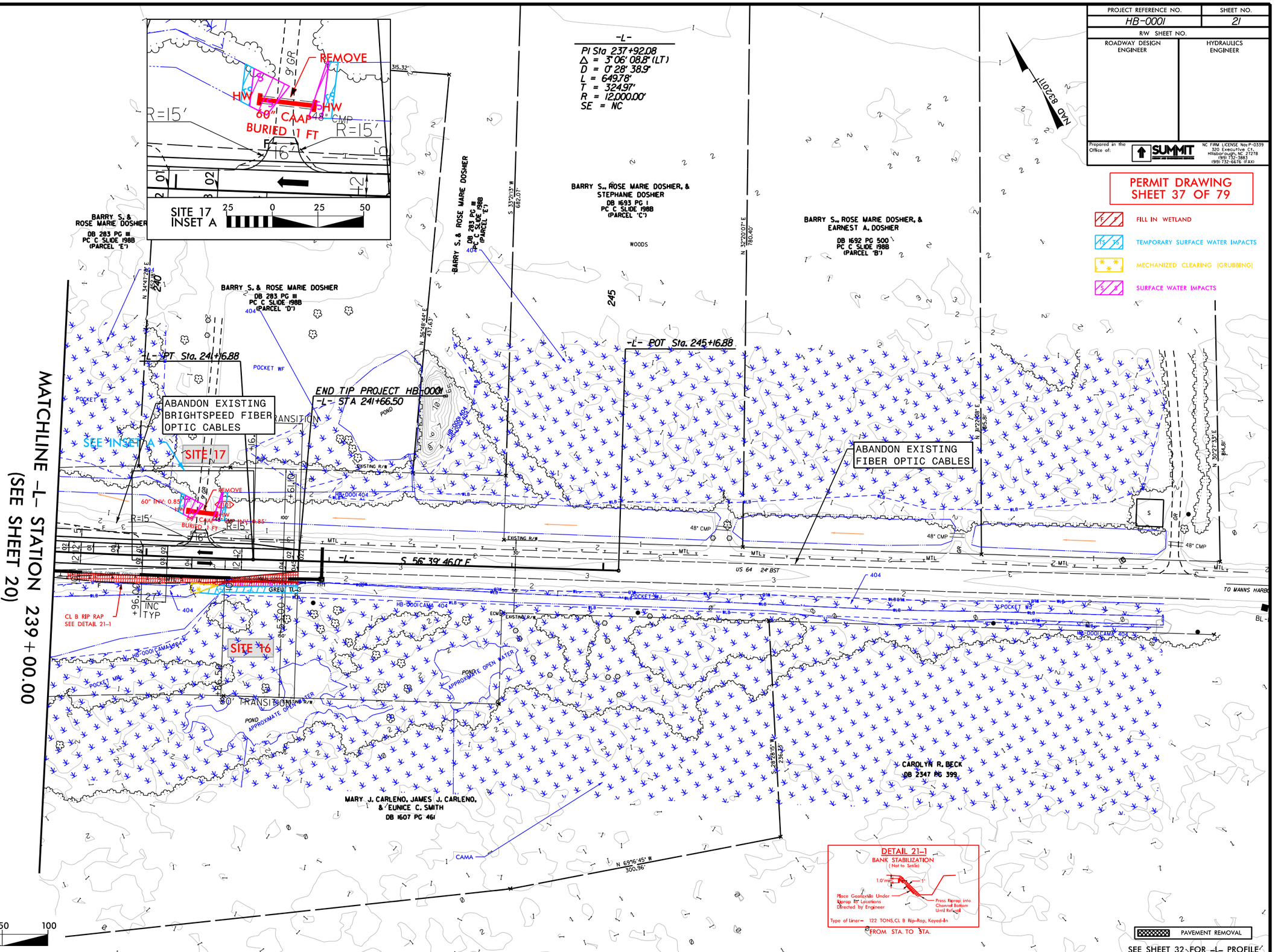
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	21
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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 37 OF 79

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



REVISIONS

8/17/99

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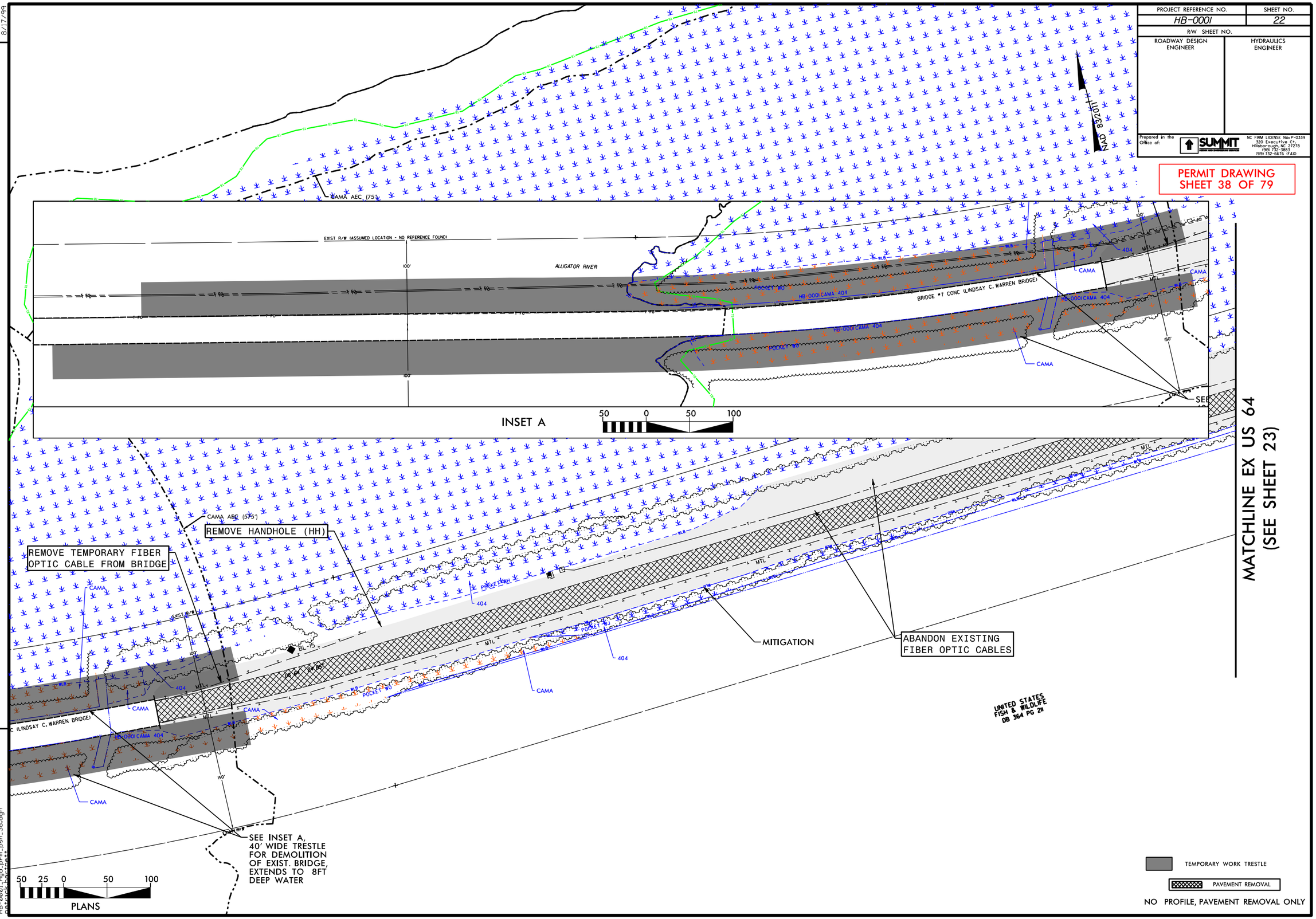
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	22
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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 38 OF 79



REVISIONS

8/17/99

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psh_38.dgn

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

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320 Executive Ct.
Hillsborough, NC 27278
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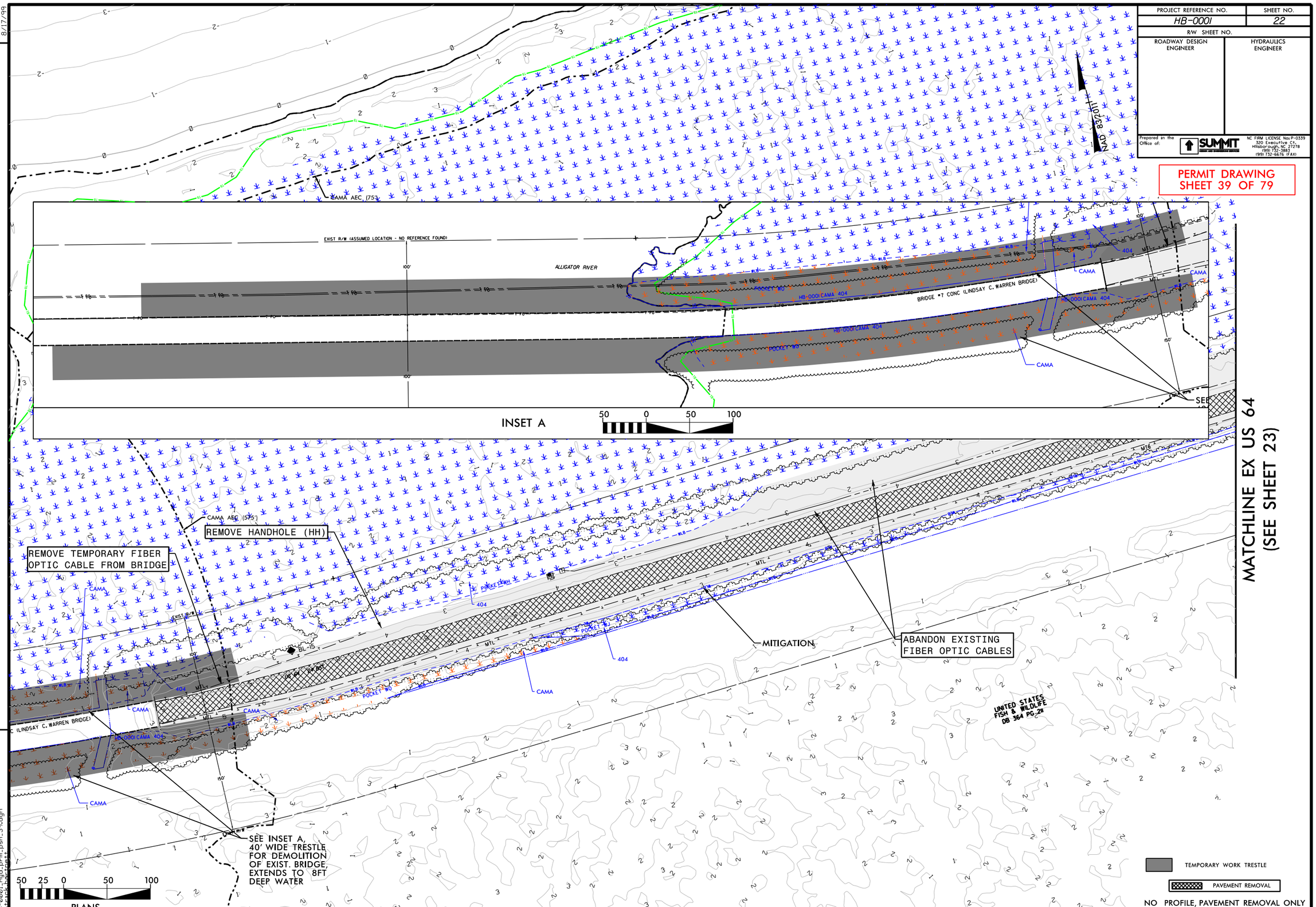
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 39 OF 79



REVISIONS

8/17/99

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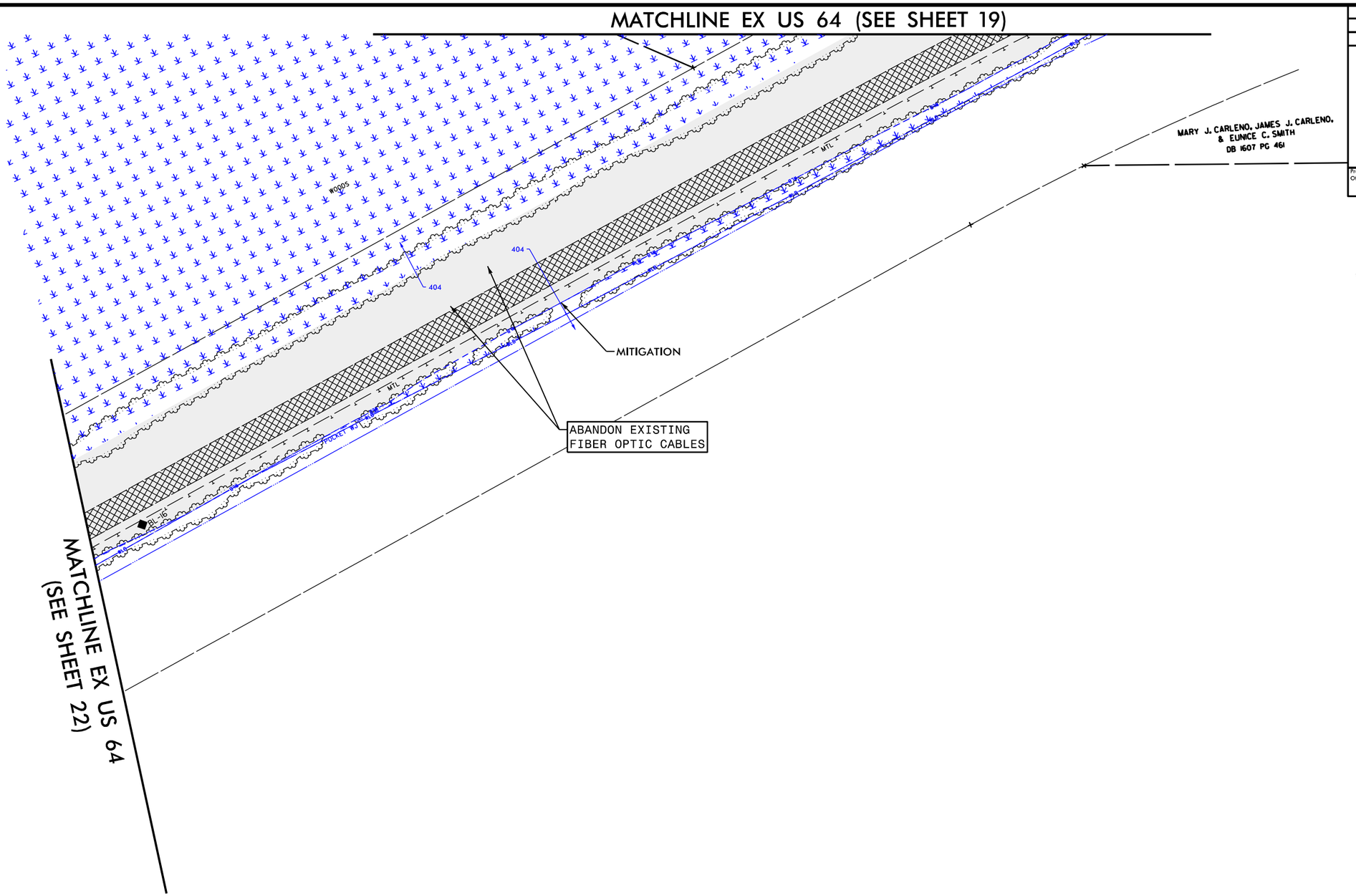
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	23
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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 40 OF 79



PAVEMENT REMOVAL

NO PROFILE, PAVEMENT REMOVAL ONLY

50 25 0 50 100
PLANS

REVISIONS

8/17/99

28-DEC-2023 12:56
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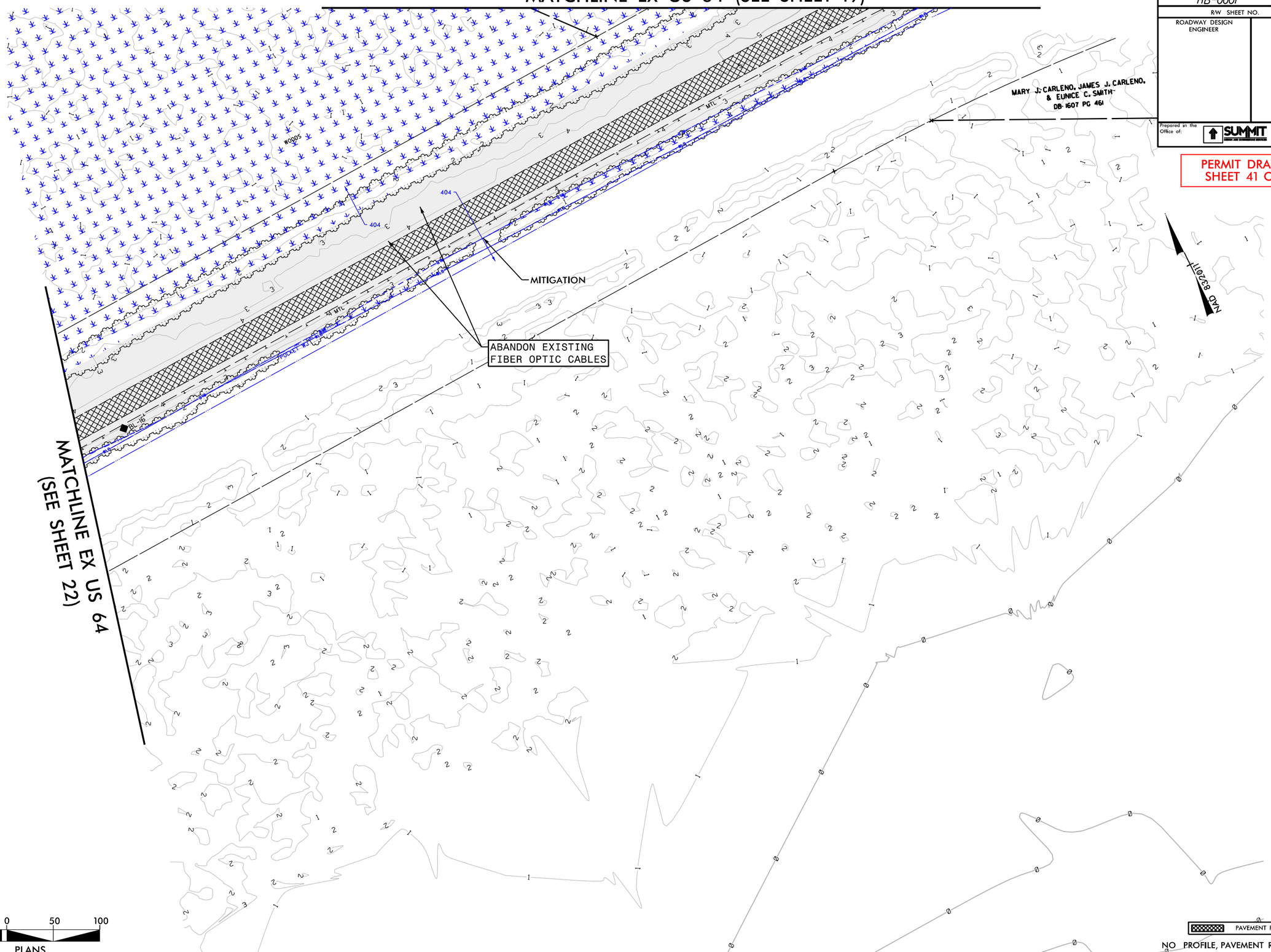
pattuck.hugh.pen

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	23
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 41 OF 79



50 25 0 50 100
PLANS

NO PROFILE, PAVEMENT REMOVAL ONLY

REVISIONS

8/17/99

28-DEC-2023 12:56
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pdeluck, bhughes

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

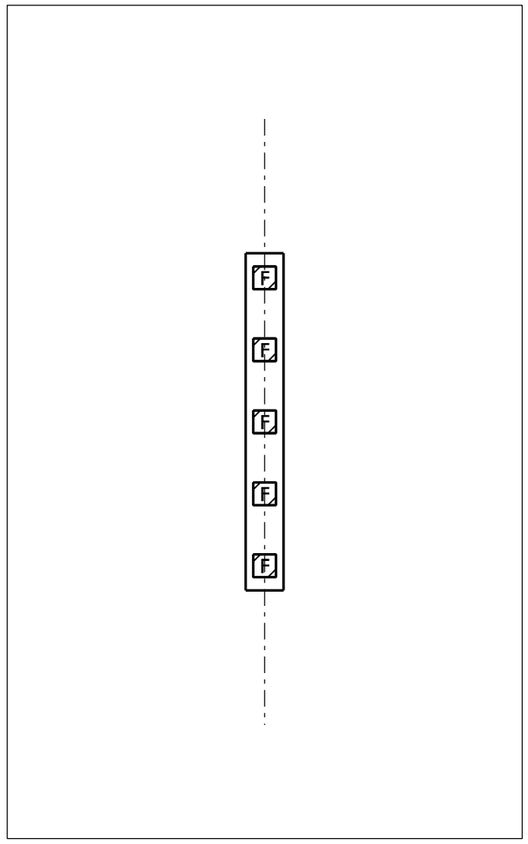
Prepared in the Office of: SUMMIT DESIGN AND ENGINEERING SERVICES
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

PERMIT DRAWING
SHEET 42 OF 79

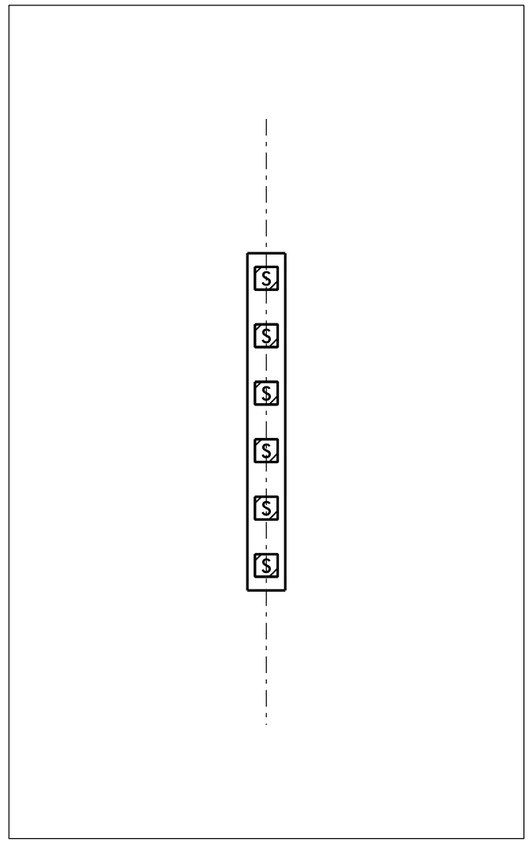
BENT TYPICAL IMPACTS

F/F FILL IN WETLAND

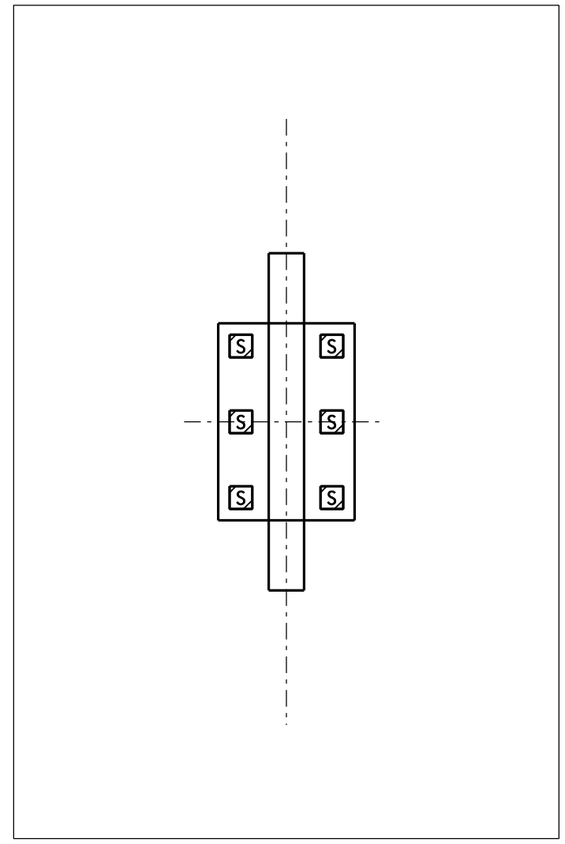
S/S SURFACE WATER IMPACTS



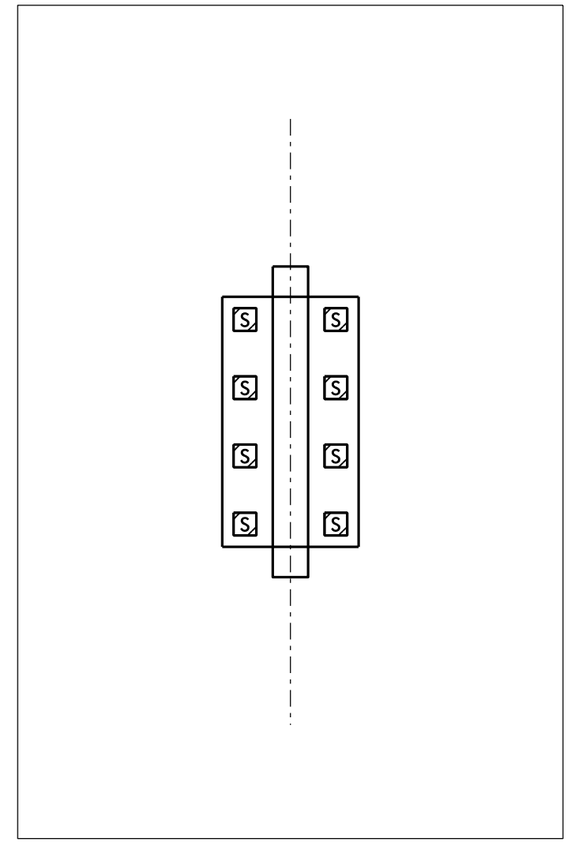
BENTS 1–3, 133–134
44′–6″ x 5′–0″
36″ PRESTRESSED CONCRETE PILE



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

28-DEC-2023 12:56
HB0001_Hydraulics_TYP_psh_42.dgn
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PROJECT REFERENCE NO.	SHEET NO.
HB-0001	
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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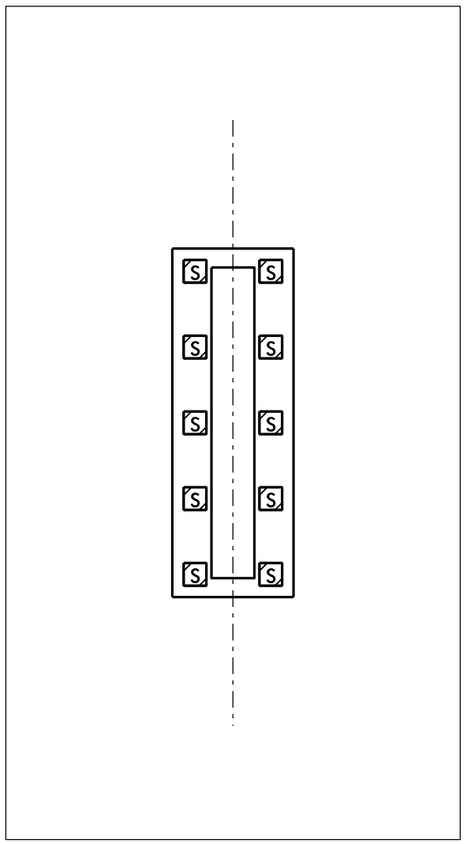
Hillsborough, NC 27278
(919) 732-3883
(919) 732-6676 (FAX)

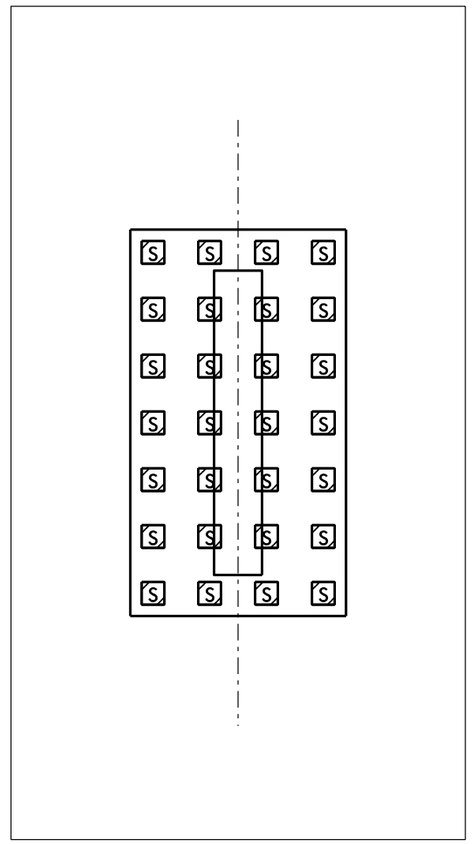
PERMIT DRAWING
SHEET 43 OF 79

BENT TYPICAL IMPACTS

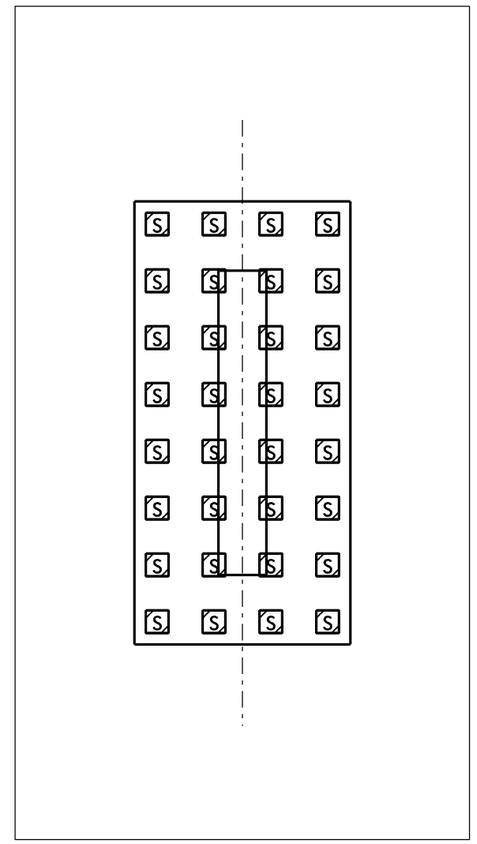
S S SURFACE WATER IMPACTS



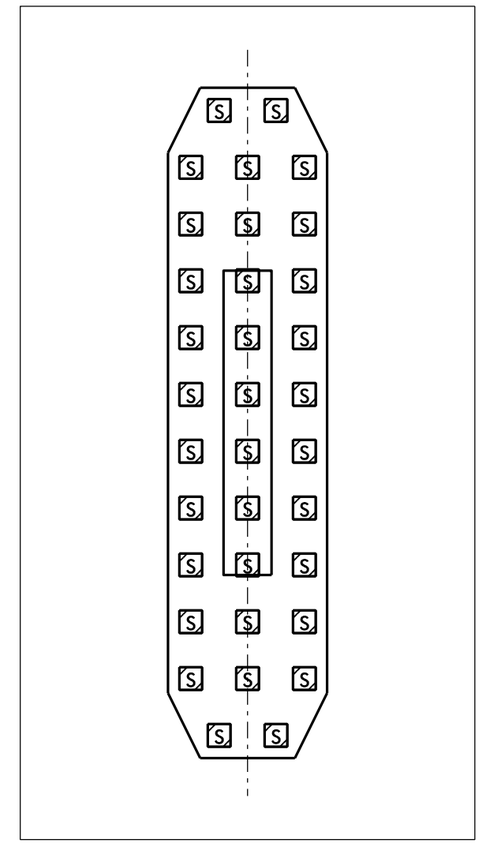
BENTS 44–46, 55–57
46′–0″ x 16′–0″
36″ PRESTRESSED CONCRETE PILE



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

28-DEC-2023 12:56
HB0001_TYP_psh_43.dgn
pbrock.bentley

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

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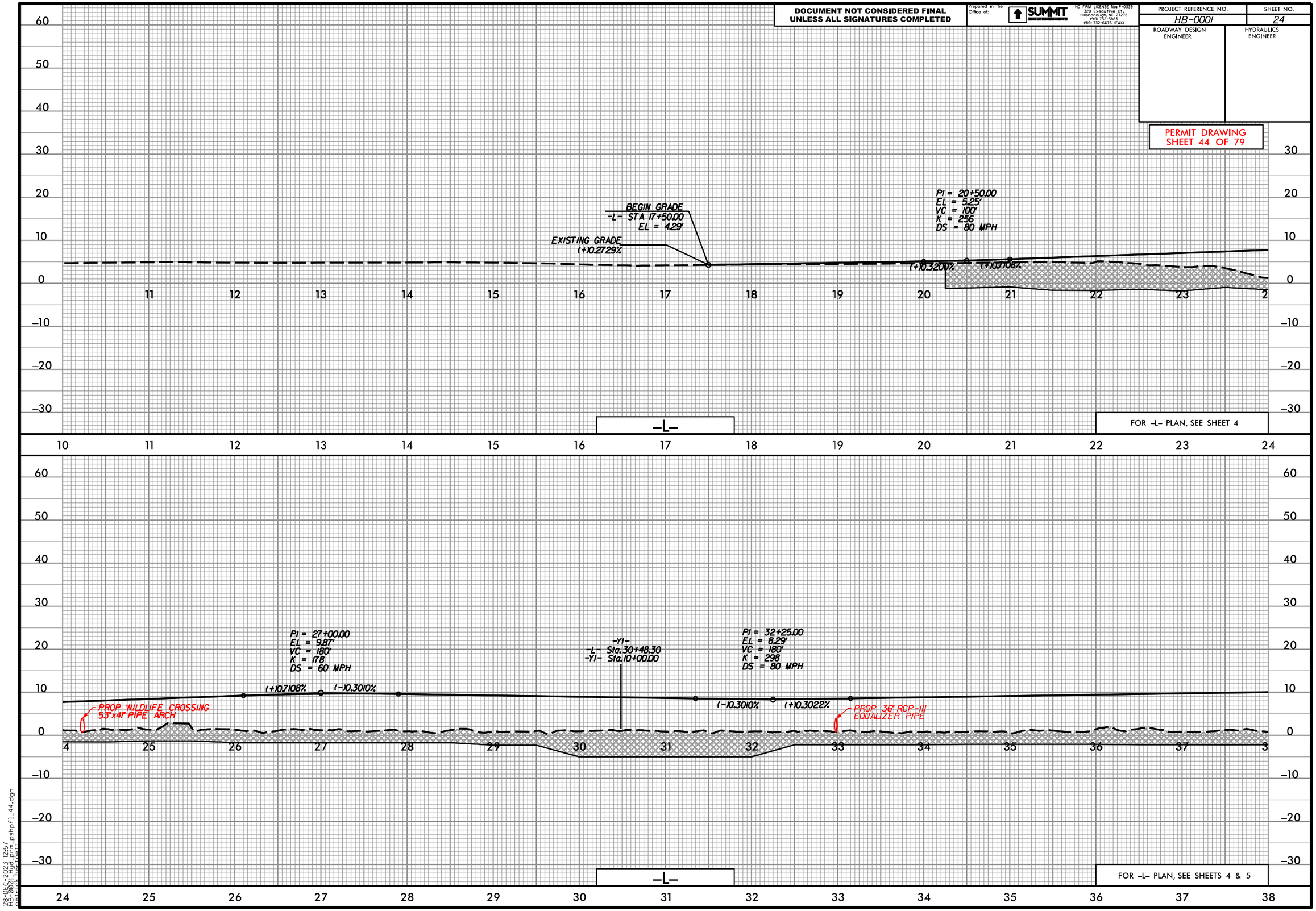
(919) 732-6676 (FAX)

PROJECT REFERENCE NO.	SHEET NO.
HB-0001	24

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 44 OF 79



28-DEC-2023 12:57
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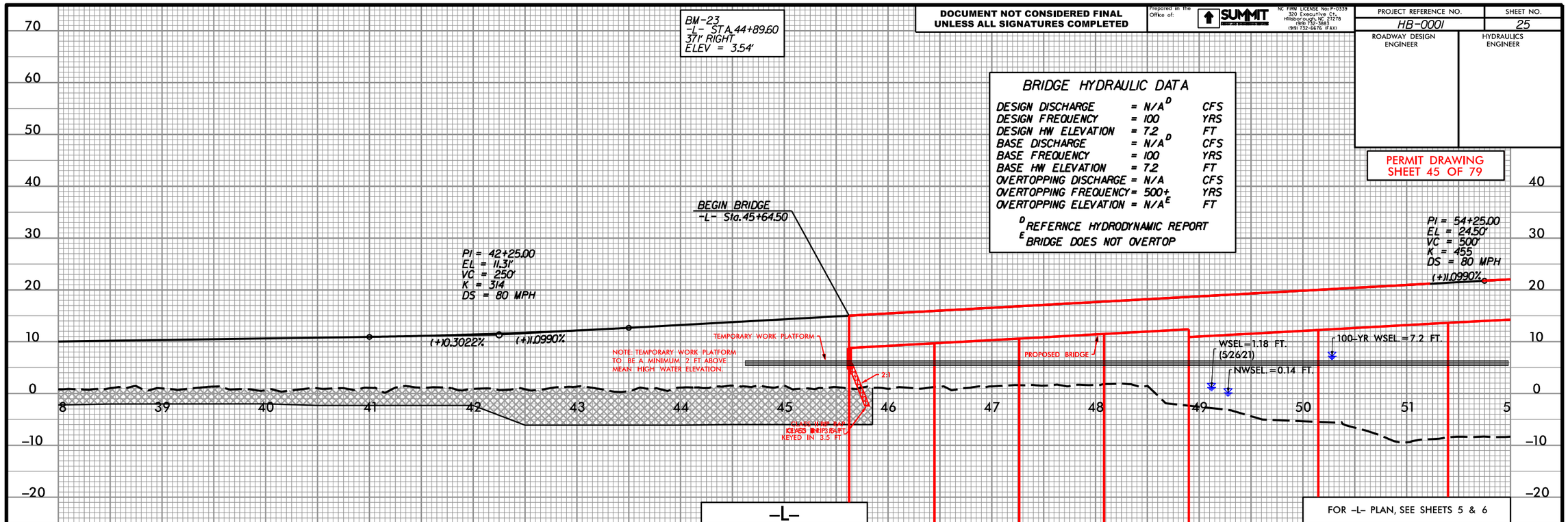
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	25

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 45 OF 79

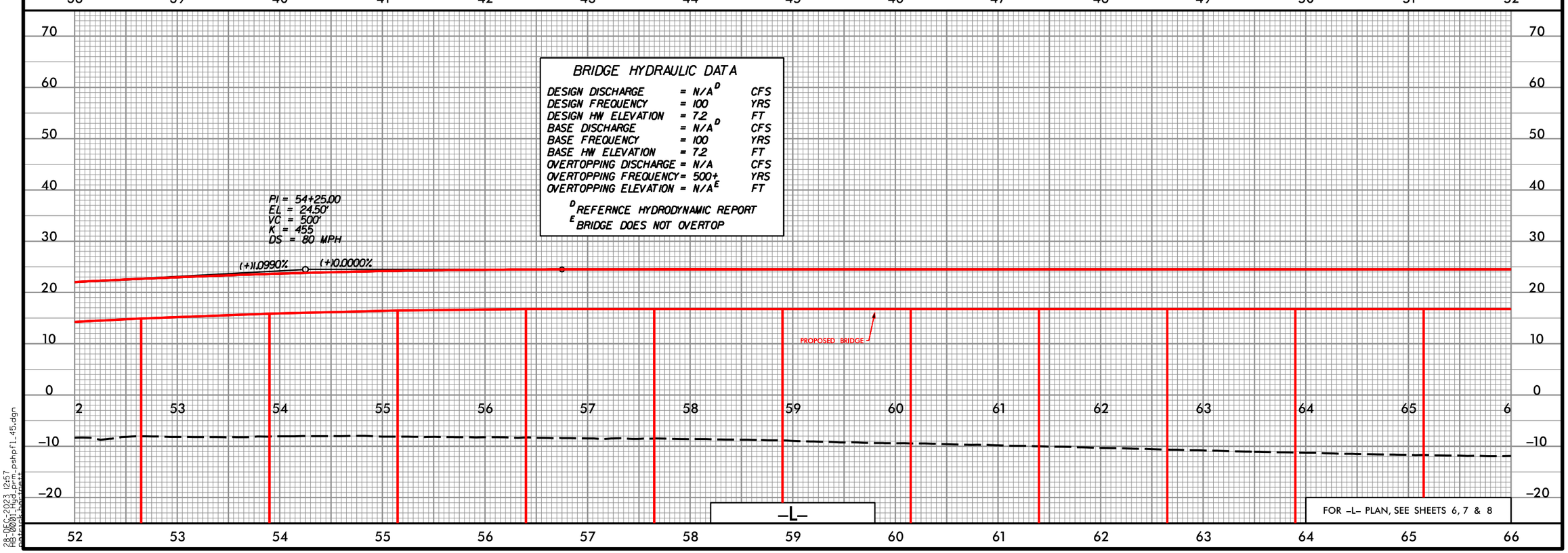


BRIDGE HYDRAULIC DATA

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 5 & 6



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 6, 7 & 8

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PROJECT REFERENCE NO.	SHEET NO.
HB-0001	26

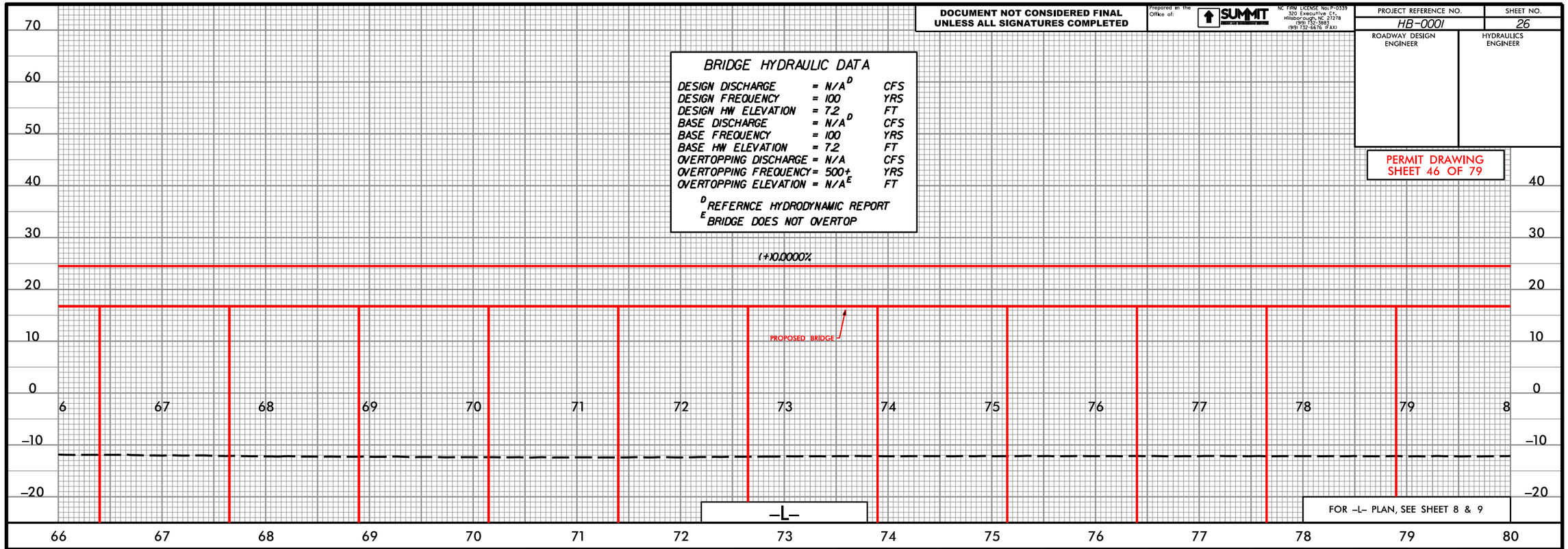
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 46 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

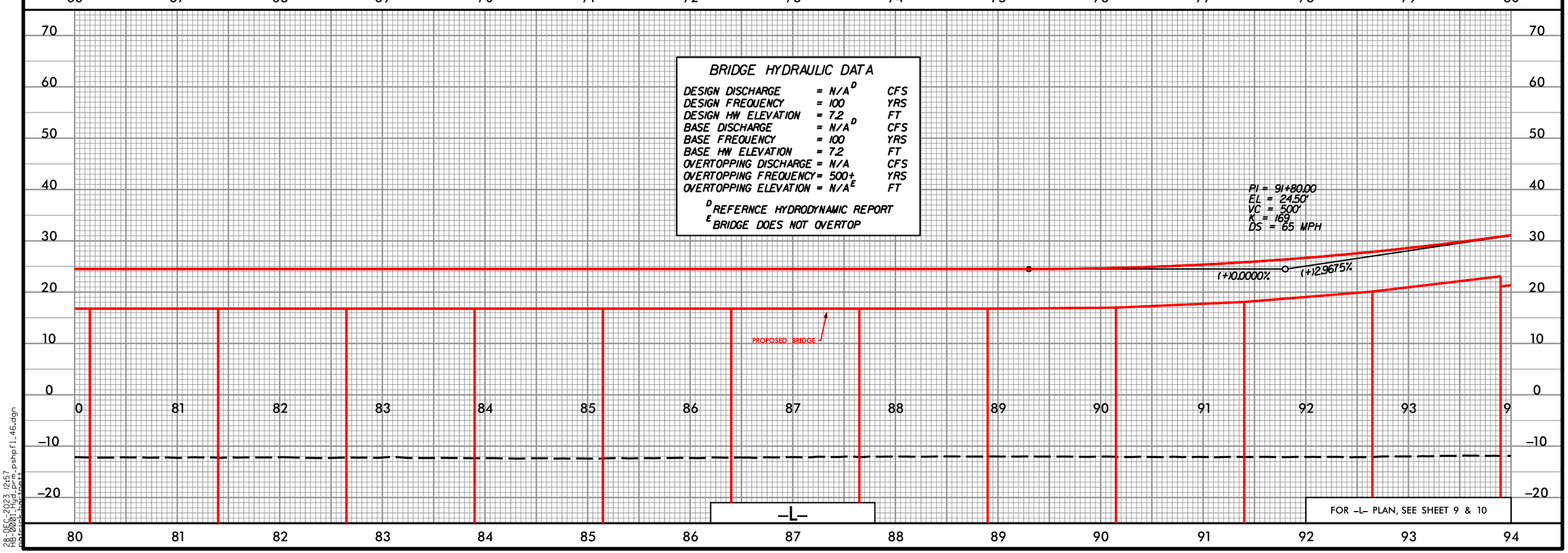
[D] REFERNCE HYDRODYNAMIC REPORT
[E] BRIDGE DOES NOT OVERTOP



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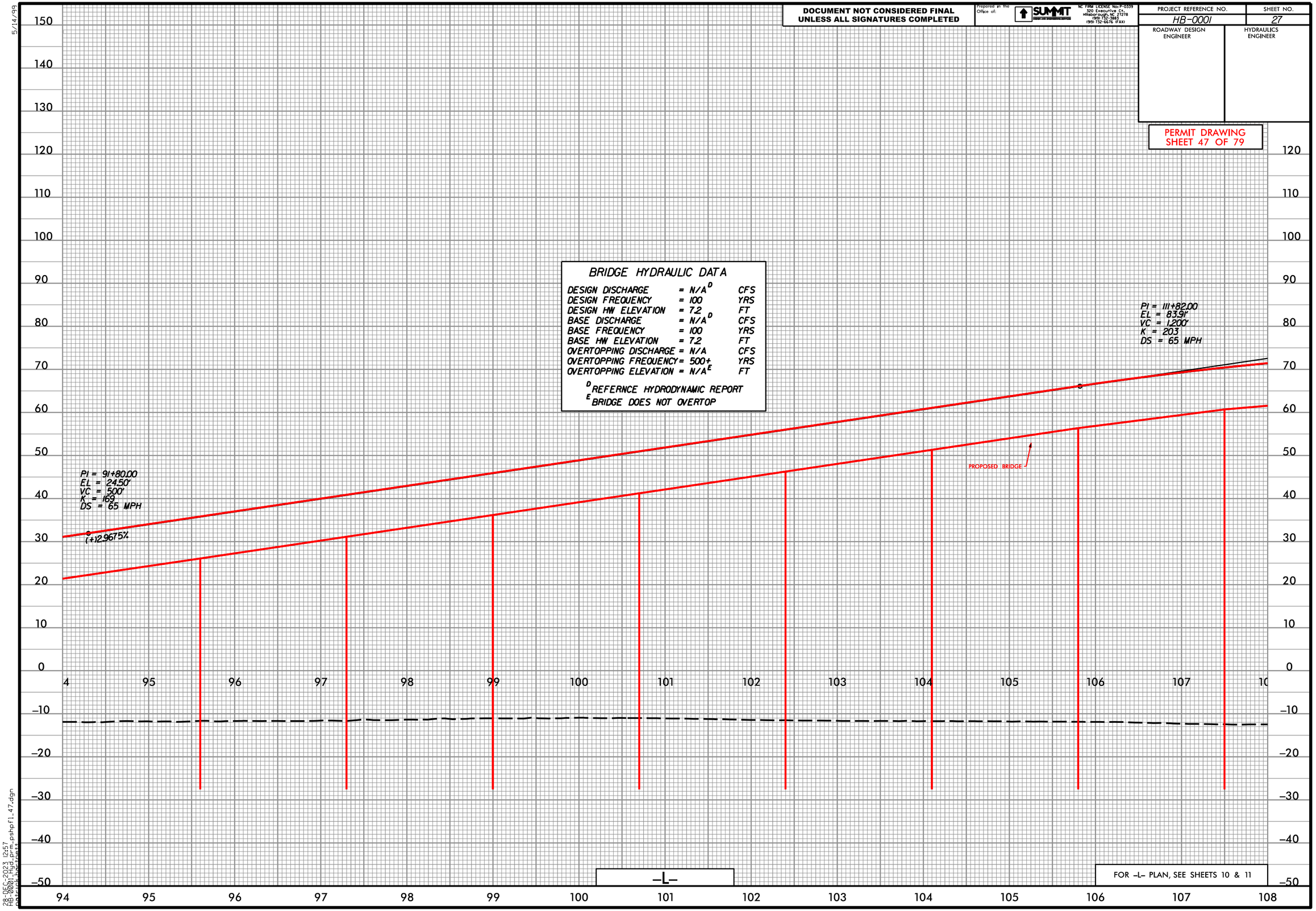
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 47 OF 79



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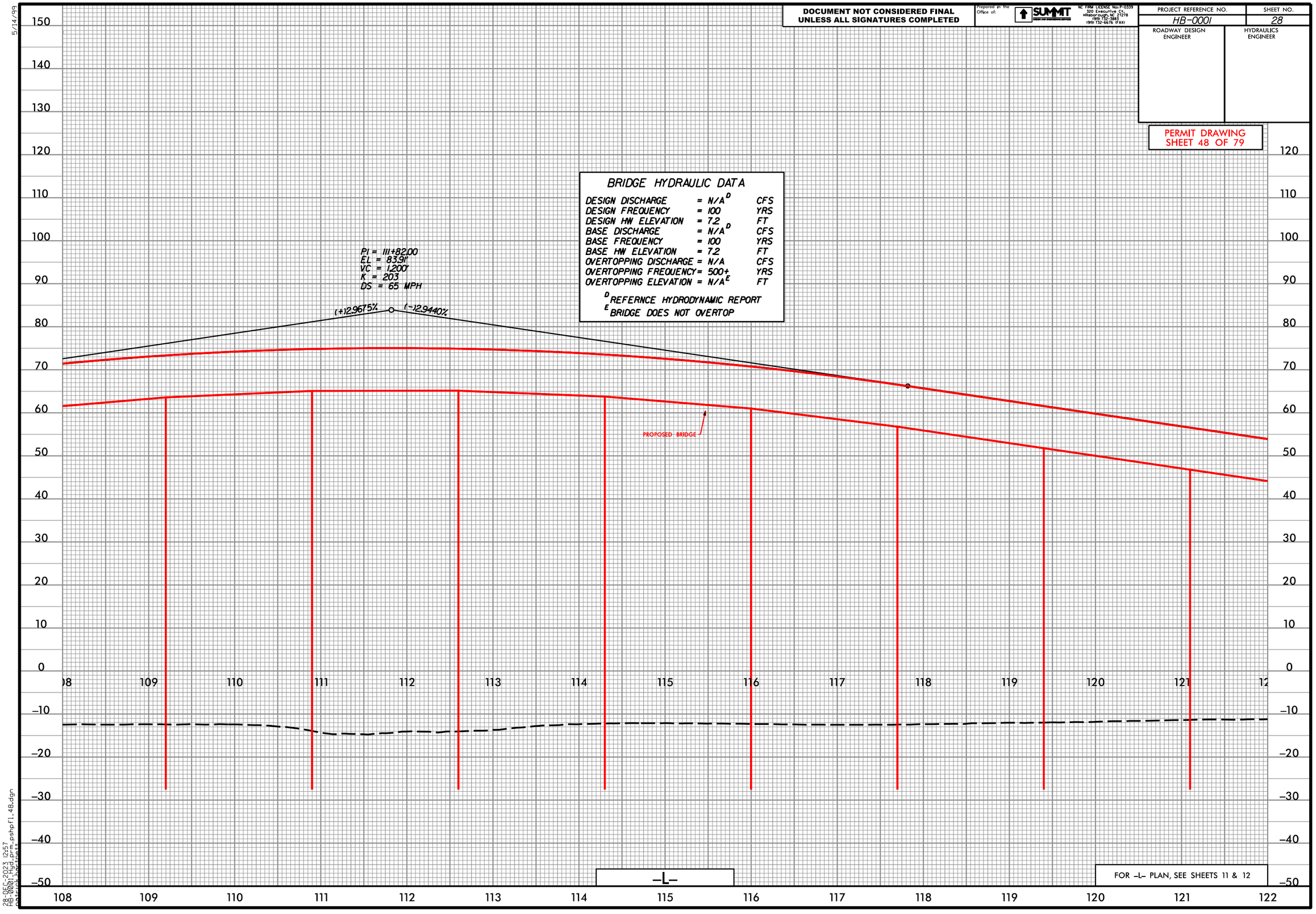
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	28

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 48 OF 79



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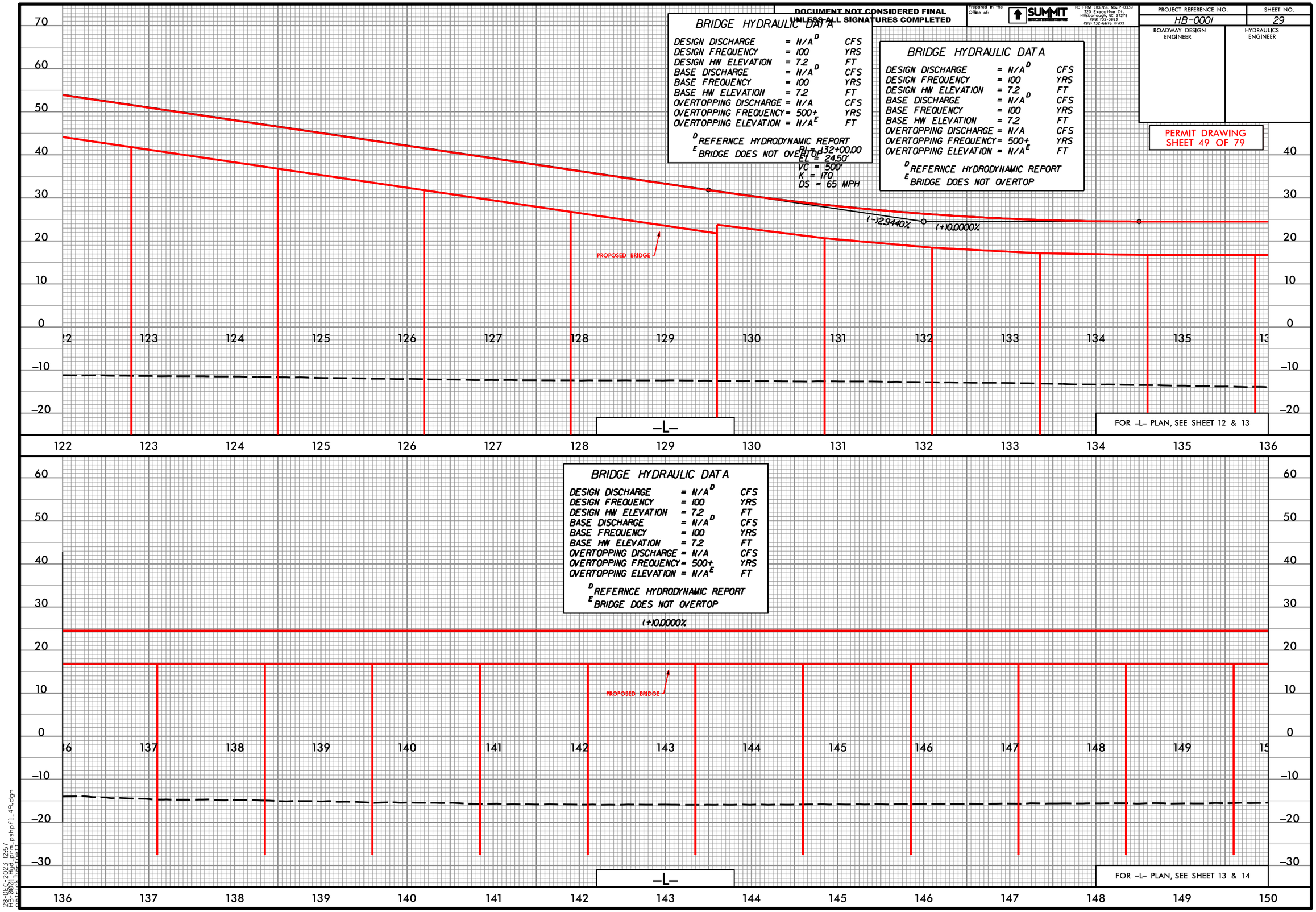
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 49 OF 79



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PROJECT REFERENCE NO.	SHEET NO.
HB-0001	30

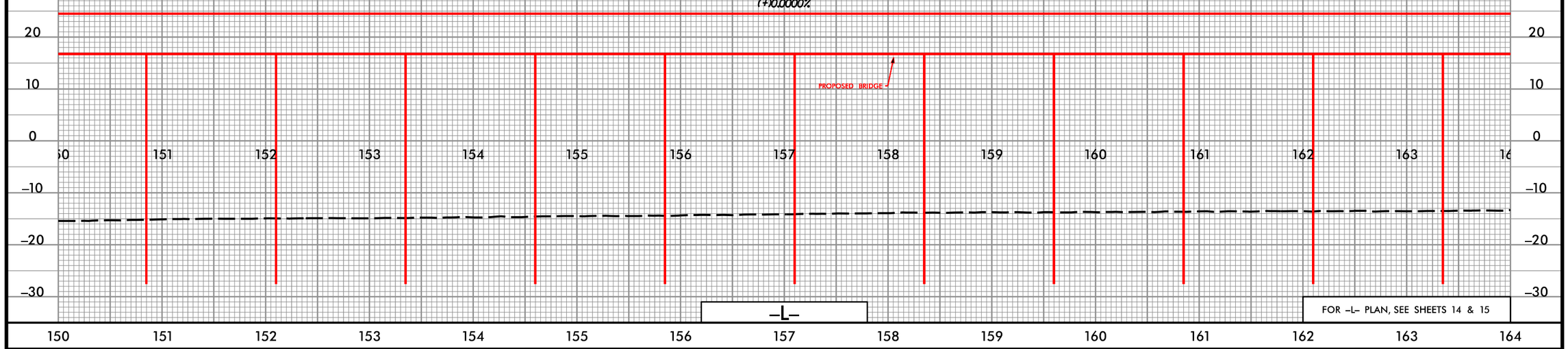
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

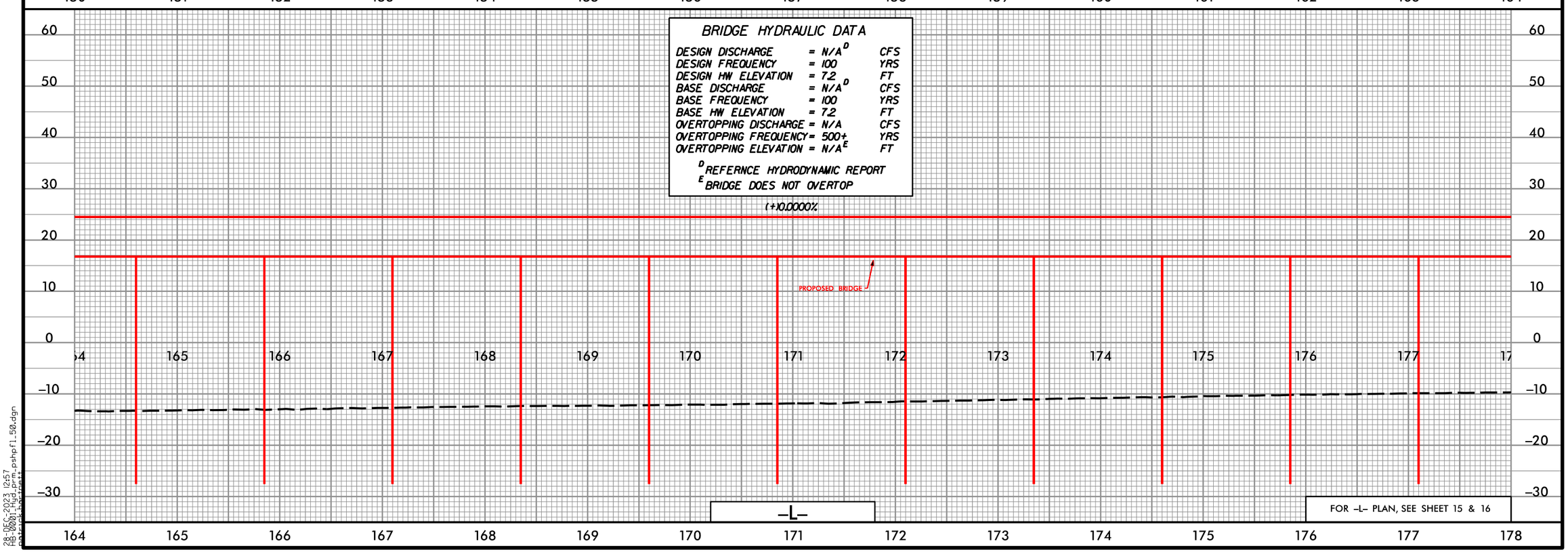


FOR –L– PLAN, SEE SHEETS 14 & 15

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

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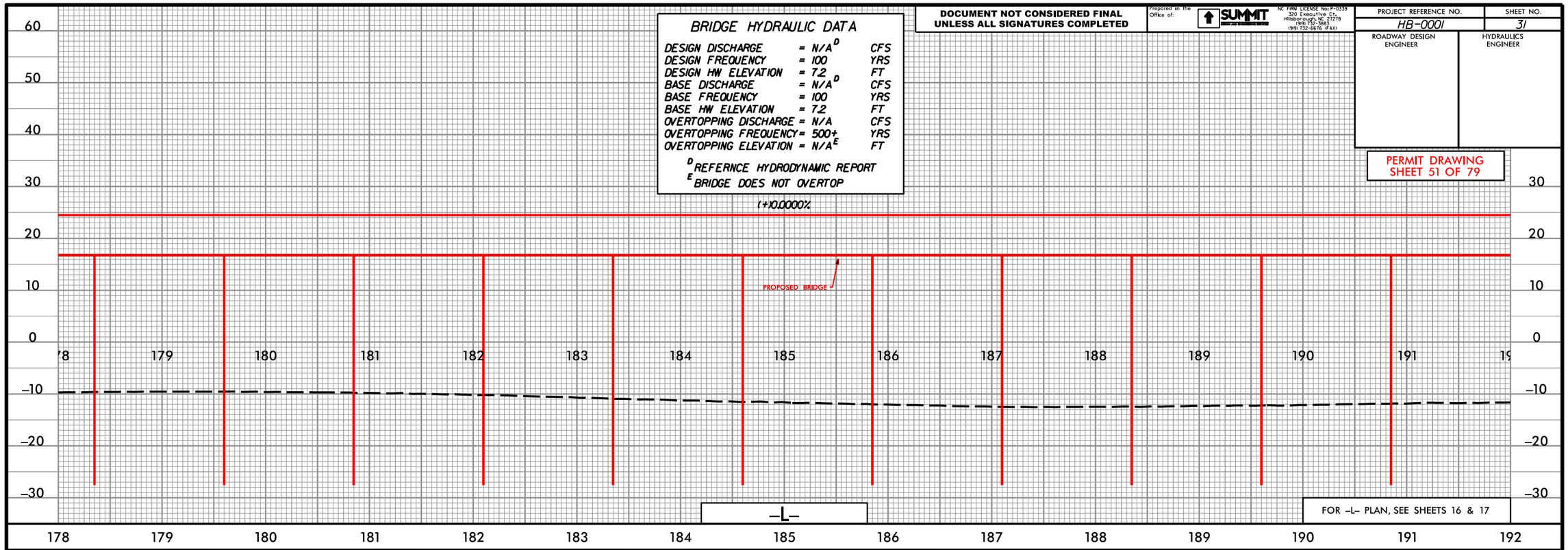
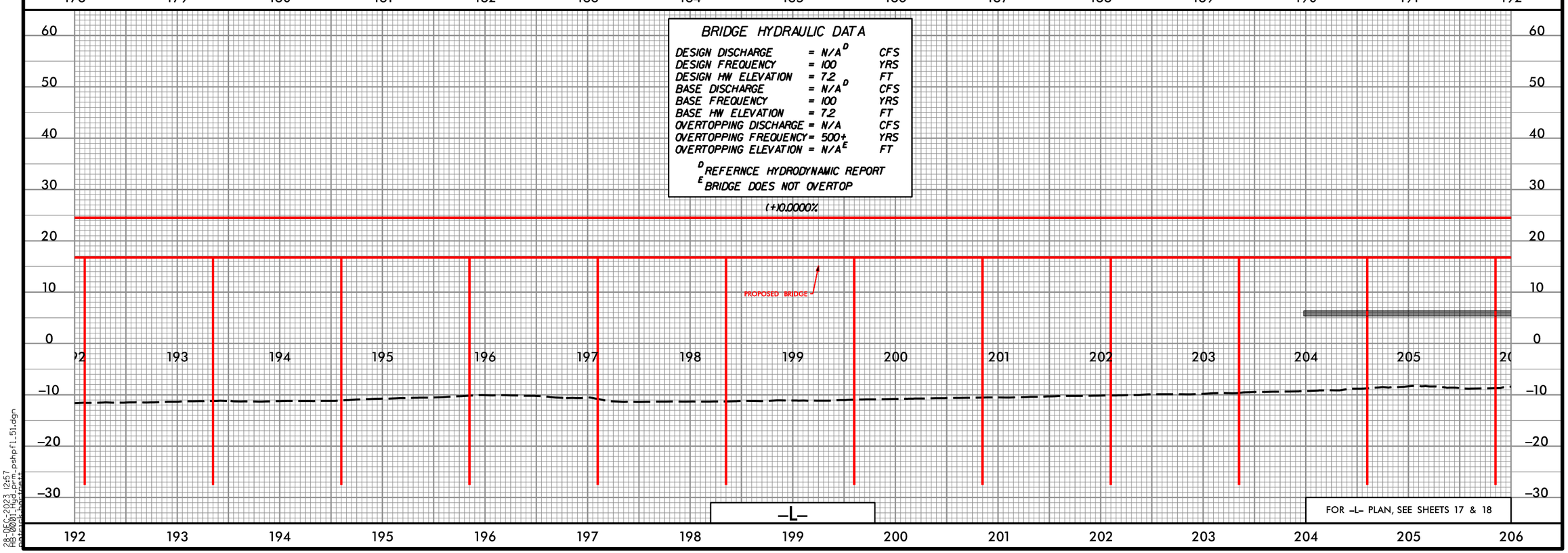
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	31

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 51 OF 79





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PROJECT REFERENCE NO.	SHEET NO.
HB-0001	32

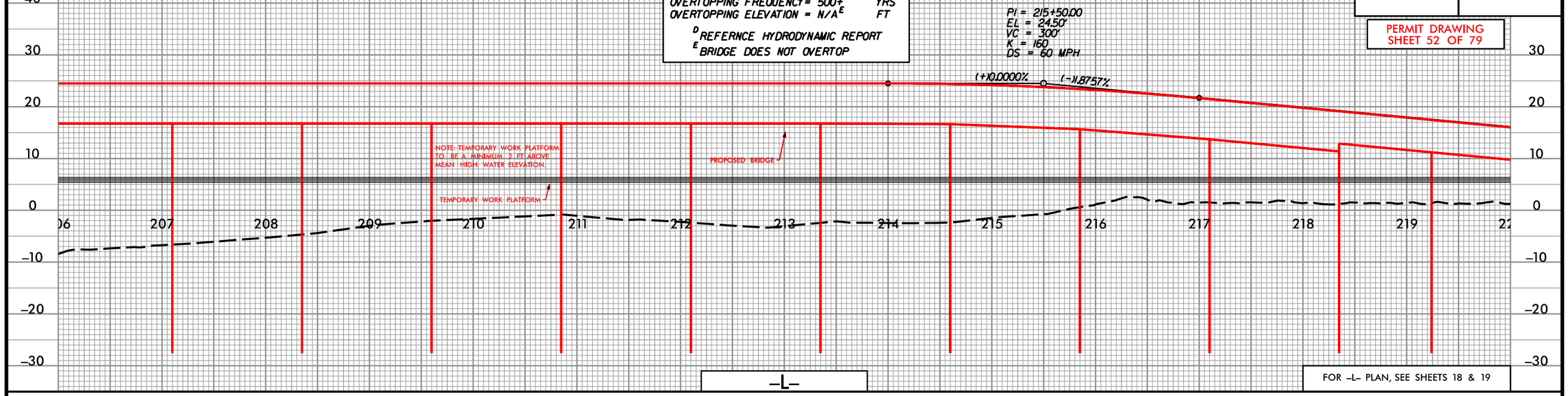
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

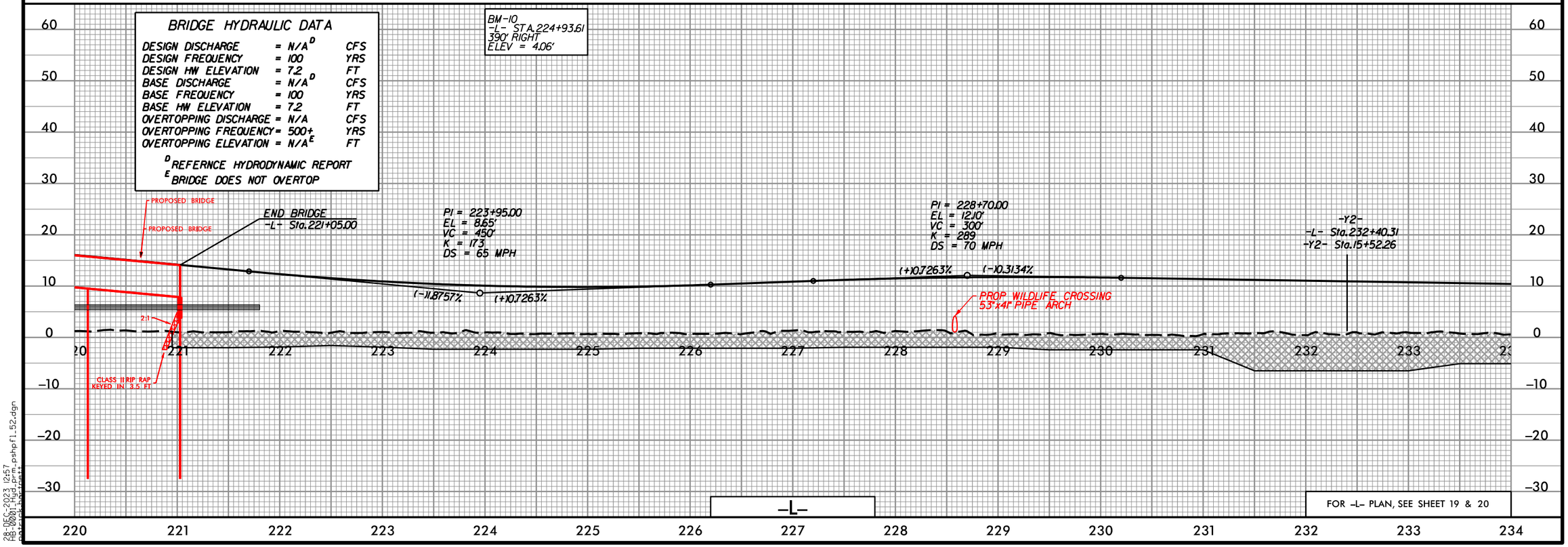
[D] REFERNCE HYDRODYNAMIC REPORT
[E] BRIDGE DOES NOT OVERTOP



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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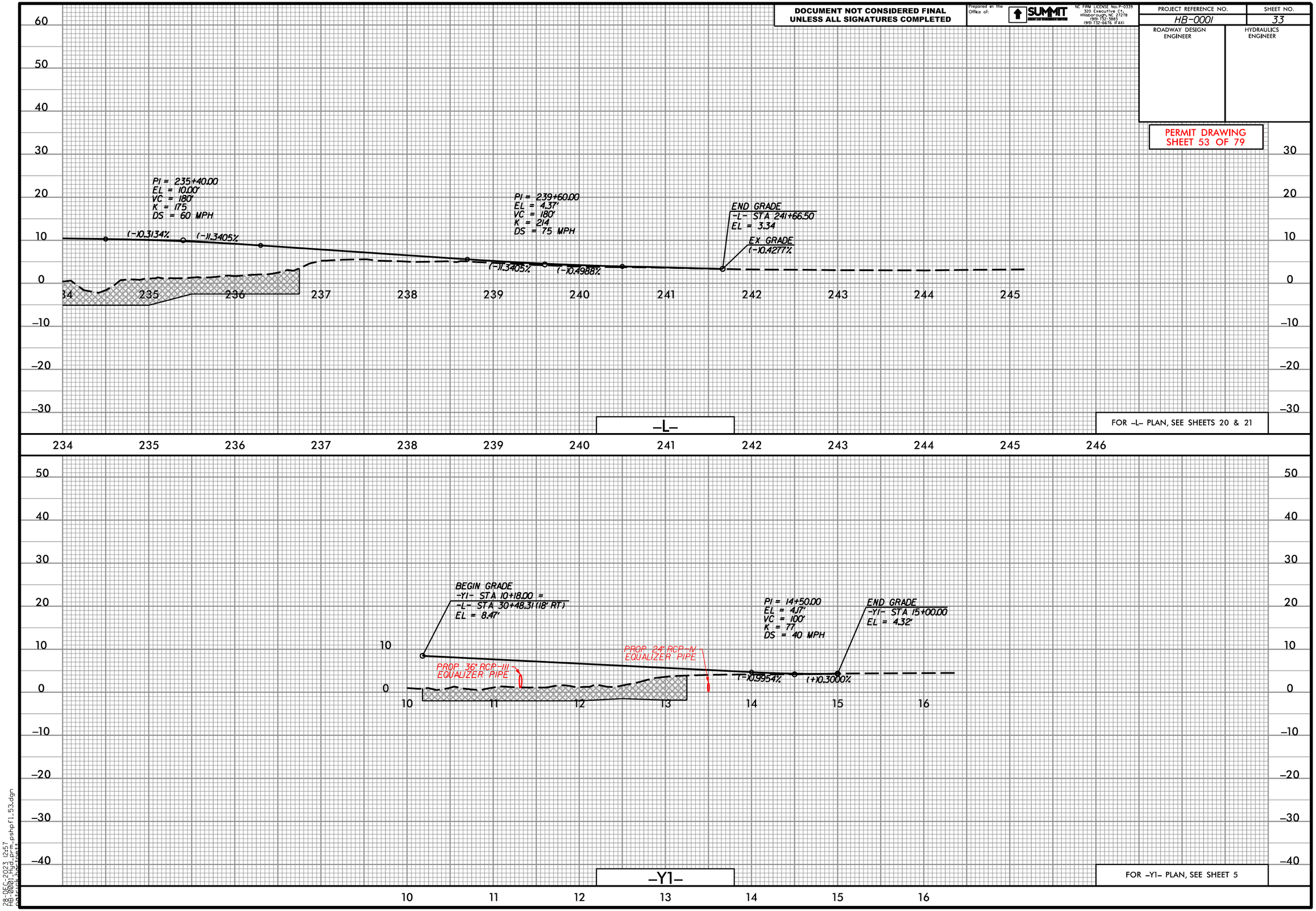
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	33

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 53 OF 79



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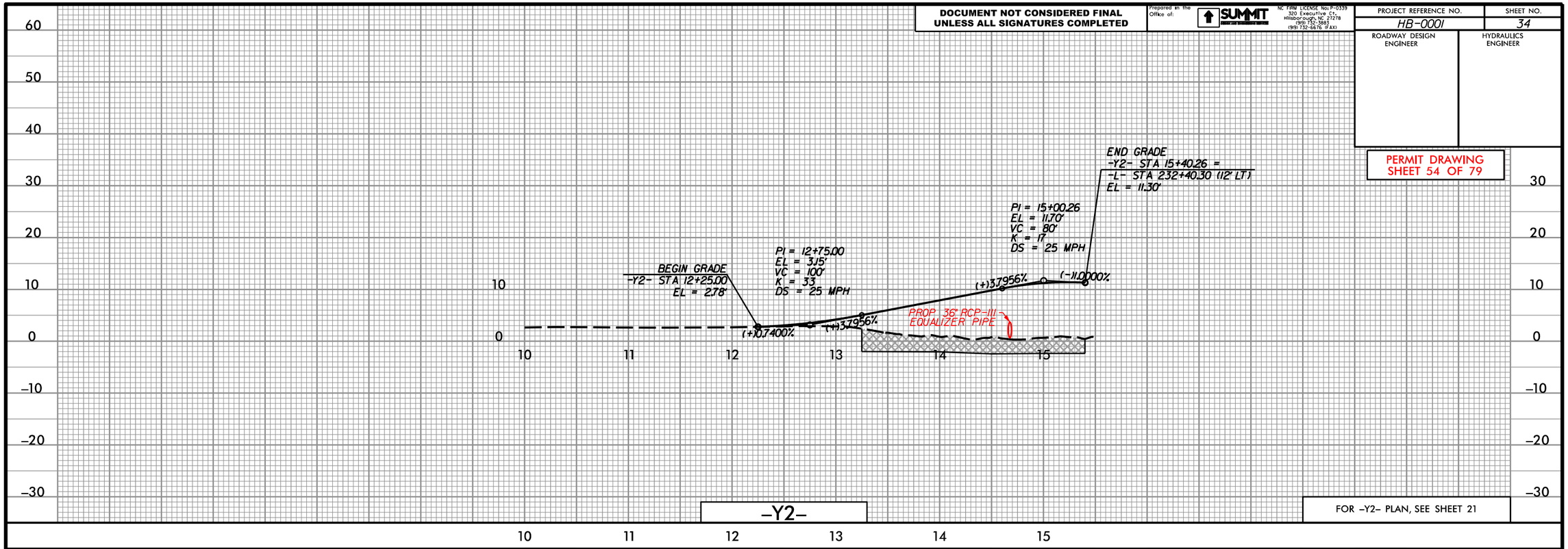
PROJECT REFERENCE NO.	SHEET NO.
HB-0001	34

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 54 OF 79



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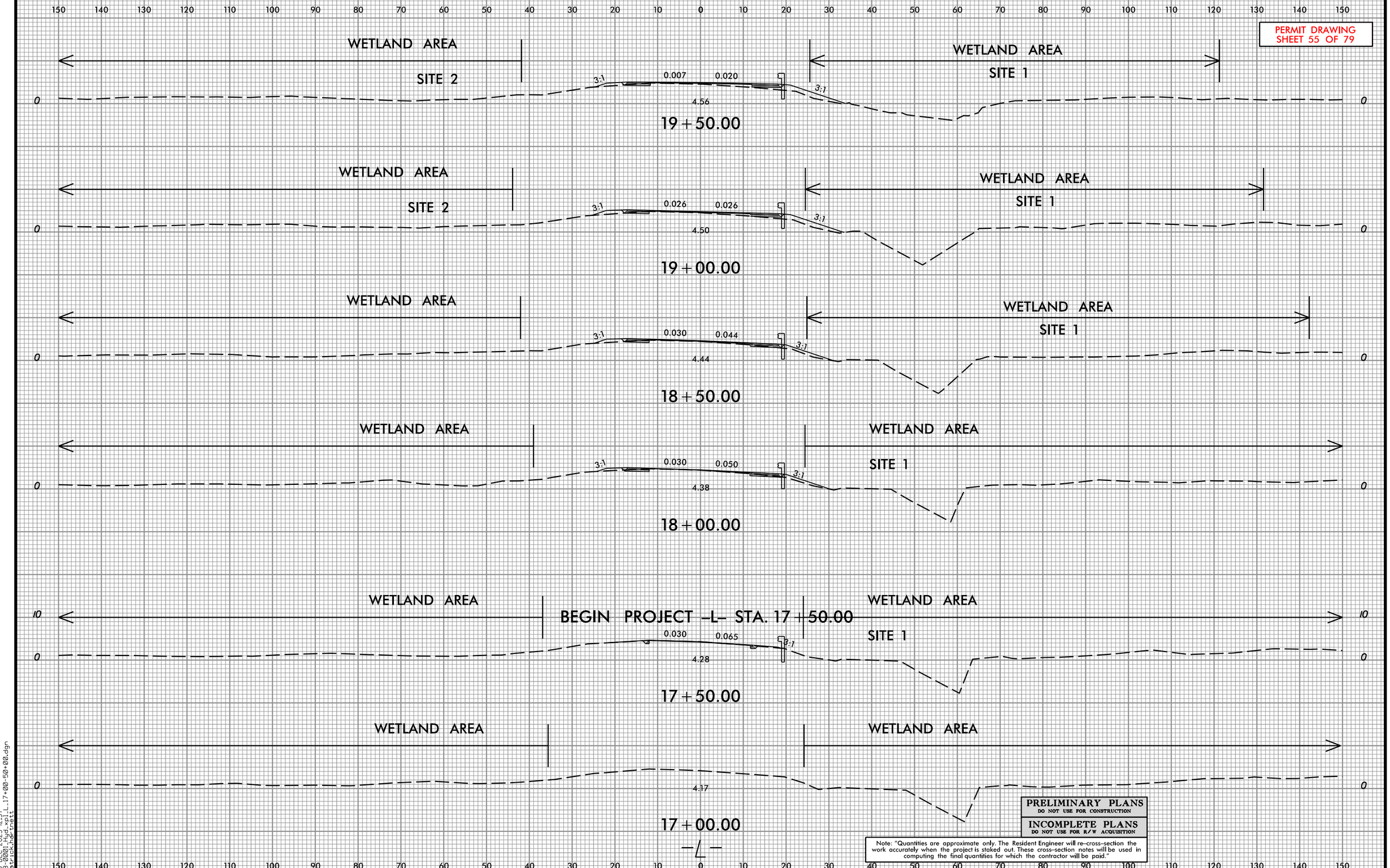
0 5 10

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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patrick.harrell

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

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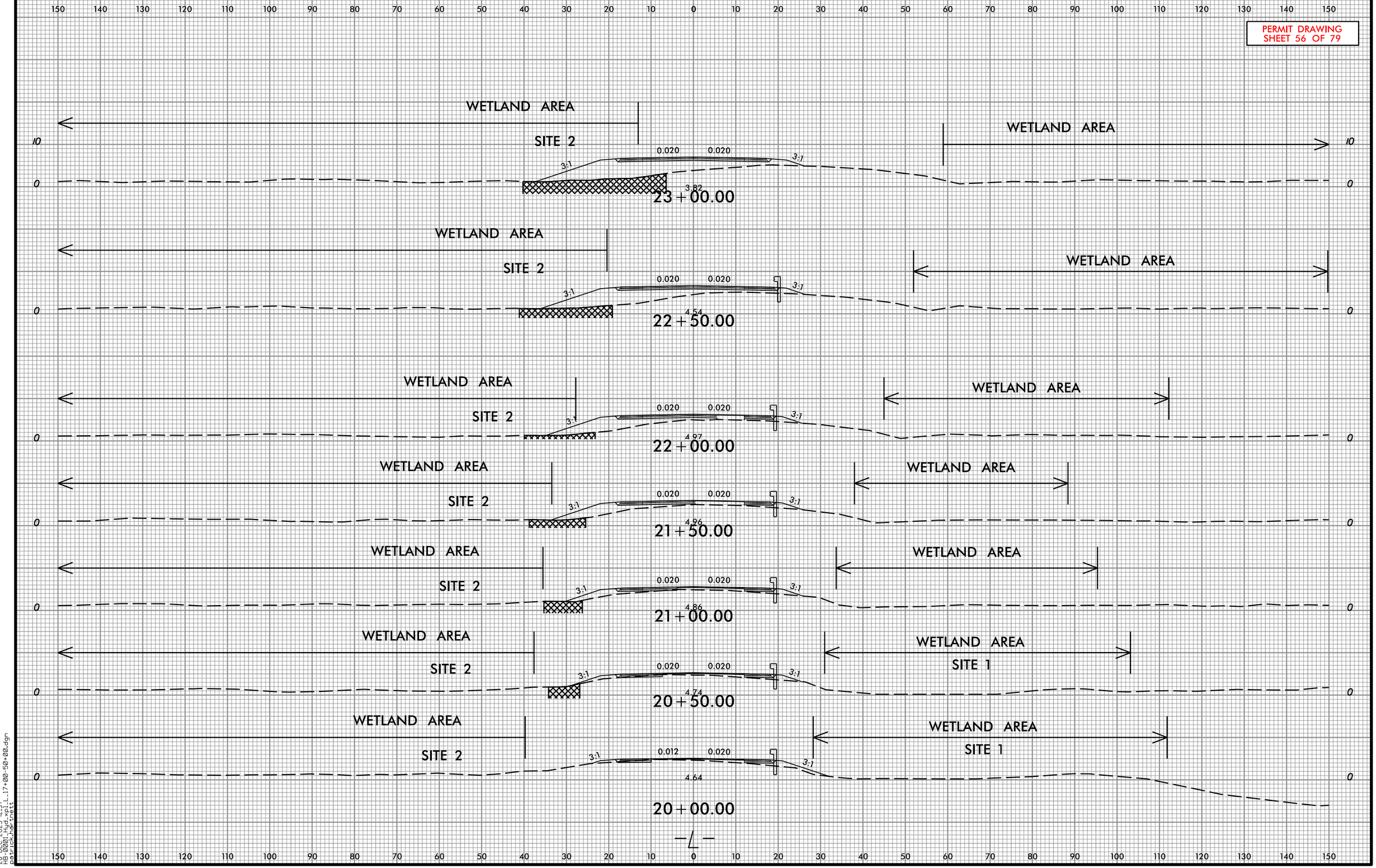
SHEET 56 OF 79



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patrick.hartnett

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

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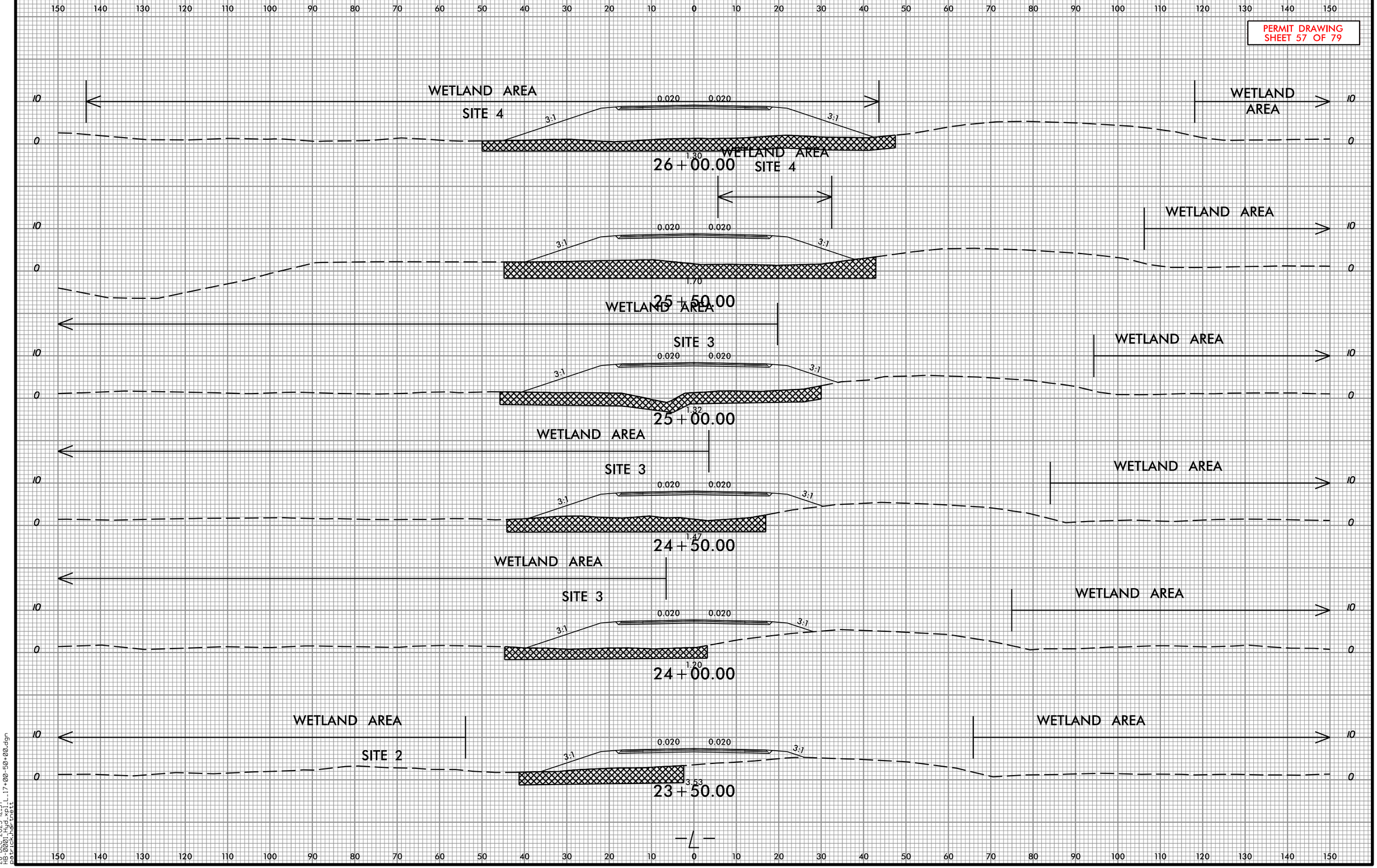
SHEET 57 OF 79



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PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-4

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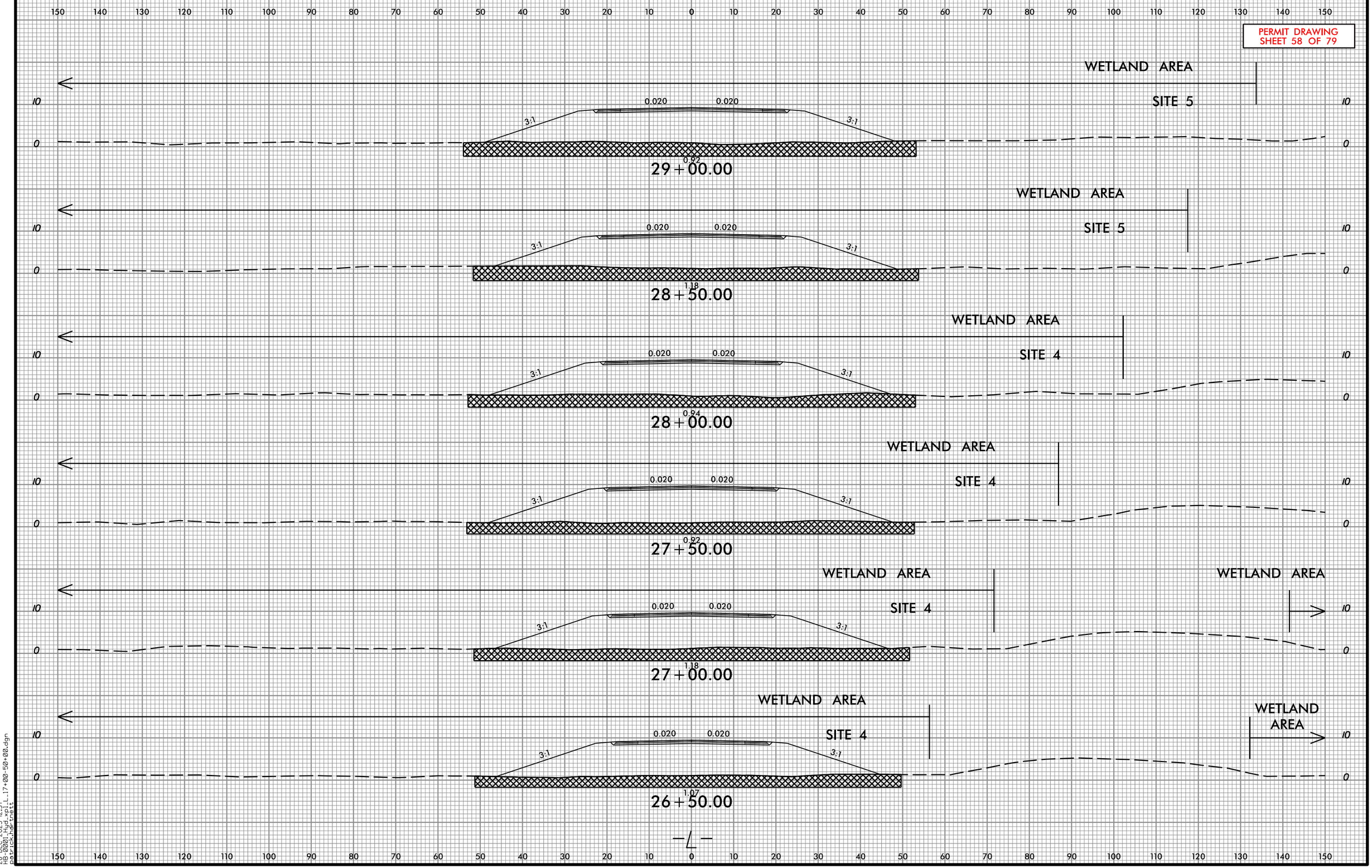
SHEET 58 OF 79



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patrick.hardwick

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

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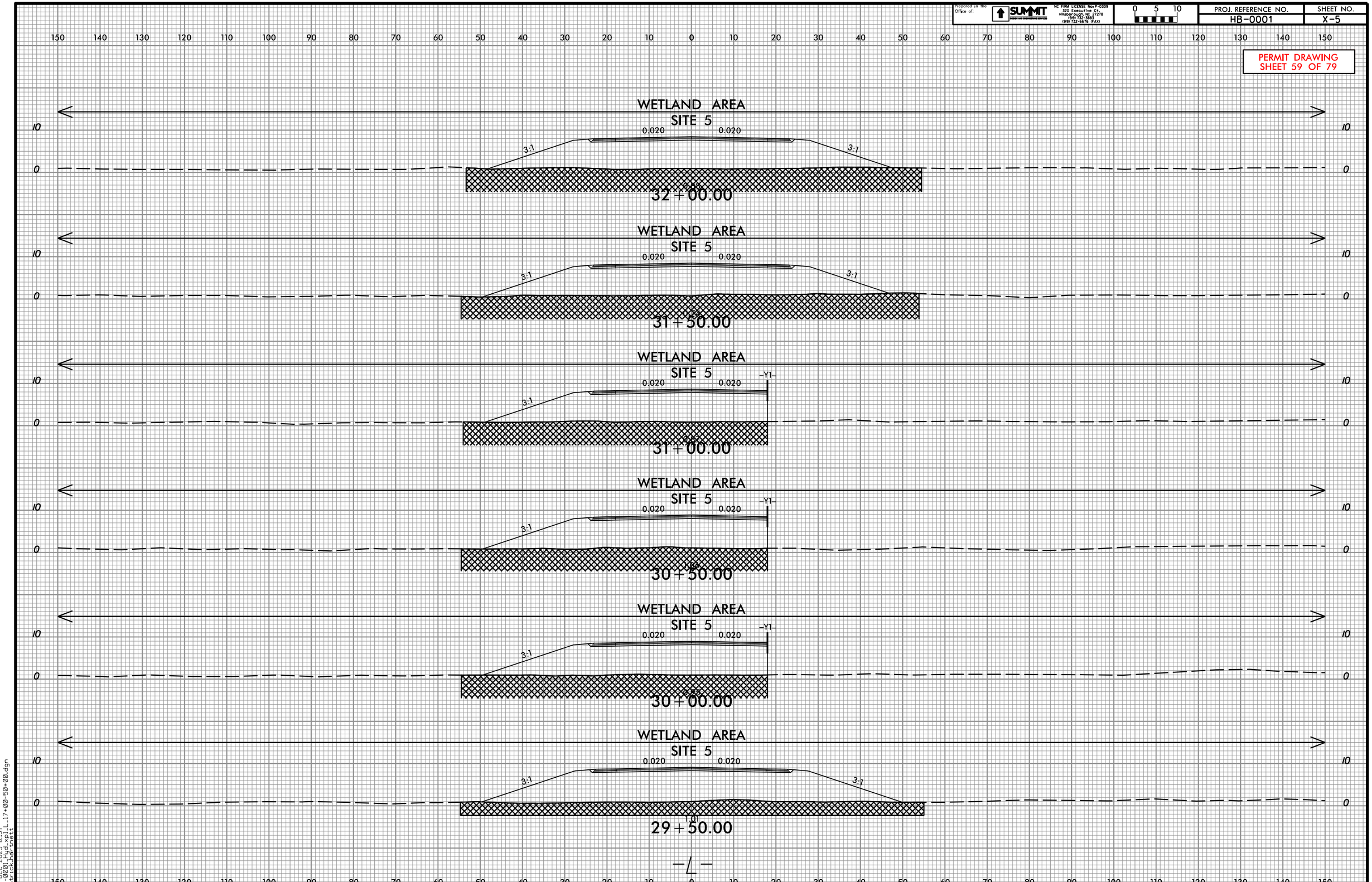
SHEET 59 OF 79



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patrick.harnett

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

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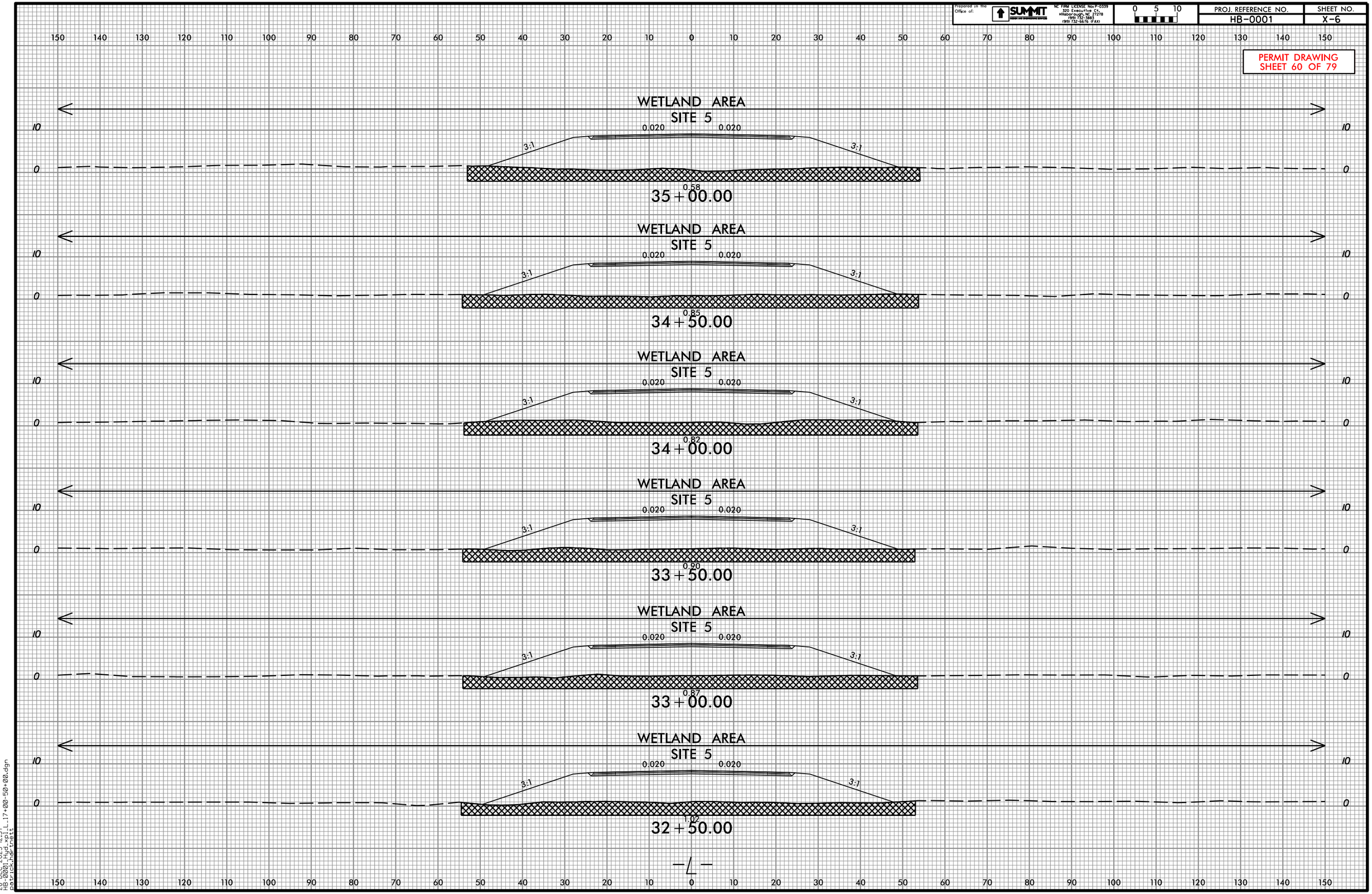
SHEET 60 OF 79



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ostrick.hardcastle

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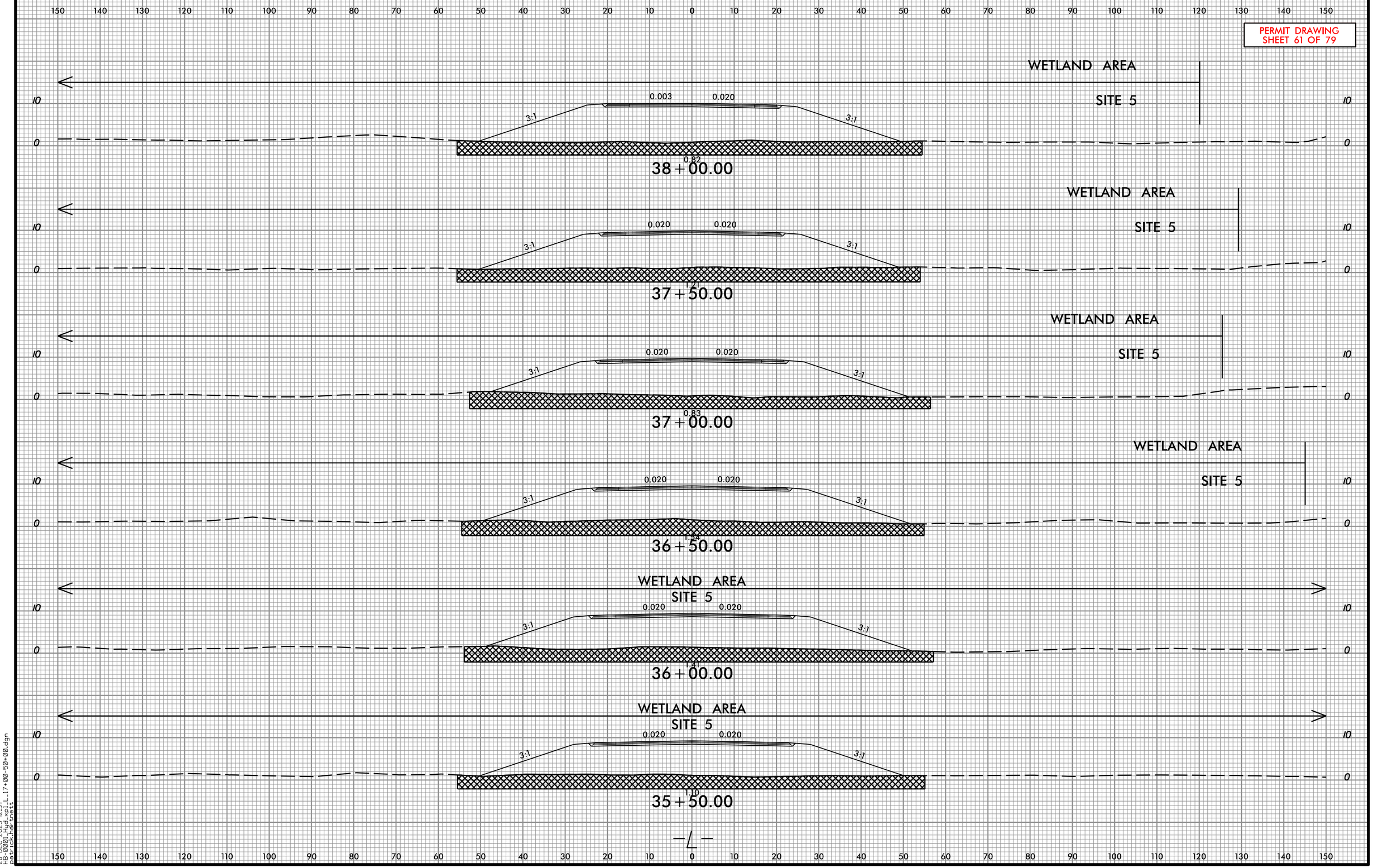
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-7

PERMIT DRAWING
SHEET 61 OF 79



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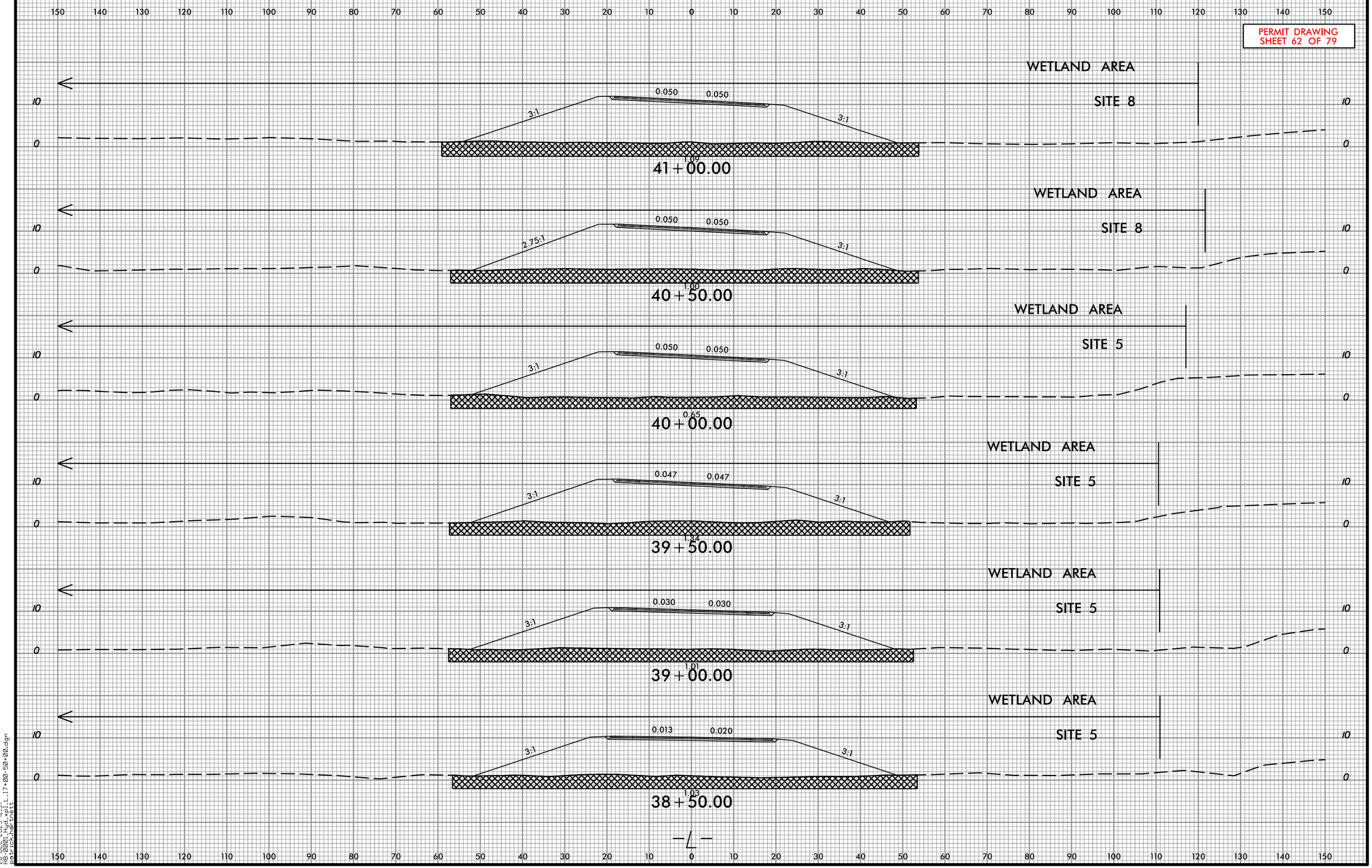
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-8

PERMIT DRAWING
SHEET 62 OF 79



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patrick.hartnett

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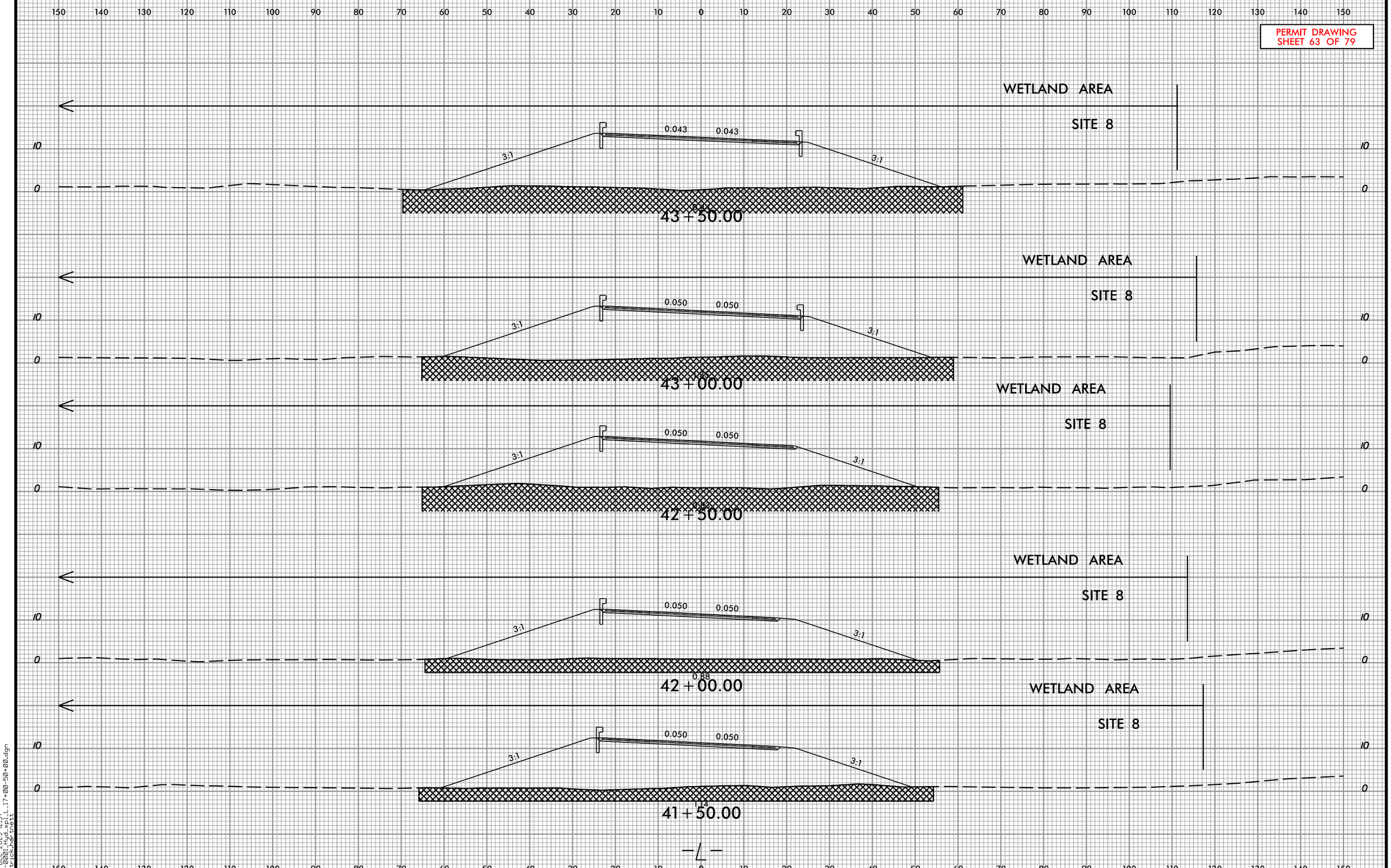
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-9

PERMIT DRAWING
SHEET 63 OF 79



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pbrickhouse

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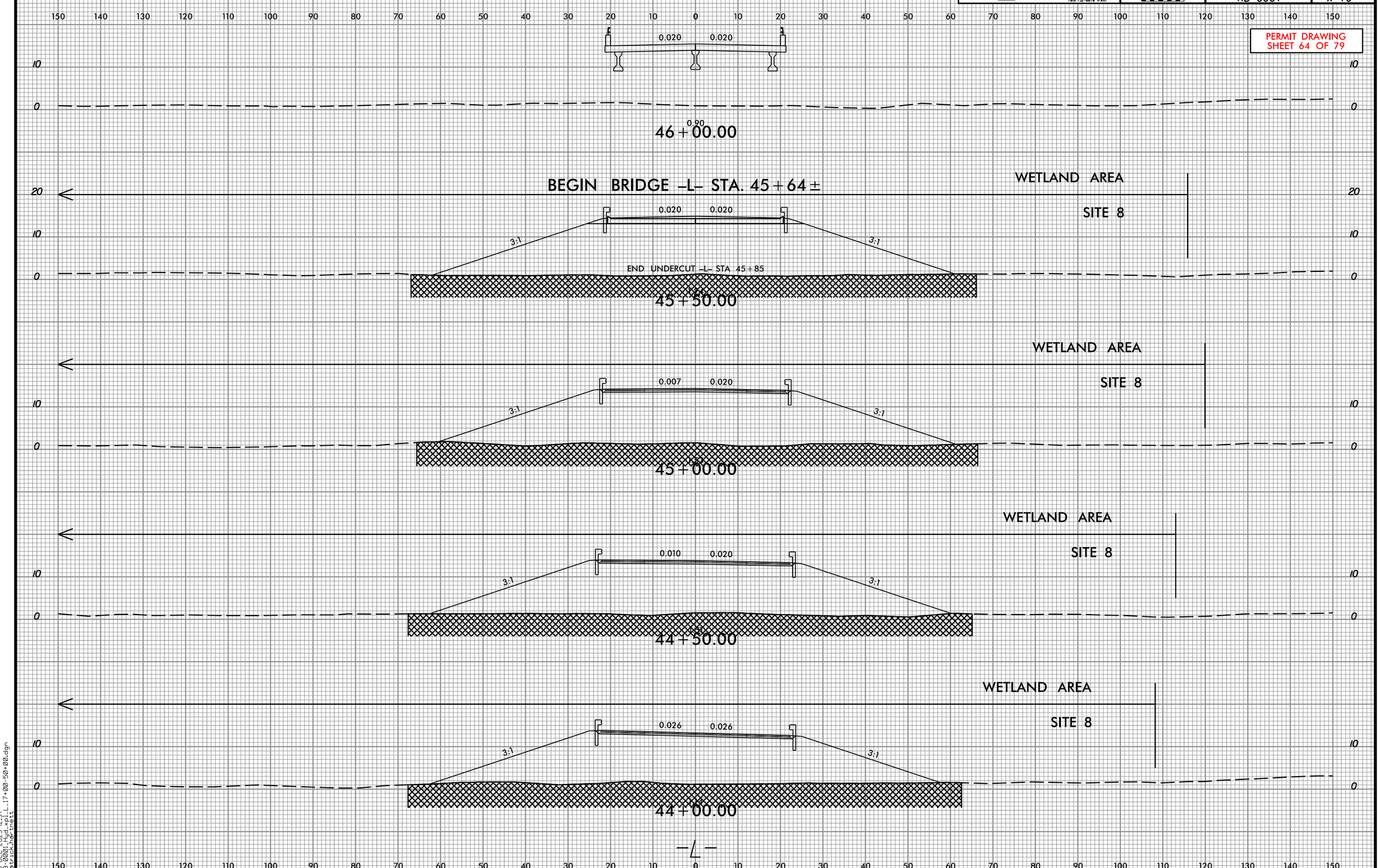
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-10

PERMIT DRAWING
SHEET 64 OF 79



28-DEC-2023 12:57
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patrick.harris

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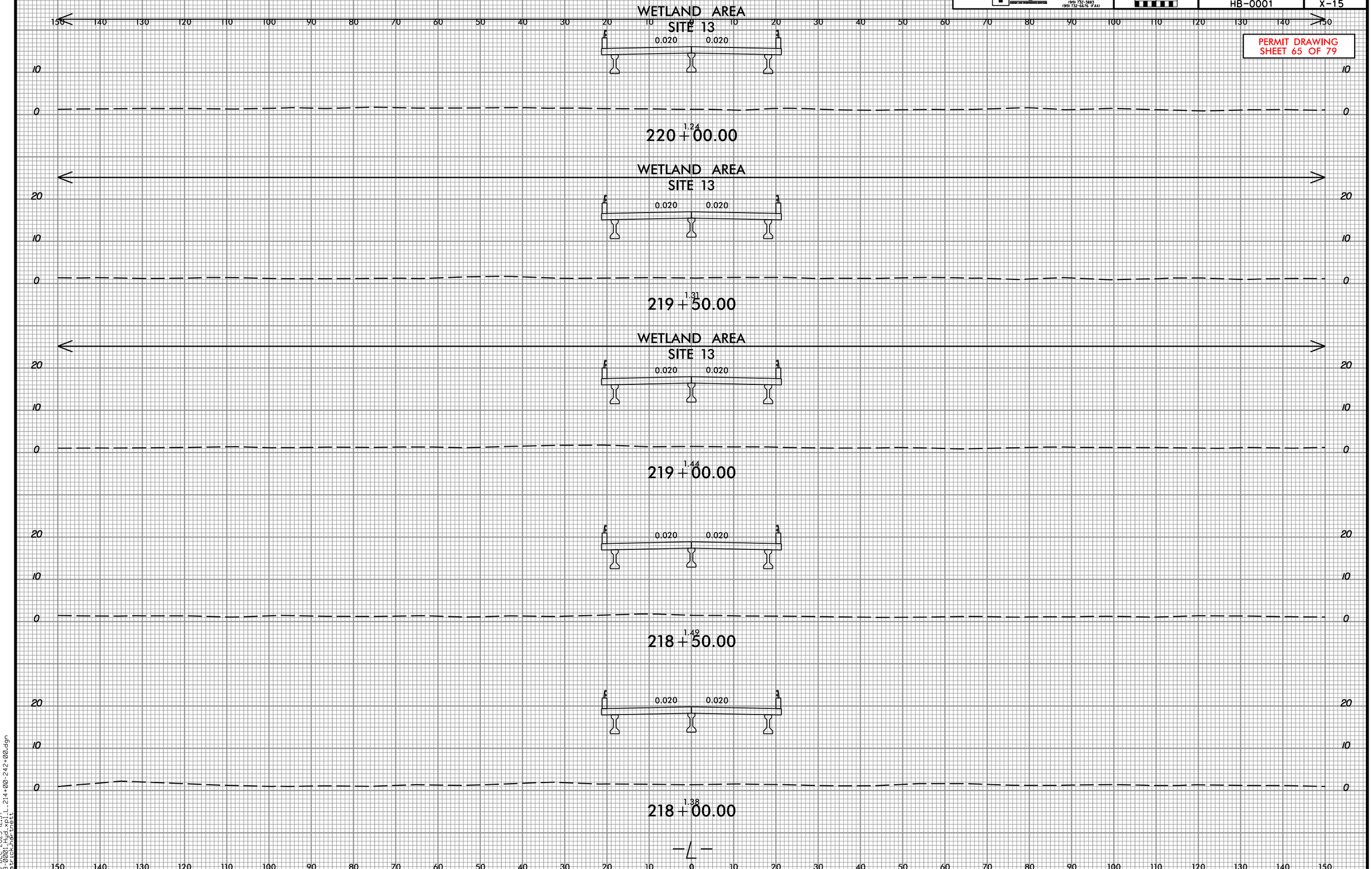
NC FIRM LICENSE No: P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 732-5883
(919) 732-6676 (FAX)

0 5 10

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

PERMIT DRAWING
SHEET 65 OF 79



28-DEC-2023 12:57
hb0001_sht_214+00-242+00.dgn
patrick.harris

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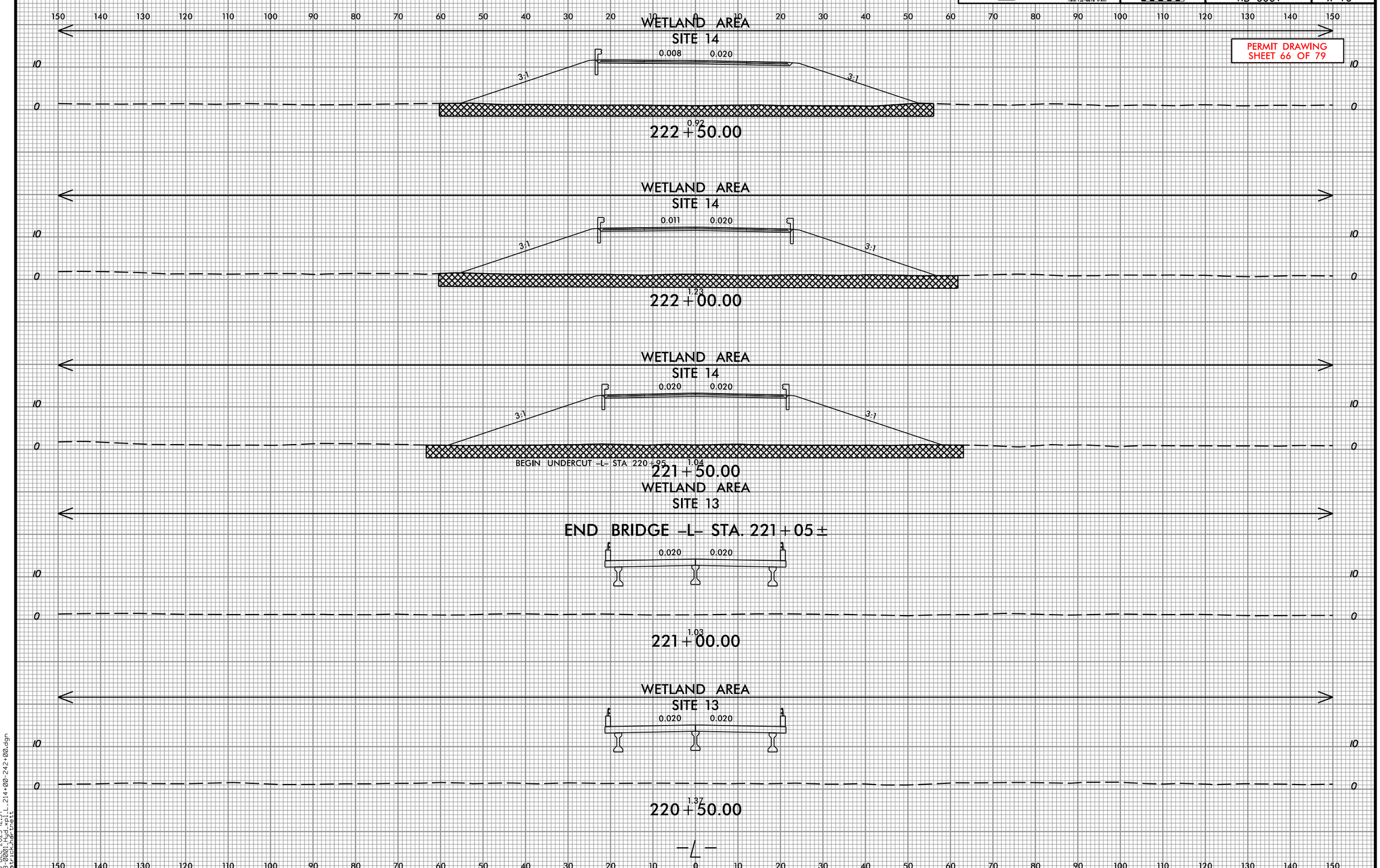
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-16

PERMIT DRAWING
SHEET 66 OF 79



28-DEC-2023 12:57
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patrick.harris

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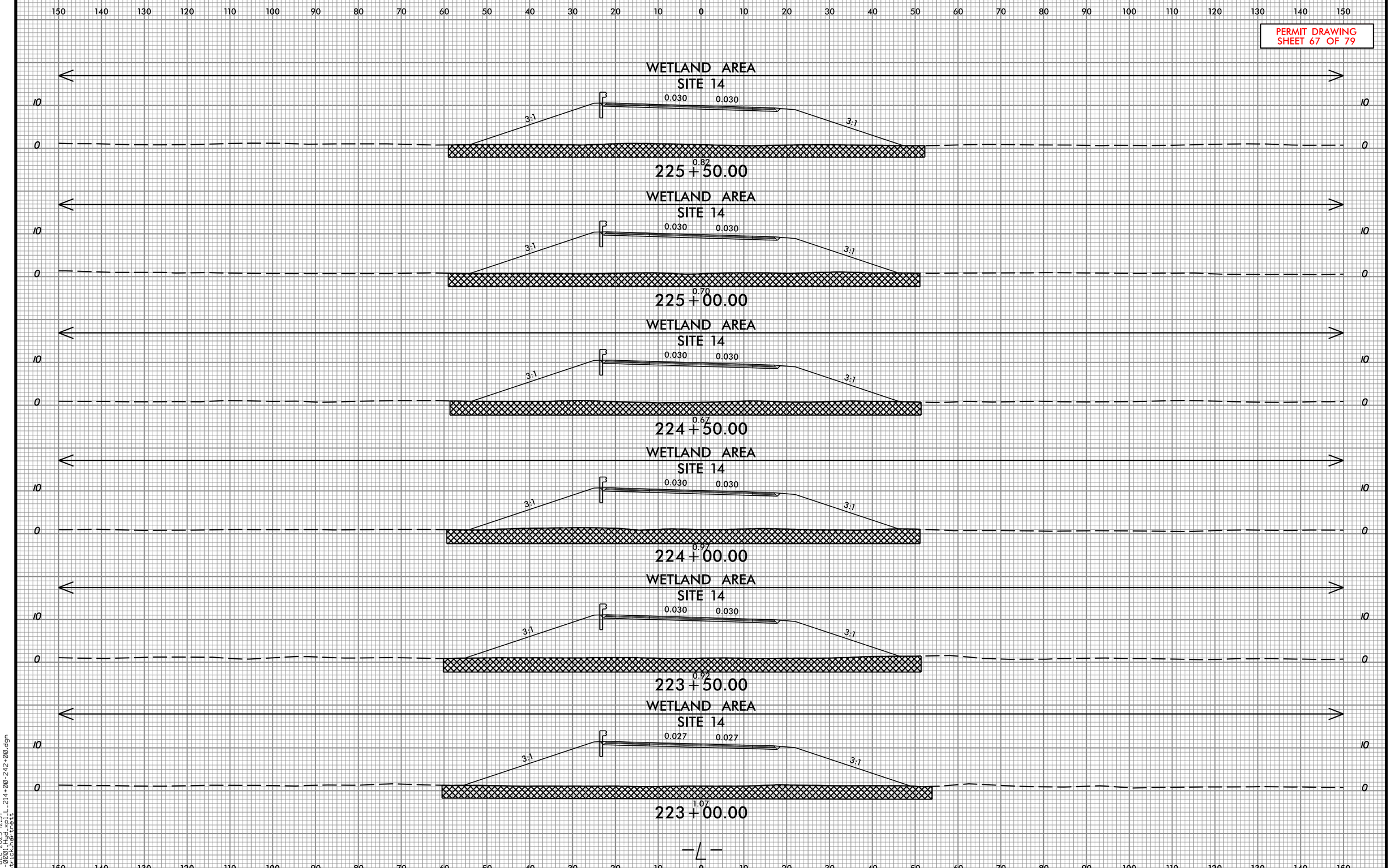
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-17

PERMIT DRAWING
SHEET 67 OF 79



28-DEC-2023 12:57
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patrick.hartnett

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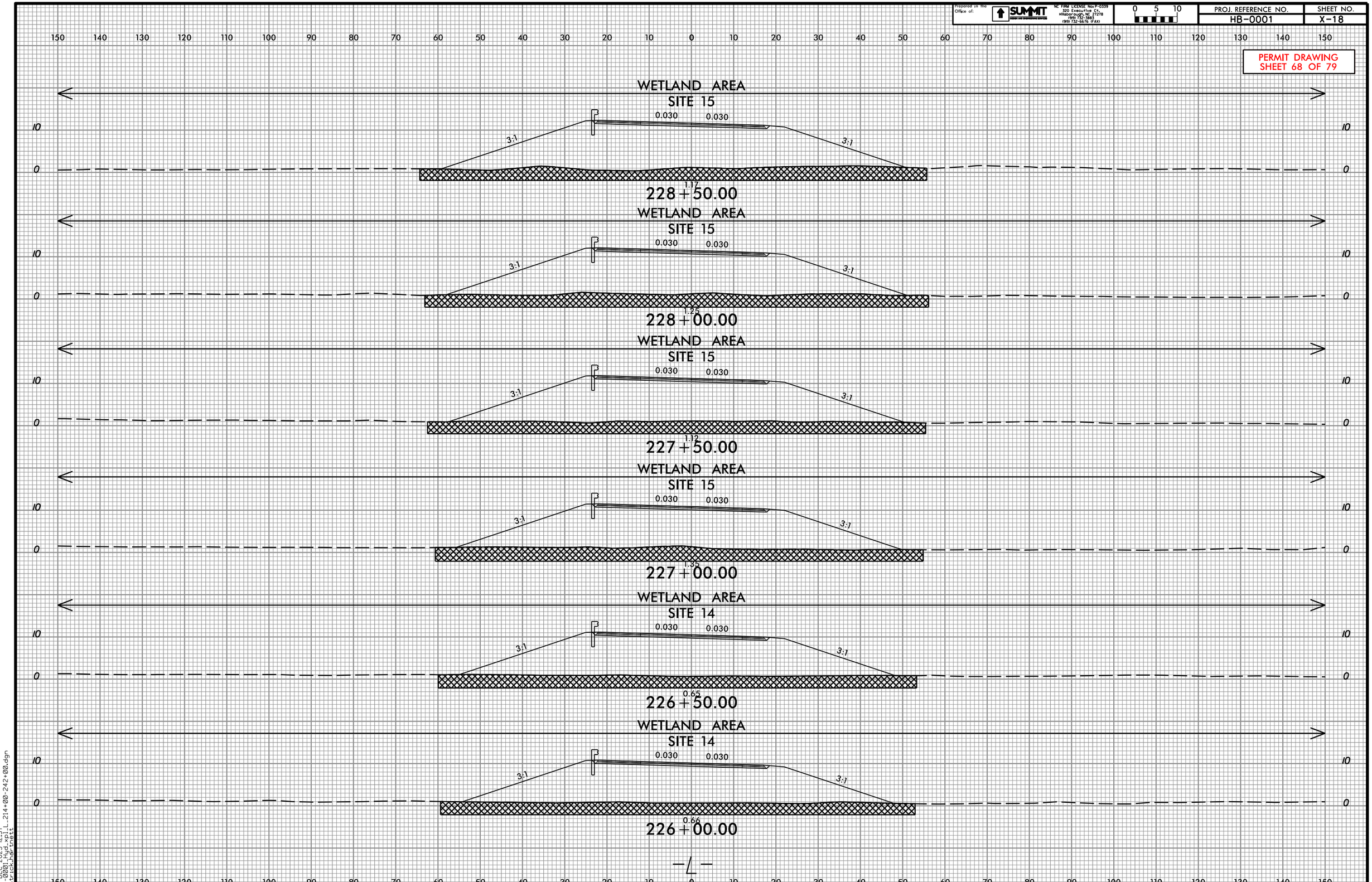
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-18

PERMIT DRAWING
SHEET 68 OF 79



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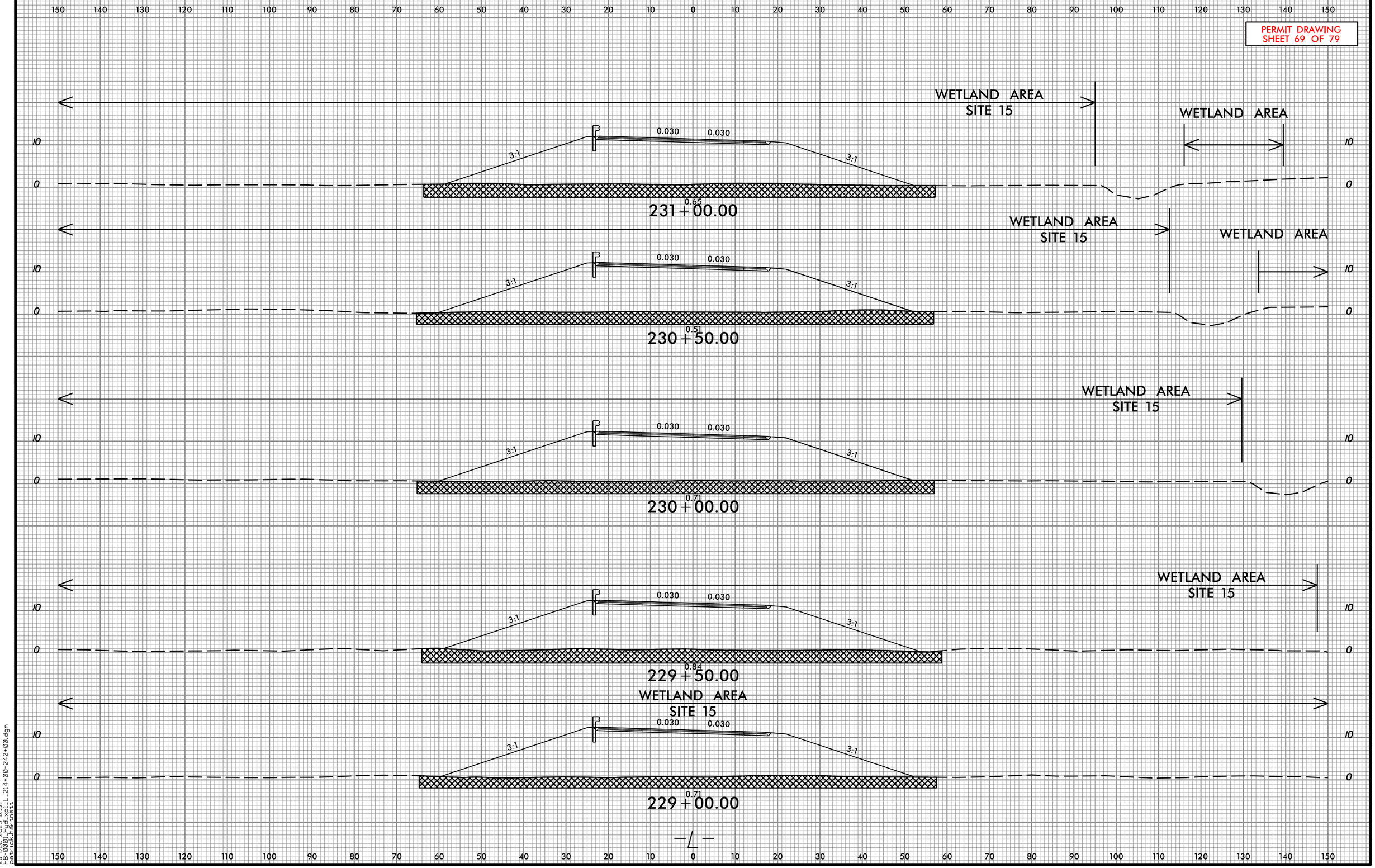
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-19

PERMIT DRAWING
SHEET 69 OF 79



28-DEC-2023 12:57
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patrick.harris

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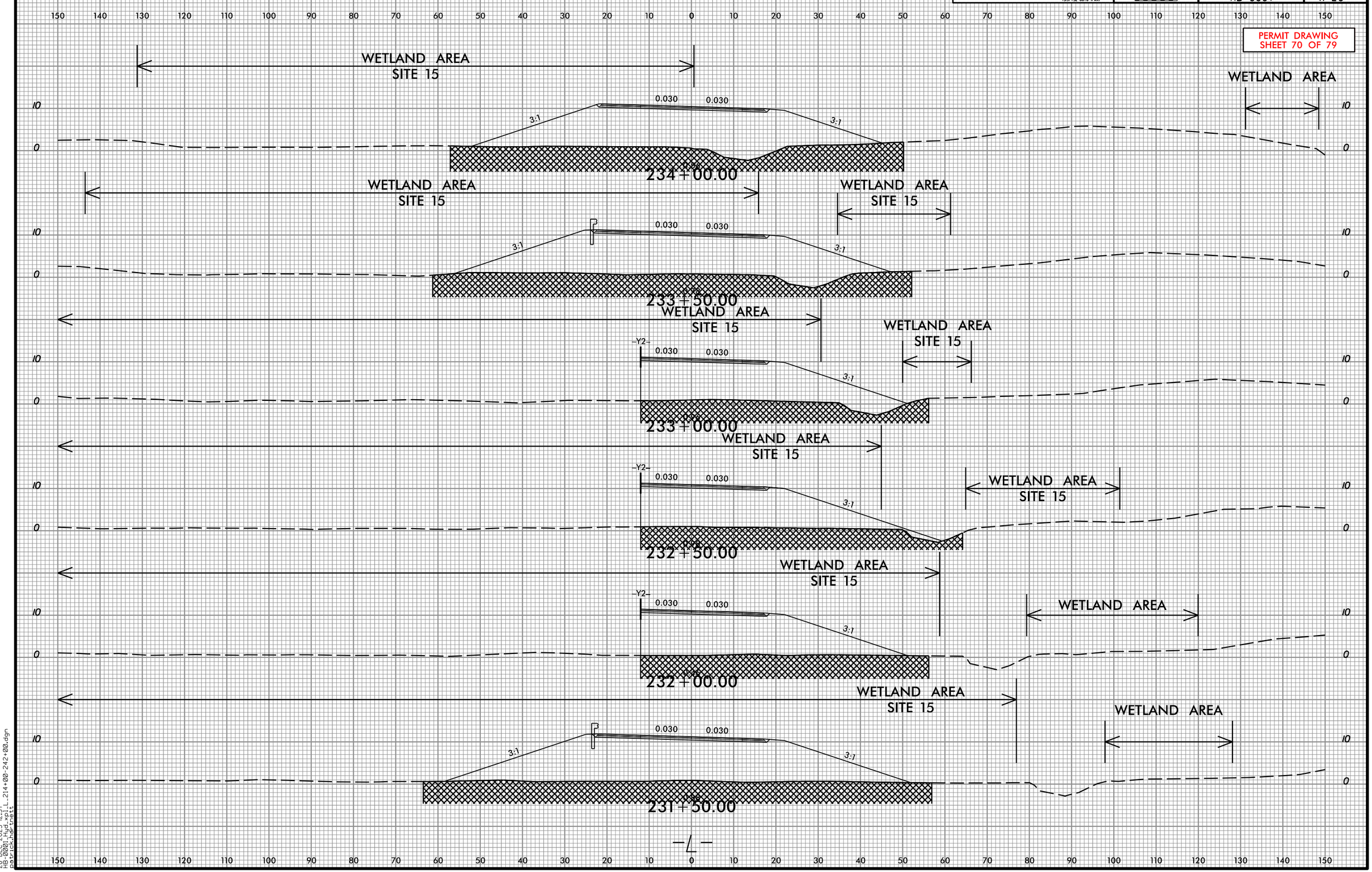
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-20

PERMIT DRAWING
SHEET 70 OF 79



28-DEC-2023 12:57
HB0001_PermitPlan_214+00-242+00.dgn
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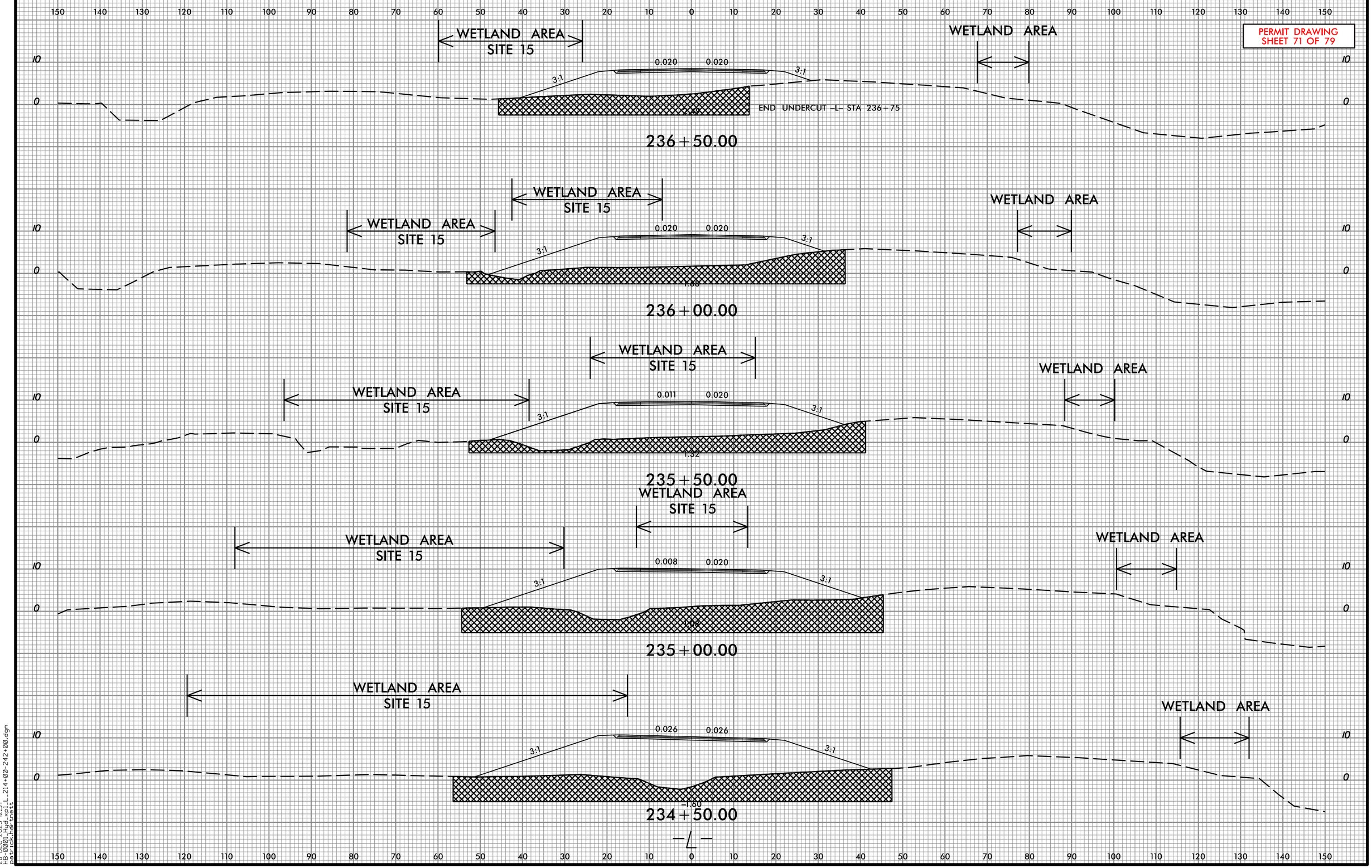
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-21

PERMIT DRAWING
SHEET 71 OF 79



28-DEC-2023 12:57
HB-0001_Hydraulics_214+00-242+00.dgn
patrick.harris

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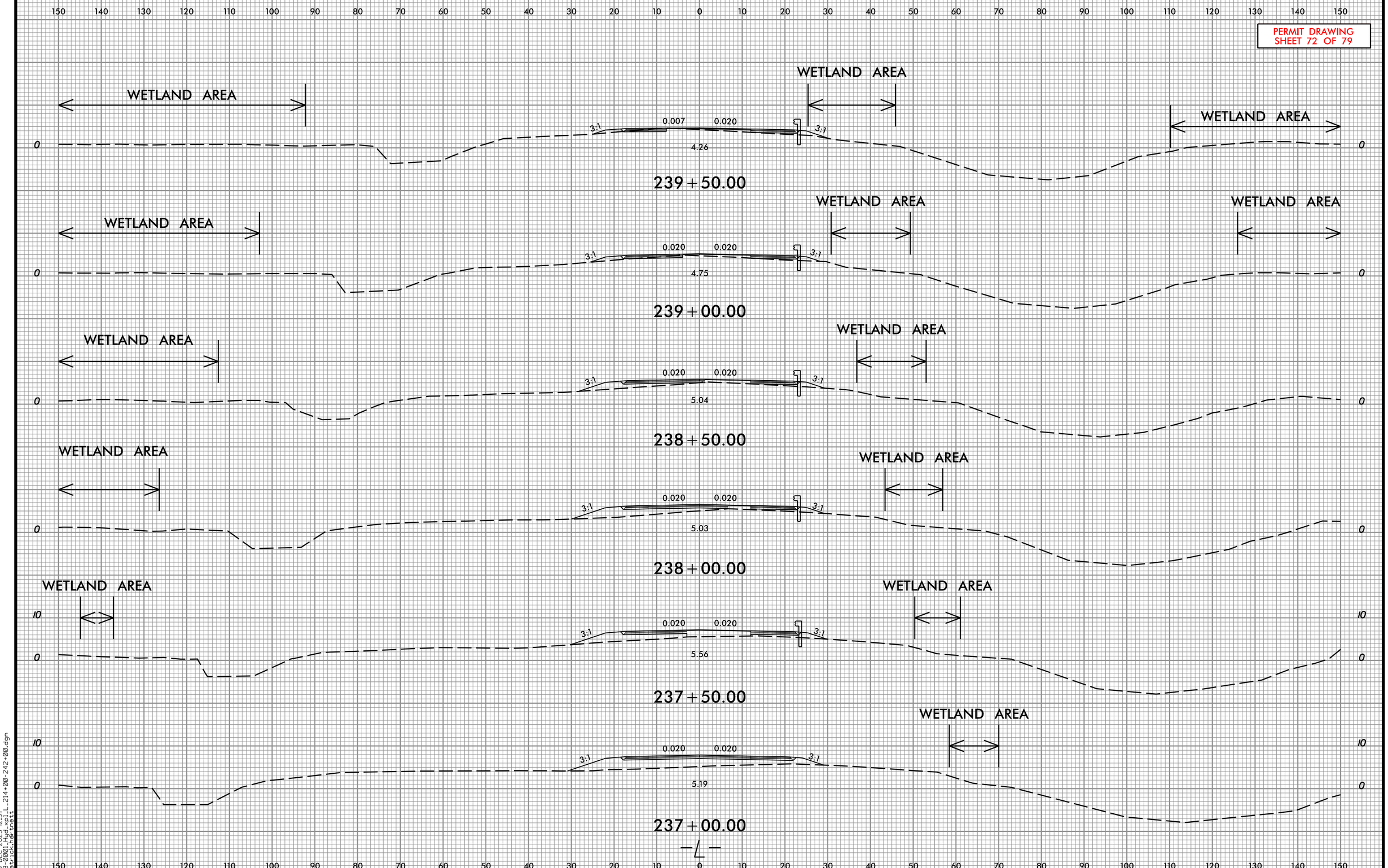
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-22

PERMIT DRAWING
SHEET 72 OF 79



28-DEC-2023 12:57
HB0001_Wetlands_214+00-242+00.dgn
patrick.harris

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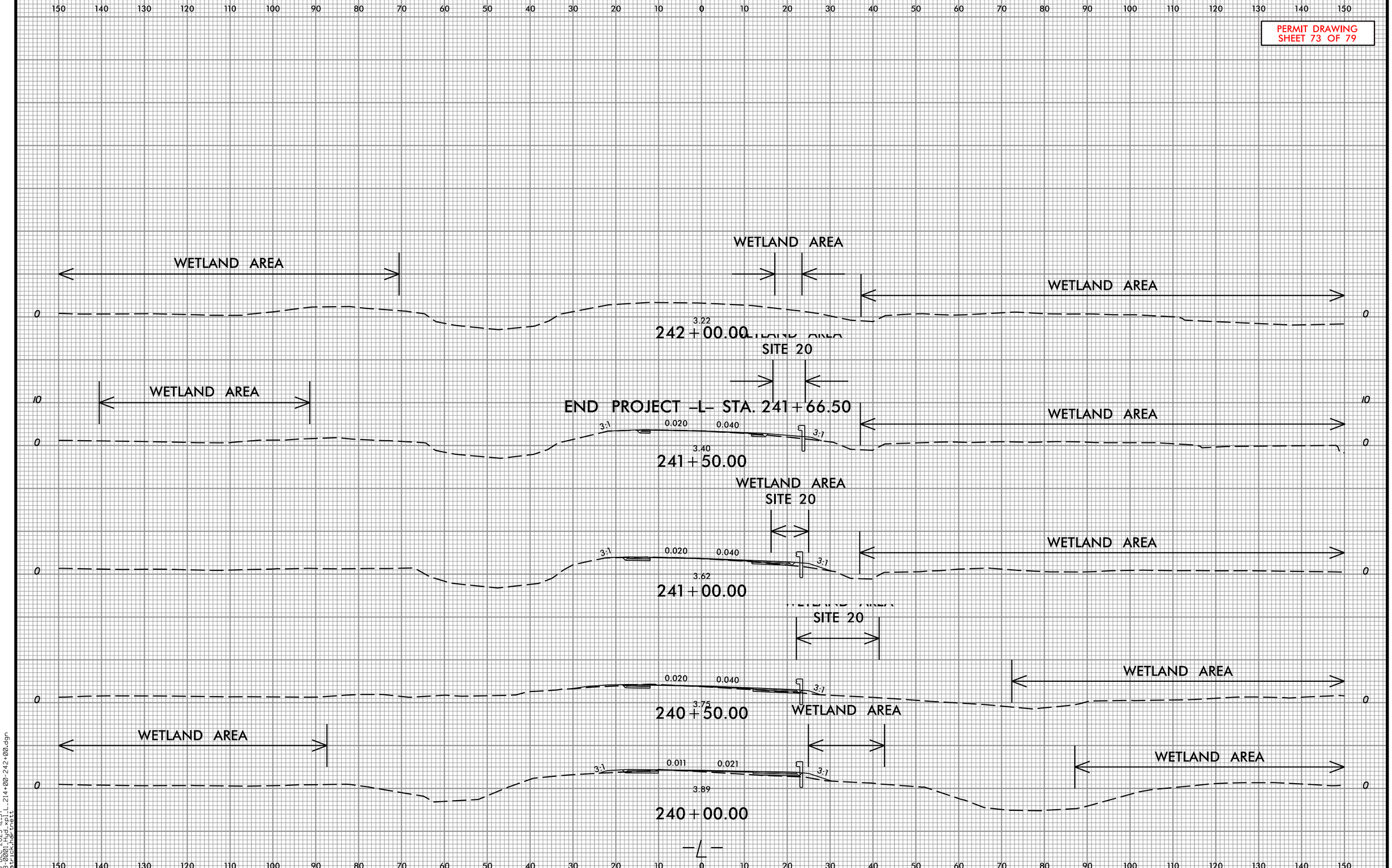
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HB-0001	X-23

PERMIT DRAWING
SHEET 73 OF 79



28-DEC-2023 12:57
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patrick.harris

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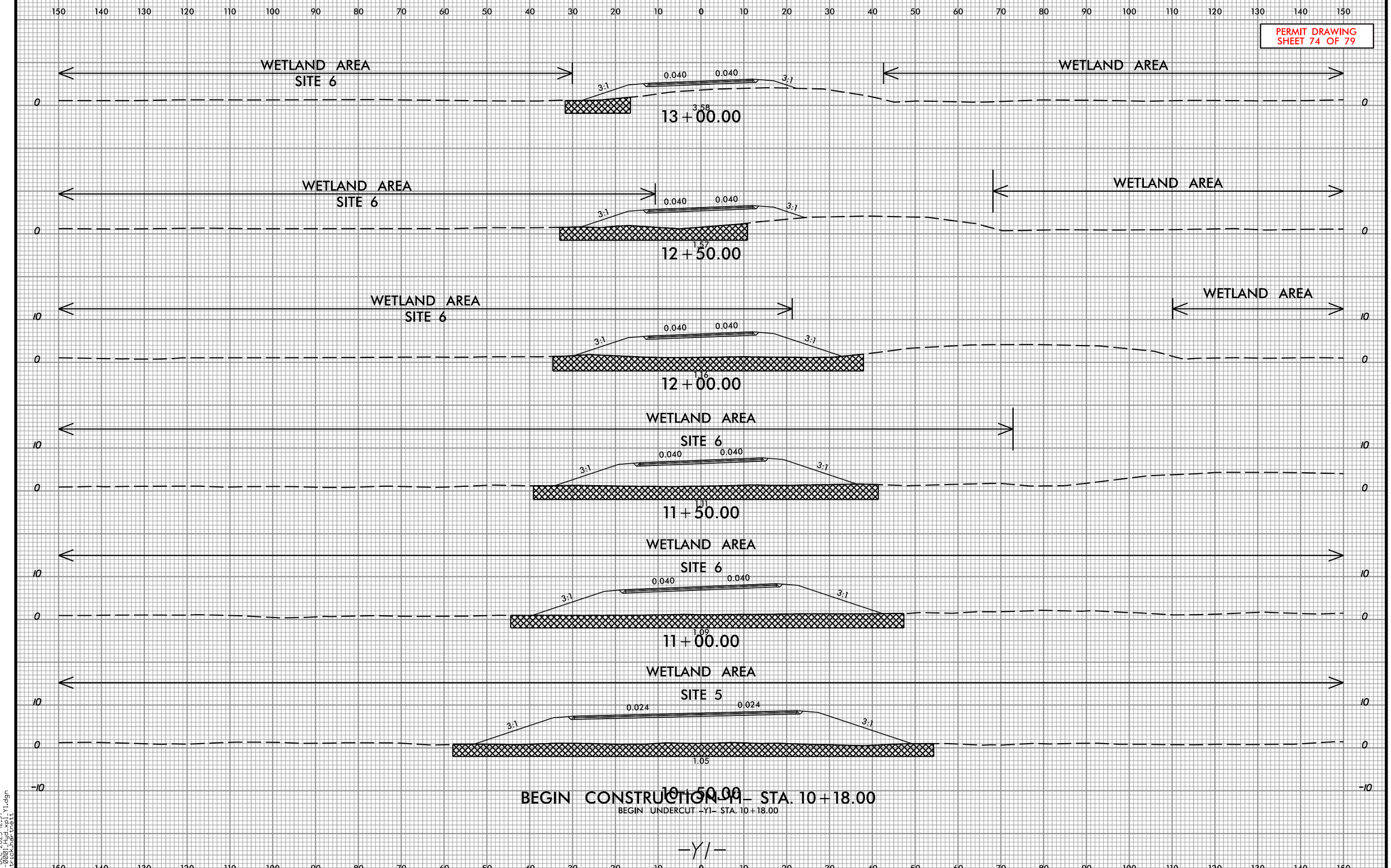
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-24

PERMIT DRAWING
SHEET 74 OF 79



28-DEC-2023 12:57
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patrick.hartnett

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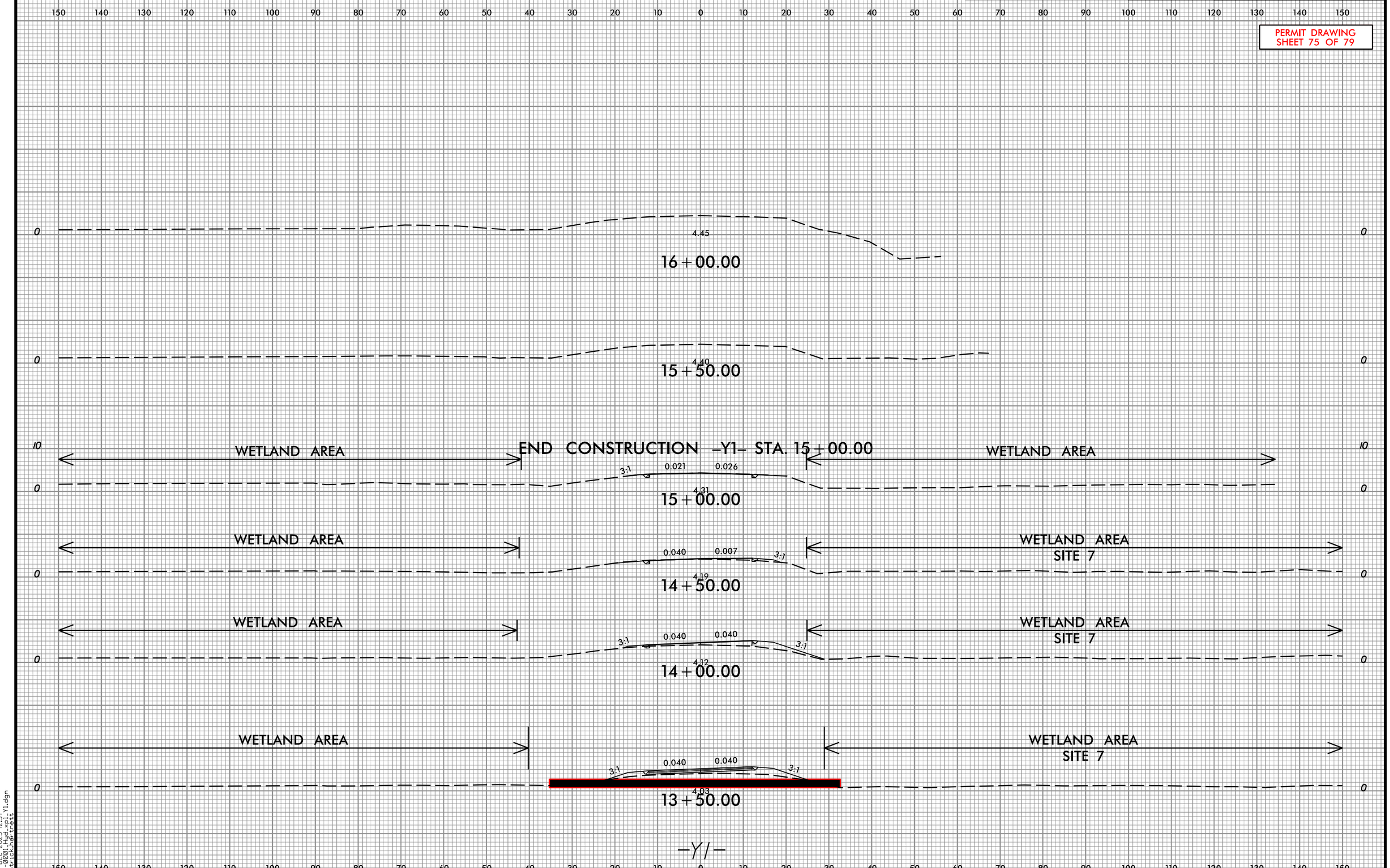
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-25

PERMIT DRAWING
SHEET 75 OF 79



28-DEC-2023 12:57
H:\0001\Y1\HB0001_Y1.dgn
patrick.harnett

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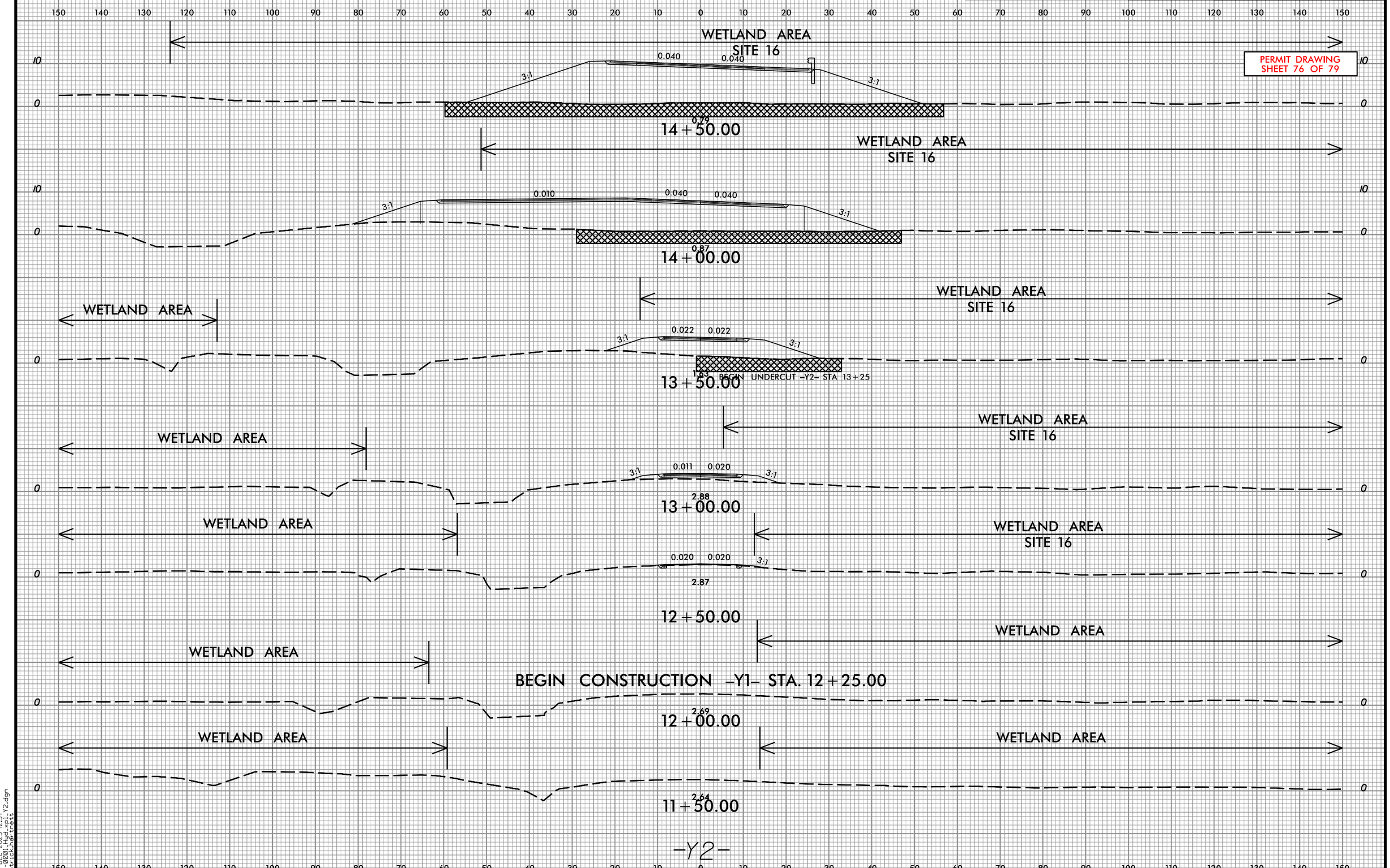
PROJ. REFERENCE NO.	SHEET NO.
HB-0001	X-26



28-DEC-2023 12:57
H:\0001\HB-0001_Y2.dgn
patrick.hartnett

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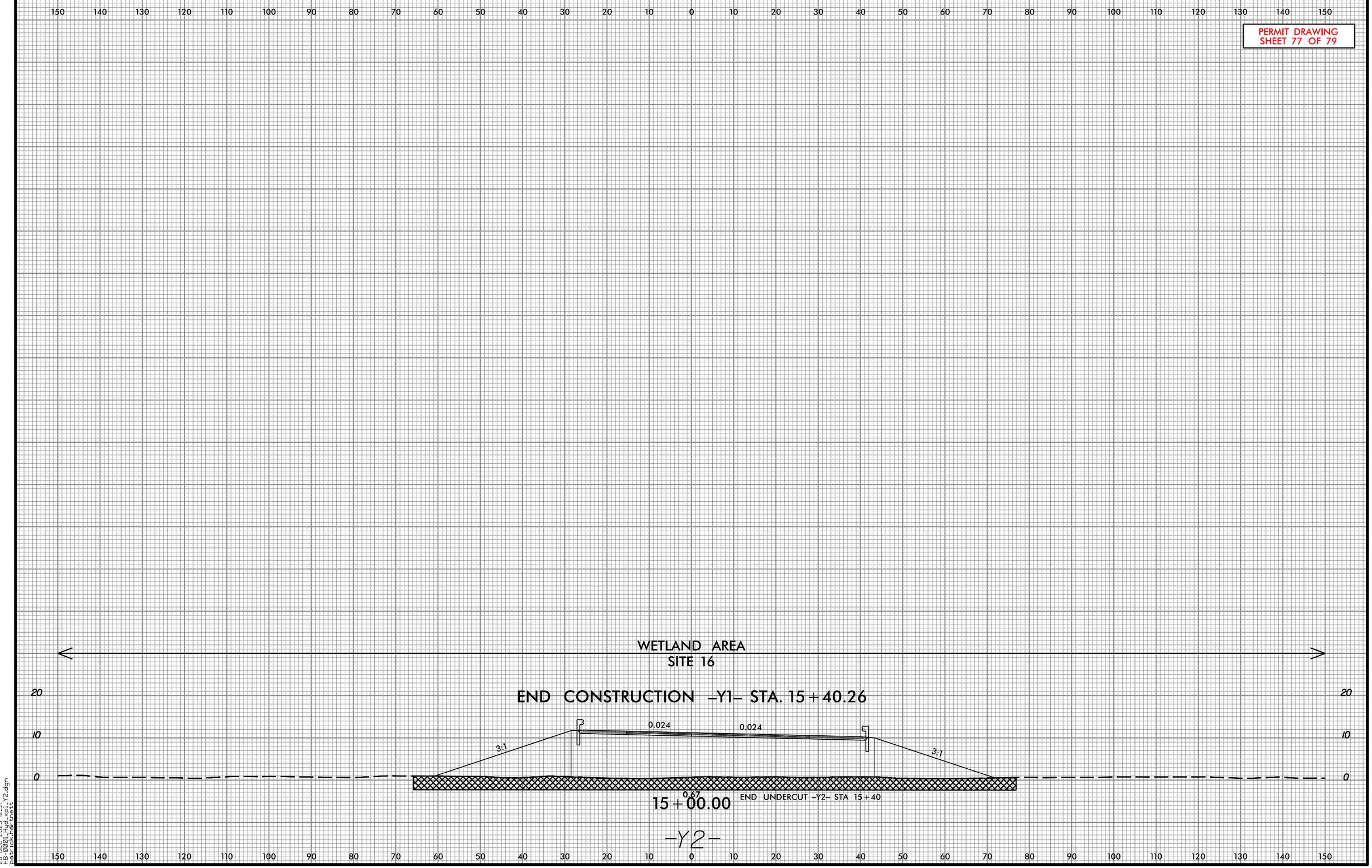
0 5 10

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

PERMIT DRAWING
SHEET 77 OF 79



28-DEC-2023 12:57
HB0001_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	232+40 to 233+60 -L- RT	Clean Water Diversion			0.023							
15	235+43 to 235+58 -L- LT	Proposed Tail Ditch			0.002							
16	239+15 to 241+66 -L- RT	Roadway Fill/Bank Stabilization	0.004			0.004		0.008	0.017			
17	240+34 to 240+87 -L- LT	60" CAAP						0.010	0.006			
18	46+47 to 220+15 -L- LT/RT	Bent Installation	0.008					0.198				
19	51+62 to 202+32 -L- LT/RT	Test Piles						0.004				
TOTALS*:			**9.057**	**0.00**	**0.02**	**1.776**	**3.27**	**0.368**	**0.063**	**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.

Please note, for sites 1, 3, 12, 16, 17 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

1/4/2024

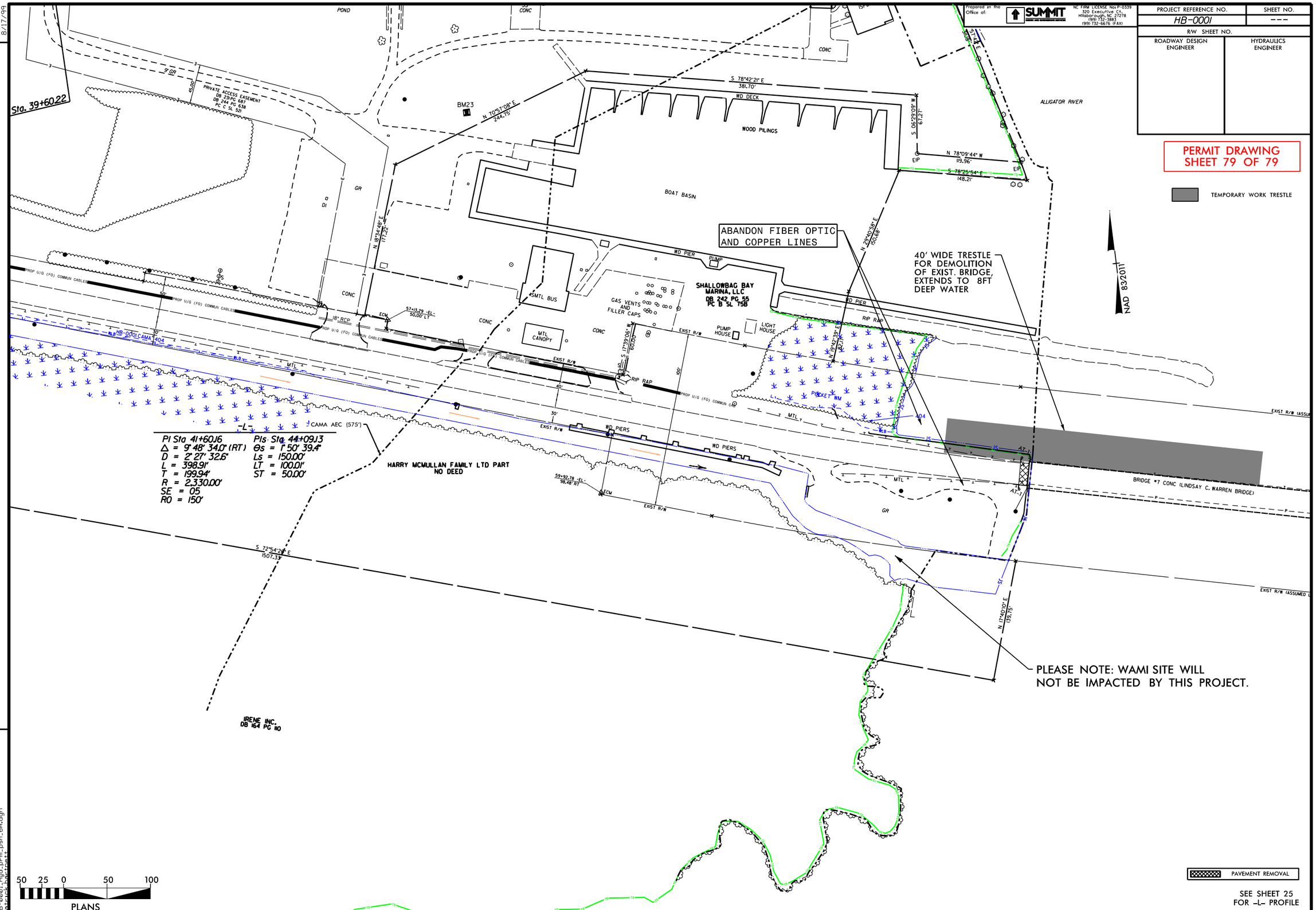
TYRRELL/DARE COUNTIES
HB-0001
BRIDGE REPLACEMENT ON US-64 OVER ALLIGATOR RIVER

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)

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

PERMIT DRAWING
SHEET 79 OF 79

TEMPORARY WORK TRESTLE



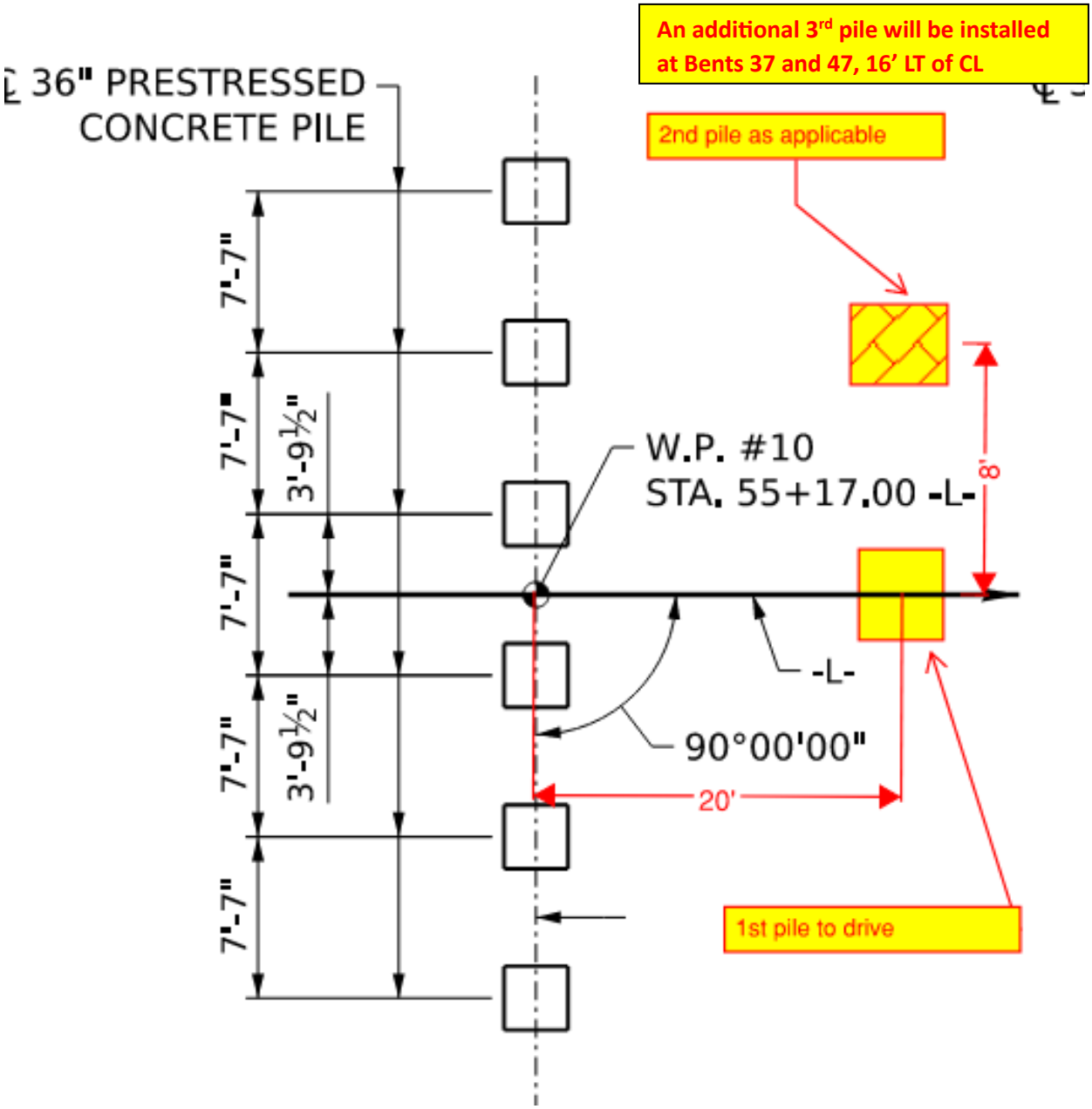
SEE SHEET 25
FOR -L- PROFILE

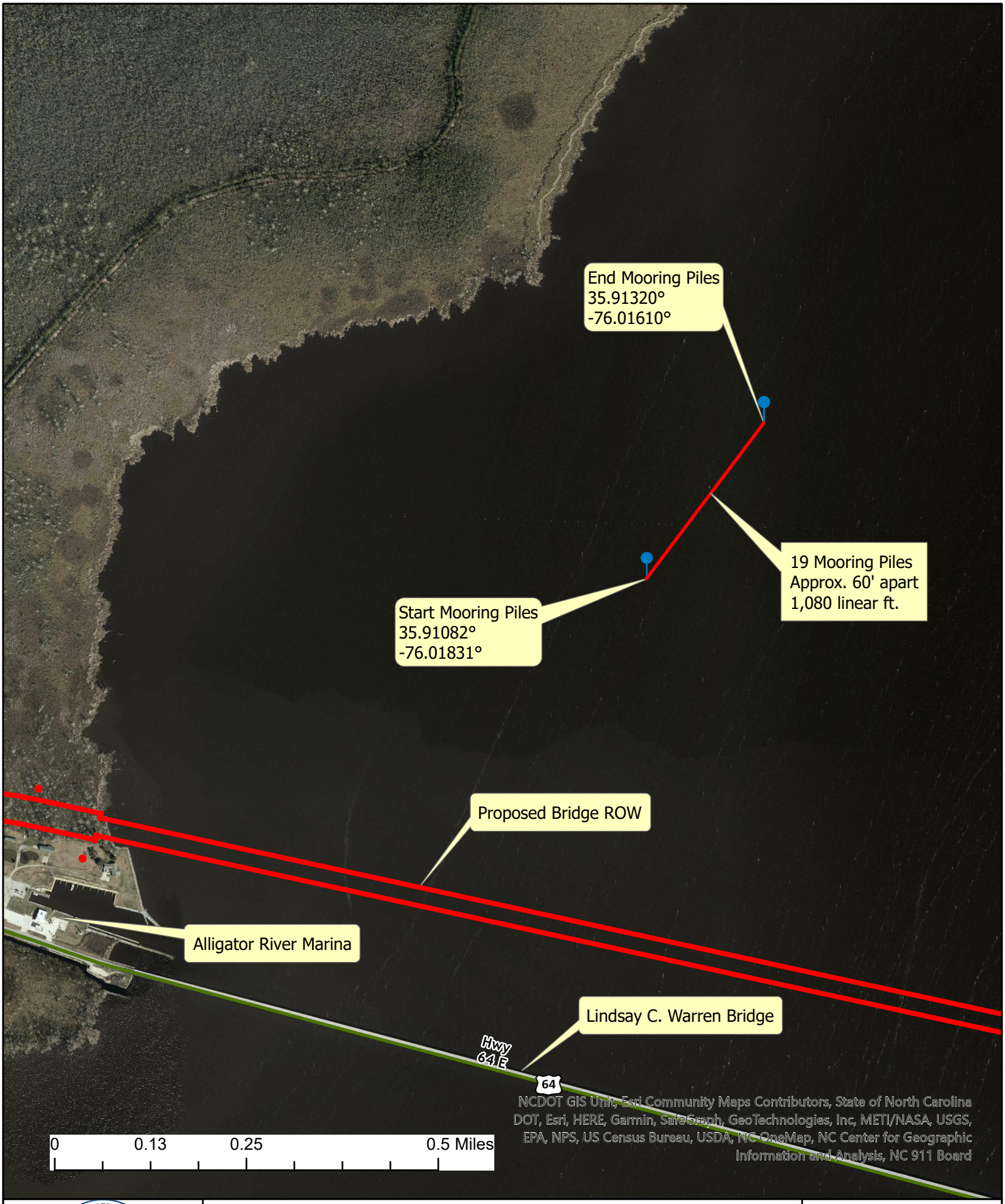
REVISIONS

8/17/99

28-DEC-2023 12:58
HB0001_Hydr_PermPsh_6A.dgn
ddeluca, hydr_pert

Test Pile Detail



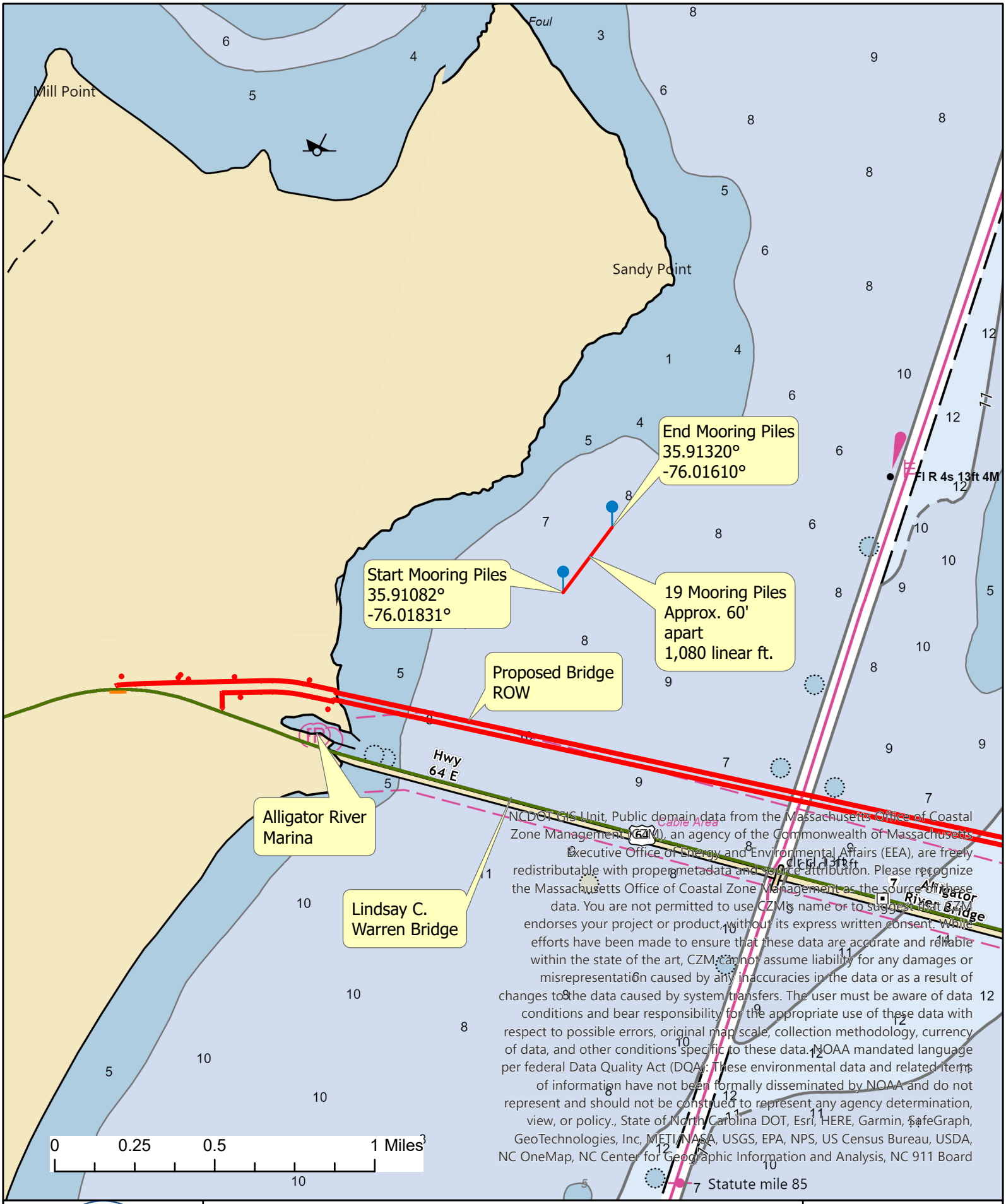


STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

N W E S

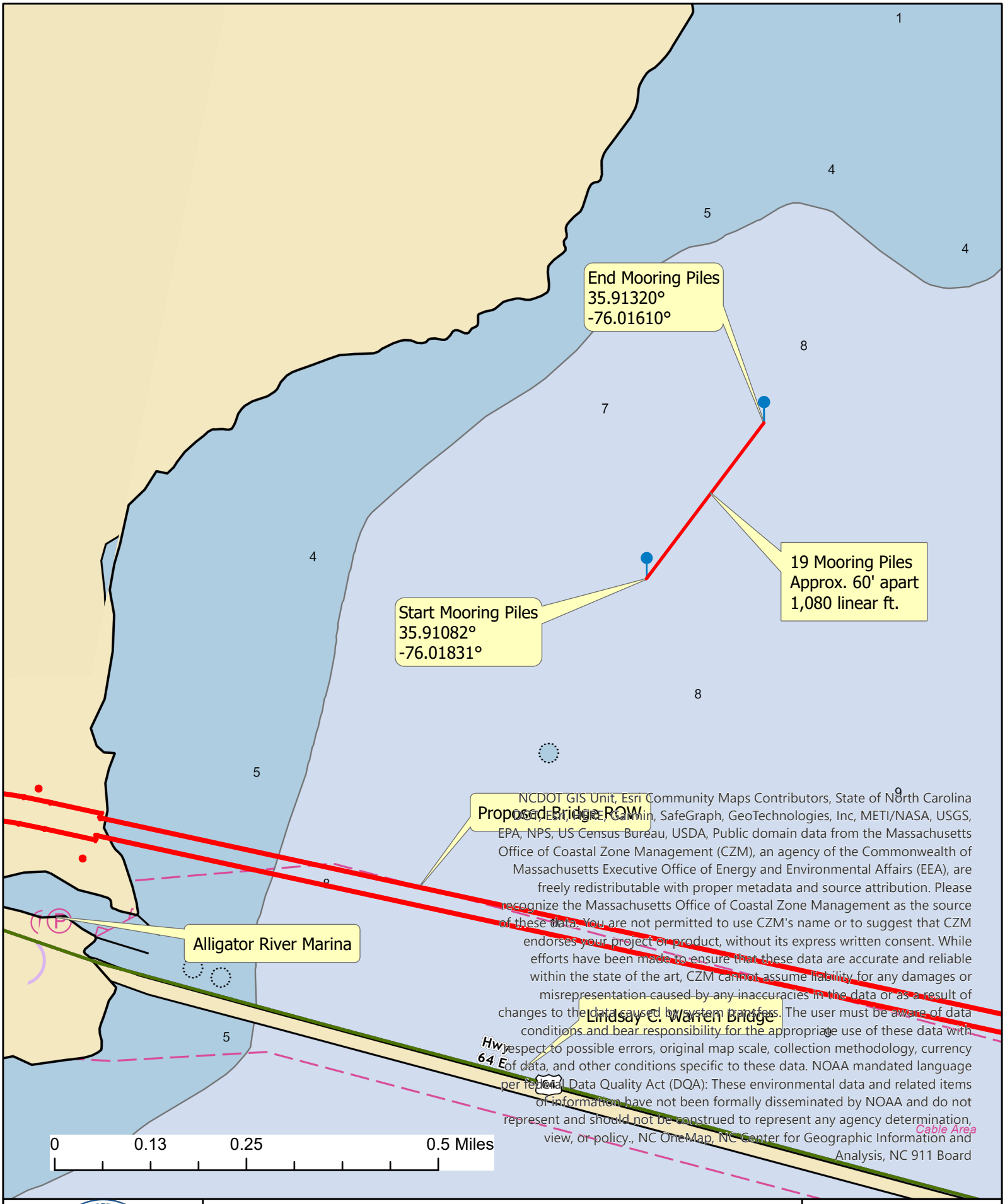
HB-0001 Alligator River Bridge Project
Proposed Mooring Pile Locations
Aerial Map

Date: 12/28/2023
Imagery: NCOneMap Orthoimagery Latest
Drawn By: Paul Williams
Scale: 1:10,000



HB-0001 Alligator River Bridge Project
Proposed Mooring Pile Locations
Nautical Map

Date: 12/28/2023
Imagery: NOAA Nautical Chart
Drawn By: Paul Williams
Scale: 1:24,000



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

N W E S

HB-0001 Alligator River Bridge Project
Proposed Mooring Pile Locations
Nautical Map

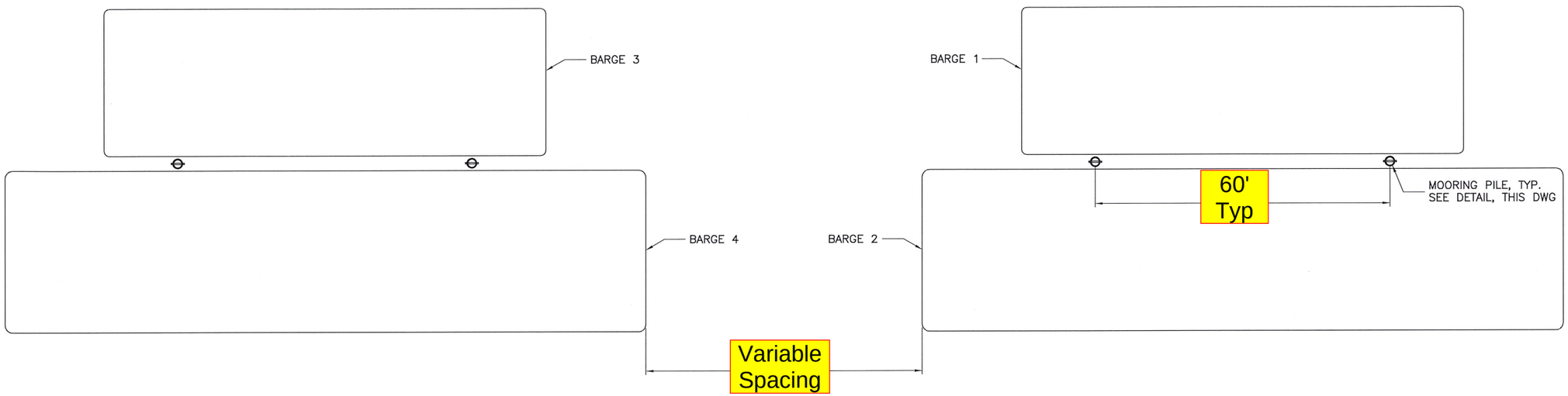
Date: 12/28/2023
Imagery: NOAA Nautical Chart
Drawn By: Paul Williams
Scale: 1:10,000

NOTES:

1.) THE MOORING IS DESIGNED FOR MAX 8 TONS HORIZONTAL PULL AT TOP ON EACH PILE.

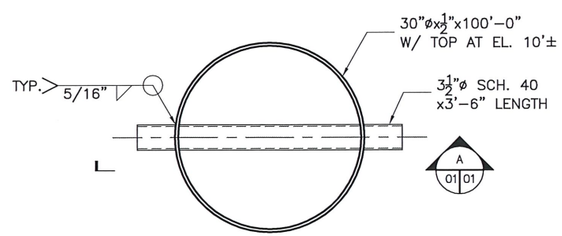
SPECIFICATIONS:

- MOORING PILE: GRADE 42 KSI MIN.
- WELDING ELECTRODES: E70XX PER AWS D1.1



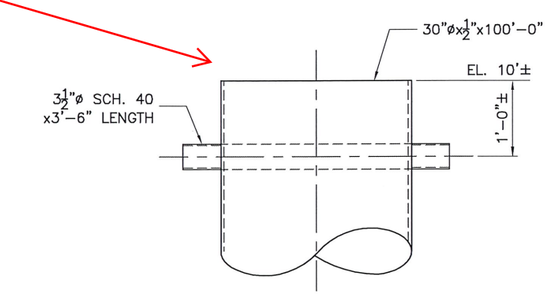
TEMPORARY MOORING – PLAN
N.T.S.

Top of Pile is 5' to 6' above water



MOORING PILE DETAIL
DWG: GA-01

0 1' 2' 3'



SECTION A–A
DWG: GA-01

0 1' 2' 3'

JIM XINJIAN ZHANG
LICENSE
No 75853
STATE OF FLORIDA
PROFESSIONAL ENGINEER
6/30/17

APPROVED FOR CONSTRUCTION
BY SKANSKA SE ENGINEERING DEPT

REV.	DATE	DESIGN	DRAWN	REMARKS
0	06/30/17	JXZ	DER	FOR CONSTRUCTION
A	09/12/16	JXZ	DER	FOR REVIEW

FLORIDA DEPARTMENT OF TRANSPORTATION
ESCAMBIA COUNTY, FLORIDA

SR 30 (US 98) PENSACOLA BAY BRIDGE REPLACEMENT
PROJECT #40933415201 & 40933415202
GENERAL ARRANGEMENT
TEMPORARY MOORING PLAN

Skanska USA
Civil Southeast Engineering Department
295 Bendix Rd. - Virginia Beach, VA 23452
Phone: 757-420-4140

SCALE	JOB	DRAWING NUMBER	Approved
AS NOTED	04–2299	GA–01	JBH