ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.
Environmental Sciences • Resource Management • Wetland Ecology

June 8, 2025 ERI Project No. 0004-0486

Mr. Matthew Jones, Program Manager
Delaware Department of Natural Resources and Environmental Control
Division of Water Resources
Wetlands and Waterways Section
89 Kings Highway
Dover, Delaware 19901

RE: Wetlands Permit & Subaqueous Lands Permit/Lease
Installation of Sanitary Sewer Transmission Main – Slaughter Beach Road & Slaughter Creek
Cedar Creek Hundred, Sussex County, Delaware
Applicant: Sussex County Engineering Department

Dear Mr. Jones,

Environmental Resource Insights (ERI) is writing you on behalf of the Sussex County Engineering Department (SCED) regarding the proposed installation of a sanitary sewer force main.

The Sussex County Engineering Department is proposing to provide regional sanitary sewer service to Slaughter Beach, Delaware. The project provides for the water quality and environmental benefits of eliminating existing and future privately owned subsurface wastewater disposal systems. Wastewater throughout Slaughter Beach will be collected by vacuum force main system and collected at a main vacuum pump station to be located on the northwest side of Slaughter Beach Road (SCR 224), 350 feet southwest of Bay Avenue on Sussex County tax map parcel 230-1.00-5.00. This parcel is owned by the Slaughter Beach Memorial Volunteer Fire Company who will be granting the Commissions of Sussex County an easement for the vacuum pump station.

No impacts to state regulated subaqueous land or wetlands will result from the proposed sanitary sewer vacuum collection system. The transmission of wastewater from the vacuum pump station will be by force main to a storage lagoon and sanitary wastewater spray field operated by Artesian Wastewater Management Inc. located on the east side of State Route 30 (Issacs Road) and Sussex County Road 231 near Milton, Delaware.

Except for a portion of the sanitary sewer force main located in the DelDOT right of way of Slaughter Beach Road, 4200 feet southwest of the proposed vacuum pump station, no state regulated wetlands or public subaqueous lands are impacted by the project. Hydraulic directional boring under non-tidal stream courses classified as private subaqueous land will occur at several locations but entry and exit pits will be located in upland areas. Public subaqueous lands and state regulated wetlands are not impacted. As such, no authorization from the DNREC Wetlands and

Waterways Section (WWS) is required since there will be no regulated activity, except for the aforementioned portion of the project.

Sanitary sewer force main installation along this 4,200 foot long portion of Slaughter Beach Road includes installation of an eight inch diameter force main under Slaughter Creek by HDD methodology. Equipment staging will temporarily impact a small area of state regulated wetlands. Elsewhere, there will be minor temporary trenching impacts to subaqueous lands and state regulated wetland needed for the installation of portions of a six inch diameter sanitary sewer force main.

A detailed project description is provided in the Basic Application quantifying the various impacts of this project with respect to state regulated wetlands and subaqueous lands. Upon review, if you or your staff have any questions about the project, I am available at your convenience.

Sincerely,

ENVIRONMENTAL RESOURCE INSIGHTS

Edward M. Launay
Senior Professional Wetland Scientist No. 875

Cc: Mr. Mark Harmer PE, SCED
Mr. Ring Lardner, DBF

WETLANDS AND SUBAQUEOUS LANDS SECTION PERMIT APPLICATION FORM

For Subaqueous Lands, Wetlands, Marina and 401 Water Quality Certification Projects

State of Delaware
Department of Natural Resources and Environmental Control
Division of Water

Wetlands and Subaqueous Lands Section

APPLICATION FOR APPROVAL OF
SUBAQUEOUS LANDS, WETLANDS, MARINA
AND WATER QUALITY CERTIFICATION PROJECTS

Last Revised on: March 28, 2017

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

Application Instructions:

1. Complete each section of this basic application and appropriate appendices as thoroughly and accurately as possible. Incomplete or inaccurate applications will be returned.

2. All applications must be accompanied by a scaled plan view and cross-section view plans that show the location and design details for the proposed project. Full construction plans must be submitted for major projects.

3. All applications must have an original signature page and proof of ownership or permitted land use agreement.

4. Submit an original and two (2) additional copies of the application (total of 3) with the appropriate application fee and public notice fee* (prepared in separate checks) to:

Department of Natural Resources and Environmental Control
Wetlands and Subaqueous Lands Section
89 Kings Highway
Dover, Delaware 19901

*Application and public notice fees are non-refundable regardless of the Permit decision or application status.

5. No construction may begin at the project site before written approval has been received from this office.

Helpful Information:

1.	Tax Parcel Information:	New Castle County	(302) 395-5400
		Kent County	(302) 736-2010
		Sussex County	(302) 855-7878
2.	Recorder of Deeds:	New Castle County	(302) 571-7550
		Kent County	(302) 744-2314
		Sussex County	(302) 855-7785

3. A separate application and/or approval may be required through the Army Corps of Engineers. Applicants are strongly encouraged to contact the Corps for a determination of their permitting requirements. For more information, contact the Philadelphia District Regulator of the Day at (215) 656-6728 or visit their website at: http://www.nap.usace.army.mil/Missions/Regulatory.aspx.

4. For questions about this application or the Wetlands and Subaqueous Lands Section, contact us at (302) 739-9943 or visit our website at: http://www.dnrec.delaware.gov/wr/Services/Pages/WetlandsAndSubaqueousLands.aspx. Office hours are Monday through Friday 8:00 AM to 4:30 PM, except on State Holidays.

APPLICANT'S REVIEW BEFORE MAILING

DID YOU COMPLETE THE FOLLOWING?

X	Yes	BASIC APPLICATION
X	Yes	SIGNATURE PAGE (Page 3)
X	Yes	APPLICABLE APPENDICES
X	Yes	SCALED PLAN VIEW
X	Yes	SCALED CROSS-SECTION OR ELEVATION VIEW PLANS
X	Yes	VICINITY MAP
X	Yes	COPY OF THE PROPERTY DEED & SURVEY
X	Yes	THREE (3) COMPLETE COPIES OF THE APPLICATION PACKET
X	Yes	APPROPRIATE APPLICATION FEE & PUBLIC NOTICE FEE (Separate checks made payable to the State of Delaware)

Submit 3 complete copies of the application packet to:

Department of Natural Resources and Environmental Control
Wetlands and Subaqueous Lands Section
89 Kings Highway
Dover, Delaware 19901

Before signing and mailing your application packet, please read the following:

The Department requests that the contractor or party who will perform the construction of your proposed project, if other than the applicant, sign the application signature page along with the applicant in the spaces provided. When the application is signed by the contractor as well as the applicant, the Department will issue the Permit to both parties. For Leases, the contractor will receive a separate construction authorization that will make them subject to all of the terms and conditions of the Lease relating to the construction

Section 1: Applicant Identification

1. Applicant's Name: Sussex County Engineering Department
   Mailing Address: 2 The Circle, P.O. Box 589
   Georgetown, DE 19947
   Attn: Mr. Mike Harmer, PE, County Engineer
   Telephone #: 302-855-7370
   Fax #:
   E-mail: mike.harmer@sussexcountyde.gov

2. Consultant's Name: Edward M. Launay
   Mailing Address: 1 Park Ave. Milford, DE 19963
   Company Name: Environmental Resource Insights
   Telephone #: 302-236-3871
   Fax #: 302-424-0430
   E-mail: elaunay@ericonsultants.com

3. Contractor's Name: Unknown
   Mailing Address:
   Company Name:
   Telephone #:
   Fax #:
   E-mail:

Section 2: Project Description

4. Check those that apply:
☒ New Project/addition to existing project? ☐ Repair/Replace existing structure? (If checked, must answer #16)

5. Project Purpose (attach additional sheets as necessary):
Installation of 8" sanitary sewer force main under Slaughter Creek by hydraulic directional drilling occupying 38.2 square feet of public subuaqueous lands, temporary disturbance of 307 square feet of state regulated wetlands for drilling operations and temporary trenching impacts of wetlands and subaqueous lands totaling 401 square feet. See attached sheet.

6. Check each Appendix that is enclosed with this application:

	A. Boat Docking Facilities		G. Bulkheads		N. Preliminary Marina Checklist
	B. Boat Ramps		H. Fill		O. Marinas
	C. Road Crossings		I. Rip-Rap Sills and Revetments		P. Stormwater Management
	D. Channel Modifications/Dams		J. Vegetative Stabilization		Q. Ponds and Impoundments
X	E. Utility Crossings		K. Jetties, Groins, Breakwaters		R. Maintenance Dredging
	F. Intake or Outfall Structures	X	M. Activities in State Wetlands		S. New Dredging

Section 3: Project Location

7. Project Site Address: opposite 358 Bay Avenue
   Slaughter Beach, DE 19963
   County: ☐ N.C. ☐ Kent ☒ Sussex
   Site owner name (if different from applicant):
   Address of site owner:

8. Driving Directions: Northeastern project limit is 350 feet west of Bay Avenue and Slaughter Beach Road intersection, Slaughter Beach, DE

(Attach a vicinity map identifying road names and the project location)

9. Tax Parcel ID Number: None - DelDOT right of way
   Subdivision Name: Slaughter Beach - Cedar Creek Hundred

WSLS Use Only: **Permit #s:** _____ _____ _____ _____

Type **SP** ☐ **SL** ☐ **SU** ☐ **WE** ☐ **WQ** ☐ **LA** ☐ **SA** ☐ **MP** ☐ **WA** ☐

Corps Permit: SPGP 18 ☐ **20** ☐ **Nationwide Permit #:** _____ **Individual Permit #** _____
Received Date: _____ **Project Scientist:** _____
Fee Received? Yes ☐ **No** ☐ **Amt: $** _____ **Receipt #:** _____
Public Notice #: _____ **Public Notice Dates: ON** _____ **OFF** _____

Section 2, Item 5, Project Description

The Sussex County Engineering Department is proposing to provide regional sanitary sewer service to Slaughter Beach, Delaware. The project provides for the water quality and environmental benefits of eliminating existing and future privately owned subsurface wastewater disposal systems. Wastewater throughout Slaughter Beach will be collected by vacuum force main system and collected at a main vacuum pump station located on the northwest side of Slaughter Beach Road (SCR 224), 350 feet southwest of Bay Avenue on Sussex County tax map parcel 230-1.00-5.00. This parcel is owned by the Slaughter Beach Memorial Volunteer Fire Company who will be granting the Commissions of Sussex County an easement for the vacuum pump station.

No impacts to state regulated subaqueous land or wetlands will result from the proposed sanitary sewer vacuum collection system. The transmission of wastewater from the vacuum pump station will be by force main to a storage lagoon and sanitary wastewater spray field operated by Artesian Wastewater Management Inc. located on the east side of State Route 30 (Issacs Road) and Sussex County Road 231 near Milton, Delaware.

Except for a portion of the sanitary sewer force main located in the DelDOT right of way of Slaughter Beach Road, 4200 feet southwest of the vacuum pump station, no state regulated wetlands or public subaqueous lands are impacted by the project. Hydraulic directional boring under non-tidal stream courses classified as private subaqueous land will occur at several locations but entry and exit pits will be located in upland areas. Public subaqueous lands and state regulated wetlands are not impacted. As such, no authorization from the DNREC Wetlands and Waterways Section (WWS) is required since there will be no regulated activity, except for the aforementioned portion of the project.

The following activities subject to a WWS Subaqueous Lands Permit or Wetlands Permit will be required within the ± 4,200 foot long area immediately southwest of the vacuum pump station.

1) The delineation of wetlands and waters conducted by Environmental Resource Insights (ERI) identified a four foot wide roadside drainage channel in the DelDOT right of way opposite the vacuum pump station as shown on sheet W-04 of the project permit plans. Installation of a six inch sanitary sewer force main from the vacuum pump station to the southeast side of Slaughter Beach Road will require a temporary trenching impact to public subaqueous lands totaling 22 square feet conducted in accordance with permit plan sheet W-18.

2) The next area of temporary impact to both state regulated wetlands and public subaqueous lands involves the installation of an eight inch sanitary sewer force main at a minimum of five feet beneath the waters of Slaughter Creek by hydraulic directional drilling (HDD) methodology. A total of 57 linear feet of force main will be located between the mean low water lines of Slaughter Creek requiring a Subaqueous Lands Lease and Permit to be issued by the WWS. A 14 foot wide by 24 foot long laydown area for HDD equipment will be required at entry and exit pit locations. Temporary impacts of 307 square feet to state regulated wetlands will be necessary. Impacts consist of short term temporary placement of construction mats over the marsh surface. The need for restoration measures is not anticipated due to the short term duration of matting, however, should any plant installation be needed, it will be addressed by the supervising engineer.

3) Throughout the subject portion of the project area, utility installation and trenching occurs in the upland portion of the DelDOT right of way along the Slaughter Beach Road shoulder except for a location toward the limits of mapped state tidal wetlands approximately 2,050 feet southwest of Slaughter Creek. At that location that boundary of state regulated wetlands as delineated by ERI is at the Slaughter Beach Road edge of pavement.

Installation of the six inch sanitary sewer force main will require 183 linear feet of trenching which will temporarily impact 379 square feet of state regulated wetlands as shown on sheet W-15 of the permit plan. The detail for trenching is provided on sheet W-18 of the permit plans. Following trenching, 300 peat potted salt marsh cordgrass (*Spartina alterniflora*) transplants will be installed in the disturbed area on an 18 inch grid throughout.

Section 3: Project Location (Continued)

10. Name of waterbody at Project Location: Slaughter Creek waterbody is a tributary to: Delaware Bay

11. Is the waterbody: ☒ Tidal ☐ Non-tidal Waterbody width at mean low or ordinary high water 57 feet

12. Is the project: ☒ On public subaqueous lands? ☐ On private subaqueous lands?*
☐ In State-regulated wetlands? ☐ In Federally-regulated wetlands?

*If the project is on private subaqueous lands, provide the name of the subaqueous lands owner:

(Written permission from the private subaqueous lands owner must be included with this application)

13. Present Zoning: ☒ Agricultural ☒ Residential ☐ Commercial ☐ Industrial ☐ Other

Section 4: Miscellaneous

14. A. List the names and complete mailing addresses of the immediately adjoining property owners on all sides of the project (attach additional sheets as necessary):
See Item 14B

B. For wetlands and marina projects, list the names and complete mailing addresses of property owners within a 1,000 foot radius of the project (attach additional sheets as necessary):
See attached sheet. List in excel format available upon request.

15. Provide the names of DNREC and/or Army Corps of Engineers representatives whom you have discussed the project with:
Mr. Michael Yost, ACOE
Mr. Matthew Jones, DNREC

A. Have you had a State Jurisdictional Determination performed on the property? ☐ Yes ☒ No
B. Has the project been reviewed in a monthly Joint Permit Processing Meeting? ☐ Yes ☒ No
*If yes, what was the date of the meeting?

16. Are there existing structures or fill at the project site in subaqueous lands? ☐ Yes ☒ No
*If yes, provide the permit and/or lease number(s):

*If no, were structures and/or fill in place prior to 1969? ☐ Yes ☒ No

17. Have you applied for or obtained a Federal permit from the Army Corps of Engineers?
☐ No ☒ Pending ☐ Issued ☐ Denied Date: June 2025

Type of Permit: Nationwide Permit No. 58 Federal Permit or ID #:

18. Have you applied for permits from other Sections within DNREC?
☒ No ☐ Pending ☐ Issued ☐ Denied Date: Permit or ID #:

Type of permit (circle all that apply): Septic Well NPDES Storm Water

Other:

First Owner	Second Owner	Address Line 1	Address Line 2	Town	State	Zipcode
BAY VIEW ESTATES LLC	-	902 POPLAR ST	-	MILFORD	DE	19963
J C WELLS SONS LP	-	7481 WELLS RD	-	MILFORD	DE	19963
UNITED STATES OF AMERICA	DEPT OF THE INTERIOR	% DEPT OF THE INTERIOR	-	WASHINGTON	DC	20242
EAGER KELLY R & MELVIN C	-	182 BRAN RD	-	READING	PA	19608
BODNAR JAMES T TTEE REV TR	-	5848 SLAUGHTER BEACH RD	-	MILFORD	DE	19963
DCAM LLC	-	PO BOX 288	-	LEWES	DE	19958
MEMORIAL VOLUNTEER FIRE CO	SLAUGHTER BEACH	PO BOX 868	-	MILFORD	DE	19963
ARTESIAN WATER COMPANY INC	-	664 CHURCHMANS RD	-	NEWARK	DE	19702

Section 5: Signature Page

19. Agent Authorization:

If you choose to complete this section, all future correspondence to the Department may be signed by the duly authorized agent. In addition, the agent will become the primary point of contact for all correspondence from the Department.

I do not wish to authorize an agent to act on my behalf ☐

I wish to authorize an agent as indicated below ☒

I, Mr. Mike Harmer, PE, County Engineer, hereby designate and authorize Environmental Resource Insights
(Name of Applicant) (Name of Agent)
to act on my behalf in the processing of this application and to furnish any additional information requested by the Department.

Authorized Agent's Name: Edward M. Launay
Mailing Address: One Park Avenue Milford, DE 19963

Telephone #: 302-236-3871
Fax #: 302-424-0430
E-mail: elaunay@ericonsultants.com

20. Agent's Signature:

I hereby certify that the information on this form and on the attached plans are true and accurate to the best of my knowledge. I further understand that the Department may request information in addition to that set forth herein if deemed necessary to appropriately consider this application.

Agent's Signature

6/19/2025
Date

21. Applicant's Signature:

I hereby certify that the information on this form and on the attached plans are true and accurate to the best of my knowledge and that I am required to inform the Department of any changes or updates to the information provided in this application. I further understand that the Department may request information in addition to that set forth herein if deemed necessary to appropriately consider this application. I grant permission to authorized Department representatives to enter upon the premises for inspection purposes during working hours.

Applicant's Signature

6/13/2025
Date

Mike Harmer, PE, County Engineer
Print Name

22. Contractor's Signature:

I hereby certify that the information on this form and on the attached plans are true and accurate to the best of my knowledge, and that I am required to inform the Department of any changes or updates to the information provided in this application. I further understand that the Department may request information in addition to that set forth herein if deemed necessary to appropriately consider this application.

Contractor's Name

Date

Print Name

Utility Crossings

Please respond to each question. Questions left blank may result in the application being returned as incomplete. In addition, the answers to all of the questions in this Appendix must correspond accurately to the information on the plan and section view drawings for the project.

1. Please indicate the total number of subaqueous lands crossings associated with the project here: 2 Complete a separate Appendix E for each crossing.

2. The information below is for Crossing # 1.

General Information

3. What type of utility is being installed and what is its diameter?

____	wastewater pipeline	_____ inches	____	electric line	_____ inches
____	water line	_____ inches	____	TV/cable	_____ inches
____	gas line	_____ inches	____	fiber optic cable	_____ inches
X	other (describe)	Sanitary Sewer Force Main			8 inches

4. What is the total length of the crossing relative to:

MHW 73 ft. MLW 57 ft. OHW _____ ft.

5. What is the total area of impact for the crossing relative to:

MHW 48.9 sq. ft. MLW 38.2 sqft. OHW _____ sq. ft.

6. What is the method of installation for the crossing:

X directional bore _____ trench _____ blasting _____ plow

If another method of installation will be utilized, please describe here:

7. Briefly outline the construction sequence for placement of the structure:

Hydraulic directional drilling will be utilized for the installation of an 8" sanitary sewer force main and will operate from the designated vehicle staging areas.

8. Will dredging, excavating, or filling be required? _____ Yes X No

If "yes", complete the appropriate dredging appendix and/or fill appendix and include them with your application.

9. Will there be any permanent towers, poles, platforms or other structures (excluding submarine cables) on subaqueous land or in wetlands? _____ Yes __X__ No

If "yes", give the number of structures, and provide a description, including square footage and material (the location of all structures must be shown on the plans or the application cannot be processed).

10. At what depth will the subaqueous crossing be placed below the bottom of the waterbody? 5.0 minimum ft.
    At what height will an aerial crossing be above MHW? N/A feet

11. Is the crossing in, on, over or under public (undeeded) or private subaqueous lands?
    __X__Public _____Private
    If private, who is/are the property holder(s)? _____
    Provide a copy of any deed, ROW or easement granting access if the private property owner is other than the applicant.

12. Is the crossing adjacent to subaqueous lands on State-owned property? _____ Yes __X__No
    If so, which State agency is the owner? _____

    Is the crossing within a DelDOT right of way? __X__ Yes _____No

13. Please include evidence of written permission from the private land owner above (if other than the applicant).

Utility Crossings

Please respond to each question. Questions left blank may result in the application being returned as incomplete. In addition, the answers to all of the questions in this Appendix must correspond accurately to the information on the plan and section view drawings for the project.

1. Please indicate the total number of subaqueous lands crossings associated with the project here: 2 Complete a separate Appendix E for each crossing.

2. The information below is for Crossing # 2.

General Information

3. What type of utility is being installed and what is its diameter?

____	wastewater pipeline	_____ inches	____	electric line	_____ inches
____	water line	_____ inches	____	TV/cable	_____ inches
____	gas line	_____ inches	____	fiber optic cable	_____ inches
X	other (describe) Sanitary Sewer Force Main				6 inches

4. What is the total length of the crossing relative to:

MHW 5.5 ft. MLW 5.5 ft. OHW _____ ft.

5. What is the total area of impact for the crossing relative to:

MHW 22 sq. ft. MLW 22 sqft. OHW _____ sq. ft.

6. What is the method of installation for the crossing:

_____ directional bore X trench _____ blasting _____ plow

If another method of installation will be utilized, please describe here:

7. Briefly outline the construction sequence for placement of the structure:

Temporary trenching located at the northeast portion of the project site will temporarily impact 22 square feet of waters of the United States and DNREC subaqueous lands. Once completed, the trench will return to current existing conditions.

8. Will dredging, excavating, or filling be required? _____ Yes X No

If "yes", complete the appropriate dredging appendix and/or fill appendix and include them with your application.

9. Will there be any permanent towers, poles, platforms or other structures (excluding submarine cables) on subaqueous land or in wetlands? _____ Yes __X__ No

If "yes", give the number of structures, and provide a description, including square footage and material (the location of all structures must be shown on the plans or the application cannot be processed).

10. At what depth will the subaqueous crossing be placed below the bottom of the waterbody? __+/- 3.5__ ft.
    At what height will an aerial crossing be above MHW? _____N/A_____feet

11. Is the crossing in, on, over or under public (undeeded) or private subaqueous lands?
    ___X___Public _____Private
    If private, who is/are the property holder(s)? _____
    Provide a copy of any deed, ROW or easement granting access if the private property owner is other than the applicant.

12. Is the crossing adjacent to subaqueous lands on State-owned property? _____ Yes ___X___No
    If so, which State agency is the owner? _____

    Is the crossing within a DelDOT right of way? ___X___ Yes _____No

13. Please include evidence of written permission from the private land owner above (if other than the applicant).

ACTIVITIES IN STATE WETLANDS

Please make sure that all answers in this appendix correspond to information on the application drawings.

1. Project description and explanation of need.

The proposed project is to install an 8" sanitary sewer forcemain within an existing DelDOT right of way and will cause only 307 square feet of temporary impacts that will be returned to the current existing conditions following the project completion.

2. What is area of impact for each activity in state wetlands?

Wetlands Walkways/Other Structures:
Length 14 ft. Width +/- 22 ft.
Piles N/A Height surface ft. over marsh

3. What is volume of fill or excavated material involved in this project?

Fill 0 cubic yards
Excavation 0 cubic yards

4. Map number of state wetland map where project is located: DNR # 148

ENVIRONMENTAL SUMMARY - PLEASE SUBMIT AN EVALUATION OF IMPACT OF THE PROPOSED ACTIVITY (ATTACH ADDITIONAL SHEETS AS NEEDED):

5. State reasons that structures cannot feasibly be located on lands other than wetlands.

A 14' x 28' matted level area for the staging of drill rig equipment is required on the road shoulder to each side of Slaughter Creek necessitating a 307 square foot temporary impact to state regulated wetlands.

6. Detail temporary and permanent changes which would be caused by the proposed project and the impact of these changes on the project area and adjacent areas.

Short term construction matting will be placed over existing wetlands during HDD operations. After completion of operations, matting will be removed with little or no permanent disruption of marsh grasses.

7. Describe alternatives to the proposed action which would reduce or avoid environmental damage.

HDD matting is being used to minimize the overall impact of the project on wetland and aquatic resources. Almost all utility trenching impacts have been sited to avoid wetlands.

8. Describe all measures to be taken during and after the completion of the proposed project to reduce detrimental effects.

Limits of construction disturbance will be strictly adhered to and only short term use of construction matting will occur.

9. Describe all permanent environmental impacts which cannot be avoided.

Short term placement of construction matting over marsh vegetation will cause a minimal loss (no more than two weeks) of marsh productivity. All work is within area of active highway shoulder so no impacts to wildlife population or overall vegetative communities will occur.

10. Submit detailed evaluation of impact of the proposed project on the following:

a. Value of tidal ebb and flow

i. Production Value: carrying organic matter to adjacent estuaries and coastal waters which serve as breeding areas for certain animal species (especially fish and shellfish).
ii. Value as a natural protective system of absorption of storm wave energy, flood waters, and heavy rainfall, thereby decreasing flood and erosion damage.
iii. The prevention of silting in certain harbors and inlets thereby reducing dredging.
iv. Removal and recycling of inorganic nutrients.
v. Effect on the estuarine waters.

Temporary impacts to state regulated wetlands within DELDOT right of way amount to only 307 square feet. Construction matting for HDD operations will likely be in place for no more than two weeks. No measureable impact to tidal ebb and flow will occur.

b. Habitat Value

i. Habitat for resident species of wildlife including furbearers, invertebrates, finfish.
ii. Habitat for migratory wildlife species including waterfowl, wading birds, shorebirds, shorebirds, passerines, finfish, shrimp.
iii. Rearing area, nesting area, breeding grounds for various species.
iv. Habitat for rare or endangered plants.
v. Presence of plants or animals known to be rare generally, or unique to the particular location.
vi. Presence of plants or animals near the limits of their territorial range.
vii. Presence of unique geological or wetland features.

The proposed impact area is limited to a shoulder area of a DelDOT right of way. Construction matting impacts will be short term with no measurable impact to habitat value.

c. Aesthetic Effect - Consideration of the aesthetic effect may include:

i. Presence of plants or animals of a high visual quality.
ii. The presence of an associated water body.
iii. Wetland type of topographic diversity.

Temporary impacts are short term and located in an existing DELDOT right of way. The project has no measurable impact on aesthetics.

d. Impact of Supporting Facilities

The supporting facilities to be considered include any public or private construction, whether or not the construction occurs in the wetlands, which would be required for construction or operation of the proposed wetlands activity, such as roads, sewage disposal facilities, electric lines, water supply systems, and schools. Effects shall be separately determined for the lands neighboring such facilities.

The purpose of the proposed project is to achieve positive water quality and environmental impacts by the elimination of inground wastewater systems throughout Slaughter Beach. Supporting facilities are located on upland area or they are constructed in a manner which avoids or minimizes wetland impacts.

e. Effect on Neighboring Land Uses
   i. The effects of the proposed wetland activity on neighboring land use are to be considered whether or not the neighboring lands are wetlands.
   ii. The environmental, aesthetic and economic effects of the proposed wetlands activity on land uses neighboring the lands on which supporting facilities will be located may be considered.

Neighboring land uses and development wil be provided with municipal sanitary sewer services.

f. Federal, State, Regional, County and Municipal Comprehensive Plans.
   Compliance of the proposed activities with the plans of the jurisdiction in which it is proposed to take place, and its impact on the plans of other affected jurisdictions.

The project is consistent with the state and county goal of eliminating private in ground wastewater disposal systems in sensitive environmental areas where system failure is a concern.

g. Economic Impact
   Economic Impact shall include a short and long-term evaluation of the following factors to the extent the effect is directly attributable to the proposed activity:
   i. Jobs created or lost and the net income effect of jobs.
   ii. Increases in revenues to or increases in expenditure by State, County and local governments (e.g., increased taxes from an increased tax base and increased expenditure for maintaining supporting facilities).
   iii. Increases or decreases in the value attributable to the wetland as a source of nutrients to finfish, crustacea and shellfish and as habitats of such species or other flora or fauna of significant actual or potential economic value.
   iv. Increases or decreases in the value of the land as a recreational area.
   v. Increases or decreases in the cost of flood control or expected flood damage which might be caused by the effect of the activity on the natural capacity of the wetland to reduce flood damage.
   vi. Increases or decreases the costs of maintaining navigable harbors and waterways which would result from altering the capacity of the wetlands to absorb silt.
   vii. The net economic effect, both public and private, or any contemplated supporting facilities.
   viii. The net economic effect, both public and private, of the proposed activity on neighboring land uses.

Installation of the Slaughter Beach sanitary sewer forcemain will provide the local community with municipal wastewater service. Construction activity will result in substantial short term employment. No permanent loss or long term impact to wetlands, harbors, or flood control will result from the project. Water quality and other environmental benefits will be achieved through elimination of private in ground wastewater system in an area prone to failure. Avaliability of municipal sanitary sewer will increase property values.

ACTIVITIES IN STATE WETLANDS

Please make sure that all answers in this appendix correspond to information on the application drawings.

1. Project description and explanation of need.

The proposed project is to install a 6" sanitary sewer forcemain within an existing DelDOT right of way.

2. What is area of impact for each activity in state wetlands?

Wetlands Walkways/Other Structures:
Length 183 ft. Width +/- 2.1 ft.
Piles N/A Height surface ft. over marsh

3. What is volume of fill or excavated material involved in this project?

Fill 27 cubic yards
Excavation 27 cubic yards

4. Map number of state wetland map where project is located: DNR # 148

ENVIRONMENTAL SUMMARY - PLEASE SUBMIT AN EVALUATION OF IMPACT OF THE PROPOSED ACTIVITY (ATTACH ADDITIONAL SHEETS AS NEEDED):

5. State reasons that structures cannot feasibly be located on lands other than wetlands.

Within a small area of the project, state regulated wetlands abut the existing highway edge of pavement, so avoidance is not possible at those locations.

6. Detail temporary and permanent changes which would be caused by the proposed project and the impact of these changes on the project area and adjacent areas.

There will be temporary impact to 379 square feet of marsh vegetation and there will be no permanent impacts.

7. Describe alternatives to the proposed action which would reduce or avoid environmental damage.

The maximum width within wetlands only averages 2.1 feet (379 square feet total) so the temporary impact of trenching is not measurable.

8. Describe all measures to be taken during and after the completion of the proposed project to reduce detrimental effects.

Temporary impacts within state wetland areas will return to current existing conditions. The limits of proposed disturbance will be strictly enforced during construction.

9. Describe all permanent environmental impacts which cannot be avoided.

None, all proposed impacts to state regulated wetlands are temporary. All temporary impacts will return to current existing conditions.

10. Submit detailed evaluation of impact of the proposed project on the following:

a. Value of tidal ebb and flow

i. Production Value: carrying organic matter to adjacent estuaries and coastal waters which serve as breeding areas for certain animal species (especially fish and shellfish).
ii. Value as a natural protective system of absorption of storm wave energy, flood waters, and heavy rainfall, thereby decreasing flood and erosion damage.
iii. The prevention of silting in certain harbors and inlets thereby reducing dredging.
iv. Removal and recycling of inorganic nutrients.
v. Effect on the estuarine waters.

Temporary trenching impacts occur within an active DelDOT right of way. The temporary impacts will not change/influence the value of tidal ebb and flow.

b. Habitat Value

i. Habitat for resident species of wildlife including furbearers, invertebrates, finfish.
ii. Habitat for migratory wildlife species including waterfowl, wading birds, shorebirds, shorebirds, passerines, finfish, shrimp.
iii. Rearing area, nesting area, breeding grounds for various species.
iv. Habitat for rare or endangered plants.
v. Presence of plants or animals known to be rare generally, or unique to the particular location.
vi. Presence of plants or animals near the limits of their territorial range.
vii. Presence of unique geological or wetland features.

Temporary trenching impacts within active DelDOT right of way. The undergound installation of a 6" sanitary sewer force main beneath state regulated wetlands will have no measurable impact.

c. Aesthetic Effect - Consideration of the aesthetic effect may include:

i. Presence of plants or animals of a high visual quality.
ii. The presence of an associated water body.
iii. Wetland type of topographic diversity.

The underground installation of a sanitary sewer force main in an active DelDOT right of way has no aestetic effect.

d. Impact of Supporting Facilities

The supporting facilities to be considered include any public or private construction, whether or not the construction occurs in the wetlands, which would be required for construction or operation of the proposed wetlands activity, such as roads, sewage disposal facilities, electric lines, water supply systems, and schools. Effects shall be separately determined for the lands neighboring such facilities.

The purpose of the proposed project is to achieve positive water quality and environmental impacts by the elimination of inground wastewater systems throughout Slaughter Beach. Supporting facilities are located on upland area or they are constructed in a manner which avoids or minimizes wetland impacts.

e. Effect on Neighboring Land Uses
   i. The effects of the proposed wetland activity on neighboring land use are to be considered whether or not the neighboring lands are wetlands.
   ii. The environmental, aesthetic and economic effects of the proposed wetlands activity on land uses neighboring the lands on which supporting facilities will be located may be considered.

Neighboring land uses and development wil be provided with municipal sanitary sewer services.

f. Federal, State, Regional, County and Municipal Comprehensive Plans.
   Compliance of the proposed activities with the plans of the jurisdiction in which it is proposed to take place, and its impact on the plans of other affected jurisdictions.

The project is consistent with the state and county goal of eliminating private in ground wastewater disposal systems in sensitive environmental areas where system failure is a concern.

g. Economic Impact
   Economic Impact shall include a short and long-term evaluation of the following factors to the extent the effect is directly attributable to the proposed activity:
   i. Jobs created or lost and the net income effect of jobs.
   ii. Increases in revenues to or increases in expenditure by State, County and local governments (e.g., increased taxes from an increased tax base and increased expenditure for maintaining supporting facilities).
   iii. Increases or decreases in the value attributable to the wetland as a source of nutrients to finfish, crustacea and shellfish and as habitats of such species or other flora or fauna of significant actual or potential economic value.
   iv. Increases or decreases in the value of the land as a recreational area.
   v. Increases or decreases in the cost of flood control or expected flood damage which might be caused by the effect of the activity on the natural capacity of the wetland to reduce flood damage.
   vi. Increases or decreases the costs of maintaining navigable harbors and waterways which would result from altering the capacity of the wetlands to absorb silt.
   vii. The net economic effect, both public and private, or any contemplated supporting facilities.
   viii. The net economic effect, both public and private, of the proposed activity on neighboring land uses.

Installation of the Slaughter Beach sanitary sewer forcemain will provide the local community with municipal wastewater service. Construction activity will result in substantial short term employment. No permanent loss or long term impact to wetlands, harbors, or flood control will result from the project. Water quality and other environmental benefits will be achieved through elimination of private in ground wastewater system in an area prone to failure. Avaliability of municipal sanitary sewer will increase property values.

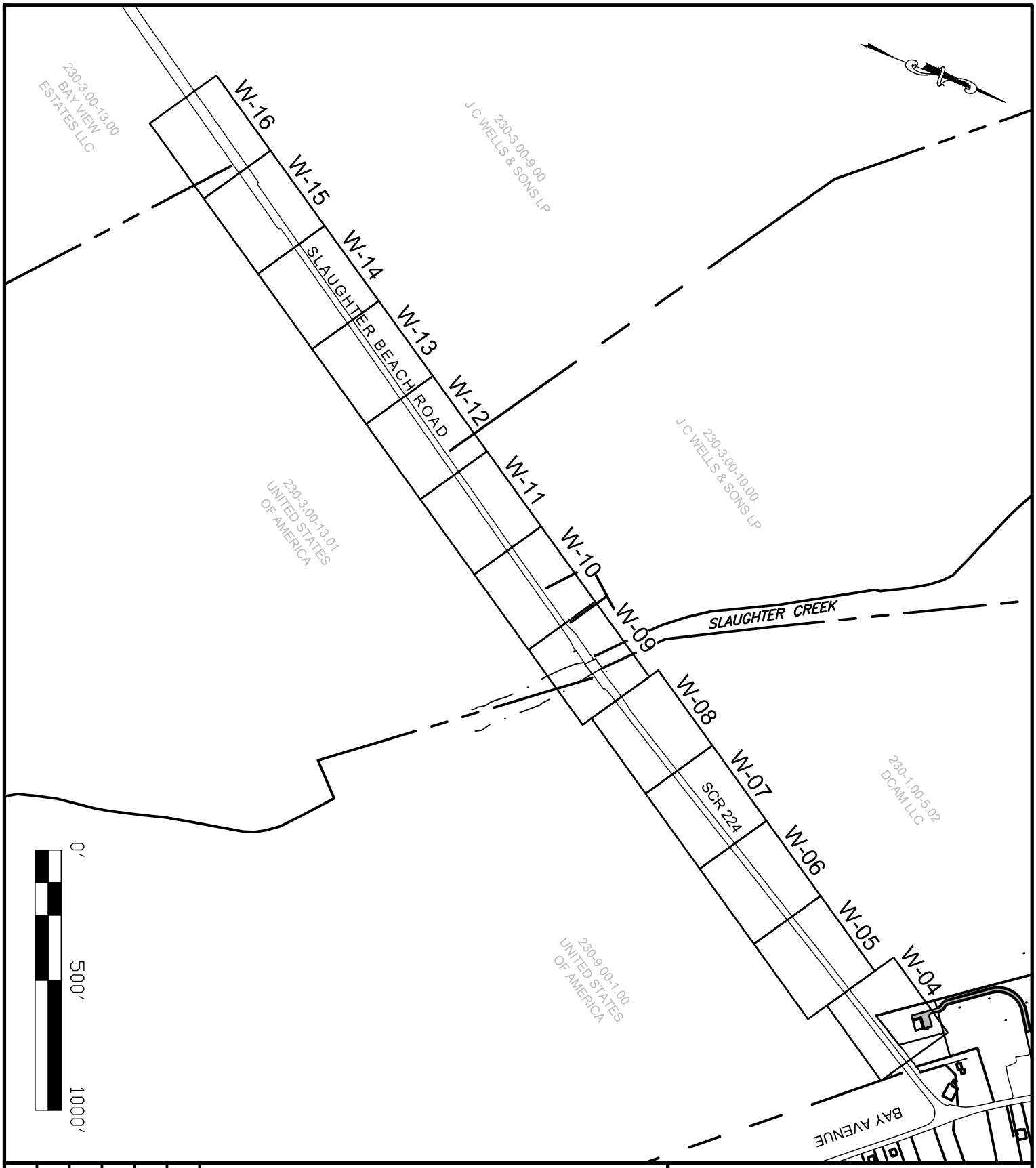
Date:	MAY, 2025
Scale:	1" = 2000'
Dwn.By:	KWW
Proj.No.:	0004-0486
MISPILLION RIVER	
Dwg.No.:	W-01

SLAUGHTER BEACH TRANSMISSION SYSTEM

USGS TOPO MAP

SLAUGHTER BEACH ROAD
CEDAR CREEK HUNDRED
SUSSEX COUNTY, DELAWARE

ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.



SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 500'
Dwn.By:	KWW
Proj.No.:	0004-0486
Dwg.No.:	W-02
	KEY MAP

ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

LEGEND

PROPERTY LINE

RIGHT OF WAY

PROPOSED SITE EASEMENT BOUNDARY GRANTED TO SUSSEX COUNTY

6FM — PROPOSED 6" SANITARY SEWER FOREMAIN

MEAN LOW WATER LINE

MEAN HIGH WATER LINE

3 — EXISTING CONTOUR ELEVATIONS

CENTERLINE OF EXISTING DRAINAGE DITCH

WDL-T — BOUNDARY OF STATE & FEDERALLY REGULATED WETLANDS

WDL — BOUNDARY OF FEDERALLY REGULATED WETLANDS

PROPOSED IMPACTS

8" SANITARY SEWER FORCEMAIN HDPE INSTALLATION UNDER SLAUGHTER CREEK	LINEAR FEET	SQUARE FEET
MEAN LOW WATER TO MEAN LOW WATER	57	38.2
MEAN HIGH WATER TO MEAN HIGH WATER	73	48.9

TEMPORARY STATE/FEDERAL WETLAND DISTURBANCE FOR VEHICLE (DRILL RIG) STAGING	307 SQUARE FEET

TEMPORARY DRAINAGE CHANNEL TRENCHING IMPACT FOR 6" SANITARY SEWER FORCEMAIN - WATERS OF THE UNITED STATES/ DNREC SUBAQEUOUS LANDS (VACUUM PUMP STATION)	5.5 LINEAR FEET	22 SQUARE FEET

TEMPORARY TRENCHING WETLAND IMPACTS FOR 6" SANITARY SEWER FORCEMAIN - STATE/FEDERAL WETLANDS	183 LINEAR FEET	379 SQUARE FEET

Date:	MAY, 2025
Scale:	NONE
Dwn.By:	KWW
Proj.No.:	0004-0486
LEGEND	
Dwg.No.:	W-03

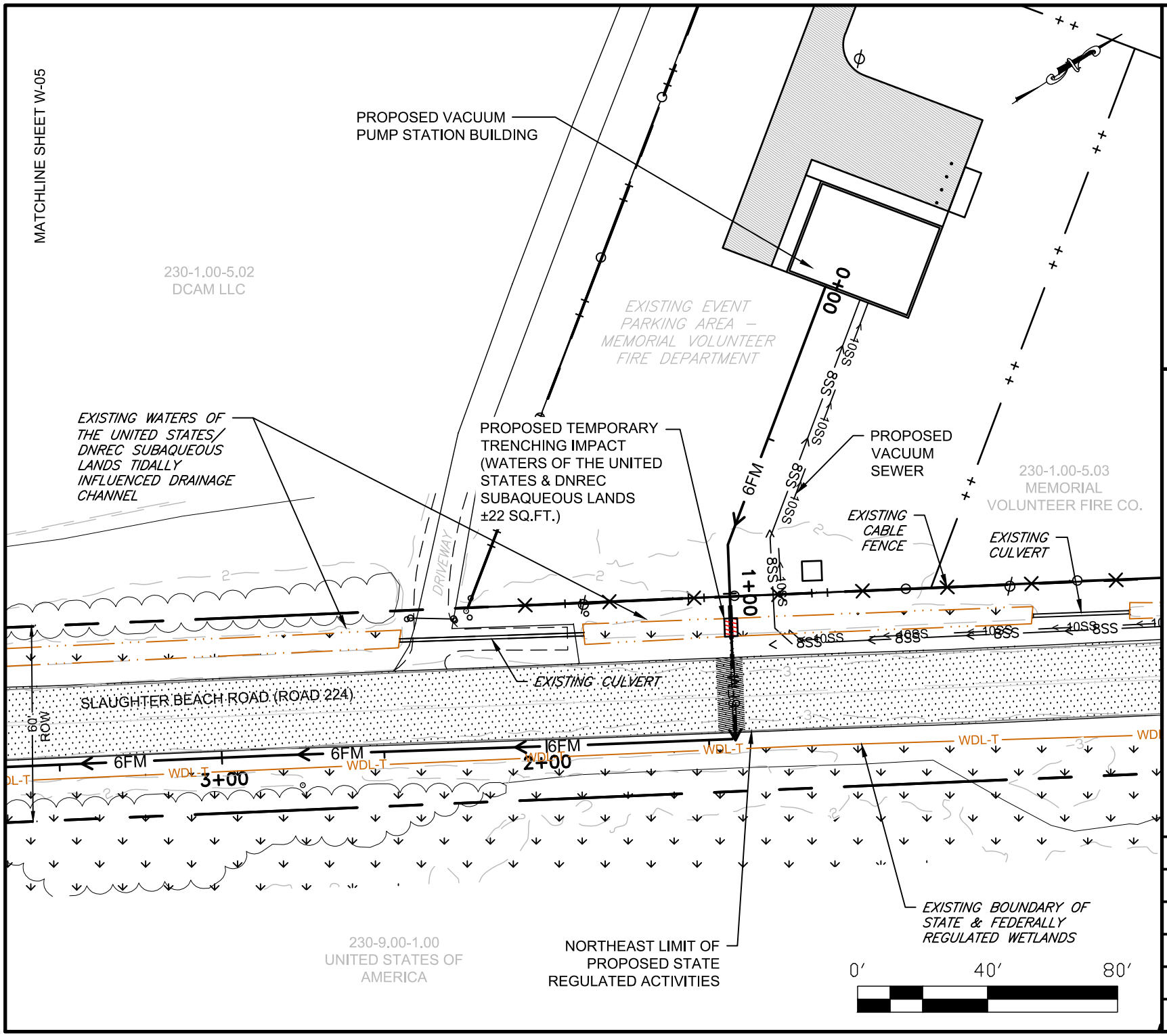
SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

LEGEND & SUMMARY OF IMPACTS

SUSSEX COUNTY, DELAWARE

ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.



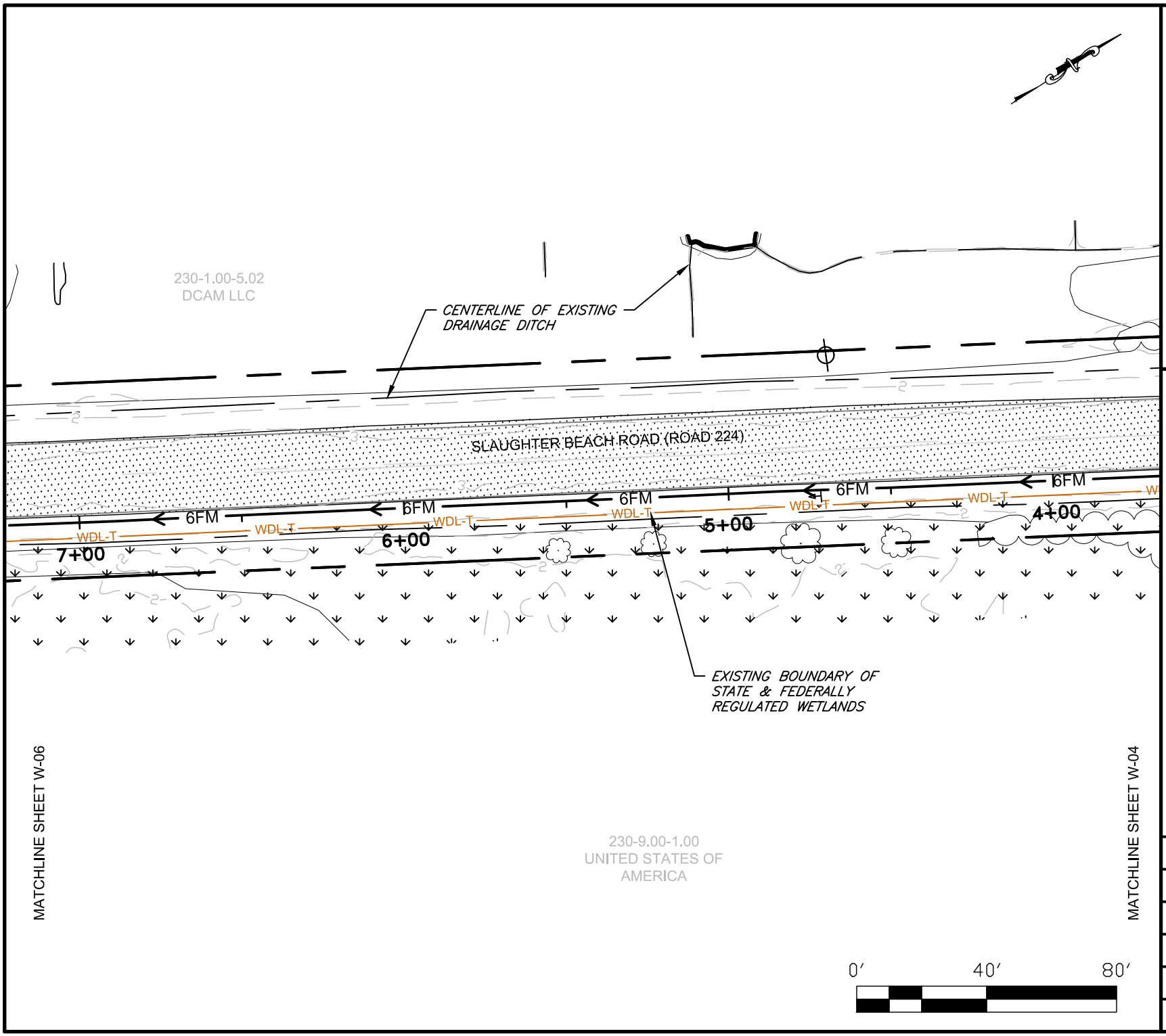
ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486
	DETAIL SHEET
Dwg.No.:	W-04



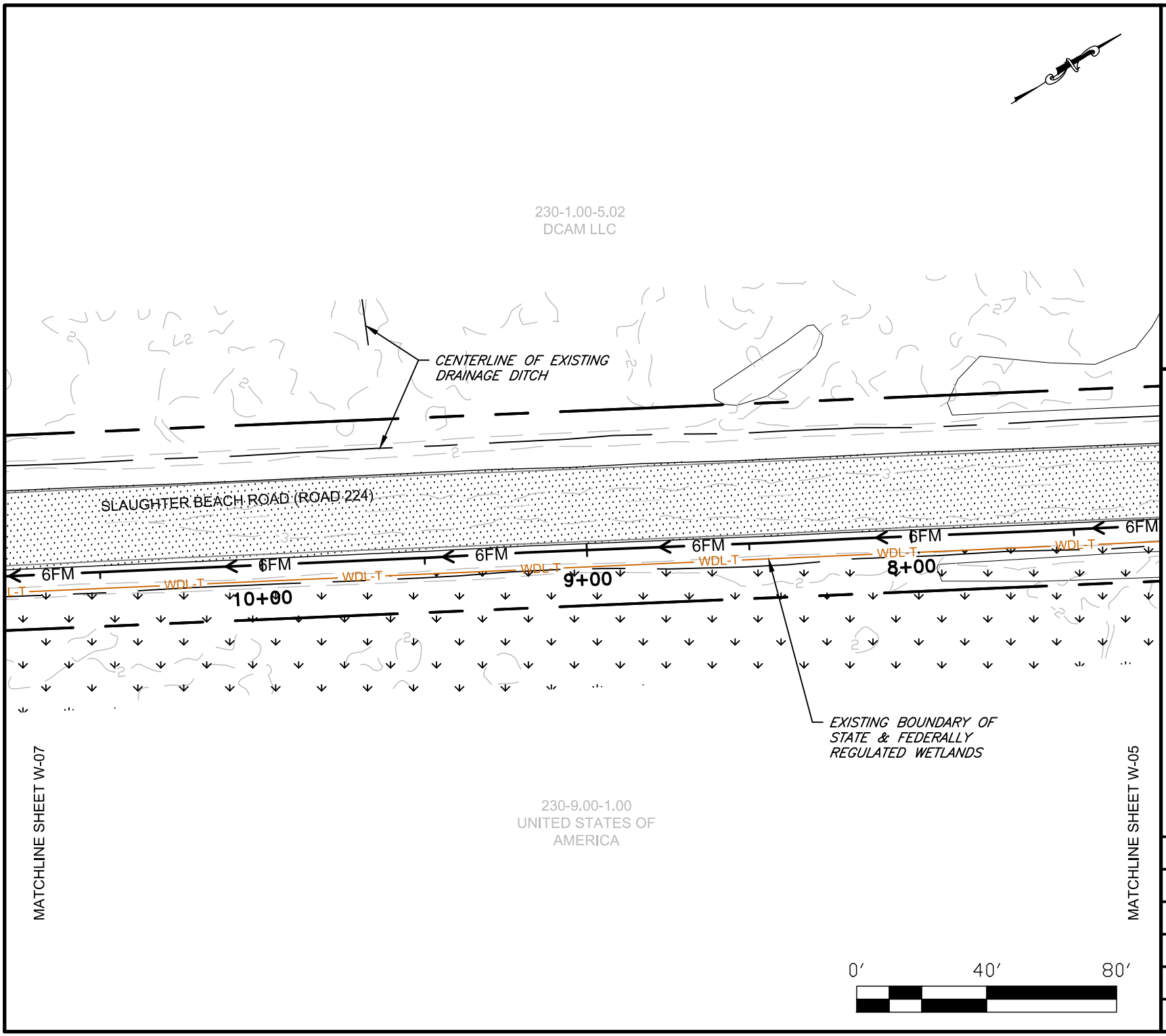
ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486
DETAIL SHEET	
Dwg.No.:	W-05



ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

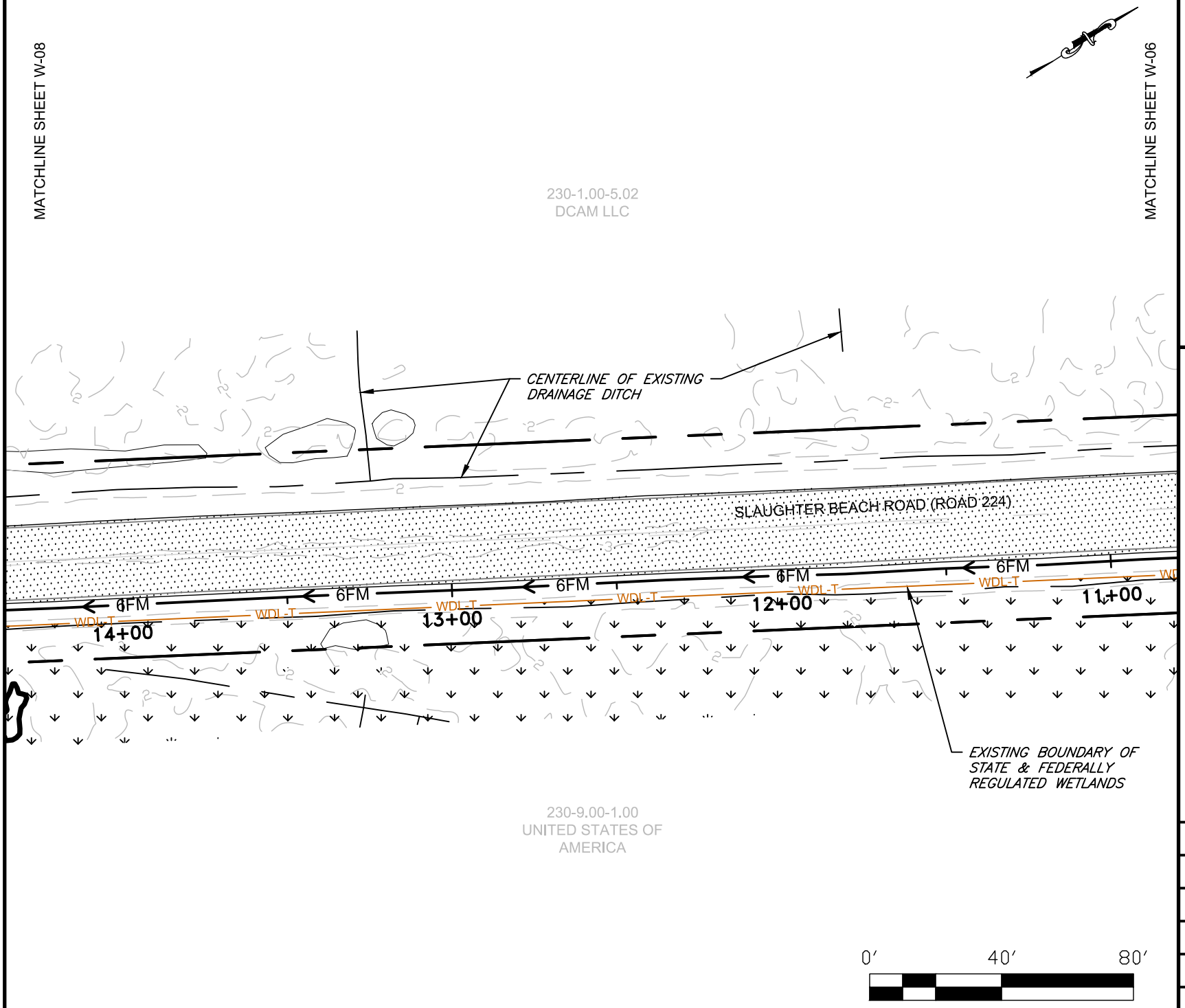
DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486

DETAIL SHEET

Dwg.No.: W-06



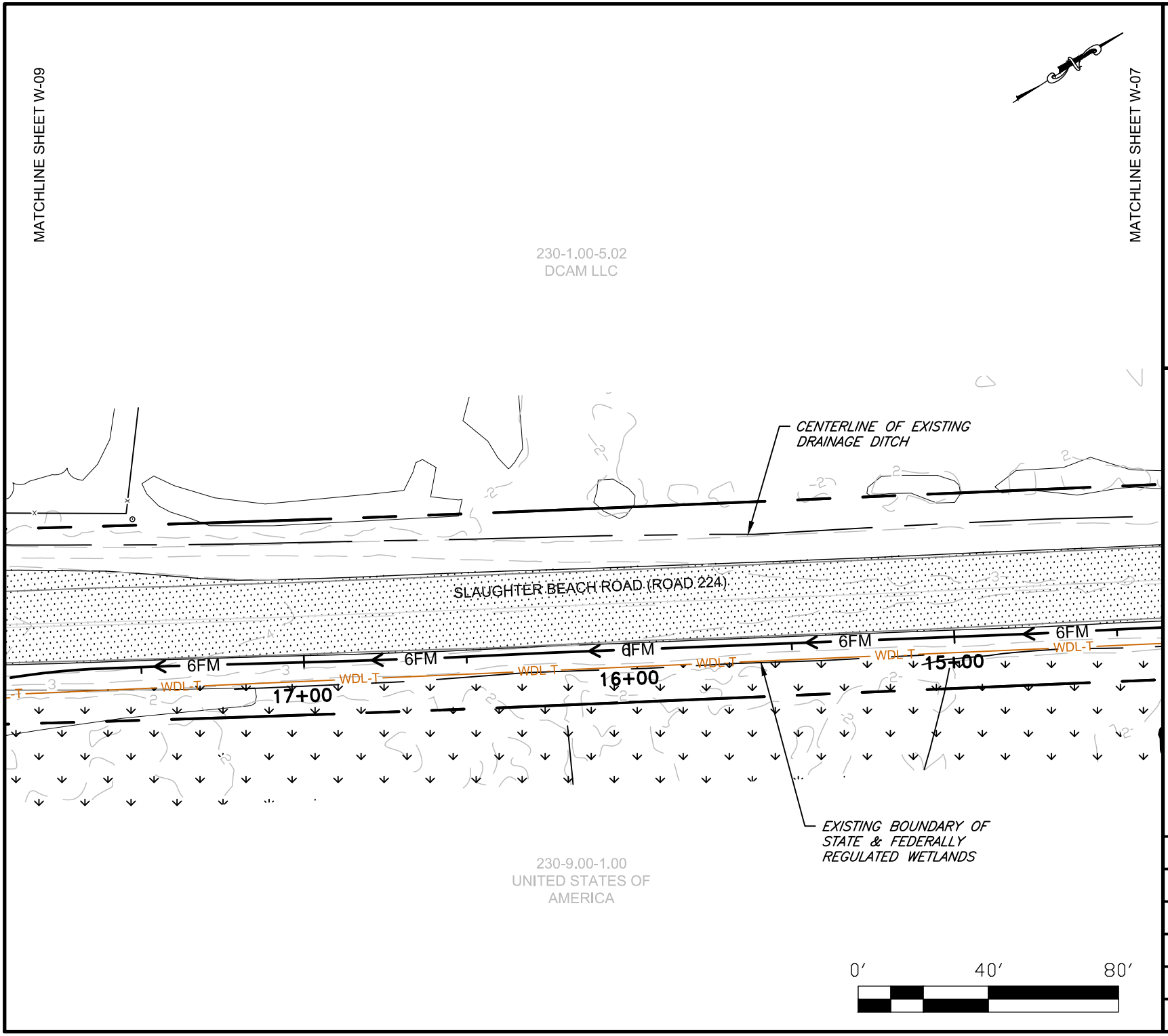
ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486
DETAIL SHEET	
Dwg.No.:	W-07



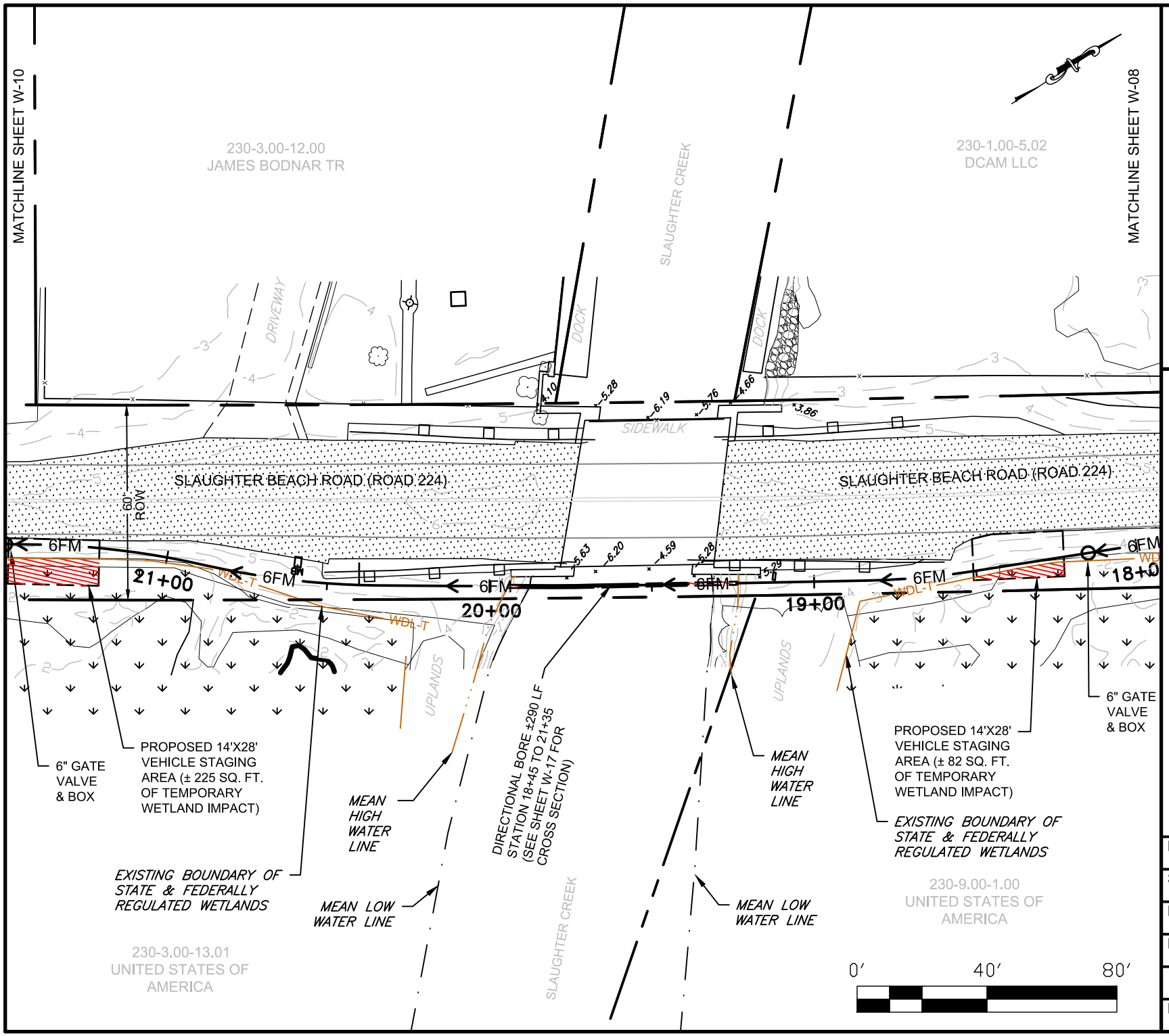
ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486
DETAIL SHEET	
Dwg.No.:	W-08



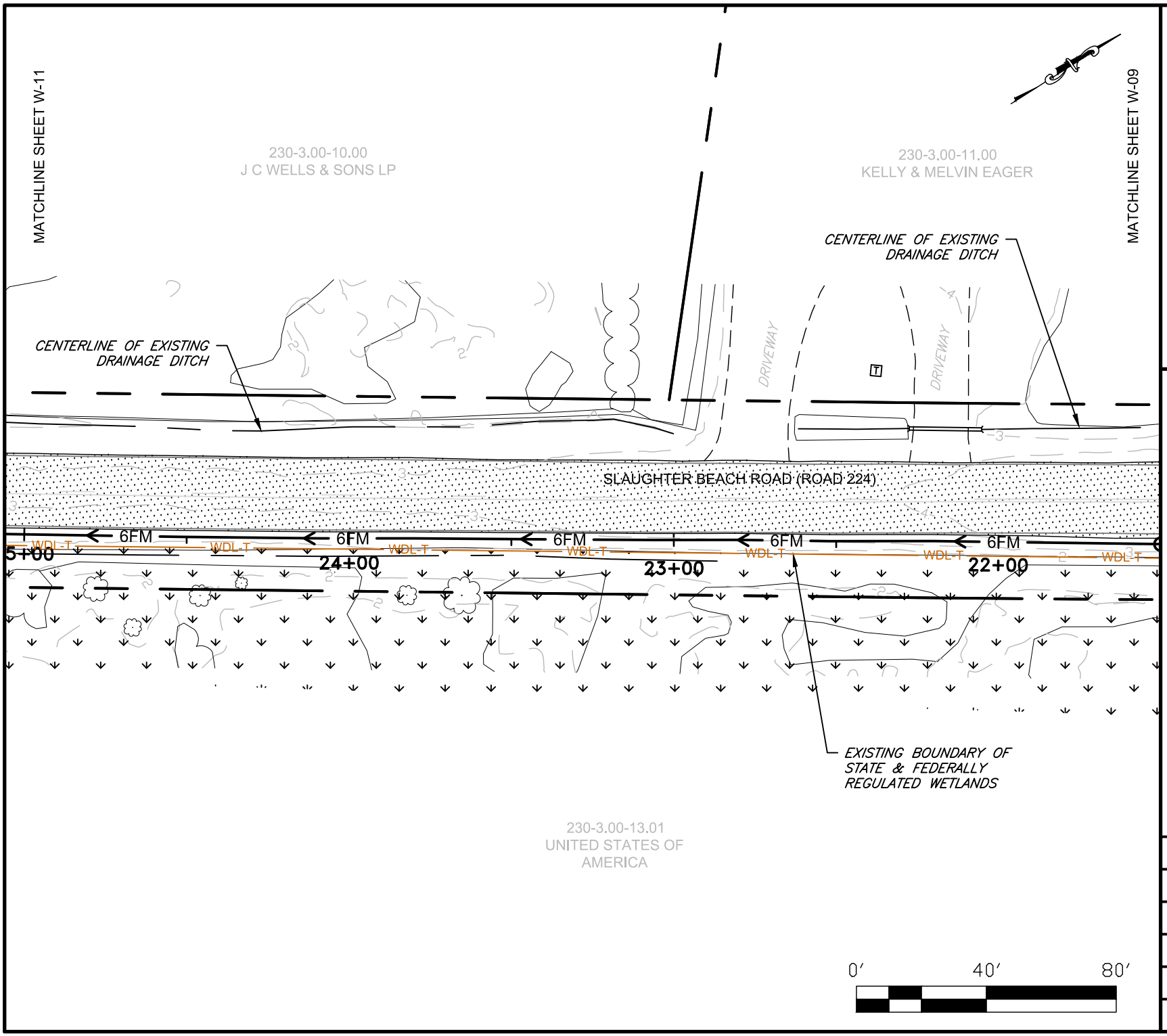
ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486
DETAIL SHEET	
Dwg.No.:	W-09



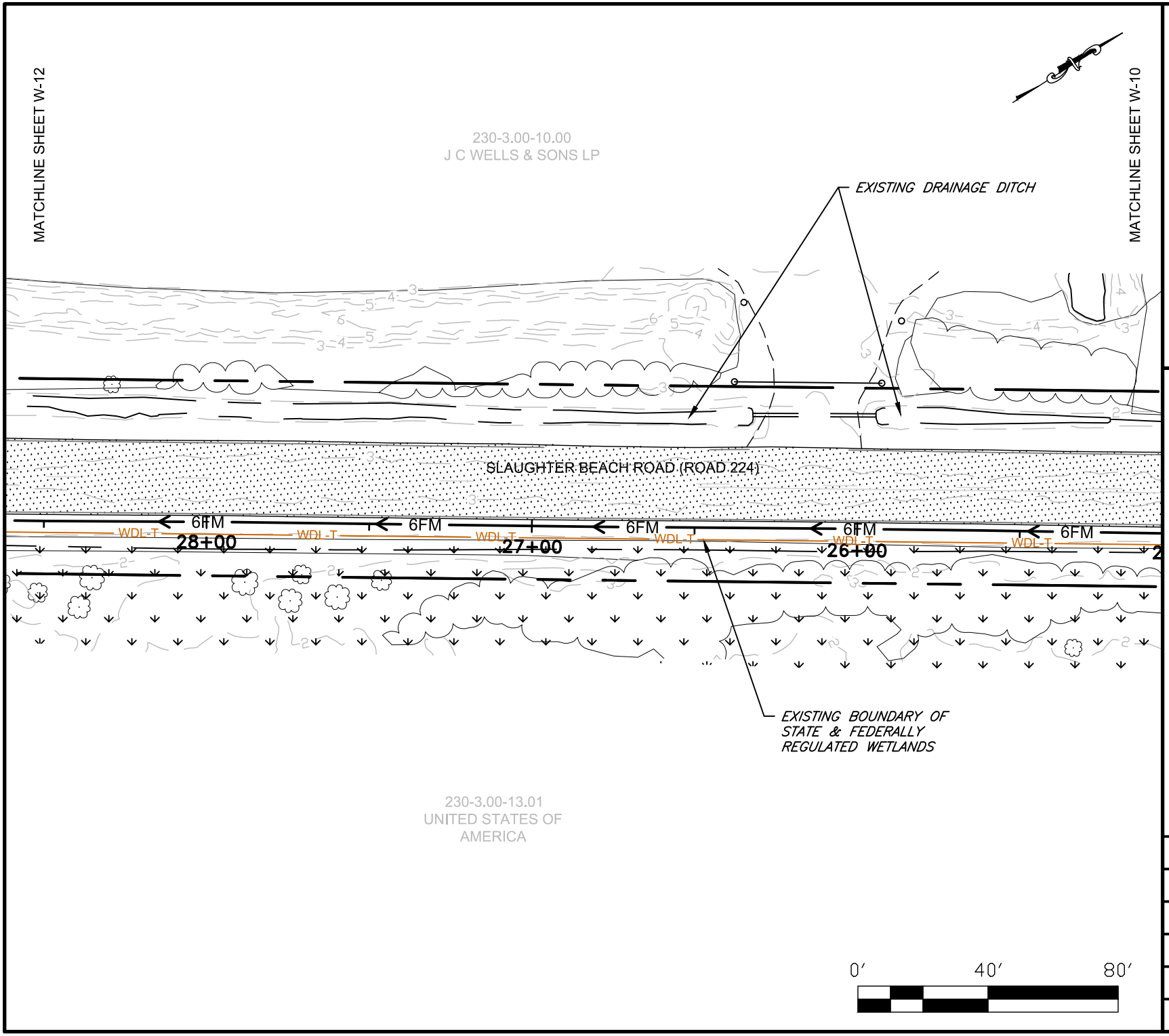
ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486
DETAIL SHEET	
Dwg.No.:	W-10



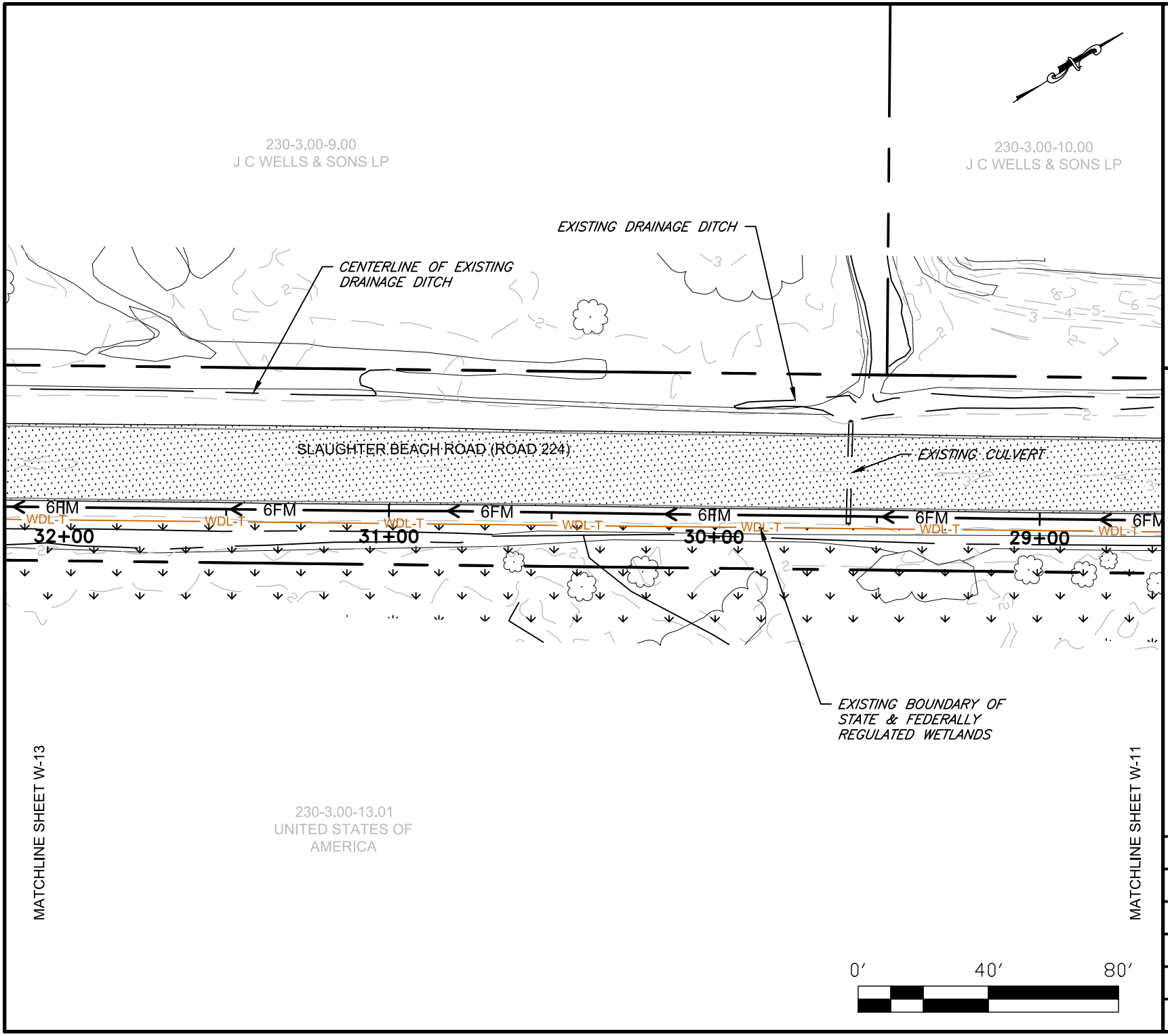
ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486
DETAIL SHEET	
Dwg.No.:	W-11



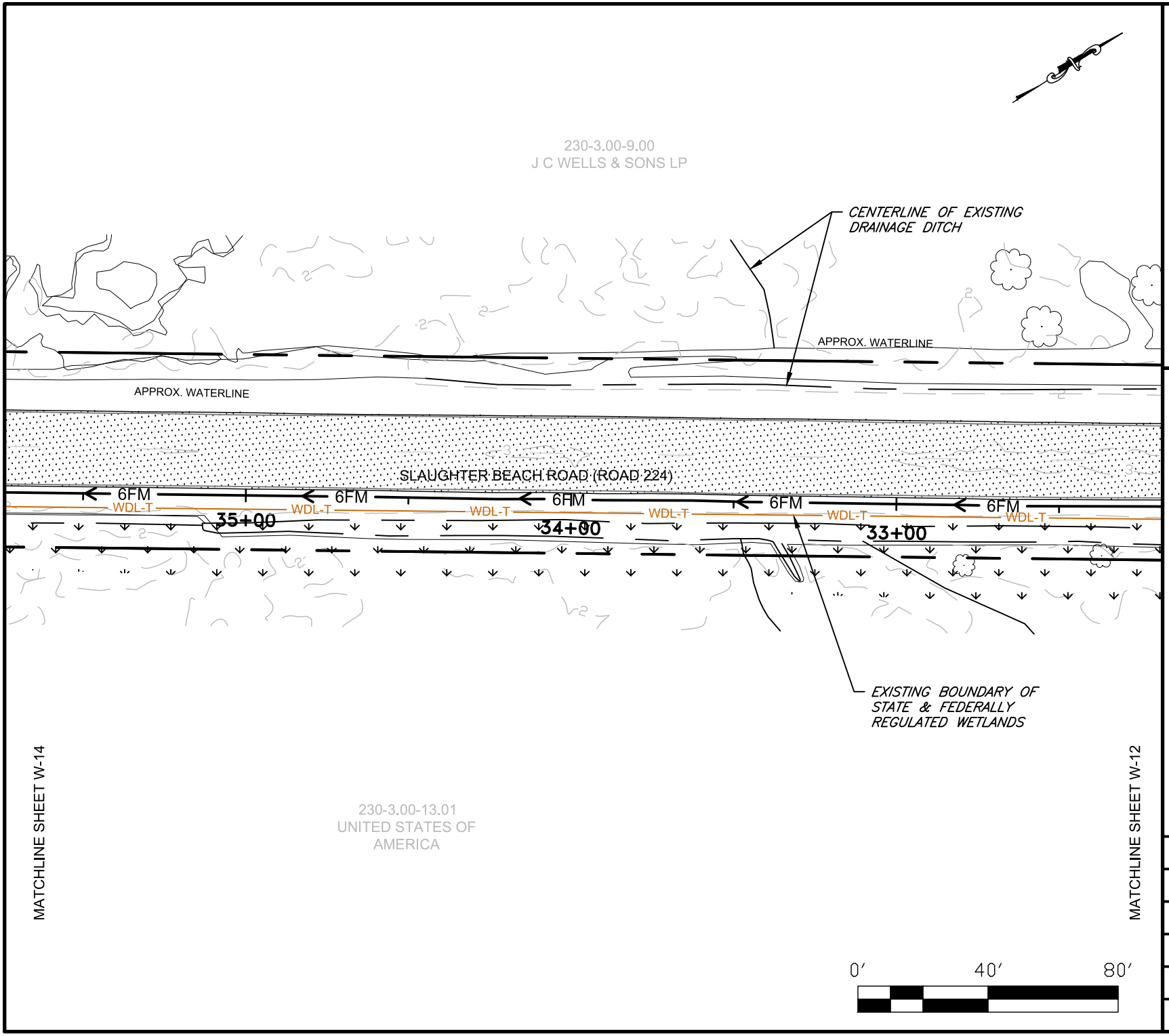
ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486
DETAIL SHEET	
Dwg.No.:	W-12



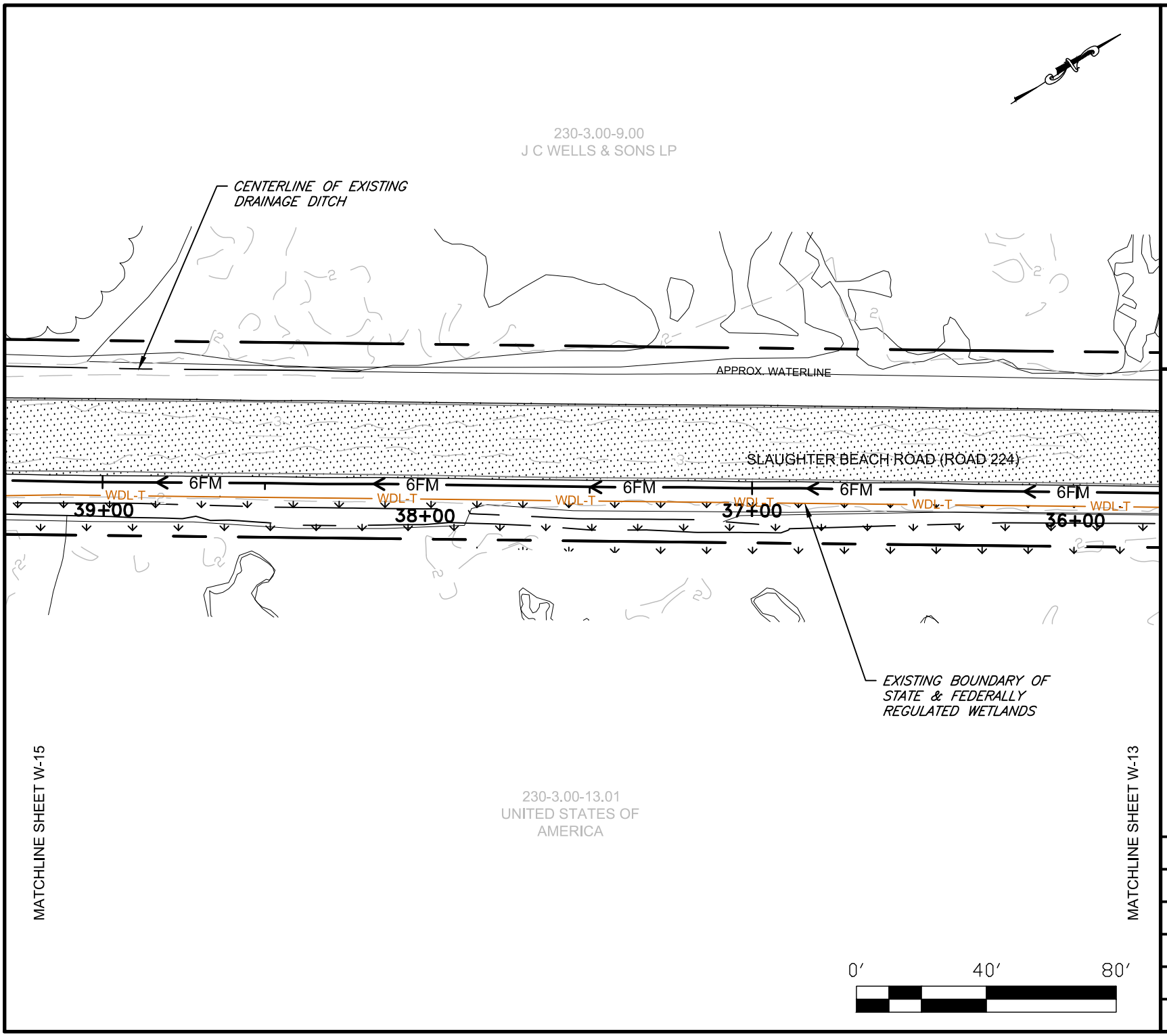
ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486
DETAIL SHEET	
Dwg.No.:	W-13



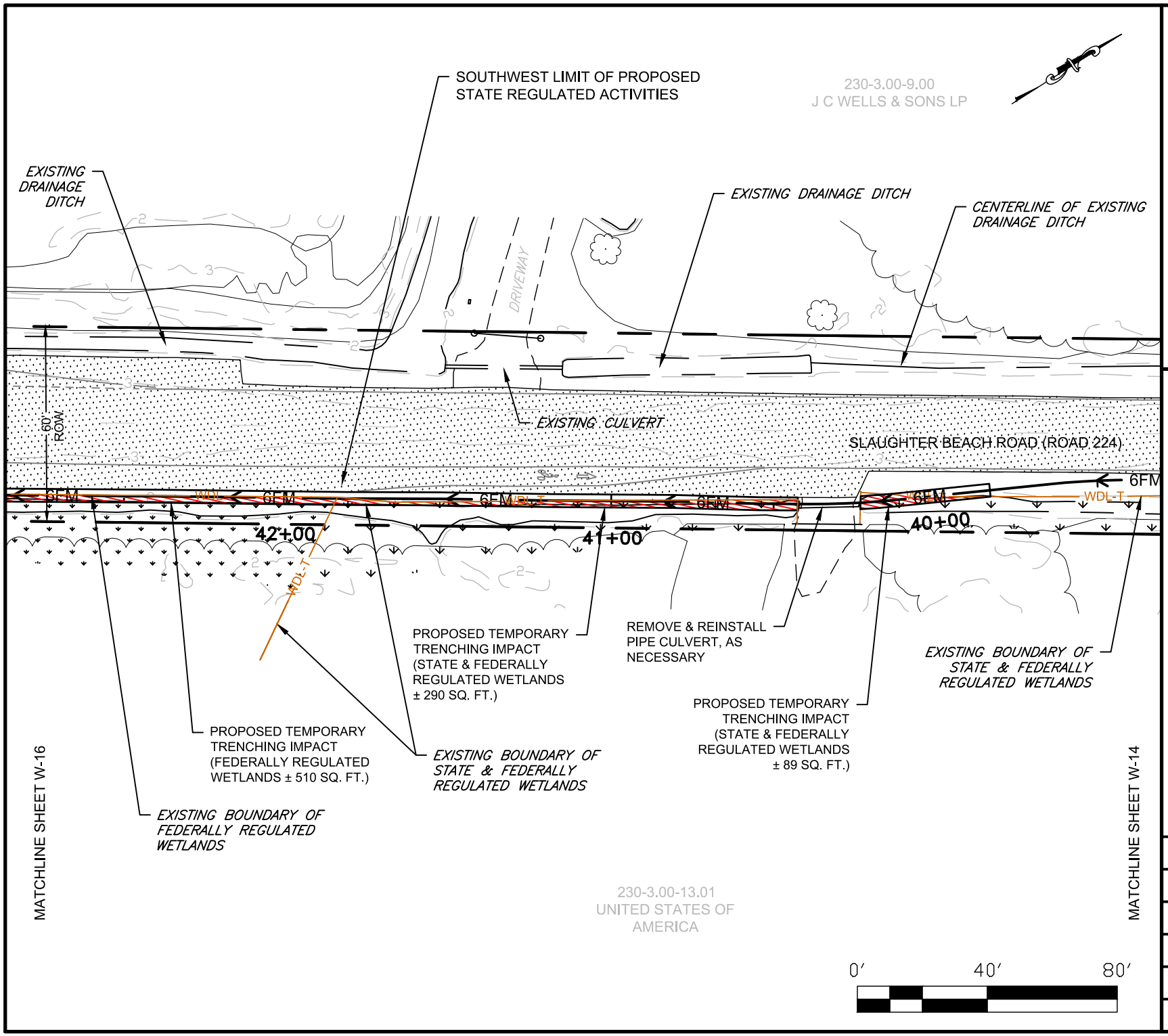
ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486
DETAIL SHEET	
Dwg.No.:	W-14



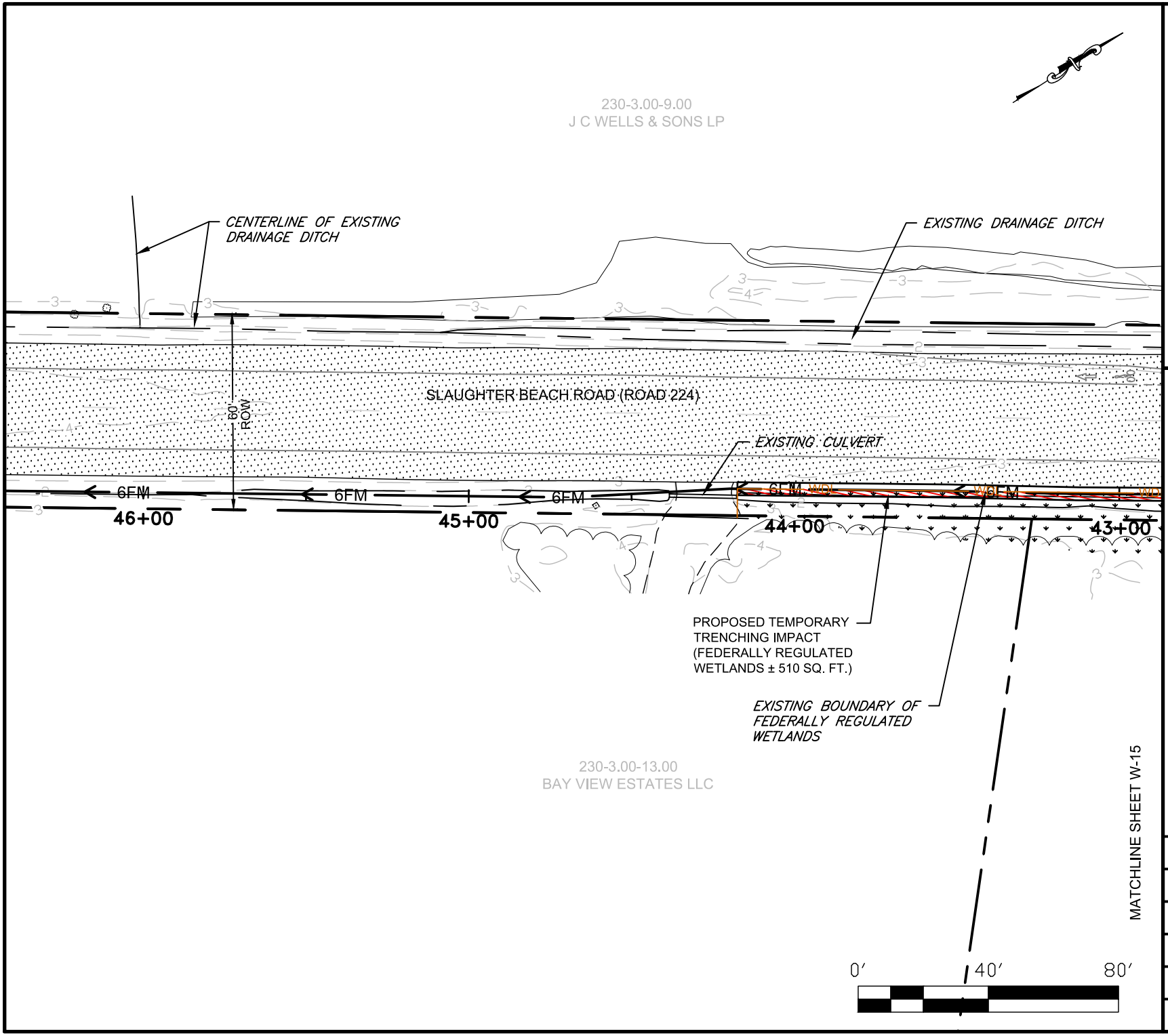
ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486
	DETAIL SHEET
Dwg.No.:	W-15



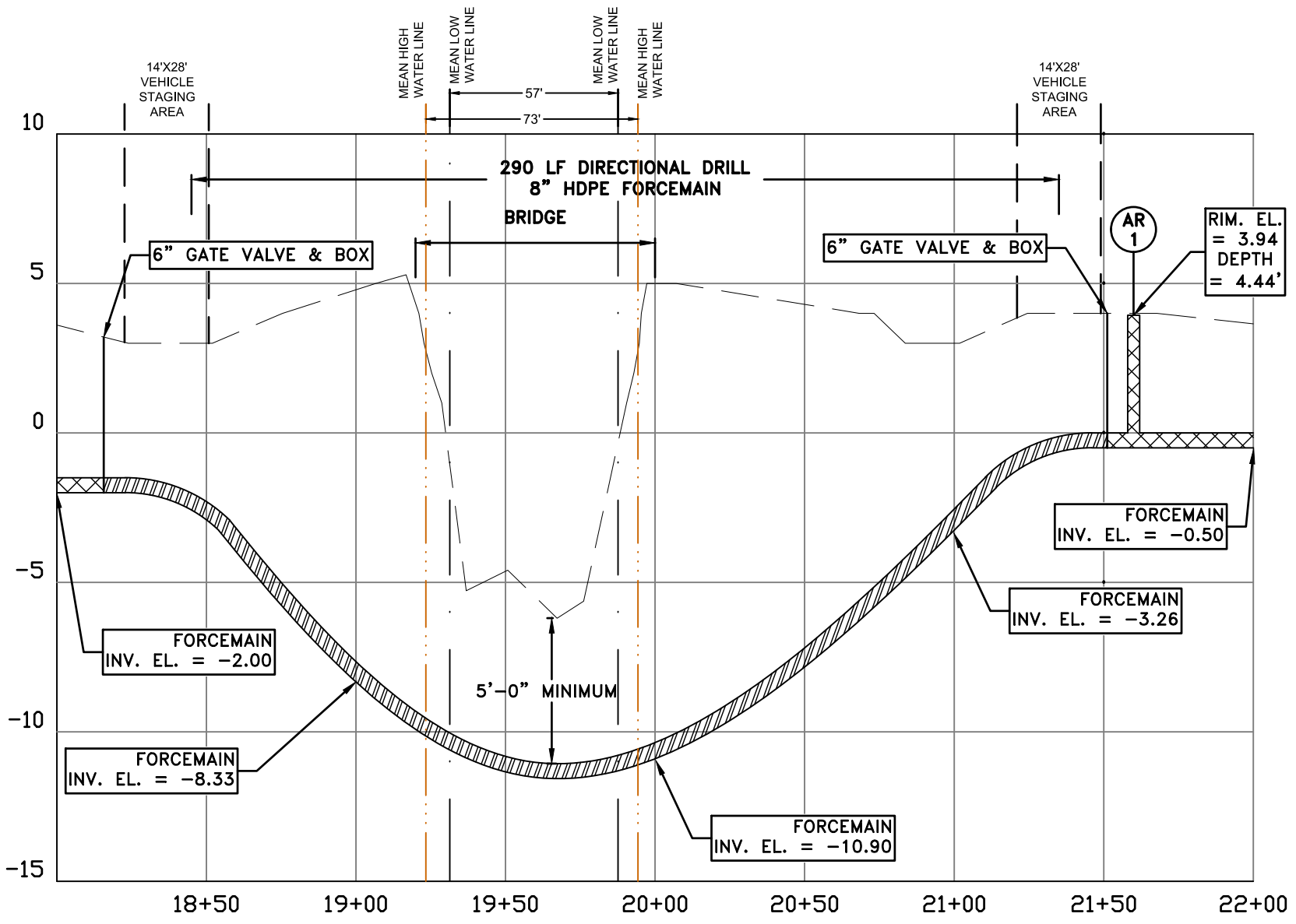
ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM

DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT

SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	1" = 40'
Dwn.By:	KWW
Proj.No.:	0004-0486
DETAIL SHEET	
Dwg.No.:	W-16



8" HDPE FORCEMAIN DIRECTIONAL DRILL PROFILE

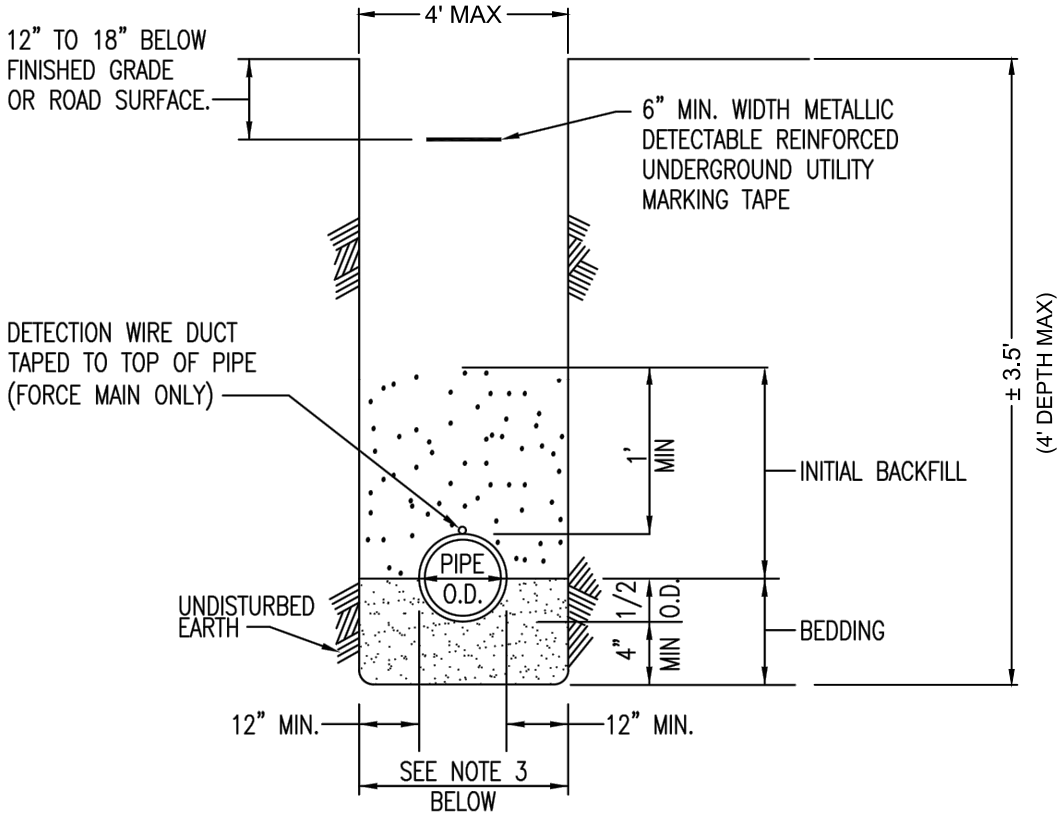
SCALE: 1" = 50' HORIZONTAL
1" = 5' VERTICAL

ENVIRONMENTAL RESOURCE INSIGHTS
A DIVISION OF DAVIS, BOWEN & FRIEDEL, INC.

SLAUGHTER BEACH TRANSMISSION SYSTEM
DNREC SUBAQUEOUS LANDS/WETLANDS PERMIT
SUSSEX COUNTY, DELAWARE

Date:	MAY, 2025
Scale:	AS NOTED
Dwn.By:	KWW
Proj.No.:	0004-0486
CROSS SECTION	
Dwg.No.:	W-17

NOTE: 12" OF ORIGINAL MATERIAL



NOTES:

1. THIS DETAIL APPLIES TO BOTH GRAVITY AND FORCE MAIN SEWER INSTALLATIONS.
2. #57 STONE IS REQUIRED FOR BEDDING MATERIAL AND INITIAL BACKFILL TO 12" ABOVE THE PIPE CROWN FOR ALL SEWER INSTALLATIONS 12' DEEP AND GREATER. FOR INSTALLATIONS LESS THAN 12' DEEP, INITIAL BACKFILL MATERIAL REQUIREMENTS MAY BE MODIFIED BASED ON FIELD CONDITIONS, AS APPROVED BY THE COUNTY. ABOVE INITIAL BACKFILL, MATERIAL MEETING THE REQUIREMENTS OF TYPE F BORROW PER DELDOT'S SPECIFICATIONS SHALL BE USED.
3. FOR INSTALLATION WITHIN LIMITS OF DELDOT ROADWAY AND/OR RIGHT-OF-WAY, TRENCH CONFIGURATIONS AND BACKFILL MATERIAL SHALL BE IN ACCORDANCE WITH CURRENT DELDOT REQUIREMENTS.

Dwg.No.: W-18

SUSSEX COUNTY
ENGINEERING DEPARTMENT

APPROVED: _____
SUSSEX COUNTY ENGINEER

SEWER TRENCH

DETAIL
S-3.01

DATE ISSUED:
12/30/2021