



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. R. "JOEY" HOPKINS
SECRETARY

December 19, 2024

U.S. Army Corps of Engineers
Washington Regulatory Office
2407 West Fifth Street
Washington, NC 27889

N.C. Division of Water Resources
Transportation Permitting Branch
1617 Mail Service Center
Raleigh NC 27699-1617

N.C. Div. of Coastal Mgmt
943 Washington Square Mall
Washington, NC 7889

ATTN: Mr. Kyle Barnes
NCDOT Coordinator

Mr. Garcy Ward
NCDOT Coordinator

Mr. Lee Cannady
NCDOT Coordinator

SUBJECT: **Application for Permit Modification of Section 404/Section 10 Standard Individual Permit, Section 401 Individual Water Quality Certification, and 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; USACE Action ID No. SAW-2021-01091.

REFERENCE: USACE Section 404 Authorization SAW-2021-01091, issued February 9, 2024. NCDWR Water Quality Certification Number 20230935, issued October 20, 2023. CAMA Major Development Permit, Permit No. 136-23, issued November 30, 2023, modified January 19, 2024. USCG Bridge Permit 3-24-5, issued October 30, 2024.

Dear Sirs:

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 United States Army Corps of

Mailing Address:
NC DEPARTMENT OF TRANSPORTATION
ENVIRONMENTAL ANALYSIS UNIT
1598 MAIL SERVICE CENTER
RALEIGH, NC 27699-1598

Website: www.ncdot.gov

Location:
1000 BIRCH RIDGE DRIVE
RALEIGH, NC 27610

Engineers (USACE) Section 404 Standard Individual Permit was issued on February 9, 2024, a Section 401 Individual Water Quality Certification was issued on October 20, 2023, and a Coastal Area Management Act (CAMA) Major Development Permit was issued on November 30, 2023. Since then, a CAMA permit modification has been submitted (on January 5, 2024) and approved (on January 27, 2024), which included the addition of multiple test piles, as well as installation of mooring piles for the test pile study and bridge construction.

The purpose of this letter is to request modification of the existing USACE Section 404 Standard Individual Permit and the North Carolina Division of Water Resources (NCDWR) Water Quality Certification to provide updated impact amounts as they relate to the temporary work trestle, staging areas, bent installation, and a temporary access road. An update to how compensatory mitigation will be covered for the project is also included. Additionally, a CAMA Major Development Permit modification is being pursued from the North Carolina Division of Coastal Management (DCM) via their online permit application portal (which will include this cover letter). In addition to this letter, revised permit drawings showing trestle, staging area, and access road locations and impacts, and the final on-site mitigation plans, are included in this submittal.

The current design prepared by NCDOT will result in jurisdictional impacts to the following:

Table 1: Permanent and Temporary Jurisdictional Impacts, Permit Drawings

| Resources | | Area (acres) | Notes |
|-------------------------------------|---------------------|--------------|---|
| CAMA Resources (acres) | | | |
| Estuarine Public Trust Waters | | 0.0 | |
| Coastal Wetlands | | 0.054 | Includes Permanent Fill and Mechanized Clearing |
| Resources | Impact Type | Area (acres) | Notes |
| Non-CAMA Resources (acres) | | | |
| Wetlands(excludes Coastal Wetlands) | Permanent Impact | 9.049 | Includes Fill and Excavation |
| | Mechanized Clearing | 1.748 | |
| | Temporary Fill | 1.04 | |
| | Hand Clearing | 4.12 | |
| Surface Waters | Permanent Impact | 0.306 | Included Ponds, Tributaries, open water impacts to Alligator River, and other open waters |
| | Temporary Impact | 0.064 | |

Impacts to Jurisdictional Resources

Final proposed impacts to jurisdictional wetlands and surface waters associated with road and bridge construction for HB-0001 are summarized in Tables 2 and 3, respectively. None of the surface water impacts within Table 1 are within CAMA features. All revisions to impacts are colored red on the attached impact summary sheet. Description of revisions at each applicable site are provided beneath the tables.

Table 2. Surface Water Impacts

| Permit Drawing Site Number | NRTR Label | Type | Permanent Impacts (ac.) | Temporary Impacts (ac.) | Mitigation Required³ |
|-----------------------------------|-------------------|-------------|--------------------------------|--------------------------------|--|
| 1 | TF | Tributary | --- | 0.018 | No |
| 3 | PA | Pond | 0.009 | 0.010 | No |
| 12 | TC | Tributary | 0.139 | 0.012 | No |
| 16 | TB | Tributary | 0.008 | 0.017 | No |
| 17 | TD | Tributary | 0.010 | 0.006 | No |
| 18 | Alligator River | Perennial | 0.136 | --- | No |
| 19 | Alligator River | Perennial | 0.004 | --- | No |
| 20 | TC | Tributary | --- | 0.001 | No |
| Total | | | 0.306 | 0.064 | |

Table 3. Wetland Impacts¹

| Permit Drawing Site Number | NRTR Label | NCWAM Type | Riparian or Non-riparian | Section 404 or Section 404/CAMA | Permanent Impacts (ac.) | Temporary Impacts (ac.) | Excavation (ac.) | Mechanized Clearing (ac.) | Hand Clearing (ac.) | Mitigation Required (ac.) |
|----------------------------|------------|--|--------------------------|---------------------------------|-------------------------|-------------------------|------------------|---------------------------|---------------------|---------------------------|
| 1 | WD | Riverine Swamp Forest/Tidal Freshwater Marsh | Riparian | Section 404 | 0.010 | --- | --- | 0.020 | --- | 0.03 |
| 1 | WC | Tidal Freshwater Marsh | Riparian | Section 404/CAMA | 0.026 | --- | --- | 0.028 | --- | 0.054 |
| 2 | WB | Riverine Swamp Forest | Riparian | Section 404 | 0.061 | --- | --- | 0.057 | 0.282 | 0.118 |
| 3 | WB | Riverine Swamp Forest | Riparian | Section 404 | 0.142 | --- | --- | --- | 0.052 | 0.142 |
| 4 | WA | Riverine Swamp Forest | Riparian | Section 404 | 0.512 | --- | --- | 0.095 | 0.145 | 0.607 |
| 5 | WA | Riverine Swamp Forest | Riparian | Section 404 | 2.77 | --- | --- | 0.533 | 0.840 | 3.303 |
| 6 | WA | Riverine Swamp Forest | Riparian | Section 404 | 0.257 | --- | --- | 0.076 | --- | 0.333 |
| 7 | WD | Riverine Swamp Forest/Tidal Freshwater Marsh | Riparian | Section 404 | 0.002 | --- | --- | 0.021 | --- | 0.023 |
| 8 | WA | Riverine Swamp Forest | Riparian | Section 404 | 1.498 | --- | --- | 0.291 | 0.225 | 1.789 |
| 9 | WA | Riverine Swamp Forest | Riparian | Section 404 | --- | 0.714 | --- | --- | 0.390 | --- |
| 10 | WH | Riverine Swamp Forest | Riparian | Section 404 | --- | 0.287 | --- | --- | 1.663 | --- |
| 11 | WH | Riverine Swamp Forest | Riparian | Section 404 | 1.361 | --- | --- | 0.283 | 0.201 | 1.644 |
| 12 | WH | Riverine Swamp Forest | Riparian | Section 404 | 2.082 | --- | --- | 0.293 | 0.235 | 2.375 |
| 13 | WH | Riverine Swamp Forest | Riparian | Section 404 | 0.324 | --- | --- | 0.073 | 0.086 | 0.397 |
| 15 | WH | Riverine Swamp Forest | Riparian | Section 404 | --- | --- | 0.023 | --- | --- | 0.023 |
| 16 | WH | Riverine Swamp Forest | Riparian | Section 404 | --- | --- | 0.002 | --- | --- | 0.002 |
| 17 | WJ | Tidal Freshwater Marsh | Riparian | Section 404 | 0.004 | --- | --- | 0.004 | --- | 0.008 |
| 18 | WH | Riverine Swamp Forest | Riparian | Section 404 | 0.006 | --- | --- | --- | --- | 0.006 |
| 20 | WH | Riverine Swamp Forest | Riparian | Section 404 | | 0.037 | | | | |
| Total | | | | | 9.055 | 1.04 | 0.02 | 1.776 | 4.12 | 10.856 |

¹ Rounded totals are the sum of the actual impacts.

In addition to the impacts listed in the table above, 0.01 acre of temporary fill will also occur in the hand clearing areas at Sites 3 and 12, for Erosion Control measures. This impact was not included in the original application.

Summary of Changes to Jurisdictional Impact Sites

Site 3:

- Added 0.01 acre of Temporary Fill

0.01 acre of temporary fill will occur with the hand clearing area to account for erosion control measures.

Site 8:

- Added 0.015 acre of Hand Clearing in Wetland

Site 8 will add 0.015 acre of hand clearing in wetlands, for a total of 0.225 acre. This is to accommodate construction of roadway on the western side of the project.

Site 9:

- Added 0.714 acre of Temporary Fill in Wetland
- Added 0.045 acre of Hand Clearing in Wetland

Site 9 will add 0.714 acre of temporary fill in wetland, for a total of 0.714 acre. There will also be an increase of 0.045 acre of hand clearing in wetland, for a total of 0.390 acre. This is to shift the proposed staging area on the western side of the project to be in line with the proposed work trestle, which will now be positioned south of the proposed bridge rather than north.

Site 10:

- Added 0.287 acre of Temporary Fill in Wetland
- Added 1.042 acre of Hand Clearing in Wetland

Site 10 will add 0.287 acre of temporary fill in wetland, for a total of 0.287 acre. There will also be an increase of 1.042 acre of hand clearing in wetland, for a total of 1.663 acre. This is to shift the proposed staging area on the eastern side of the project to be in line with the proposed work trestle, which will now be positioned south of the proposed bridge rather than north.

Site 11:

- Decreased Hand Clearing in Wetland by 0.251 acre

The amount of hand clearing at Site 11 has decreased by 0.251 acre, for a total of 0.201 acre.

Site 12

- Added 0.01 acre of Temporary Fill

0.01 acre of temporary fill will occur with the hand clearing area to account for erosion control measures.

Site 18:

- Decreased Permanent Fill in Wetland by 0.002 acre
- Decreased Permanent Surface Water Impacts by 0.062 acre

Impacts at Site 18 have decreased due to revision in impacts at the site. There will be 0.002 acre less of permanent fill in wetlands, for a total of 0.006 acre. There will also be 0.062 acre less of permanent surface water impacts, for a total of 0.136 acre.

Site 20:

- Added 0.037 acre of Temporary Fill Wetland
- Added 0.001 acre of Temporary Surface Water Impacts

Site 20 is a new site, which accounts for impacts associated with a temporary access road. This site adds 0.037 acre of temporary fill in wetland and 0.001 acre of temporary surface water impacts.

The overall effect of these changes is a decrease in permanent wetland fill (-0.002 acre), an increase of temporary wetland fill (+1.04 acre), an increase in hand clearing in wetlands (+0.85 acre), a decrease in permanent surface water impacts (-0.062 acre), and an increase in temporary surface water impacts (+0.001 acre).

Mitigation Options

Compensation: The NCDOT has avoided and minimized impacts to jurisdictional resources to the greatest extent practicable. The proposed construction of HB-0001 will result in unavoidable impacts to 10.856 acres of wetlands (with 0.054 acres of that being within Section 404/CAMA wetlands) that will require mitigation. The wetland impacts are in the 8-digit HUC 03010205 of the Pasquotank River Basin.

Compensatory mitigation for unavoidable impacts to Section 404 and Section 404/CAMA wetlands will be provided through a combination of on-site mitigation designed by NCDOT and mitigation credits provided by the North Carolina Department of Environmental Quality (NCDEQ) – Division of Mitigation Services (DMS). Since the original application, the on-site wetland mitigation plan has been developed, which proposes to cover approximately 8.25 acres of permanent wetland impacts with coastal marsh/riparian wetland restoration. The on-site mitigation plan is attached to this application. The remainder of the compensatory mitigation required will be provided by DMS.

Regulatory Approvals

Section 404/Section 10: NCDOT request modification to the USACE Individual Section 404/Section 10 Permit as required for the above-described activities.

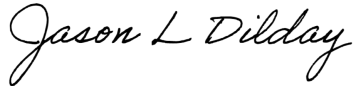
Section 401: We are requesting a modification to the Section 401 Individual Water Quality Certification from NCDWR. We are providing this application to NCDEQ, for their approval. Authorization to debit the \$767.00 Permit Application Fee from WBS Element 49475.1.1 is hereby given.

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 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 Jason Dilday at jldilday1@ncdot.gov or (919) 707-6111.

Sincerely,

A handwritten signature in cursive script that reads "Jason L. Dilday".

Jason L. Dilday
NCDOT ECAP Eastern Region Lead

Cc: Paul Williams, NCDOT Division 1 Environmental Officer

Permit Application Report

| Application ID | Application Type | Submitted | App Complete | Deadline | Decision | Expiration |
|----------------|------------------|-----------|--------------|----------|----------|------------|
| PA-1653 | DCM Major Permit | | | | | |

| Primary Applicant Information | | | | | | | |
|-------------------------------|---------|---------------|-------|------------------------|----------------|--------------|-------|
| Applicant Type | Title | Business Name | Name | Email | Business Phone | Mobile Phone | |
| Business/Company | | NCDOT | NCDOT | jldilday1@ncdot.gov | 919-707-6111 | 919-707-6111 | |
| Physical Address | | | | Mailing Address | | | |
| Street 1 | City | State | Zip | Street 1 | City | State | Zip |
| 1000 Birch Ridge Drive | Raleigh | NC | 27610 | 1000 Birch Ridge Drive | Raleigh | NC | 27610 |

| Registered Agent Information | | | | | | | |
|----------------------------------|--------|------------------------|------------------------|---------------------------------------|----------------|--------------|-------|
| Agent Type | Title | Business Name | Name | Email | Business Phone | Mobile Phone | |
| Business/Company | | Three Oaks Engineering | Three Oaks Engineering | nancy.oberle@threeoaksengineering.com | 919-732-1300 | | |
| Physical Address | | | | Mailing Address | | | |
| Street 1 | City | State | Zip | Street 1 | City | State | Zip |
| 324 Blackwell Street, Suite 1200 | Durham | NC | 27701 | 324 Blackwell Street, Suite 1200 | Durham | NC | 27701 |

| Project Information | | | | | | | |
|---|---|---------------------|------------------------------|----------------------------------|-----------------------------------|-----------|--|
| Project Name | | Project Type | | | Disturbed Land Area (Sq Ft/Acres) | | |
| HB-0001 Alligator River Bridge Replacement | | Public/Government | | | 2894562 Sq. Ft. / Acres | | |
| Is proposed project located in national registered historic district or national register listed/eligible: False | | | | | | | |
| List of previous state or federal permits for work on project tract: USACE Section 404 IP: SAW-2021-01091, Feb 9, 2024 USACE Section 404 NWP 6 & 33: SAW-2021-01901, January 26, 2024 USCG Permit 3-24-5: Oct 30, 2024 NCDWR Individual WQC: 20230935, Oct 20, 2023 CAMA Major: 136-23, Nov 30, 2023 & Jan 19, 2024 | | | | | | | |
| Project Location Information | | | | | | | |
| Address | County | River Basin | Subdivision | County Parcel ID | Latitude | Longitude | |
| N/A East Lake, NC 27953 | Tyrrell | | | | 35.90013 | -76.00573 | |
| Project Discharges to State Waters | | | | | | | |
| Discharge Type | Surface Runoff | Sanitary Wastewater | Industry/Commercial Effluent | Vessel Wash Down | Residential | Other | |
| Wastewater/Stormwater Discharged Into Wetland? | Discharge Same Salinity as Receiving Waters | | | Is There Any Mitigation Proposed | | | |
| True | False | | | True | | | |

Detailed Description of the Existing Development Located on the Property

Existing Man-Made Features:

The existing features are a roadway and associated roadway ditches and a draw bridge and associated support structures, plus driveways, residential and commercial buildings.

Existing Land Uses:

Forested, impervious surface, commercial and residential.

Existing Wastewater Treatment/Disposal:

N/A

Solid Waste/Fish Offal/Trash Disposal:

N/A

Use and Daily Operations of the Project When Complete

Proposed Development Purpose:

The purpose of the project is to replace the existing 2.83-mile-long Lindsay C. Warren Bridge (Tyrrell County Bridge Number

7), carrying US 64 across the Alligator River/Atlantic Intracoastal Waterway, with a two-lane, high-level, fixed-span bridge. The current bridge is experiencing substantial deterioration due to its age and structural deficiencies resulting in ongoing maintenance problems, jeopardizing its ability to provide a reliable connection between Columbia and Manns Harbor, Manteo, and the Outer Banks. A potential bridge malfunction or maintenance that requires the bridge to stay in the closed position for more than a short-term closure also affects reliable passage along the Atlantic Intracoastal Waterway. The existing bridge was constructed in 1960 and is classified as structurally deficient with a 31.71 rating of a possible 100.

Buildings/Facilities/Units/Structures:

Existing Lindsay Warren Bridge, US 64, Alligator River Marina, secondary roads.

Use & Daily Operations:

The roadway and the bridge carry existing US 64 traffic. The proposed bridge will continue this use on new location to the north of the existing bridge.

Construction Methodology & Equipment:

During construction, vehicular traffic will be maintained on the existing bridge; marine traffic will continue to use the existing navigation channel, and the swing span bridge will continue to function. Temporary work platforms, one on either shore in nearshore shallow waters, are proposed to access the new bridge alignment except for the central spans and navigation span, where barge access will be used. An in-water construction moratorium from July 15 – September 30 for the entire river, and February 15 – June 30 for the deepwater channel is required per the NC Division of Marine Fisheries. The existing bridge will be demolished via top-down techniques, along with the use of temporary work platforms in nearshore shallow waters and barges. Existing Tyrrell Bridge No. 7 will be removed completely, including piles, to the extent practicable. If a pile snaps off at a depth below scour and navigational clearance, and would require significant disturbance of substrate to remove, it will be cut at the mudline.

Development Activities Narrative Specifics:

Replacement of existing bridge.

Application Narrative:

The North Carolina Department of Transportation (NCDOT) proposes the replacement of US 64 Tyrrell County Bridge Number 7 over the Alligator River/Atlantic Intracoastal Waterway in Dare and Tyrrell Counties (STIP No. HB-0001). The proposed two-lane, 3.32-mile long, high-level, fixed-span bridge would replace the existing 2.83-mile long, 2-lane bridge, 343-span (with a movable steel swing span) bridge. Based on the design, the project will result in potential impacts to the Alligator River and Section 404 and Section 404/CAMA wetlands. All features are located in the Pasquotank River Basin (U.S. Geological Survey [USGS] Hydrologic Unit Code [HUC] 03010205). This permit application is a modification to the existing CAMA Major permit for the project. This modification only covers new impacts that have not been previously permitted.

Boat Ramp Development Activity Included: False

| Boat Ramp Dimensions | | | | |
|----------------------|-------|--------------------|---------------------|-------------------------------|
| Length | Width | Avg Existing Depth | Final Project Depth | Distance Waterward of NHW/NWL |

| Will Fill Material Be Placed In Any Of The Following Areas | | |
|--|------------------|------------------------------|
| Area | Sq. Ft. Affected | Purpose of Fill in This Area |
| Coastal Wetland/Marsh (CW) | | |
| Submerged Aquatic Vegetation (SAV) | | |
| Shell Bottom (SB) | | |
| Other Non-Coastal Wetlands (WL) | | |

| Boat Ramp Structures | | | |
|----------------------|--------|-------|----------|
| Structure Type | Length | Width | Quantity |

Shoreline Stabilization Development Activity Included: False

Living Shoreline Development Activity Included: False

Piers & Docking Facilities Development Activity Included: False

Excavation Development Activity Included: False

Bridges & Culverts Development Activity Included: False

Oceanfront Erosion Control Development Activity Included: False

Temporary Structures Development Activity Included: True

| Temporary Structures Details | | |
|--|---------------------------|--|
| Floating Dock or Other Docking Structure | Other Temporary Structure | Other Temporary Structure (Describe) |
| False | True | This does not include previously permitted impacts; this is only outlining new impacts. Adding a temporary access road and switching the location of the temporary work trestle from the north side of the proposed bridge to the south side of the proposed bridge. |

| Temporary Structures - Docking Facilities Details | | | |
|---|------------------|----------------|-----------|
| Facility Use | # of Tie Pilings | Existing Slips | New Slips |

| Freestanding Moorings & Buoys Associated With This Temporary Structure | | |
|--|--|---|
| Structures Consistent With Water Use Plan | Existing Freestanding Moorings & Buoys Slips | New Freestanding Moorings & Buoys Slips |
| False | 0 | 0 |
| Buoy Details: | | |

| Temporary Structures - Moorings & Buoys Details | | | |
|---|-------------------------|--------------|-------------|
| Moorings or Buoy | Distance From Shoreline | Arc of Swing | Water Depth |

Utility Crossings Development Activity Included: False

Freestanding Moorings, Buoys & Bird Nesting Poles Development Activity Included: False

Log Removal/Marine Debris Development Activity Included: Yes/No

Navigational Aids Development Activity Included: False

Other Fill Below Water Level Development Activity Included: True

| Other Fill Below Water Level For Utility Crossing | | | | |
|---|-------|---|--|--|
| Will Fill Material be Placed in Any Of The Following Areas | | | | |
| Area | | Sq. Ft. Affected | Purpose of Fill in This Area | |
| Coastal Wetland/Marsh (CW) | | | | |
| Submerged Aquatic Vegetation (SAV) | | | | |
| Shell Bottom (SB) | | | | |
| Other Non-Coastal Wetlands (WL) | | 46086 | Temp fill for bridge construction/staging areas, temp access road, EC. Reduced permanent fill. | |
| Open Water (OW) | | | | |
| How Will Fill Material be Kept on Site and Erosion Controlled | | Wetlands Crossed Transporting Equipment to Project Site | | Steps Taken to Avoid/Minimize Environmental Impact |
| An erosion control plan has been developed that covers how fill will be erosion controlled. | | True | | Equipment will use temporary work platforms and or/matting when crossing wetland areas to avoid or minimize compaction and permanent wetland impacts to the site related to equipment use. None of these areas are in CAMA wetlands. |
| Other Fill Dimensions | | | | |
| Length | Width | Type of Fill | "Other" Fill Type Describe | Purpose of Fill |

Stormwater Structures Development Activity Included: False

"Upland Development" Development Activity Included: False

Energy Facilities Development Activity Included: False

Aquaculture Development Activity Included: False

Submerged Lands Mining Development Activity Included: False

General Development Activity Details Required

| General Development Activity Questions | | | | |
|---|-----------------|---|--|---|
| These questions are applicable if 1 of the following development activities are included in the project (Boat Ramps, Freestanding Moorings, Buoys & Bird Nesting Poles, Piers & Docking Facilities, Temporary Structures, Living Shorelines, Shoreline Stabilization Submerged Lands Mining) | | | | |
| Boat Type(s) | | Typical Boat Length | | Other Boat Type (Describe) |
| Open runabout; Sail boat; Personal water craft; Non-motorized; Other | | 0 | | |
| Adj Riparian Property Line #1 (Proximity of Structure Nearest to Property Line) | | Adj Riparian Property Line #2 (Proximity of Structure Nearest to Property Line) | | Adj Riparian Property Line #3 (Proximity of Structure Nearest to Property Line) |
| Width of Water Body | | Water Depth @ Waterward End of Structure (NLW or NWL) | | Water Depth @ Most Landward Boat Slip (NLW or NWL) |
| 0 | | 0 | | 0 |
| Water Depth @ Most Waterward Boat Slip (NLW or NWL) | | Min Distance of Each Aid Placed Beyond Shoreline | | Max Distance of Each Aid Placed Beyond Shoreline |
| 0 | | | | |
| Navigational Aids Required | Number of Buoys | Number of Day Markers | | |
| False | | | | |

Marina Development Activity Details Required

Acknowledgements

- I understand that any permit issued in response to this application will allow only the development described in the application. The project will be subject to the conditions and restrictions contained in the permit

- I certify that I am authorized to grant, and do in fact grant permission to representatives of state and federal review agencies to enter on the aforementioned lands in connection with evaluating information related to this permit application and follow-up monitoring of the project

- I further certify that the information provided in this application is truthful to the best of my knowledge

- I certify that by clicking the submit button on this NC Division of Coastal Management application I acknowledge that I am signing and dating the application submitted therein

| 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 | |

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TYRRELL & DARE COUNTY

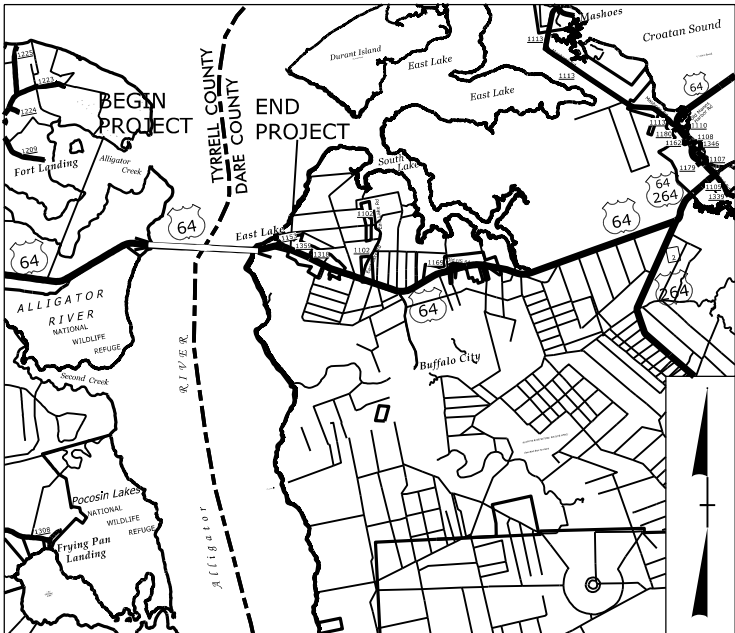
LOCATION: REPLACE BRIDGE #7 ON US 64 IN TYRRELL AND DARE COUNTIES OVER THE ALLIGATOR RIVER

TYPE OF WORK: STRUCTURE, GRADING, PAVING, DRAINAGE

WETLAND AND SURFACE WATER IMPACTS PERMIT

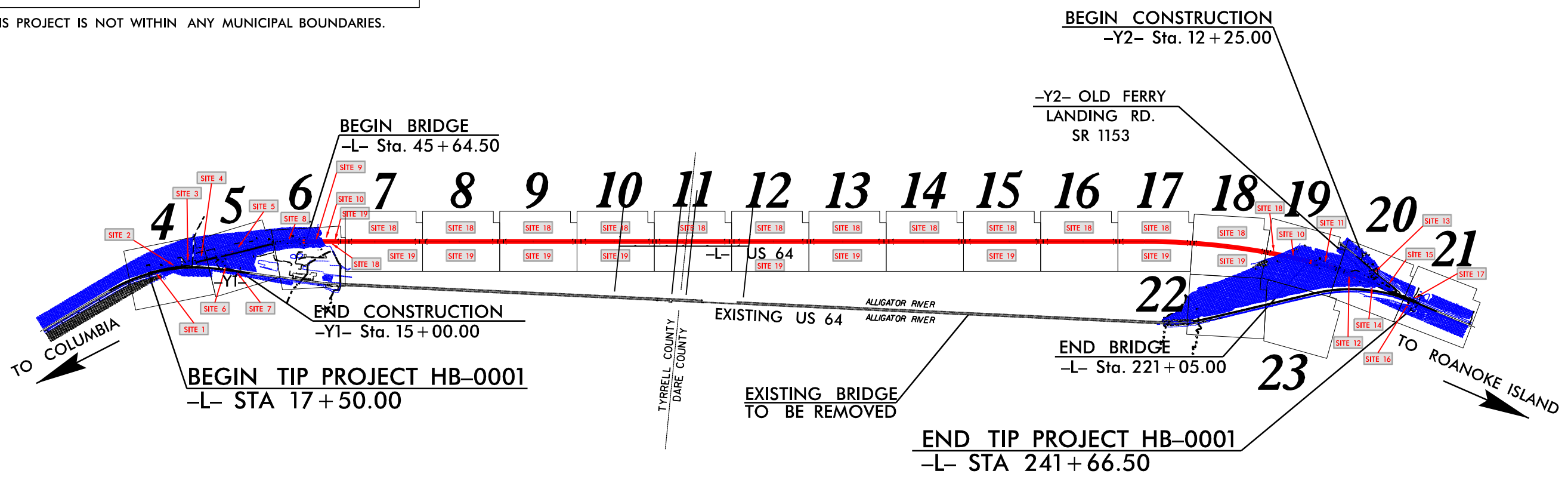
PERMIT DRAWING
SHEET 1 OF 79

ROW PLAN SET



VICINITY MAP

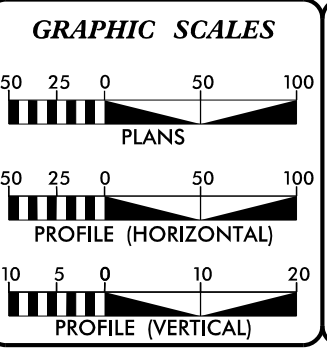
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.



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

TIP PROJECT: HB-0001

CONTRACT:



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:

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.



PERMIT DRAWING SHEET 2 OF 79

-L-
 PI Sta 14+43.80
 $\Delta = 17^{\circ}10'13.3" (RT)$
 $D = 1^{\circ}57'30.0"$
 $L = 876.78'$
 $T = 441.70'$
 $R = 2925.74'$
 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

SITE 2

SITE 3

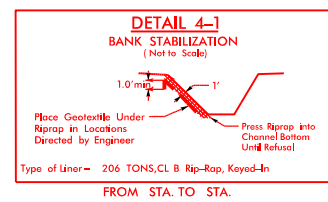
SITE 4

MCKEE INVESTMENTS, LLC
 DB 244 PG 644

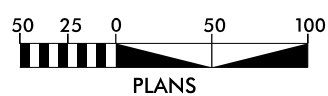
MUTUAL GN COMPANY
 DB 164 PG 110

-L- PT Sta. 18+78.88

STATE OF NORTH CAROLINA
 DB 192 PG 595



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



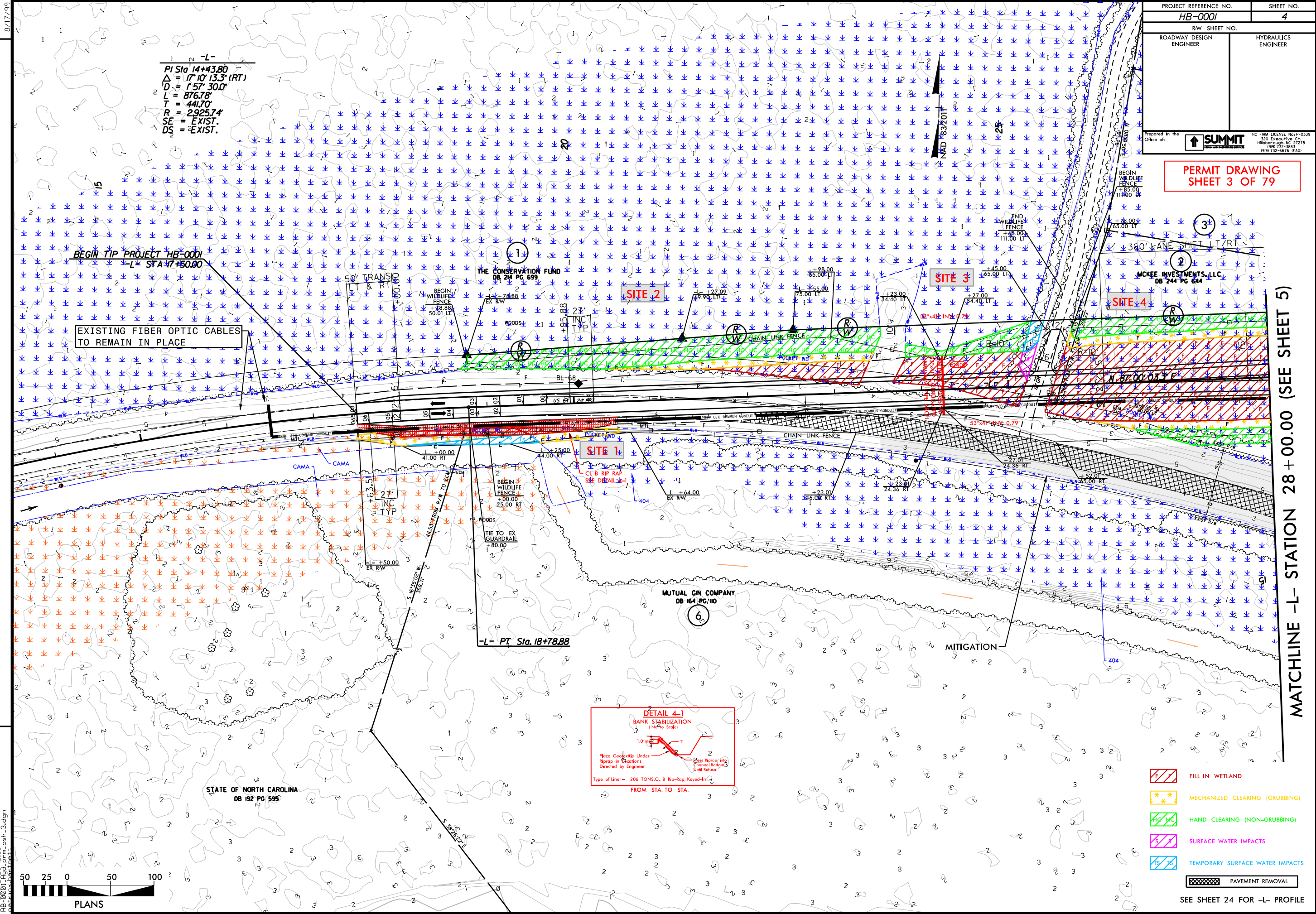
MATCHLINE -L- STATION 28+00.00 (SEE SHEET 5)

SEE SHEET 24 FOR -L- PROFILE

8/17/99

28-DEC-2023 12:55 -path_2.dgn

PERMIT DRAWING SHEET 3 OF 79



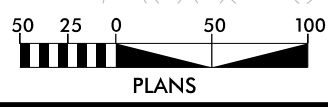
REVISIONS

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

- 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

28-DEC-2023 12:55
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 8/17/99

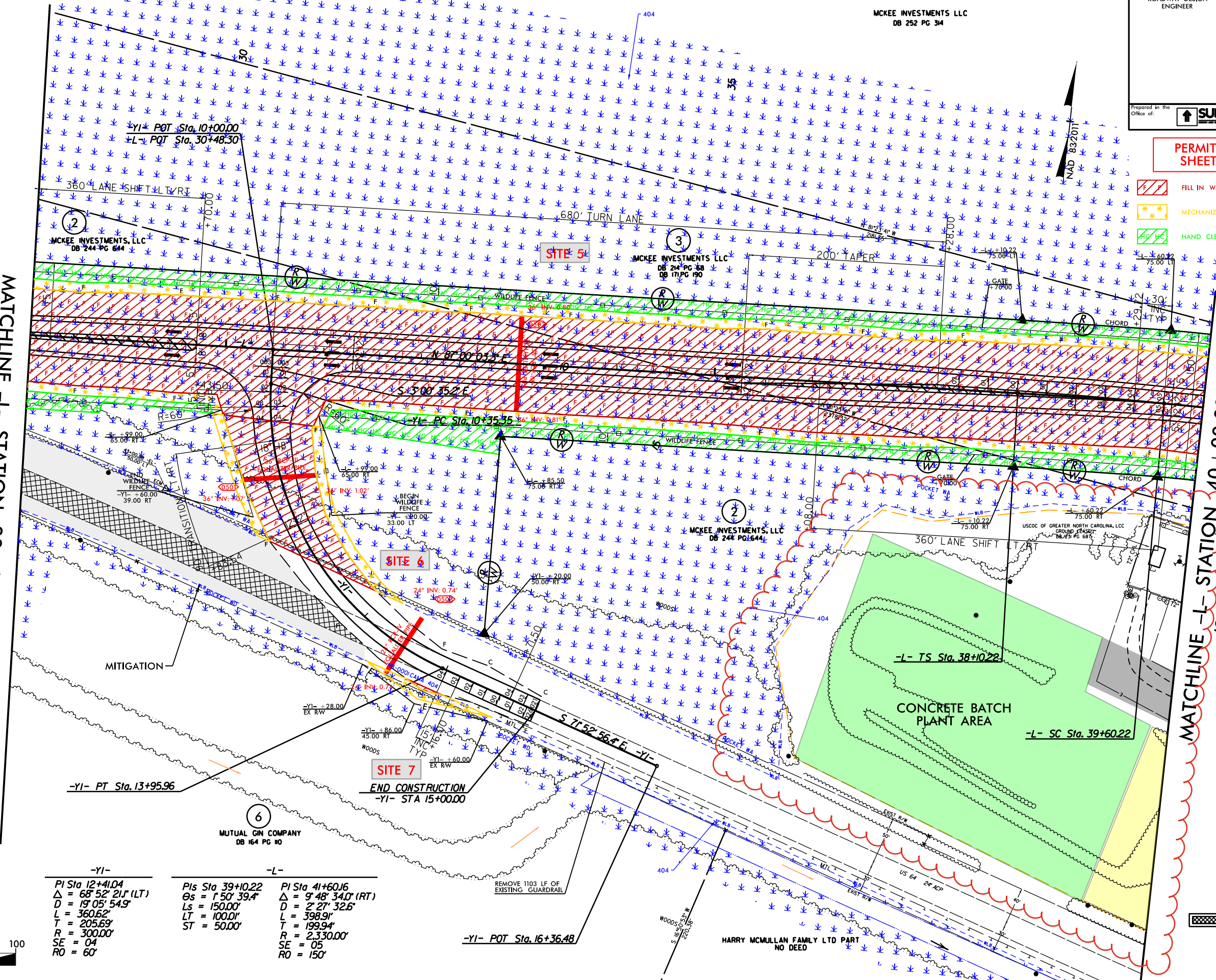


PERMIT DRAWING SHEET 4 OF 79

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

MATCHLINE -L- STATION 28+00.00 (SEE SHEET 4)

MATCHLINE -L- STATION 40+00.00 (SEE SHEET 6)



| | | |
|----------------------------------|--------------------------------|-----------------------------------|
| -YI- | -L- | -L- |
| PI Sta 12+41.04 | PIs Sta 39+10.22 | PI Sta 41+60.16 |
| $\Delta = 68^\circ 52' 21"$ (LT) | $\Theta_s = 1^\circ 50' 39.4"$ | $\Delta = 9^\circ 48' 34.0"$ (RT) |
| $D = 19^\circ 05' 54.9"$ | $L_s = 150.00'$ | $D = 2^\circ 27' 32.6"$ |
| $L = 360.62'$ | $L_t = 100.0'$ | $L = 398.9'$ |
| $T = 205.69'$ | $ST = 50.00'$ | $T = 199.94'$ |
| $R = 300.00'$ | | $R = 2,330.00'$ |
| $SE = 04'$ | | $SE = 05'$ |
| $RO = 60'$ | | $RO = 150'$ |



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

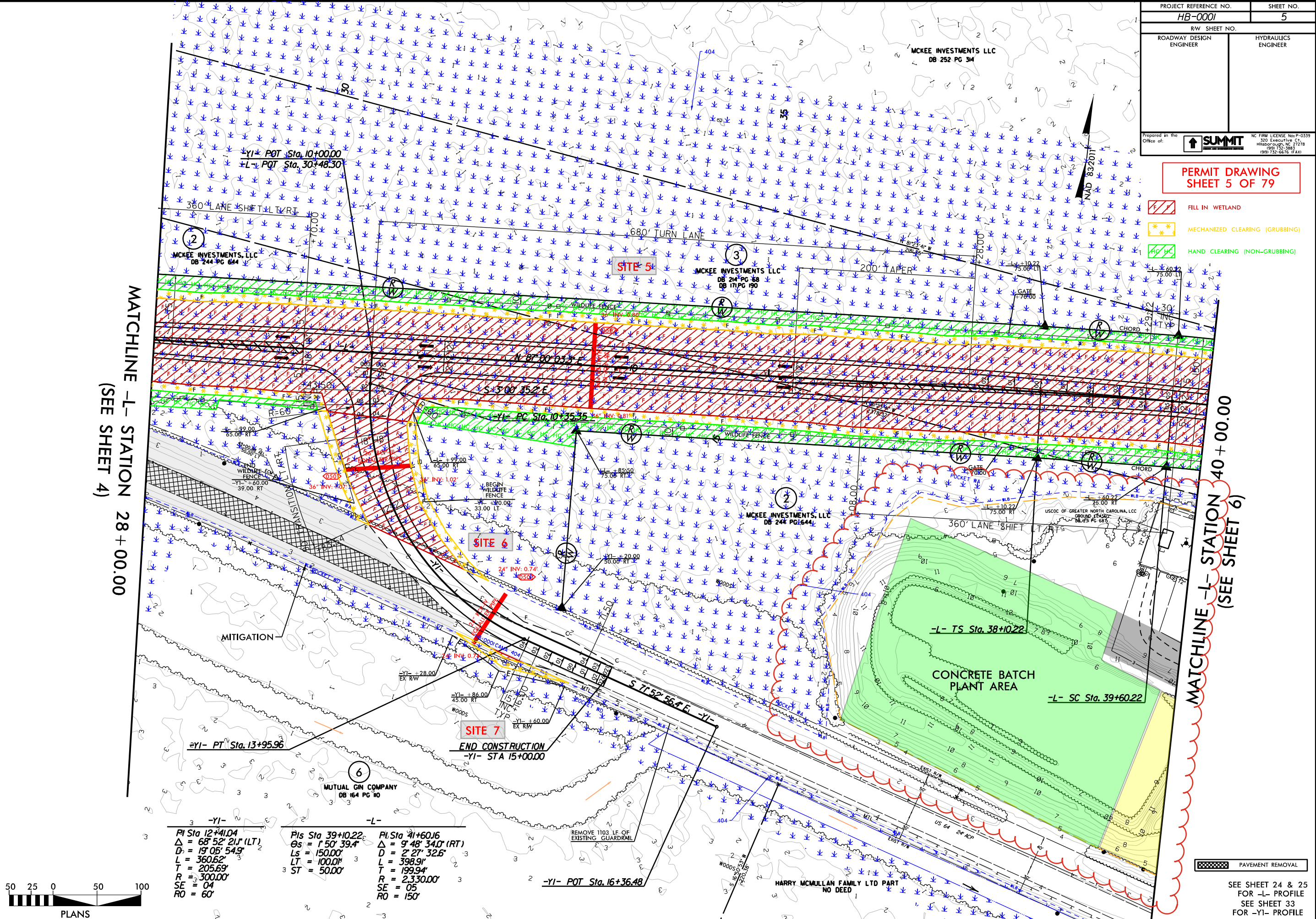
8/17/99

REVISIONS

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PERMIT DRAWING SHEET 5 OF 79

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



MATCHLINE -L- STATION 28+00.00 (SEE SHEET 4)

MATCHLINE -L- STATION 40+00.00 (SEE SHEET 6)

| | | |
|----------------------------------|----------------------------|-----------------------------------|
| -YI- | -L- | -YI- |
| PI Sta 12+41.04 | PI Sta 39+10.22 | PI Sta 41+60.16 |
| $\Delta = 68^\circ 52' 21"$ (LT) | $\Delta = 150^\circ 39.4'$ | $\Delta = 9^\circ 48' 34.0"$ (RT) |
| $D = 19^\circ 05' 54.9"$ | $Ls = 150.00'$ | $D = 2^\circ 27' 32.6"$ |
| $L = 360.62'$ | $LT = 100.00'$ | $L = 398.91'$ |
| $T = 205.69'$ | $ST = 50.00'$ | $T = 199.94'$ |
| $R = 300.00'$ | | $R = 2,330.00'$ |
| $SE = 04'$ | | $SE = 05'$ |
| $RO = 60'$ | | $RO = 150'$ |



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

REVISIONS

8/17/99

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8/17/99

Prepared in the Office of: **SUMMIT**
NC FIRB LICENSE No. P-0339
320 Executive Ct.
Hillsborough, NC 27278
919-732-3883
1997-232-6616 (FAX)

PROJECT REFERENCE NO. **HB-0001** SHEET NO. **6**

RW SHEET NO. ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

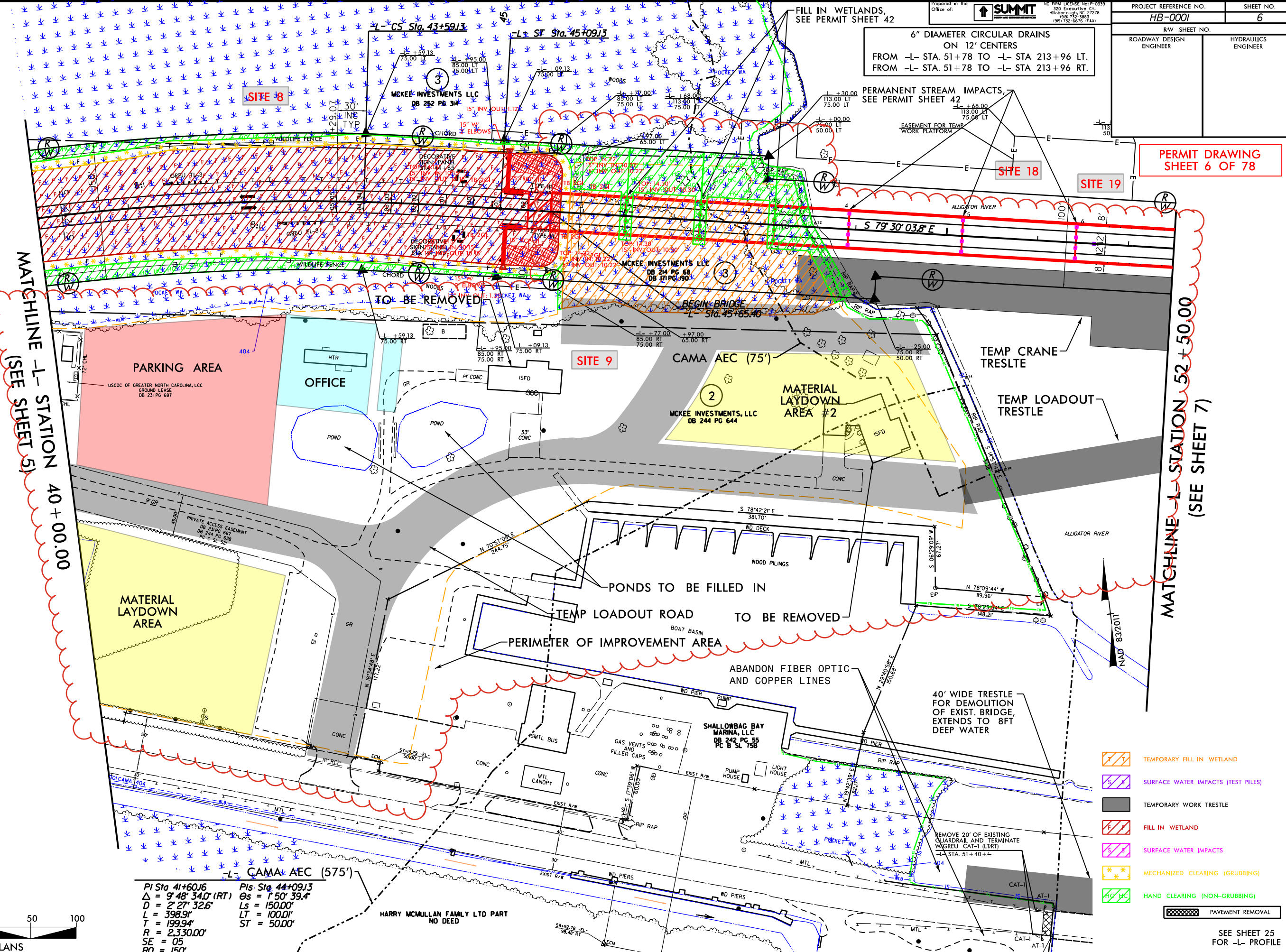
6" DIAMETER CIRCULAR DRAINS ON 12' CENTERS FROM -L- STA. 51+78 TO -L- STA 213+96 LT. FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMANENT STREAM IMPACTS, SEE PERMIT SHEET 42

PERMIT DRAWING SHEET 6 OF 78

MATCHLINE -L- STATION 40+00.00 (SEE SHEET 5)

MATCHLINE -L- STATION 52+50.00 (SEE SHEET 7)



REVISIONS



-L- CAMA AEC (575')
PI Sta 41+60J6 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+09J3 θs = 1° 50' 39.4" Ls = 150.00' LT = 100.01' ST = 50.00'

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

SEE SHEET 25 FOR -L- PROFILE

8/17/99

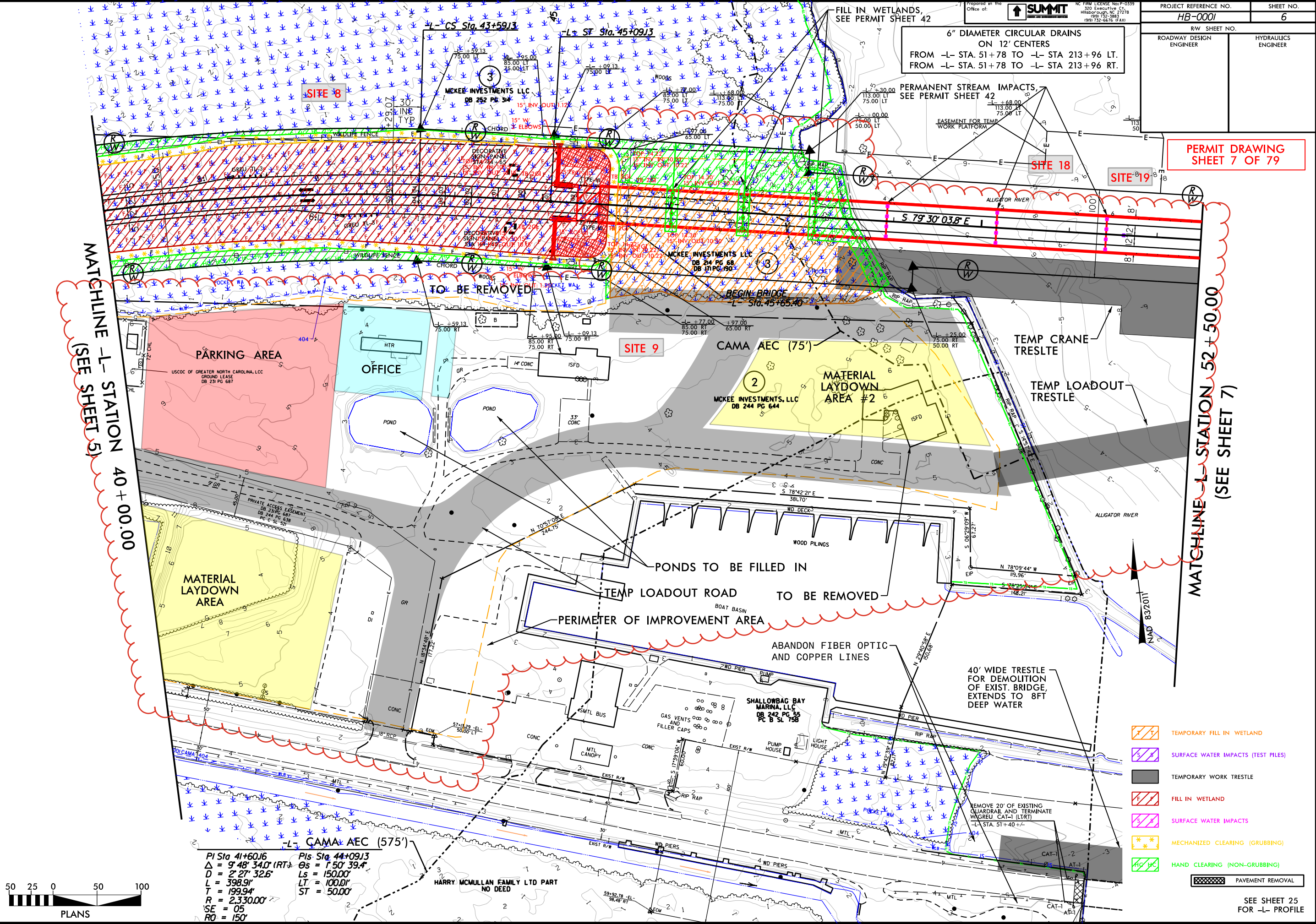
6" DIAMETER CIRCULAR DRAINS ON 12' CENTERS
 FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
 FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

PERMANENT STREAM IMPACTS, SEE PERMIT SHEET 42

PERMIT DRAWING SHEET 7 OF 79

MATCHLINE -L- STATION 40+00.00 (SEE SHEET 5)

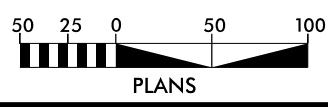
MATCHLINE -L- STATION 52+50.00 (SEE SHEET 7)



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

-L- CAMA AEC (575')

| | |
|-------------------------------|----------------------------|
| PI Sta 41+60J6 | PIs Sta 44+09J3 |
| $\Delta = 9' 48' 34.0''$ (RT) | $\Delta s = 1' 50' 39.4''$ |
| $D = 2' 27' 32.6''$ | $Ls = 150.00'$ |
| $L = 398.91'$ | $LT = 100.00'$ |
| $T = 199.94'$ | $ST = 50.00'$ |
| $R = 2,330.00'$ | |
| $SE = 05$ | |
| $RO = 150'$ | |



SEE SHEET 25 FOR -L- PROFILE

REVISIONS

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| | |
|--|-----------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 7 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of: SUMMIT <small>NC FIRM LICENSE Nos P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 752-3883 (919) 752-6676 (FAX)</small> | |

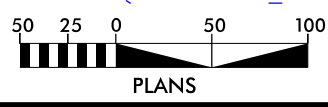
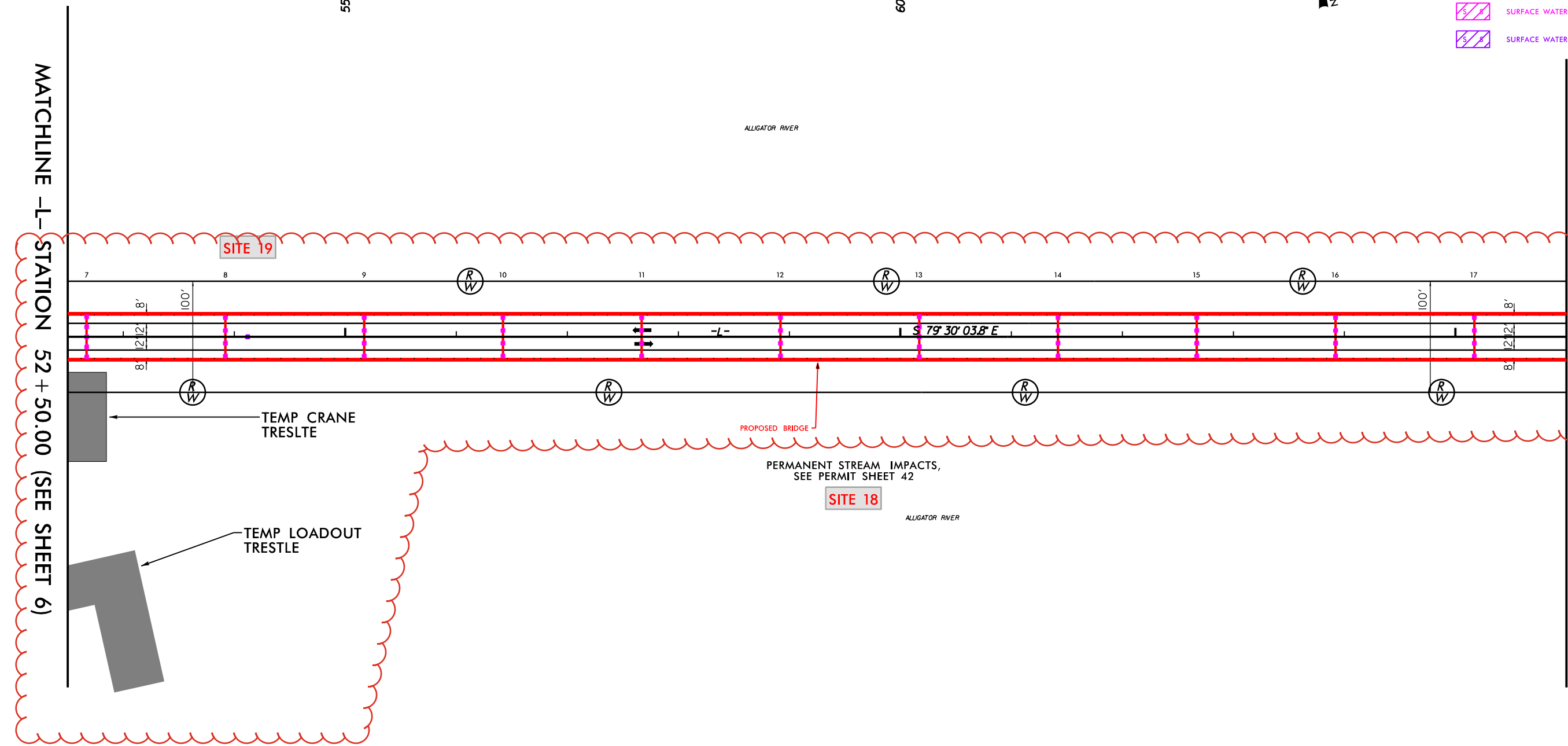
6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.



**PERMIT DRAWING
SHEET 8 OF 79**

- SURFACE WATER IMPACTS
- SURFACE WATER IMPACTS (TEST PILES)

REVISIONS



8/17/99



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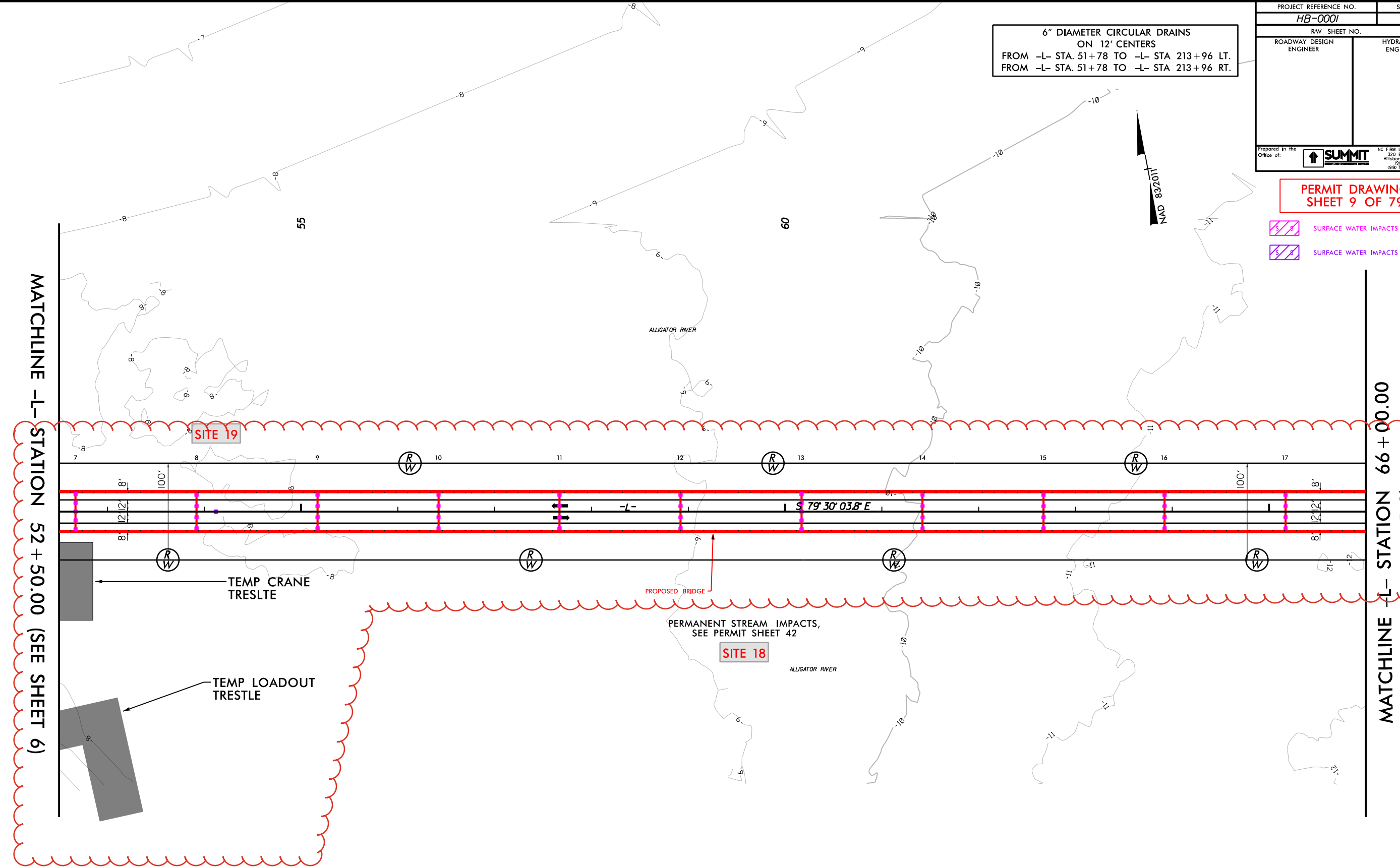
SEE SHEET 25 FOR -L- PROFILE

| | |
|--|-----------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 7 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of: SUMMIT <small>NC FIRM LICENSE Nos P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 752-3883 (919) 752-6676 (FAX)</small> | |

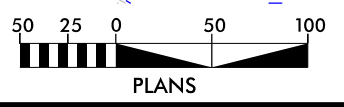
6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.

**PERMIT DRAWING
SHEET 9 OF 79**

-  SURFACE WATER IMPACTS
-  SURFACE WATER IMPACTS (TEST PILES)



REVISIONS



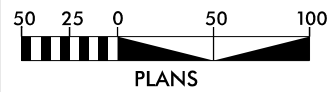
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SEE SHEET 25 FOR -L- PROFILE

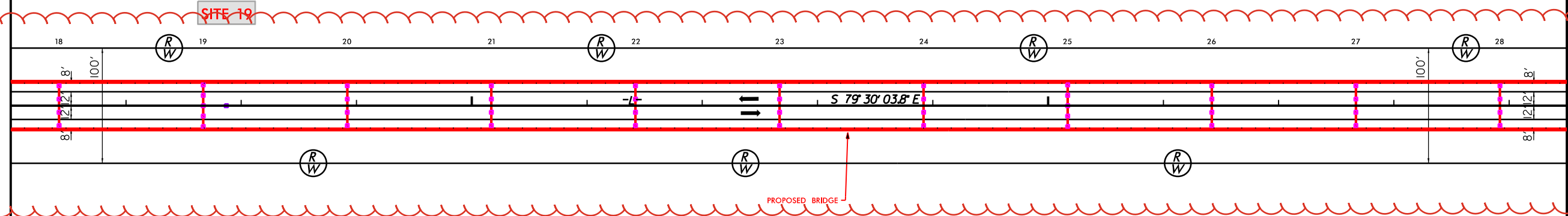
8/17/99

REVISIONS

18-NOV-2024 09:44
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MATCHLINE -L- STATION 66+00.00 (SEE SHEET 7)



MATCHLINE -L- STATION 79+50.00 (SEE SHEET 9)

70

75

ALLIGATOR RIVER

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 18

ALLIGATOR RIVER

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.



| | |
|--|-----------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 8 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of: NC FIRM LICENSE No P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (FAX) | |

**PERMIT DRAWING
SHEET 10 OF 79**

- SURFACE WATER IMPACTS
- SURFACE WATER IMPACTS (TEST PILES)



SEE SHEET 26 FOR -L- PROFILE

8/17/99

| | |
|--|-----------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 8 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of: SUMMIT NC FIRM LICENSE No. P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (FAX) | |

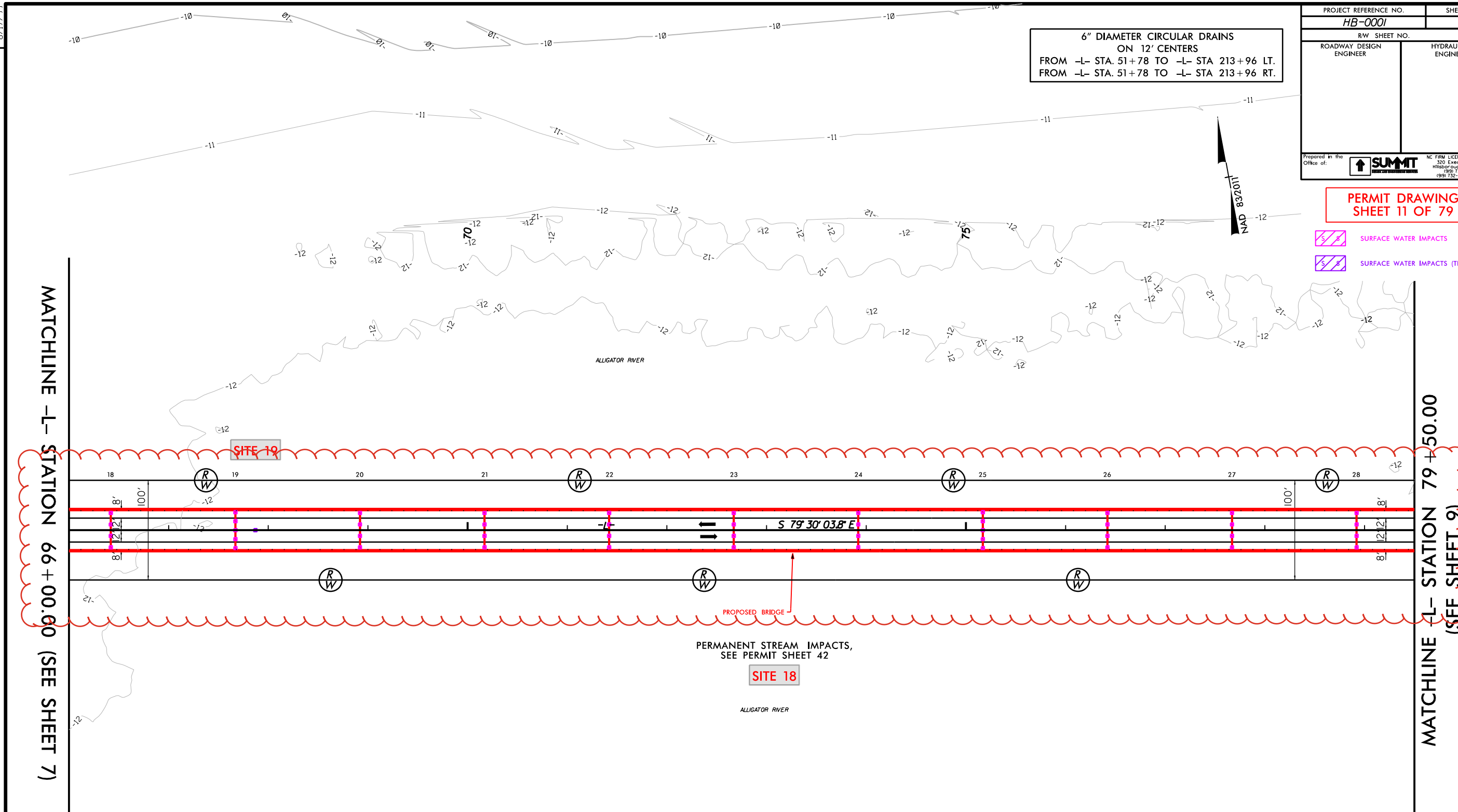
**6" DIAMETER CIRCULAR DRAINS
ON 12' CENTERS
FROM -L- STA. 51+78 TO -L- STA 213+96 LT.
FROM -L- STA. 51+78 TO -L- STA 213+96 RT.**

**PERMIT DRAWING
SHEET 11 OF 79**

-  SURFACE WATER IMPACTS
-  SURFACE WATER IMPACTS (TEST PILES)

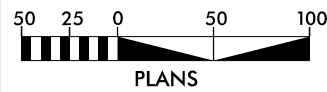
MATCHLINE -L- STATION 66+00.00 (SEE SHEET 7)

MATCHLINE -L- STATION 79+50.00 (SEE SHEET 9)



REVISIONS

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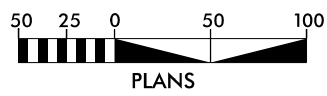


SEE SHEET 26 FOR -L- PROFILE

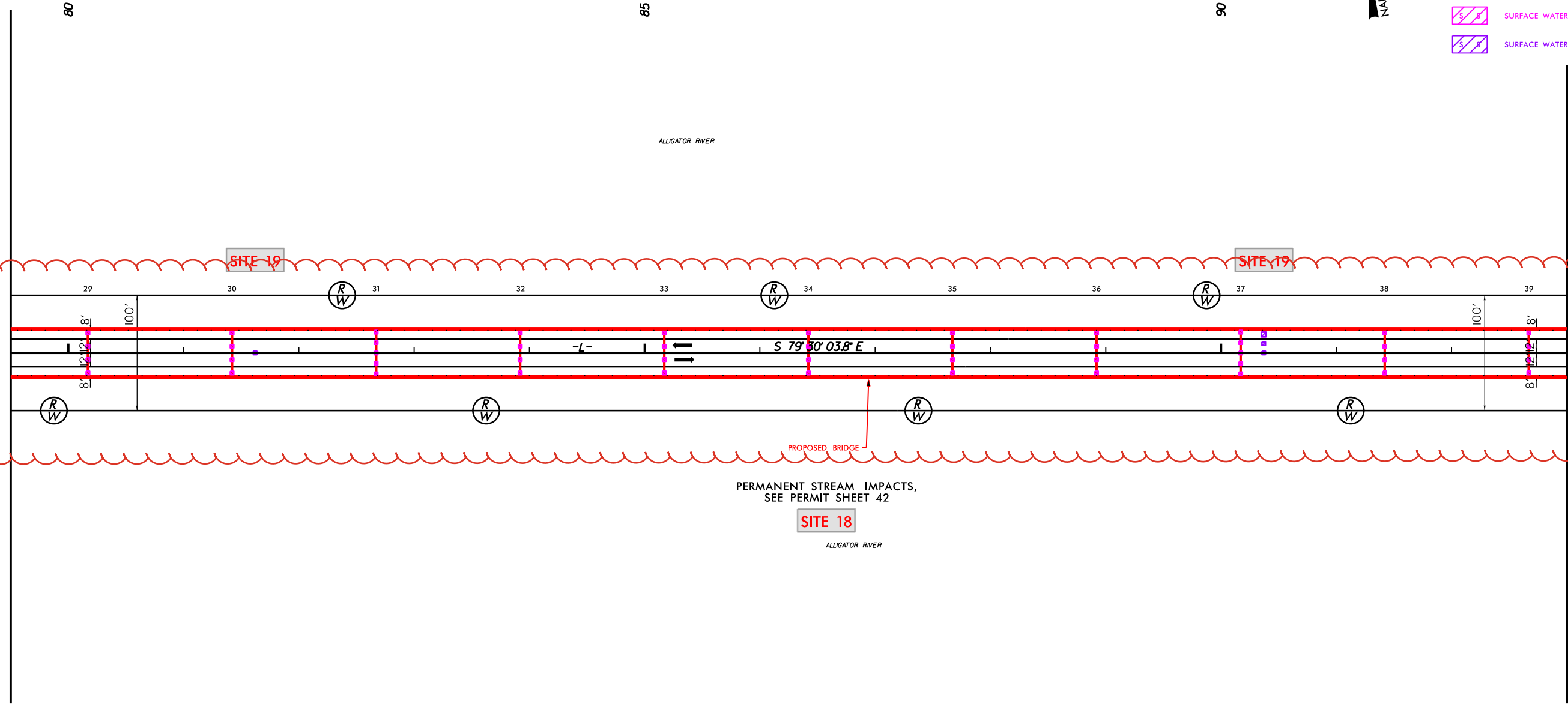
8/17/99

REVISIONS

18-NOV-2024 09:44
HB-0001.dwg
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MATCHLINE -L- STATION 79+50.00 (SEE SHEET 8)



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

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.


| | |
|---|-----------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 9 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of: | |
| <small>NC FIRM LICENSE No P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (FAX)</small> | |

**PERMIT DRAWING
SHEET 12 OF 79**

- SURFACE WATER IMPACTS
- SURFACE WATER IMPACTS (TEST PILES)





SEE SHEET 26 FOR -L- PROFILE

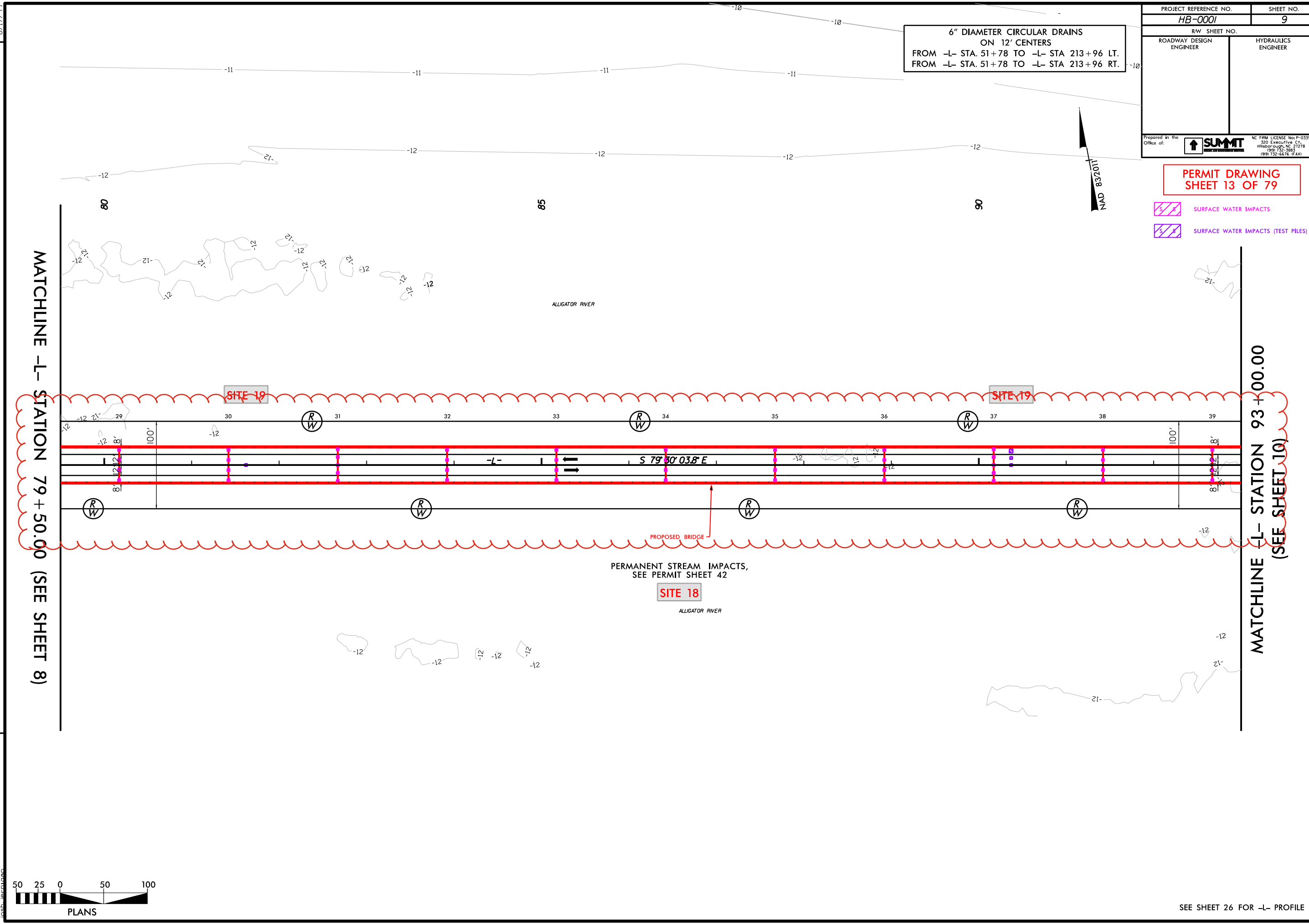
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| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 9 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of:  | |
| <small>NC FIRM LICENSE No. P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 332-2863 (919) 732-6616 (FAX)</small> | |

**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



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

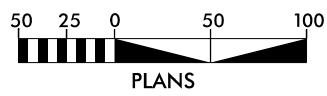
MATCHLINE -L- STATION 93+00.00 (SEE SHEET 10)

PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 18

SITE 19

SITE 19



SEE SHEET 26 FOR -L- PROFILE

REVISIONS

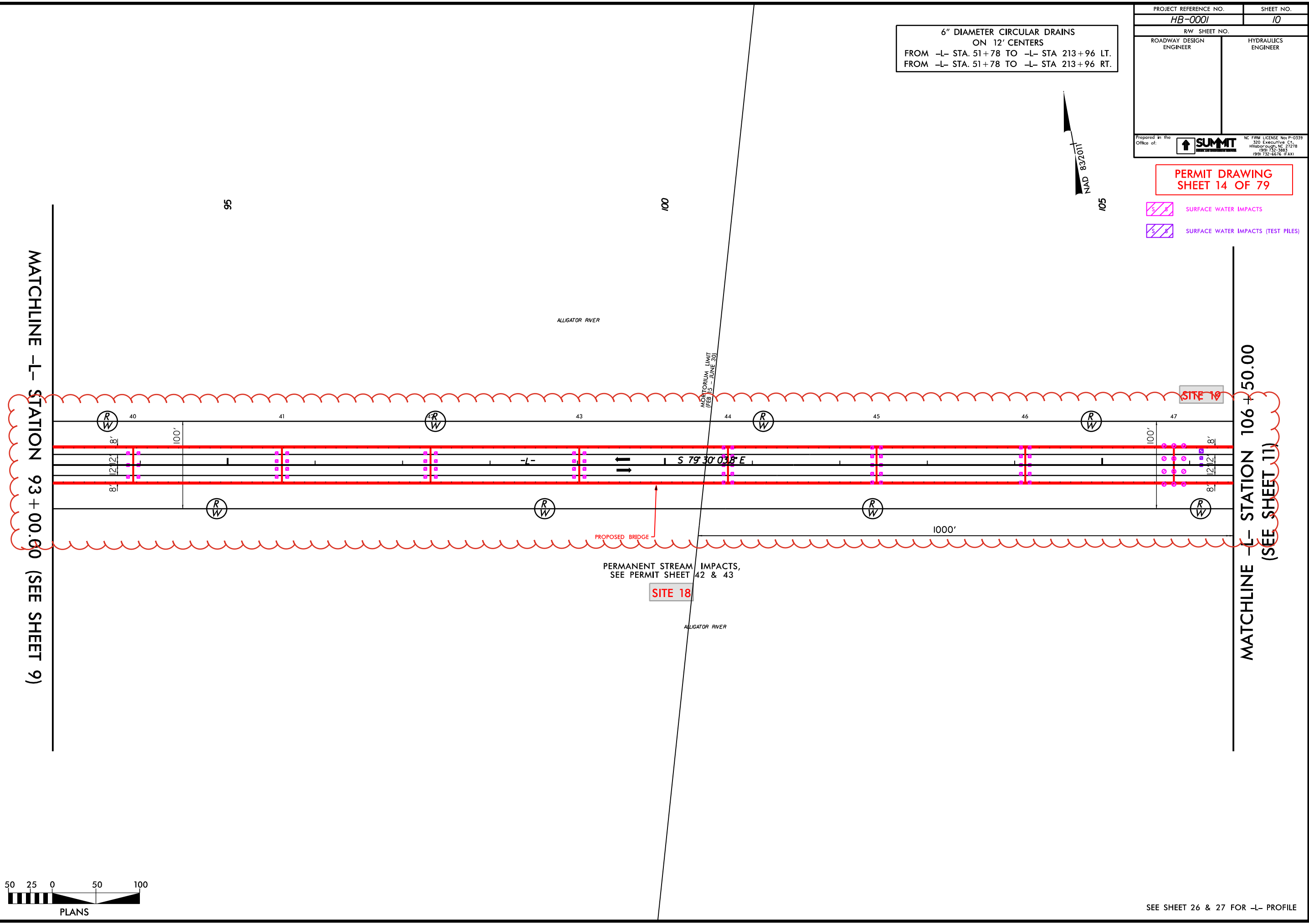
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8/17/99

8/17/99


REVISIONS

18-NOV-2024_09:44
HB-0001_Highway_Corridor_psh_14_M000.dgn
10/25/2024





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.



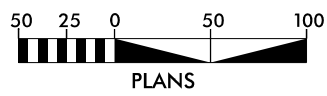
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|--|------------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 10 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of:  NC FIRM LICENSE No P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (FAX) | |

**PERMIT DRAWING
SHEET 14 OF 79**


-  SURFACE WATER IMPACTS
-  SURFACE WATER IMPACTS (TEST PILES)

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

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





SEE SHEET 26 & 27 FOR -L- PROFILE

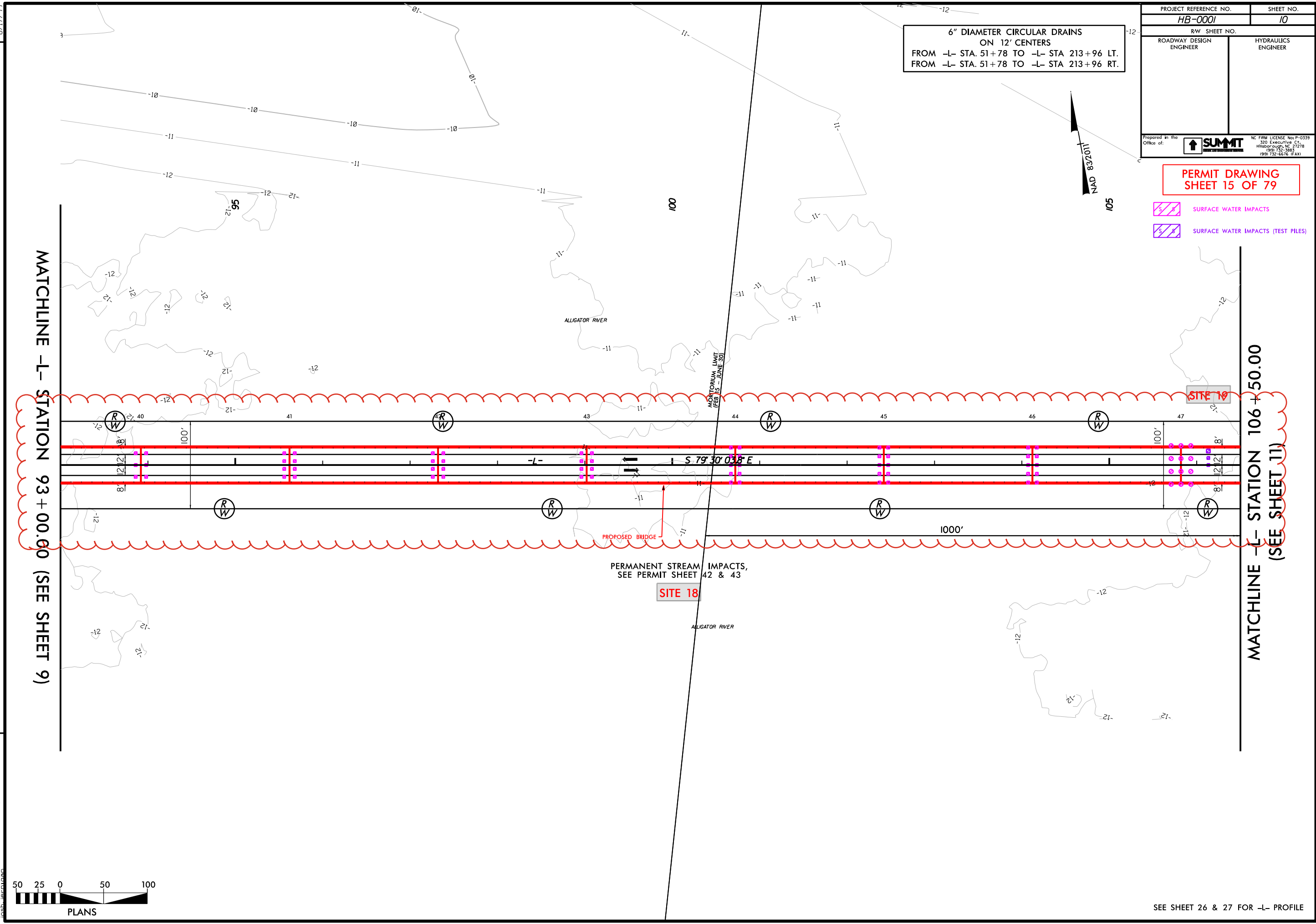
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|--|------------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 10 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of:  NC FIRM LICENSE No P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (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**

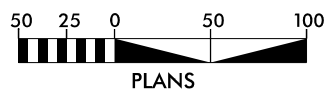
-  SURFACE WATER IMPACTS
-  SURFACE WATER IMPACTS (TEST PILES)



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

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

REVISIONS



SEE SHEET 26 & 27 FOR -L- PROFILE

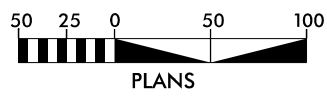
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8/17/99

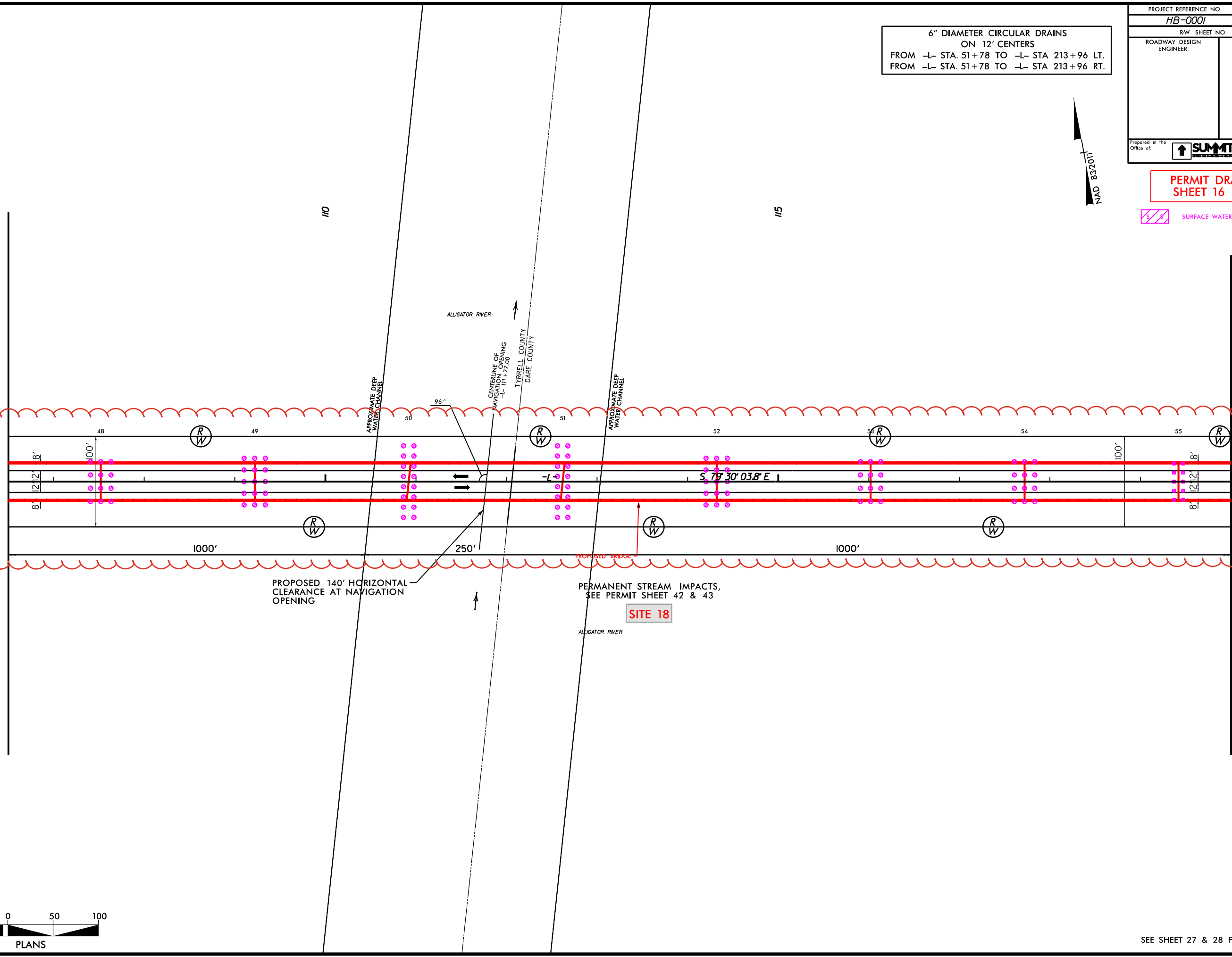
8/17/99

REVISIONS

18-NOV-2024_09:44
HB-0001.dwg
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MATCHLINE -L- STATION 106+50.00 (SEE SHEET 10)



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

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.



| | |
|---|------------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 11 |
| R/W SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of: | |
| <small>NC FIRM LICENSE No P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 332-2863 (919) 732-6616 (FAX)</small> | |

PERMIT DRAWING
SHEET 16 OF 79




PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42 & 43

SITE 18

SEE SHEET 27 & 28 FOR -L- PROFILE

8/17/99

| | | | |
|---|--|---|--|
| PROJECT REFERENCE NO. HB-0001 | | SHEET NO. 11 | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| Prepared in the Office of: | |  <small>NC FIRM LICENSE No. P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (FAX)</small> | |

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

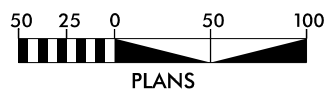
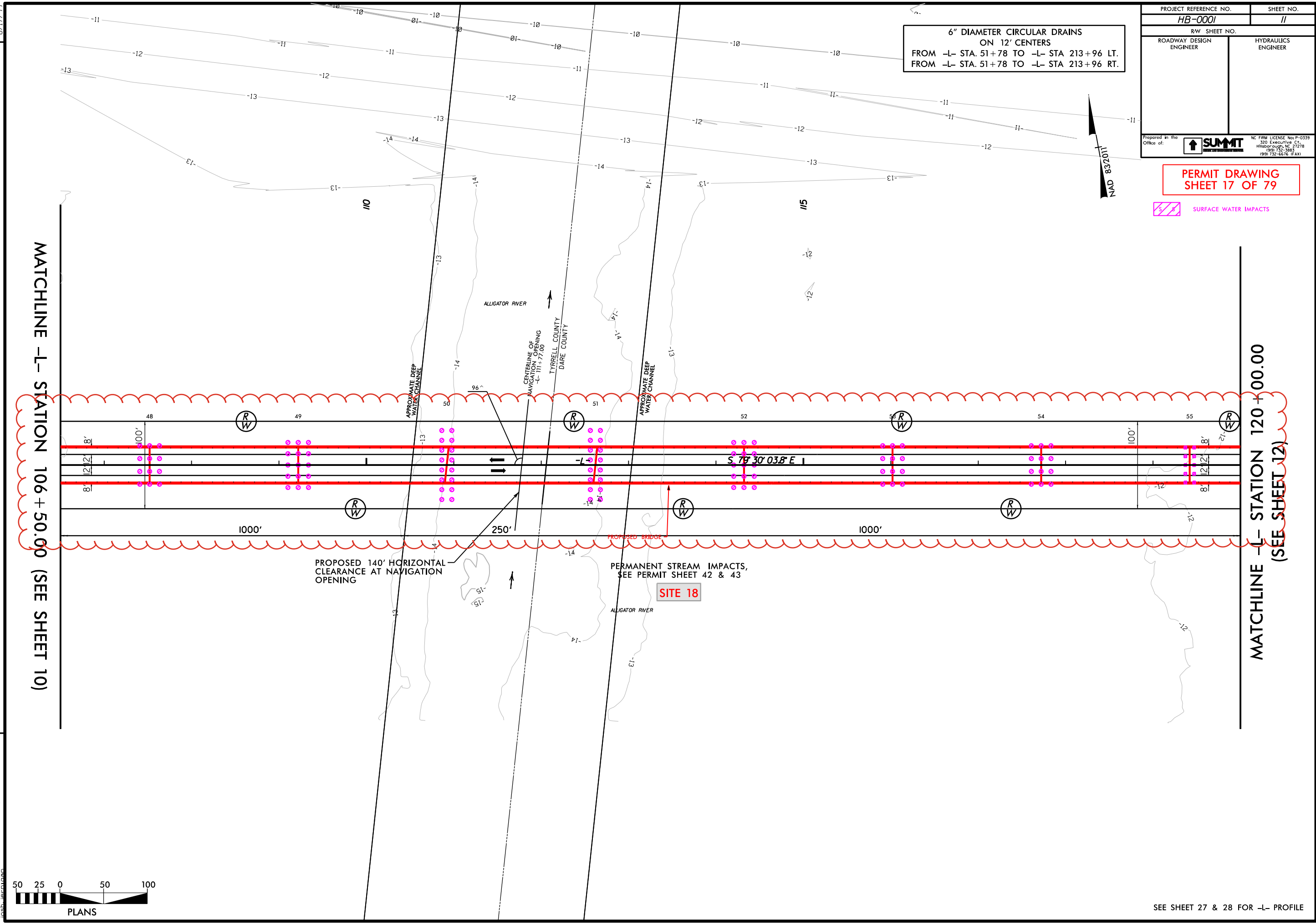
**PERMIT DRAWING
SHEET 17 OF 79**

 SURFACE WATER IMPACTS

REVISIONS

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

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



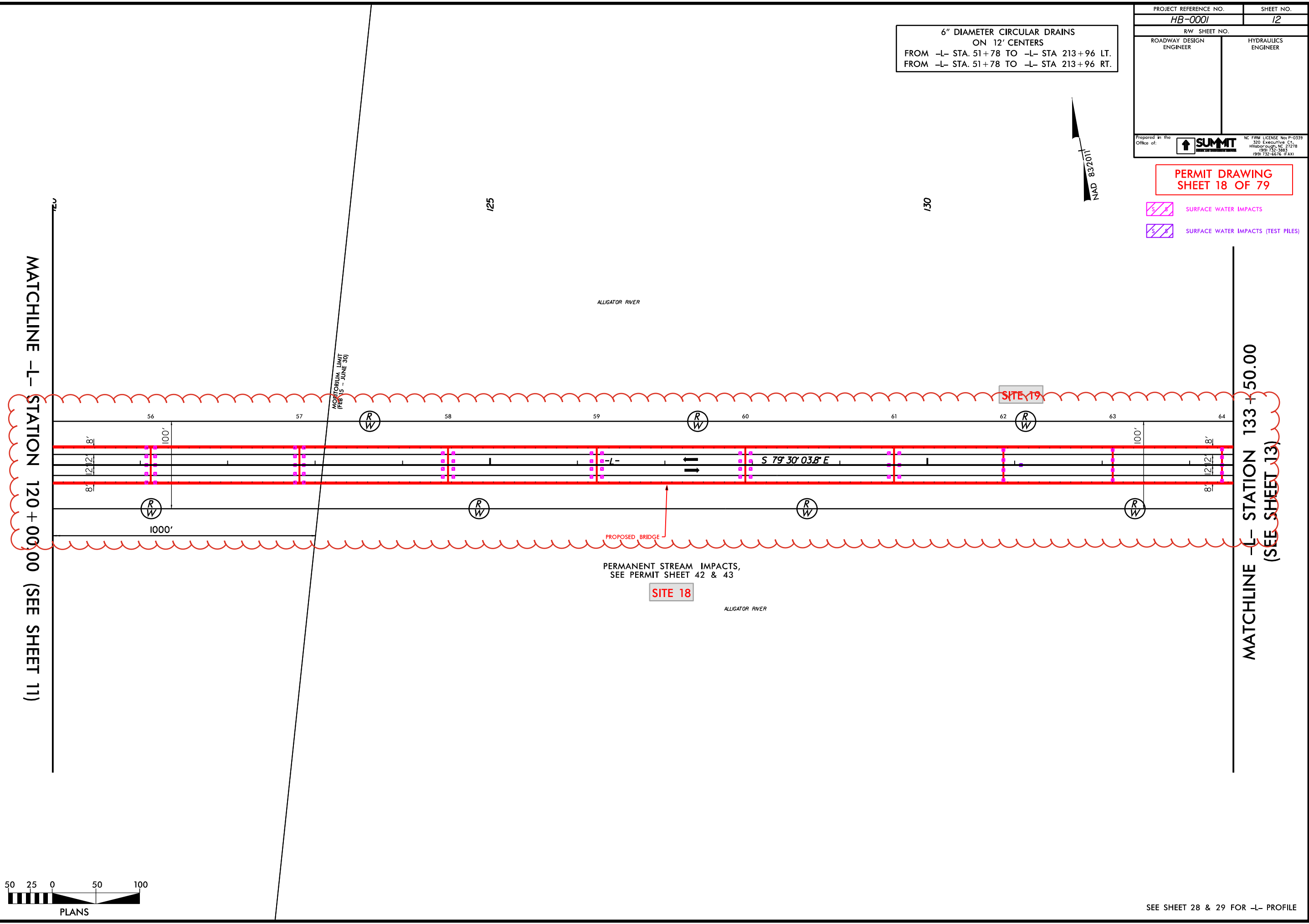
SEE SHEET 27 & 28 FOR -L- PROFILE

18-NOV-2024 09:44
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17-17.dwg
17-17.dwg

8/17/99

REVISIONS

18-NOV-2024 09:44
HB-0001.dwg
18-NOV-2024 09:44
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18-NOV-2024 09:44
HB-0001.dwg



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.

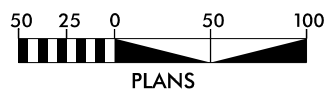
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| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 12 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of: NC FIRM LICENSE No P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (FAX) | |

**PERMIT DRAWING
SHEET 18 OF 79**


- SURFACE WATER IMPACTS
- SURFACE WATER IMPACTS (TEST PILES)

MATCHLINE -L- STATION 120+00.00 (SEE SHEET 11)

MATCHLINE -L- STATION 133+50.00 (SEE SHEET 13)





SEE SHEET 28 & 29 FOR -L- PROFILE

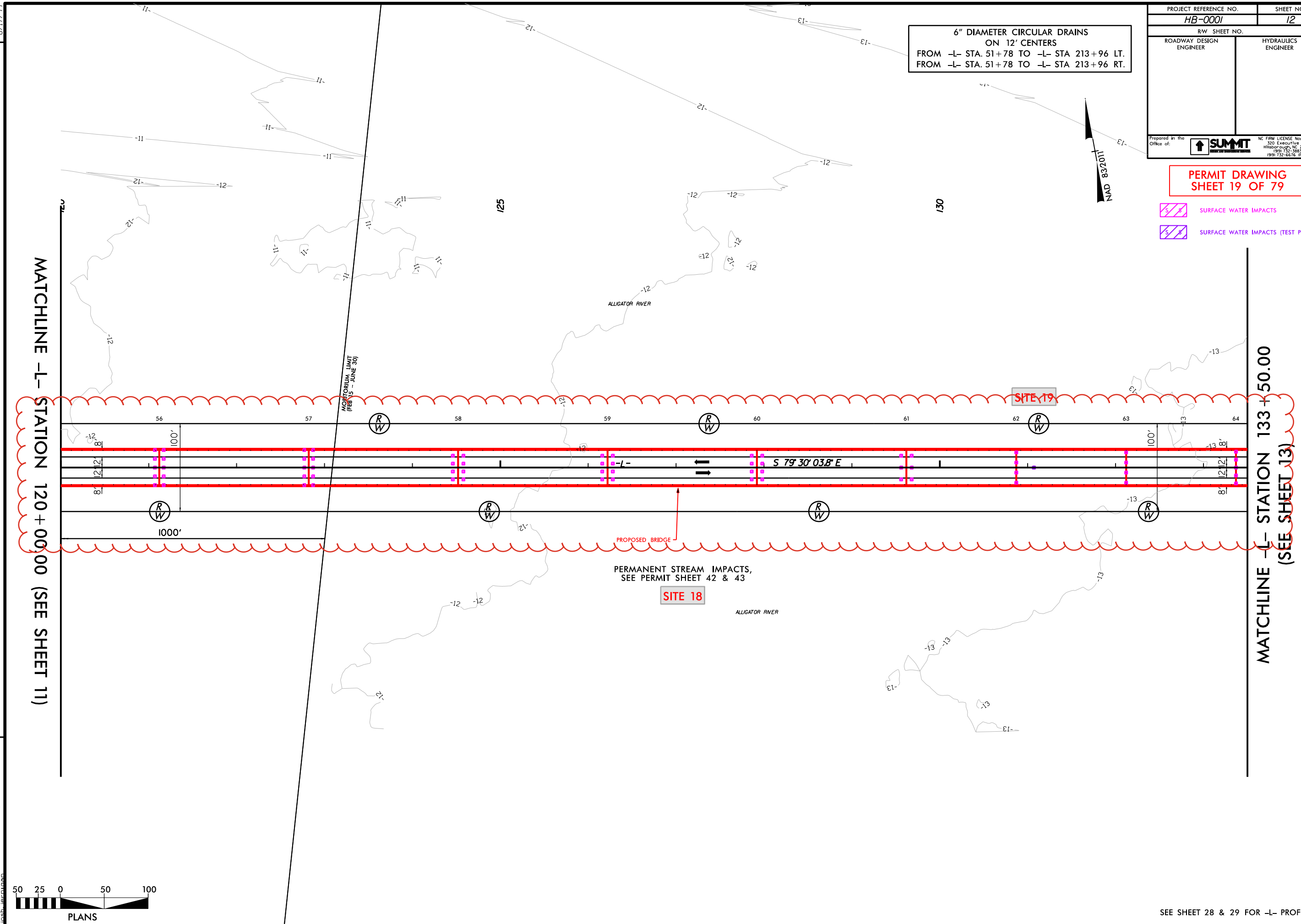
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| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 12 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of:  | |
| <small>NC FIRM LICENSE No P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (FAX)</small> | |

**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**

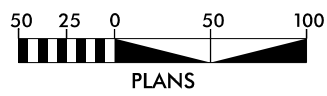
-  SURFACE WATER IMPACTS
-  SURFACE WATER IMPACTS (TEST PILES)



MATCHLINE -L- STATION 120+00.00 (SEE SHEET 11)

MATCHLINE -L- STATION 133+50.00 (SEE SHEET 13)


REVISIONS



SEE SHEET 28 & 29 FOR -L- PROFILE

18-NOV-2024 09:44
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10:50:40



8/17/99

| | |
|--|------------------------|
| PROJECT REFERENCE NO. <i>HB-0001</i> | SHEET NO. <i>13</i> |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of:  NC FIRM LICENSE No P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (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.



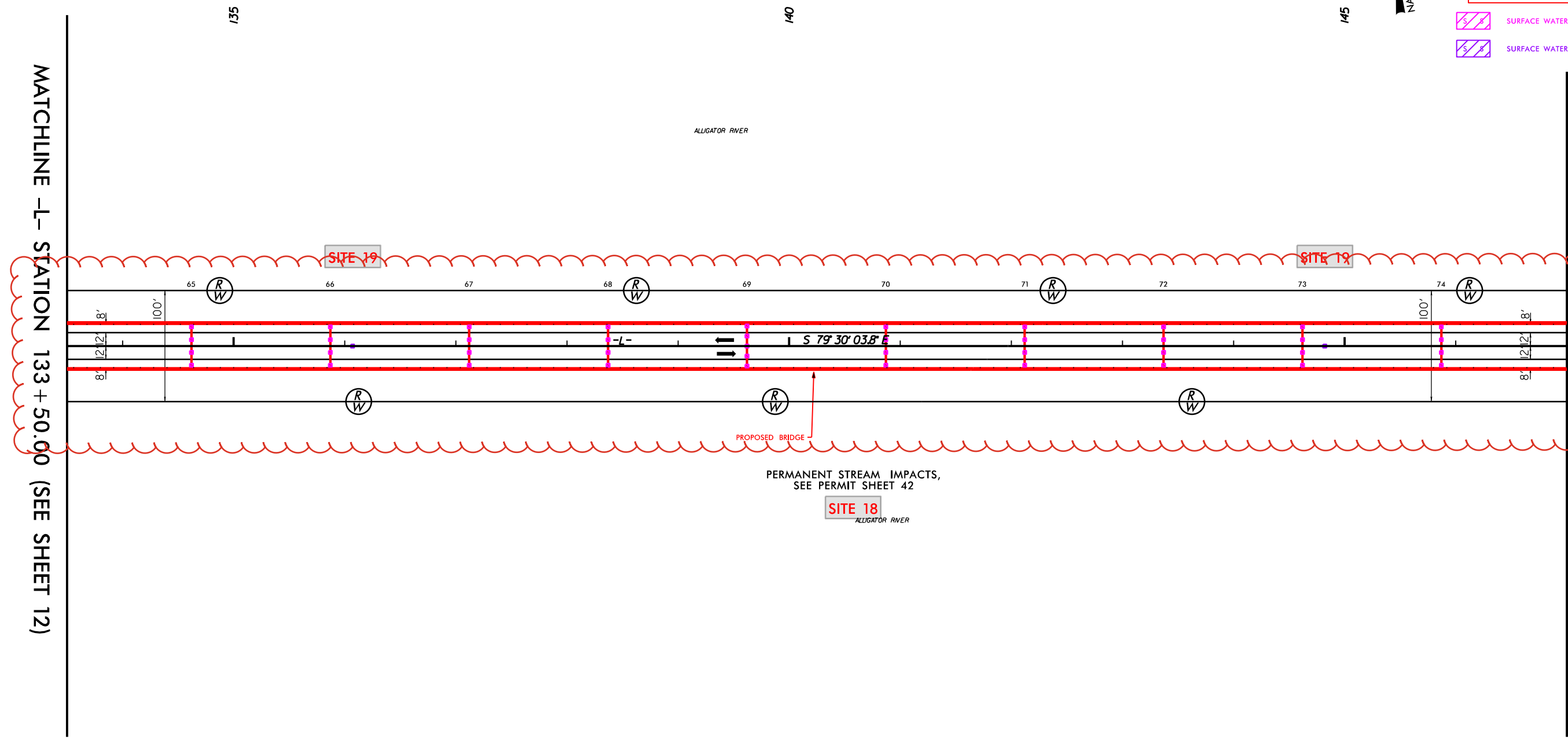
**PERMIT DRAWING
SHEET 20 OF 79**

-  SURFACE WATER IMPACTS
-  SURFACE WATER IMPACTS (TEST PILES)

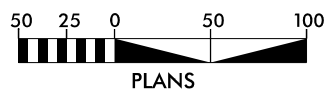
REVISIONS

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

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



PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42
SITE 18
ALLIGATOR RIVER



SEE SHEET 29 FOR -L- PROFILE



18-NOV-2024 09:44
HB-0001_Highway_Corridor_Psh_20_M00.dgn
10:50:50 AM

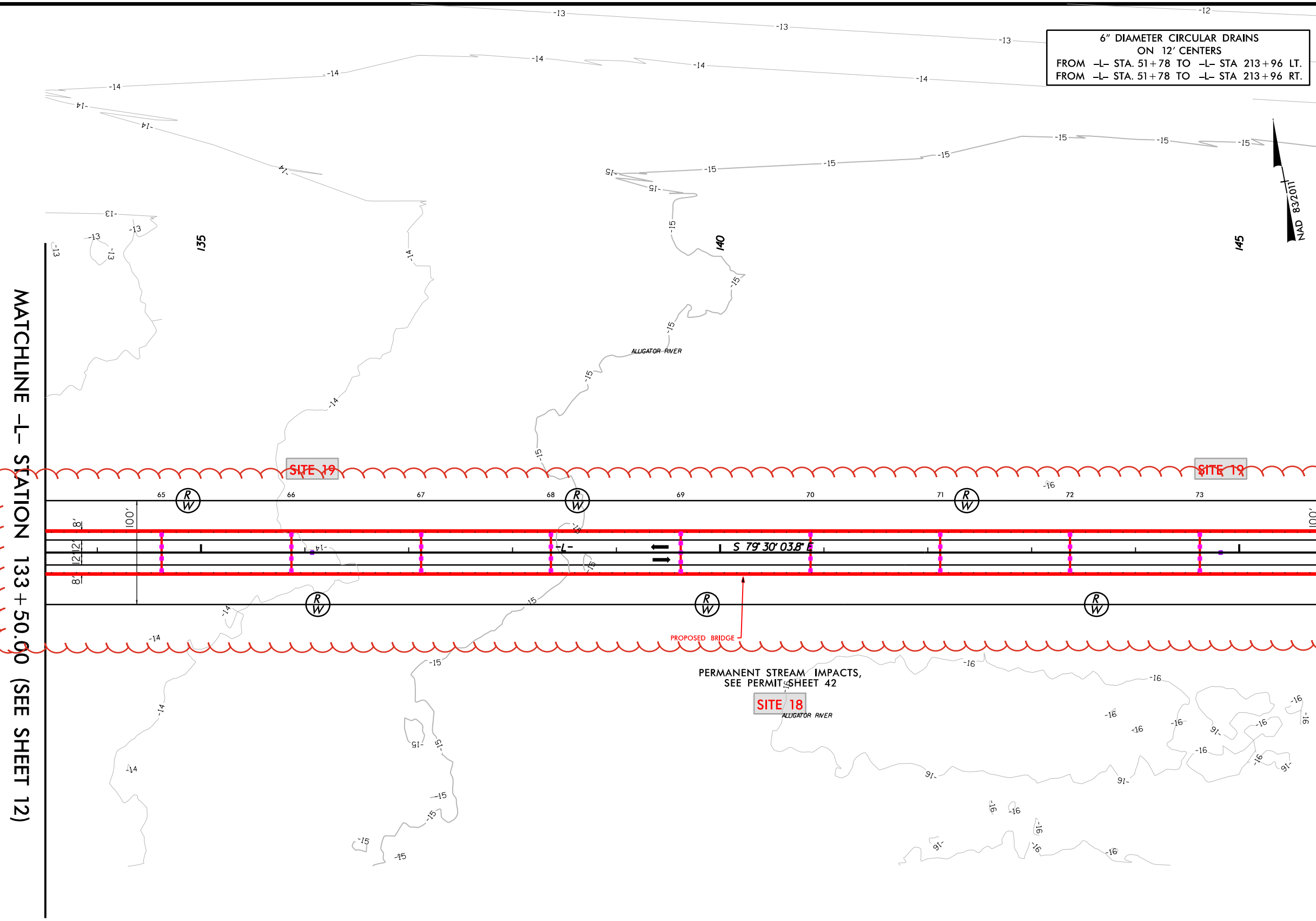
8/17/99

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|---|------------------------|
| PROJECT REFERENCE NO. <i>HB-0001</i> | SHEET NO. <i>13</i> |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of: SUMMIT NC FIRM LICENSE No P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (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)

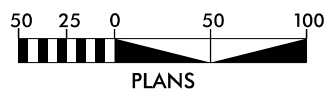


MATCHLINE -L- STATION 133 + 50.00 (SEE SHEET 12)

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

REVISIONS

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SEE SHEET 29 FOR -L- PROFILE

8/17/99

| | |
|--|------------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 14 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of: SUMMIT NC FIRM LICENSE Nos P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (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.



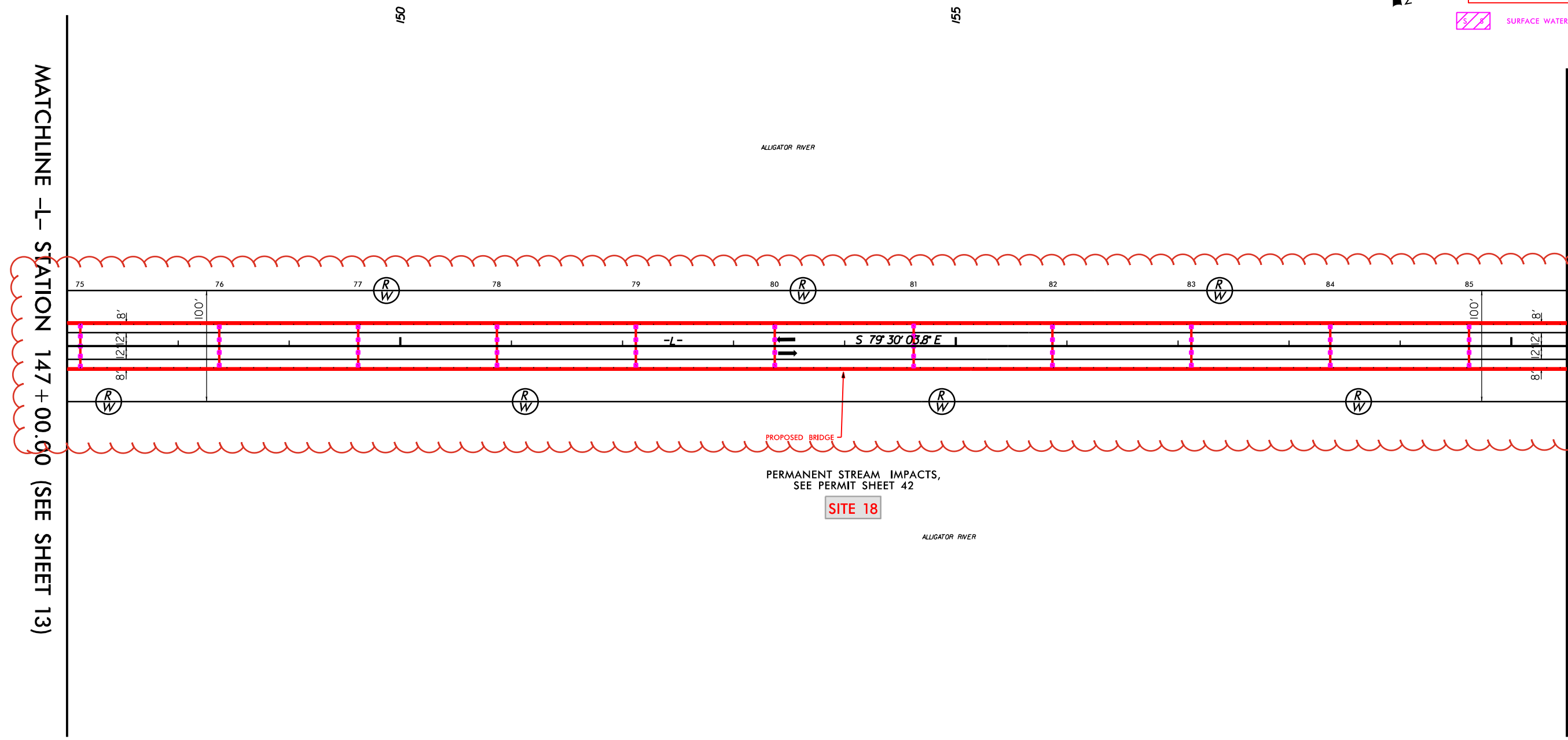
**PERMIT DRAWING
SHEET 22 OF 79**



REVISIONS

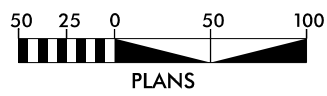
MATCHLINE -L- STATION 147+00.00 (SEE SHEET 13)

MATCHLINE -L- STATION 160+50.00 (SEE SHEET 15)



PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42


SITE 18



SEE SHEET 29 & 30 FOR -L- PROFILE

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8/17/99

| | | | |
|---|--|---|--|
| PROJECT REFERENCE NO. HB-0001 | | SHEET NO. 14 | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |
| Prepared in the Office of: | |  <small>NC FIRM LICENSE No. P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (FAX)</small> | |

**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.**

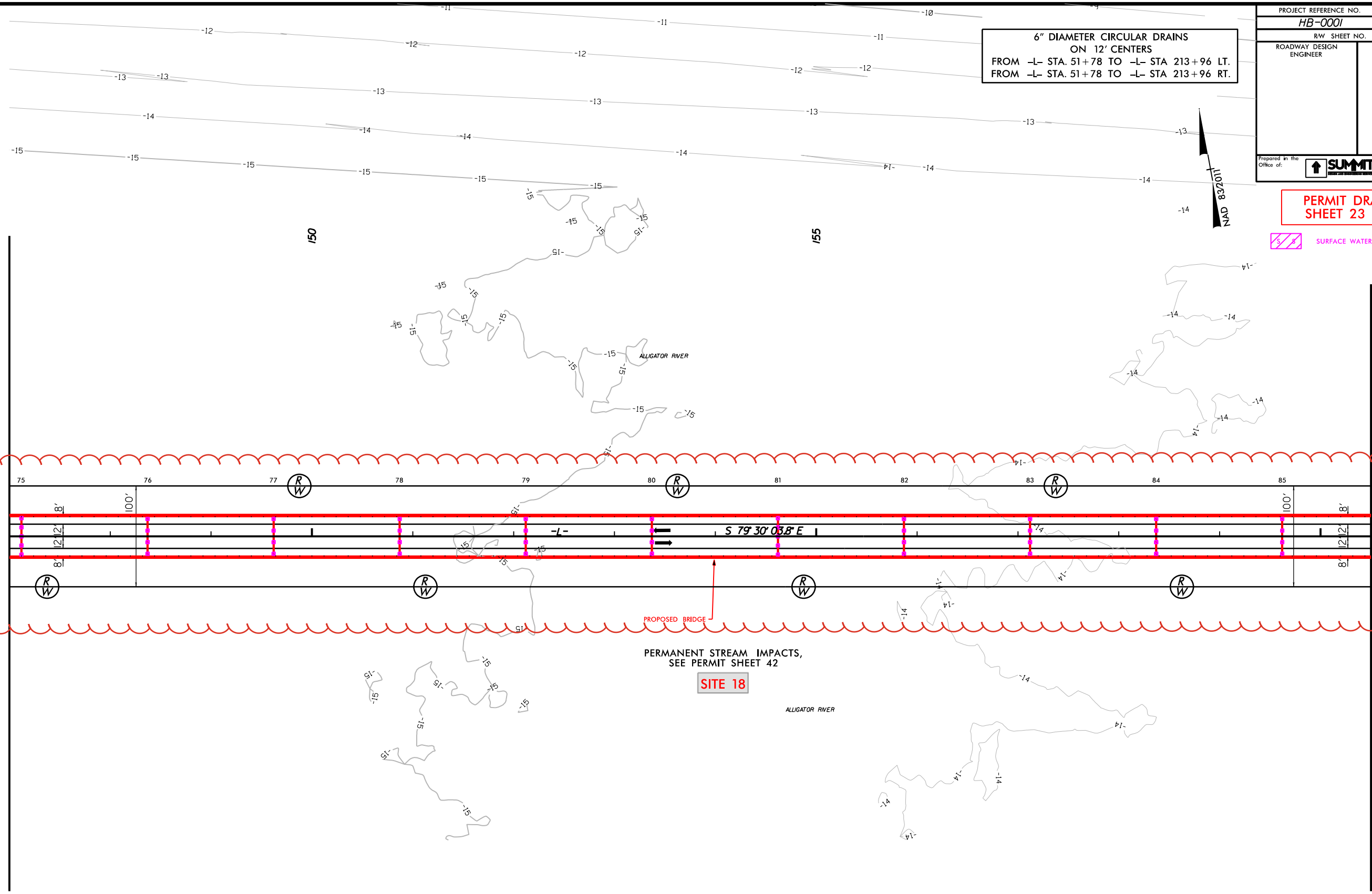


**PERMIT DRAWING
 SHEET 23 OF 79**

 SURFACE WATER IMPACTS

MATCHLINE -L- STATION 147+00.00 (SEE SHEET 13)

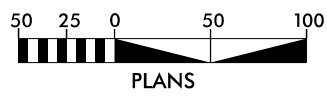
MATCHLINE -L- STATION 160+50.00 (SEE SHEET 15)



PROPOSED BRIDGE
 PERMANENT STREAM IMPACTS,
 SEE PERMIT SHEET 42
SITE 18

REVISIONS

18-NOV-2024 09:44
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SEE SHEET 29 & 30 FOR -L- PROFILE

8/17/99

| | |
|--|------------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 15 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of: SUMMIT <small>320 Executive Ct., Hillsborough, NC 27278 (919) 732-3883 (919) 732-6676 (FAX)</small> | |

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.



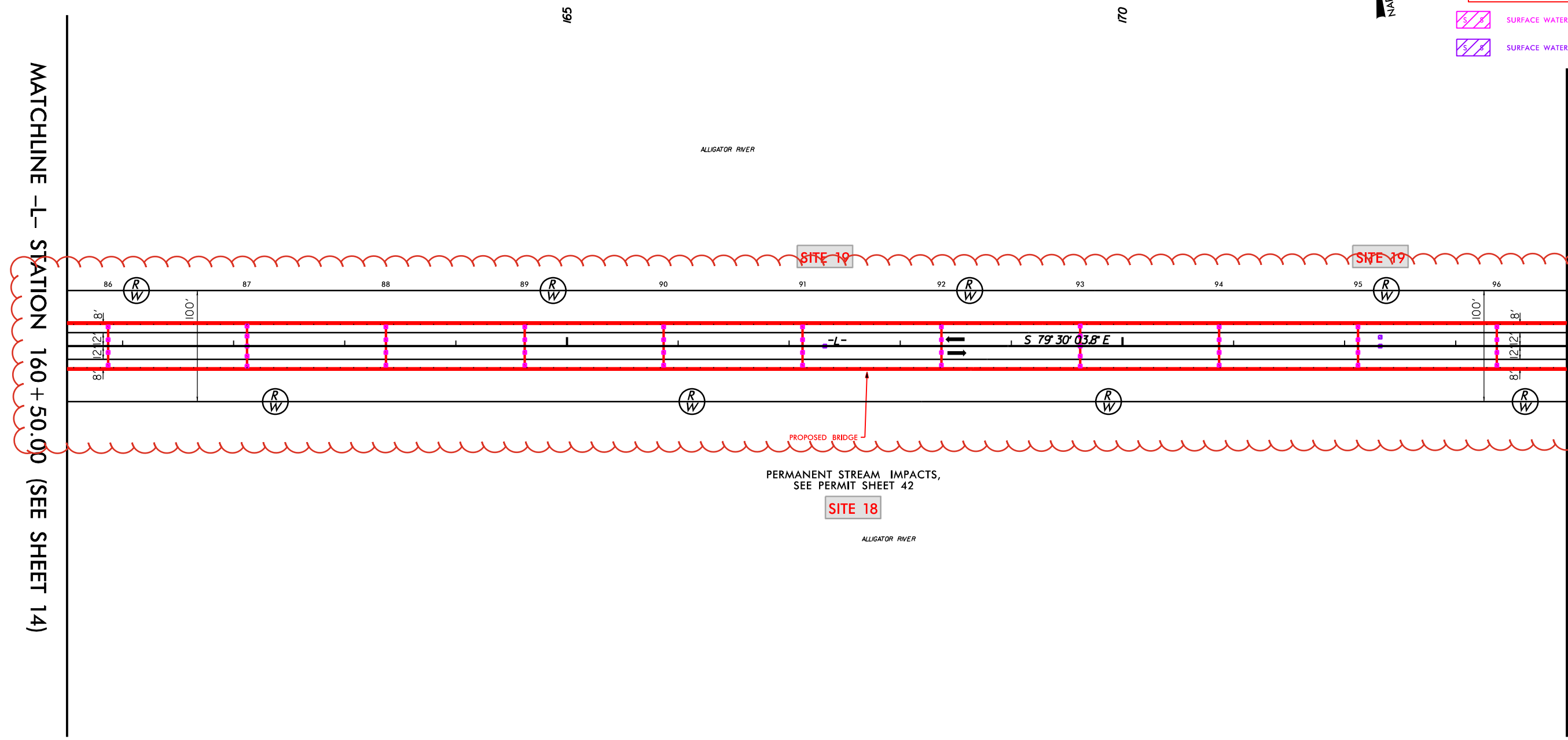
**PERMIT DRAWING
SHEET 24 OF 79**

- SURFACE WATER IMPACTS
- SURFACE WATER IMPACTS (TEST PILES)

REVISIONS

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

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



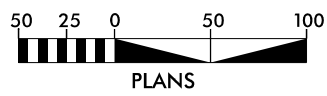
PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 18

PROPOSED BRIDGE


SITE 19

SITE 19





SEE SHEET 30 FOR -L- PROFILE

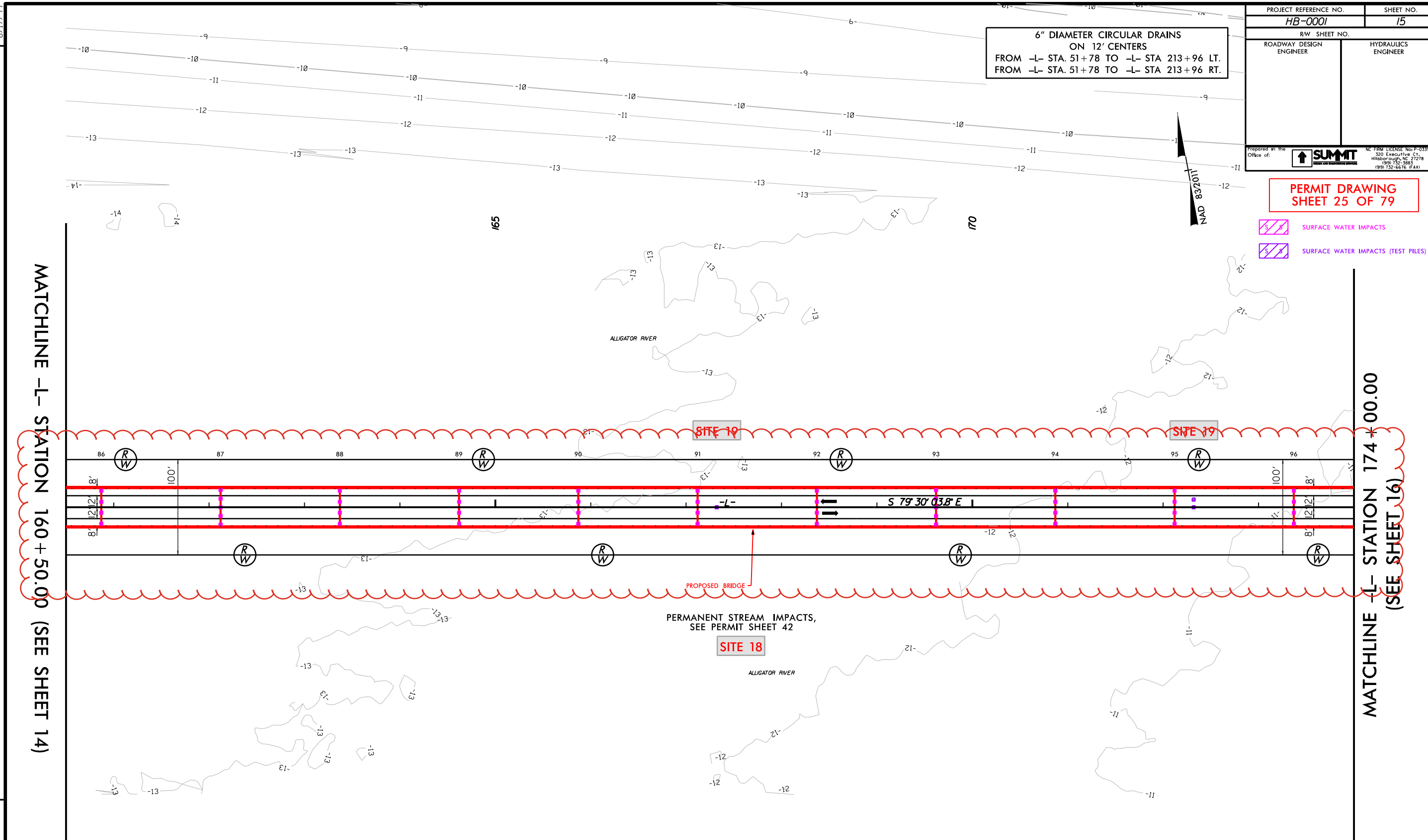
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| | |
|---|------------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 15 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of:  NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (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 25 OF 79**

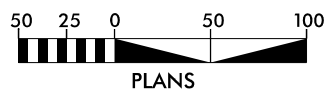
-  SURFACE WATER IMPACTS
-  SURFACE WATER IMPACTS (TEST PILES)



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

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


REVISIONS



SEE SHEET 30 FOR -L- PROFILE

18-NOV-2024 09:44
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 hb-0001-15.dwg



8/17/99

| | |
|---|------------------------|
| PROJECT REFERENCE NO. <i>HB-0001</i> | SHEET NO. <i>16</i> |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of:  | |
| <small>NC FIRM LICENSE No P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (FAX)</small> | |

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.



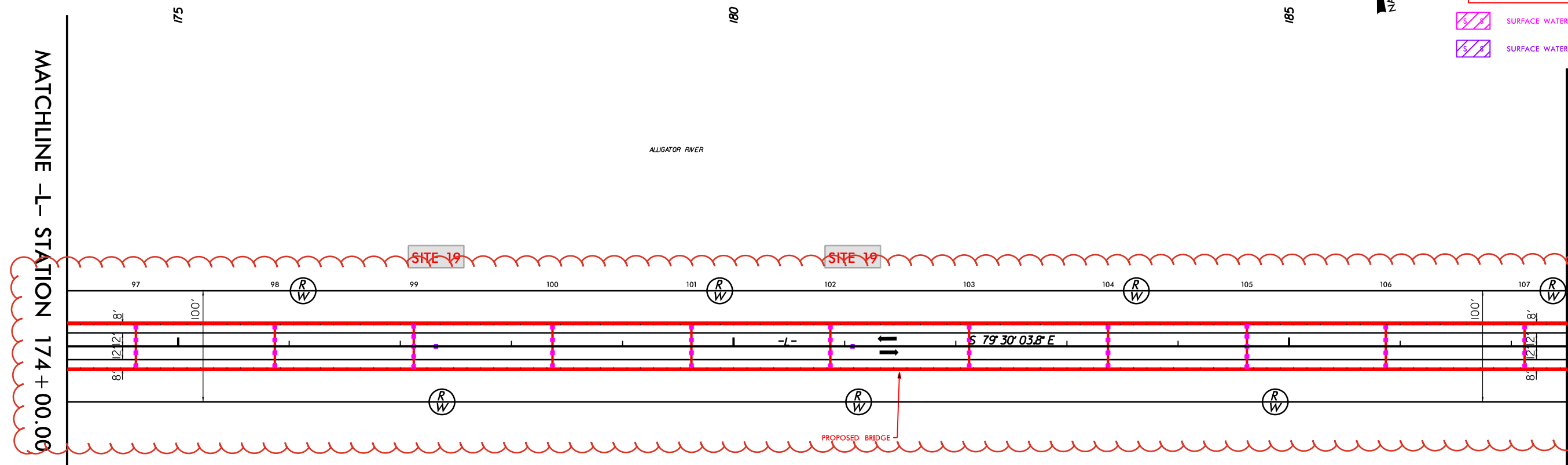
**PERMIT DRAWING
SHEET 26 OF 79**

-  SURFACE WATER IMPACTS
-  SURFACE WATER IMPACTS (TEST PILES)

REVISIONS

MATCHLINE -L- STATION 174+00.00 (SEE SHEET 15)

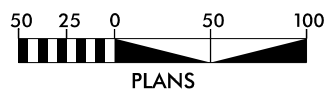
MATCHLINE -L- STATION 187+50.00 (SEE SHEET 17)



PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 18

ALLIGATOR RIVER





SEE SHEET 30 & 31 FOR -L- PROFILE

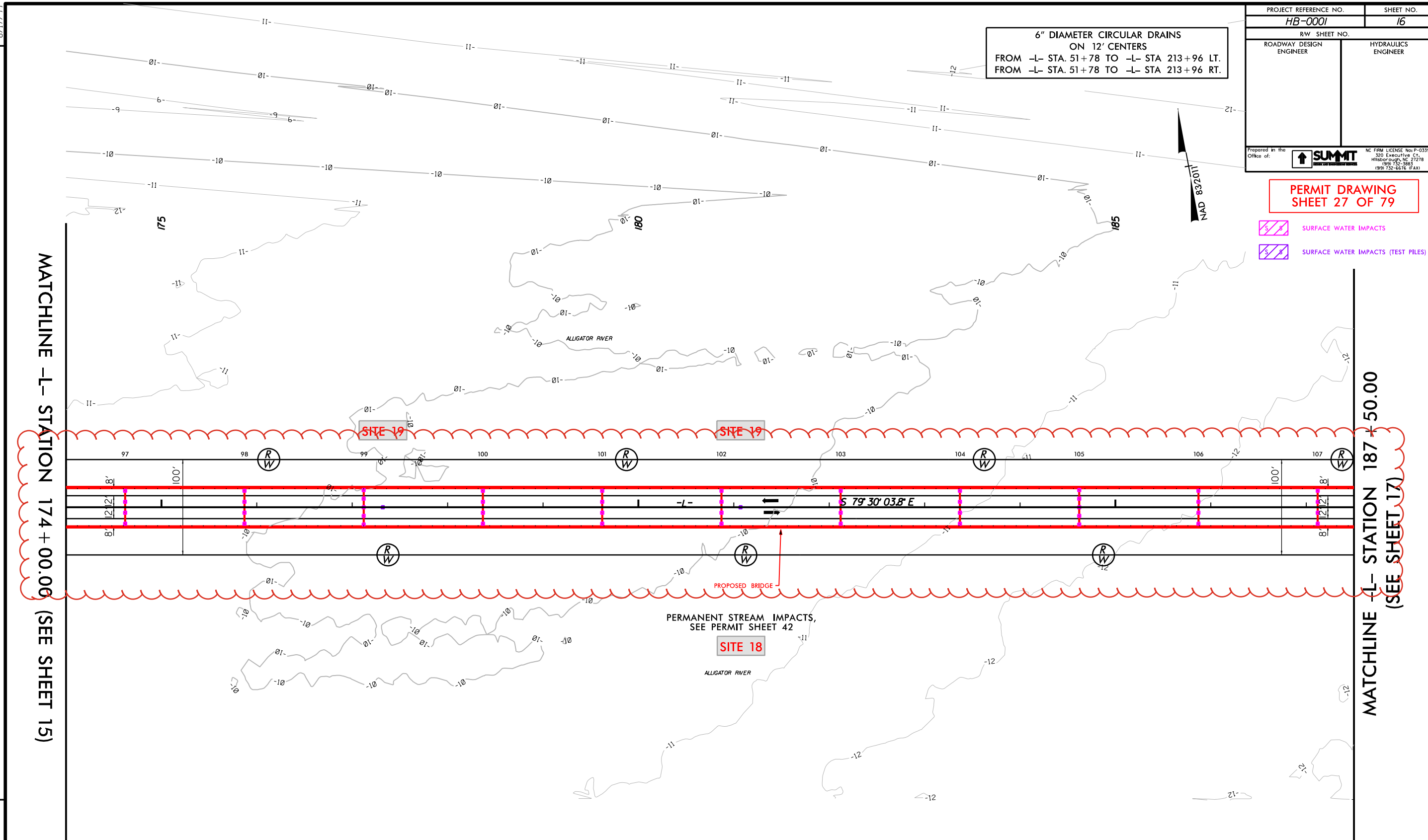
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10:30:00 AM

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| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 16 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of: SUMMIT <small>NC FIRM LICENSE No. P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (FAX)</small> | |

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**

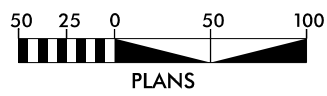
-  SURFACE WATER IMPACTS
-  SURFACE WATER IMPACTS (TEST PILES)



MATCHLINE -L- STATION 174+00.00 (SEE SHEET 15)

MATCHLINE -L- STATION 187+50.00 (SEE SHEET 17)


REVISIONS



SEE SHEET 30 & 31 FOR -L- PROFILE

18-NOV-2024 09:44
HB-0001_H1_d_corn-psh_27_M00.dgn
josh.levin@summit

8/17/99



| | |
|--|------------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 17 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| <small>Prepared in the Office of:</small>  <small>NC FIRM LICENSE No P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3863 (919) 732-6676 (FAX)</small> | |

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
 $\Delta = 14^{\circ} 37' 40.0''$ (RT)
D = 0' 28' 38.9"
L = 3,063.63'
T = 1,540.19'
R = 12,000.00'
SE = NC



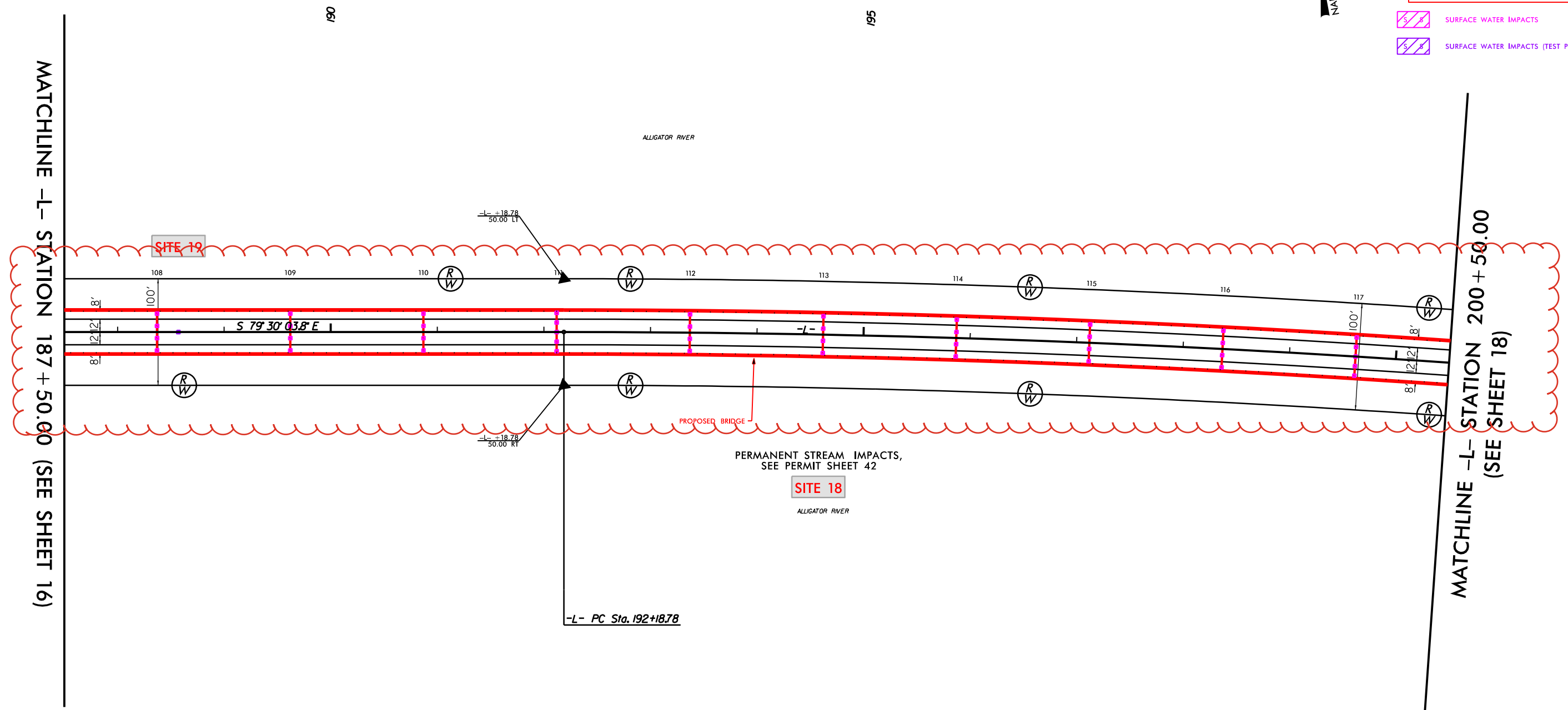
**PERMIT DRAWING
SHEET 28 OF 79**

-  SURFACE WATER IMPACTS
-  SURFACE WATER IMPACTS (TEST PILES)

REVISIONS

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

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

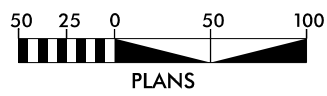


PERMANENT STREAM IMPACTS,
SEE PERMIT SHEET 42

SITE 18

ALLIGATOR RIVER


-L- PC Sta. 192+18.78



SEE SHEET 31 FOR -L- PROFILE

18-NOV-2024 09:44
HB-0001_Highway_Corridor_Psh_28_M00.dgn
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
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| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 17 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| <small>Prepared in the Office of:</small>  <small>NC FIRM LICENSE No. P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 332-3863 (919) 732-6676 (FAX)</small> | |

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**
 $\Delta = 14^{\circ} 37' 40.0''$ (RT)
 $D = 0^{\circ} 28' 38.9''$
 $L = 3,063.63'$
 $T = 1,540.19'$
 $R = 12,000.00'$
SE = NC



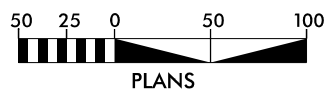
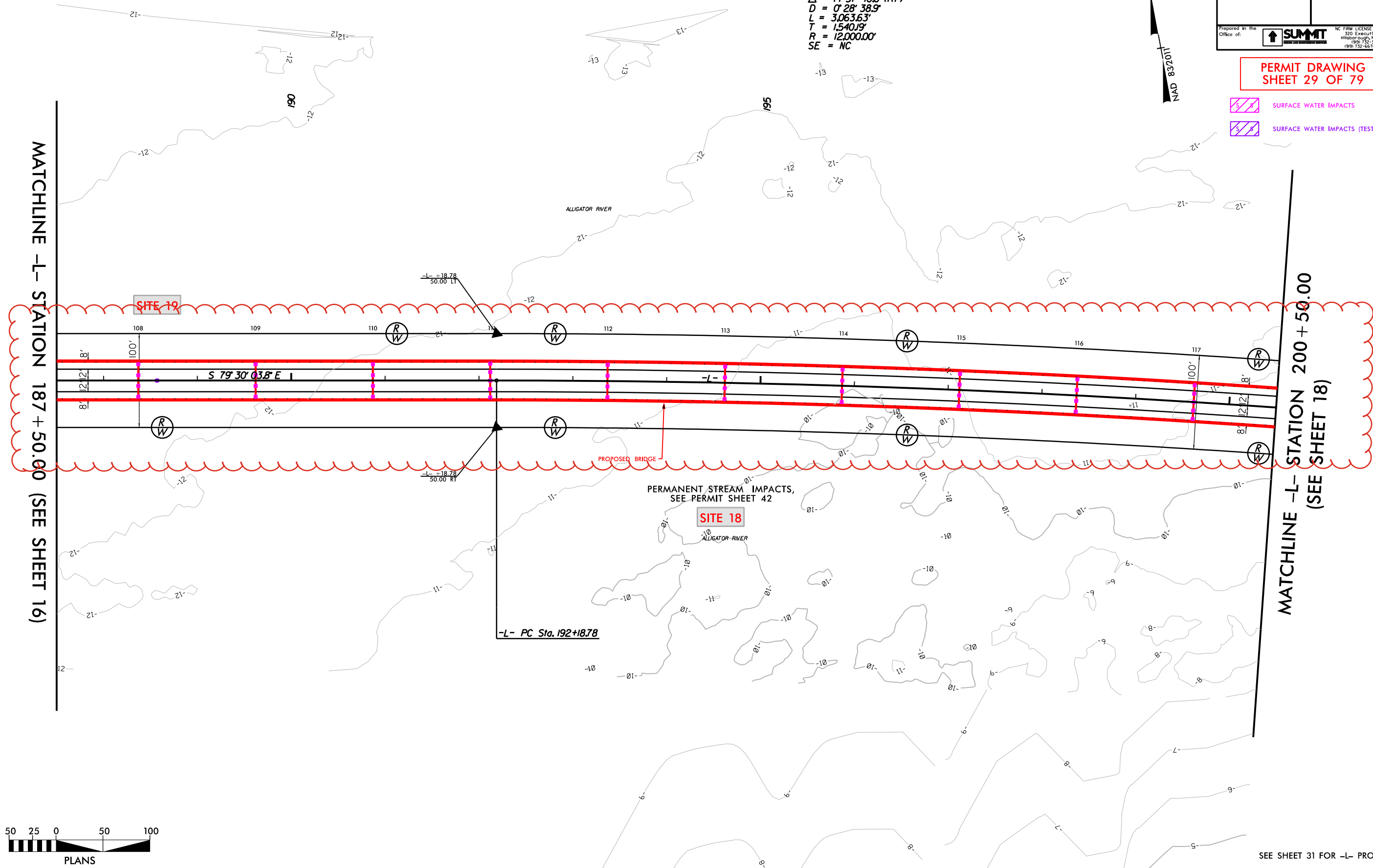
PERMIT DRAWING SHEET 29 OF 79

-  SURFACE WATER IMPACTS
-  SURFACE WATER IMPACTS (TEST PILES)

REVISIONS

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

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



SEE SHEET 31 FOR -L- PROFILE

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| PROJECT REFERENCE NO. <i>HB-0001</i> | | SHEET NO. 19 | |
| RW SHEET NO. | | | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER | | |

Prepared in the Office of: **SUMMIT**
 NC FIRM LICENSE Nos P-0339, 300 Executive Ct., Hillsborough, NC 27278
 (919) 332-3861 (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.

| | | |
|-----|---|--|
| -L- | PI Sta 207+58.97 Δ = 14' 37" 40.0" (RT) D = 0' 28" 39.9" L = 3,063.63' T = 1,540.19' 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)

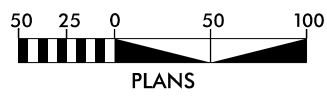
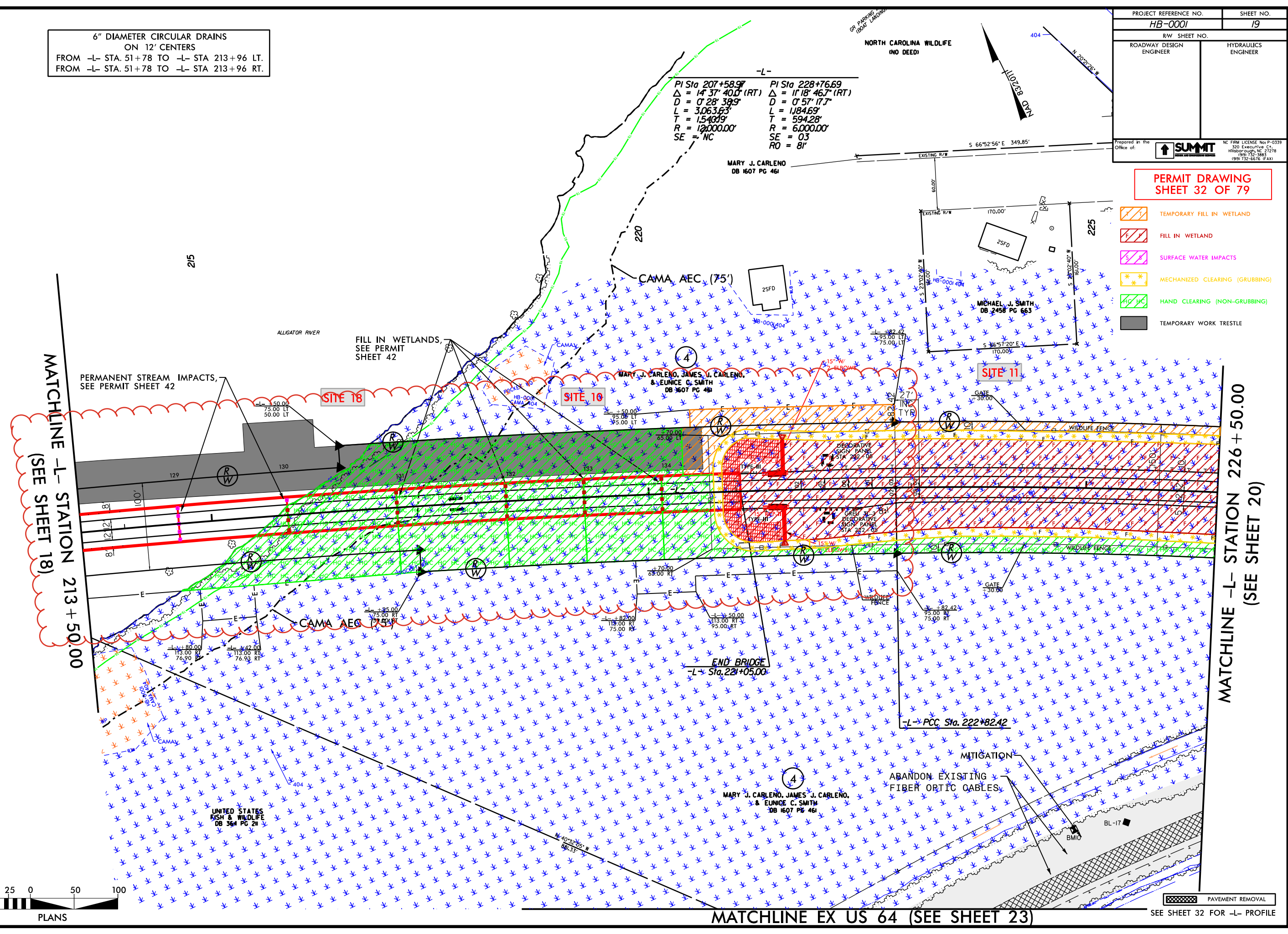
MATCHLINE -L- STATION 213+50.00 (SEE SHEET 18)

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

REVISIONS

PERMIT DRAWING SHEET 32 OF 79

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



MATCHLINE EX US 64 (SEE SHEET 23)

SEE SHEET 32 FOR -L- PROFILE

22-NOV-2024 09:41
 FE-0001-14-dwg-pln-32.MXD.dgn
 Spencer, Merritt

| | | | |
|-------------------------|--|---------------------|--|
| PROJECT REFERENCE NO. | | SHEET NO. | |
| HB-0001 | | 19 | |
| RW SHEET NO. | | HYDRAULICS ENGINEER | |
| ROADWAY DESIGN ENGINEER | | HYDRAULICS ENGINEER | |

Prepared in the Office of:

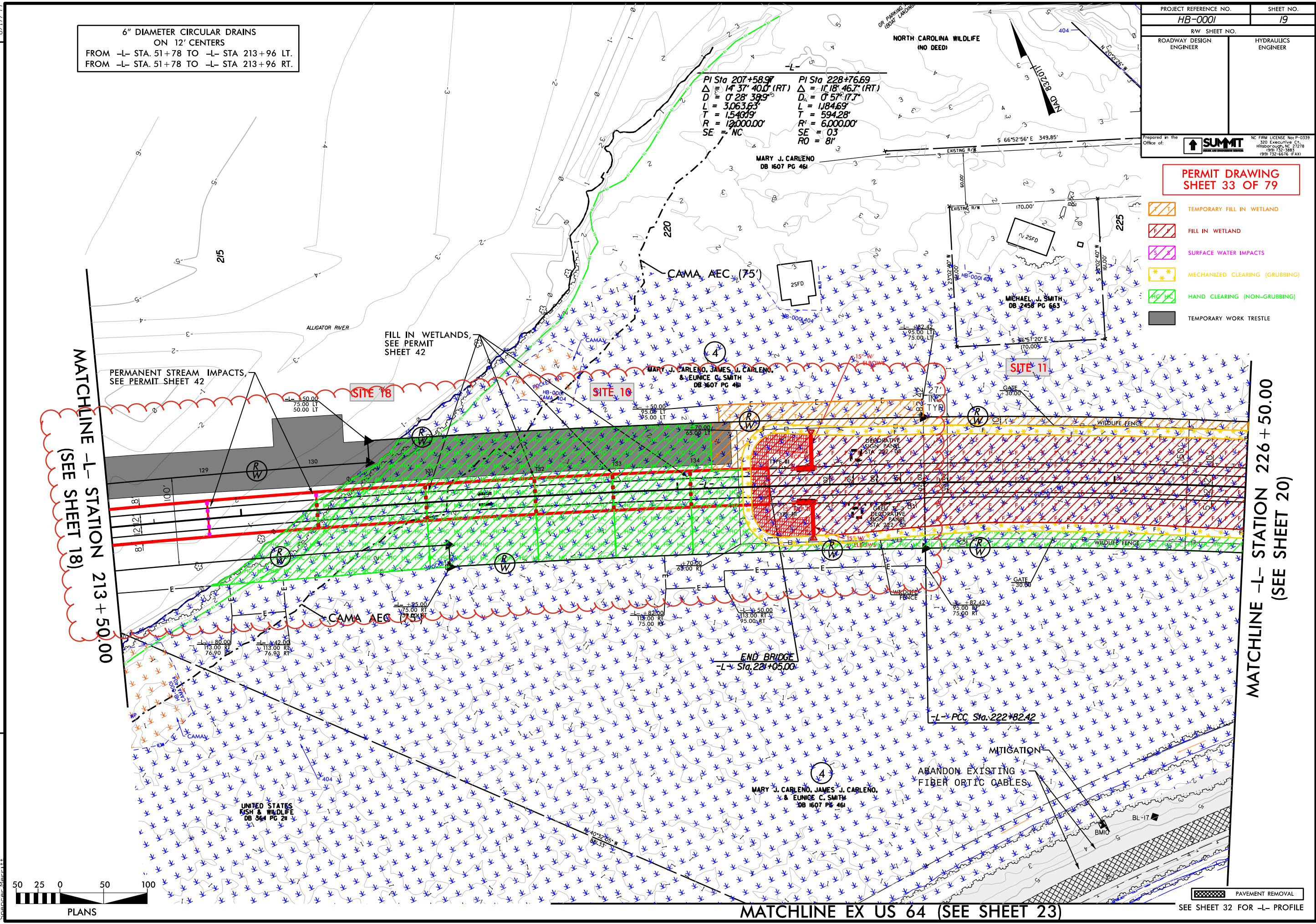
NC FIRM LICENSE Nos P-0339
300 Executive Ct.
Hillsborough, NC 27278
(919) 732-3661
(919) 732-6676 (FAX)

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.

PI Sta 207+58.97 PI Sta 228+76.69
 $\Delta = 143^\circ 37' 40.0''$ (RT) $\Delta = 111^\circ 18' 46.7''$ (RT)
 $D = 0^\circ 28' 39.9''$ $D = 0^\circ 57' 17.7''$
 $L = 3,063.63'$ $L = 1,184.69'$
 $T = 1,540.19'$ $T = 594.28'$
 $R = 12,000.00'$ $R = 6,000.00'$
 $SE = NC$ $SE = 03$
 $RO = 81'$

PERMIT DRAWING
SHEET 33 OF 79

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

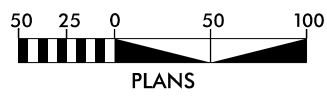


MATCHLINE -L- STATION 213 + 50.00
(SEE SHEET 18)

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

MATCHLINE EX US 64 (SEE SHEET 23)

SEE SHEET 32 FOR -L- PROFILE



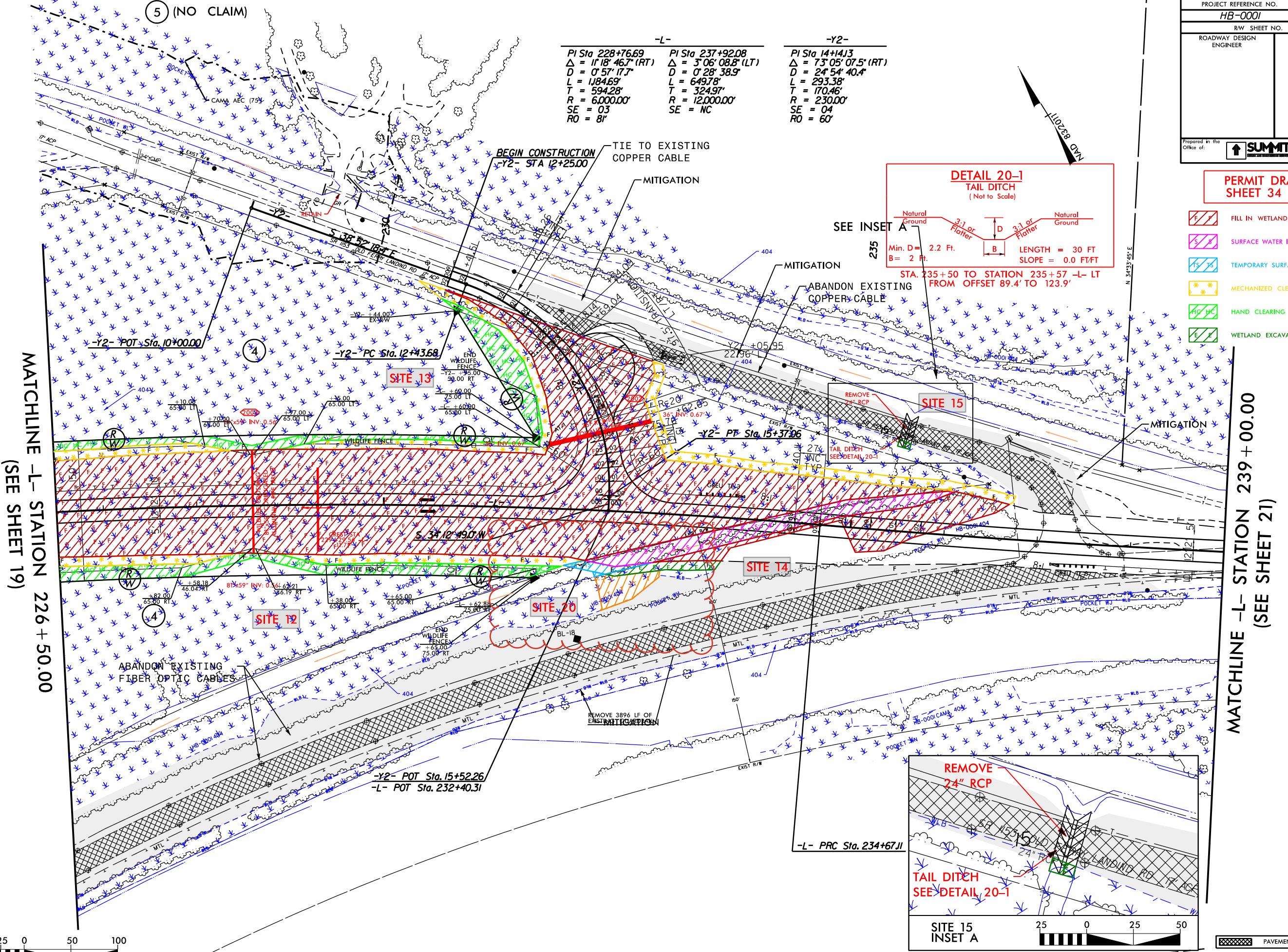
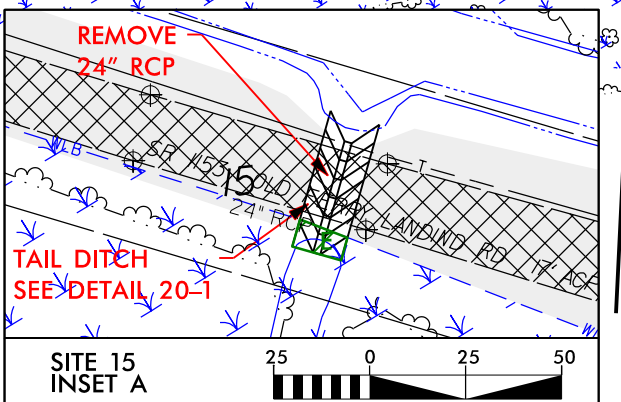
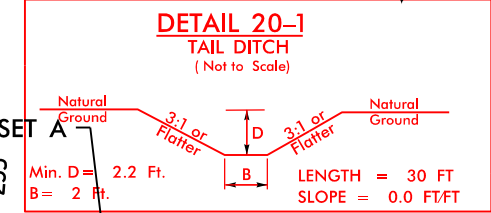
REVISIONS

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 226-0001-1-1.dwg
 33_1000.dgn
 Spencer, M

PERMIT DRAWING SHEET 34 OF 79

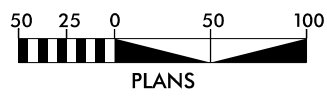
- FILL IN WETLAND
- SURFACE WATER IMPACTS
- TEMPORARY SURFACE WATER IMPACTS
- MECHANIZED CLEARING (GRUBBING)
- HAND CLEARING (NON-GRUBBING)
- WETLAND EXCAVATION

| | | |
|--|---|---|
| <p style="text-align: center;">-L-</p> <p>PI Sta 228+76.69 Δ = 1° 18' 46.7" (RT) D = 0° 57' 17.7" L = 1,846.9' T = 594.28' R = 6,000.00' SE = 03 RO = 8'</p> | <p style="text-align: center;">-Y2-</p> <p>PI Sta 237+92.08 Δ = 3° 06' 08.8" (LT) D = 0° 28' 38.9" L = 649.78' T = 324.97' R = 12,000.00' SE = NC</p> | <p style="text-align: center;">-Y2-</p> <p>PI Sta 14+14.13 Δ = 7° 05' 07.5" (RT) D = 24° 54' 40.4" L = 293.38' T = 170.46' R = 230.00' SE = 04 RO = 60'</p> |
|--|---|---|



MATCHLINE -L- STATION 226 + 50.00
(SEE SHEET 19)

MATCHLINE -L- STATION 239 + 00.00
(SEE SHEET 21)



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

18-Nov-2024 13:29
HB-0001_T1.dwg psh_34_M00.dgn

REVISIONS

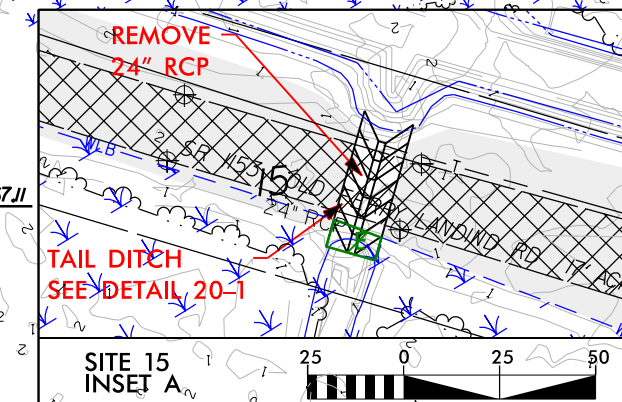
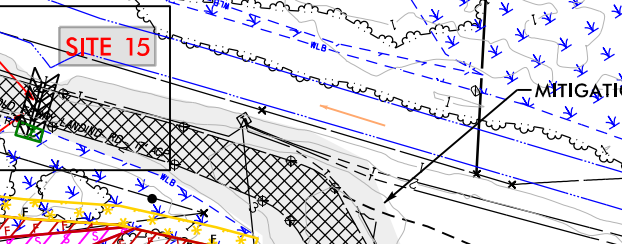
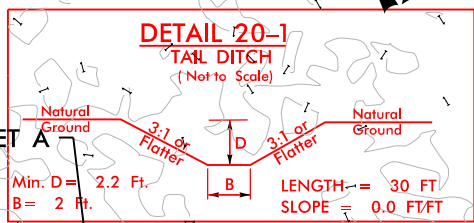
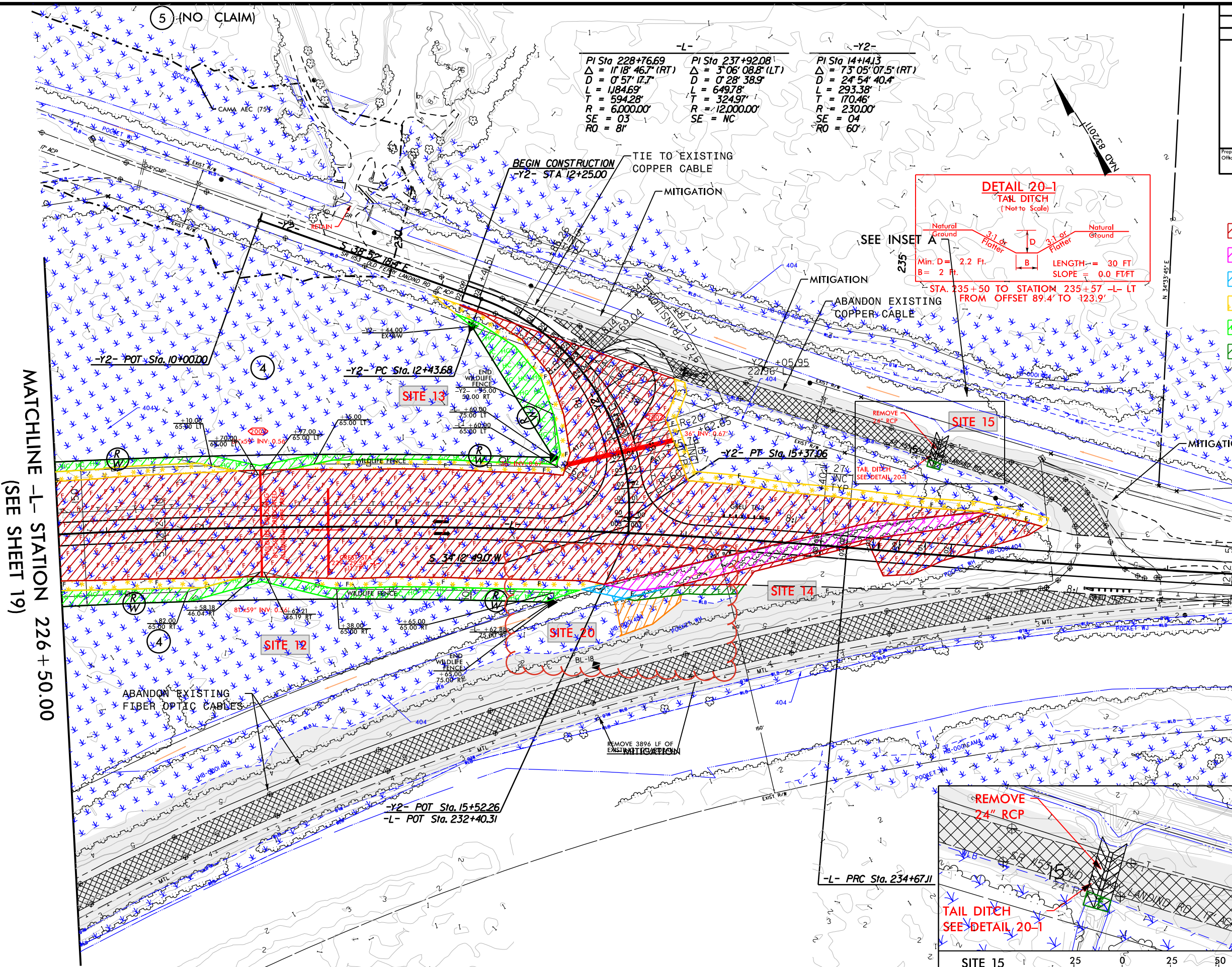
B.17/99

| | |
|---|------------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 20 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

Prepared in the Office of:
SUMMIT
NC FIRM LICENSE No. P-0339
300 Executive Ct.
Hillsborough, NC 27278
(919) 732-2663
(919) 732-6616 (FAX)

PERMIT DRAWING SHEET 35 OF 79

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



-L- **-Y2-**

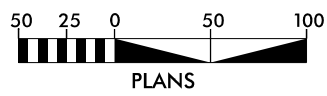
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|--|--|---|
| PI Sta 228+76.69 $\Delta = 118' 46.7" (RT)$ $D = 0' 57' 12.7"$ $L = 1184.69'$ $T = 594.28'$ $R = 6000.00'$ $SE = 03'$ $RO = 8'$ | PI Sta 237+92.08 $\Delta = 3' 06' 08.8" (LT)$ $D = 0' 28' 38.9"$ $L = 649.78'$ $T = 324.97'$ $R = 12000.00'$ $SE = NC$ | PI Sta 14+14.3 $\Delta = 73' 05' 07.5" (RT)$ $D = 24' 54' 40.4"$ $L = 293.38'$ $T = 170.46'$ $R = 230.00'$ $SE = 04'$ $RO = 60'$ |
|--|--|---|

MATCHLINE -L- STATION 226 + 50.00
(SEE SHEET 19)

MATCHLINE -L- STATION 239 + 00.00
(SEE SHEET 21)

REVISIONS

18-NOV-2024 13:29
HB-0001.dwg
C:\Users\josh_35_1\MOD.dgn






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

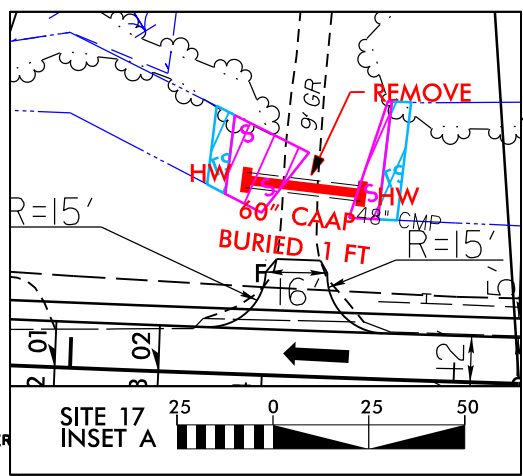
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|---|------------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 21 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

Prepared in the Office of: **SUMMIT** NC FIRM LICENSE Nos P-0339
320 Executive Ct.
Hillsborough, NC 27278
(919) 752-3883
(919) 752-6676 (FAX)

PERMIT DRAWING SHEET 36 OF 79

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

-L-
 PI Sta 237+92.08
 $\Delta = 3^{\circ}06'08.8"$ (LT)
 $D = 0^{\circ}28'38.9"$
 $L = 649.78'$
 $T = 324.97'$
 $R = 12,000.00'$
 $SE = NC$



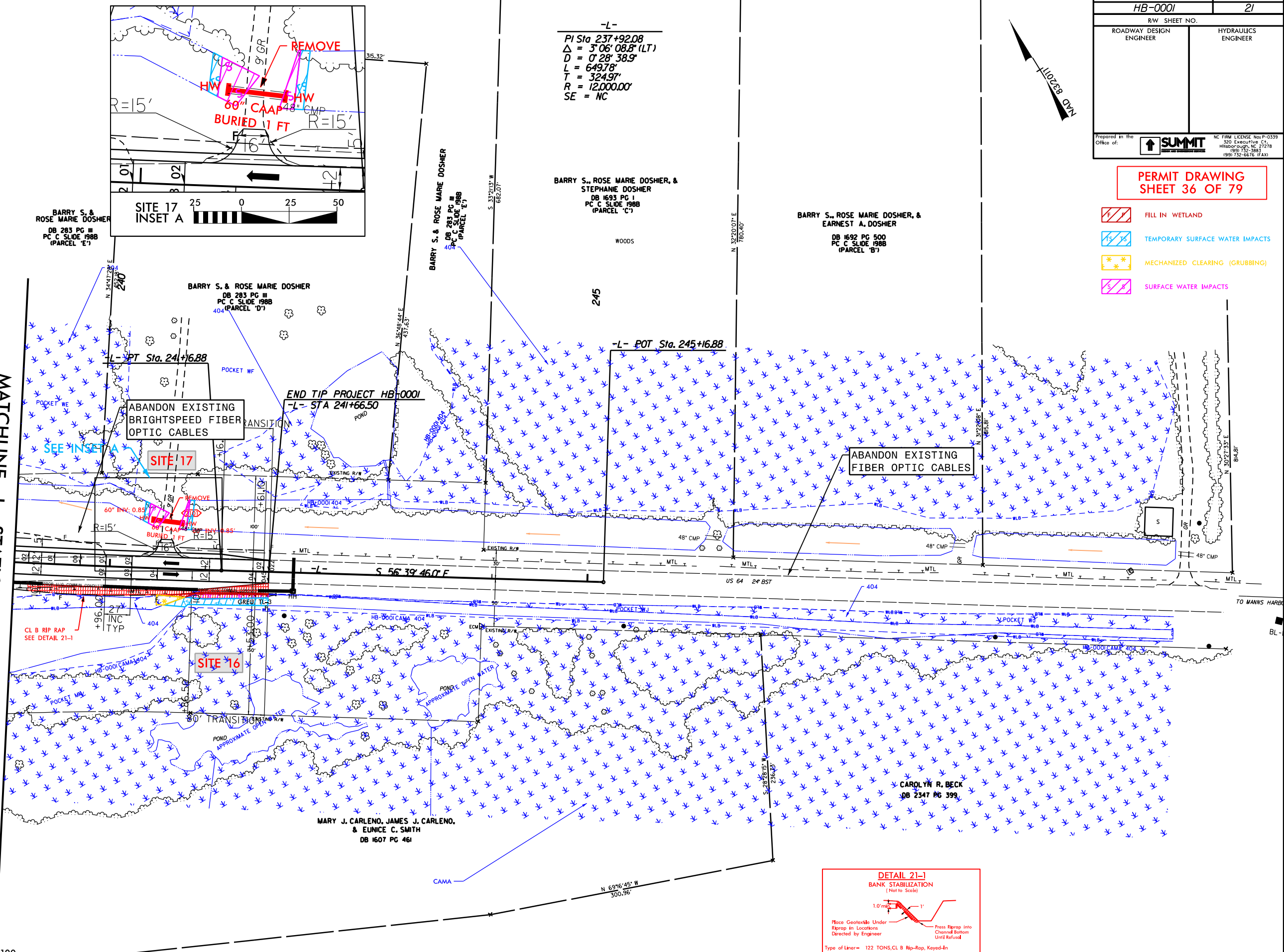
BARRY S. & ROSE MARIE DOSHER
DB 283 PG III
PC C SLIDE 1988
(PARCEL 'E')

BARRY S., ROSE MARIE DOSHER, & STEPHANE DOSHER
DB 693 PG I
PC C SLIDE 1988
(PARCEL 'C')

BARRY S., ROSE MARIE DOSHER, & EARNEST A. DOSHER
DB 1692 PG 500
PC C SLIDE 1988
(PARCEL 'B')

BARRY S. & ROSE MARIE DOSHER
DB 283 PG III
PC C SLIDE 1988
(PARCEL 'D')

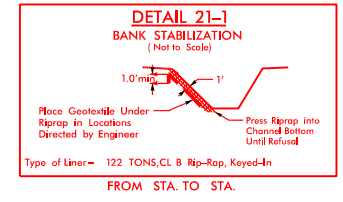
MATCHLINE -L- STATION 239+00.00 (SEE SHEET 20)



REVISIONS



PLANS



 PAVEMENT REMOVAL

SEE SHEET 32 FOR -L- PROFILE





8/17/99

28-DEC-2023 12:56 -psh-36.dgn

| | |
|---|------------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 21 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |

Prepared in the Office of: **SUMMIT** NC FIRM LICENSE Nos P-0339, 320 Executive Ct., Hillsborough, NC 27278, (919) 752-3883, (919) 752-6676 (FAX)

PERMIT DRAWING SHEET 37 OF 79

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

-L-
 PI Sta 237+92.08
 $\Delta = 3^{\circ}06'08.8"$ (LT)
 $D = 0^{\circ}28'38.9"$
 $L = 649.78'$
 $T = 324.97'$
 $R = 12,000.00'$
 $SE = NC$

BARRY S., ROSE MARIE DOSHIER, & STEPHANE DOSHIER
 DB 693 PG 1
 PC C SLIDE 1988 (PARCEL 'C')

BARRY S., ROSE MARIE DOSHIER, & EARNEST A. DOSHIER
 DB 1692 PG 500
 PC C SLIDE 1988 (PARCEL 'B')

END TIP PROJECT HB-0001
-L- STA 241+66.50

ABANDON EXISTING FIBER OPTIC CABLES

SITE 17 INSET A

BARRY S., ROSE MARIE DOSHIER
 DB 283 PG III
 PC C SLIDE 1988 (PARCEL 'E')

BARRY S., ROSE MARIE DOSHIER
 DB 283 PG III
 PC C SLIDE 1988 (PARCEL 'D')

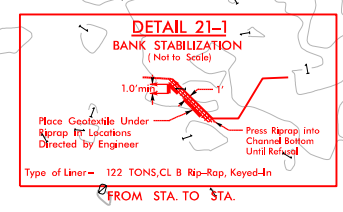
ABANDON EXISTING BRIGHTSPEED FIBER OPTIC CABLES

SITE 17

SITE 16

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

CAROLYN R. BECK
 DB 2347 PG 399



 PAVEMENT REMOVAL

SEE SHEET 32 FOR -L- PROFILE



MATCHLINE -L- STATION 239 + 00.00 (SEE SHEET 20)

REVISIONS

8/17/99

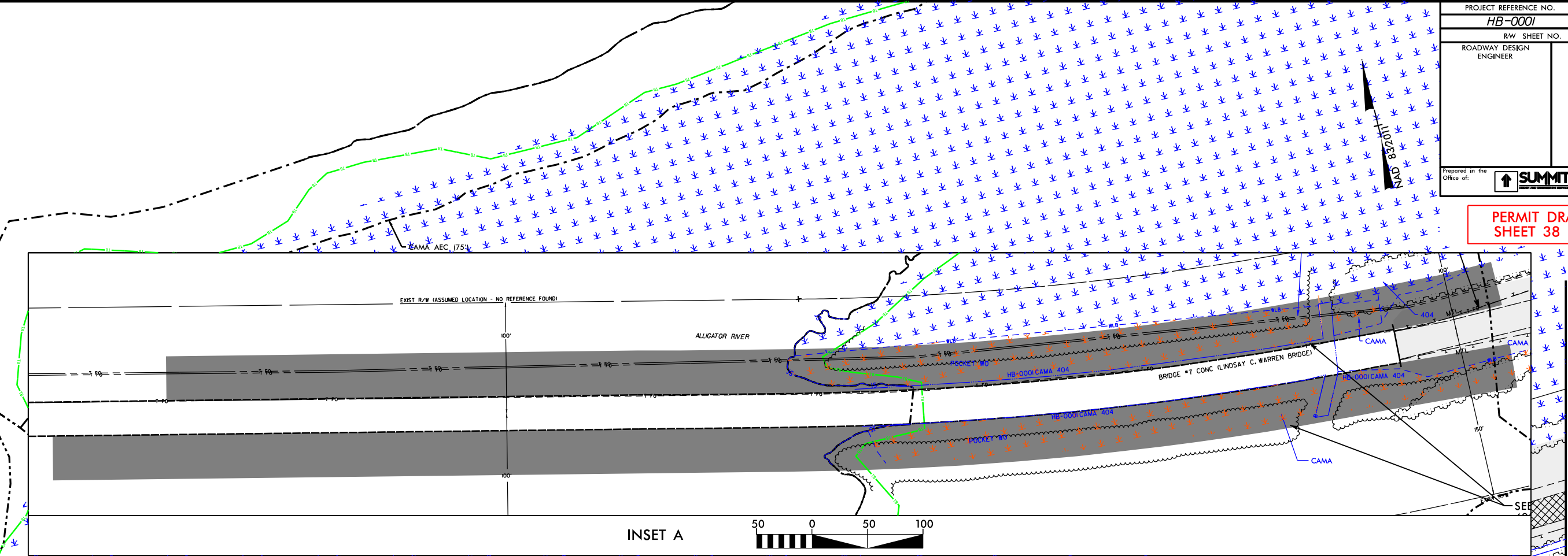
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| | |
|--|------------------------|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 22 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| Prepared in the Office of: SUMMIT <small>NC FIRM LICENSE Nos P-0339 320 Executive Ct. Hillsborough, NC 27278 (919) 752-3883 (919) 752-6676 (FAX)</small> | |

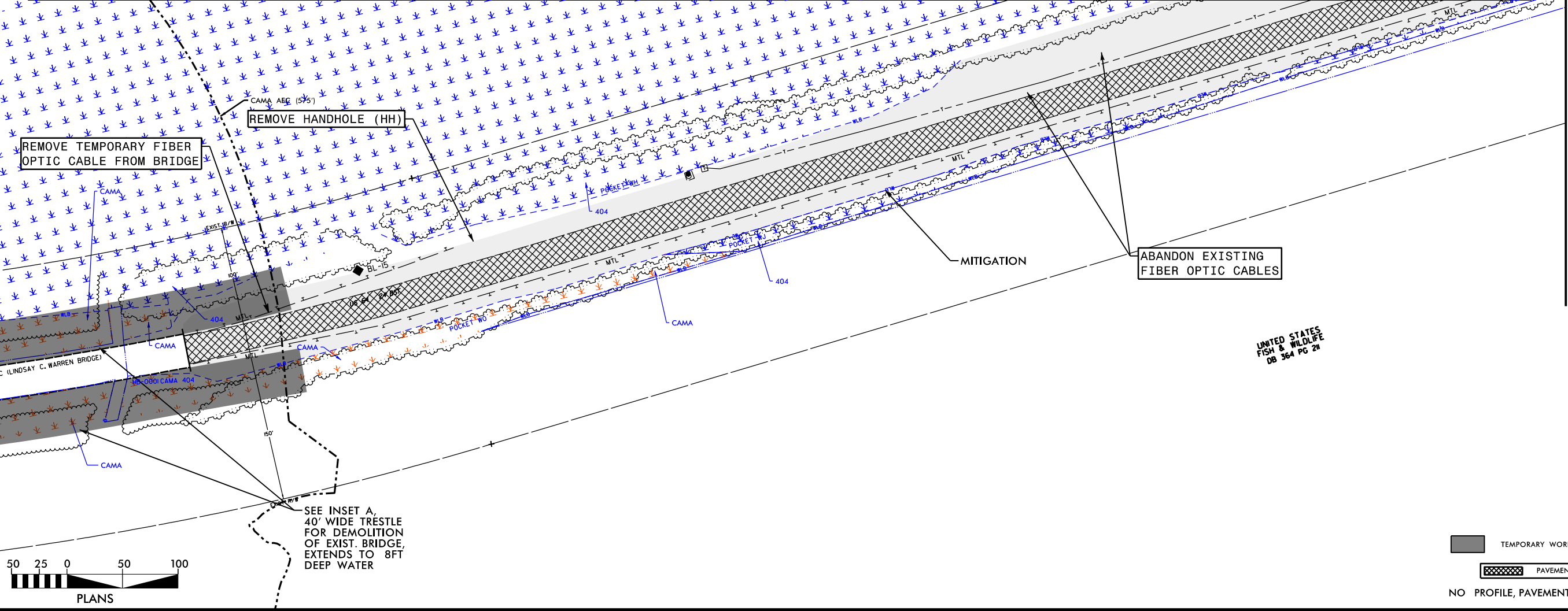
**PERMIT DRAWING
SHEET 38 OF 79**

8/17/99

REVISIONS



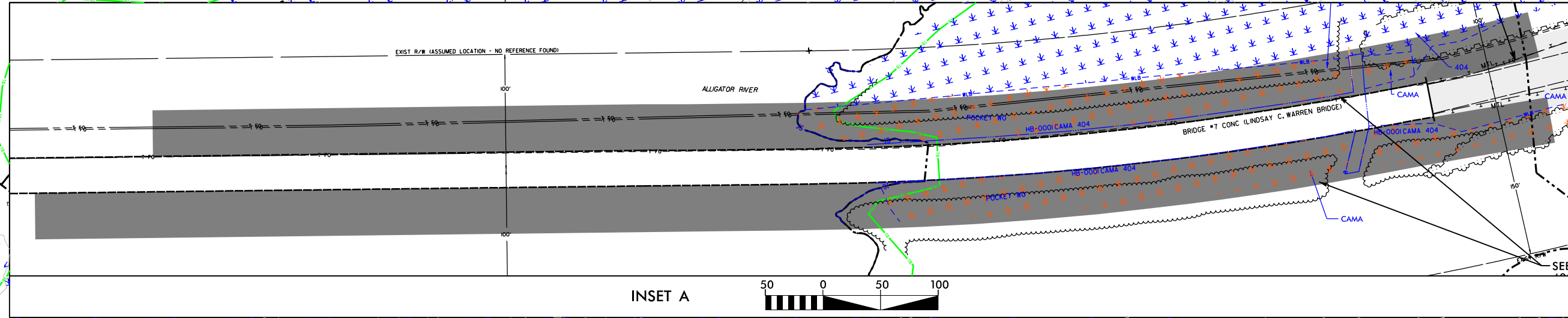
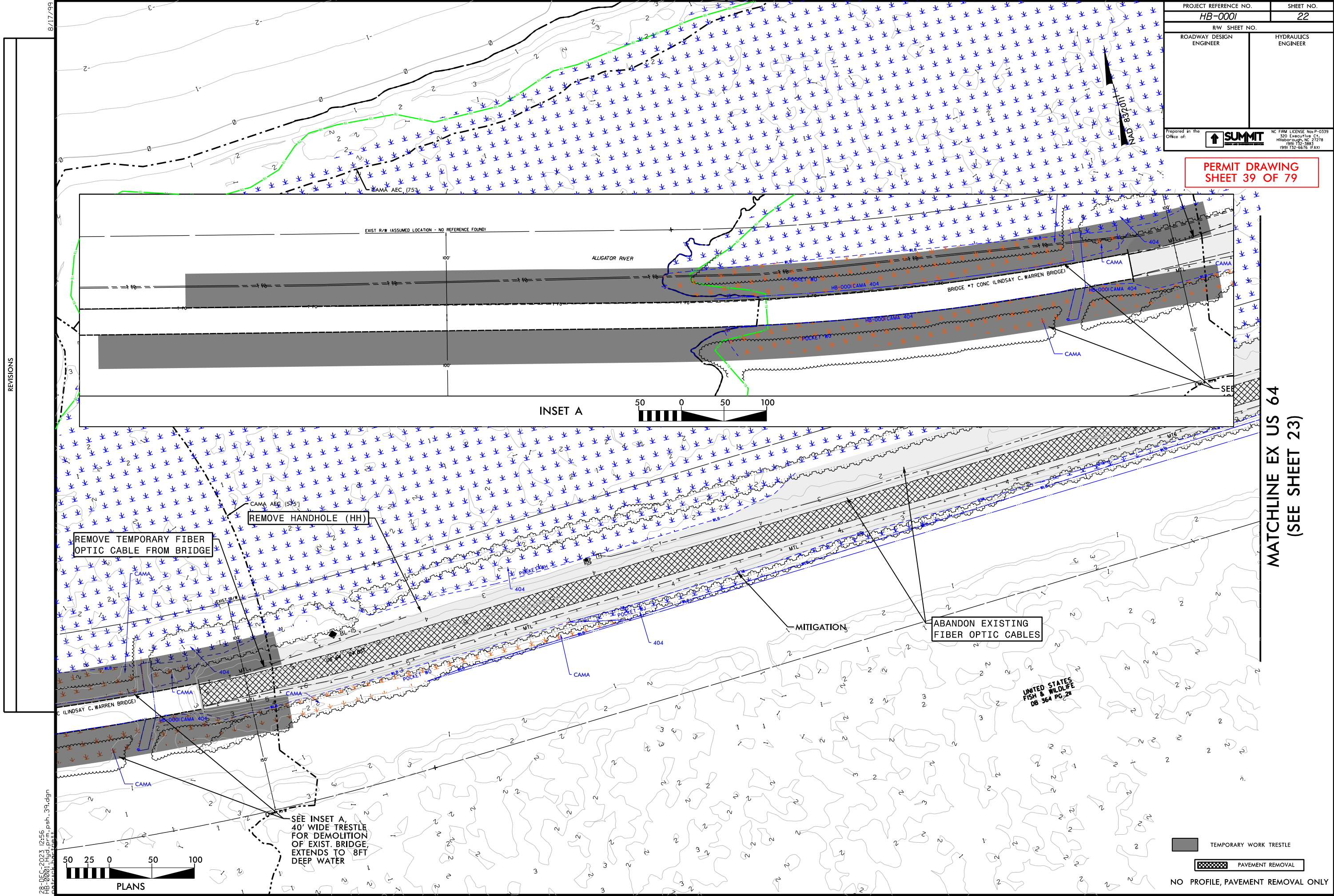
INSET A



**MATCHLINE EX US 64
(SEE SHEET 23)**

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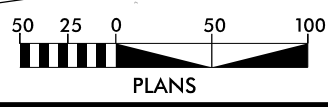
**PERMIT DRAWING
SHEET 39 OF 79**




REVISIONS

MATCHLINE EX US 64
(SEE SHEET 23)

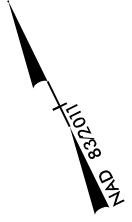
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 Network Administrator



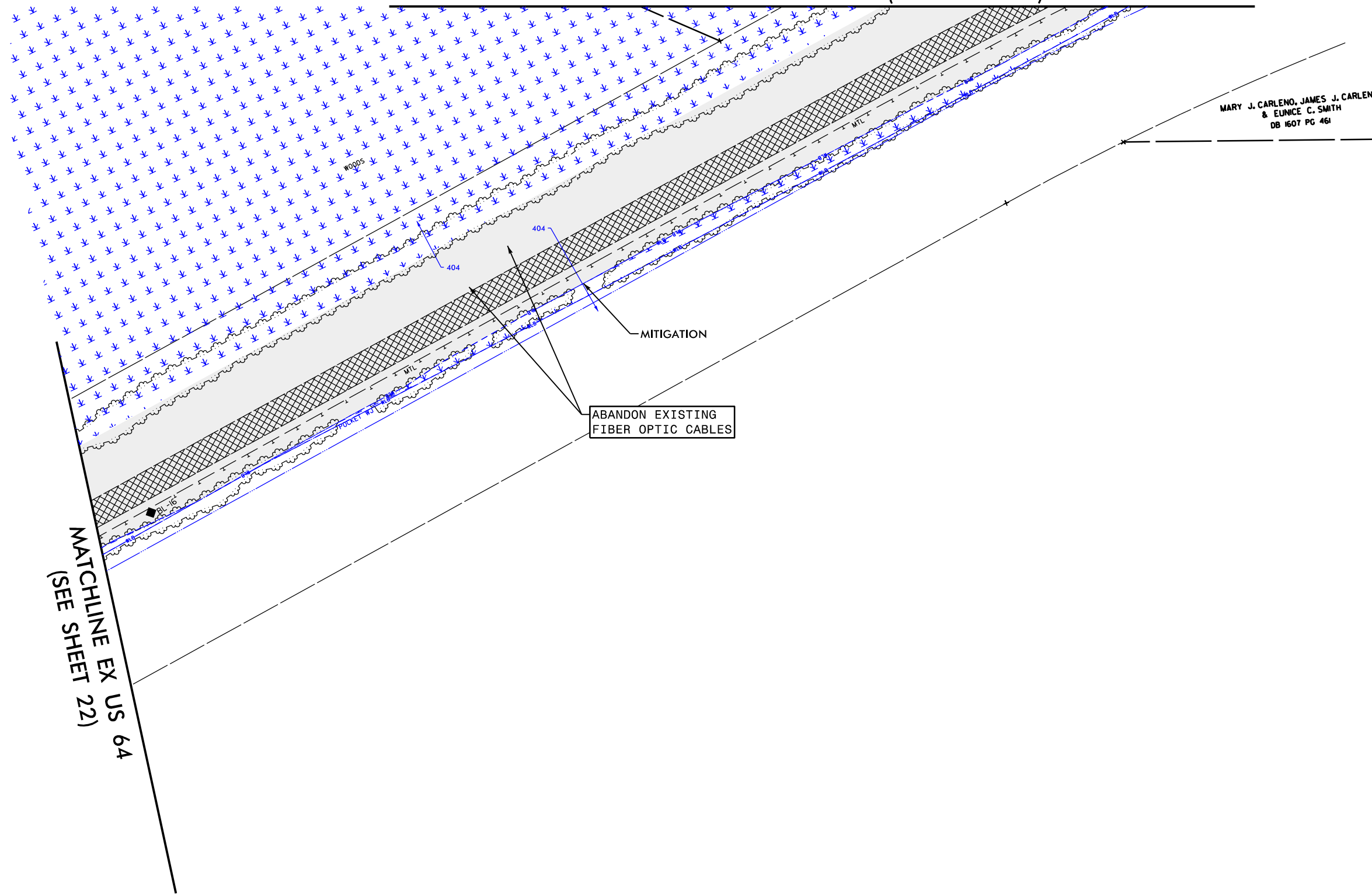
TEMPORARY WORK TRESTLE
 PAVEMENT REMOVAL
 NO PROFILE, PAVEMENT REMOVAL ONLY

| | |
|---|---|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 23 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| MARY J. CARLENO, JAMES J. CARLENO, & EUNICE C. SMITH DB 1607 PG 461 | |
| Prepared in the Office of: |  NC FIRM LICENSE Nos P-0359 320 Executive Ct. Hillsborough, NC 27278 (919) 752-3883 (919) 752-6676 (FAX) |

**PERMIT DRAWING
SHEET 40 OF 79**



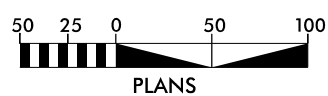
MATCHLINE EX US 64 (SEE SHEET 19)



**MATCHLINE EX US 64
(SEE SHEET 22)**


REVISIONS

28-DEC-2023 12:56
28-0001-2023-psh-40.dgn
psh-40.dgn

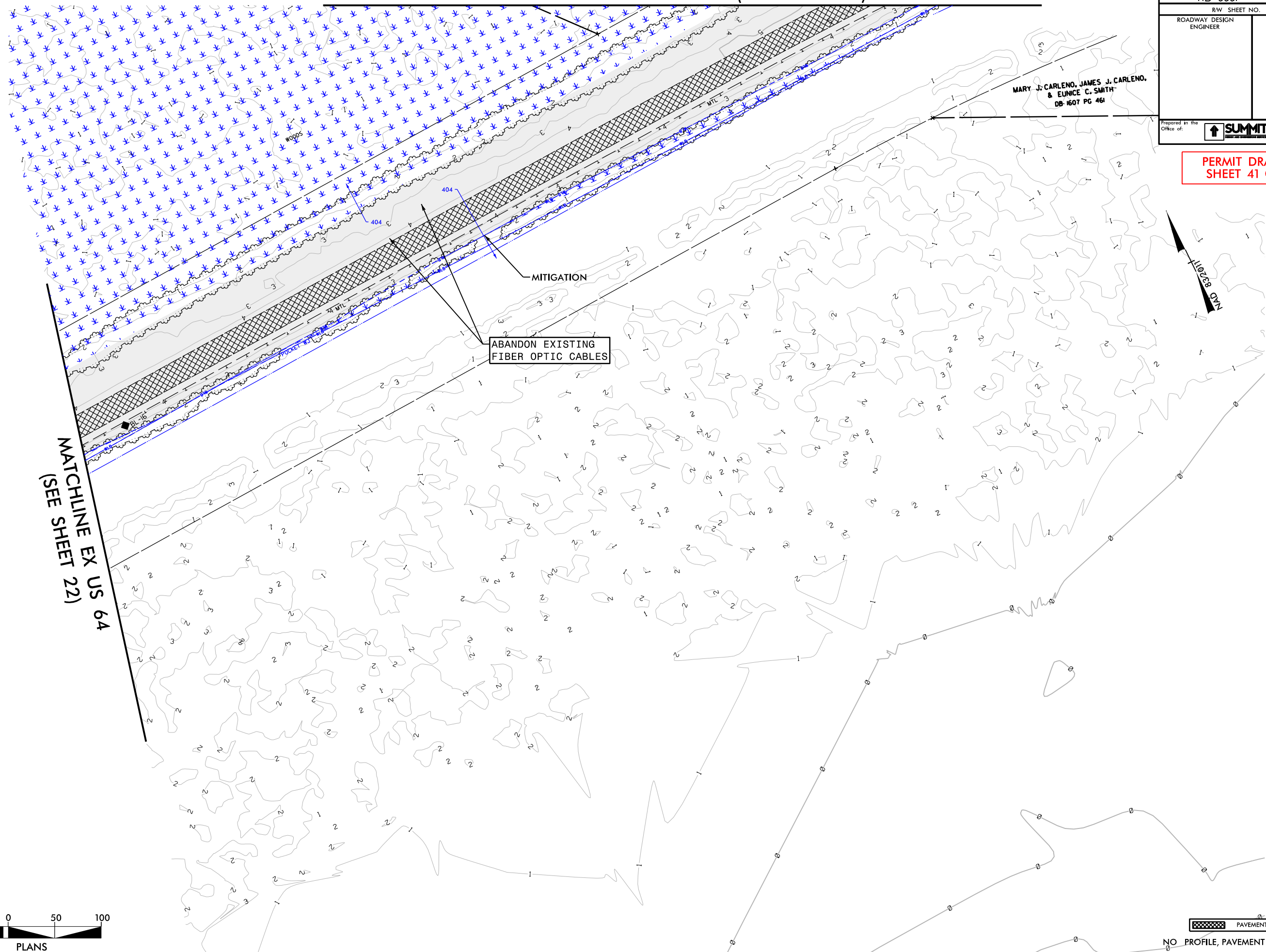


 PAVEMENT REMOVAL
NO PROFILE, PAVEMENT REMOVAL ONLY

MATCHLINE EX US 64 (SEE SHEET 19)

| | |
|---|---|
| PROJECT REFERENCE NO. HB-0001 | SHEET NO. 23 |
| RW SHEET NO. | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER |
| MARY J. CARLENO, JAMES J. CARLENO, & EUNICE C. SMITH DB 1607 PG 461 | |
| Prepared in the Office of: |  NC FIRM LICENSE Nos P-0359 320 Executive Ct. Hillsborough, NC 27278 (919) 752-3883 (919) 752-6676 (FAX) |

PERMIT DRAWING SHEET 41 OF 79



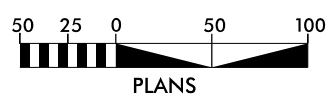
MATCHLINE EX US 64 (SEE SHEET 22)

ABANDON EXISTING FIBER OPTIC CABLES

MITIGATION

PAVEMENT REMOVAL

NO PROFILE, PAVEMENT REMOVAL ONLY



REVISIONS

8/17/99

28-DEC-2023 12:56
28-0001-2023-psh-41.dgn
psh-41.dgn

8/17/99

BENT TYPICAL IMPACTS



FILL IN WETLAND

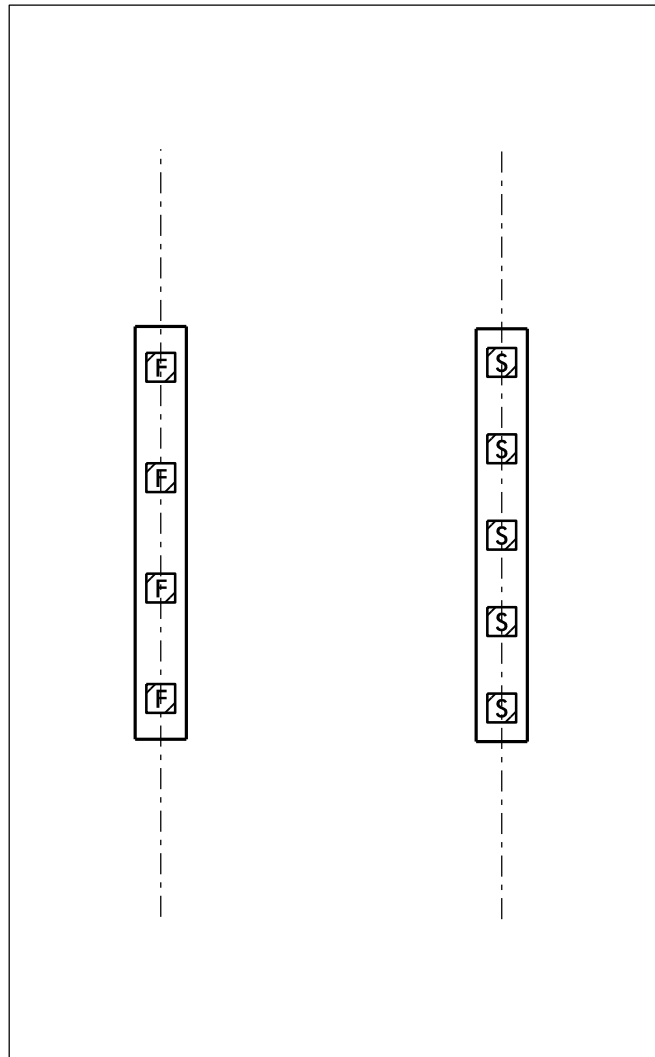


SURFACE WATER IMPACTS

| | | |
|---|------------------------|-----------|
| PROJECT REFERENCE NO. <i>HB-0001</i> | | SHEET NO. |
| RW SHEET NO. | | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER | |
| Prepared in the Office of: NC FIRM LICENSE No. P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-2863 (919) 732-6616 (FAX) | | |

PERMIT DRAWING
SHEET 42 OF 79

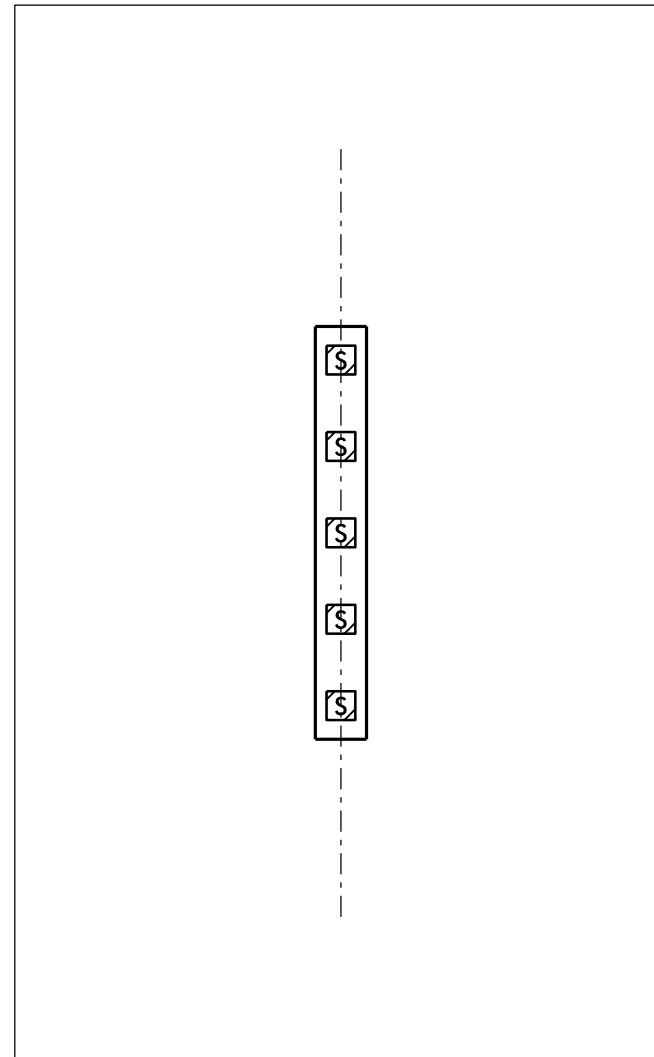
REVISIONS



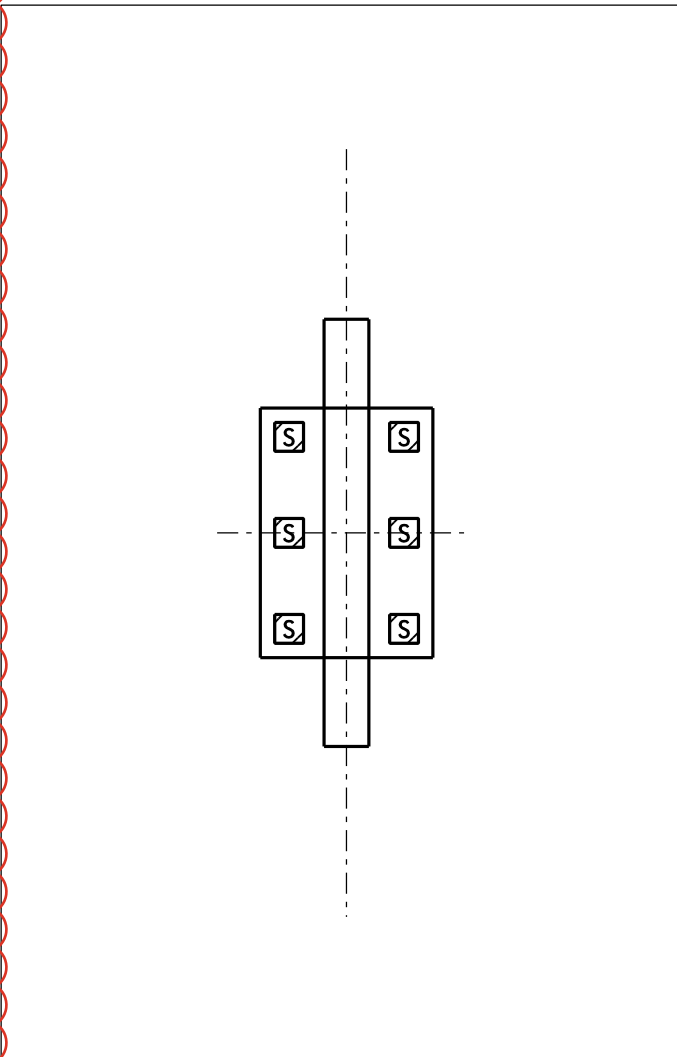
BENTS 1-6, 8-12, 14-18, 20-24,
 26-30, 32-36, 38-39, 62-63, 65-68,
 70-74, 76-80, 82-86, 88-92, 94-98,
 100-104, 106-110, 112-116, 118-122,
 124-128, 130-134
 43'-0" x 5'-4"
 36" PRESTRESSED CONCRETE PILE

Bents 1-3 and 130-134 are in Wetlands

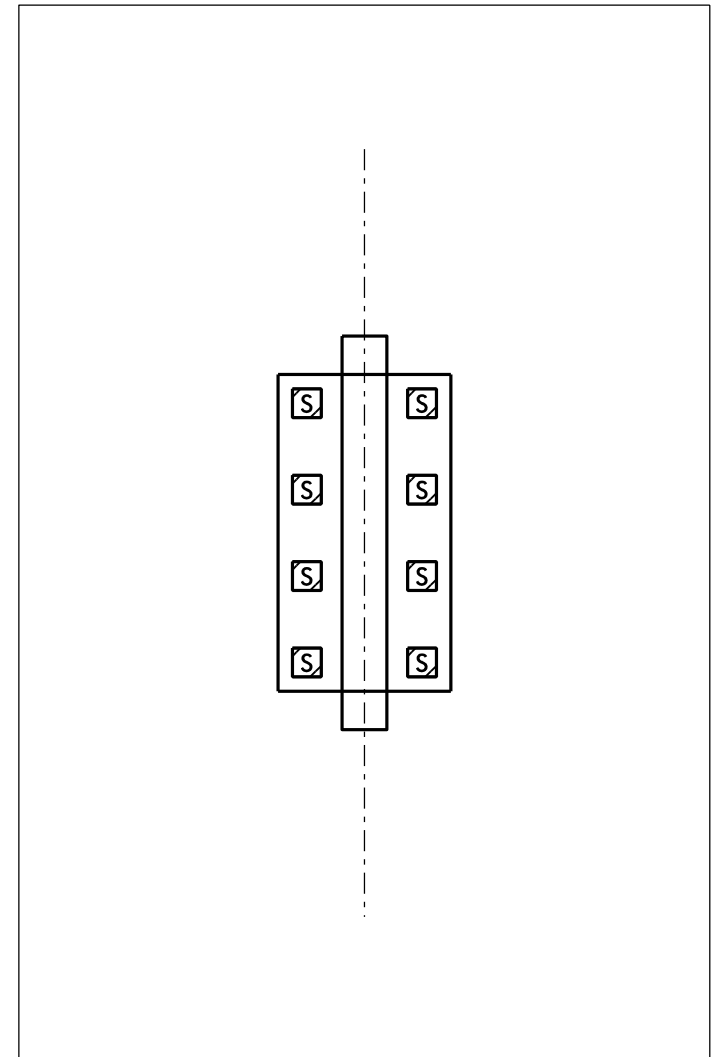
Remainder are in Surface Water



BENTS 7, 13, 19, 25, 31, 37, 64, 69,
 75, 81, 87, 93, 99, 105, 111, 117, 123,
 129
 44'-6" x 5'-0"
 36" PRESTRESSED CONCRETE PILE

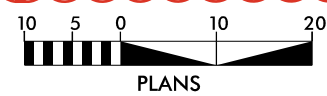


BENTS 40 & 61
 26'-0" x 18'-0"
 36" PRESTRESSED CONCRETE PILE




BENTS 41-43, 58-60
 33'-0" x 18'-0"
 36" PRESTRESSED CONCRETE PILE

18-N01-2024 10:52
HB-0001.dwg
10:52:46 AM



8/17/99

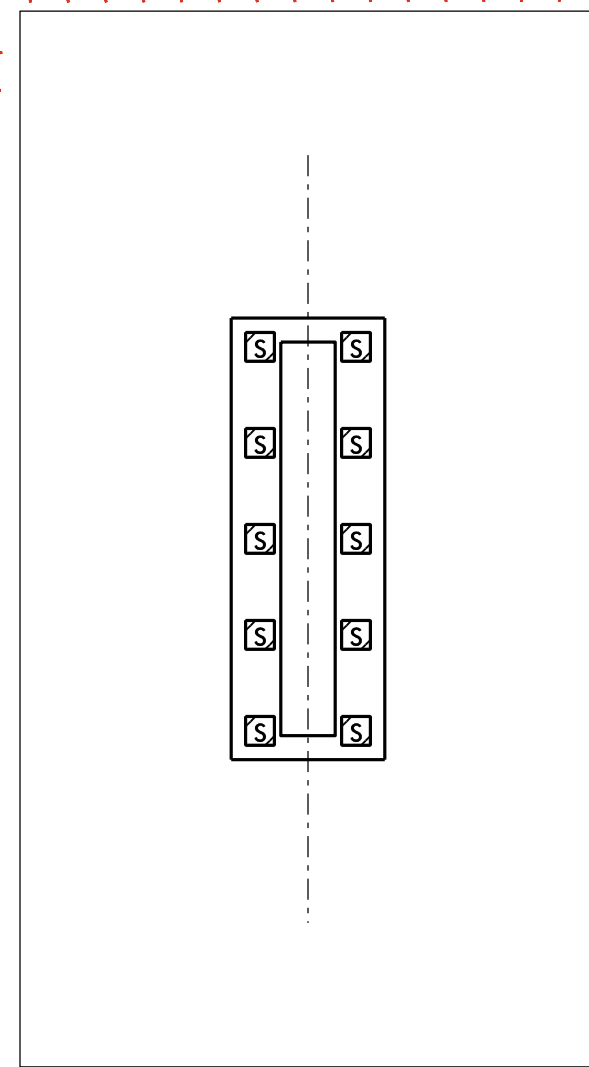
| | | |
|---|---------------------|--|
| PROJECT REFERENCE NO. <i>HB-0001</i> | | SHEET NO. |
| RW SHEET NO. | | |
| ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER | |
| Prepared in the Office of: | |  <small>NC FIRM LICENSE No P-0339 300 Executive Ct. Hillsborough, NC 27278 (919) 732-3863 (919) 732-6516 (FAX)</small> |

BENT TYPICAL IMPACTS

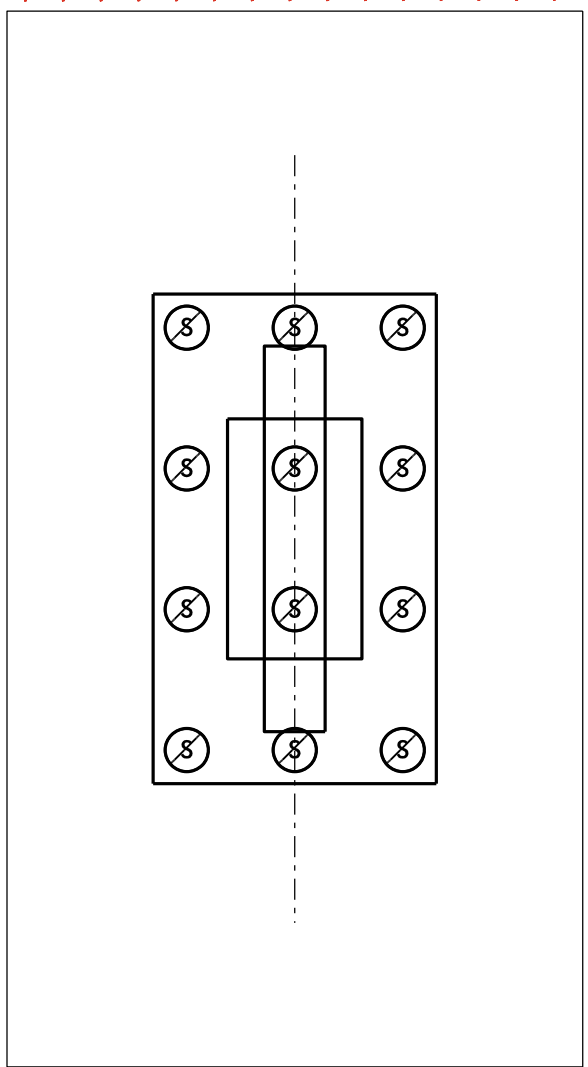


PERMIT DRAWING
SHEET 43 OF 79

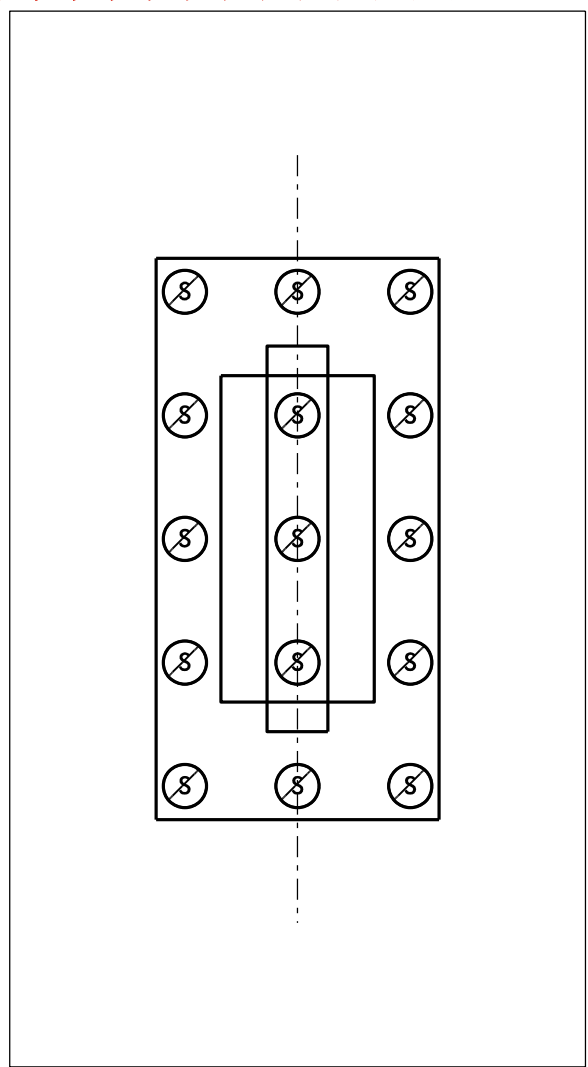
REVISIONS



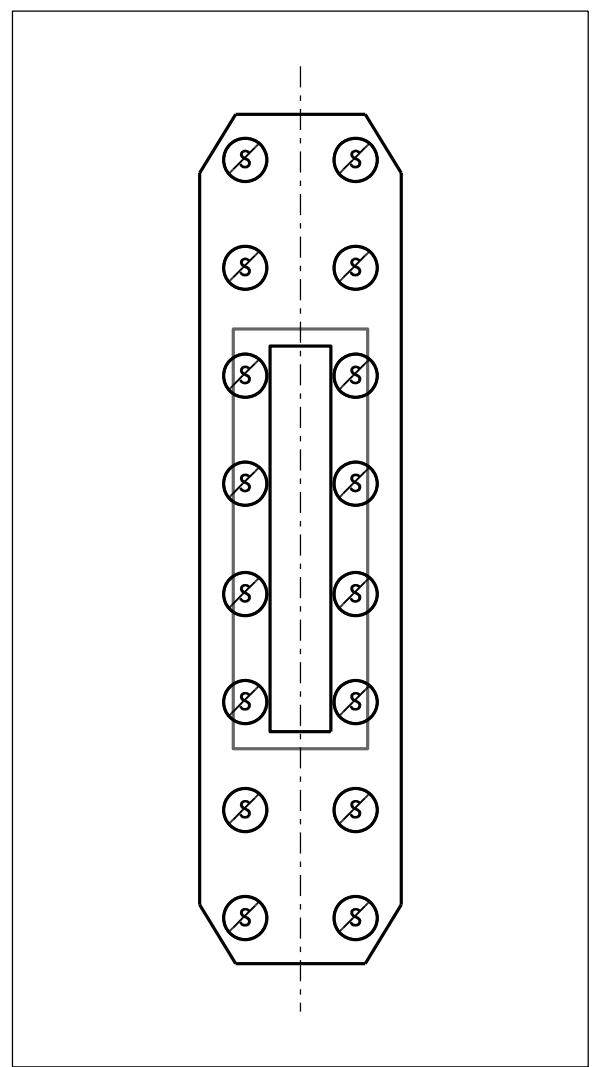
BENTS 44-46, 55-57
 46'-0" x 16'-0"
 36" PRESTRESSED CONCRETE PILE



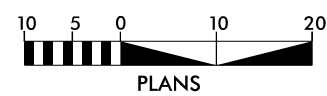
BENTS 47-48, 53-54
 51'-0" x 28'-6"
 54" PRESTRESSED CONCRETE PILE



BENTS 49 & 52
 58'-6" x 28'-6"
 54" PRESTRESSED CONCRETE PILE



BENTS 50 & 51
 88'-6" x 21'-0"
 54" PRESTRESSED CONCRETE PILE



18-NOV-2024 10:52
 HB-0001_Typical_Bent_Plans.dwg
 10/25/2024

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



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

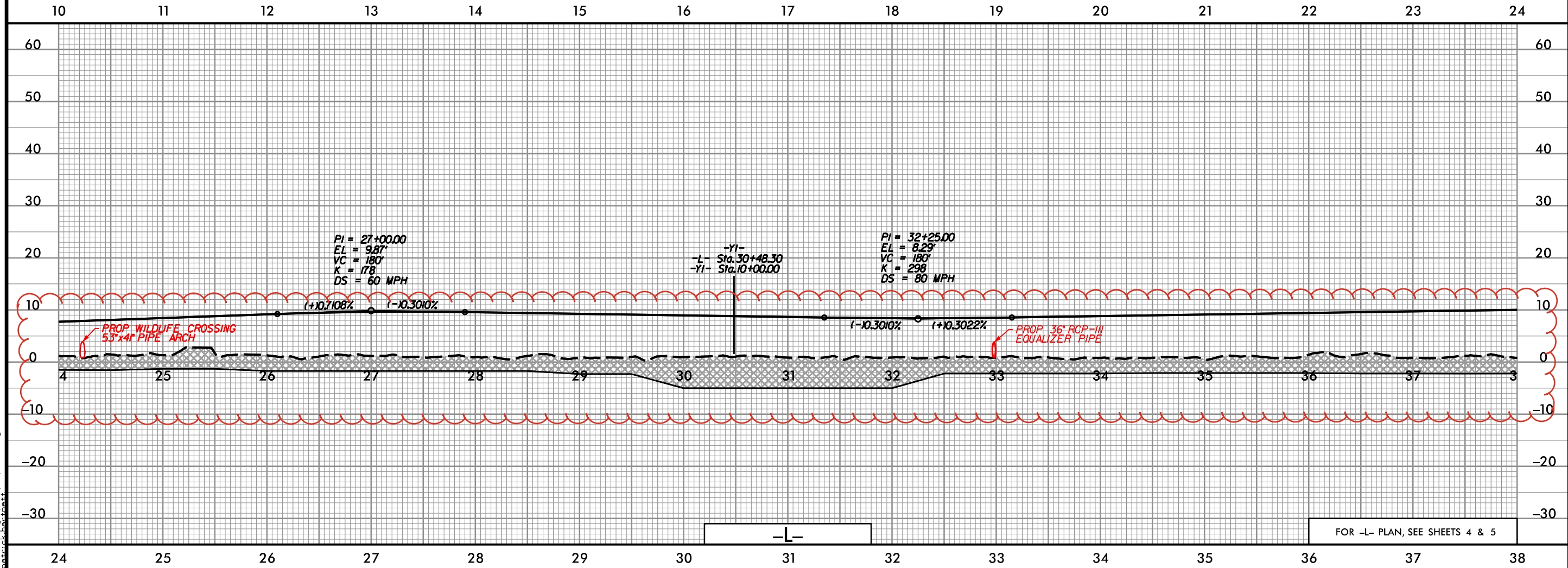
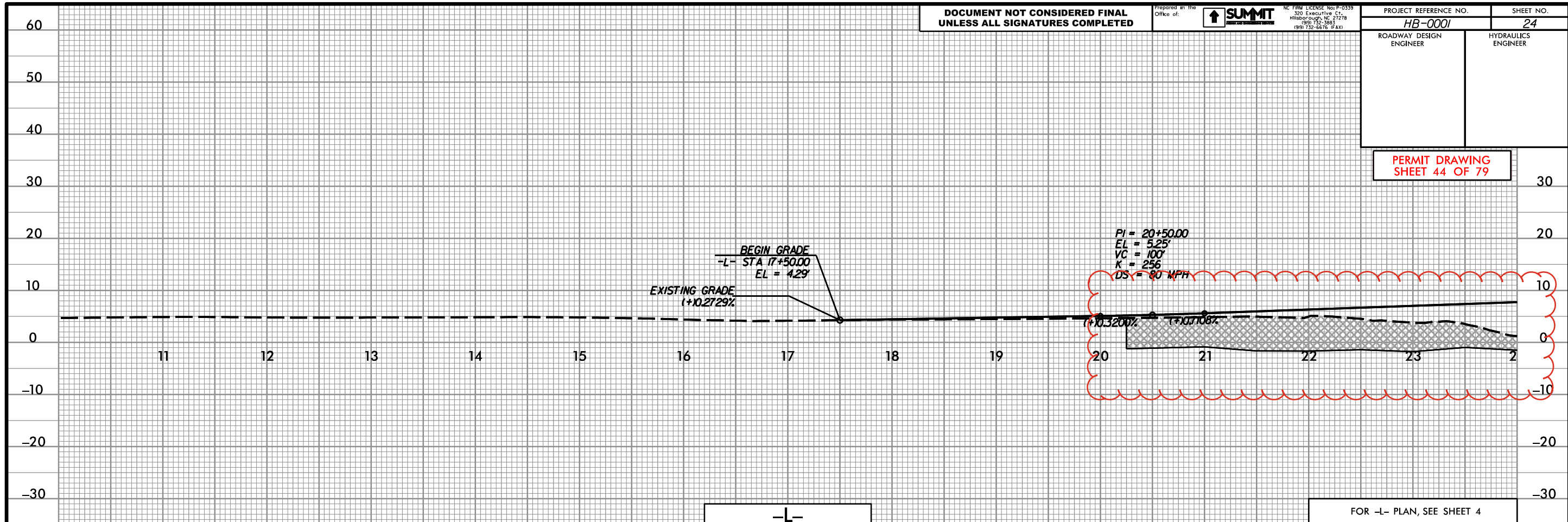
PROJECT REFERENCE NO.
HB-0001

SHEET NO.
24

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PERMIT DRAWING
SHEET 44 OF 79



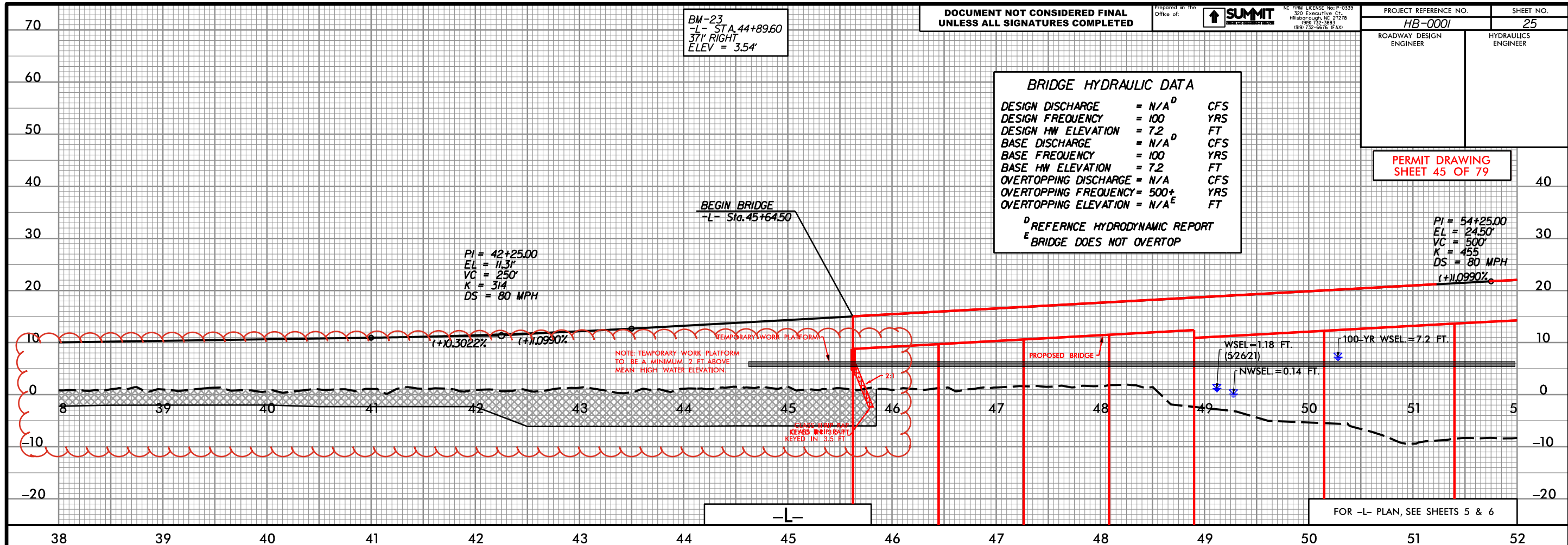
24-0601-2023 12:57
peshpfl_44.dgn

BM-23
-L- STA. 44+89.60
37' RIGHT
ELEV = 3.54'

| 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 REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP

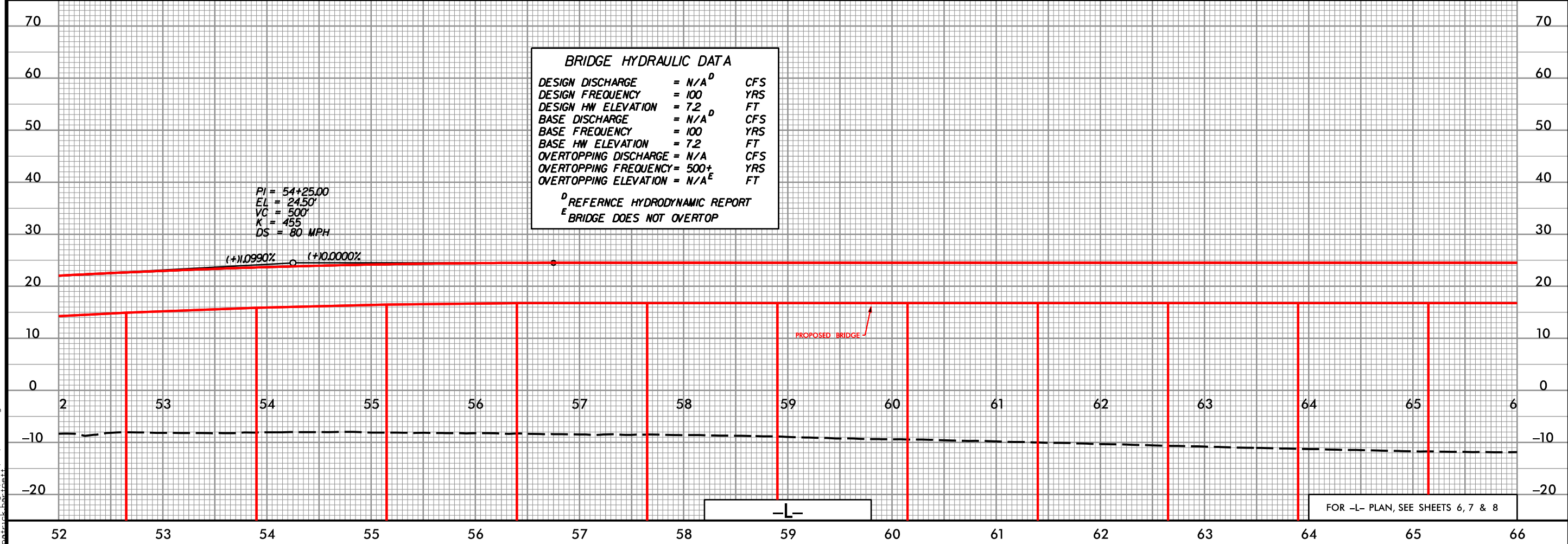
PI = 54+25.00
EL = 24.50'
VC = 500'
K = 455
DS = 80 MPH



| 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 REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP

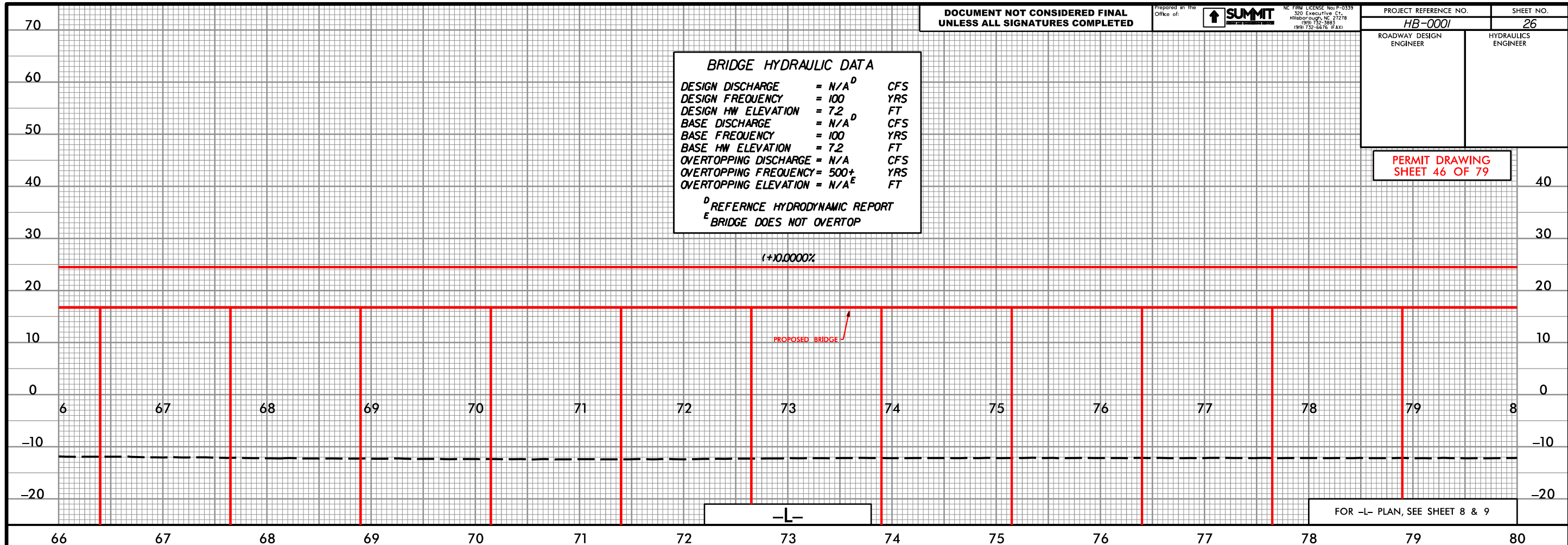
PI = 54+25.00
EL = 24.50'
VC = 500'
K = 455
DS = 80 MPH



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 REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP

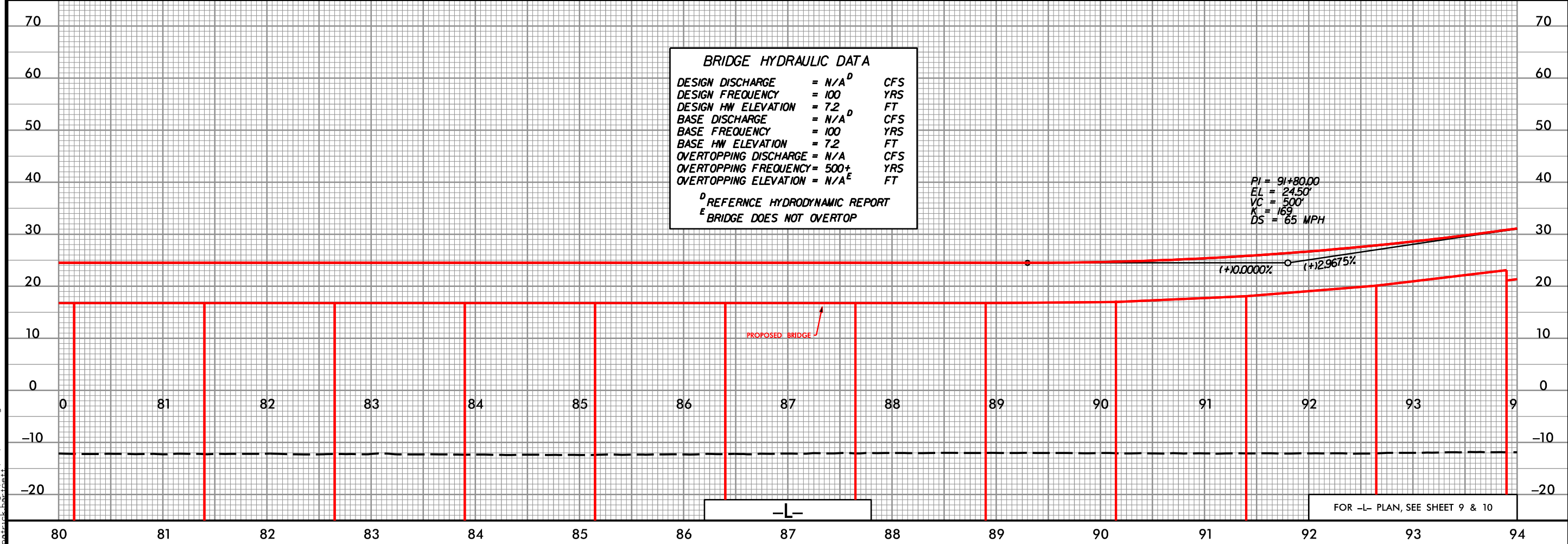


BRIDGE HYDRAULIC DATA

| | | |
|-----------------------|--------------------|-----|
| 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 REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP

PI = 91+80.00
EL = 24.50'
VC = 500'
K = 169
DS = 65 MPH



28-056-2023 12:57
28-0601-11-bshpfl_46.dgn
28-0601-11-bshpfl_46.dgn

5/14/99

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 REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP

PI = 111+82.00
 EL = 83.9'
 VC = 1200'
 K = 203
 DS = 65 MPH

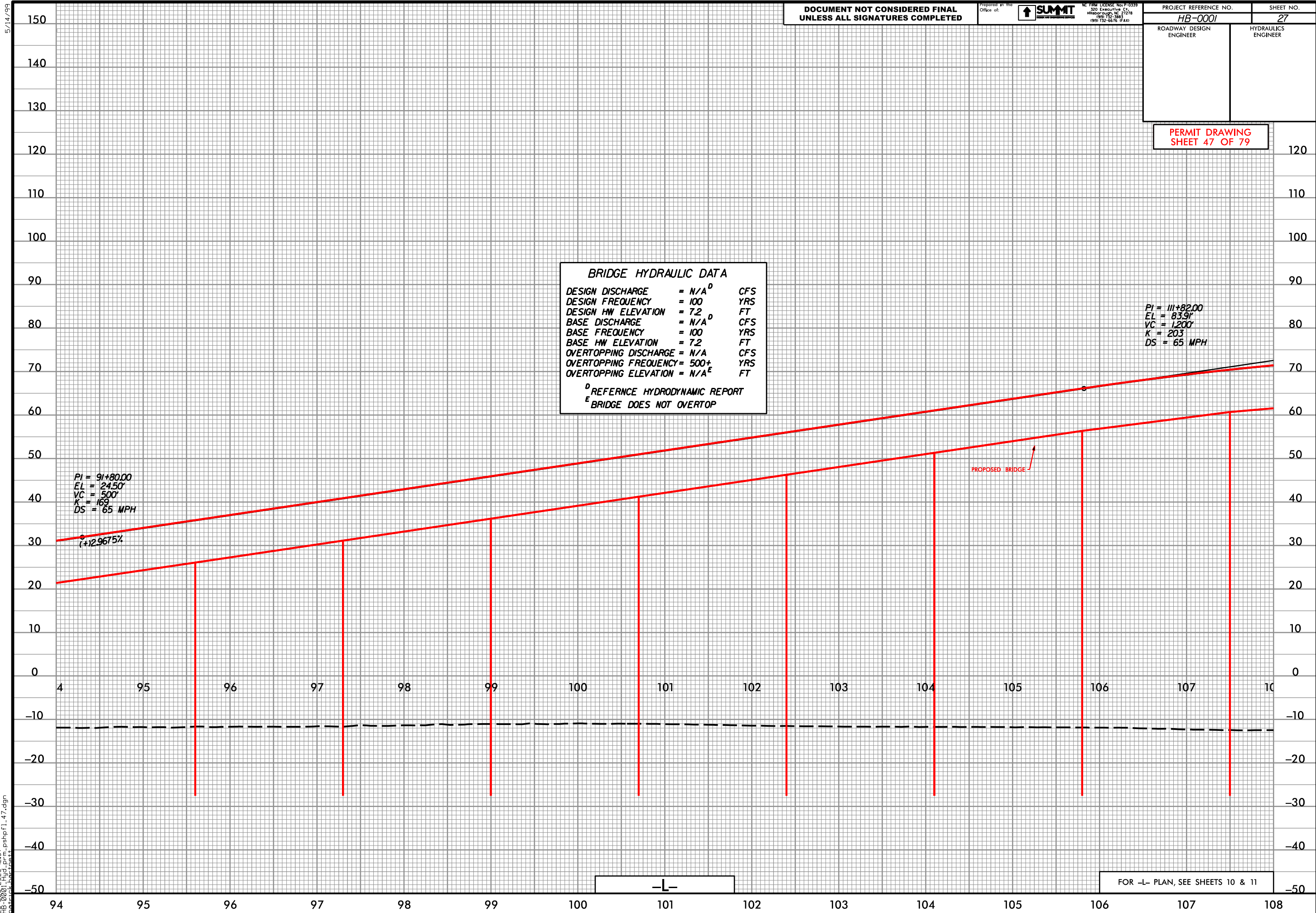
PI = 91+80.00
 EL = 24.50'
 VC = 500'
 K = 169
 DS = 65 MPH
 (+)2.9675%

PROPOSED BRIDGE

-L-

FOR -L- PLAN, SEE SHEETS 10 & 11

28-055-2023 12:57
28-0001-bshpfl_47.dgn



5/14/99

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320 Executive Ct.
Hillsborough, NC 27278
(919) 732-3383
(919) 732-6676 (FAX)

PROJECT REFERENCE NO.
HB-0001

SHEET NO.
28

ROADWAY DESIGN
ENGINEER

HYDRAULICS
ENGINEER

PERMIT DRAWING
SHEET 48 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 REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP

PI = 111+82.00
 EL = 83.91'
 VC = 1,200'
 K = 203
 DS = 65 MPH

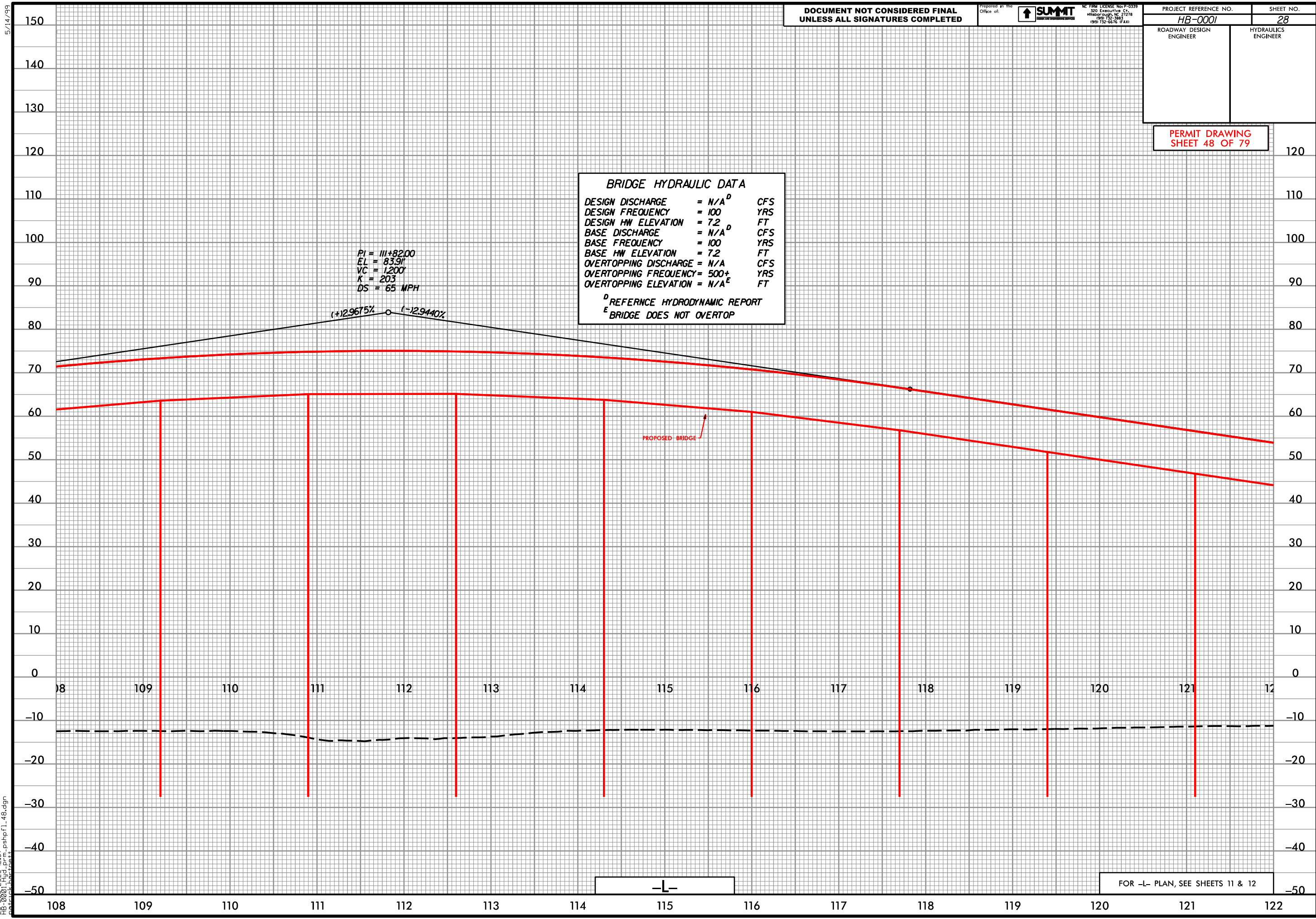
(+12.9675% (-12.9440%)

PROPOSED BRIDGE

28-0001-001-12-57
 28-0001-001-12-57
 28-0001-001-12-57

-L-

FOR -L- PLAN, SEE SHEETS 11 & 12



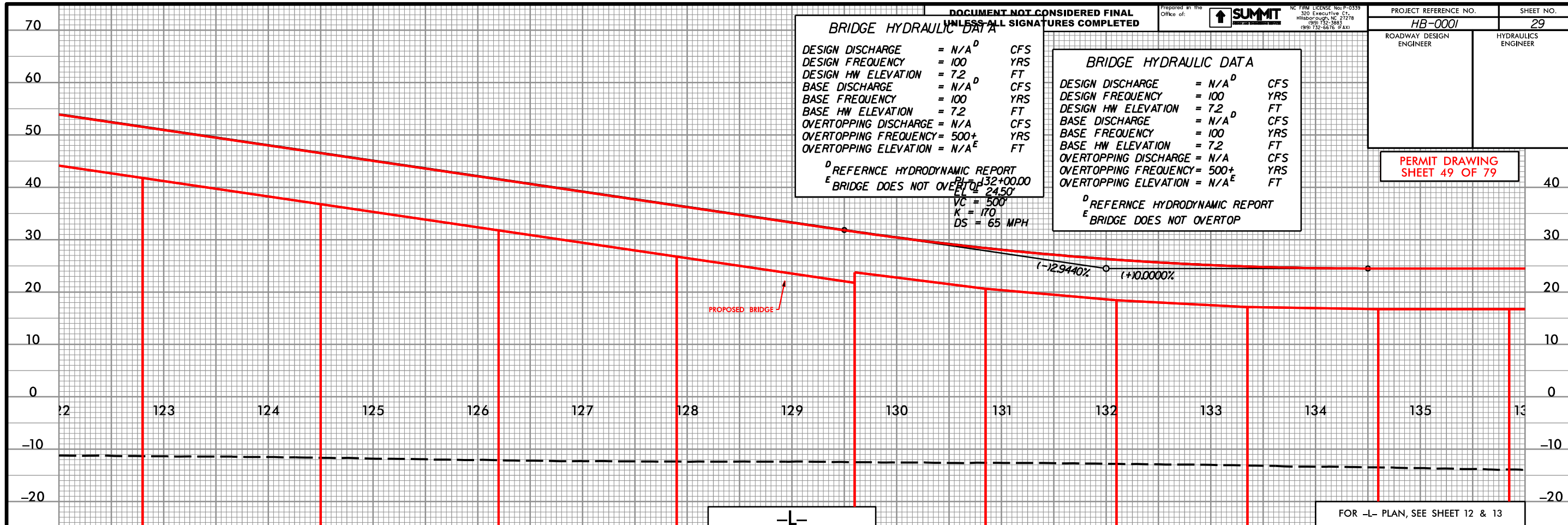
PERMIT DRAWING
SHEET 49 OF 79

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 REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP
ELEV = 24.50'
VC = 500'
K = 170
DS = 65 MPH

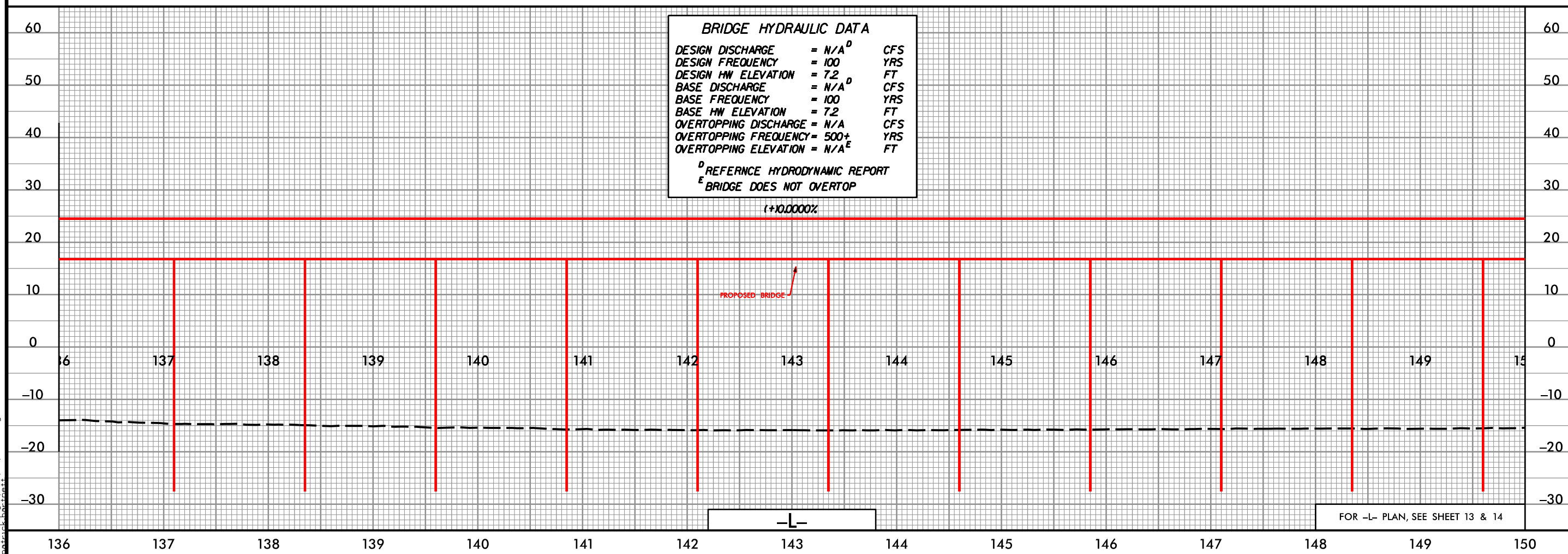
BRIDGE HYDRAULIC DATA
DESIGN DISCHARGE = N/A^D CFS
DESIGN FREQUENCY = 100 YRS
DESIGN HW ELEVATION = 7.2 FT
BASE DISCHARGE = N/A^D CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 7.2 FT
OVERTOPPING DISCHARGE = N/A CFS
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING ELEVATION = N/A^E FT

^D REFERENCE 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

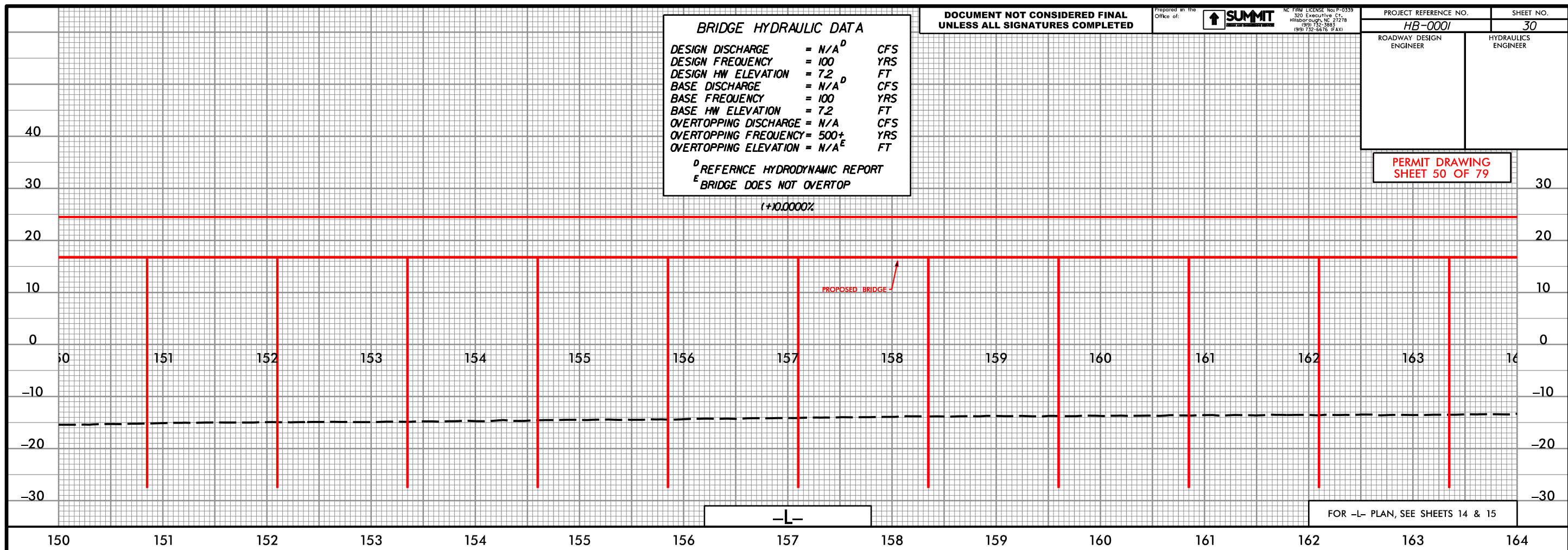
^D REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP



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

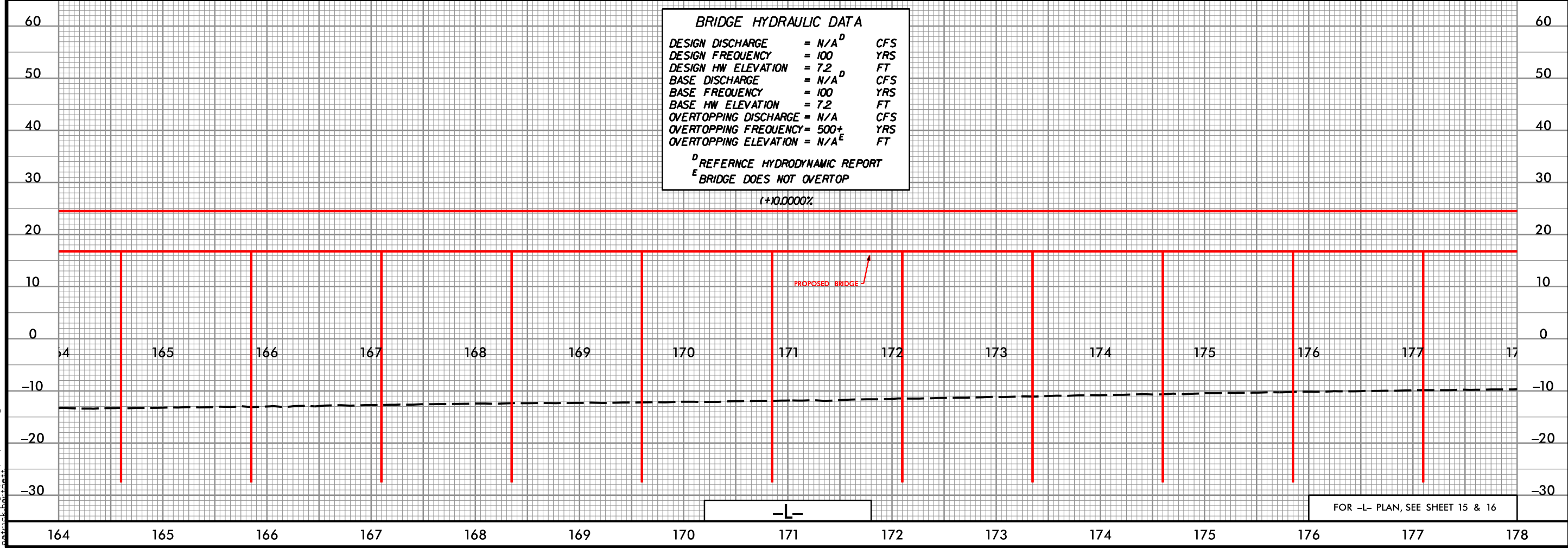
^D REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP



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 REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP



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28-0601-1-bshpfl_50.dgn
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PROJECT REFERENCE NO.
HB-0001

SHEET NO.
31

ROADWAY DESIGN
ENGINEER

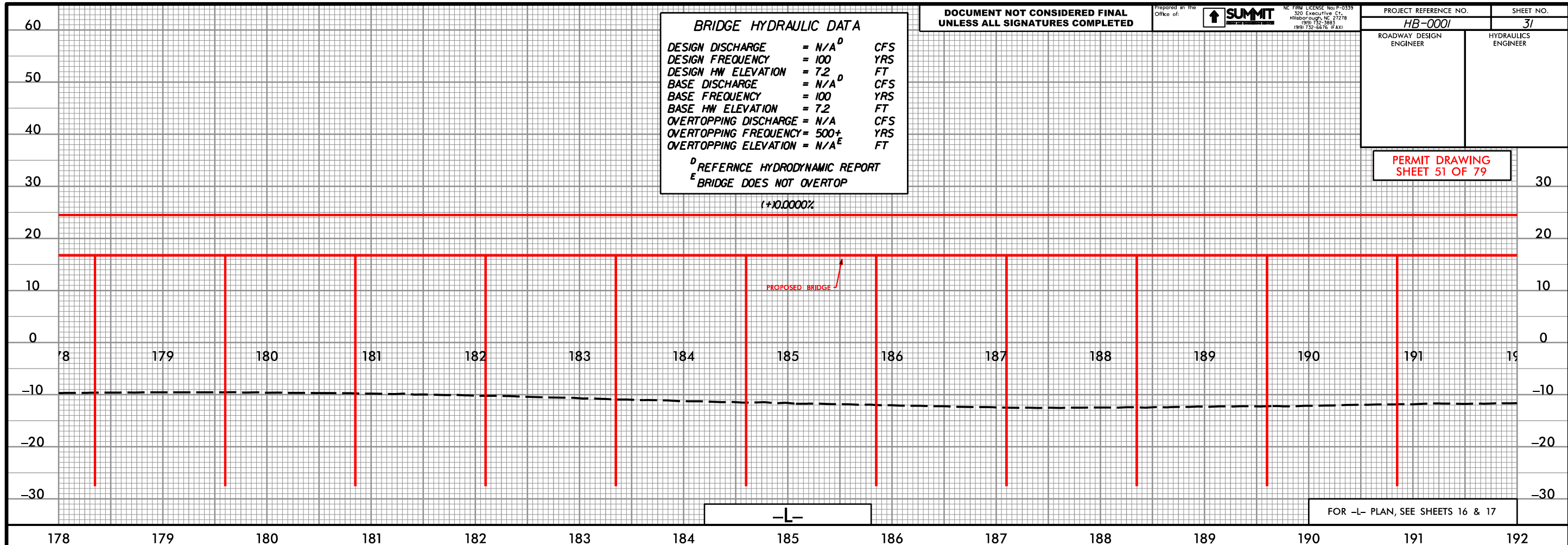
HYDRAULICS
ENGINEER

PERMIT DRAWING
SHEET 51 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 |

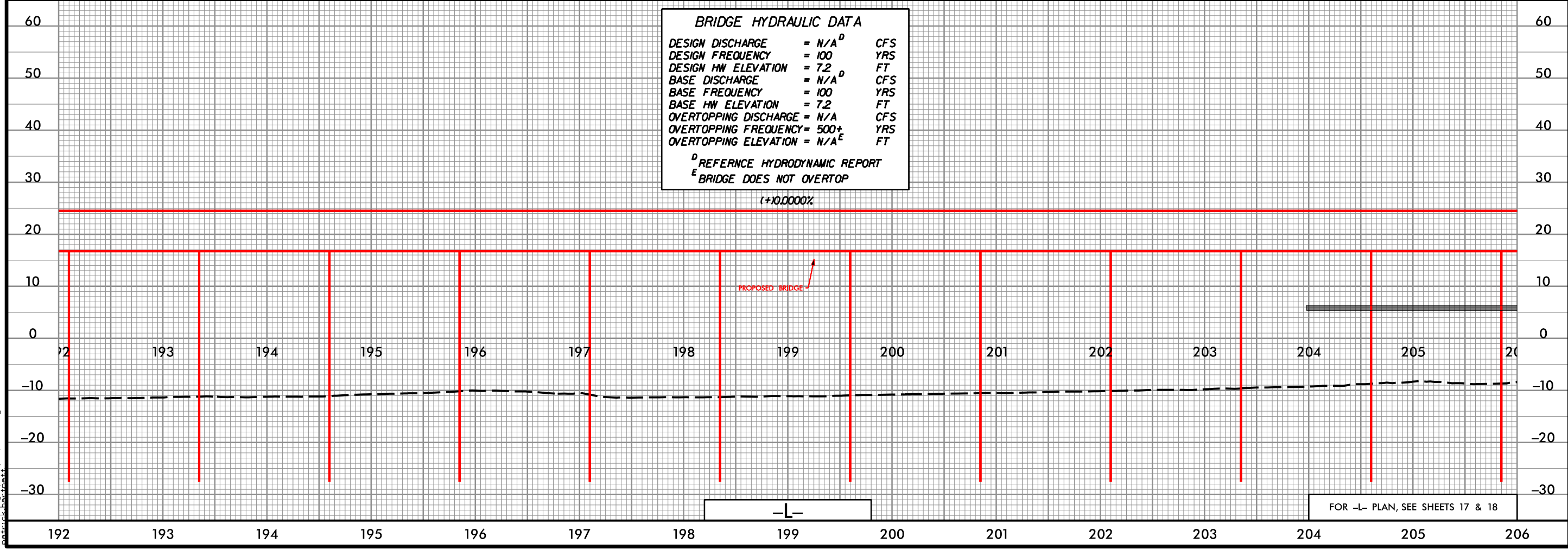
^D REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP



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 REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP



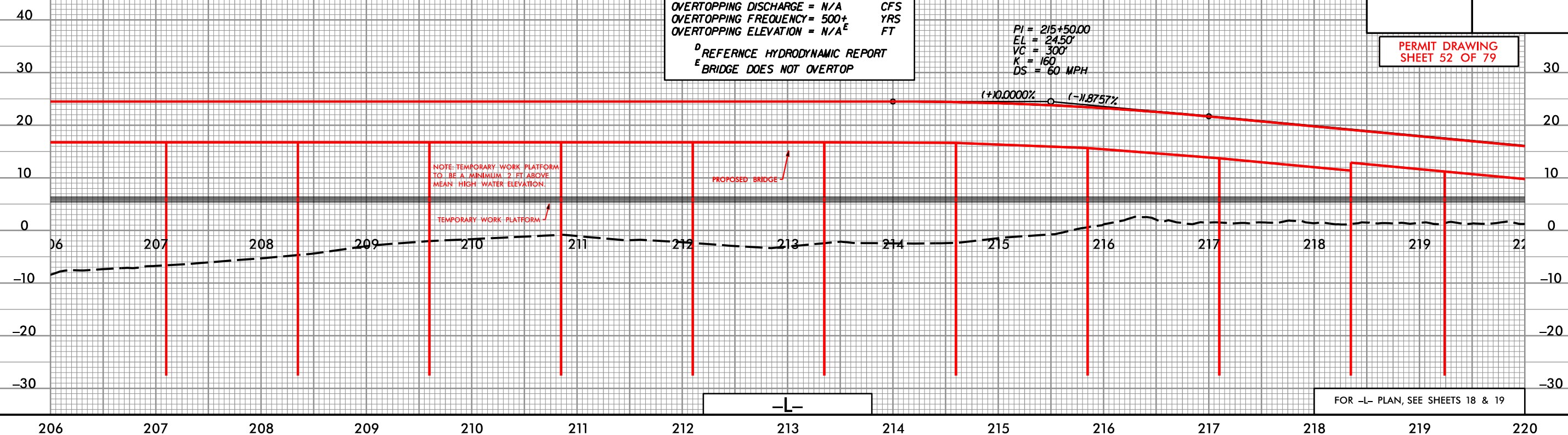
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28-0601-11-bshpfl-51.dgn
patrick_bshpfl

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 REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP

PI = 215+50.00
EL = 24.50'
VC = 300'
K = 160
DS = 60 MPH



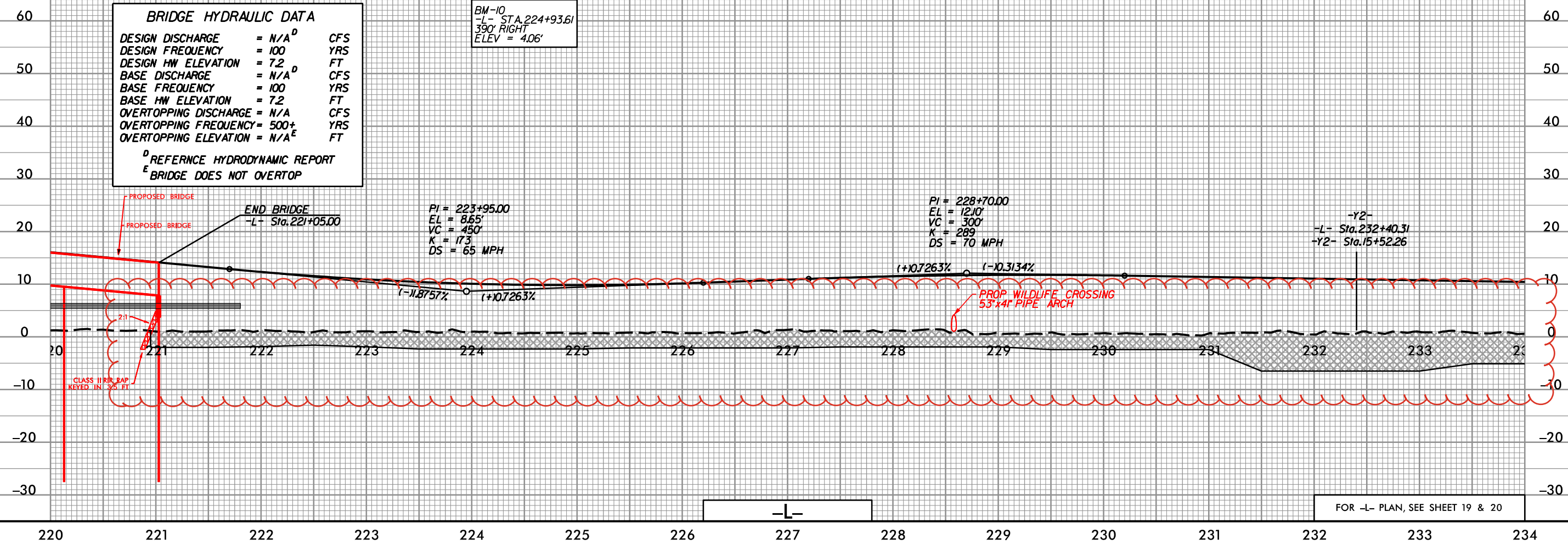
FOR -L- PLAN, SEE SHEETS 18 & 19

BRIDGE HYDRAULIC DATA

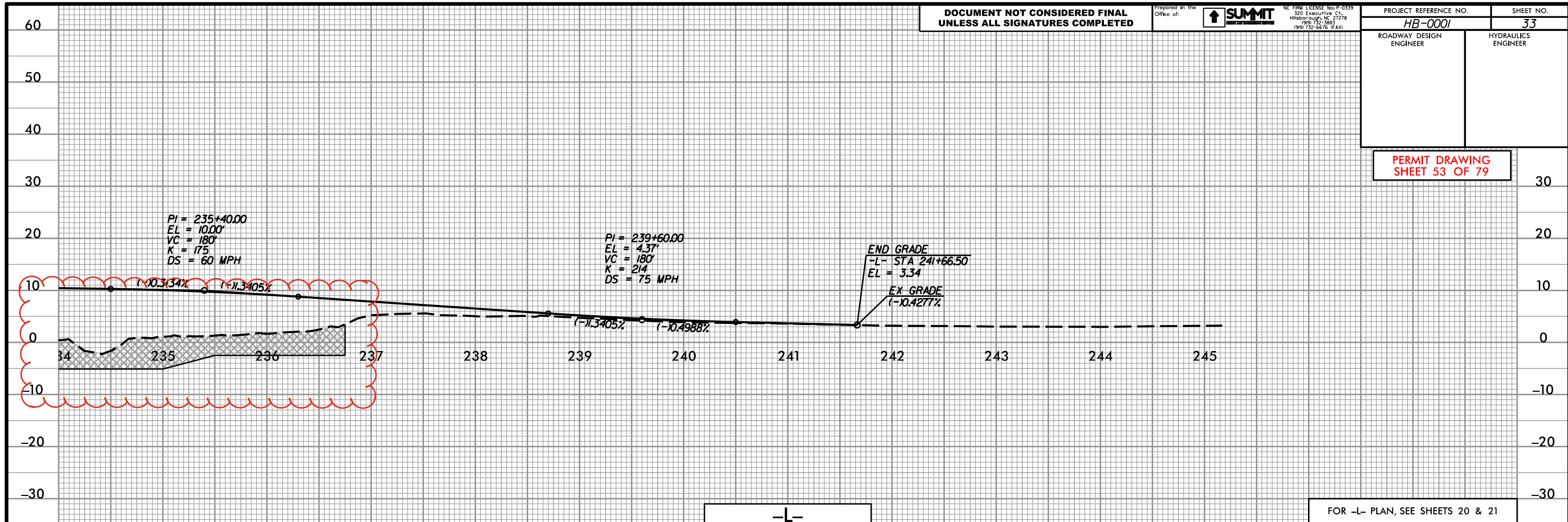
DESIGN DISCHARGE = N/A^D CFS
DESIGN FREQUENCY = 100 YRS
DESIGN HW ELEVATION = 7.2 FT
BASE DISCHARGE = N/A^D CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 7.2 FT
OVERTOPPING DISCHARGE = N/A CFS
OVERTOPPING FREQUENCY = 500+ YRS
OVERTOPPING ELEVATION = N/A^E FT

^D REFERENCE HYDRODYNAMIC REPORT
^E BRIDGE DOES NOT OVERTOP

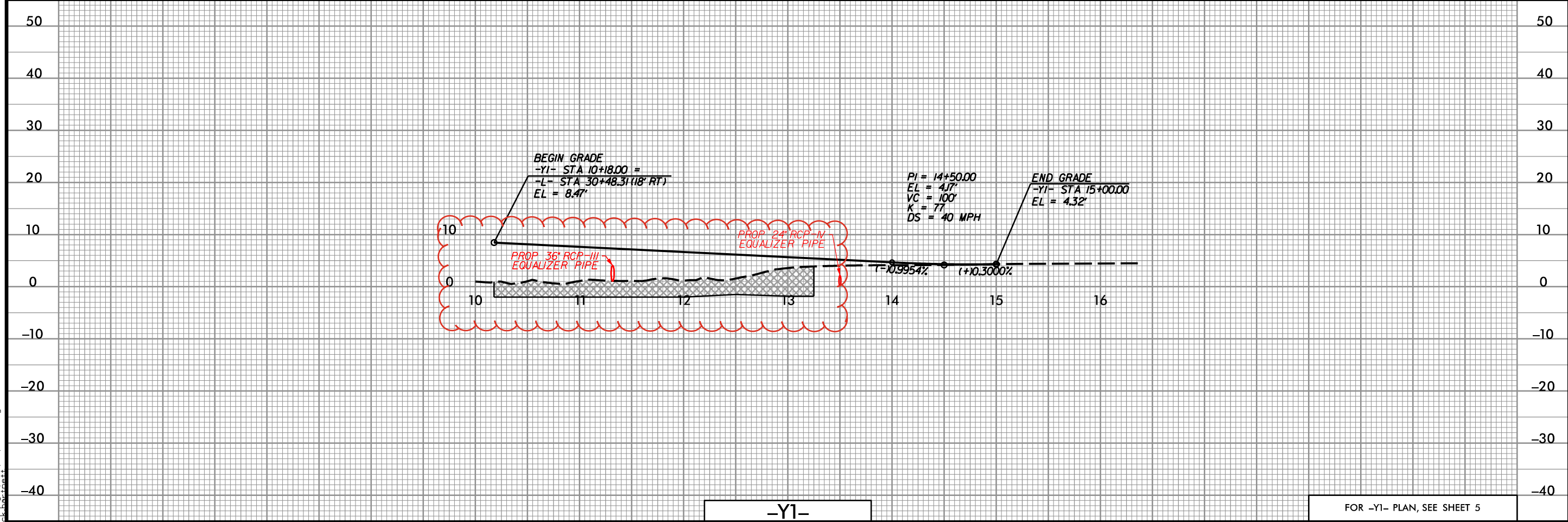
BM-10
-L- STA. 224+93.61
390' RIGHT
ELEV = 4.06'



FOR -L- PLAN, SEE SHEET 19 & 20



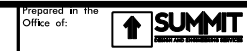
234 235 236 237 238 239 240 241 242 243 244 245 246



10 11 12 13 14 15 16

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28-0601-11-25-2023
peshpf1_53.dgn

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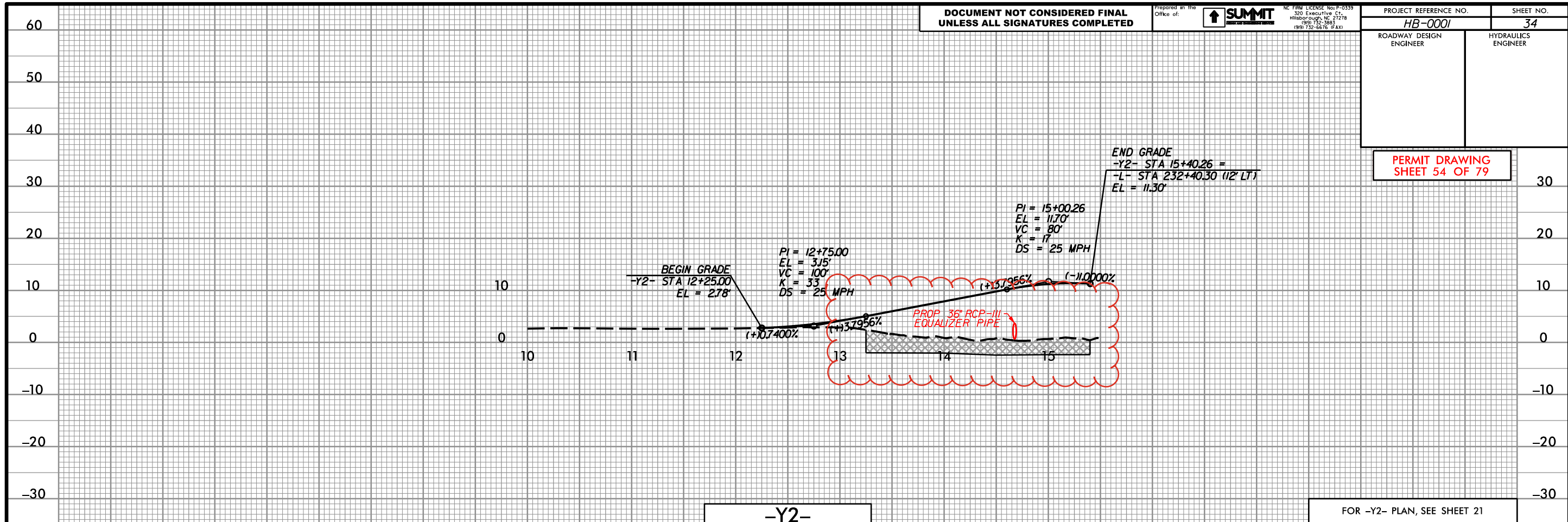


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PROJECT REFERENCE NO. **HB-0001** SHEET NO. **34**

ROADWAY DESIGN ENGINEER HYDRAULICS ENGINEER

PERMIT DRAWING
SHEET 54 OF 79



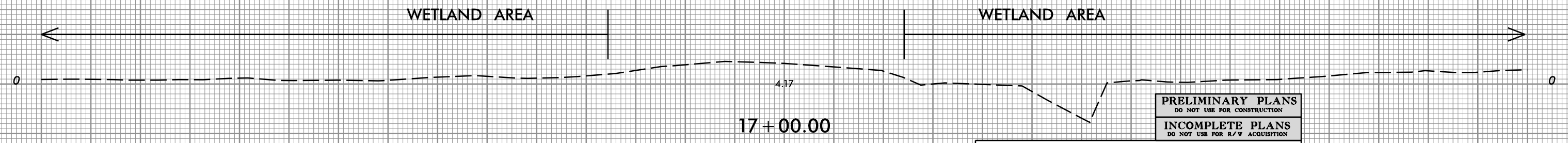
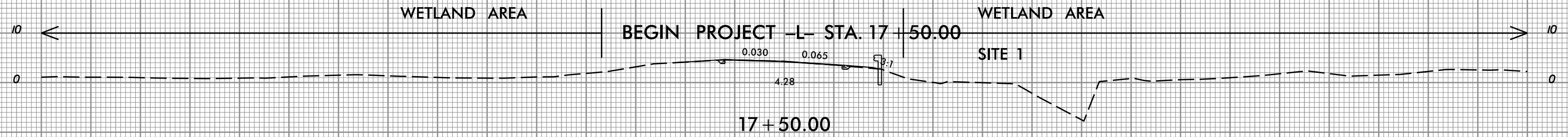
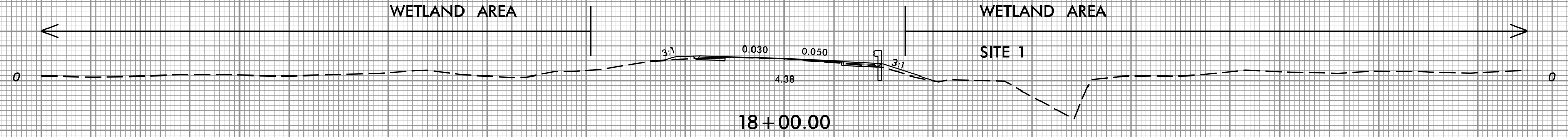
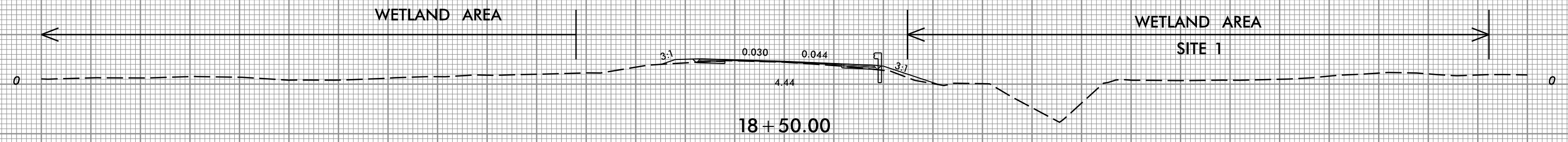
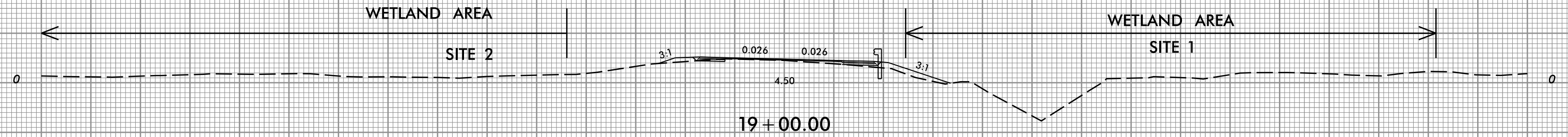
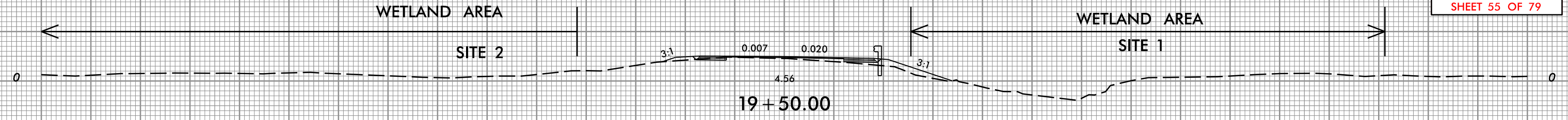
-Y2-

FOR -Y2- PLAN, SEE SHEET 21

28-DEC-2023 12:57
28-0001-11-bshpfl_54.dgn
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150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

PERMIT DRAWING SHEET 55 OF 79



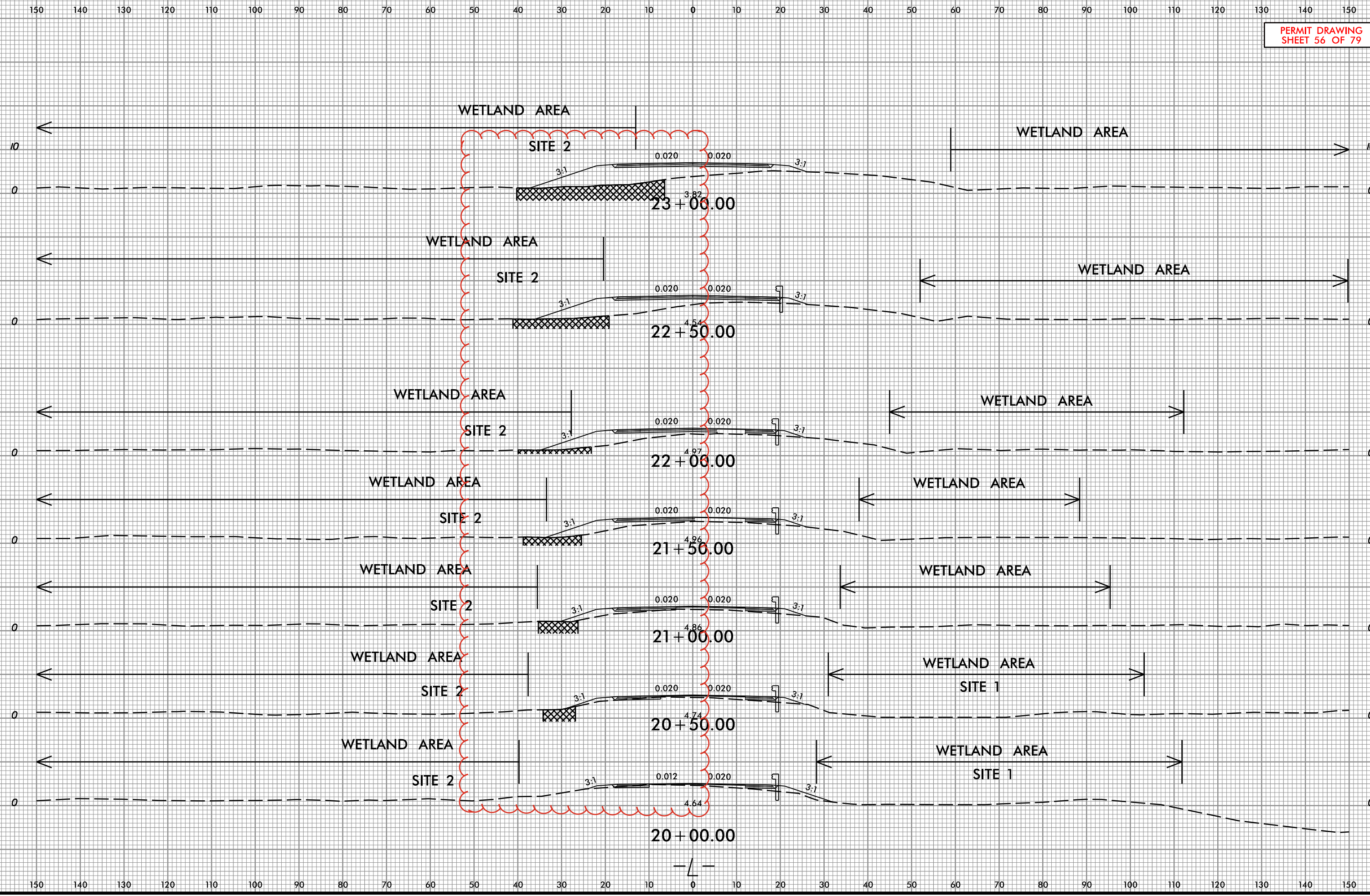
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

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."

28-DEC-2023 12:57
HB-0001_Hyd_xpl_L_17+00-50+00.dgn
patrick.norbert

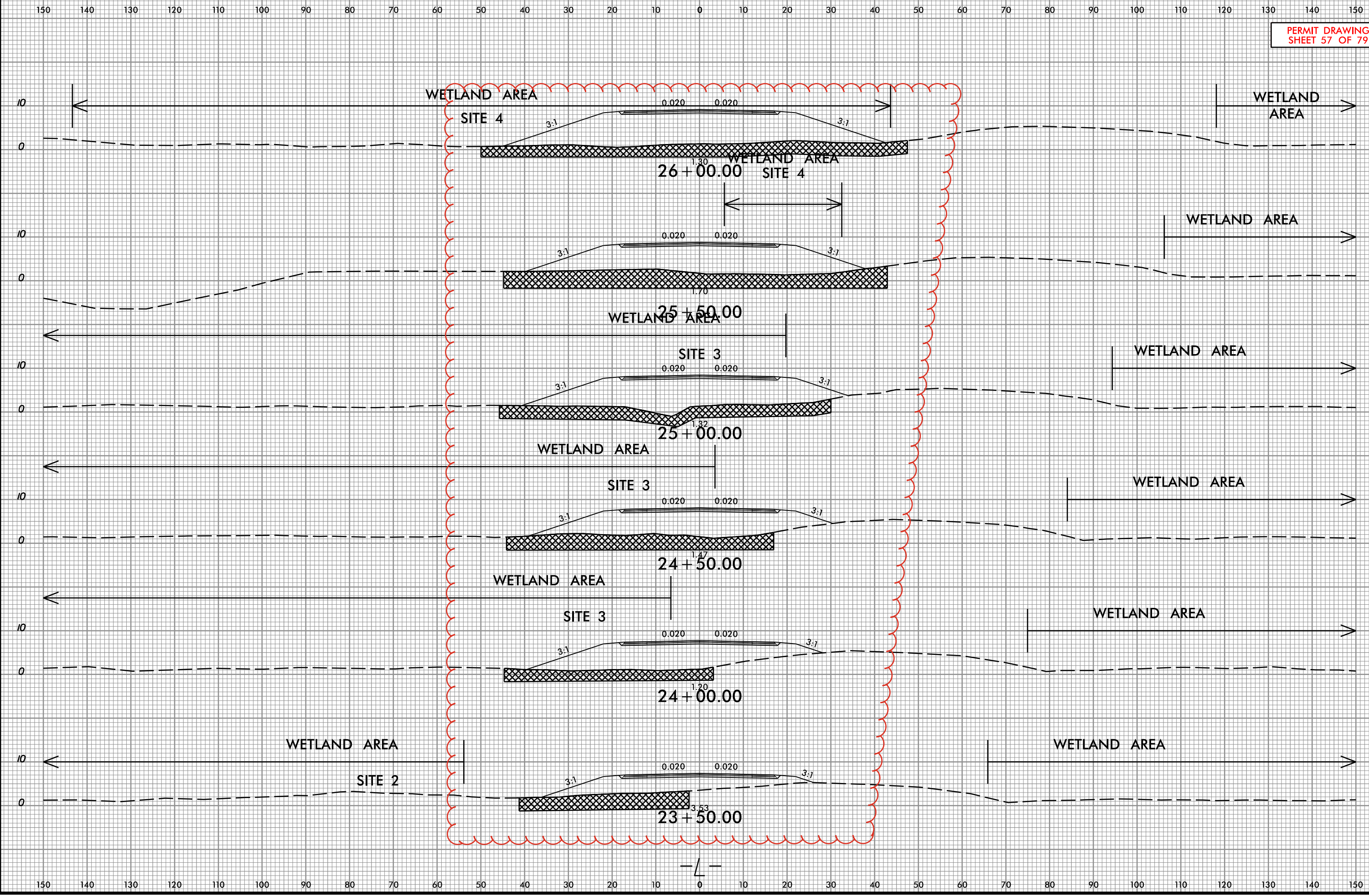
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PERMIT DRAWING SHEET 56 OF 79



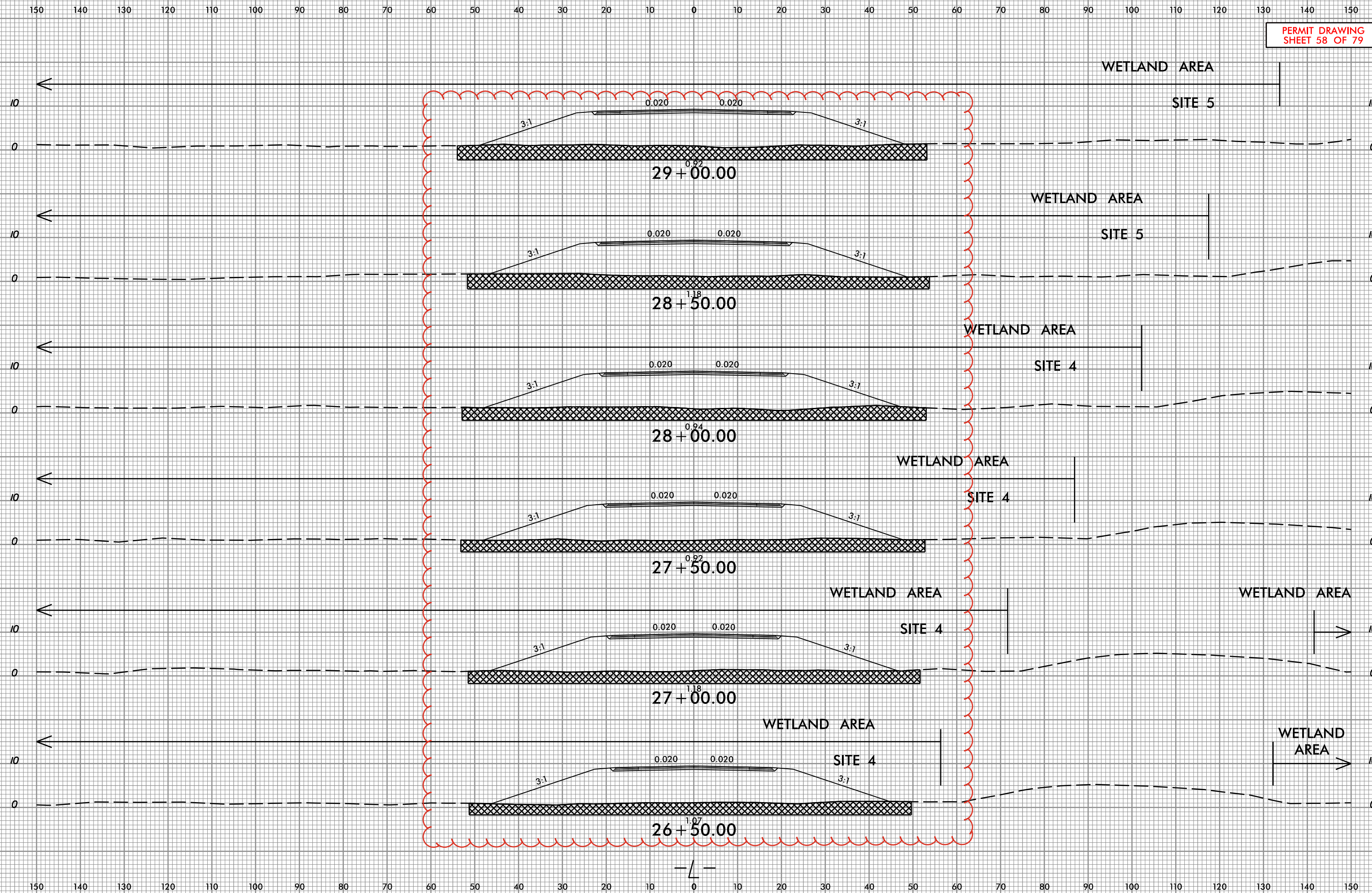
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 patrick.norsett

**PERMIT DRAWING
 SHEET 57 OF 79**



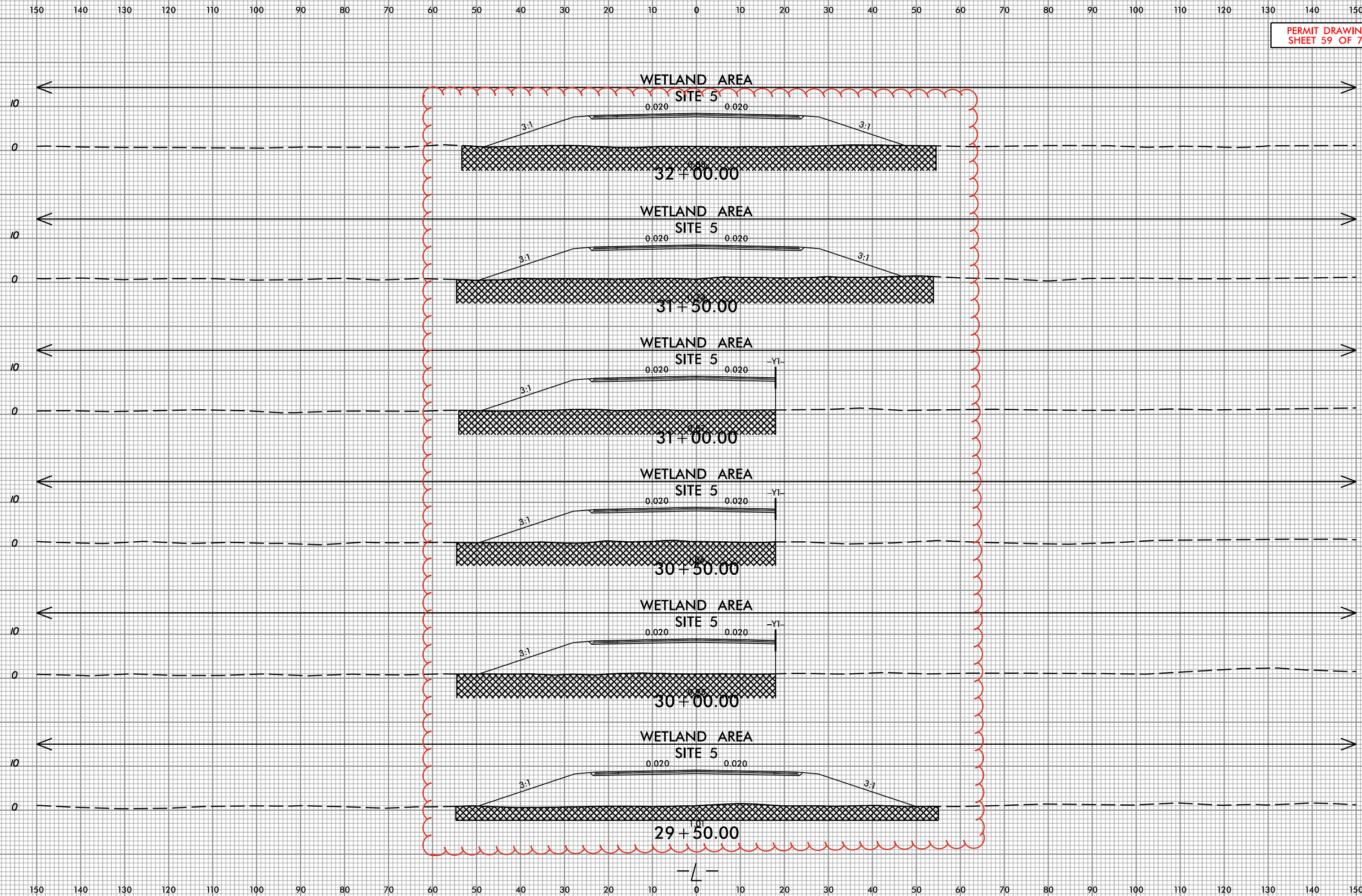
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 patrick.norrett

PERMIT DRAWING
SHEET 58 OF 79



28-DEC-2023 12:57
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 patrick.norrett

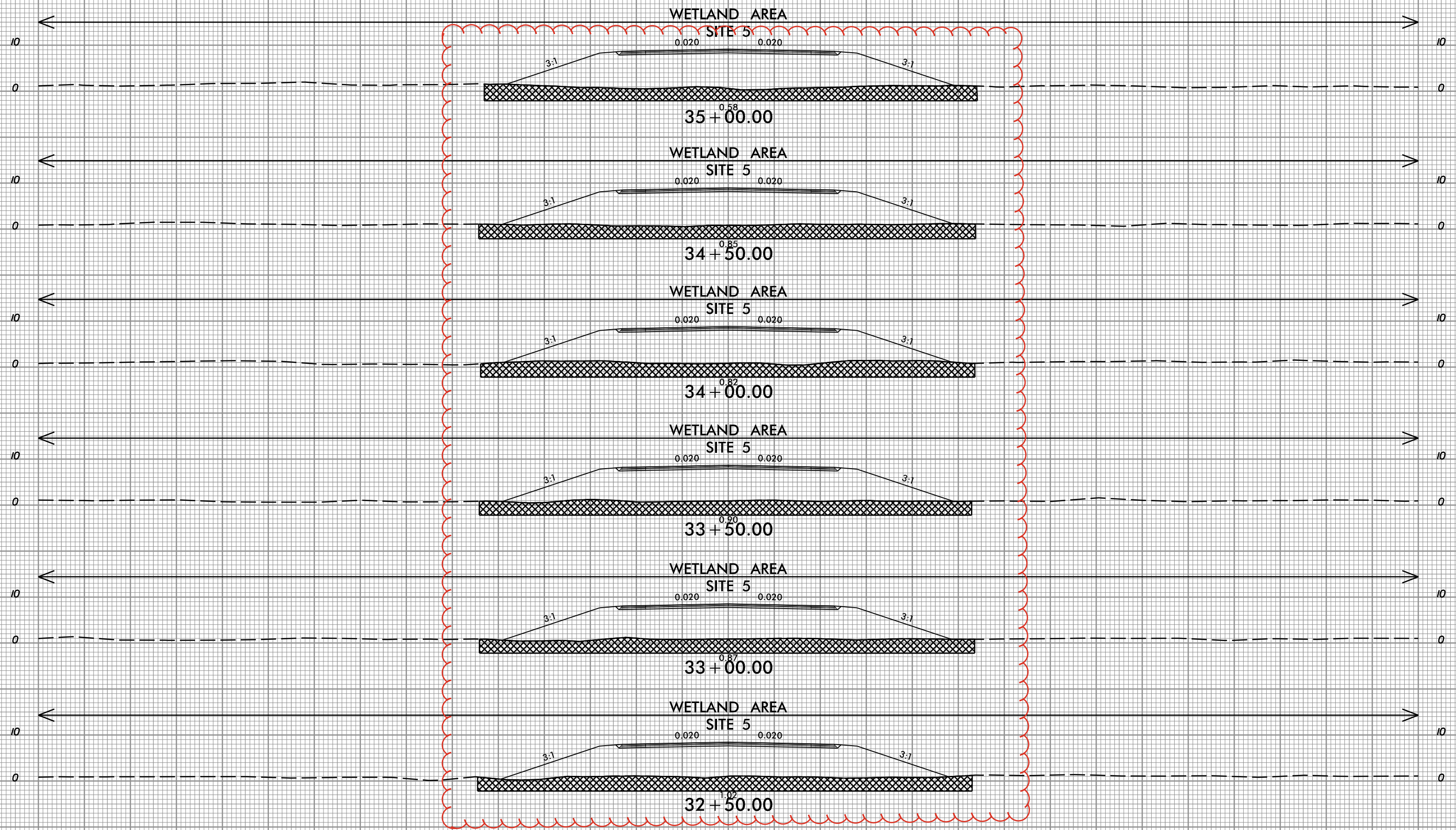
PERMIT DRAWING
SHEET 59 OF 79



28-DEC-2023 12:57
 HB-0001_Hyd_xpl_L_17+00-50+00.dgn
 patrick.norrett

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PERMIT DRAWING SHEET 60 OF 79

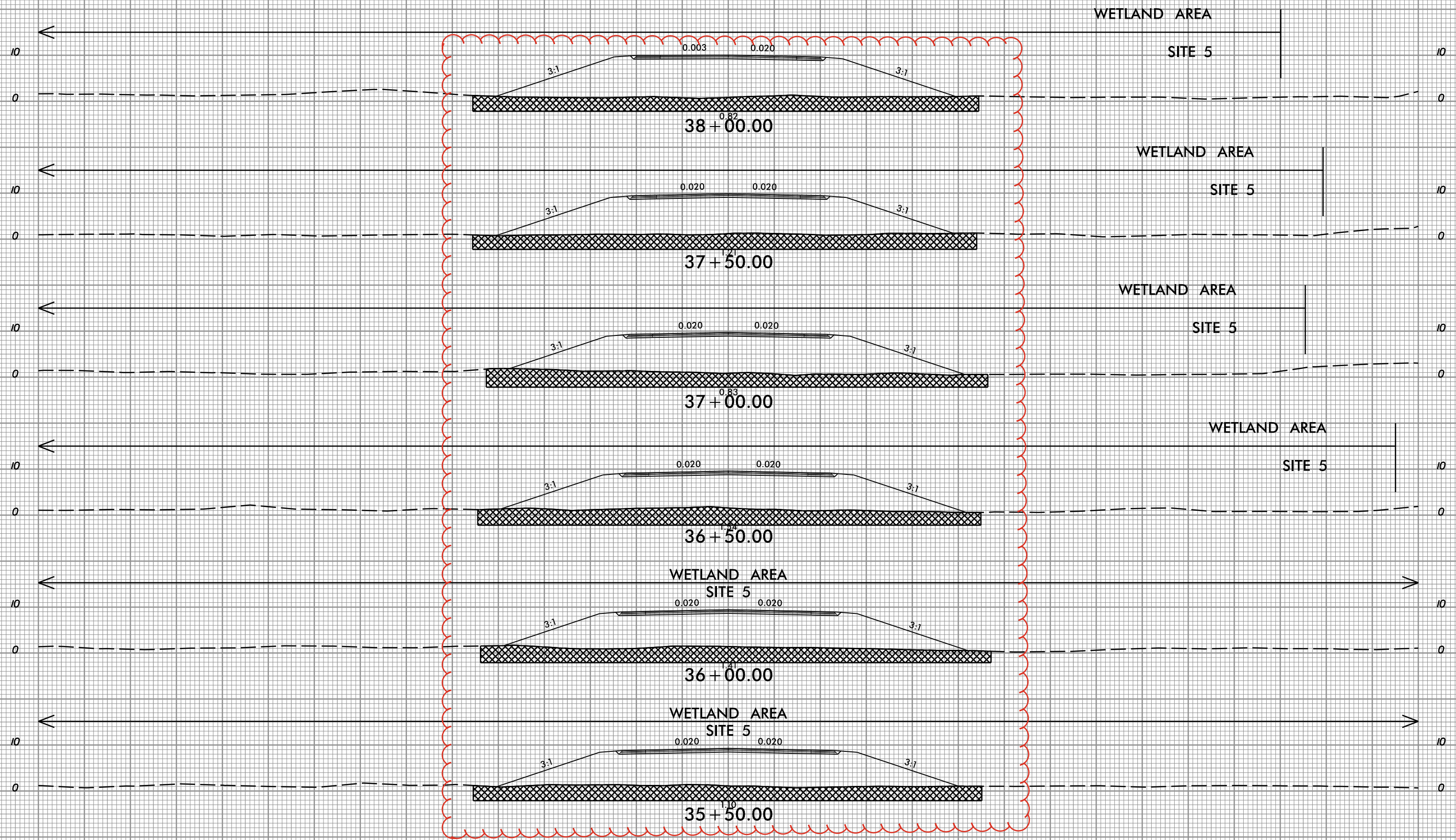


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HB-0001_Hyd_xpl_L_17+00-50+00.dgn
patrick.norrett

PERMIT DRAWING
 SHEET 61 OF 79

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

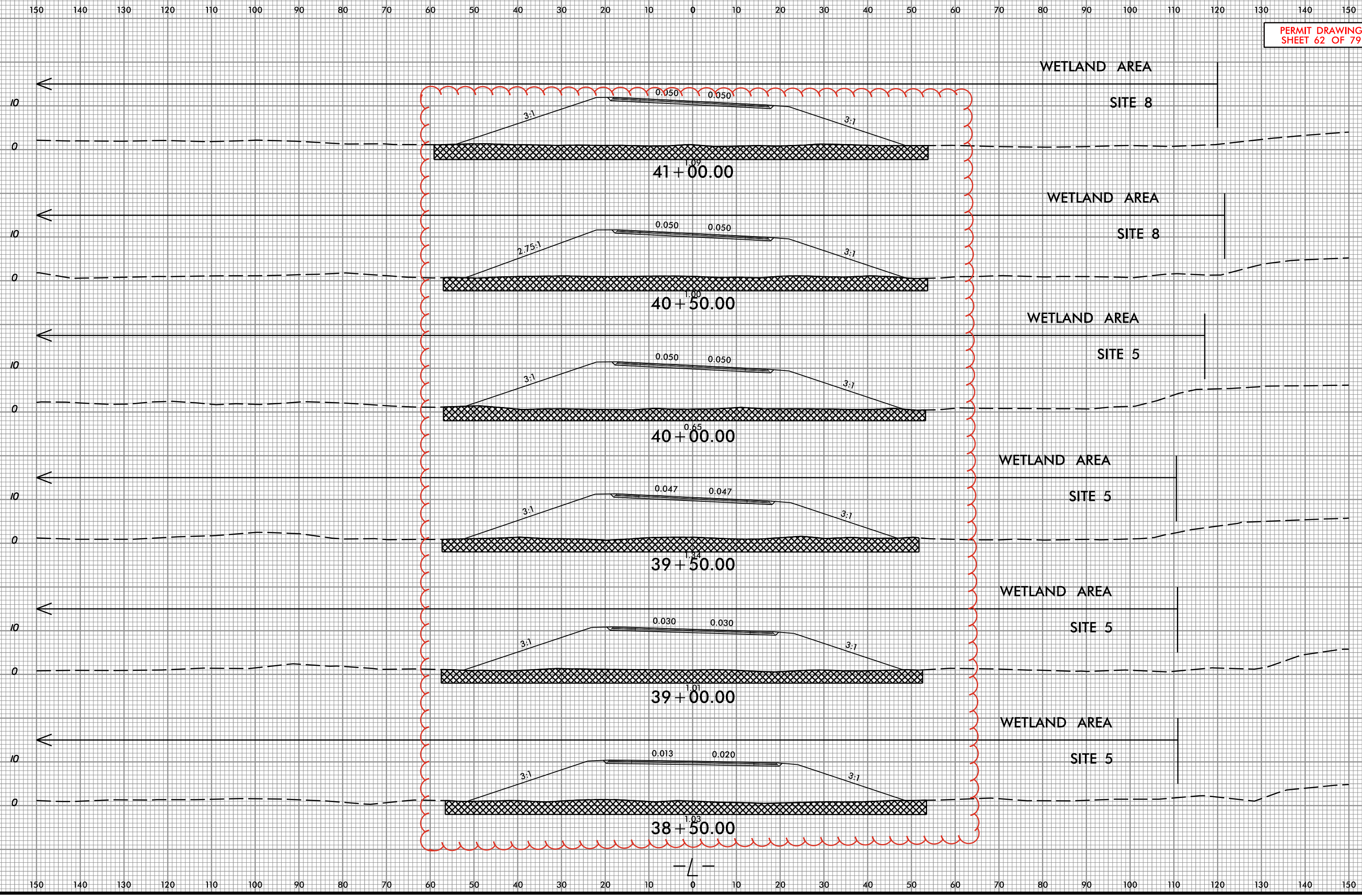


-L-

28-DEC-2023 12:57
 HB-0001_Hyd_xpl_L_17+00-50+00.dgn
 patrick.hartnett

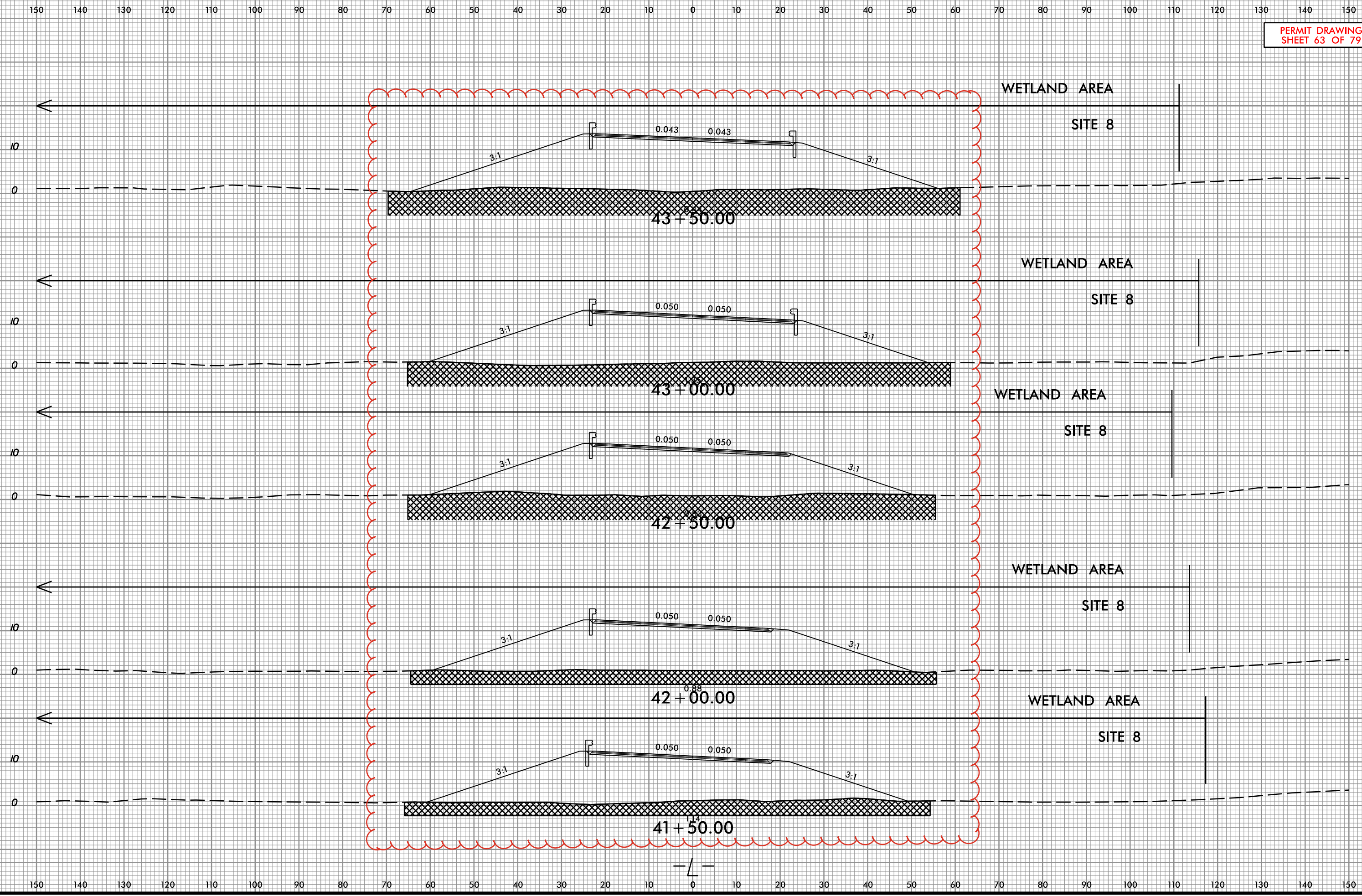
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PERMIT DRAWING SHEET 62 OF 79

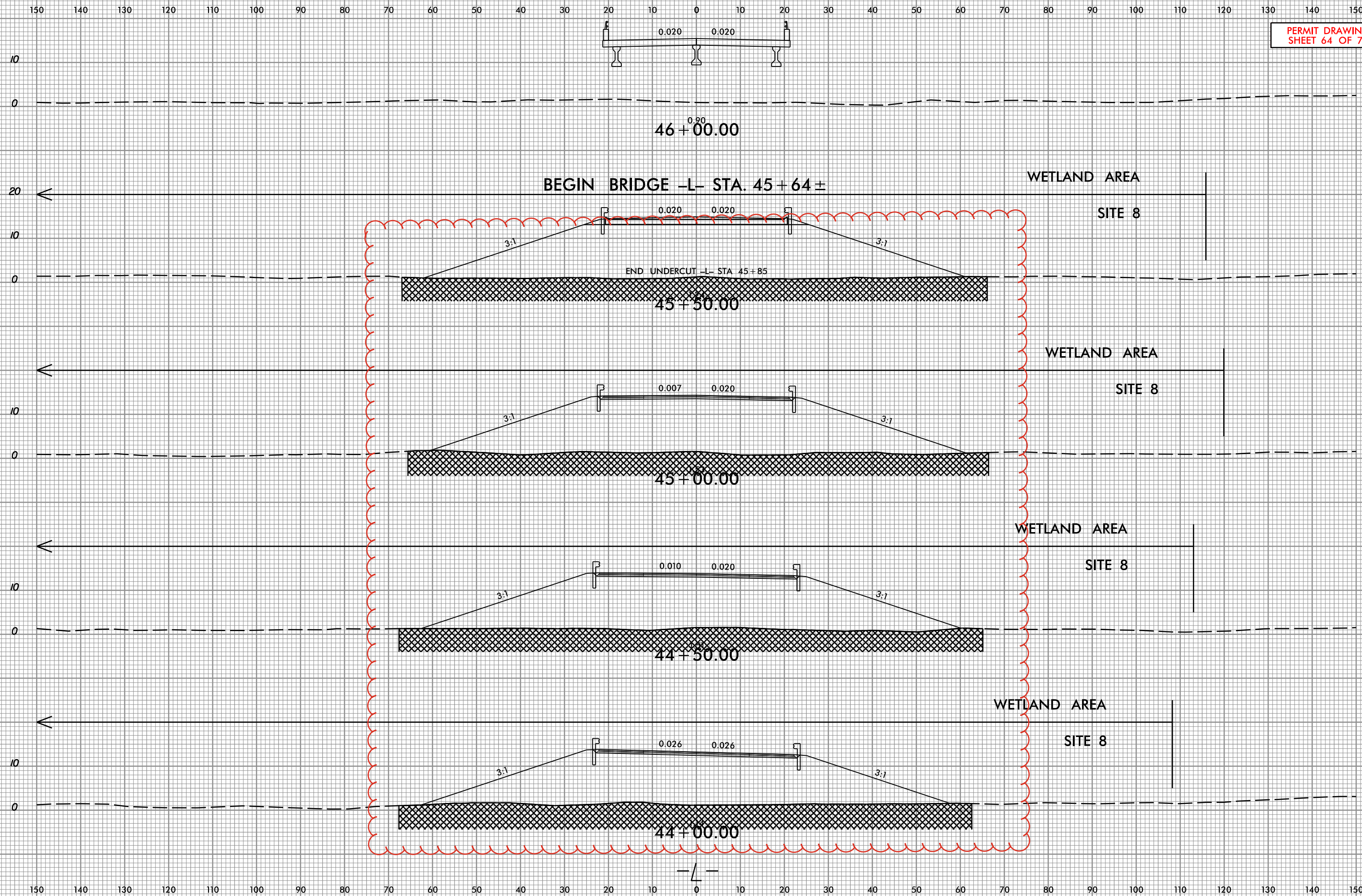


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 patrick.norrett

PERMIT DRAWING SHEET 63 OF 79

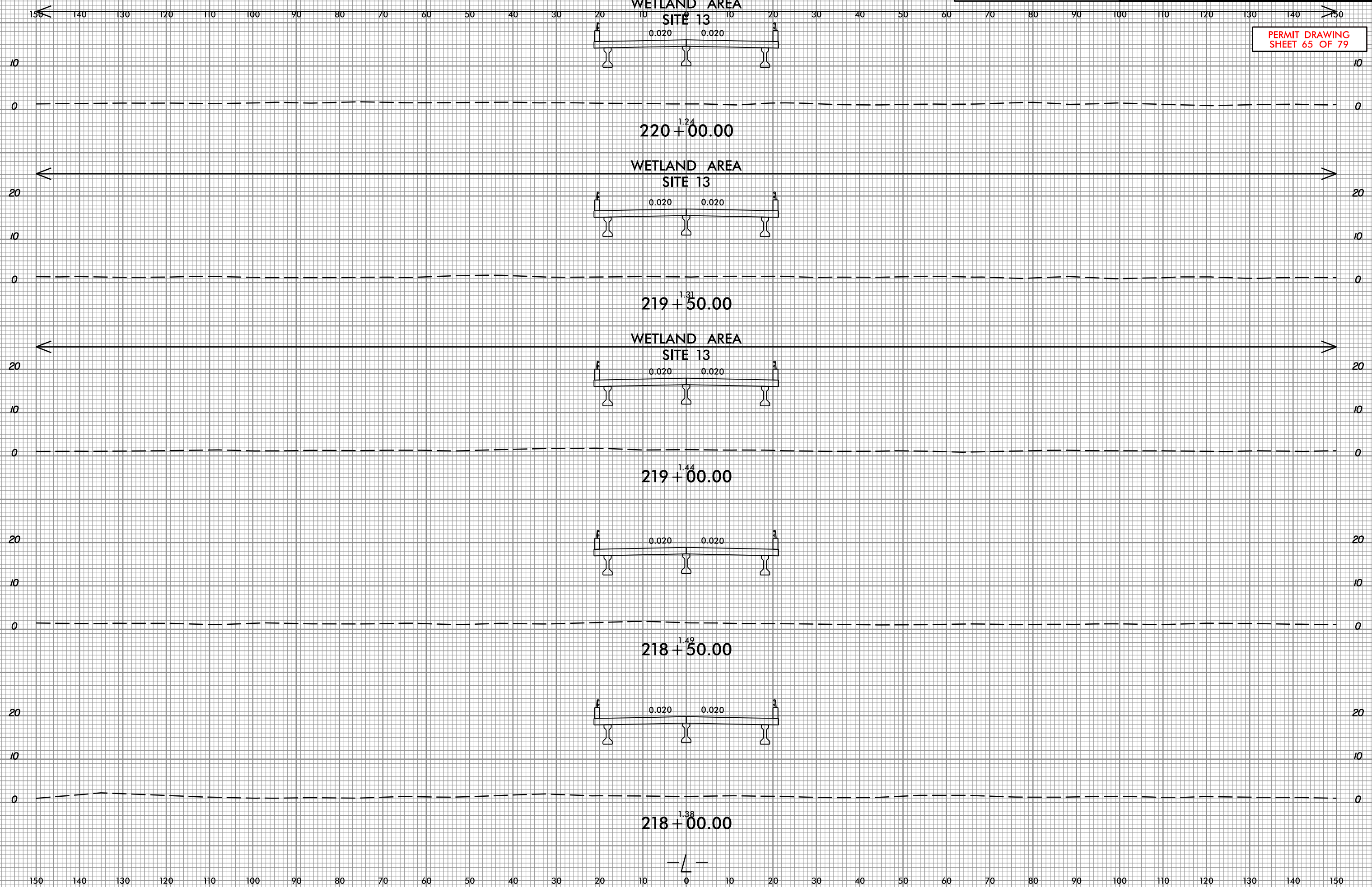


PERMIT DRAWING
 SHEET 64 OF 79

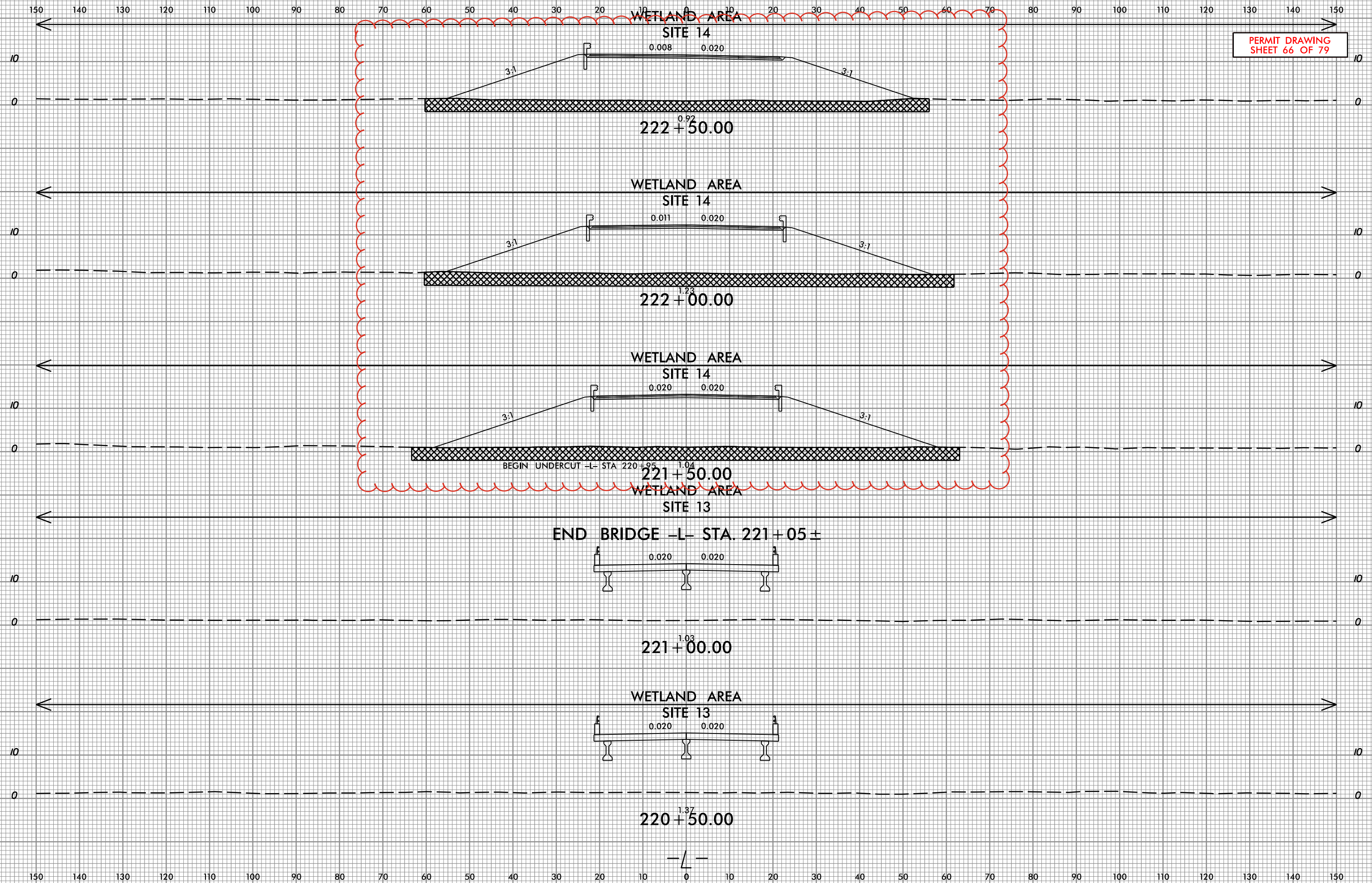


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 patrick.norrett

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 SHEET 65 OF 79



28-DEC-2023 12:57
 HB-0001_Hyd_xpl_L_214+00-242+00.dgn
 patrick.hartnett

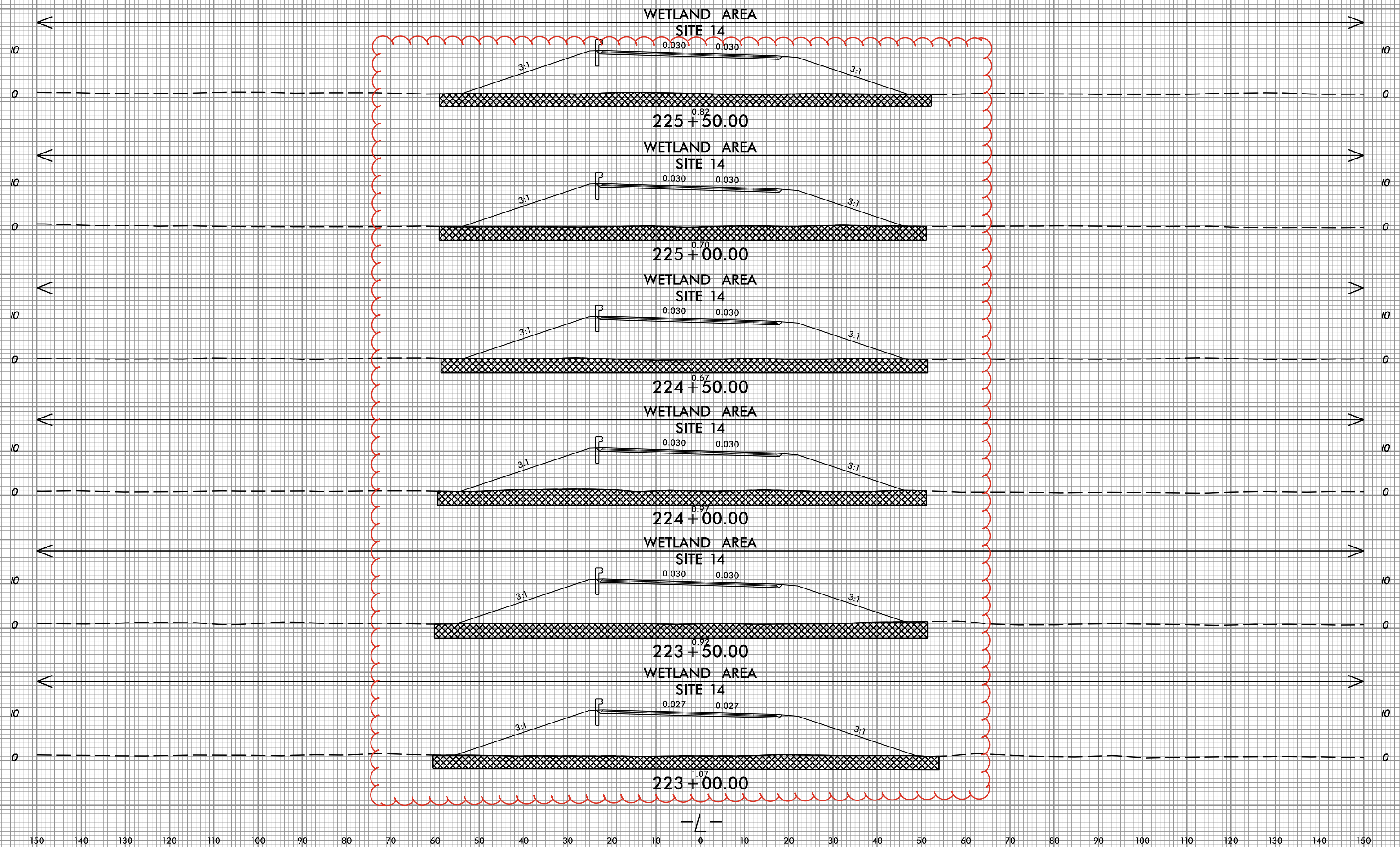


PERMIT DRAWING SHEET 66 OF 79

28-DEC-2023 12:57
 HB-0001_Hyd_xpl_L-214+00-242+00.dgn
 patrick.hartnett

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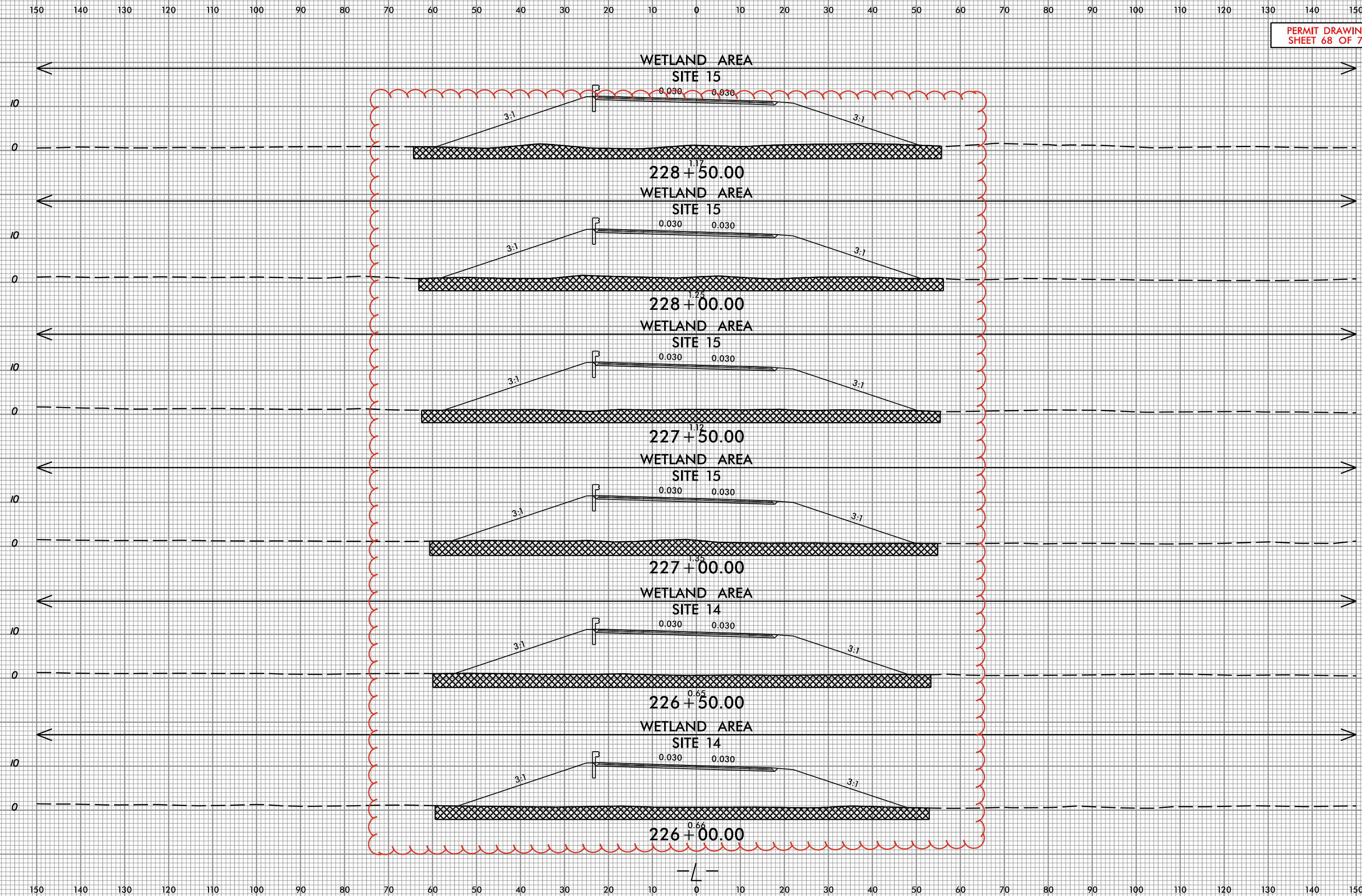
PERMIT DRAWING
SHEET 67 OF 79



28-DEC-2023 12:57
 HB-0001_Hyd_xpl_L_214+00-242+00.dgn
 patrick.norbert

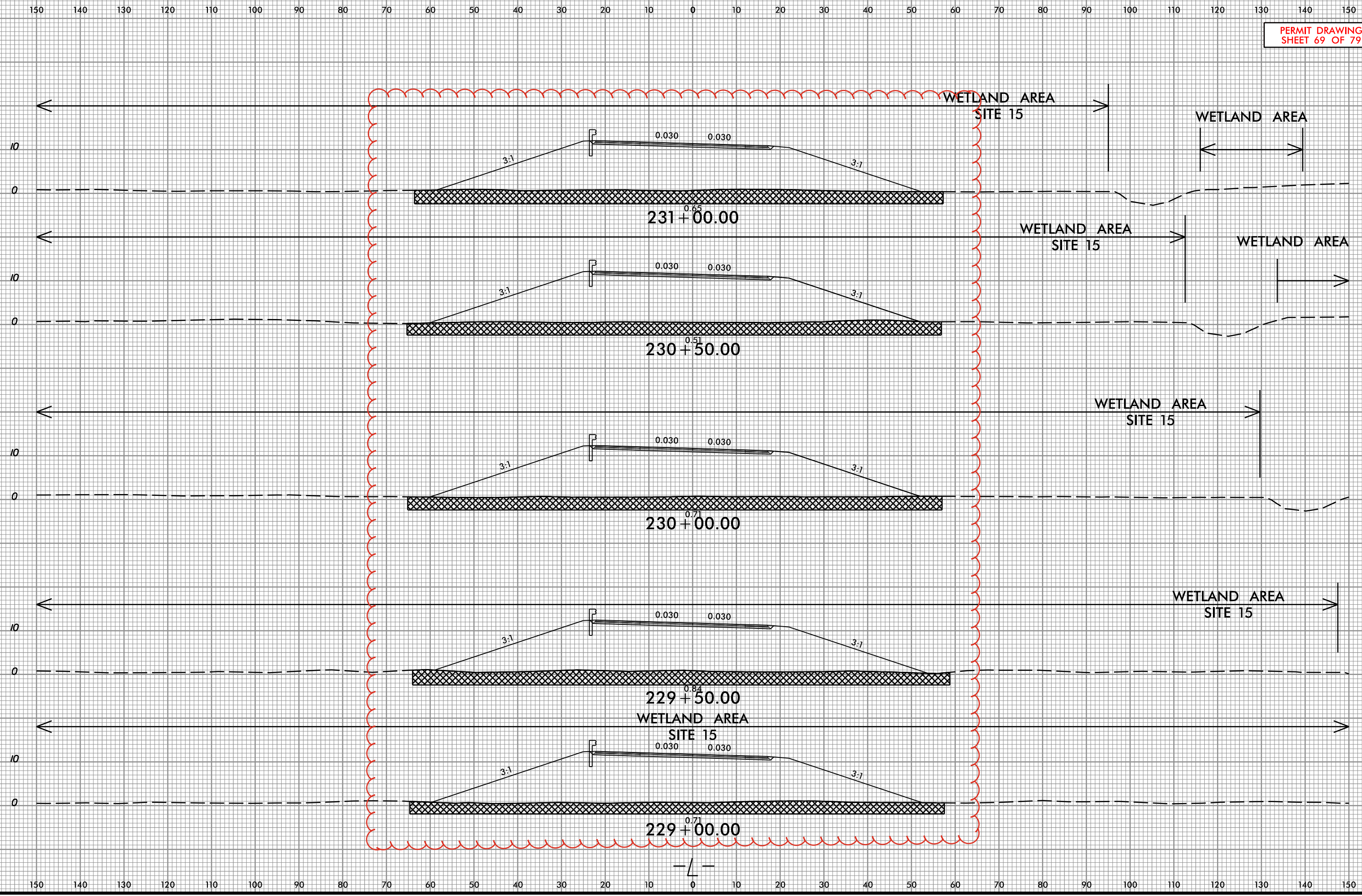
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PERMIT DRAWING SHEET 68 OF 79



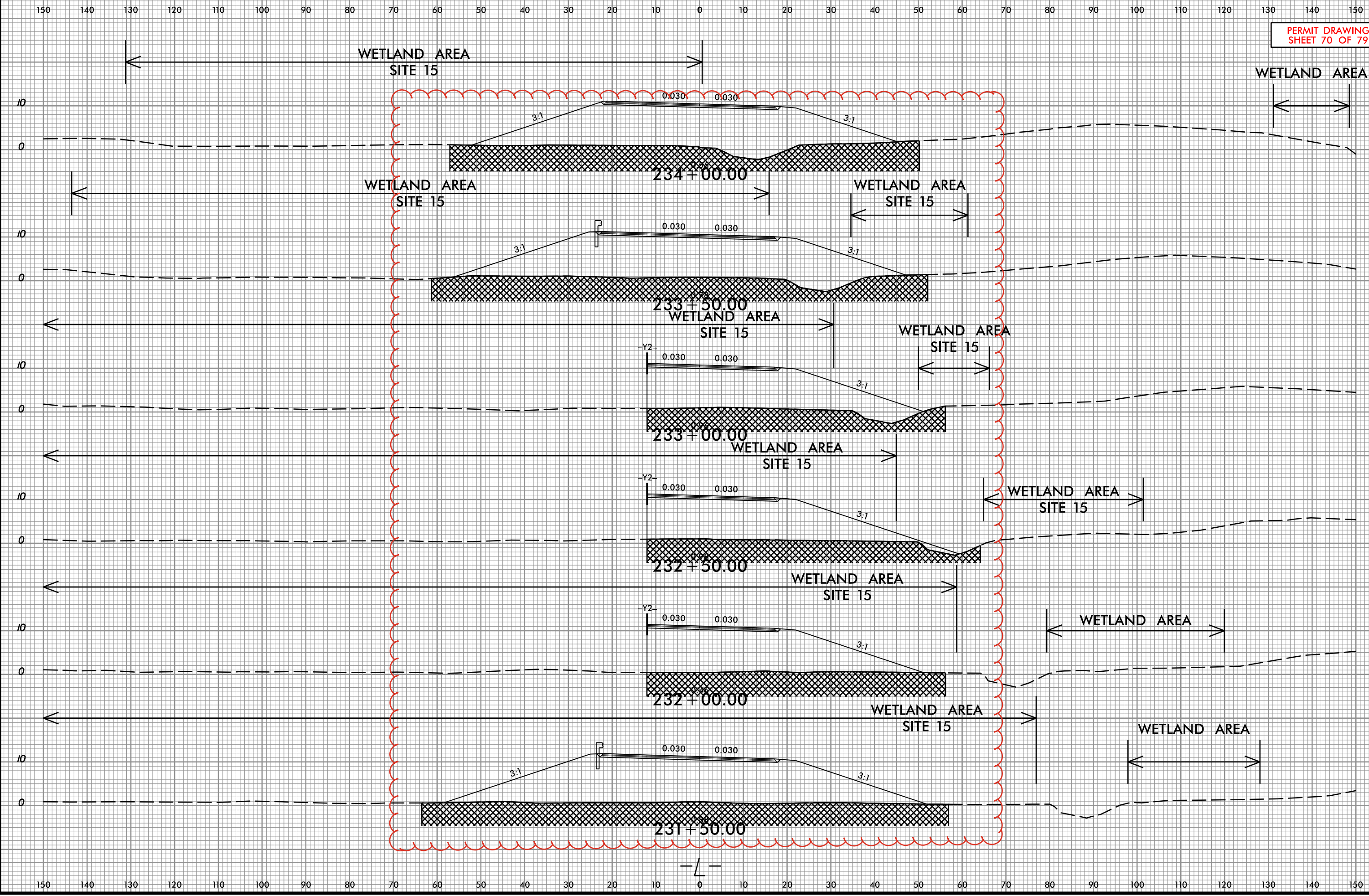
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 patrick.hartnett

PERMIT DRAWING SHEET 69 OF 79



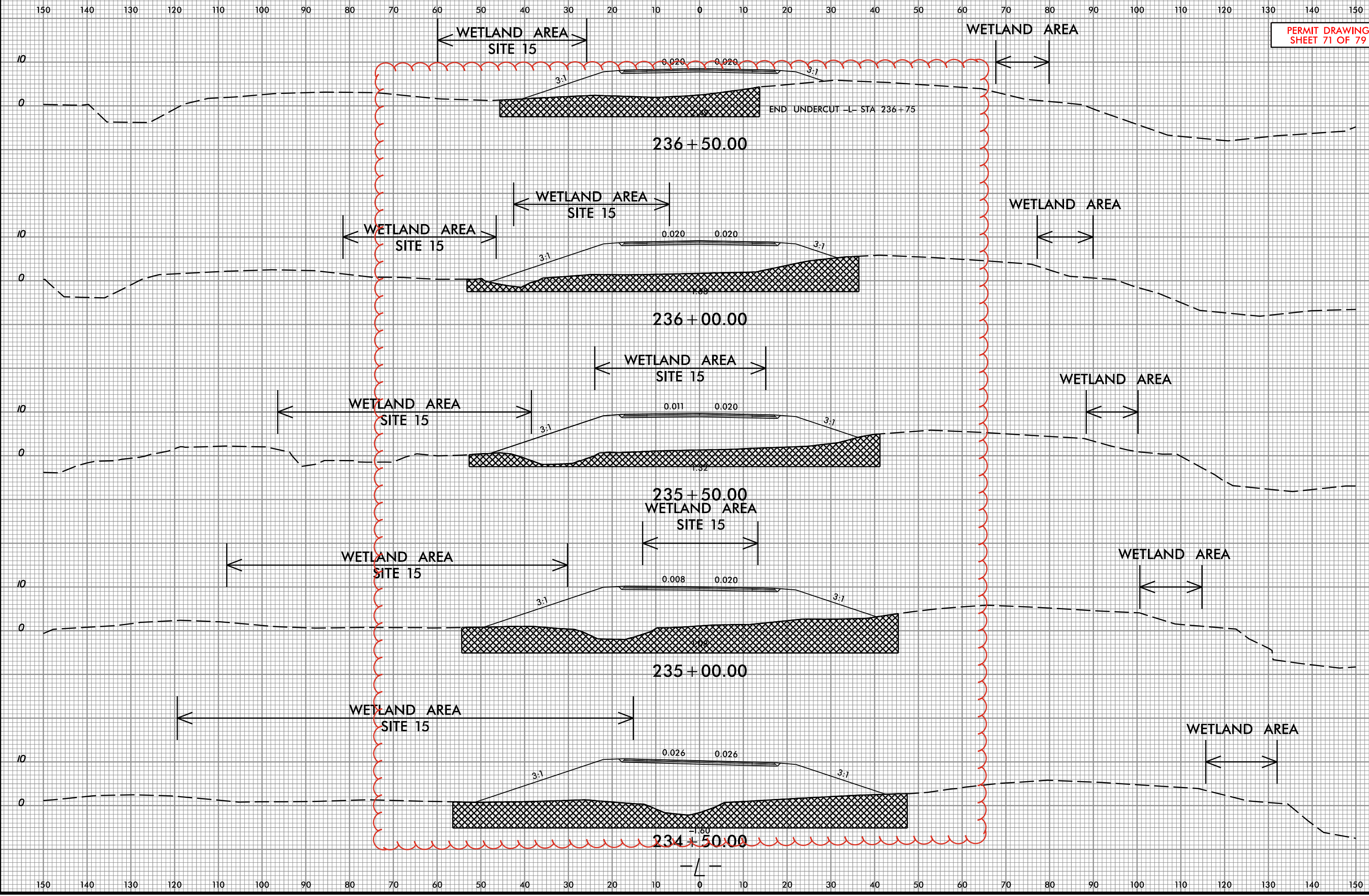
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**PERMIT DRAWING
 SHEET 70 OF 79**



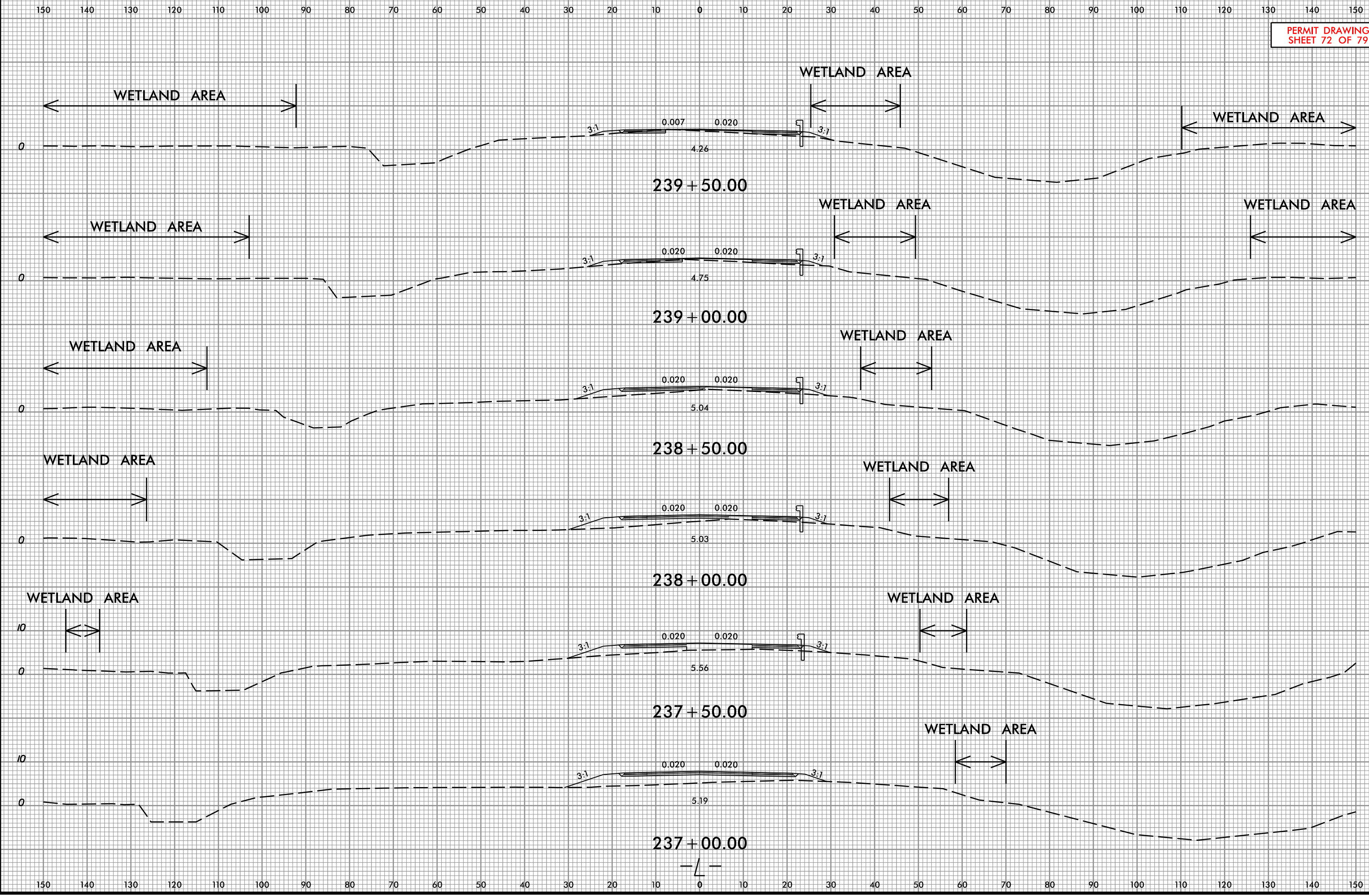
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 patrick.hartnett

PERMIT DRAWING SHEET 71 OF 79



28-DEC-2023 12:57
 HB-0001_Hyd_xpl_L_214+00-242+00.dgn
 patrick.norrett

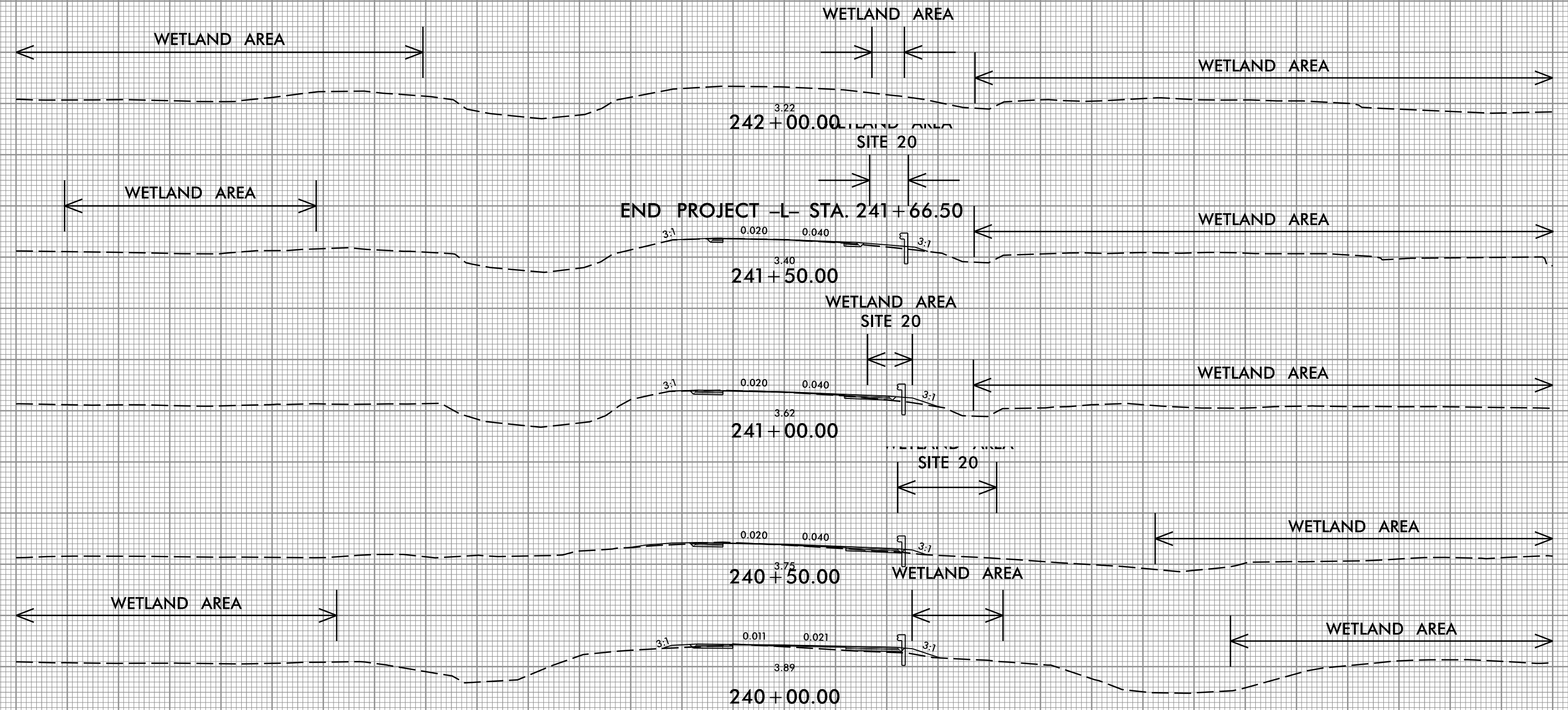
PERMIT DRAWING
 SHEET 72 OF 79



28-DEC-2023 12:57
 HB-0001_Hyd_xpl_L_214+00-242+00.dgn
 patrick.hartnett

PERMIT DRAWING SHEET 73 OF 79

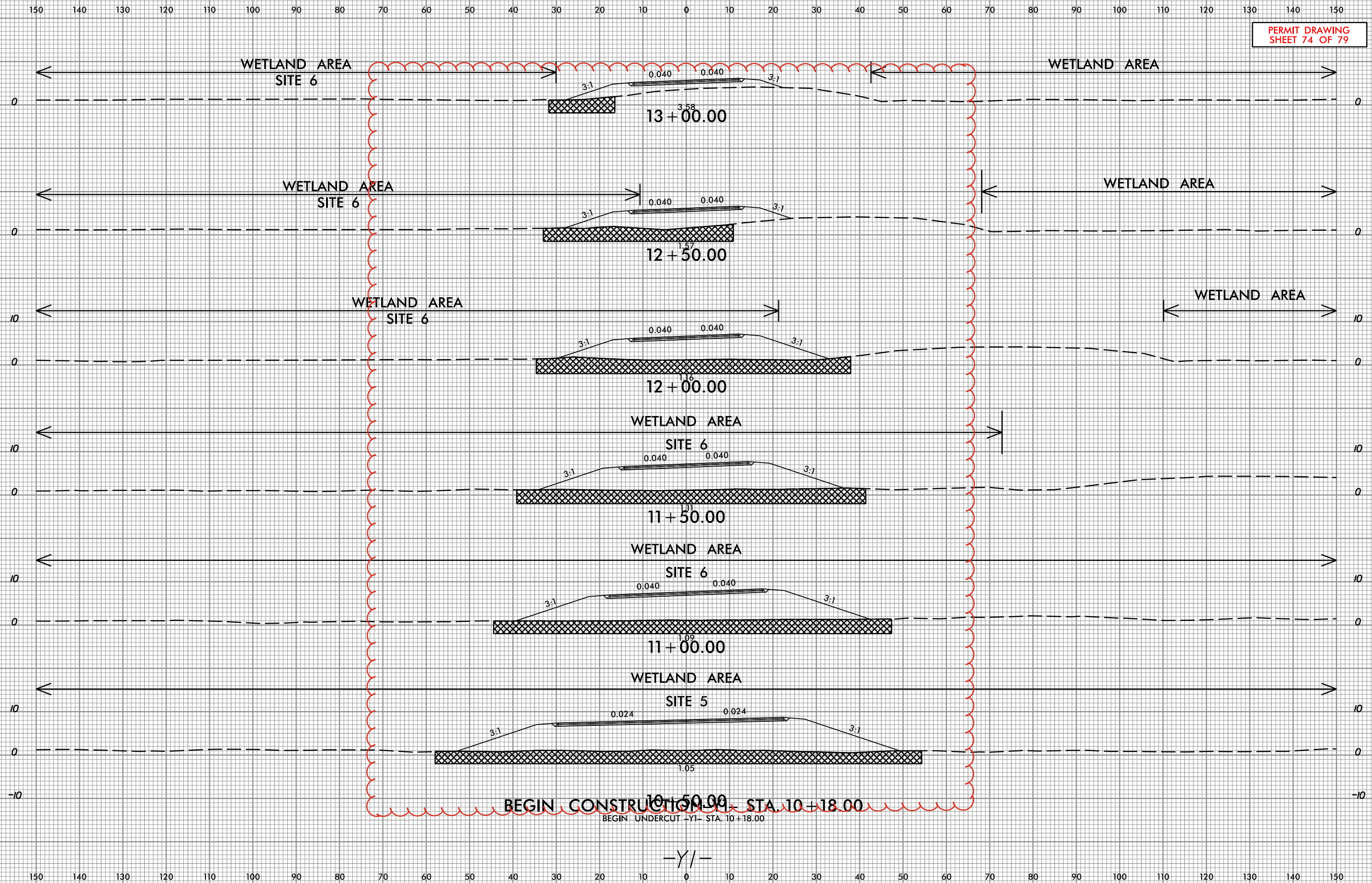
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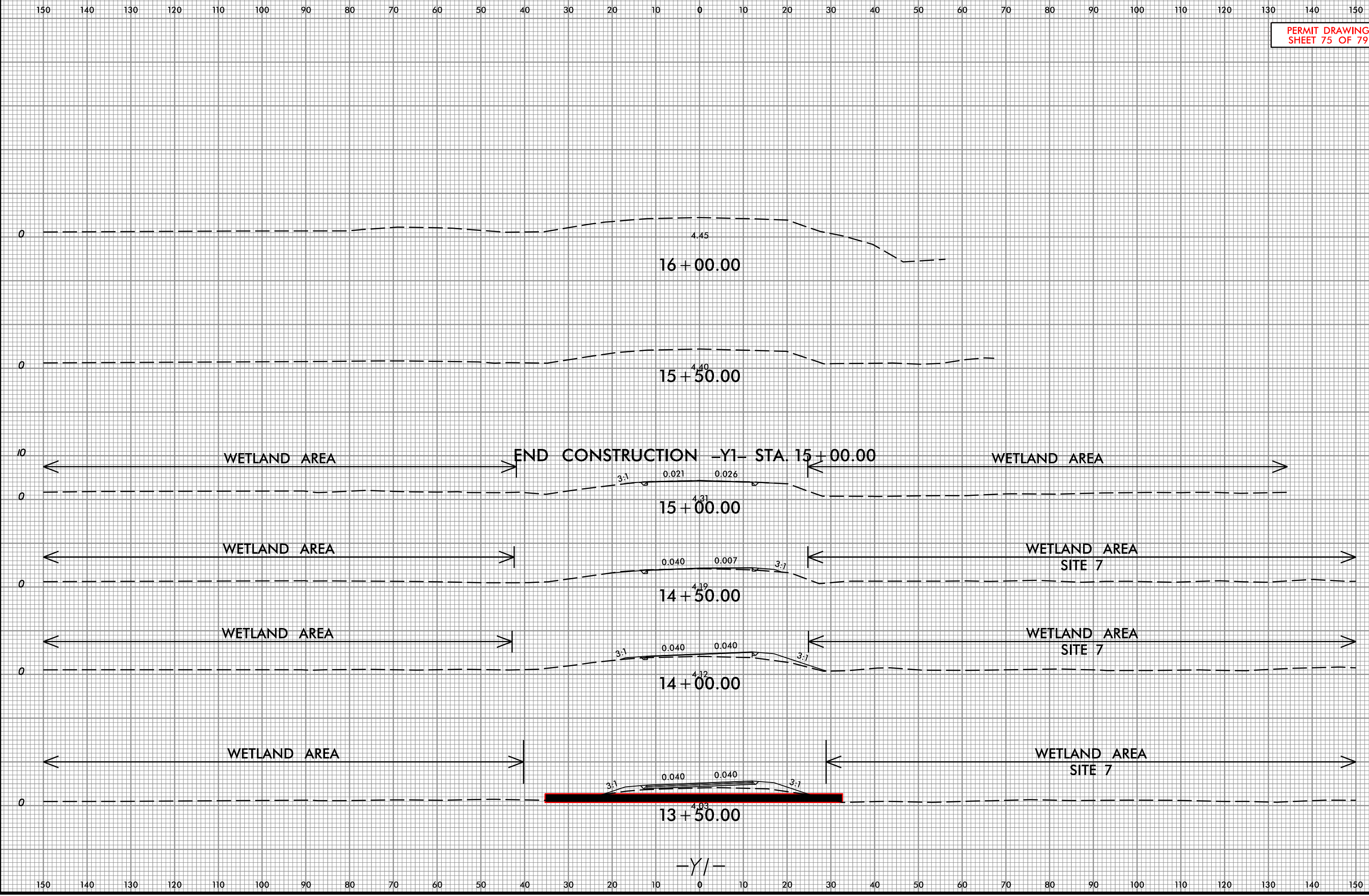
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 HB-0001_Hyd_xpl_L_214+00-242+00.dgn
 patrick.norrett

PERMIT DRAWING SHEET 74 OF 79

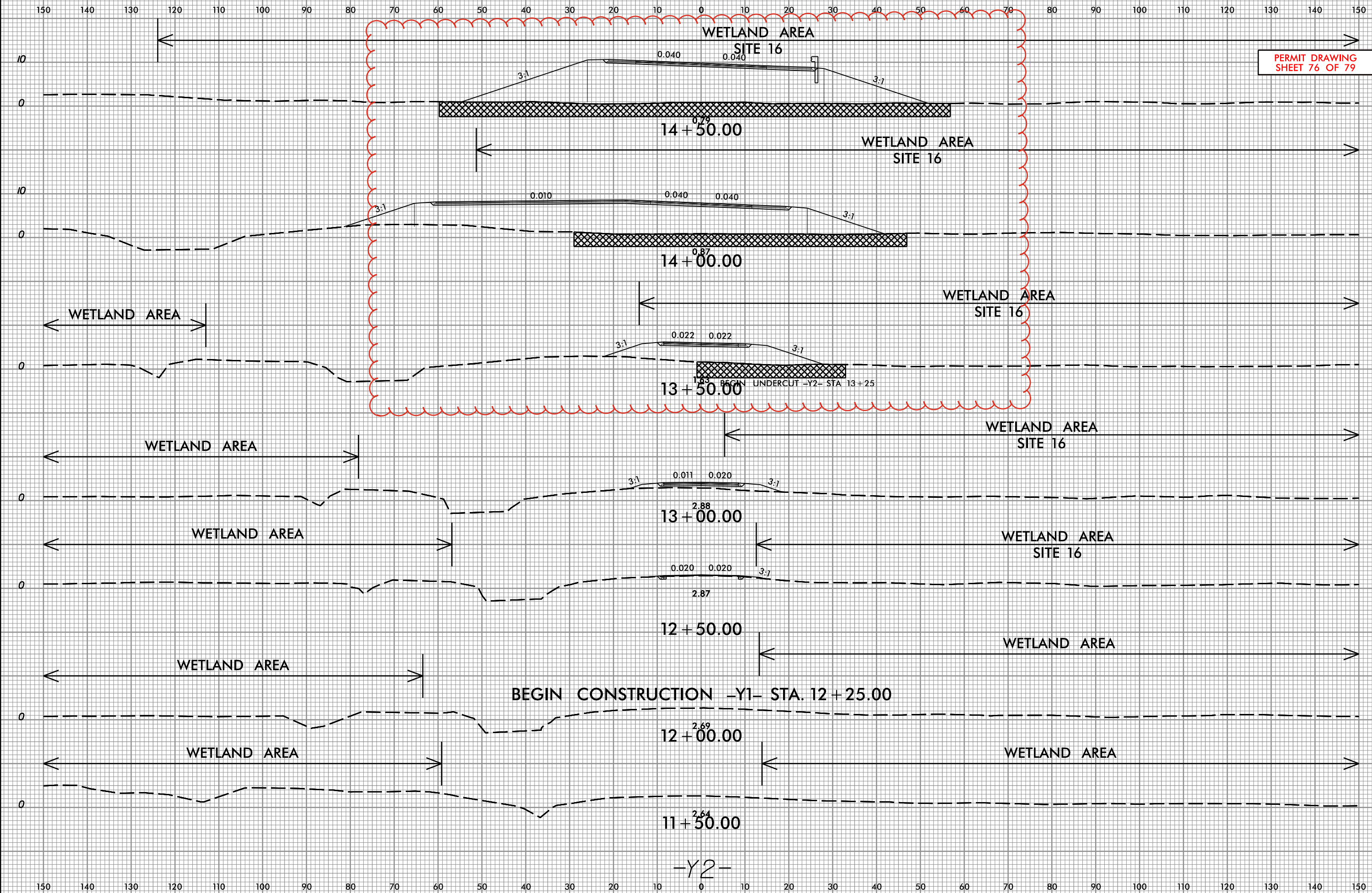


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 patrick.martinez

PERMIT DRAWING SHEET 75 OF 79



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 patrick.hartnett



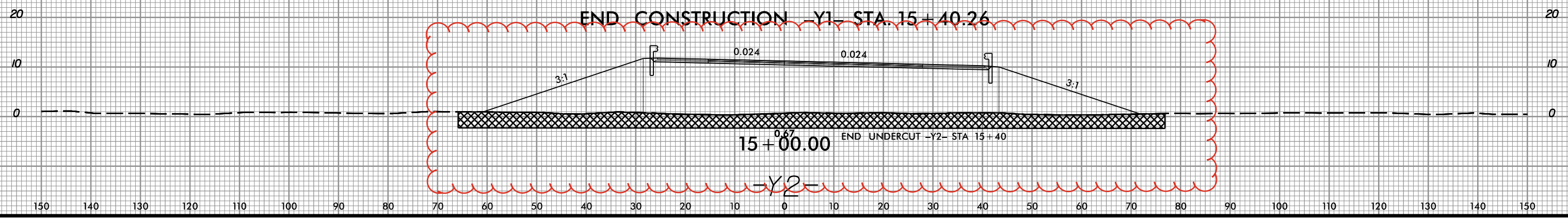
PERMIT DRAWING SHEET 76 OF 79

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 patrick.martinez

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

**PERMIT DRAWING
 SHEET 77 OF 79**

**WETLAND AREA
 SITE 16**



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WETLAND AND SURFACE WATER IMPACTS SUMMARY

| Site No. | Station (From/To) | Structure Size / Type | WETLAND IMPACTS | | | | | SURFACE WATER IMPACTS | | | | |
|-----------------|----------------------------|---------------------------------|---------------------------------|-----------------------------|-----------------------------|--------------------------------------|--------------------------------|---------------------------|-----------------------|---|-------------------------------------|----------------------------|
| | | | 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 | 0.225 | | | | | |
| 9 | 45+85 to 48+97 -L- LT/RT | Proposed Bridge/Staging Area | | 0.714 | | | 0.390 | | | | | |
| 10 | 214+68 to 220+74 -L- LT/RT | Proposed Bridge/Staging Area | | 0.287 | | | 1.663 | | | | | |
| 11 | 220+74 to 226+50 -L- LT/RT | Roadway Fill | 1.361 | | | 0.283 | 0.201 | | | | | |
| 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 | 0.006 | | | | | 0.136 | | | | |
| 19 | 51+62 to 202+32 -L- LT/RT | Test Piles | | | | | | 0.004 | | | | |
| 20 | 232+26 to 232+98 -L- RT | Temporary Access Road | | 0.037 | | | | | 0.001 | | | |
| TOTALS*: | | | 9.055 | 1.04 | 0.02 | 1.776 | 4.12 | 0.306 | 0.064 | 0 | 0 | 0 |

*Rounded totals are sum of actual impacts

NOTES:

The following bridge bent impacts are in addition to the impact quantities 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.

NC DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 11/21/2024
 TYRRELL/DARE COUNTIES
 HB-0001
 BRIDGE REPLACEMENT ON US-64 OVER ALLIGATOR RIVER
 SHEET 78 OF 79

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

PERMIT DRAWING SHEET 79 OF 79

TEMPORARY WORK TRESTLE



Prepared in the Office of: **SUMMIT**
 NC FIRN LICENSE No. P-0339
 320 Executive Ct.
 Hillsborough, NC 27578
 919-732-3883
 1999-732-6616 (FAX)

8/17/99

Sta. 39+60.22

PRIVATE ACCESS EASEMENT
 DB 231 PG 681
 DB 244 PG 638
 PC C 31 321

BM23

ABANDON FIBER OPTIC AND COPPER LINES

40' WIDE TRESTLE FOR DEMOLITION OF EXIST. BRIDGE, EXTENDS TO 8FT DEEP WATER

SHALLOWBAG BAY MARINA, LLC
 DB 242 PG 55
 PC B SL 758

HARRY MCMULLAN FAMILY LTD PART
 NO DEED

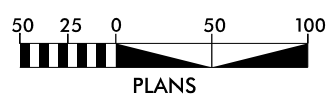
IRENE INC.
 DB 164 PG 110

PI Sta 41+60J6
 $\Delta = 9' 48" 34.0" (RT)$
 $D = 2' 27" 32.6"$
 $L = 398.9'$
 $T = 199.94'$
 $R = 2,330.00'$
 $SE = 05$
 $RO = 150'$

PIs Sta 44+09J3
 $\Theta_s = 1' 50" 39.4"$
 $L_s = 150.00'$
 $LT = 100.01'$
 $ST = 50.00'$

PLEASE NOTE: WAMI SITE WILL NOT BE IMPACTED BY THIS PROJECT.

REVISIONS



PAVEMENT REMOVAL

SEE SHEET 25 FOR -L- PROFILE

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**Onsite Wetland Mitigation Plan
Replacement of Alligator River Bridge
Tyrell/Dare Counties
TIP HB-0001
WBS No. 49475.1.1
November 22, 2024**

1.0 BASELINE INFORMATION

The North Carolina Department of Transportation (NCDOT) proposes to replace the 2.83-mile-long Lindsay C. Warren bridge number 7 on U.S.64 over the Alligator River in Tyrell and Dare Counties (TIP Project HB-0001). The bridge replacement will replace the existing swing-span bridge with a modern two-lane, fixed span, high-rise bridge on new location just north of the existing bridge (Figure 1). HB-0001 will span approximately 4.6 miles in length.

HB-0001 is located within the Pasquotank River basin, Hydrologic Unit 03010205, the coastal plain physiographic region of North Carolina. The topography within the project vicinity is flat to very gently sloping, with level floodplains along the Alligator River. Elevations within the study area range from 0ft to 10ft above sea level, and areas near the shoreline of Alligator River are subject to lunar and wind tides. Land use in the project vicinity consists primarily of vast wetlands associated with the Alligator River National Wildlife Refuge and other conservation properties, along with a few residential homes near US 64 and water access facilities for recreational and commercial uses.

Within the study area of HB-0001, only one drainage canal and two types of jurisdictional wetlands were identified. The chosen alternative for this project will permanently impact 0.050 acres of Coastal Marsh wetlands along with 10.73 acres of Riparian Wetlands.

2.0 SITE SELECTION

HB-0001 was reviewed for potential onsite wetland restoration along portions of the existing causeway of US 64 which will be abandoned. On the west side of the Alligator River in Tyrell County, approximately 0.20 miles (1.20 acres) of existing causeway will be abandoned (Figure 2a). On the east side in Dare County, approximately 0.80 miles (7.30 acres) will be abandoned (Figure 2b). Once closed to traffic, causeway fill material can be removed, and the corridor returned to the natural elevations of the adjacent wetlands.

Extensive wetlands occur throughout the existing US 64 corridor outside of NCDOT Right-of-Way. Natural wetland communities tend to occur as gradual gradients between Tidal Freshwater Marsh near the shoreline of Alligator River and Riverine Swamp Forest farther from the shoreline. Tidal Freshwater Marsh communities are more frequently subjected to tidal flooding and are vegetated with tall grasses and herbs such as black needlerush (*Juncus roemerianus*), sawgrass (*Cladium mariscoides*), smooth rush (*Juncus effusus*), cattail (*Typha latifolia*), and phragmites (*Phragmites australis*), with a few scattered woody stems. These communities transition gradually to Riverine Swamp Forest with increasing woody stem height and density, as

flooding frequency diminishes. Riverine Swamp Forest communities are dominated by trees and shrubs, such as pond pine (*Pinus serotina*), loblolly pine (*Pinus taeda*), red maple (*Acer rubrum*), willow oak (*Quercus phellos*), sweetbay magnolia (*Magnolia virginiana*), bald cypress (*Taxodium distichum*) and wax myrtle (*Morella cerifera*).

NCDOT is proposing to restore this natural wetland community gradient by removing the existing causeway on abandoned portions of US 64 to match the elevations of the adjacent wetlands. The existing natural wetlands adjacent to the fill slopes ranged in elevation from approximately 0.0 - 2.5 feet above mean sea level, with the Tidal Freshwater Marshes tending to occur at the lower end of this gradient (up to approximately 0.75 feet msl) and the Riverine Swamp Forests occurring at the upper end of the wetland elevation gradient. The existing causeway elevation of US 64 ranges from approximately 2-5 feet above mean sea level, which will necessitate the removal of approximately 32,000 cubic yards of material. The final target elevations of the wetland communities and the quantities of fill material to be removed were calculated during the design phase, using Light Detection and Ranging (LiDAR) data, surveys with a rod and auto-level, and groundwater monitoring gauge data.

3.0 SITE PROTECTION INSTRUMENT

The proposed mitigation site is located within the current NCDOT Right-of-Way for US 64. After US 64 is realigned for HB-0001, abandoned portions of the US 64 corridor will be blocked from continued transportation use. While under NCDOT ownership, NCDOT will manage the site to prohibit all use inconsistent with its use as mitigation property, including any activity that would materially alter the biological integrity or functional and educational value of the site, consistent with the mitigation plan. Several permit agencies (NCDOT, USACE, NCDWR) have recommended that the eastern portion of the proposed mitigation site be transferred to the adjacent Alligator River National Wildlife Refuge after close-out. NCDOT will pursue this option following site close-out, assuming that USFWS is amenable and that there are no legal impediments to transfer. Proposed causeway removal on the western side of HB-0001 is adjacent to private property. NCDOT will be required to protect the mitigation site in perpetuity by virtue of the HB-0001 permit authorizing impacts to jurisdictional wetlands. Therefore, should NCDOT transfer the mitigation site to a third-party recipient, protection measures will be enacted to guarantee that the site's wetland functions and values are maintained.

The site is designated on the plan sheets as a mitigation area and will be placed on the Environmental Analysis Unit Mitigation GeoDatabase. This database is provided to all NCDOT personnel as a record of mitigation sites and their attributes, including location and prohibited activities.

4.0 OBJECTIVES

The goal of this mitigation project is to remove approximately 32,000 cubic yards of fill material from portions of the existing US 64 corridor to restore Tidal Freshwater Marsh and Riverine Swamp Forest wetlands. Preliminary estimates indicate that approximately 0.50 acres of Tidal Freshwater Marsh wetland and 7.75 acres of Riverine Swamp Forest wetlands can be restored, though precise natural community boundaries may be difficult to define given the gradual

hydrologic transition which characterizes the area. Final quantities and determination of restored area will be refined during monitoring and close-out. Overall, removing fill material from the existing causeways will allow NCDOT to offset approximately 8.25 acres of the wetland impacts associated with HB-0001 at the actual impact site. Once construction for the new bridge has been completed, traffic will be removed from the existing highway, the fill material will be graded down to the target wetland elevation, and the site will be planted with native species representative of the natural wetland community. Restored wetland community gradients will be reflective of the impact areas of HB-0001 and the adjacent wetlands outside of the ROW.

5.0 MITIGATION WORK PLAN

The restoration site will be constructed in conjunction with TIP HB-0001, once the bridge is completed and traffic diverted to the new facility. The designated restoration areas along the abandoned US 64 corridor will be graded to match target elevations of the adjacent wetland communities using the mitigation design plans. Areas immediately adjacent to the restoration area on the Tyrrell County side exhibit a gradual elevation gradient from higher to lower sections moving from west to east. This is also the case on the Dare County side where restoration activities are planned.

The NCDOT Geotechnical Unit also performed 8 borings (3 on Tyrrell side and 5 on the Dare side) at the edge of pavement to determine the characteristics of the substrate material at the proposed target elevations. Findings from these 8 borings only revealed wood fragments as restrictive layers in 2 borings. Due to the difficulty in characterizing the subsurface materials present with limited borings, subsurface materials encountered may be found to be inappropriate for planting. If inappropriate subsurface materials are encountered at these target elevations, additional grading may be necessary to undercut the restoration area and backfill with suitable topsoil to the target elevation of the adjacent wetland communities. To account for this potential issue, the design plan quantities include a line item for undercut excavation for mitigation. If needed, NCDOT will coordinate any proposed undercutting with the permit agencies during the design phase of the proposed mitigation project.

5.1 Confirmation of Existing Site Conditions

During the development of the design plans, ground and water surface elevations were evaluated using existing Light Detection and Ranging (LiDAR) data, through actual field surveys using an auto level to confirm LiDAR elevations, and through the installation of groundwater gauges. Data from these evaluations were used to develop the restoration grading elevations presented in the design plan sheets.

5.2 Vegetation Re-establishment

Areas targeted for Tidal Freshwater Marsh wetlands shall be based on adjacent natural community vegetation and existing ground elevations. Since the majority of the Tidal Freshwater Marsh will not be graded and was previously covered by a bridge, existing elevations should be surveyed throughout the proposed planting area prior to marsh grass plug installation. Additionally, marsh plug species should be planted during the appropriate time periods to ensure

success, typically April 1st through June 15th. These species shall be planted on 3-foot centers with marsh grass plugs at a density of 4,840 plants per acre. Marsh grass plugs planted will include saltgrass (*Distichlis spicata*), black needle rush, smooth cord grass (*Spartina alterniflora*), and salt meadow cordgrass (*Spartina patens*).

Areas targeted for Tidal Freshwater Marsh / Riverine Swamp Forest wetlands will provide a transition zone between the two communities based on adjacent natural community vegetation. To ensure success, existing elevations should be surveyed throughout the proposed planting area prior to the installation of marsh grass plugs or tree and shrub species. Marsh grass plugs will be planted on 5-foot centers at a density of 1,742 plants per acre and only in the appropriate elevation areas. Tree and shrub species will be planted on 10-foot centers at 436 stems per acre. Marsh grass plugs species planted will include saltgrass, black needle rush, smooth cord grass, and salt meadow cordgrass. The tree and shrub species planted will include water tupelo (*Nyssa aquatica*), swamp bay (*Persea palustris*), pond pine, and bald cypress, wax myrtle, and Southern highbush blueberry (*Vaccinium formosum*). This area will be Riverine Swamp Forest for the purposes of monitoring methods and success criteria.

Areas targeted for Riverine Swamp Forest wetlands will be planted on 8-foot centers at 680 trees per acre will be planted. Tree and shrub species planted will include pond pine, bald cypress, pond cypress (*Taxodium ascendens*), swamp blackgum (*Nyssa biflora*), water tupelo, wax myrtle, and Southern highbush blueberry. Actual species planted for each of the areas described above will depend upon commercial availability.

Temporary mulching will be utilized in all disturbed areas in lieu of seeding to prevent competition with the planted species.

5.3 Invasive Species

Invasive phragmites is present in wetland communities outside of NCDOT Right-of-Way and may encroach on the mitigation site following construction. NCDOT will attempt to control phragmites during the monitoring period to limit its prevalence on the site and to enhance the survival of planted target species. However, complete control of phragmites is likely to be unrealistic during the monitoring period and especially after close-out.

6.0 PERFORMANCE STANDARDS

The vegetation component of the Tidal Freshwater Marsh wetlands will be deemed successful if the following criteria are met:

- 1) At year five, the average of all vegetative monitoring plots should have a scale value of 5 (>75% vegetative cover) consisting of wetland herbaceous species, not including any invasive species.
- 2) A minimum of 70% of the plots shall contain the target (planted) species.

The vegetation component of the Riverine Swamp Forest wetlands will be deemed successful based on the survival rate of planted seedlings. A 320 stems per acre survival criterion for planted seedlings will be used to determine success for the first three years. The required survival criterion will decrease by 10% each year after the third year of vegetation monitoring (i.e. for an expected 290 stems per acre for year 4 and 260 stems per acre for year 5).

The vegetation component of the Tidal Freshwater Marsh / Riverine Swamp Forest wetlands (transition zone) will utilize the Riverine Swamp Forest criteria mentioned above in combination with a sufficient number of photos to document and determine success.

7.0 MONITORING REQUIREMENTS

7.1 Tidal Freshwater Marsh Monitoring

The monitoring requirements for the Tidal Freshwater Marsh portions of the restoration site will follow the National Marine Fisheries Service guidance, which is as follows:

Target elevations will be verified during construction to ensure the restoration area achieves the same hydrologic regime as the adjacent Tidal Freshwater Marsh wetlands. The quantitative marsh vegetation monitoring will be accomplished in accordance with the draft guidelines for “Site Monitoring Surveys for Emergent Marsh Mitigation”, established by the National Marine Fisheries Service, through the evaluation of randomly distributed 1 square meter plots located by GPS within the site.

NCDOT will perform the monitoring described above for five years or until the site is deemed successful.

7.2 Riverine Swamp Forest Monitoring

The monitoring requirements of the Riverine Swamp Forest portions of the restoration site will be as follows:

Target elevations will be verified during construction to ensure that the restoration area achieves the same hydrologic regime as the adjacent Riverine Swamp Forest. The quantitative forest vegetation monitoring will be accomplished utilizing fifty feet by fifty feet (50’ x 50’) monitoring plots that will be established upon completion of the site grading and planting.

NCDOT will monitor the site for a minimum of five years or until the site is deemed successful.

7.3 Tidal Freshwater Marsh / Riverine Swamp Forest Monitoring

The monitoring requirements of the Tidal Freshwater Marsh and the Riverine Swamp Forest portions of the restoration site will be as follows:

Target elevations will be verified during construction to ensure the restoration area achieves the same hydrologic regime as the adjacent Tidal Freshwater Marsh or the Riverine Swamp Forest

wetlands. This area will utilize the Riverine Swamp Forest monitoring method described above in combination with sufficient photos to document the annual conditions.

NCDOT will perform the monitoring described above for five years or until the site is deemed successful. The quantitative vegetation monitoring will be accomplished by using a combination of the methods described above. However, since this area is small and the actual plantings installed may differ slightly, the actual species that are planted should dictate the monitoring criteria.

8.0 OTHER INFORMATION

N/A

9.0 DETERMINATION OF CREDITS

NCDOT is proposing to offset approximately 8.25 acres of wetland impacts with coastal marsh/riparian wetland restoration as mitigation for some of the permanent wetland impacts associated with HB-0001. Final credit quantities will be refined through the design, monitoring, and close-out phases of the project. An as-built report will be submitted within 60 days of completion of the project. The final determination of wetland mitigation credits will be based upon successful completion of the monitoring requirements and meeting of the performance standards.

9.1 CREDIT RELEASE SCHEDULE

NCDOT proposes immediate, full release of the proposed wetland restoration credits as on-site mitigation for some wetland impacts associated with HB-0001. Final credit quantities will be approved at project close-out.

10.0 GEOGRAPHIC SERVICE AREA

NCDOT proposes to use the restoration credits exclusively as onsite wetland mitigation for HB-0001.

11.0 MAINTENANCE PLAN

Once monitoring is completed and the site is closed out, it will be placed in the NCDOT Stewardship Program for long term maintenance and protection.

If an appropriate third-party recipient (i.e. Alligator River National Wildlife Refuge) is identified in the future, then transfer of the property will include a conservation easement or other measure to protect the natural features and mitigation value of the site in perpetuity.

12.0 LONG TERM ADAPTIVE MANAGEMENT PLAN

The restoration area will be managed by the NCDOT and protected from impacts according to the mitigation plan. Encroachments into the area will be investigated and appropriate measures taken to minimize any negative effects. In the event that unforeseen issues arise that affect the management or mitigation value, a remediation plan will be developed by NCDOT in coordination with the permit review agencies.

13.0 FINANCIAL ASSURANCES

NCDOT is held by permit conditions associated with HB-0001 to preserve the coastal marsh/riparian wetland restoration area. NCDOT has established funds for each project and within each Division to monitor the mitigation site and to protect it in perpetuity.