



May 12, 2025

Mr. Matt Jones
Department of Natural Resource and Environmental Control
Division of Water
89 Kings Highway
Dover, DE 19901

SUBJECT: Leipsic Research Dock and Storage Facility
Request for DNREC Wetlands and Subaqueous Lands Permit and WQC

Dear Mr. Jones:

On behalf of our client, DNREC Division of Fish and Wildlife (DFW), Century Engineering, Inc. (Century) is pleased to inform the Wetlands and Subaqueous Lands Section (WSLS) about the Leipsic Research Dock and Storage Facility project (project; also referred to as the “Whedbee Property Research Vessel Dock and Storage Building” project) at the eastern terminus of Lombard Street in Leipsic, Kent County, Delaware. This application package provides the documentation supporting a request for a WSLS Permit and a 401 Water Quality Certification (WQC).

The purpose of the project is to construct a new research vessel dock, fueling facility, and storage building. The proposed fixed dock is 120' long x 10' wide with a 5' x 5' hose platform at the end of a 10' wide gangway. The structure extends approximately 25.2 feet channelward of Mean Low Water (MLW) and 41.1 feet channelward of Mean High Water (MHW). The dock and gangway will require 18 support piles and will have water and electric service. The building will be 60' x 66' with a portion (20' x 66') dedicated to boat storage. The facility will not be used as a repair yard or for vessel maintenance. Construction of the dock will take place from the shore.

The dock is intended to regularly support one (1) research vessel, the First State, that is 60' long. Other vessels may be moored at the dock from time to time; however, no more than four (4) vessels will utilize the dock at any one time. The size of the dock is to ensure a second vessel could be moored if the First State is already moored. The gangway and dock width are necessary to provide space for pallet jacks and personnel to transport large equipment from the research vessel to the storage facility, and to safely use a hydraulic boat boom to move oyster equipment.

Century is engaged in ongoing coordination with the State Fire Marshal Office (SFMO) for the building plans and fuel storage tank. The project scope was reviewed with Jeff Cerri, Fire Protection Specialist, Kent Division on 12/16/2024 and a submittal process was established for site plans, building plans, fire alarm plans, and tank plans.

DFW is applying for authorization under an U.S. Army Corps of Engineers (USACE) Individual Permit Letter of Permission (IP LOP, requiring Water Quality Certification and Coastal Zone Federal Consistency) for Section 10 impacts to an estuarine, unconsolidated bottom, subtidal channel (E1UBL). DFW is also applying for authorization under a USACE Nationwide Permit (NWP) 3 for repair and slight

reconfiguration of the existing pavement. The site is depicted on State Regulated Wetlands Map #269 and is mapped as water (W) and Other; Upland or non-tidal wetlands less than 400 acres (O). The proposed project will result in 0.0354 acre of unavoidable, permanent shading to the Leipsic River. The project will not result in any loss of State regulated wetlands or waters.

Based upon the Century wetland delineation (completed March 2021) and State Tidal Wetlands Maps, the proposed activities will have the following impacts (refer to Environmental Compliance sheets included in Design Plans):

ID	IMPACT DURATION	DESCRIPTION	MAPPED RESOURCE	AREA (AC)	LOSS (AC)
O-02	PERMANENT	DOCK AND SUPPORT PILES	W	0.0354	0.000
T-08	TEMPORARY	CONSTRUCTION	W	0.0102	0.000
TOTAL STATE REGULATED WETLAND PERMANENT IMPACTS					0.0354-AC
TOTAL STATE REGULATED TEMPORARY IMPACTS					0.0102-AC
TOTAL STATE REGULATED WETLAND LOSS					0.000-AC

In a letter dated May 12, 2025, DNREC- Species Conservation and Research Program (SCRP) indicated that the project area does not lie within a State Natural Heritage Site, nor does it lie within a Delaware National Estuarine Research Reserve. The SCRP requests a work restriction April 1st to July 31st to avoid impacts to marsh nesting birds and a restriction March 1st to May 15th to allow upstream passage of young eels. In addition, the Leipsic River is utilized by anadromous fish so a time-of-year restriction on in-water work March 15th to June 30th will be followed. No in-water work will occur from March 1 through July 31 to adhere to all RTE guidance.

SCRP identified habitat on this parcel as ecologically important by the Delaware Ecological Network (DEN) and indicated portions of the project area are classified as a core area and a hub. The DEN, although non-regulatory, is a statewide conservation network developed using GIS and field collected datasets that help to identify and prioritize ecologically important areas for natural resource protection. The DEN includes ecologically important areas that will be protected to the fullest extent possible.

Consultation with USFWS indicated “No effect” to federally rare, threatened, or endangered species. The NOAA Essential Fish Habitats (EFH) mapper indicated that the project boundary intersects with EFH for 12 species and one (1) Habitat Areas of Particular Concern (HAPC). The Leipsic River provides anadromous fish habitat, so a NOAA Fisheries Greater Atlantic Regional Fisheries Office Essential Fish Habitat (EFH) Assessment & Fish and Wildlife Coordination Act (FWCA) Consultation Worksheet was included with the USACE IP application. The NOAA Section 7 mapper indicated life stages of Atlantic sturgeon and Shortnose sturgeon may occur within the vicinity of the action area. A GARFO ESA Section 7: NLAA Program Verification Form was included as supporting information for the USACE IP application.

The Delaware State Historic Preservation office (SHPO) was notified of the project on April 17, 2024. The 30-day comment period has passed, so we have assumed concurrence with our “No Adverse Effects” findings.



Should you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

CENTURY ENGINEERING, LLC, A KLEINFELDER COMPANY

A handwritten signature in black ink that reads "Missy M. Kalb".

Missy Kalb, CE
Senior Environmental Scientist

- WSL Application w/ Signature Page
- Appendix A
- Vicinity, USGS, NWI, Aerial Maps
- Design plan sheets
- RTE Correspondence
- Historical/Archaeological Correspondence
- Photolog
- Copy of USACE Individual Permit and NWP Application Packages

cc: Jeremy Ashe, DNREC
 Alex Schmidt, Century

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**

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?

<input type="checkbox"/> Yes	BASIC APPLICATION
<input type="checkbox"/> Yes	SIGNATURE PAGE (Page 3)
<input type="checkbox"/> Yes	APPLICABLE APPENDICES
<input type="checkbox"/> Yes	SCALED PLAN VIEW
<input type="checkbox"/> Yes	SCALED CROSS-SECTION OR ELEVATION VIEW PLANS
<input type="checkbox"/> Yes	VICINITY MAP
<input type="checkbox"/> Yes	COPY OF THE PROPERTY DEED & SURVEY
<input type="checkbox"/> Yes	THREE (3) COMPLETE COPIES OF THE APPLICATION PACKET
<input type="checkbox"/> 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: _____
 Mailing Address: _____

Telephone #: _____
 Fax #: _____
 E-mail: _____

2. Consultant's Name: _____
 Mailing Address: _____

Company Name: _____
 Telephone #: _____
 Fax #: _____
 E-mail: _____

3. Contractor's Name: _____
 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):

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
E. Utility Crossings	K. Jetties, Groins, Breakwaters	R. Maintenance Dredging
F. Intake or Outfall Structures	M. Activities in State Wetlands	S. New Dredging

Section 3: Project Location

7. Project Site Address: _____

County: N.C. Kent Sussex
 Site owner name (if different from applicant): _____
 Address of site owner: _____

8. Driving Directions: _____

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

9. Tax Parcel ID Number: _____ Subdivision Name: _____

WSLS Use Only:		Permit #:								
Type	SP <input type="checkbox"/>	SL <input type="checkbox"/>	SU <input type="checkbox"/>	WE <input type="checkbox"/>	WQ <input type="checkbox"/>	LA <input type="checkbox"/>	SA <input type="checkbox"/>	MP <input type="checkbox"/>	WA <input type="checkbox"/>	
Corps Permit: SPGP 18 <input type="checkbox"/> 20 <input type="checkbox"/> Nationwide Permit #: _____ Individual Permit #: _____										
Received Date: _____ Project Scientist: _____										
Fee Received? Yes <input type="checkbox"/> No <input type="checkbox"/> Amt: \$ _____ Receipt #: _____										
Public Notice #: _____ Public Notice Dates: ON _____ OFF _____										

Section 3: Project Location (Continued)

10. Name of waterbody at Project Location: _____ waterbody is a tributary to: _____

11. Is the waterbody: Tidal Non-tidal Waterbody width at mean low or ordinary high water _____12. Is the project: On public subaqueous lands? On private subaqueous lands?*
 In State-regulated wetlands? In Federally-regulated wetlands? **and waters**

*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):

_____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):

_____15. Provide the names of DNREC and/or Army Corps of Engineers representatives whom you have discussed the project with:

_____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 No17. Have you applied for or obtained a Federal permit from the Army Corps of Engineers?
 No Pending Issued Denied Date: _____

Type of Permit: _____ 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: _____

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, _____, hereby designate and authorize _____
 (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: _____ Telephone #: _____
 Mailing Address: _____ Fax #: _____
 _____ E-mail: _____

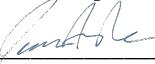
20. Agent's Signature:

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  _____ 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  _____ Date _____

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 _____

BOAT DOCKING FACILITIES

Any boat docking facility for more than four (4) vessels is considered a marina facility (see definitions and explanations section) and requires the applicant to complete Appendices N and O, and make application to the U. S. Army Corps of Engineers for approval.

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

1. Briefly describe the project. (Attach additional sheets as necessary.)

2. Please provide numbers and dimensions as follows:

Structure Type	Number of Support Pilings	Dimensions (Channelward of MHW or OHW)		Dimensions (Channelward of MLW- n/a for non-tidal water)		New, repair or maintain
Dock, Pier, Lift, gangway		Width ____ ft.	Length ____ ft.	Width ____ ft.	Length ____ ft.	
Freestanding Pilings	Number					

Mooring Buoy: How many moorings will be installed? _____

What will be used for the anchor(s)? _____

Anchor/Mooring Block Weight _____

Anchor Line Scope (Length or Ratio) _____

Water Depth at Mooring Location _____

3. Approximately how wide is the waterway at this project site? _____ ft. (measured from MLW to MLW)
4. What will be the mean low water depth at the most channelward end of the mooring facility? _____ ft.
5. What type of material(s) will be used for construction of the mooring facility (e.g. salt treated wood, aluminum, fiberglass floats, etc.) Use of creosote-treated wood is prohibited. **Aluminum dock on steel piles**
6. Circle any of the following items that are proposed over subaqueous lands:
 Fish Cleaning Stations/ Benches/ Ladders/ Water Lines/ Satellite/ Electric Lines/ Handrails/ Other (Describe)

If any of the items are circled above, include their dimensions and location on the application drawings.

7. What will be the distance from the most channelward end of the docking facility to the edge of any natural or man-made channel? _____ ft.

8. Describe the vessels that will be berthed at the docking facility. Please draw proposed vessel locations on plans and drawings. **See Environmental Compliance Plan in the design sheets. Note a second vessel is shown to demonstrate the size of the dock is needed for an additional vessel to occasionally dock at the facility with the First State.**

Make/model _____ length _____ width _____ draft _____
Make/model _____ length _____ width _____ draft _____
Make/model _____ length _____ width _____ draft _____
Make/model _____ length _____ width _____ draft _____

9. Please provide a copy of the current state registration or Coast Guard Certificate of Documentation for each motorized vessel listed above.

10. Give the number and type of each Marine Sanitation Device (e.g. MSD III, Portable toilet) that will be used on vessels to be docked at the facility. **The MSD on board is an Incinolet which burns waste onboard.**

11. Is there currently a residence on the property? _____ Yes _____ No

12. Do you plan to reach the boat docking facility from your own upland property? _____ Yes _____ No If "No", explain your proposed means of access and provide documentation of easement or documentation authorizing access if you intend to cross someone else's property.

13. Will any portion of the structure be located in privately owned underwater land (such as a pond or lagoon) owned by someone other than the applicant? _____ Yes _____ No.
If yes, written permission of the underwater land owner must be provided with this application.

14. What is the width of the waterfront property frontage adjacent to subaqueous lands? _____ ft. **frontage**
~750 ft of
Will any portion of the structure or any vessel be placed within 10 feet of your neighbor's property line?
_____ Yes _____ No
If yes, a letter of no objection from the adjacent property owner must be included with this application.

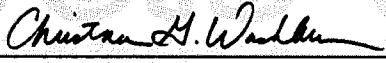


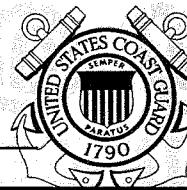
UNITED STATES OF AMERICA

DEPARTMENT OF HOMELAND SECURITY
UNITED STATES COAST GUARD

NATIONAL VESSEL DOCUMENTATION CENTER

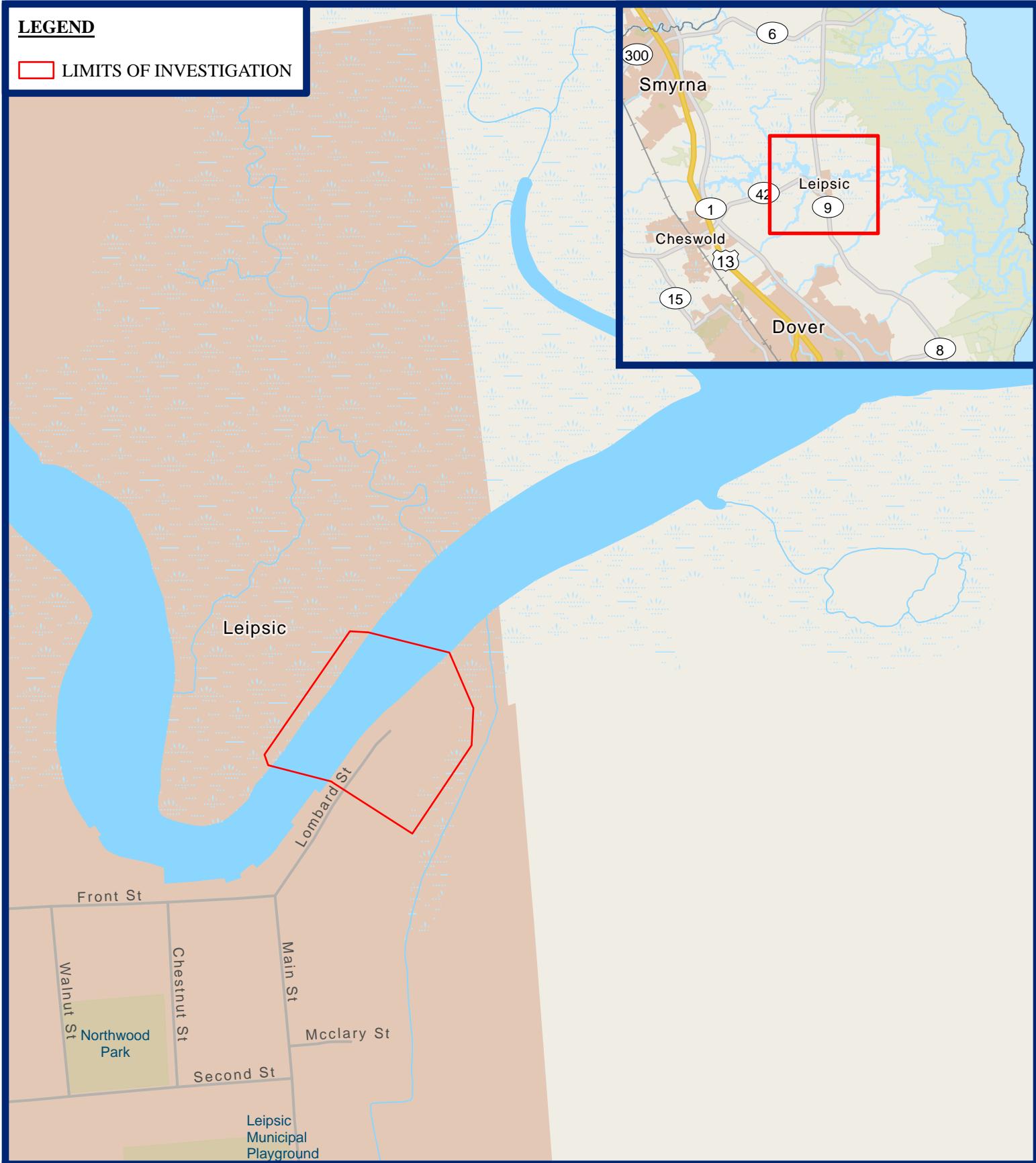
CERTIFICATE OF DOCUMENTATION

VESSEL NAME FIRST STATE		OFFICIAL NUMBER 1126487	IMO OR OTHER NUMBER DKRD3600D202	YEAR COMPLETED 2002
HAILING PORT DOVER DE		HULL MATERIAL ALUMINUM		MECHANICAL PROPULSION YES
GROSS TONNAGE 63 GRT	NET TONNAGE 50 NRT	LENGTH 62.0	BREADTH 17.0	DEPTH 9.0
PLACE BUILT MAMARONECK NY				
OWNERS STATE OF DELAWARE DIVISION OF FISH AND WILDLIFE		OPERATIONAL ENDORSEMENTS FISHERY		
MANAGING OWNER STATE OF DELAWARE DIVISION OF FISH AND WILDLIFE ATTN: VICKI RHODES 89 KINGS HIGHWAY DOVER DE 19901				
RESTRICTIONS NONE				
ENTITLEMENTS NONE				
REMARKS None				
ISSUE DATE MARCH 07, 2025				
THIS CERTIFICATE EXPIRES MARCH 31, 2026		 DIRECTOR, NATIONAL VESSEL DOCUMENTATION CENTER		



LEGEND

 LIMITS OF INVESTIGATION



LEGEND

 LIMITS OF INVESTIGATION



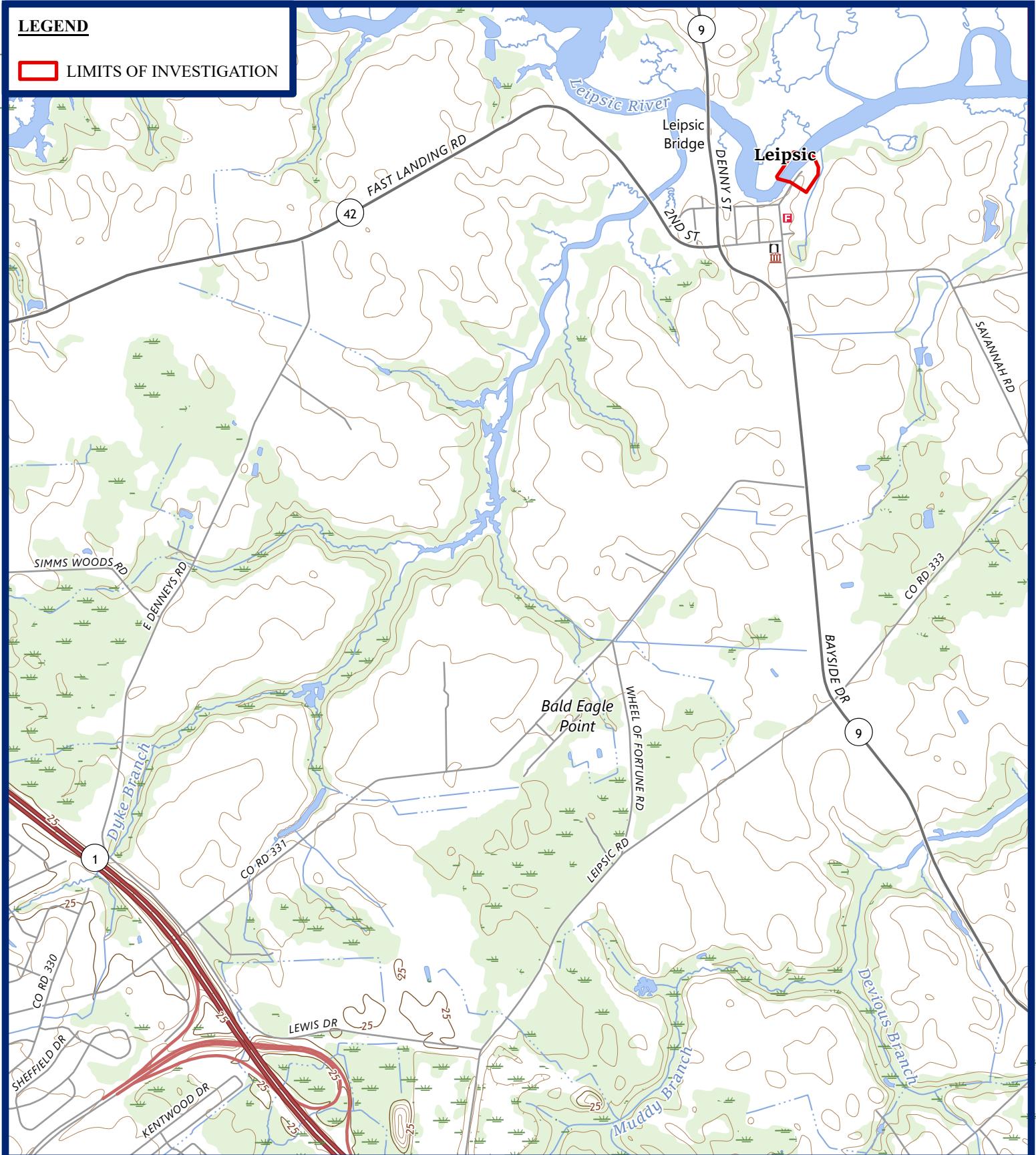
550 Bay Road
Dover, DE 19901
P: 302.734.9188

AERIAL IMAGERY
LEIPSIC RESEARCH DOCK FACILITY
KENT COUNTY, DELAWARE

Aerial Imagery Source: FirstMap (2022)
ArcGIS Online

N

1 inch = 200 feet

LEGEND LIMITS OF INVESTIGATION

CENTURY
ENGINEERING

A Kleinfelder Company

550 Bay Road
Dover, DE 19901
P: 302.734.9188

USGS TOPOGRAPHIC
QUADRANGLE MAP
LEIPSIC RESEARCH DOCK FACILITY
KENT COUNTY, DELAWARE

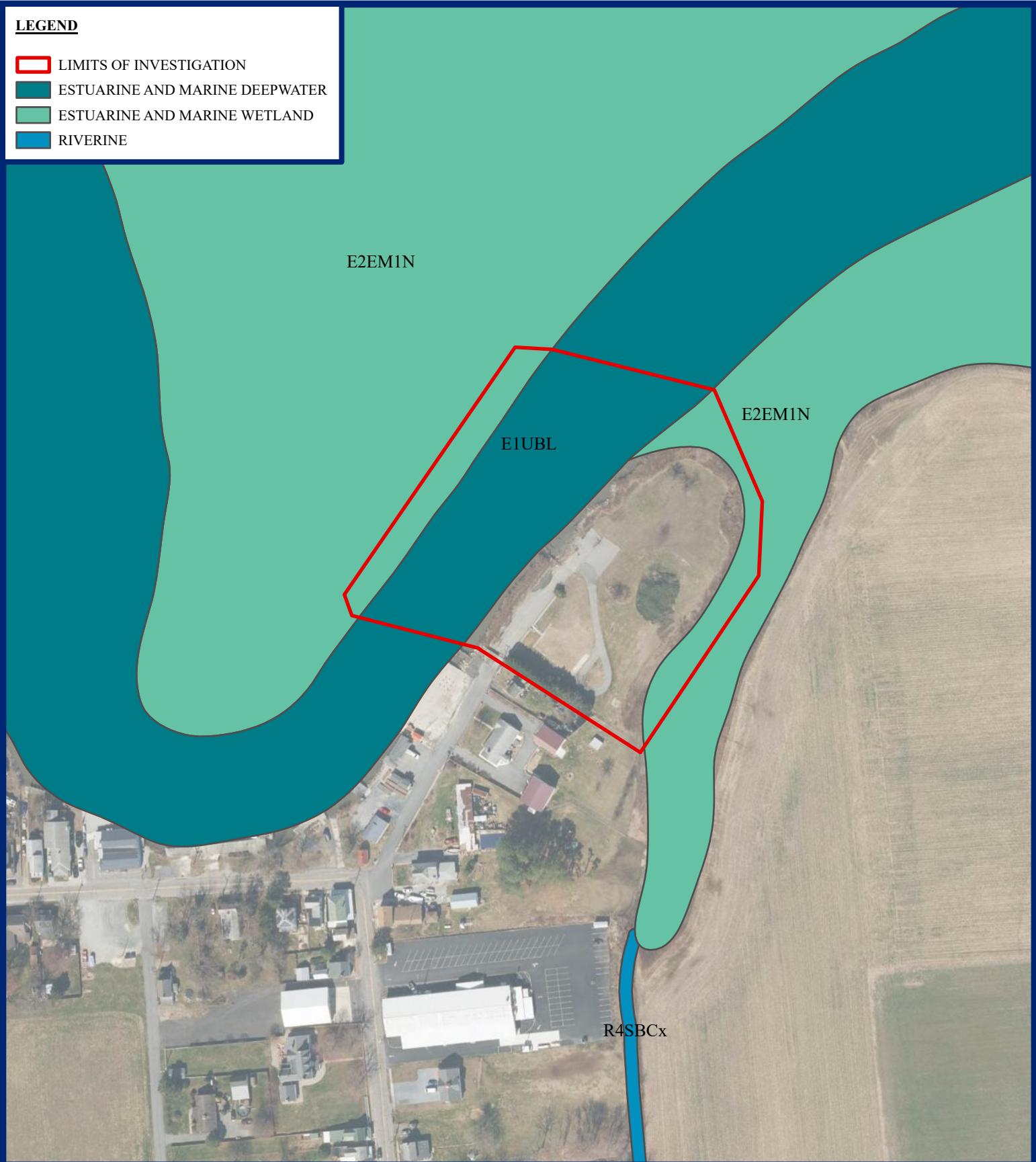
USGS Topo Quads:
DOVER (DE)

Area: 5.73 +/- AC
Latitude: 39°14'33.0"N
Longitude: 75°30'45.8"W
Elevation: ~0-10 feet
Scale: 1:24,000



LEGEND

- LIMITS OF INVESTIGATION
- ESTUARINE AND MARINE DEEPWATER
- ESTUARINE AND MARINE WETLAND
- RIVERINE



STATE OF DELAWARE
DIVISION OF FISH AND WILDLIFE

LEIPSIC RESEARCH DOCK FACILITY

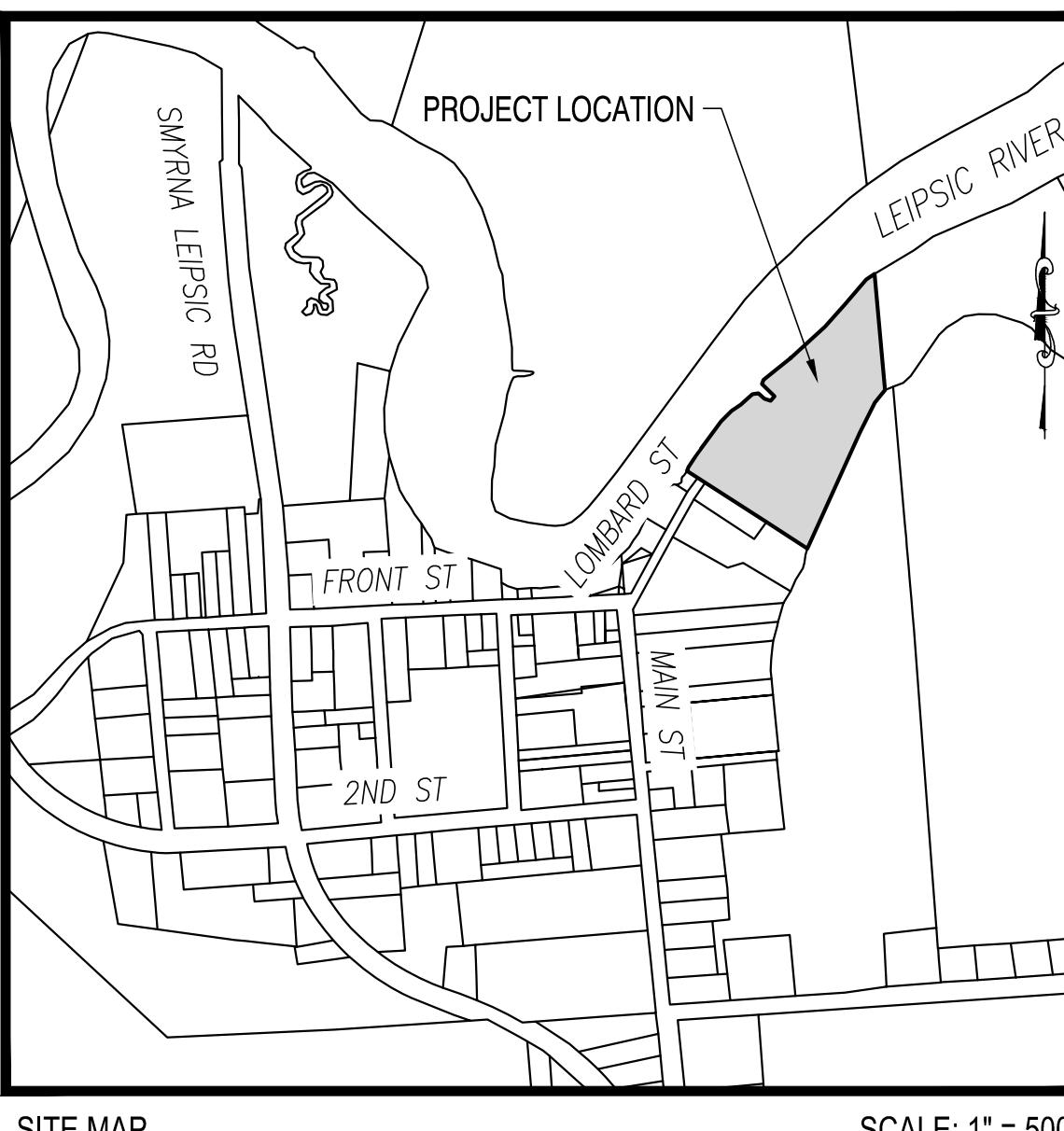
LEIPSIC, KENT COUNTY, DELAWARE

DFW CONTRACT #NAT 202301-LEIPSICRESEARCHDOCK

99% DESIGN REVIEW PLAN SET



LOCATION MAP SCALE: NTS



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DATA COLUMN																			
1. TAX PARCEL NUMBER:	4-13-03910-01-3100-00001																		
2. TAX PARCEL AREA:	4.45 ACRES																		
3. ADDRESS OF SITE:	86 LOMBARD ST LEIPSIC, DE 19901																		
4. DATUM:	VERTICAL - NAVD88 HORIZONTAL - NAD83																		
5. FLOODPLAIN MAP:	PER FEMA MAP NO. 10001C0157J, DATED JULY 7, 2014 THE MAJORITY OF THE SITE PARCEL IS DETERMINED TO BE WITHIN ZONE AE (1% ANNUAL CHANCE FLOOD HAZARD). IN ADDITION, A PORTION OF THE SITE IS LOCATED IN THE 0.2% ANNUAL CHANCE FLOOD HAZARD (BASE FLOOD ELEVATION DETERMINED: ELEV.: 8).																		
6. SITE BREAKDOWN:	<table> <tr> <td>EXISTING SITE</td> <td></td> </tr> <tr> <td>IMPERVIOUS:</td><td>0.465 ± ACRES</td> </tr> <tr> <td>OPEN SPACE:</td><td>3.986 ± ACRES</td> </tr> <tr> <td>OVERALL TOTAL:</td><td>4.451 ± ACRES</td> </tr> <tr> <td>PROPOSED SITE</td><td></td> </tr> <tr> <td>IMPERVIOUS:</td><td>0.562 ± ACRES</td> </tr> <tr> <td>OPEN SPACE:</td><td>3.889 ± ACRES</td> </tr> <tr> <td>OVERALL TOTAL:</td><td>4.451 ± ACRES</td> </tr> <tr> <td colspan="2">PROPOSED INCREASE IN IMPERVIOUS AREA: 0.097 ACRES</td></tr> </table>	EXISTING SITE		IMPERVIOUS:	0.465 ± ACRES	OPEN SPACE:	3.986 ± ACRES	OVERALL TOTAL:	4.451 ± ACRES	PROPOSED SITE		IMPERVIOUS:	0.562 ± ACRES	OPEN SPACE:	3.889 ± ACRES	OVERALL TOTAL:	4.451 ± ACRES	PROPOSED INCREASE IN IMPERVIOUS AREA: 0.097 ACRES	
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OPEN SPACE:	3.986 ± ACRES																		
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OPEN SPACE:	3.889 ± ACRES																		
OVERALL TOTAL:	4.451 ± ACRES																		
PROPOSED INCREASE IN IMPERVIOUS AREA: 0.097 ACRES																			
7. TOTAL LAND DISTURBANCE:	THE TOTAL LAND DISTURBANCE PROPOSED BY THIS PLAN IS 0.932± ACRES																		

WETLAND DELINEAT

THIS PROPERTY, TAX MAP 4-13-03910-01-3100-00001, HAS BEEN EXAMINED BY CENTURY ENGINEERING, LLC. FOR PRESENCE OF WATERS OF THE UNITED STATES, INCLUDING WETLANDS (SECTION 404 AND SECTION 10), STATE SUBAQUEOUS LANDS AND STATE REGULATED WETLANDS AS ESTABLISHED BY THE REVIEWING AGENCIES IN THE FORM OF MANUALS, POLICIES AND PROCEDURES IN PLACE AT THE TIME THAT THE INVESTIGATION AS CONDUCTED. THE WETLAND INFORMATION CONTAINED IN THIS PLAN SET IS IN ACCORDANCE WITH THIS CRITERIA. THE WETLAND DELINEATION FOR THIS PROJECT WAS COMPLETED BY CENTURY ENGINEERING, LLC.

MATT FETTERS, PWS
CENTURY ENGINEERING, LLC.
550 BAY ROAD
DOVER, DELAWARE 19901
PHONE: (302) 734-9188 / FAX: (302) 734-4

OWNER CERTIFICATE

I, JEREMY ASHE, CERTIFY THAT ALL LAND CLEARING, CONSTRUCTION AND DEVELOPMENT SHALL BE DONE PURSUANT TO THE APPROVED STANDARD PLAN AND THAT RESPONSIBLE PERSONNEL (I.E., BLUE CARD HOLDER) INVOLVED IN THE LAND DISTURBANCE WILL HAVE A CERTIFICATION OF TRAINING PRIOR TO INITIATION OF THE PROJECT, AT A DNREC SPONSORED OR APPROVED TRAINING COURSE FOR THE CONTROL OF EROSION AND SEDIMENT DURING CONSTRUCTION. IN ADDITION, I GRANT THE DNREC SEDIMENT AND STORMWATER PROGRAM AND/OR THE RELEVANT DELEGATED AGENCY THE RIGHT TO CONDUCT ON-SITE REVIEWS.

CERTIFICATION OF PLAN ACCURACY

I, ARTHUR LANCE WILGUS, HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE COMPLIES WITH THE APPLICABLE STATE AND LOCAL REGULATIONS AND ORDINANCES.

DATE _____

JEREMY ASHE – CONSTRUCTION MANAGER
STATE OF DELAWARE
DELAWARE DIVISION OF FISH & WILDLIFE
89 KINGS HIGHWAY
DOVER, DE 19901
PHONE: (302) 632-5404

ARTHUR LANCE WILGUS, P.E., DE NO. 6538
CENTURY ENGINEERING, LLC.
550 BAY ROAD
DOVER, DELAWARE 19901
PHONE: (302) 734-9188 / FAX: (302) 734-4589

DATE

DELAWARE

SICRESEARCHDOCK

PLAN SET

8. TOPOGRAPHY: TOPOGRAPHY TAKEN FROM SITE SURVEY PERFORMED BY CENTURY ENGINEERING, LLC. IN NOVEMBER 2023	11. APPLICANT STATE OF DELAWARE DIVISION OF FISH AND WILDLIFE 89 KINGS HIGHWAY DOVER, DE 19901 JEREMY ASHE (302) 739-9921/JEREMY.ASHE@DELAWARE.GOV
9. WETLANDS: A SITE INVESTIGATION PERFORMED BY CENTURY ENGINEERING, LLC. ON NOVEMBER 2023, FOUND THAT STATE AND FEDERALLY REGULATED WETLANDS AND WATERS WERE LOCATED WITHIN THE SITE AREA.	12. ENGINEER: CENTURY ENGINEERING, LLC. 550 BAY ROAD DOVER, DE 19901 ARTHUR LANCE WILGUS, P.E. (302) 734-9188/ LWILGUS@KLEINFELDER.COM
10. OWNER/DEVELOPER: STATE OF DELAWARE DIVISION OF FISH AND WILDLIFE 89 KINGS HIGHWAY DOVER, DE 19901	

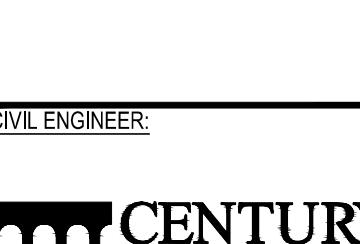
THE APPROVED STANDARD PLAN CERTIFICATION OF TRAINING PRIOR TO THE BEST OF MY KNOWLEDGE COMPLIES WITH THE APPLICABLE STATE AND LOCAL REGULATIONS AND ORDINANCES.	CERTIFICATION OF PLAN ACCURACY
	I, ARTHUR LANCE WILGUS, HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE COMPLIES WITH THE APPLICABLE STATE AND LOCAL REGULATIONS AND ORDINANCES.

DATE

ARTHUR LANCE WILGUS, P.E., DE NO. 6538
CENTURY ENGINEERING, LLC.
550 BAY ROAD
DOVER, DELAWARE 19901
PHONE: (302) 734-9188 / FAX: (302) 734-4589

INDEX OF SHEETS	
SHEET NUMBER	SHEET TITLE
C100	COVER SHEET
C101	LEGEND & NOTES
C102	EXISTING CONDITIONS
C103	DEMOLITION PLAN
C104	SITE LAYOUT
C105	GRADING
C106	DOCK DETAILS
C107	DOCK DETAILS
C108	SITE DETAILS
C109	SITE DETAILS
C110	FIRE MARSHAL PLAN (SITE)
C111	FIRE MARSHAL PLAN (DOCK)
C112	ENVIRONMENTAL COMPLIANCE PLAN
C113	ENVIRONMENTAL COMPLIANCE PLAN
C114	EROSION AND SEDIMENT CONTROL PLAN
C115	E&S DETAILS
C116	E&S DETAILS
C117	E&S DETAILS
C118	E&S DETAILS
S001	GENERAL NOTES & ABBRREVIATIONS
S002	DESIGN PARAMETERS & SCHEDULES
S100	FOUNDATION & MEZZANINE PLAN
S301	SECTIONS & DETAILS
S501	TYPICAL DETAILS
A001	ABBREVIATIONS, SYMBOLES & CODE SUMMARY
A100	FIRST FLOOR CONSTRUCTION PLAN & LIFT DETAILS
A101	MEZZANINE CONSTRUCTION & STAIR DETAILS
A102	REFLECTED CEILING PLANS, ROOF PLANS & ROOF DETAILS
A201	BUILDING ELEVATIONS
A301	BUILDING SECTIONS
A302	WALL SECTIONS
A303	WALL SECTIONS
A401	ENLARGED BATHROOM PLAN & ELEVATIONS
M001	SYMBOLS, NOTES & ABBREVIATIONS
M101	FLOOR PLANS - MECHANICAL
M501	MECHANICAL DETAILS
M701	MECHANICAL SCHEDULE
P001	SYMBOLS, NOTES & ABBREVIATIONS
P101	FLOOR PLAN - PLUMBING
P102	LOFT PLAN AND ISOMETRIC PLAN - PLUMBING
P701	PLUMBING SCHEDULE
E001	ELECTRICAL NOTES & ABBREVIATIONS
E002	ELECTRICAL SYMBOLS
E010	ELECTRICAL SITE PLAN
E101	FLOOR PLANS - LIGHTING
E102	FLOOR PLANS - POWER
E103	FLOOR PLANS - FIRE ALARM
E501	ELECTRICAL DETAILS
E601	ELECTRICAL RISER DIAGRAMS
E701	ELECTRICAL SCHEDULES



<u>SEAL:</u>	
<u>CIVIL ENGINEER:</u>	
	







BUILDING POINT LAYOUT			
POINT NO.	NORTHING	EASTING	DESCRIPTION
201	452471.8746	628936.5489	BUILDING
202	452447.4258	628968.2345	BUILDING
203	452435.2292	628984.0853	BUILDING
204	452487.4956	629024.3909	BUILDING
205	452499.7308	629008.5452	BUILDING
206	452524.1654	628976.8636	BUILDING

CONCRETE POINT LAYOUT			
POINT NO.	NORTHING	EASTING	DESCRIPTION
301	452471.5179	628933.7866	CONCRETE
302	452445.8660	628967.0639	CONCRETE
303	452432.4451	628984.4458	CONCRETE
304	452450.6328	628970.6851	CONCRETE
305	452453.8004	628973.1277	CONCRETE
306	452495.6757	629005.4184	CONCRETE
307	452503.6657	629011.5778	CONCRETE
308	452501.5467	629006.1737	CONCRETE
309	452505.5063	629009.2269	CONCRETE
310	452511.3171	628993.5032	CONCRETE
311	452515.2766	628996.5565	CONCRETE
312	452513.1490	628991.1275	CONCRETE
313	452515.6184	628987.9502	CONCRETE
314	452519.5499	628991.0130	CONCRETE
315	452528.0828	628979.9131	CONCRETE
316	452532.3525	628974.3998	CONCRETE
317	452528.4152	628971.3299	CONCRETE
318	452495.2275	628954.5544	CONCRETE
319	452499.4656	628949.0312	CONCRETE
320	452505.0663	628941.7533	CONCRETE
321	452501.1411	628938.7383	CONCRETE
322	452491.2576	628951.4921	CONCRETE
323	452492.4789	628949.9082	CONCRETE
501	452483.5694	628871.1015	CONCRETE
502	452476.2581	628880.5774	CONCRETE
503	452500.1929	628883.9028	CONCRETE
504	452492.8652	628893.4056	CONCRETE
505	452534.6212	628910.4839	CONCRETE
506	452525.4786	628922.3426	CONCRETE
507	452542.5375	628916.5877	CONCRETE
508	452533.3976	628928.4490	CONCRETE

ASPHALT POINT LAYOUT			
POINT NO.	NORTHING	EASTING	DESCRIPTION
401	452439.9877	628987.7486	ASPHALT
402	452454.2419	628998.7403	ASPHALT
403	452433.8812	628995.6677	ASPHALT
404	452448.1355	629006.6593	ASPHALT
405	452428.9960	629002.0029	ASPHALT
406	452443.2503	629012.9945	ASPHALT
407	452399.0743	629040.8061	ASPHALT
408	452409.3691	629048.7445	ASPHALT
409	452410.2754	629055.7573	ASPHALT
410	452407.2221	629059.7168	ASPHALT
411	452416.7250	629067.0446	ASPHALT
412	452418.2738	629065.0360	ASPHALT
413	452420.8657	629063.2799	ASPHALT
414	452496.6987	629041.7158	ASPHALT
415	452502.1691	629060.9532	RADIUS: 20'
416	452514.3821	629045.1151	ASPHALT
417	452529.3473	629056.6550	ASPHALT
418	452541.5602	629040.8169	RADIUS: 20'
419	452547.2125	629060.0016	ASPHALT
420	452581.9915	629049.7548	ASPHALT
421	452590.4699	629078.5319	RADIUS: 30'
422	452608.7893	629054.7748	ASPHALT
423	452641.8909	629080.2999	ASPHALT
424	452676.0620	629035.9549	ASPHALT
425	452600.0277	628977.3369	ASPHALT
426	452597.7080	628959.0981	ASPHALT
427	452474.9800	628864.4845	ASPHALT
428	452456.5833	628893.1620	ASPHALT
429	452508.5218	628933.2120	ASPHALT
430	452567.6144	628978.7919	ASPHALT
431	452560.2694	628988.3164	RADIUS: 21'
432	452569.7943	628995.6396	ASPHALT
433	452566.5364	628999.8690	ASPHALT
434	452549.2983	628986.1651	RADIUS: 22'
435	452535.8451	629003.6005	ASPHALT

GENERAL NOTES

1. FENCE AND GATE SHALL BE INSTALLED 3' INSIDE OF THE EXISTING CLEANOUT EXCEPT THE PORTION OF THE FENCE BETWEEN THE GATE LATCH POST AND THE EXISTING WOOD FENCE.
2. KENT COUNTY PUBLIC WORKS HAS RESPONSIBILITIES FOR THE SANITARY SEWER LATERAL BETWEEN AT THE EXISTING CLEANOUT LOCATED NEAR THE PROPERTY LINE AND THE DOWNSTREAM MANHOLE. THE SANITARY SEWER LATERAL BETWEEN THE SAME CLEANOUT AND THE BUILDING ARE PRIVATE OWNER RESPONSIBILITY.
3. THE CONTRACTOR SHALL HAVE THE EXISTING SANITARY SEWER LATERAL CAMERA INSPECTED BY A PROFESSIONAL PIPE INSPECTION COMPANY AND WILL COORDINATE WITH THE KENT COUNTY INSPECTOR FOR THEIR PRESENCE TO WITNESS THE CAMERA INSPECTION.
4. THE CONTRACTOR MUST HAVE A PRE-CONSTRUCTION MEETING WITH THE KENT COUNTY SANITARY SEWER INSPECTOR PRIOR TO CONSTRUCTION OF ANY SANITARY SEWER ITEMS. KENT COUNTRY PUBLIC WORKS DEPARTMENT PHONE NUMBER IS (302) 744-2430.
5. ON BEHALF OF THE OWNER, THE CONTRACTOR SHALL FILL OUT AND SUBMIT AN ABOVE GROUND STORAGE TANK FORM TO DNREC TANK COMPLIANCE A MINIMUM OF 14 DAYS PRIOR TO PROPOSED TANK INSTALLATION AND OBTAIN A TANK ID NUMBER.

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SITE LAYOUT

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BY:
ALW

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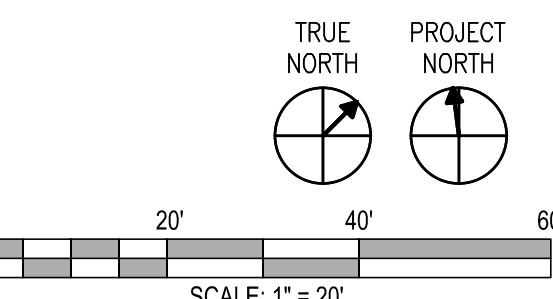
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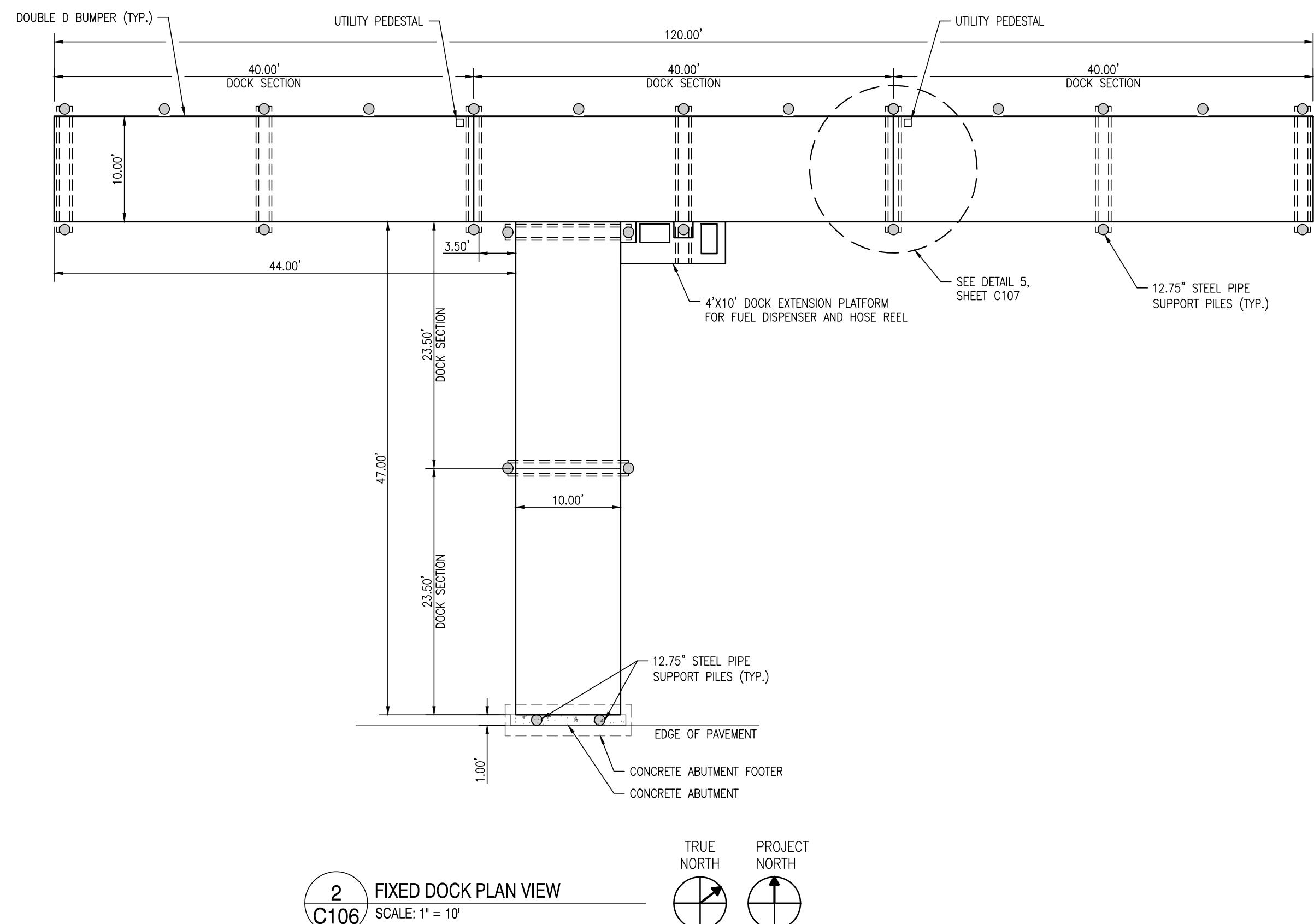
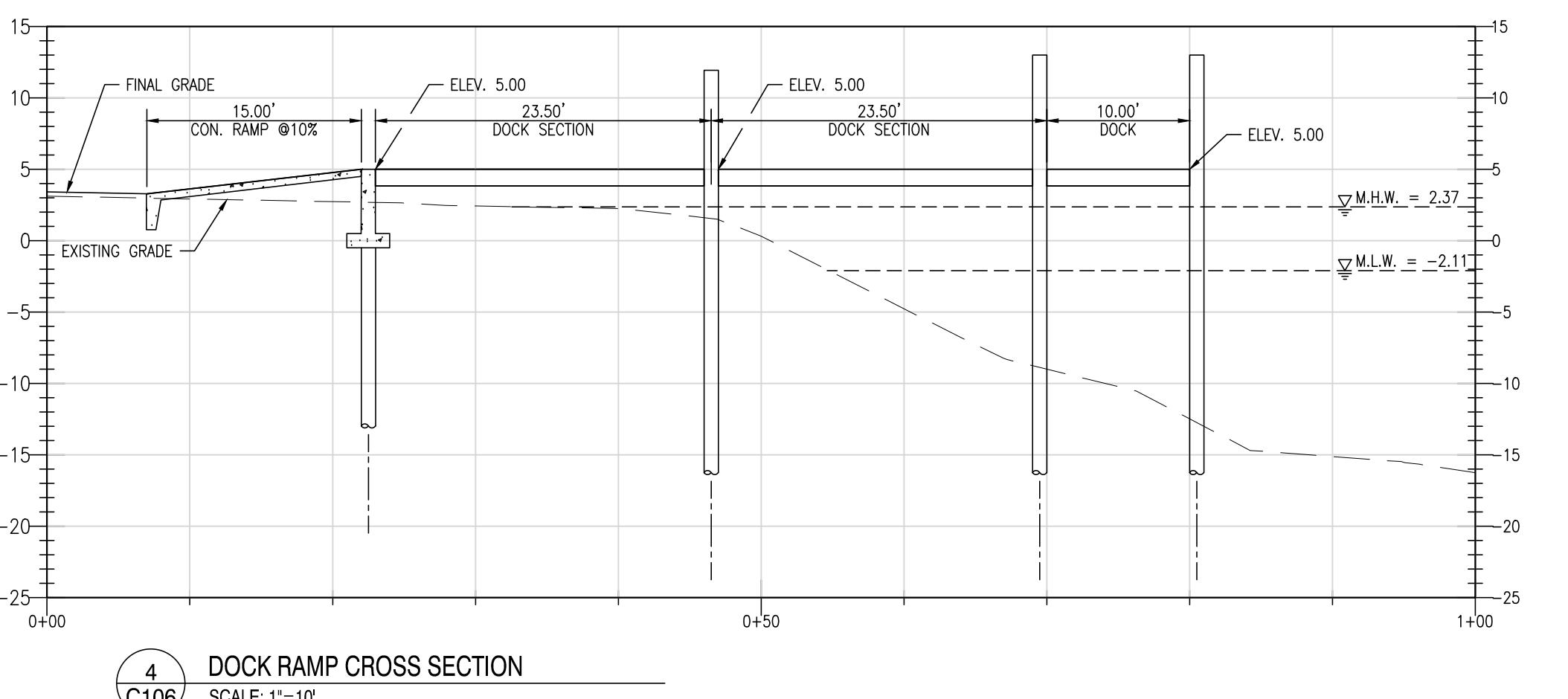
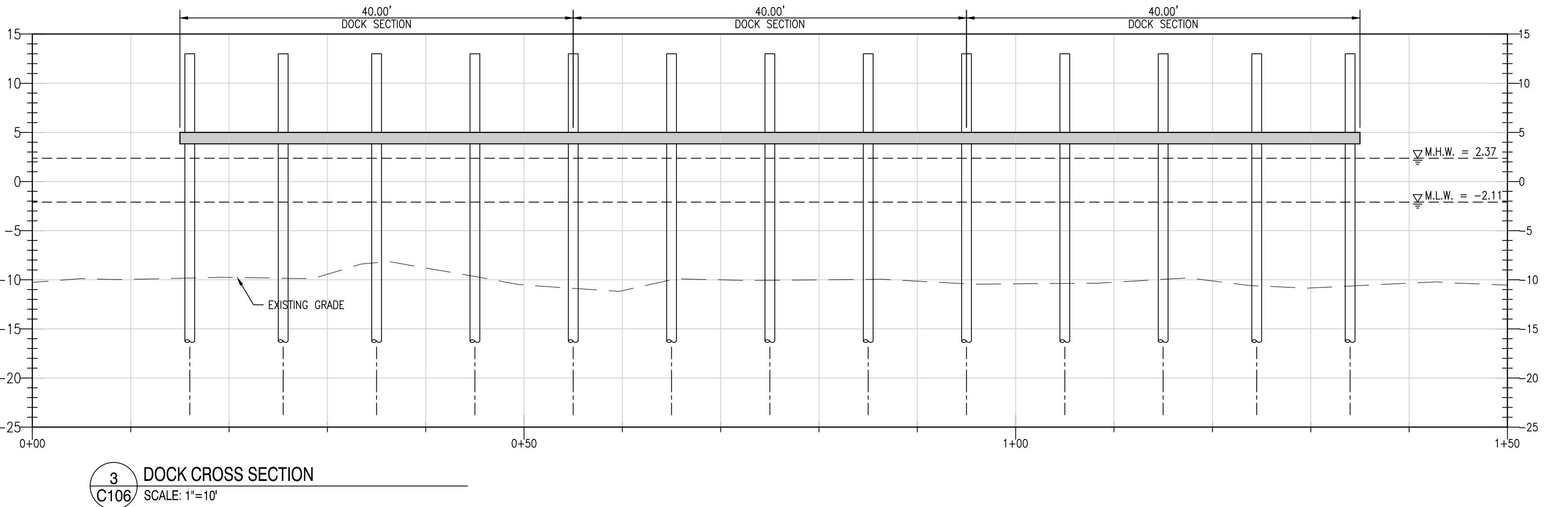
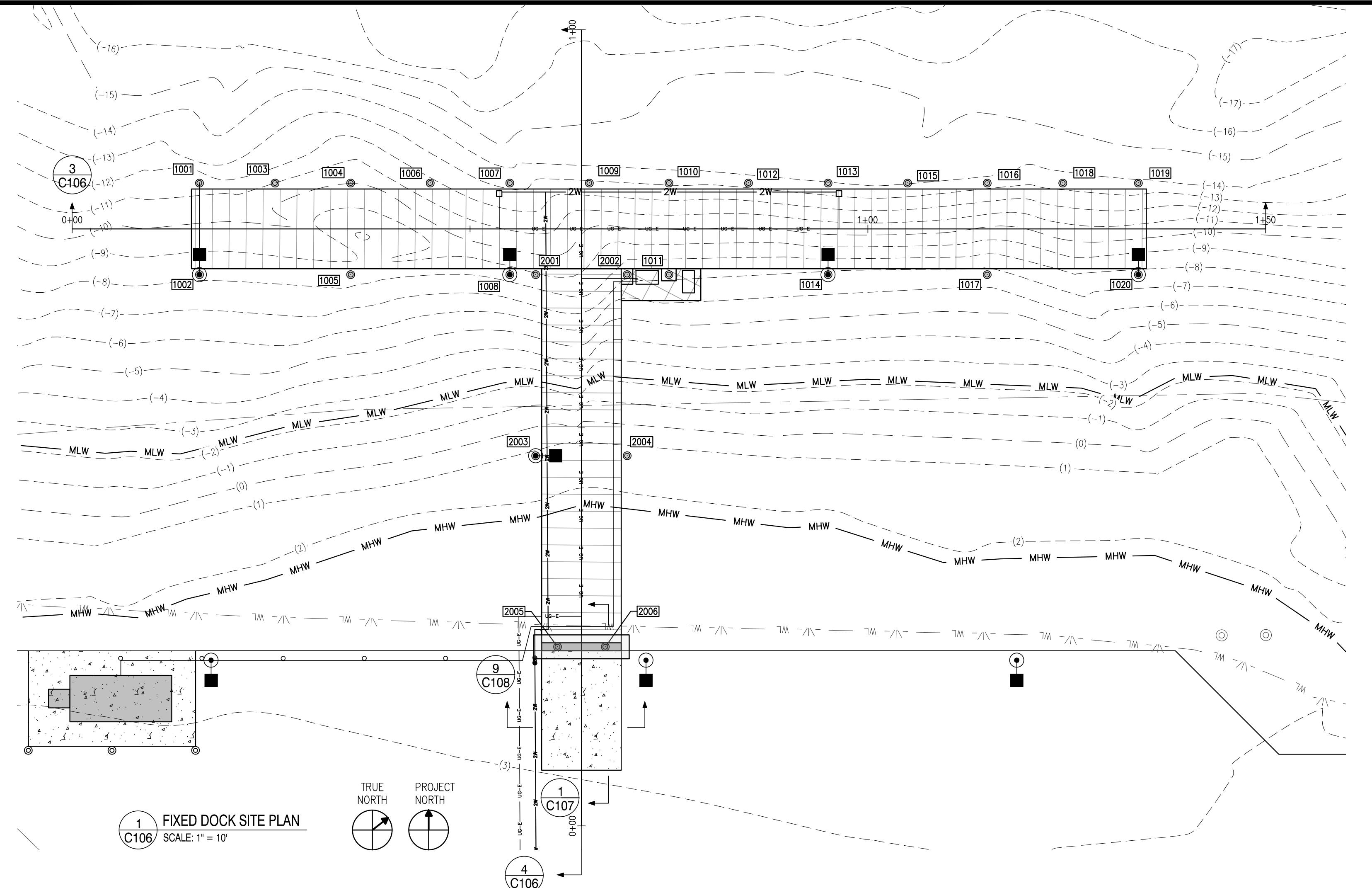
1" = 2

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C104





PILE LAYOUT TABLE					
PILE NO.	NORTHING**	EASTING**	TOP ELEV.	EST. TIP ELEV.	PILE LENGTH* (FT)
1001	45256.459	62883.7652	13.00	-60.00	73.00
1002	45259.4369	62884.6792	13.00	-60.00	73.00
1003	45254.9825	62884.3464	13.00	-60.00	73.00
1004	45255.1055	62884.2875	13.00	-60.00	73.00
1005	45254.4831	62885.3944	13.00	-60.00	73.00
1006	45259.4246	62885.3940	13.00	-60.00	73.00
1007	45257.3430	62886.5005	13.00	-60.00	73.00
1008	45260.3212	62887.0674	13.00	-60.00	73.00
1009	45255.2626	62886.7609	13.00	-60.00	73.00
1010	45258.1817	62887.3134	13.00	-60.00	73.00
1011	45257.1592	62888.2803	13.00	-60.00	73.00
1012	45259.1007	62887.9199	13.00	-60.00	73.00
1013	45259.0197	62888.9263	13.00	-60.00	73.00
1014	45259.1973	62889.5032	13.00	-60.00	73.00
1015	45260.6387	62889.0328	13.00	-60.00	73.00
1016	45261.4857	62889.8193	13.00	-60.00	73.00
1017	45260.7353	62890.7462	13.00	-60.00	73.00
1018	45262.2389	62890.3940	13.00	-60.00	73.00
1019	45262.9039	62890.7416	13.00	-60.00	73.00
1020	45262.8815	62891.8485	13.00	-60.00	73.00
2001	45256.8948	62887.5920	13.00	-60.00	73.00
2002	45257.2017	62887.9144	13.00	-60.00	73.00
2003	45254.0039	62889.0061	13.00	-60.00	73.00
2004	45255.1108	62889.7285	13.00	-60.00	73.00
2005	45256.5274	62891.2894	0.75	-37.25	38.00
2006	45254.1278	62891.9532	0.75	-37.25	38.00

* NOTE: PILE LENGTH COLUMN INDICATES MINIMUM PILE LENGTH TO BE ORDERED BY THE CONTRACTOR. ANY EXCESS PILE LENGTHS SHALL BE TRIMMED AS NEEDED. IF AN IMPACT HAMMER IS USED IN-LIEU OF A VIBRATORY HAMMER, FIVE (5) LESS FEET OF EMBEDMENT SHALL BE REQUIRED.

** MINIMUM EMBEDMENT DEPTHS SHALL BE MEASURED FROM THE POINT AFTER WEIGHT OF HAMMER MOVEMENT HAS STOPPED.

** AT ELEVATION 5.0

FIXED DOCK NOTES

1. THE GATOR DOCK COMPONENTS OF THE NEW FIXED ALUMINUM DOCK SHOWN ON THESE PLANS ARE FOR GENERAL INFORMATION ONLY.
2. THE OWNER WILL PROVIDE, AND THE CONTRACTOR SHALL SCHEDULE THE DELIVERY OF, HANDLE, STORE, AND INSTALL, ALL NEW FIXED ALUMINUM DOCK COMPONENTS MANUFACTURED BY GATOR DOCK, INCLUDING DECKS, HEADERS, AND MISCELLANEOUS COMPONENTS AS INDICATED ON THE GATOR DOCK SHOP DRAWINGS SEPARATELY PROVIDED BY OWNER FOR THIS PROJECT.
3. TOP AND TIP ELEVATIONS OF STEEL PIPE PILES FOR FIXED DOCK PROVIDED ON THIS SHEET.
4. ALL ALUMINUM DOCK, HEADER CHANNELS, AND ANCILLARY ITEMS SHALL BE PROVIDED BY THE OWNER. HEADER CHANNELS WILL BE ONE (1) FOOT LONGER THAN THE PLAN LENGTH AND CUT IN THE FIELD BY THE CONTRACTOR.
5. FIXED DOCK GALVANIZED PIPE PILES SHALL BE DRIVEN TO MINIMUM EMBEDMENT REQUIREMENTS.
6. DOCK PIPE PILES SHALL BE 12.75-INCH DIAMETER CLOSED-END, ASTM A690, GALVANIZED IN ACCORDANCE WITH ASTM A123.
7. ABUTMENT PIPE PILES SHALL BE 12.75-INCH DIAMETER CLOSED-END, ASTM A690, GALVANIZED IN ACCORDANCE WITH ASTM A123.
8. SEE MANUFACTURER'S SHOP DRAWINGS FOR ADDITIONAL ALUMINUM DOCK DETAILS.
9. IF PILE DRIVING IS OCCURRING DURING THE IN-WATER WORK RESTRICTIONS A SOFT START IS REQUIRED. IT IS PREFERRED THAT VIBRATORY PILE INSTALLATION METHODS ARE USED. IF VIBRATORY PILE INSTALLATION CAN NOT BE COMPLETED IMPACT PILE DRIVING IS ALLOWED.
10. FOR IMPACT PILE INSTALLATION, PILE DRIVING WILL BE INITIATED FOR 15 SECONDS AT REDUCED ENERGY FOLLOWED BY A ONE-MINUTE WAIT PERIOD. THIS SEQUENCE OF 15 SECONDS OF REDUCED ENERGY DRIVING AND ONE-MINUTE WAIT PERIOD WILL BE REPEATED TWO ADDITIONAL TIMES, FOLLOWED IMMEDIATELY BY PILE-DRIVING AT FULL RATE AND ENERGY.
11. FOR IMPACT PILE DRIVING: PILE DRIVING WILL COMMENCE WITH AN INITIAL SET OF THREE STRIKES BY THE HAMMER AT 40% ENERGY, FOLLOWED BY A ONE-MINUTE WAIT PERIOD, THEN TWO SUBSEQUENT 3-STRIKE SETS AT 40% ENERGY, WITH ONE-MINUTE WAITING PERIODS, BEFORE INITIATING CONTINUOUS IMPACT DRIVING.
12. IN ADDITION TO USING A SOFT START AT THE BEGINNING OF THE WORK DAY FOR PILE DRIVING, ONE MUST ALSO BE USED AT ANY TIME FOLLOWING CESSION OF PILE DRIVING FOR A PERIOD OF 30 MINUTES OR LONGER.

REVISIONS:	BY:
DATE:	DESCRIPTION:
LEIPSIC RESEARCH DOCK FACILITY	
DOCK DETAILS	
SEAL:	
CIVIL ENGINEER:	
CENTURY ENGINEERING A Kleinfelder Company	
DESIGNED BY:	ALW
DRAWN BY:	DFS
CHECKED BY:	ALW
DATE:	11-07-2025
SCALE:	AS SHOWN
SHEET NO.:	C106
PROJECT NO.:	00175013.092A

DOCK DETAILS

LEIPSIC RESEARCH DOCK FACILITY

REVISIONS:

DATE: _____ BY: _____

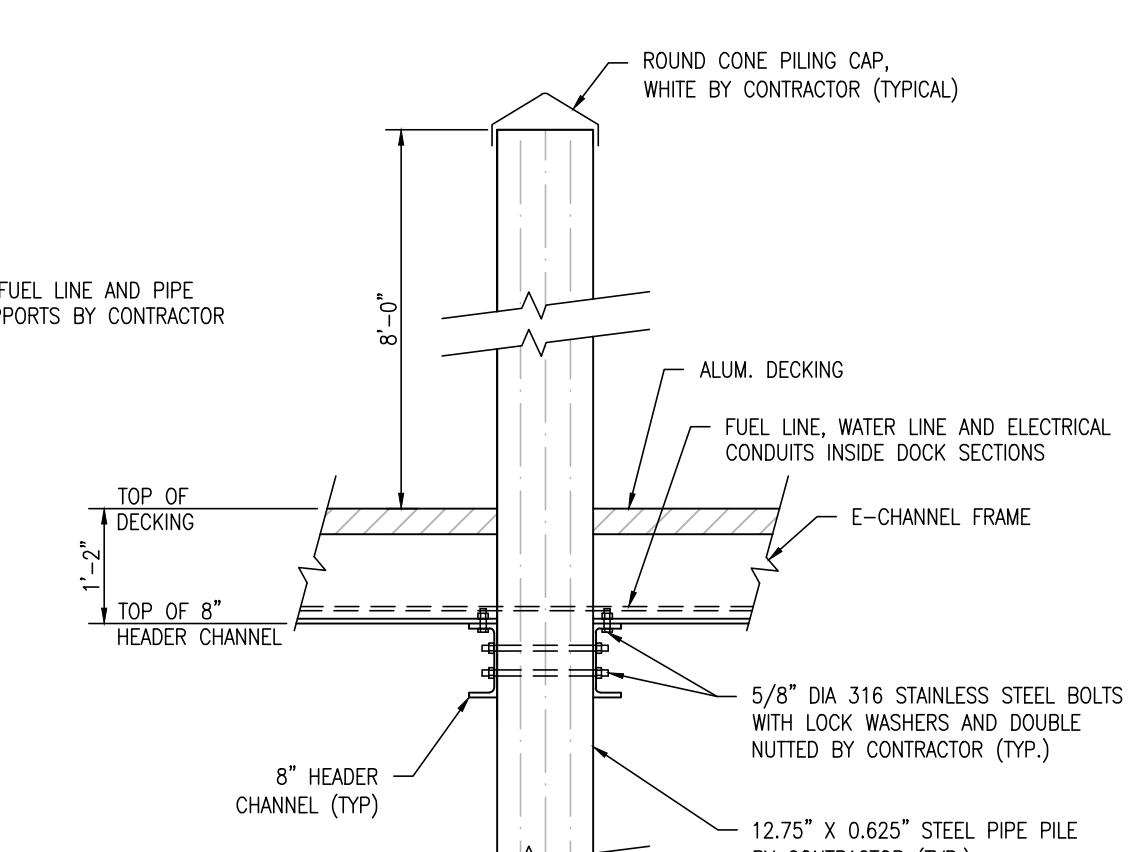
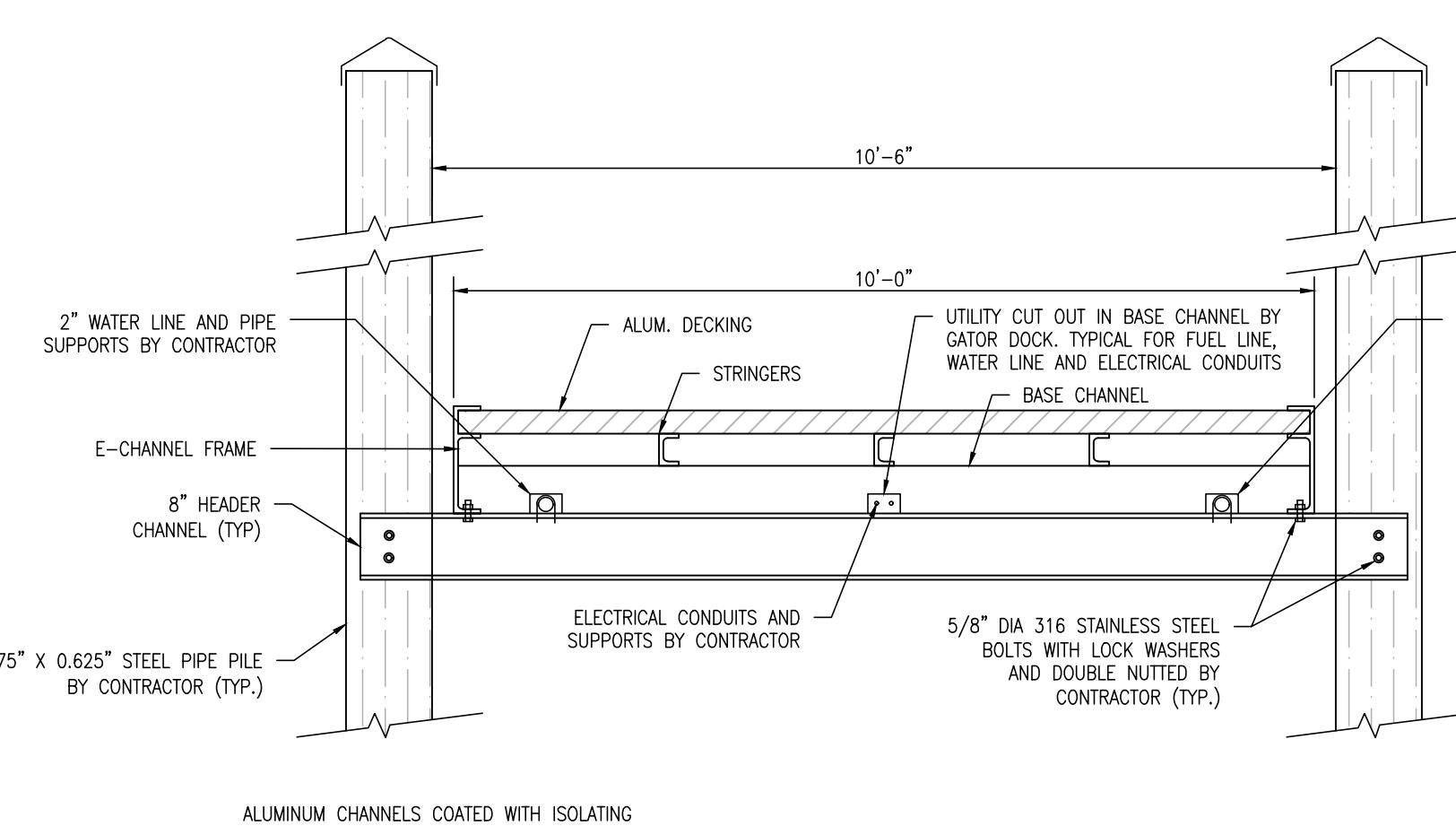
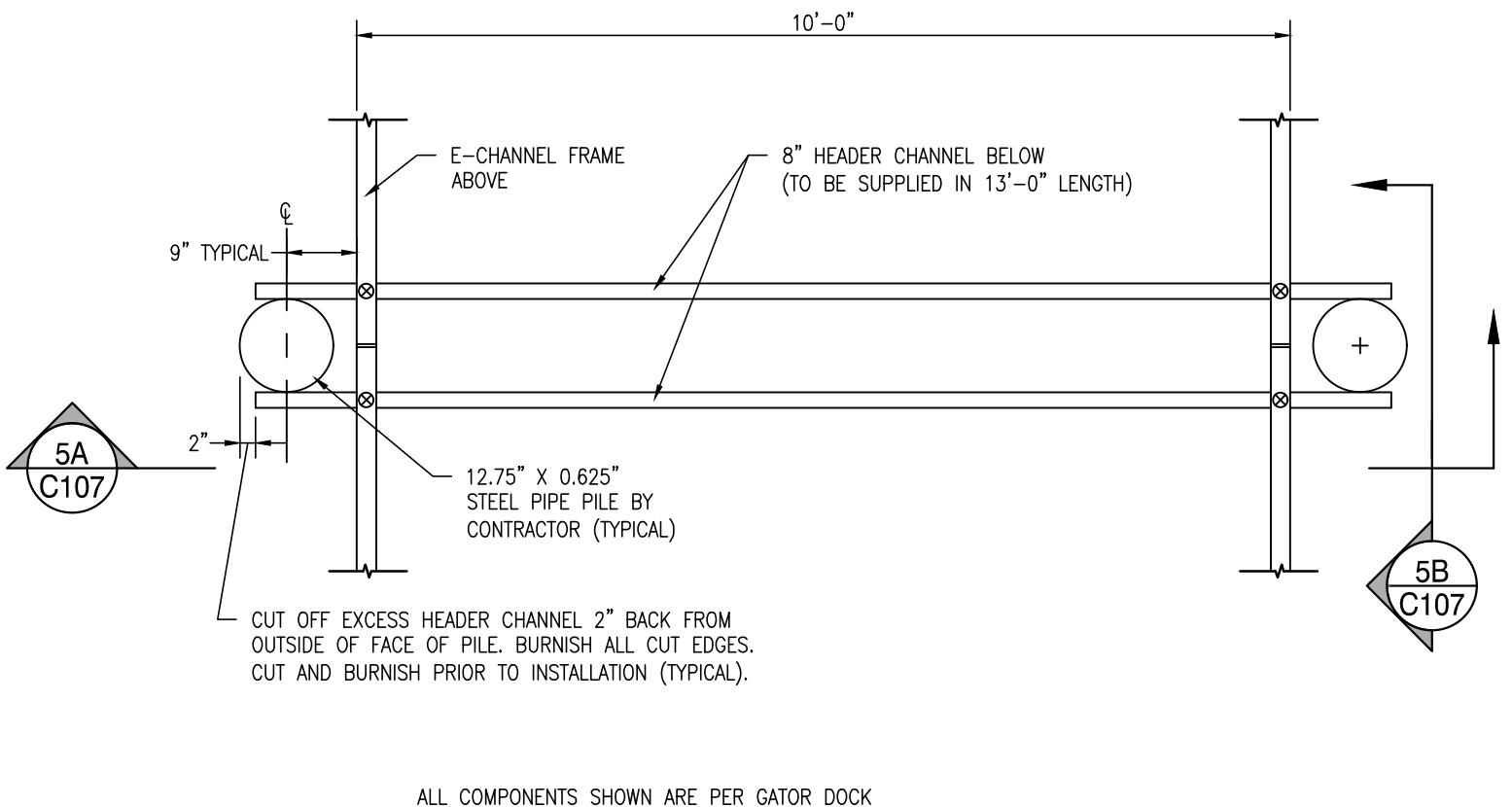
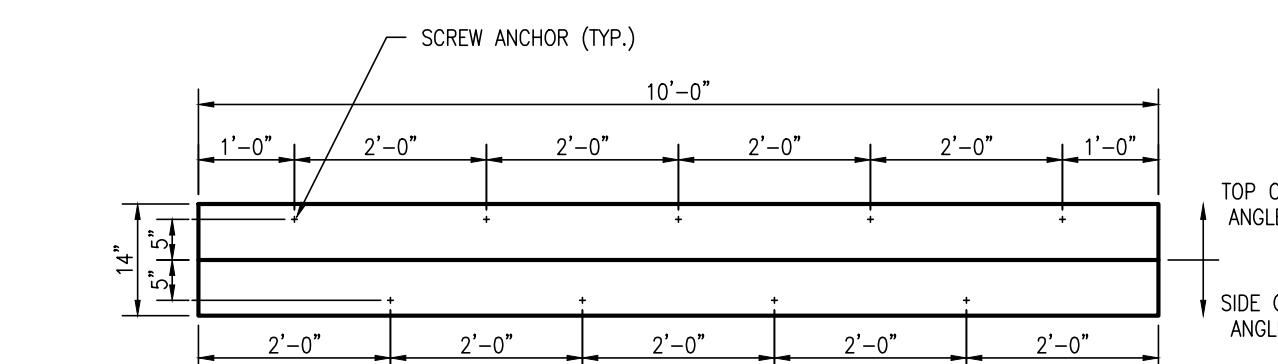
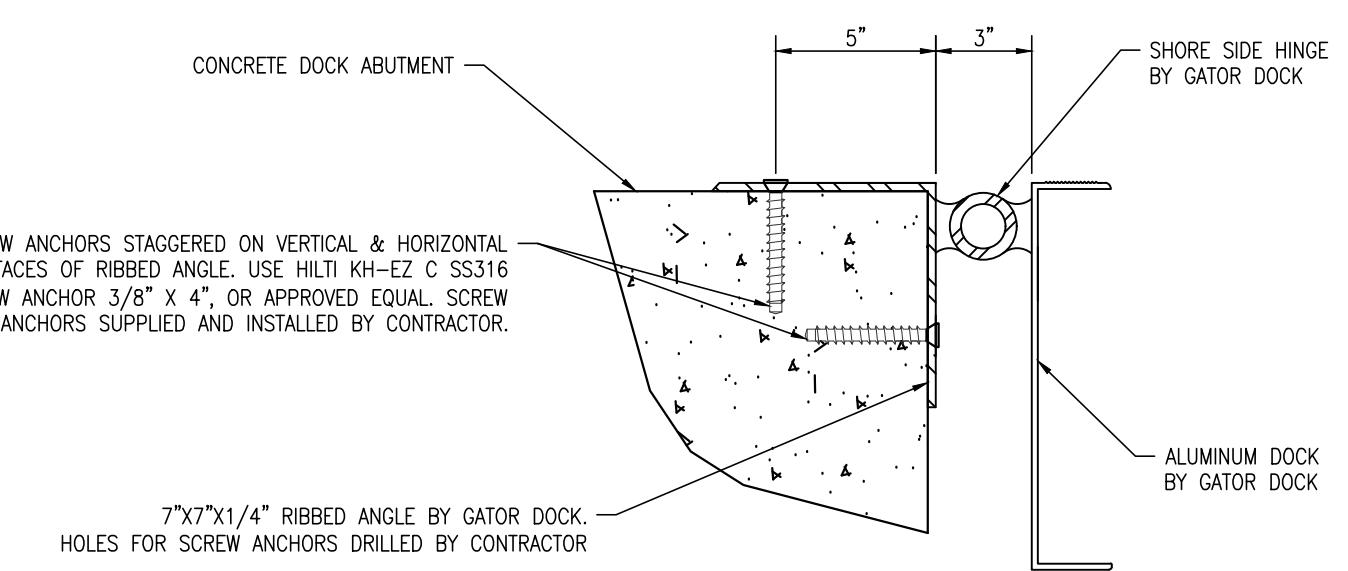
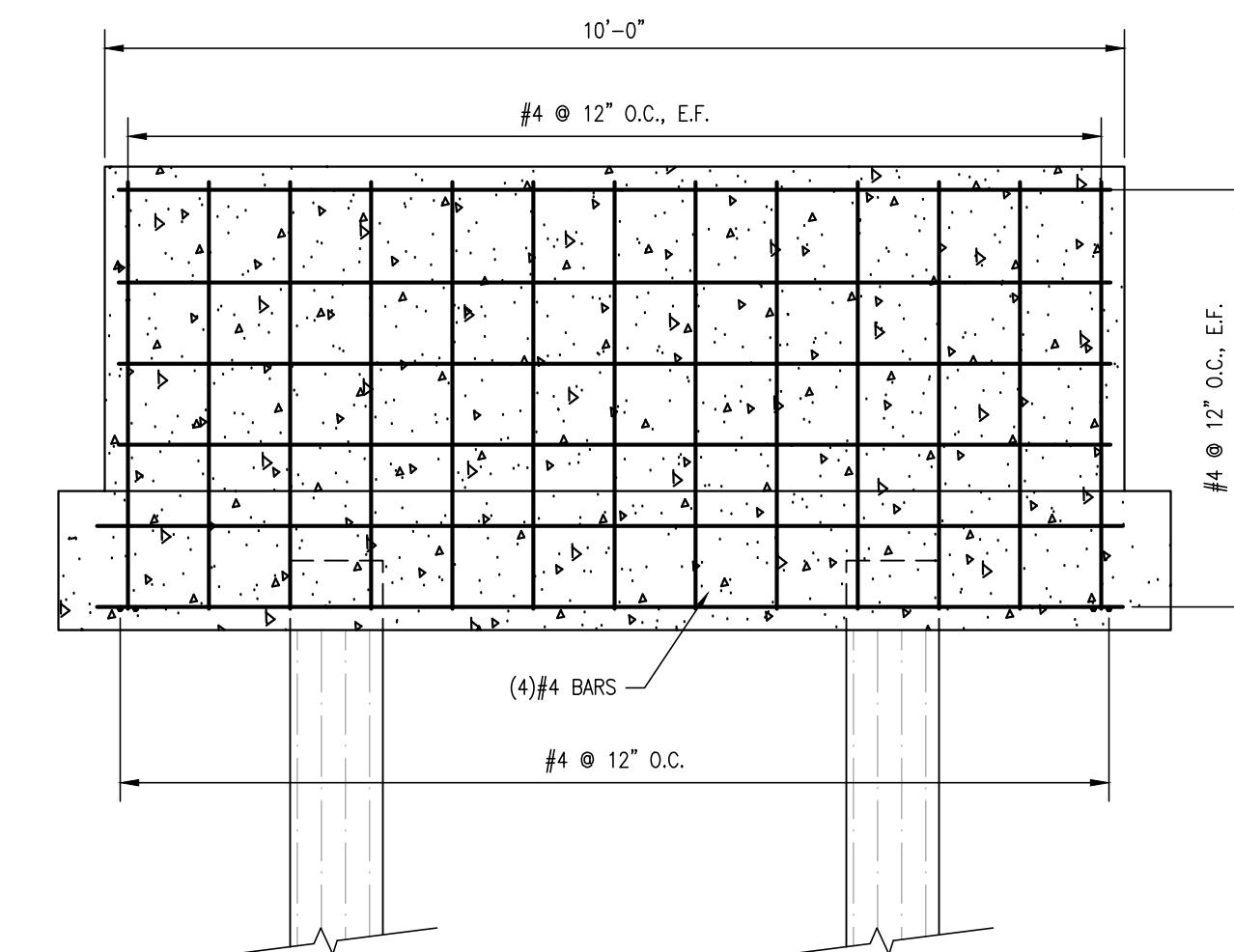
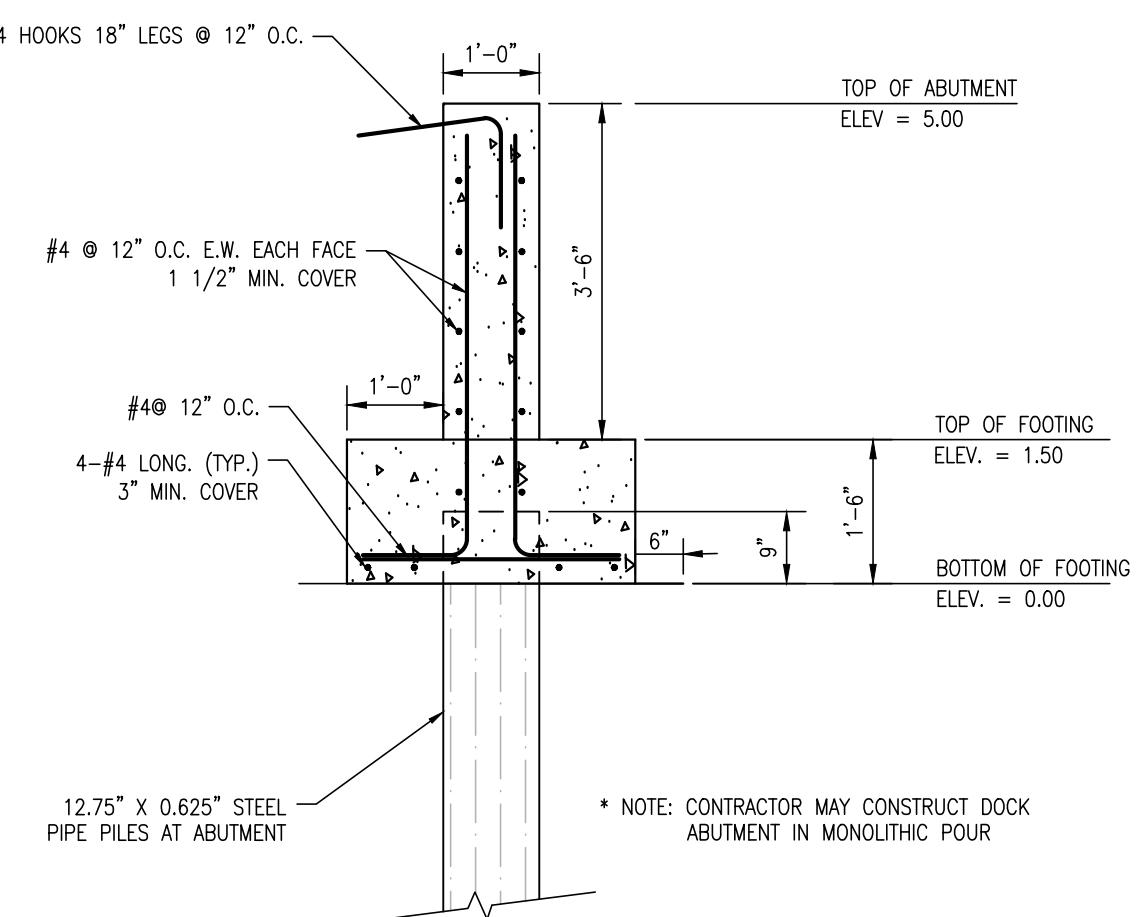
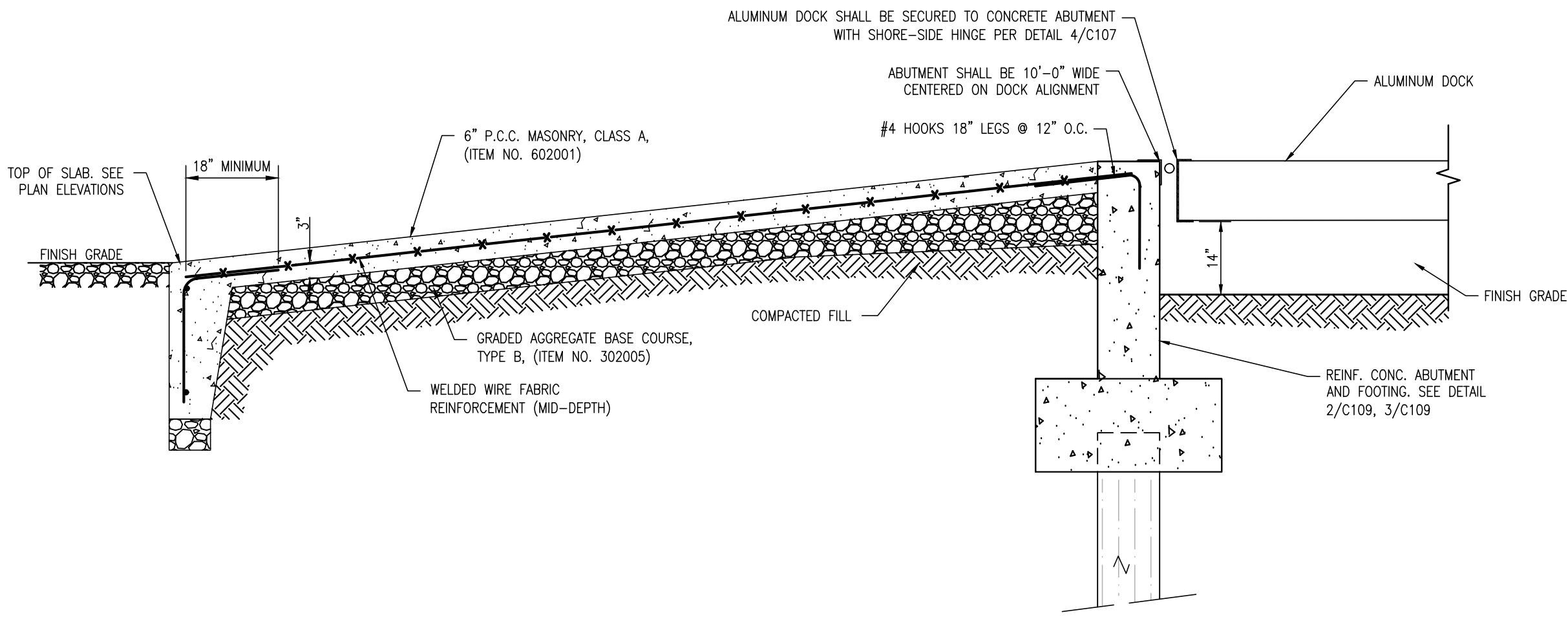
DESCRIPTION: _____

SEAL: _____

CIVIL ENGINEER:
CENTURY
 ENGINEERING
 A Kleinfelder Company



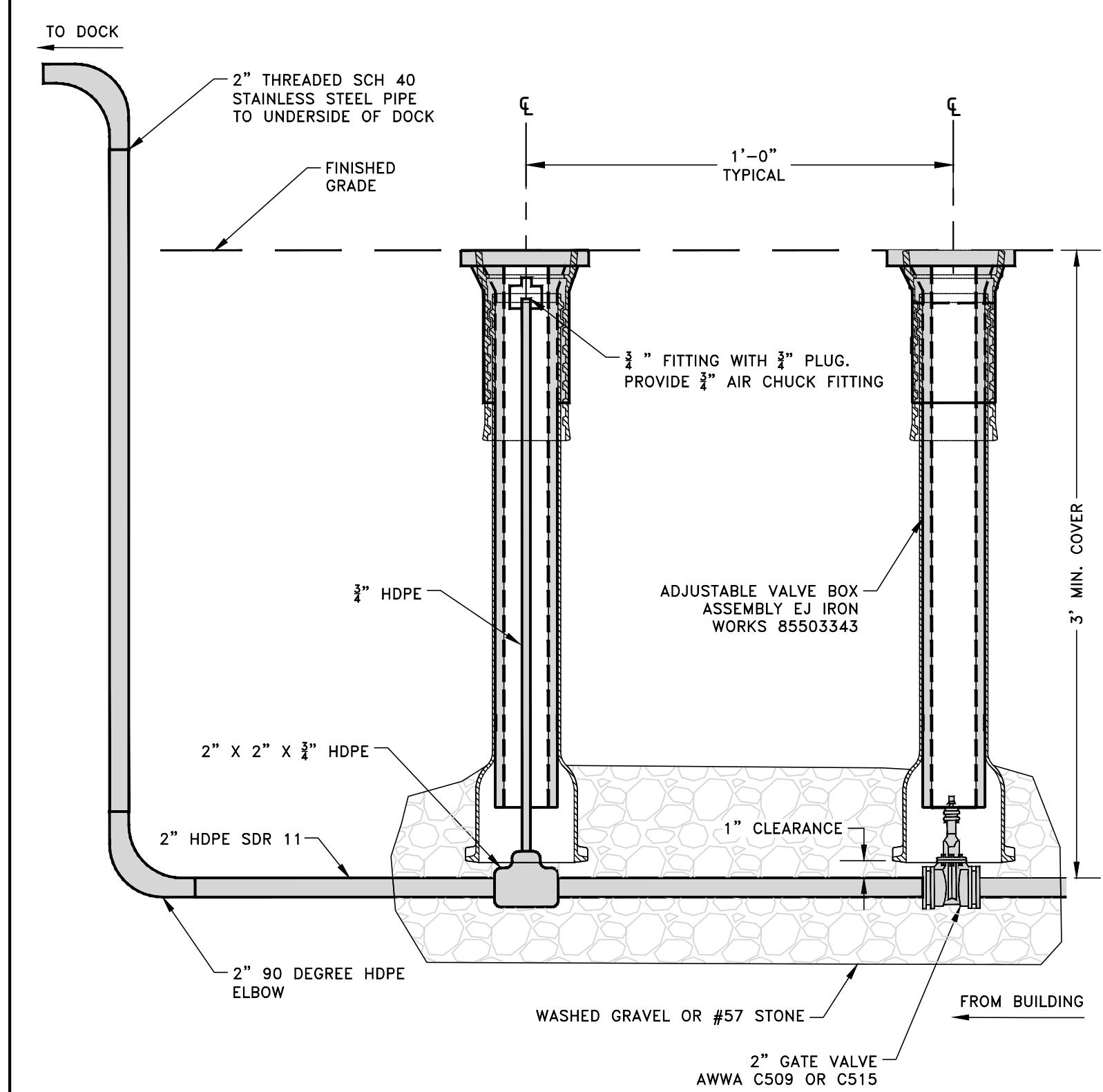
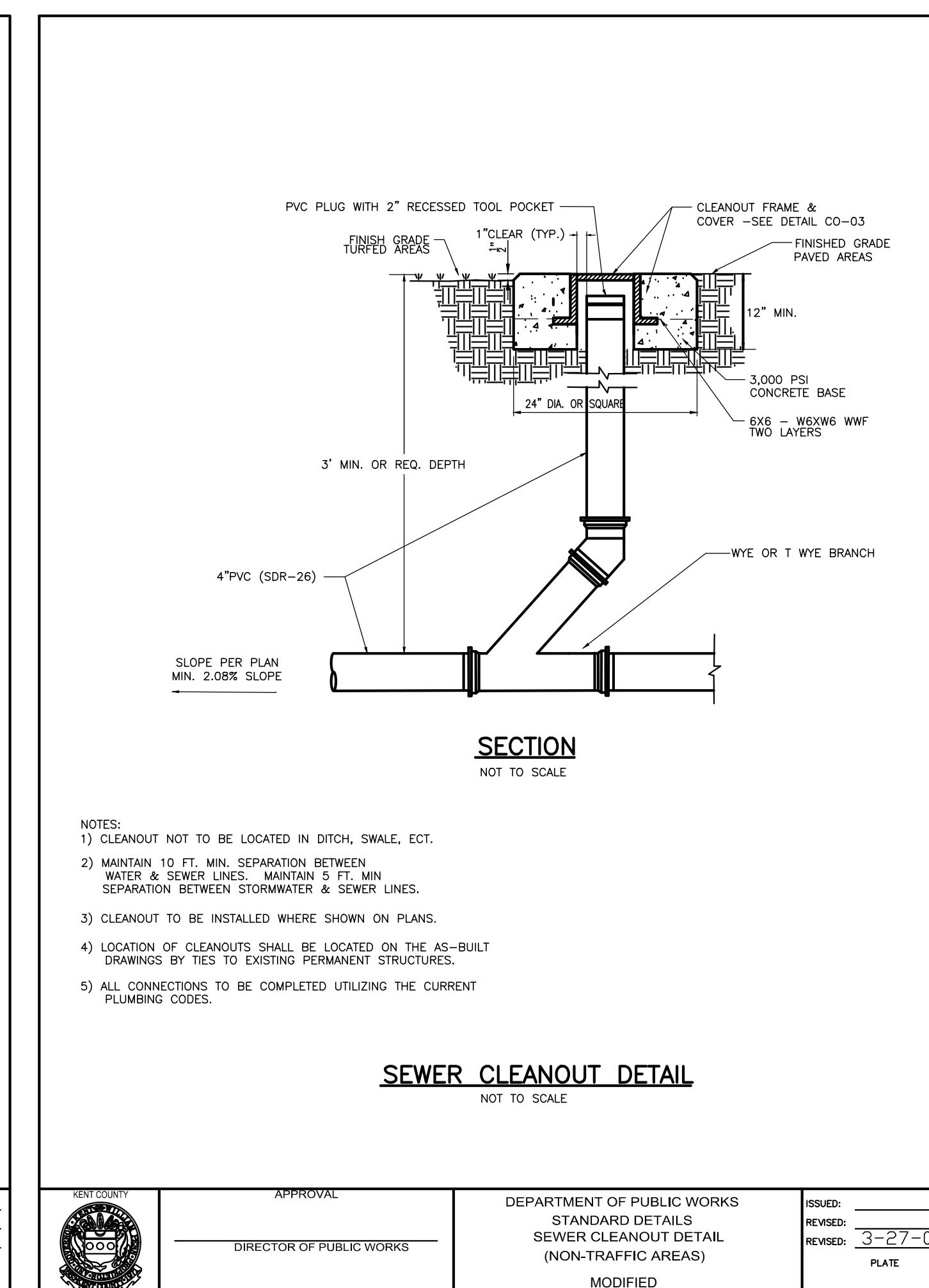
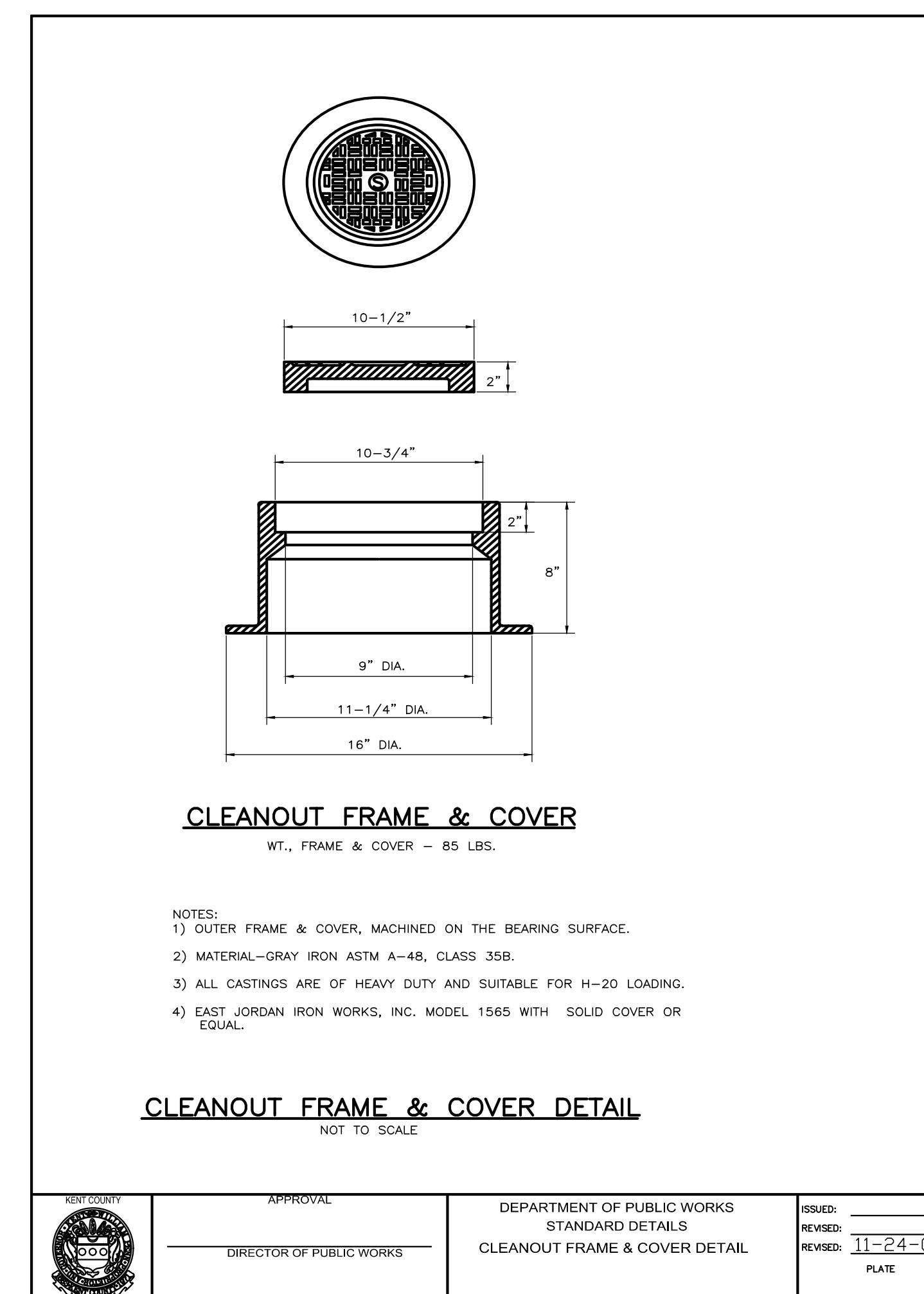
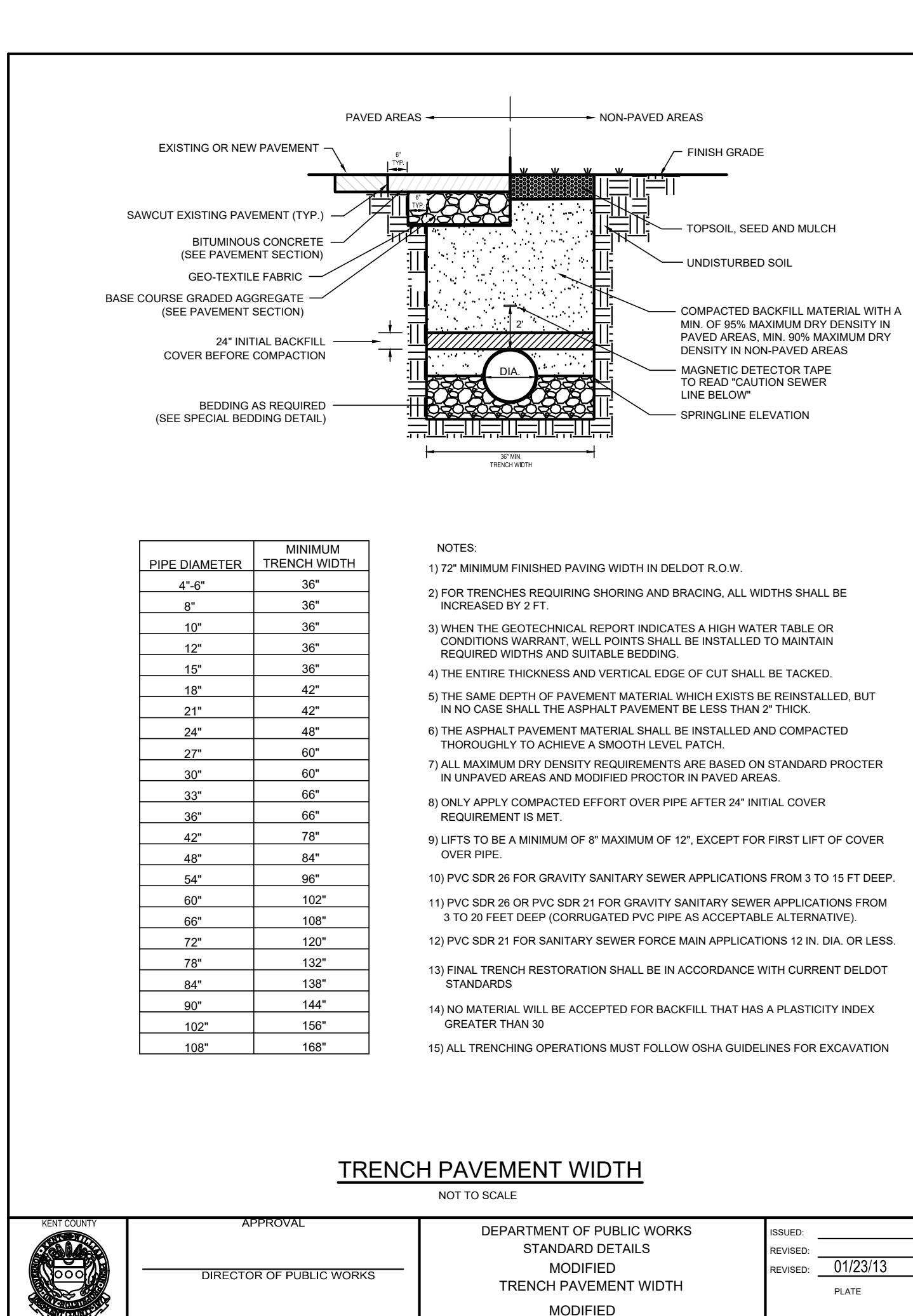
DESIGNED BY:
 ALW
 DRAWN BY:
 DFS
 CHECKED BY:
 ALW
 DATE:
 11-07-2025
 SCALE:
 AS SHOWN
 SHEET NO.:
C107
 PROJECT NO.:
 00175013.092A



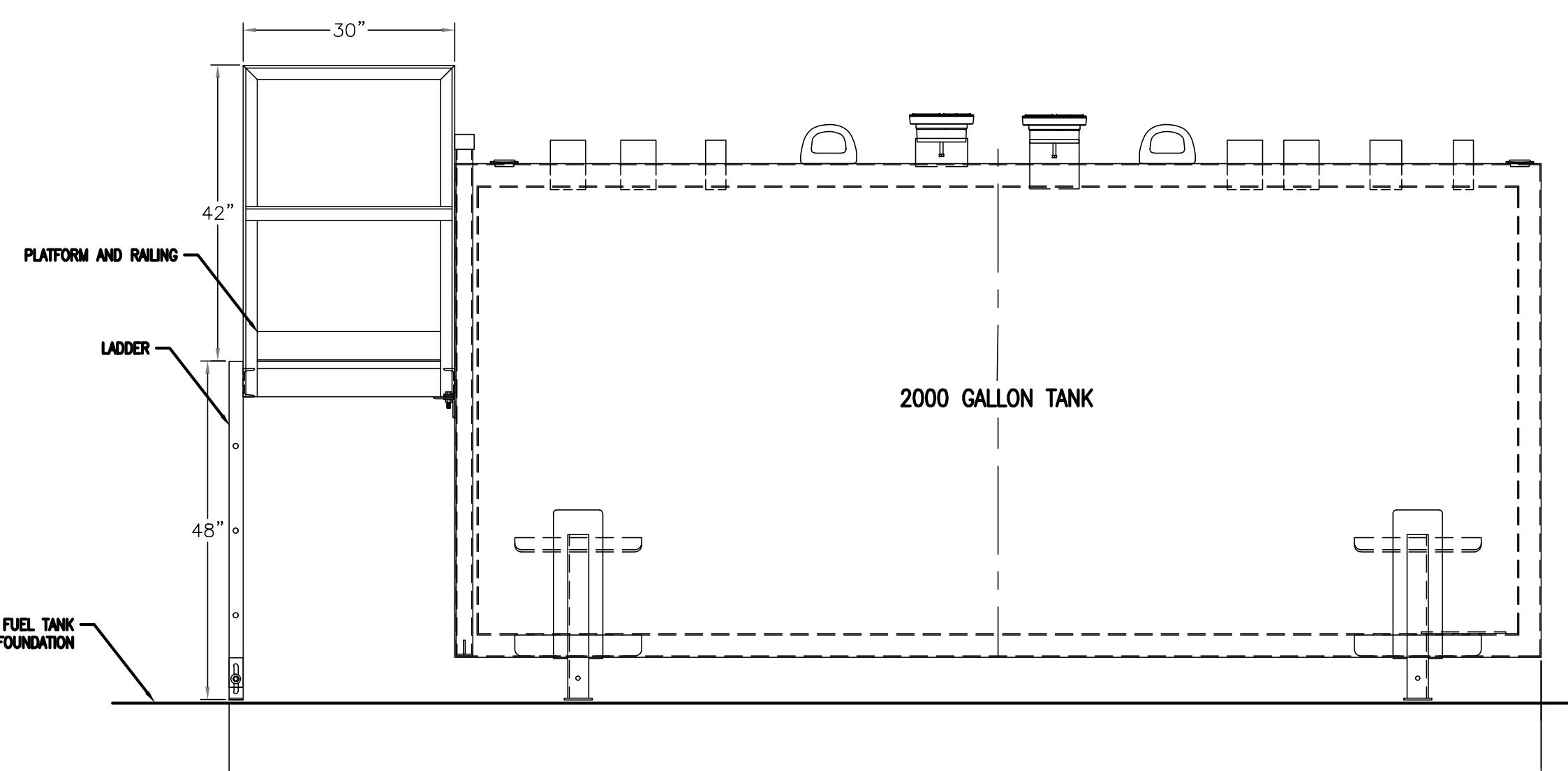
5 ALUMINUM HEADER - PLAN DETAIL (C107) Scale: 1/2" = 1'-0"

5A ALUMINUM HEADER - SECTION A (C107) Scale: 1/2" = 1'-0"

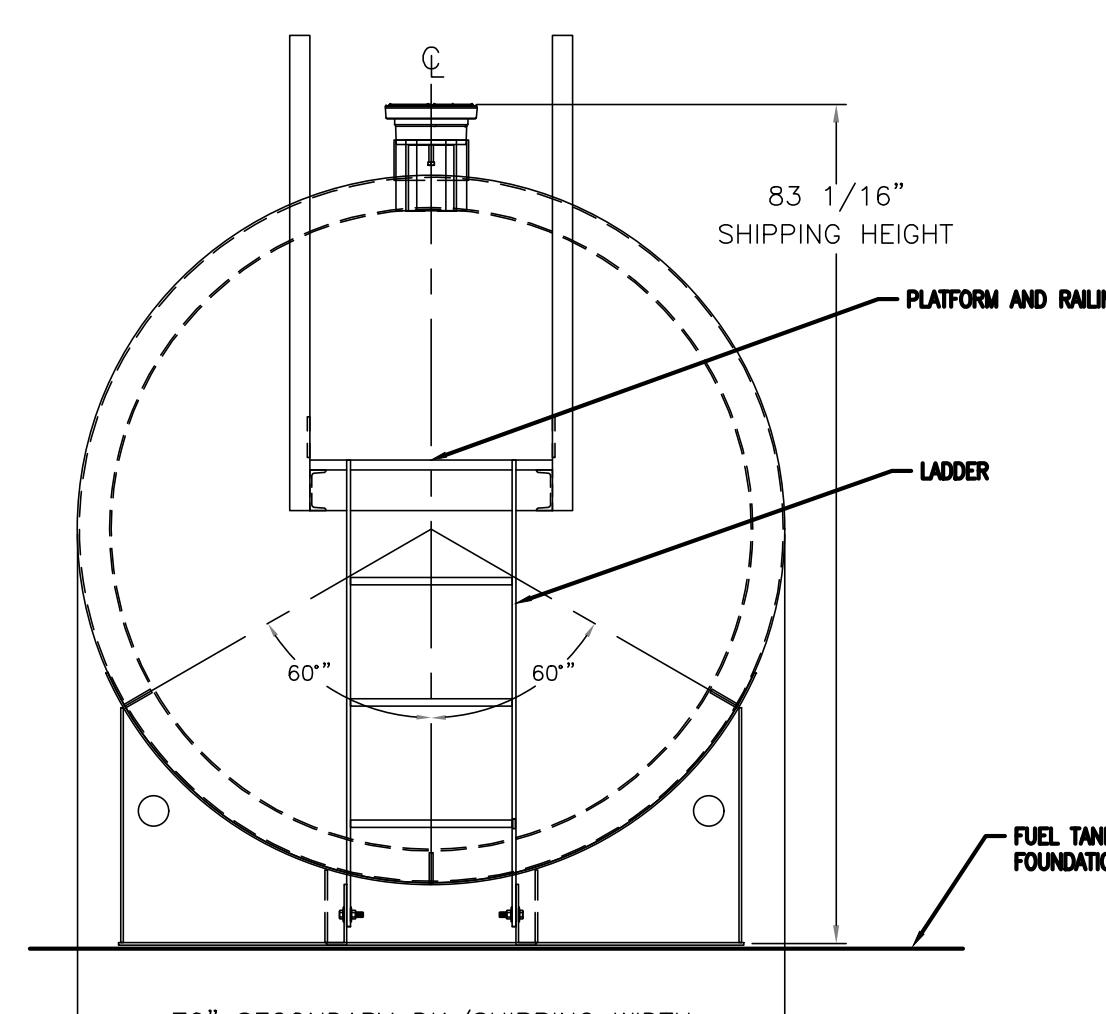
5B ALUMINUM HEADER - SECTION B (C107) Scale: 1/2" = 1'-0"



14 2" BLOW-OFF ASSEMBLY DETAIL
C109 SCALE: N.T.S.



15
C109 TYPICAL FUEL TANK SECTION
SCALE: N.T.S



State of Delaware\00175013\002A-Whebee Property Research\Working\CAD\Sheets\C111 - Site Details.dwg 10/30/2005 8:59 AM

| EIPSSIC RESEARCH DOCK FACILITY

SITE DETAILS

REVISIONS: _____
DATE: _____ DESCRIPTION: _____
BY: _____

SEAL:

CIVIL ENGINEER:

DESIGNED

11

DRAWN BY

1

DATE: _____

1

SCALE:

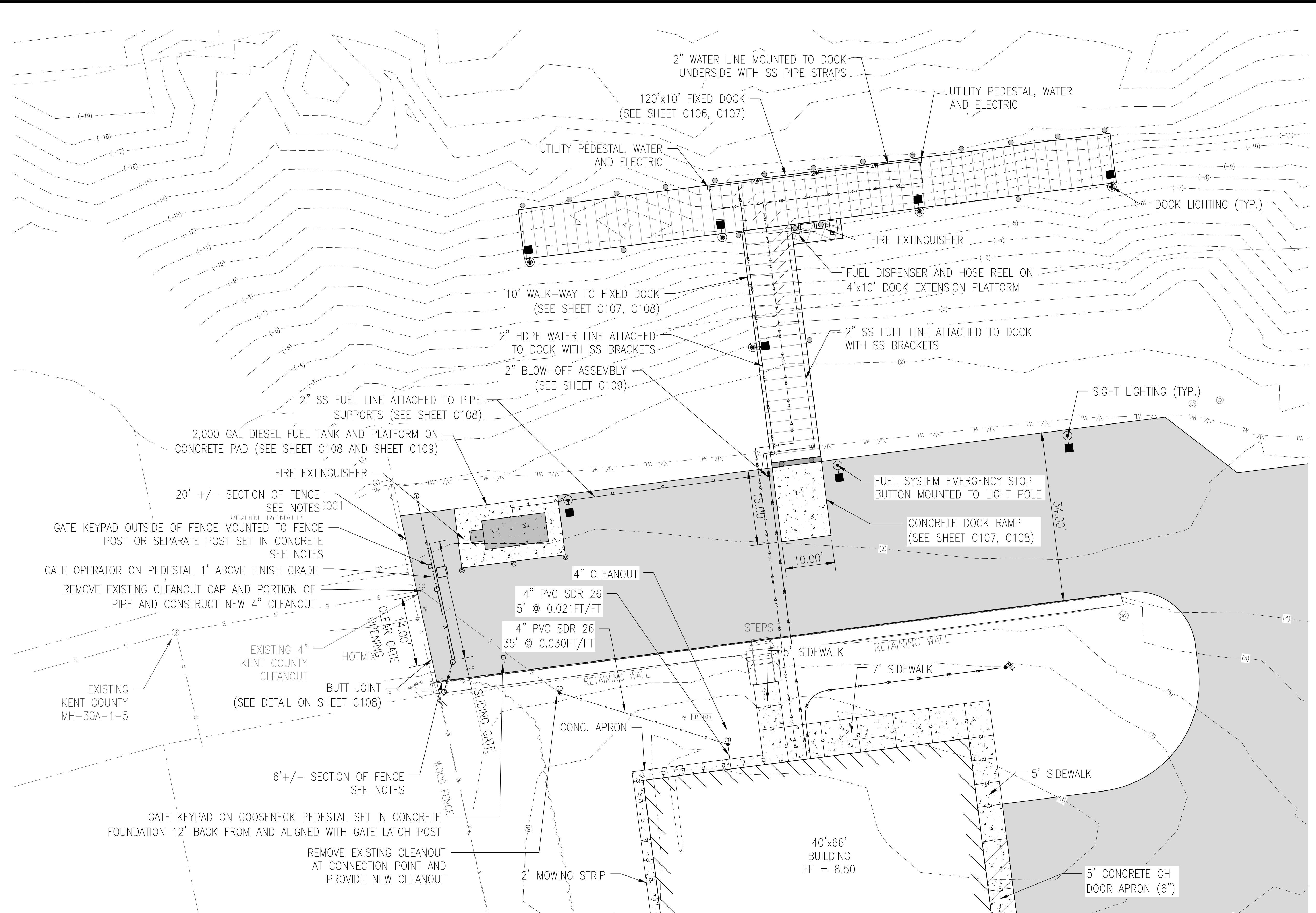
AS SHOWN

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PROJECT NO.:





DATA COLUMN		REVISIONS: DATE: _____ BY: _____ DESCRIPTION: _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
1. NAME OF BUILDING:	LEIPSIC RESEARCH DOCK FACILITY	
2. PLAN DATE:	10-10-2025	
3. ADDRESS OF SITE:	86 LOMBARD ST, LEIPSIC, DE 19901	
4. TAX PARCEL NUMBER:	4-13-03910-01-3100-00001	
5. KENT COUNTY PLANNING NUMBER:	N/A, TOWN OF LEIPSIC	
6. BUILDING USE:	STORAGE, BUSINESS, DOCK	
7. WATER SUPPLIER:	ON-SITE PRIVATE WELL	
8. MAXIMUM HEIGHT OF DOCK:	DOCK ELEVATION 5.0' TOP OF PILINGS 13.0'	
9. PROPOSED DOCK CONSTRUCTION:	ALUMINUM DOCK ON STEEL PILINGS	
10. AUTOMATIC SPRINKLER PROTECTION:	N/A	
11. OWNER/DEVELOPER: STATE OF DELAWARE DIVISION OF FISH AND WILDLIFE 89 KINGS HIGHWAY DOVER, DE 19901		
12. APPLICANT STATE OF DELAWARE DIVISION OF FISH AND WILDLIFE 89 KINGS HIGHWAY DOVER, DE 19901 JEREMY ASHE (302) 739-9921/JEREMY.ASHE@DELAWARE.GOV		
13. ENGINEER: CENTURY ENGINEERING, LLC. 550 BAY ROAD DOVER, DE 19901 ARTHUR LANCE WILGUS, P.E. (302) 734-9188/ LWILGUS@KLEINFELDER.COM		

NOTE:
ALL FIRE LANES, FIRE HYDRANTS AND FIRE DEPARTMENT CONNECTIONS SHALL BE MARKED IN ACCORDANCE WITH THE STATE FIRE PREVENTION REGULATIONS.

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CENTURY
ENGINEERING
Leimholder Company



ALW

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DFS

BY:
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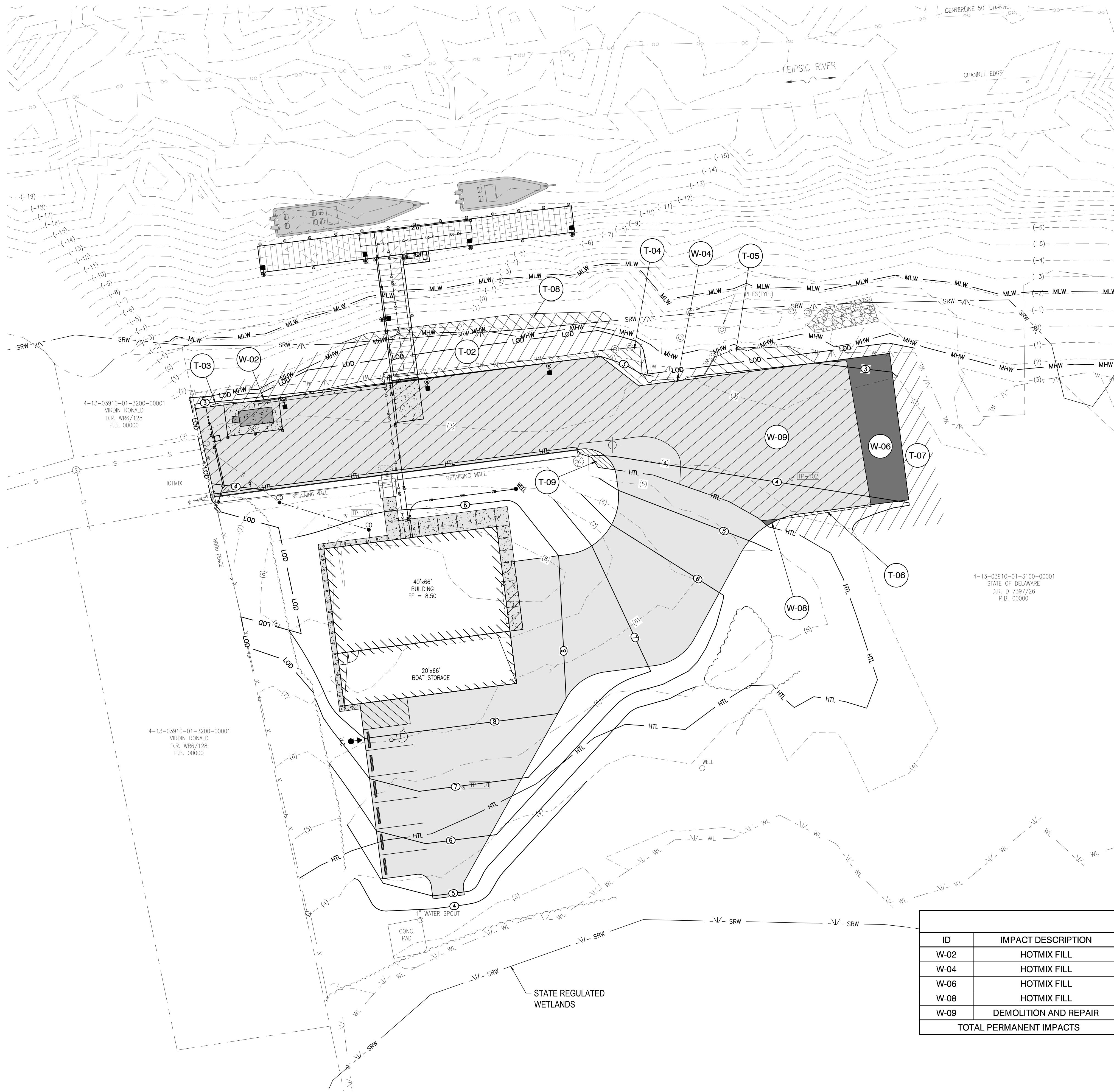
11-07-2025

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C111

175013.092A



TEMPORARY IMPACT AREA SCHEDULE				
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	JURISDICTION
T-02	CONSTRUCTION	1354.7160	0.0311	USACE
T-03	REMOVE EXISTING FILL	8.7560	0.0002	USACE
T-04	REMOVE EXISTING FILL	360.8500	0.0083	USACE
T-05	REMOVE EXISTING FILL	290.5450	0.0067	USACE
T-06	REMOVE EXISTING FILL	26.4800	0.0006	USACE
T-07	CONSTRUCTION	2652.8040	0.0609	USACE
T-08	CONSTRUCTION	442.5696	0.0102	DNREC
T-09	CONSTRUCTION	47.6200	0.0011	USACE
TOTAL TEMPORARY IMPACT AREAS		4,741.7710	0.1089	USACE
TOTAL TEMPORARY IMPACT AREAS		442.5696	0.0102	DNREC

PERMANENT IMPACT AREA SCHEDULE							
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	VOLUME (CY)	JURISDICTION	LOSS VS IMPACT	LOSS (AC)
W-02	HOTMIX FILL	5.4890	0.0001	0.1779	USACE-SECTION 404	IMPACT	0.0000
W-04	HOTMIX FILL	0.3000	0.0000	0.0097	USACE-SECTION 404	IMPACT	0.0000
W-06	HOTMIX FILL	869.2398	0.0200	28.1698	USACE-SECTION 404	IMPACT	0.0000
W-08	HOTMIX FILL	7.3600	0.0002	0.2385	USACE-SECTION 404	IMPACT	0.0000
W-09	DEMOLITION AND REPAIR	9263.8600	0.2127	142.9610	USACE-SECTION 404	IMPACT	0.0000
TOTAL PERMANENT IMPACTS		10146.2488	0.2329	171.5569	USACE	IMPACT	0.0000

SCALE: 1" = 20'

0' 20' 40' 60'

TRUE NORTH PROJECT NORTH

LEIPSIC RESEARCH DOCK FACILITY

<u>SEAL:</u>	
<u>CIVIL ENGINEER:</u>	
 <p>M-CENTURE ENGINEERS A Kleinfelder Company</p>	
<p>DELAWARE DIVISION OF FISH AND WILDLIFE</p>	

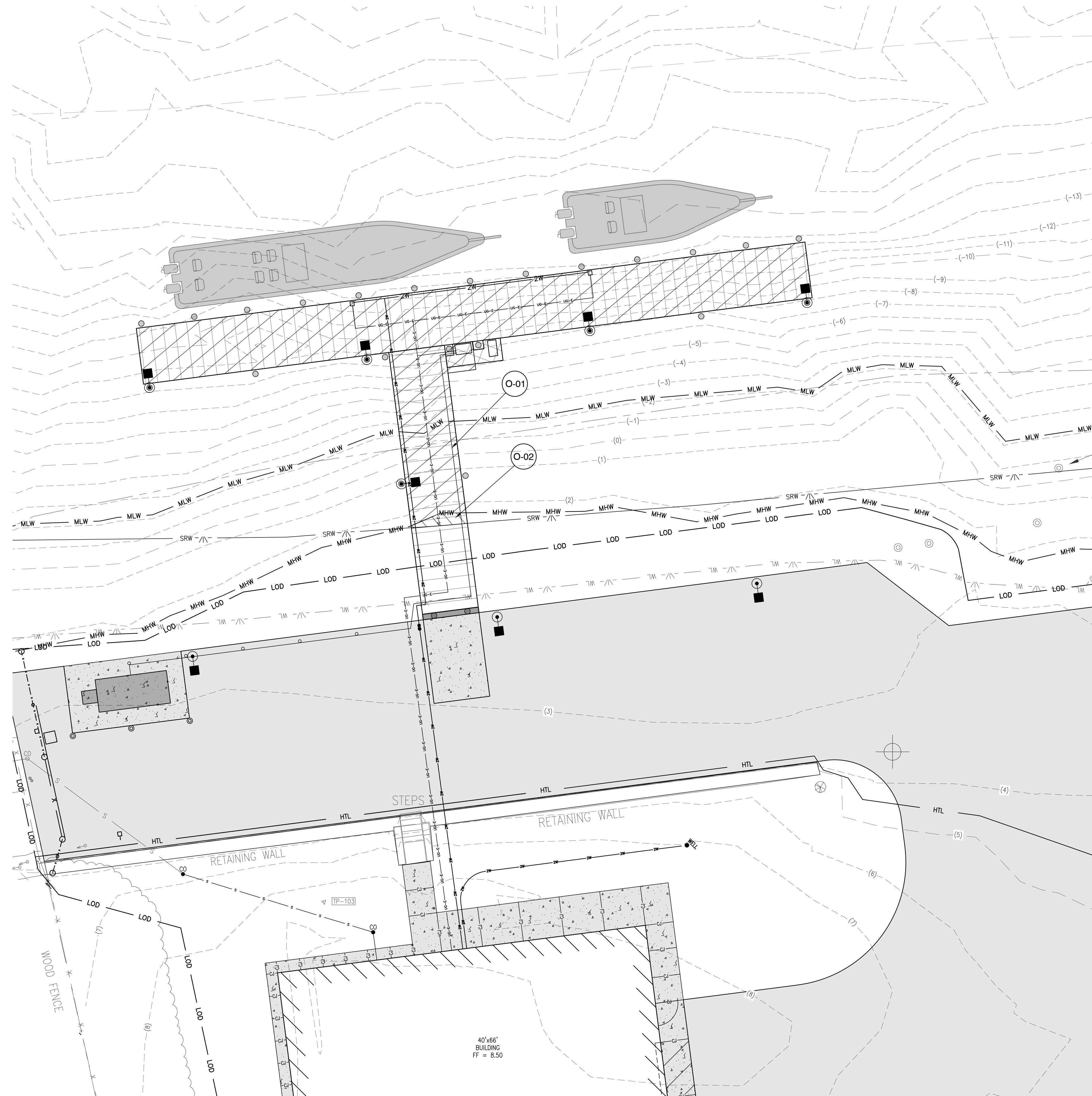
DESIGNED BY:
ALW

DRAWN BY:
DFS

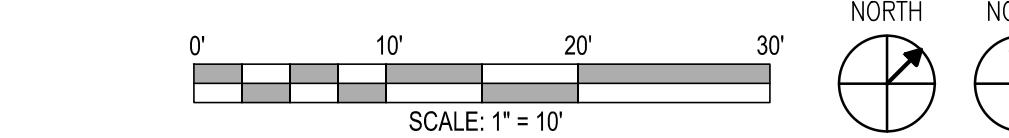
CHECKED BY:
ALW

DATE:
11.07.2025

SCALE: 1" = 20'
SHEET NO.: C112
PROJECT NO.: 00175013.092A



PERMANENT OPEN WATER IMPACT AREA SCHEDULE					
ID	IMPACT DESCRIPTION	AREA (SF)	AREA (AC)	JURISDICTION	LOSS AREA (AC)
O-01	DOCK AND SUPPORT PILES	1,525.56	0.0350	USACE-SECTION 10	0.0000
O-02	DOCK AND SUPPORT PILES	1,541.98	0.0354	DNREC-WATER	0.0000
TOTAL PERMANENT OPEN WATER IMPACTS		1,525.56	0.0350	USACE	0.0000
TOTAL PERMANENT OPEN WATER IMPACTS		1,541.98	0.0354	DNREC	0.0000



TRUE
NORTH
PROJECT
NORTH

C113
PROJECT NO.: 00175013.092A

REVISIONS:	BY:
DATE:	DESCRIPTION:
LEIPSIC RESEARCH DOCK FACILITY	
ENVIRONMENTAL COMPLIANCE PLAN	
SEAL:	CIVIL ENGINEER:
DESIGNED BY:	ALW
DRAWN BY:	DFS
CHECKED BY:	ALW
DATE:	11-07-2025
SCALE:	1" = 10'
SHEET NO.:	C113
PROJECT NO.:	00175013.092A



LEIPSIC RESEARCH FACILITY

REVISIONS:

DNREC SEDIMENT & STORMWATER NOTES

1. THE DNREC SEDIMENT AND STORMWATER PROGRAM (OR DELEGATED AGENCY) SHALL BE NOTIFIED IN WRITING 5 DAYS PRIOR TO COMMENCING WITH CONSTRUCTION. FAILURE TO DO SO CONSTITUTES A VIOLATION OF THE APPROVED SEDIMENT AND STORMWATER MANAGEMENT PLAN.
2. REVIEW AND/OR APPROVAL OF THE SEDIMENT AND STORMWATER MANAGEMENT PLAN SHALL NOT RELIEVE THE CONTRACTOR FROM HIS OR HER RESPONSIBILITIES FOR COMPLIANCE WITH THE REQUIREMENTS OF THE DELAWARE SEDIMENT AND STORMWATER REGULATIONS, NOR SHALL IT RELIEVE THE CONTRACTOR FROM ERRORS OR OMISSIONS IN THE APPROVED PLAN.
3. IF THE APPROVED PLAN NEEDS TO BE MODIFIED, ADDITIONAL SEDIMENT AND STORMWATER CONTROL MEASURES MAY BE REQUIRED AS DEEMED NECESSARY BY DNREC OR THE DELEGATED AGENCY.
4. FOLLOWING SOIL DISTURBANCE OR REDISTURBANCE, PERMANENT OR TEMPORARY STABILIZATION SHALL BE COMPLETED FOR ALL PERIMETER SEDIMENT CONTROLS, SOIL STOCKPILES, AND ALL OTHER DISTURBED OR GRADED AREAS ON THE PROJECT SITE WITHIN 14 CALENDAR DAYS UNLESS MORE RESTRICTIVE FEDERAL REQUIREMENTS APPLY.
5. ALL EROSION AND SEDIMENT CONTROL PRACTICES SHALL COMPLY WITH THE DELAWARE EROSION AND SEDIMENT CONTROL HANDBOOK, LATEST EDITION.
6. AT ANY TIME A DEWATERING OPERATION IS USED, IT SHALL BE PREVIOUSLY APPROVED BY THE AGENCY CONSTRUCTION SITE REVIEWER FOR A NON-EROSIVE POINT OF DISCHARGE, AND A DEWATERING PERMIT SHOULD BE APPROVED BY THE DNREC WELL PERMITTING BRANCH.
7. APPROVAL OF A SEDIMENT AND STORMWATER MANAGEMENT PLAN DOES NOT GRANT OR IMPLY A RIGHT TO DISCHARGE STORMWATER RUNOFF. THE OWNER/DEVELOPER IS RESPONSIBLE FOR ACQUIRING ANY AND ALL AGREEMENTS, EASEMENTS, ETC., NECESSARY TO COMPLY WITH STATE DRAINAGE AND OTHER APPLICABLE LAWS.
8. THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF OR WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHALL BE CHECKED DAILY AND ADJUSTED OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENT FROM LEAVING THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR ALTER MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
9. BEST AVAILABLE TECHNOLOGY (BAT) SHALL BE EMPLOYED TO MANAGE TURBID DISCHARGES IN ACCORDANCE WITH REQUIREMENTS OF 7. DEL C. CH 60, REGULATIONS GOVERNING THE CONTROL OF WATER POLLUTION, SECTION 9.1.02, KNOWN AS SPECIAL CONDITIONS FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES, AND DNREC POLICIES, PROCEDURES, AND GUIDANCE.
10. THE CONTRACTOR STOCKPILE AREA IS SHOWN ON THE DRAWINGS. IF THE CONTRACTOR INTENDS TO STAGE OR STORE MATERIALS OFF-SITE IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY FOR OBTAINING ALL THE PROPER SEDIMENT AND STORMWATER APPROVALS AND/OR PERMITS THROUGH THE DESIGNATED DELEGATED AGENCY WHICH WILL BE DETERMINED BY THE LOCATION OF THE OFF-SITE MATERIAL STOCKPILE OR STAGING AREAS. ALL COSTS ASSOCIATED WITH OFF-SITE STOCKPILE OR STAGING AREAS SHALL BE INCIDENTAL TO THE WORK.

SEQUENCE OF CONSTRUCTION

1. PRIOR TO ANY CLEARING, INSTALLATION OF SEDIMENT CONTROL MEASURES, OR GRADING, A PRE-CONSTRUCTION MEETING MUST BE SCHEDULED AND CONDUCTED. THE LANDOWNER/DEVELOPER AND CONTRACTOR ARE REQUIRED TO BE IN ATTENDANCE AT THE PRE-CONSTRUCTION MEETING; THE DESIGNER IS RECOMMENDED TO ATTEND.
2. THE CONTRACTOR SHALL AT ALL TIMES PROTECT AGAINST SEDIMENT OR DEBRIS LADEN RUNOFF OR WIND FROM LEAVING THE SITE. PERIMETER CONTROLS SHALL BE CHECKED DAILY AND ADJUSTED AND/OR REPAIRED TO FULLY CONTAIN AND CONTROL SEDIMENTATION ON THE SITE. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN IT HAS REACHED HALF OF THE EFFECTIVE CAPACITY OF THE CONTROL. IN ADDITION, THE CONTRACTOR MAY NEED TO ADJUST OR REPAIR MEASURES IN TIMES OF ADVERSE WEATHER CONDITIONS, OR AS DIRECTED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
3. CLEAR AND GRUB AS REQUIRED TO INSTALL SILT FENCE. INSTALL SILT FENCE PER DNREC STANDARD DETAILS & SPECIFICATIONS.
4. INSTALL SITE POLLUTION PREVENTION DEVICES PER DNREC STANDARD DETAILS & SPECIFICATIONS, INCLUDING CONCRETE WASHOUT
5. CLEAR AND GRUB AREAS AS NEEDED WITHIN THE LIMIT OF DISTURBANCE.
6. CONSTRUCT STRUCTURES, DOCK RAMP ABUTMENT AND BOAT DOCK.
7. CONSTRUCT FUEL TANK CONCRETE PAD AND FUEL SYSTEM COMPONENTS.
8. INSTALL POTABLE WATER WELL.
9. CONSTRUCT SITE UTILITIES, INCLUDING SANITARY SEWER LATERAL, WATER SERVICE LINES, AND AREA LIGHTING.
10. EXCAVATE EXISTING PAVEMENTS, EXCAVATE FOR NEW PAVEMENTS, PLACE EMBANKMENTS AND GENERAL GRADING, AND CONSTRUCT NEW PAVEMENTS AND SIDEWALKS.
11. INSTALL NEW STRIPING AND SIGNAGE.
12. PERFORM FINAL SITE GRADING, INCLUDING TOPSOILING, SEEDING AND STABILIZATION OF ALL REMAINING DISTURBED AREAS. STABILIZE ALL UNPAVED DISTURBED AREAS WITH MINIMUM 6" TOPSOIL, DNREC APPROVED SEED MIX, AND MULCHING.
13. EROSION & SEDIMENT CONTROL DEVICES SHALL BE REMOVED ONLY AFTER WORK IN AN AREA HAS BEEN COMPLETED AND STABILIZED, WITH APPROVAL FROM THE ENGINEER.

PRODUCT NOTES

1. GEOTEXTILE SHALL BE INSTALLED UNDER THE STABILIZED CONSTRUCTION ENTRANCE AND RIPRAP, AND OUTLET PROTECTION SHALL MEET DNREC TYPE GS-1 SPECIFICATIONS. CONTRACTOR SHALL USE MIRAFI 600X OR AN APPROVED EQUAL.
2. SPRINKLING SHALL BE THE STABILIZATION MEASURE INITIATED IF DUST CONTROL BECOMES A PROBLEM.
3. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAINTAIN AND REPAIR ALL EROSION AND SEDIMENT CONTROL PRACTICES DURING CONSTRUCTION.
4. LOCATION OF THE DUMPSTER AND CONCRETE WASHOUT ARE SHOWN ON PLANS, IF THESE LOCATIONS MUST BE MOVED, THE NEW LOCATION SHALL BE APPROVED BY THE AGENCY CONSTRUCTION SITE REVIEWER.
5. TEMPORARY SEED MIX #5 OR #6 SHALL BE USED FOR ALL TEMPORARILY STABILIZED AREAS. SEED MIX SPECIFICATIONS ARE PROVIDED ON THE EROSION AND SEDIMENT CONTROL DETAILS.
6. PERMANENT SEED MIX #9 SHALL BE USED FOR ALL PERMANENTLY STABILIZED AREAS. SEED MIX SPECIFICATIONS ARE PROVIDED ON THE EROSION AND SEDIMENT CONTROL DETAILS.
7. CHANNEL STABILIZATION MATTING SHALL BE SSM-11, NORTH AMERICAN GREEN S150BN OR APPROVED EQUAL. STABILIZATION MATTING SHALL BE INSTALLED PER THE EROSION AND SEDIMENT CONTROL DETAILS.

GENERAL NOTES

1 CONTRACTOR SHALL INSTALL SM-S MATTING (NORTH AMERICAN GREEN S75BN) OR APPROVED EQUAL TO ALL DISTURBED TURF AREAS ON SITE.

SITE SOILS

<u>SOIL</u>	<u>HSG</u>	<u>DESCRIPTION</u>
BA	B/D	BROADKILL-APPOQUINIMINK COMPLEX, VERY FREQUENTLY FLOODED, TIDAL
CAA	C/D	CARMICHAEL LOAM, 0 TO 2 PERCENT SLOPES
HLB	C	UNICORN LOAM, 0 TO 5 PERCENT SLOPES

The diagram illustrates a coordinate system with two circles. The left circle, labeled "TRUE NORTH", has a diagonal line from the bottom-left to the top-right, with a small arrowhead at the top-right end. The right circle, labeled "PROJECT NORTH", has a vertical line from top to bottom, with a small arrowhead at the top end. Below the circles is a horizontal scale bar divided into six equal segments. The first segment is labeled "0'", the second "20'", and the third "40'". The fourth segment is shaded gray, and the fifth and sixth segments are solid black. Below the scale bar, the text "SCALE: 1\" data-bbox="380 850 610 880" data-label="Text" is followed by a short horizontal line.

SEAL

CIVIL ENGINEER:



Page 10

2000

BRAUN

CHECK

DATE:

1

33

1

C114

Standard Detail & Specifications
Stabilized Construction Entrance

Source: Adapted from VA ESC Handbook

Symbol: **SCE**

Detail No. **DE-ESC-3.4.7**
Sheet 1 of 2
Effective July 2023

Standard Detail & Specifications
Stabilized Construction Entrance

Source: Adapted from VA ESC Handbook

Symbol: **SCE**

Detail No. **DE-ESC-3.4.7**
Sheet 1 of 2
Effective July 2023

Standard Detail & Specifications
Topsoiling

Construction Notes:

- Site Preparation** (Where Topsoil is to be added)

Note: When topsoiling, maintain needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, waterways and sediment basins.
- Grading** - Grades on the areas to be topsoiled which have been previously established shall be maintained.
- Liming** - Where the topsoil is either highly acidic or composed of heavy clays, ground limestone shall be spread at the rate of 4-8 tons/acre (200-400 pounds per 1,000 square feet). Lime shall be distributed uniformly over designated areas and worked into the soil in conjunction with tillage operations as described in the following procedures.
- Tilling** - After the areas to be topsoiled have been brought to grade, and immediately prior to dumping and spreading the topsoil, the subgrade shall be loosened by discing or by scarifying to a depth of at least 3 inches to permit bonding of the topsoil to the subsoil. Pack by passing a bulldozer up and down over the entire surface area of the slope to create horizontal erosion check slots to prevent topsoil from sliding down the slope.

2. Topsoil Material and Application

Note: Topsoil salvaged from the existing site may often be used but it should meet the same standards as set forth in these specifications. The depth of topsoil to be salvaged shall be no more than the depth described as a representative profile for that particular soil type as described in the soil survey published by USDA-SCS in cooperation with Delaware Agricultural Experimental Station.

Source: USDA - NRCS

Symbol: **SCE**

Detail No. **DE-ESC-3.4.1**
Sheet 1 of 2
Effective July 2023

Standard Detail & Specifications
Topsoiling

Construction Notes (cont.)

- Materials** - Topsoil shall be a loam, sandy loam, clay loam, silt loam, sandy clay loam, loamy sand or other soil as approved by an agronomist or soil scientist. It shall not have a mixture of contrasting textured subsoil and contain no more than 5 percent by volume of cinders, stones, slag, coarse fragment, gravel, sticks, roots, trash or other extraneous materials larger than 1-1/2 inches in diameter. Topsoil must be free of plants or plant parts of bermudagrass, quackgrass, Johnsongrass, nutsedge, poison ivy, thistles, or others as specified. All topsoil shall be tested by a reputable laboratory for organic matter content, pH and soluble salts. A pH of 6.0 to 7.5 and an organic content of not less than 1.5 percent by weight is required. If pH value is less than 6.0 lime shall be applied and incorporated with the topsoil to adjust the pH to 6.5 or higher. Topsoil containing soluble salts greater than 500 parts per million shall not be used.
- Note**: No sod or seed shall be placed on soil which has been treated with soil sterilant or chemicals used for weed control until sufficient time has elapsed to permit dissipation of toxic materials.
- Grading** - The topsoil shall be uniformly distributed and compacted to a minimum of four (4) inches. Spreading shall be performed in such a manner that sodding or seeding can proceed with a minimum of additional soil preparation and tillage. Any irregularities in the surface resulting from topsoiling or other operations shall be corrected in order to prevent the formation of depressions or water pockets. Topsoil shall not be placed while in a frozen or muddy condition, when the subgrade is excessively wet, or in a condition that may otherwise be detrimental to proper grading and seeded preparation.

Note: Topsoil substitutes or amendments as approved by a qualified agronomist or soil scientist, may be used in lieu of natural topsoil. Compost material used to improve the percentage of organic matter shall be provided by a certified supplier.

Compost amendments that are intended to meet specific post-construction stormwater management goals shall further meet the requirements of **Appendix 3.06.2 Post Construction Stormwater Management BMP Standards and Specifications, Section 14.0 Soil Amendments**.

Source: USDA - NRCS

Symbol: **SCE**

Detail No. **DE-ESC-3.4.1**
Sheet 2 of 2
Effective July 2023

LEIPSIC RESEARCH DOCK FACILITY

REVISIONS:
DESCRIPTION: _____
DATE: _____ BY: _____

E&S DETAILS

SEAL: _____

CIVIL ENGINEER: _____

CENTURY
ENGINEERING
A Kleinfelder Company

DESIGNED BY: **ALW**

DRAWN BY: **DFS**

CHECKED BY: **ALW**

DATE: **11-07-2025**

SCALE: **NTS**

SHEET NO.: **C201**

PROJECT NO.: **00175013.092A**

Standard Detail & Specifications

Vegetative Stabilization

REQUIRED FOR THIS PROJECT

TEMPORARY SEEDING BY RATES, DEPTHS AND DATES

Mix #	Species ⁵	Seeding Rate		Optimum Seeding Dates ¹ O = Optimum Planting Period; A = Acceptable Planting Period							Planting Depth ³
				Coastal Plain			Piedmont			All	
	Certified Seed	lb/Ac ⁴	lb/1000 sq.ft.	2/1-4/30	2 5/1-8/14	8/15-10/31	3/1-4/30	2 5/1-7/31	8/1-10/31	10/31-2/1	
1	Barley	125	4	O	A	O	O	A	O		1-2 inches 2-3" sandy soils
2	Oats	125	4	O	A	A	O	A	A		1-2 inches 2-3" sandy soils
3	Rye	125	4	O	A	O	O	A	O	A	1-2 inches 2-3" sandy soils
4	Perennial Ryegrass	125	4	O	A	O	O	A	O		0.5 inches 1-2" sandy soils
5	Annual Ryegrass	125	4	O	A	O	O	A	O	A	0.5 inches 1-2" sandy soils
6	Winter Wheat	125	4	O	A	O	O	A	O	A	1-2 inches 2-3" sandy soils
7	Foxtail Millet	30 PLS	0.7		O			O			0.5 inches 1-2" sandy soils
8	Pearl Millet	20 PLS	0.5		O			O			0.5 inches 1-2" sandy soils

1. Winter seeding requires 3 tons per acre of straw mulch for proper stabilization.
2. May be planted throughout summer if soil moisture is adequate or seeded area can be irrigated.
3. Applicable on slopes 3:1 or less.
4. Use varieties currently recommended for Delaware. Contact a County Extension Office for information.
5. Warm season grasses such as Millet may be used between 5/1 and 9/1 if desired. Seed at 3-5 lbs. per acre. Good on low fertility and acid areas. Seed after frost through summer at a depth of 0.5".

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source:

Delaware ESC Handbook

Symbol:

Detail No.

DE-ESC-3.4.3

Sheet 1 of 4

Effective July 2023

Standard Detail & Specifications

Vegetative Stabilization

PERMANENT SEEDING AND SEEDING DATES											
Seeding Mixtures		Seeding Rate ¹		Optimum Seeding Dates ²						Remarks	
Mix No.	Certified Seed ³	lb/Ac	lb/1000 sq.ft.	2/1-4/30	5/1-8/14	8/15-10/31	3/1-4/30	5/1-7/31	8/1-10/31	10/31-2/1	
	Well Drained Soils										
1	Tall Fescue	140	3.2	A	O	A	A	O	A	Add 100 lbs./ac Winter Rye	Good erosion control mix Tolerant of low fertility soils Good for droughty sites
	Canada Wild Rye	10	0.23								
2	Deertongue	30	0.69	A	O	A	A	O	A	Add 100 lbs./ac Winter Rye	Good erosion control mix Tolerant of low fertility soils
	Sheep Fescue	30	0.69								
	White Clover	10	0.35								Legume that fixes atmospheric N into soil
3	Tall Fescue (Turf-type) or Strong Creeping Red Fescue or Perennial Ryegrass	50	1.15	O	A ⁴	O	O	A ⁴	O	Add 100 lbs./ac. Winter Rye	Good erosion control mix Tall Fescue for droughty conditions. Creeping Red Fescue for heavy shade. Flatpea to suppress woody vegetation.
	plus Flatpea ⁵	15	0.34								
4	Strong Creeping Red Fescue	100	2.3	O	A ⁴	O	O	A ⁴	O	Add 100 lbs./ac. Winter Rye	Suitable waterway mix. Canada Bluegrass more drought tolerant.
	Kentucky Bluegrass	70	1.61								Use Redtop for increased drought tolerance.
	Perennial Ryegrass or Redtop	15	0.35								
	plus White Clover ⁵	5	0.11								
		3	0.07								
5	Switchgrass ^{6,7} or Coastal Panicgrass	10	0.23		O			O			Native warm-season mixture. Tolerant of low fertility soils.
	Big Bluestem	10	0.23								Drought tolerant.
	Little Bluestem	5	0.11								Poor shade tolerance.
	Indian Grass	5	0.11								N fertilizer discouraged - weeds
6	Tall Fescue (turf-type) (Blend of 3 cultivars)	150	3.5	O	A ⁴	O	O	A ⁴	O		Managed filter strip for nutrient uptake.
7	Tall Fescue	150	3.5	O	A ⁴	O	O	A ⁴	O		Three cultivars of Kentucky Bluegrass. Traffic tolerant.
	Ky. Bluegrass (Blend)	20	0.46								
	Perennial Ryegrass	20	0.46								
8	Big Bluestem ⁷	10	0.23	O	A ⁴		O	A ⁴			All species are native.
	Indian Grass ⁷	10	0.23								Indian Grass and Bluestem have fluffy seeds. Plant with a specialized native seed drill.
	Little Bluestem ⁷	8	0.18								
	Creeping Red Fescue	30	0.69								
	plus one of:										
	Partridge Pea	5	0.11								Creeping Red Fescue will provide erosion protection while the warm season grasses get established.
	Bush Clover	3	0.07								
	Wild Indigo	3	0.07								
	Showy Tick-Trefoil	2	0.05								

NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		DE-ESC-3.4.3 Sheet 2 of 4 Effective July 2023

PERMANENT SEEDING AND SEEDING DATES (cont.)											
Seeding Mixtures		Seeding Rate ¹		Optimum Seeding Dates ²						Remarks	
Mix No.	Certified Seed ³	lb/Ac	lb/1000 sq.ft.	2/1-4/30	5/1-8/14	8/15-10/31	3/1-4/30	5/1-7/31	8/1-10/31	10/31-2/1	
	Poorly Drained Soils										
9	Redtop Creeping Bentgrass Sheep Fescue Rough Bluegrass	75 35 30 45	1.72 0.8 0.69 1	O	A ⁴	O	O	A ⁴	O	Add 100 lbs./ac. Winter Rye	Quick stabilization of disturbed sites and waterways
10	Switchgrass ⁵	10	0.23	A		O	A		O		Good erosion control, wildlife cover and wetland revegetation.
Residential Lawns											
11	Tall Fescue Perennial Ryegrass Kentucky Bluegrass Blend	100 25 30	2.3 0.57 0.69	O	A ⁴	O	O	A ⁴	O		High value, high maintenance, light traffic, irrigation necessary. Well drained soils, full sun.
12	Tall Fescue Perennial Ryegrass Sheep Fescue	100 25 25	2.3 0.57 0.57	O	A ⁴	O	O	A ⁴	O		Moderate value, low maintenance, traffic tolerant
13	Creeping Red Fescue Chewings Fescue Rough Bluegrass Kentucky Bluegrass	50 50 20 20	1.15 1.15 0.4 0.4	O	A ⁴	O	O	A ⁴	O		Shade tolerant, moderate traffic tolerance, moderate maintenance.
14	Creeping Red Fescue Rough Bluegrass or Chewings Fescue	50 90	1.15 2.1	O	A ⁴	O	O	A ⁴	O		Shade tolerant, moisture tolerant.
15	K-31 Tall Fescue	150	3.5	O	A ⁴	O	O	A ⁴	O		Monoculture, but performs well alone in lawns. Discouraged.
1. When hydroseeding is the chosen method of application, the total rate of seed should be increased by 25%. 2. Winter seeding requires 3 tons per acre of straw mulch. Planting dates listed above are average for Delaware. These dates may require adjustment to reflect local conditions. 3. All seed shall meet the minimum purity and minimum germination percentages recommended by the Delaware Department of Agriculture. The maximum % of weed seeds shall be in accordance with Chapter 15, Title 3 of the Delaware Code. 4. Turf-type species may be planted throughout summer if soil moisture is adequate or seeded area can be irrigated. 5. It is recommended that all leguminous seed be inoculated. 6. Warm season grass mix and Switchgrass cannot be mowed more than 4 times per year. 7. Warm season grasses require a soil temperature of at least 50 degrees in order to germinate and will remain dormant until then.											
NOTE: Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.											
Source: Delaware ESC Handbook	Symbol:							Detail No. DE-ESC-3.4.3 Sheet 3 of 4 Effective July 2023			

Standard Detail & Specifications

Vegetative Stabilization

Construction Notes:

1. Site Preparation

- a. Prior to seeding, install needed erosion and sediment control practices such as diversions, grade stabilization structures, berms, dikes, grassed waterways, and sediment basins.
- b. Final grading and shaping is not necessary for temporary seedings.

2. Seedbed Preparation

It is important to prepare a good seedbed to ensure the success of establishing vegetation. The seedbed should be well prepared, loose, uniform, and free of large clods, rocks, and other objectionable material. The soil surface should not be compacted or crusted.

3. Soil Amendments

- a. Lime - Apply liming materials based on the recommendations of a **soil test** in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply dolomitic limestone at the rate of 1 to 2 tons per acre. Apply limestone uniformly and incorporate into the top 4 to 6 inches of soil.
- b. Fertilizer - Apply fertilizer based on the recommendations of a **soil test** in accordance with the approved nutrient management plan. If a nutrient management plan is not required, apply a formulation of 10-10-10 at the rate of 600 pounds per acre. Apply fertilizer uniformly and incorporate into the top 4 to 6 inches of soils.

4. Seeding

- a. For **temporary stabilization**, select a mixture from **Sheet 1**. For a **permanent stabilization**, select a mixture from **Sheet 2** or **Sheet 3** depending on the conditions. Alternative seed mixes may be used with prior approval from the Department or Delegated Agency.
- b. Apply seed uniformly with a broadcast seeder, drill, cultipacker seeder or hydroseeder. All seed will be applied at the recommended rate and planting depth.
- c. Seed that has been broadcast should be covered by raking or dragging and then lightly tamped into place using a roller or cultipacker. If hydroseeding is used and the seed and fertilizer is mixed, they will be mixed on site and the seeding shall be done immediately and without interruption.

5. Mulching

All mulching shall be done in accordance with detail **DE-ESC-3.4.5**.

Source:	Symbol:	Detail No.
Delaware ESC Handbook		DE-ESC-3.4.3 Sheet 4 of 4 Effective July 2023

Standard Detail & Specifications

Mulching

1. Materials and Amounts

- a. *Straw* - Straw shall be unrotted small grain straw applied at the rate of 1-1/2 to 2 tons per acre, or 70 to 90 pounds (two bales) per 1,000 square feet. Mulch materials shall be relatively free of weeds and shall be free of noxious weeds such as; thistles, Johnsongrass, and quackgrass. Spread mulch uniformly by hand or mechanically. For uniform distribution of hand spread mulch, divide area into approximately 1,000 square feet sections and place 70-90 pounds (two bales) of mulch in each section.
- b. *Wood chips* - Apply at the rate of approximately 6 tons per acre or 275 pounds per 1,000 square feet when available and when feasible. These are particularly well suited for utility and road rights-of-way. If wood chips are used, increase the application rate of nitrogen fertilizer by 20 pounds of N per acre (200 pounds of 10-10-10 or 66 pounds of 30-0-0 per acre).
- c. *Hydraulically applied mulch* - The following conditions apply to hydraulically applied mulch:
 - i. Definitions:
 - a. Wood fiber mulch shall consist of specially prepared wood that has been processed to a uniform state, is packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment, and consists of a minimum of 70% virgin or recycled wood fiber combined with 30% paper fiber and additives.
 - b. Blended fiber mulch shall consist of any hydraulic mulch that contains greater than 30% paper fiber. The paper component must consist of specially prepared paper that has been processed to a uniform fibrous state and is packaged for sale as a hydraulic mulch for use with hydraulic seeding equipment.
 - c. A bonded fiber matrix (BFM) consists of long strand, specially prepared wood fibers that have been processed to a uniform state held together by a water resistant bonding agent. BFMs shall contain no paper (cellulose) mulch but may contain small percentages of synthetic fibers to enhance performance.
 - d. Refer to **Figure 3.4.5a** for conditions and limitations of use for each of the above categories of hydraulic mulch.
 - ii. All components of the hydraulically applied mulches shall be pre-packaged by the manufacturer to assure material performance. Field mixing of the mulch components is acceptable, but must be done per manufacturers recommendations to ensure the proper results.
 - iii. Hydraulic mulches shall be applied with a viable seed and at manufacturer's recommended rates. Increased rates may be necessary based on site conditions.
 - iv. Hydraulically applied mulches and additives shall be mixed according to manufacturers recommendations.
 - iv. Materials within this category shall only be used when hydraulically applied mulch has been specified for use on the approved Sediment and Stormwater Plan, or supplemental approval from the plan approval agency has been obtained in writing for a specific area.

Source:	Symbol:	Detail No.
Delaware ESC Handbook & Filtrexx™ International		DE-ESC-3.4.5 Sheet 1 of 3 Effective July 2023

Standard Detail & Specifications

Mulching

v. Application:

- Apply product to geotechnically stable slopes that have been designed and constructed to divert runoff away from the face of the slope.
- Do not apply to saturated soils, or if precipitation is anticipated within 24-48 hours.
- During the spring (March 1 to May 31) and fall (September 1 to November 30) seasons, hydraulic mulches may be applied in a one-step process where all components are mixed together in single-tank loads. It is recommended that the product be applied from opposing directions to achieve optimum soil coverage.
- During the summer (June 1 to August 31) and winter (December 1 to February 28) seasons, the following two-step process is required:
Step One—Mix and apply seed and soil amendments with a small amount of mulch for visual metering.
Step Two—Mix and apply mulch at manufacturers recommended rates over freshly seeded surfaces. Apply from opposing directions to achieve optimum soil coverage.
- Minimum curing temperature is 40° F (4° C). The best results and more rapid curing are achieved at temperatures exceeding 60° F (15° C). Curing times may be accelerated in high temperature, low humidity conditions on dry soils.

vi. Recommended application rates are for informational purposes only. Conformance with this standard and specification shall be performance-based and requires **100% soil coverage**. Any areas with bare soil showing shall be top dressed until full coverage is achieved.

d. *Compost blanket (CB)* - Loosely applied with a pneumatic blower so that a 1" compost blanket uniformly covers the **soil with 100% coverage**. This application can be used with seed to promote germination by applying the approved seed mix directly into the loosely blown compost. The compost blanket performs best on slopes less than 2:1 and requires no mulch anchoring.

2. **Anchoring mulch** - Mulch must be anchored immediately to minimize loss by wind or water. This may be done by one of the following methods, depending upon size of area, erosion hazard, and cost.

- Crimping* - A crimper is a tractor drawn implement designed to punch and anchor mulch into the top two (2) inches of soil. This practice affords maximum erosion control but is limited to flatter slopes where equipment can operate safely. On sloping land, crimping should be done on the contour whenever possible.
- Tracking* - Tracking is the process of cutting mulch (usually straw) into the soil using a bulldozer or other equipment that runs on cleated tracks. Tracking is used primarily on slopes 3:1 or steeper and should be done up and down the slope with cleat marks running across the slope.
- Liquid mulch binders* - Applications of liquid mulch binders should be heavier at edges, in valleys, and at crests of banks and other areas where the mulch will be moved by wind or water. All other areas should have a uniform application of binder. The use of synthetic binders is the preferred method of mulch binding and should be applied at the rates recommended by the manufacturer.
- Paper fiber* - The fiber binder shall be applied at a net dry weight of 750 lbs/ac. The wood cellulose fiber shall be mixed with water, and the mixture shall contain a maximum of 50 lbs. of wood cellulose fiber per 100 gallons.
- Nettings* - Biodegradable nettings may be used to secure straw mulch. Install and secure according to the manufacturer's recommendations. Photodegradable or synthetic nettings are not acceptable.

Source:	Symbol:	Detail No.
Delaware ESC Handbook & Filtrexx™ International		DE-ESC-3.4.5 Sheet 2 of 3 Effective July 2023

MULCHING MATERIAL SELECTION GUIDE						
Percent Slope	Type of Mulch / App. Rate [*]	Dec. 1 to Feb. 28(29)	March 1 to May 31	June 1 to Aug. 31	Sept. 1 to Nov. 30	
Less than 2%	Blended Fiber @ 2000 lbs/acr. minimum Wood Fiber @ 2000 lbs/acr. min. BFM @ 3000 lbs/acr. min. Straw @ 2 Tons/acr. Mn. Stabilization Matting ^{**} 1" Compost Blanket (CB)	xxxxxxxxxxxxxxxxxxxx OK OK OK OK OK	OK (<1 ac.) OK OK OK OK OK	xxxxxxxxxxxxxxxxxxxx OK OK OK OK OK	OK (<1 ac.) OK OK OK OK OK	
2% to 5.9%	Wood Fiber @ 2000 lbs/acr. min. BFM @ 3000-3500 lbs/acr. min. Straw @ 2 Tons/acr. min. Stabilization Matting ^{**} 1" Compost Blanket (CB)	xxxxxxxxxxxxxxxxxxxx OK OK OK OK	OK OK OK OK OK	xxxxxxxxxxxxxxxxxxxx OK OK OK OK OK	OK OK OK OK OK	
6% to 10.9%	Wood Fiber @ 2000-2500 lbs/acr. min. BFM @ 3500-4000 lbs/acr. min. Straw @ 2 Tons/acr. min. Stabilization Matting ^{**} 1" Compost Blanket (CB)	xxxxxxxxxxxxxxxxxxxx OK OK OK OK	OK OK OK OK OK	xxxxxxxxxxxxxxxxxxxx OK OK OK OK OK	OK OK OK OK OK	
11% to 24.9%	Wood Fiber @ 2500-3000 lbs/acr. min. BFM @ 3500-4000 lbs/acr. min. Straw @ 2 Tons/acr. min. Stabilization Matting ^{**} 1" Compost Blanket (CB)	xxxxxxxxxxxxxxxxxxxx OK OK OK OK	OK OK OK OK OK	xxxxxxxxxxxxxxxxxxxx OK OK OK OK OK	OK OK OK OK OK	
25% to 33%	Wood Fiber @ 2500-3000 lbs/acr. min. BFM @ 4000 lbs/acr. min. Straw @ 2 Tons/acr. min. Stabilization Matting ^{**} 1" Compost Blanket (CB)	xxxxxxxxxxxxxxxxxxxx OK OK OK OK	OK OK OK OK OK	xxxxxxxxxxxxxxxxxxxx OK OK OK OK OK	OK OK OK OK OK	
33% and up	BFM @ 4000-4500 lbs/acr. min. Straw @ 2 Tons/acr. min. ^{***} Stabilization Matting ^{**} 1" Compost Blanket (CB)	xxxxxxxxxxxxxxxxxxxx OK OK 2:1 Max.	OK OK 2:1 Max.	xxxxxxxxxxxxxxxxxxxx OK OK 2:1 Max.	OK OK 2:1 Max.	

Standard Detail & Specifications

Dust Control

Temporary Methods:

1. Mulches - See **DE-ESC-3.4.5**, Standard Detail and Specifications for Mulching.
2. Vegetative cover - See **DE-ESC-3.4.3**, Std. Detail and Specifications for Vegetative Stabilization.
3. Adhesives - Use on mineral soils only (not effective on muck soils). Keep traffic off these areas. The following table may be used for general guidance.

Type of Emulsion	Water Dilution	Type of Nozzle	Apply Gal/Ac.
Latex emulsion	12.5:1	Fine spray	235
Resin-in-water emulsion	4.1	Fine spray	300
Acrylic emulsion (non-traffic)	7:1	Coarse spray	450
Acrylic emulsion (traffic)	3.5:1	Coarse spray	350

4. Tillage - For emergency temporary treatment, scarify the soil surface to prevent or reduce the amount of blowing dust until a more appropriate solution can be implemented. Begin the tillage operation on the windward side of the site using a chisel-type plow for best results.
5. Sprinkling - Sprinkle site with water until the surface is moist. Repeat as needed.
6. Calcium Chloride - Apply as flakes or granular material with a spreader at a rate that will keep the soil surface moist. Re-apply as necessary.
7. Barriers - Place barriers such as solid board fences, snow fences, hay bales, etc. at right angles to the prevailing air currents at intervals of approx. 10X their height.

Permanent Methods:

1. Vegetative cover - See **DE-ESC-3.4.3**, Std. Detail and Specifications for Vegetative Stabilization.
2. Stone - Apply layer of crushed stone or coarse gravel to protect soil surface.

Source:	Symbol:	Detail No.
Adapted from VA ESC Handbook		DE-ESC-3.4.8 Sheet 1 of 1

Effective July 2023

SEAL:

The logo for Century Engineering is displayed. It features a large, bold, black 'M' graphic on the left. To the right of the 'M', the word 'CENTURY' is written in a large, serif, all-caps font. Below 'CENTURY', the word 'ENGINEERING' is written in a slightly smaller, but also bold and serif, all-caps font. A horizontal line separates the 'M' and the text. Below the text, the words 'A Kleinfelder Company' are written in a bold, sans-serif, all-caps font. The entire logo is set against a white background with a thin black border around the entire page.

The logo is circular with a blue border. Inside the border, the words "FCC DIVISION OF FISH AND WILDLIFE" are written in a serif font, with "FCC" at the top and "DIVISION OF FISH AND WILDLIFE" below it. In the center of the circle is a stylized illustration of a fish and a bird.

DATE:	11-07-2025
SCALE:	NTS
SHEET NO.:	1

<p>Standard Detail & Specifications Construction Site Pollution Prevention</p> <p>Delaware NPDES Discharge Permit General Permit for Discharge of Stormwater from Construction Activities</p> <p>((Project Name)) ((NOI Permit Number)) ((Agency Plan Approval ID)) ((Contact Name & Number for Additional Site Information)) ((Contact Name & Number to Obtain Copy of Approved Plan))</p> <p>If you observe indicators of stormwater pollutants in the discharge or in the receiving waterbody, call the DNREC Spill Notification 24 HR Hotline at 1-800-662-8802</p> <p>Example Construction General Permit (CGP) Signage</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. Minimum sign size 2' x 2' 2. Minimum text size 1" 3. Sign must be posted at a safe, publicly accessible location close to construction site. 4. Sign must be visible from the public road nearest the active construction site. 5. Signs posted within a DelDOT or other public road right-of-way (ROW) must be in accordance with all local and/or State requirements in regards to safety, location, orientation, etc. <p>Source: Delaware ESC Handbook Symbol: Detail No. DE-ESC-3.6.1 Sheet 1 of 4 Effective July 2023</p>			<p>Standard Detail & Specifications Construction Site Pollution Prevention</p> <p>Notes: The Construction Site Pollution Prevention Plan includes the following elements:</p> <ol style="list-style-type: none"> Material Inventory Document the storage and use of the following materials: <ul style="list-style-type: none"> a. Concrete b. Detergents c. Paints (enamel and latex) d. Cleaning solvents e. Pesticides f. Wood scraps g. Fertilizers h. Petroleum based products Good housekeeping practices <ul style="list-style-type: none"> a. Store only enough product required to do the job. b. Store all materials in a neat, orderly manner in their original labeled containers and covered. c. Do not mix different substances. d. When possible, use all of a product prior to disposal of the container. e. Manufacturers' instructions for disposal should be strictly adhered to. f. Designate someone to inspect all BMPs daily. Waste management practices <ul style="list-style-type: none"> a. Collect and store all waste materials in securely lidded dumpsters in a location that does not drain to a waterbody. b. Salvage and/or recycle waste materials whenever possible. c. The dumpsters shall be emptied a minimum of twice per week, or more if necessary. The licensed trash hauler is responsible for cleaning out dumpsters. <p>Source: Adapted from USEPA Pub. 840-B-92-002 Symbol: Detail No. DE-ESC-3.6.1 Sheet 2 of 4 Effective July 2023</p> <p>Notes (cont.)</p> <ol style="list-style-type: none"> d. Dispose of all trash in accordance with all applicable Delaware laws. e. Littering is strictly prohibited. Trash cans should be placed at all lunch spots and recycle bins should be placed near the construction trailer. f. If fertilizer bags can not be stored in a weather-proof location, they should be kept on a pallet and covered with plastic sheeting which is overlapped and anchored. <ol style="list-style-type: none"> Equipment maintenance practices <ul style="list-style-type: none"> a. If possible, equipment should be taken to off-site commercial facilities for washing and maintenance. b. If performed on-site, wash vehicles with high-pressure water spray without detergents in an area contained by an impervious berm. c. Use drip pans for all equipment maintenance. d. Inspect equipment for leaks on a daily basis. e. Direct washout from concrete trucks into a temporary pit for hardening and proper disposal. f. Equip fuel nozzles with automatic shut-off valves. g. Dispose of all used products such as oil, antifreeze, solvents and tires in accordance with manufacturers' recommendations and local, state and federal laws and regulations. Spill prevention practices <ul style="list-style-type: none"> a. Identify potential spill areas and contain them in covered areas with no connection to the storm drain system. b. Post warning signs in hazardous material storage areas. c. Perform preventive maintenance on all tanks, valves, pumps, pipes and other equipment as necessary. d. Prioritize low or non-toxic substances for use. <p>Source: Adapted from USEPA Pub. 840-B-92-002 Symbol: Detail No. DE-ESC-3.6.1 Sheet 3 of 4 Effective July 2023</p> <p>CONTACT INFORMATION</p> <p>DNREC 24-Hour Toll Free Number 800-662-8802 DNREC Solid & Hazardous Waste Management Section 302-739-9403</p>					
<p>Standard Detail & Specifications Fueling & Spill Control</p> <p>POLLUTION PREVENTION – FUELING & SPILL CONTROL</p> <p>DATA TO BE PROVIDED</p> <ul style="list-style-type: none"> Volume of Potential Pollution Height of containment Area of containment Volume of containment <p>NOTE: Double-walled tanks with proper labeling meet EPA requirements for secondary containment.</p> <p>FUELING AREA</p> <p>CLEAN UP SPILLS</p> <p>LEAKS AND DRIPS</p> <p>Source: Delaware ESC Handbook Symbol: Detail No. DE-ESC-3.6.4 Sheet 1 of 2 Effective July 2023</p>			<p>Standard Detail & Specifications Fueling & Spill Control</p> <p>POLLUTION PREVENTION – FUELING & SPILL CONTROL</p> <ol style="list-style-type: none"> 1. Fueling should only take place in signed designated areas, away from downstream drainage facilities and watercourses. 2. Fueling must be with nozzles equipped with automatic shut-off to control drips. Do not top off. 3. Protect the areas where equipment or vehicles are being repaired, maintained, fueled or parked from storm water run-on and runoff. 4. Use barriers such as berms to prevent storm water run-on and runoff, and to contain spills. 5. Place a "Fueling Area" sign next to each fueling area. 6. Store hazardous materials such as fuel, solvents, oil and chemicals in secondary containment. 7. Inspect vehicles and equipment for leaks on each day of use. Repair fluid and oil leaks immediately. 8. Absorbent spill clean-up materials and spill kits must be available in fueling areas and on fuel trucks. 9. If fueling is to take place at night, make sure the fueling area is sufficiently illuminated. 10. Properly dispose of used oil, fluids, lubricants and spill clean-up materials. <p>CLEAN UP SPILLS</p> <ol style="list-style-type: none"> 1. If it is safe to do so, immediately contain and clean up any chemical and/or hazardous material spills. 2. Properly dispose of used oil, fluids, lubricants and spill clean-up materials. 3. Do not bury spills or wash them down with water. <p>LEAKS AND DRIPS</p> <ol style="list-style-type: none"> 1. Use drip pans or absorbent pads at all times. Place under and around leaky equipment. 2. Do not allow oil, grease, fuel or chemicals to drip onto the ground. 3. Have spill kits and clean up material on-site. 4. Repair leaky equipment promptly or remove problem vehicles and equipment from the site. Clean up contaminated soil immediately. 5. Store contaminated waste in sealed containers constructed of suitable material. Label these containers properly. 6. Clean up all spills and leaks. Promptly dispose of waste and spent clean up materials. <p>Source: Delaware ESC Handbook Symbol: Detail No. DE-ESC-3.6.4 Sheet 2 of 2 Effective July 2023</p>			<p>Standard Detail & Specifications Stabilization Matting - Slope</p> <p>Perspective</p> <p>Construction Notes:</p> <ol style="list-style-type: none"> 1. Prepare soil before installing matting, including application of lime, fertilizer, and seed. 2. Begin at the top of the slope by anchoring the mat in a 6" deep X 6" wide trench. Backfill and compact trench after stapling. 3. Roll the mats (A) down or (B) horizontally across the slope. 4. The edges of parallel mats must be stapled with approx. 2" overlap. 5. When mats must be spliced down the slope, place mats end over end (shingle style) with approx. 4" overlap. Staple through overlapped area, approx. 12" apart. <p>Stapling Patterns</p> <p>Source: Adapted from North American Green, Inc. Symbol: SM-S Detail No. DE-ESC-3.4.6.1 Sheet 1 of 2 Effective July 2023</p>		
<p>REVISIONS: BY: _____ DESCRIPTION: _____ DATE: _____</p>			<p>REVISIONS: BY: _____ DESCRIPTION: _____ DATE: _____</p>					
<p>LEIPSIC RESEARCH DOCK FACILITY</p>			<p>EROSION & SEDIMENT CONTROL DETAILS</p>					
<p>SEAL: CIVIL ENGINEER: CENTURY ENGINEERING A Kleinfelder Company</p> <p>DESIGNED BY: ALW</p> <p>DRAWN BY: DFS</p> <p>CHECKED BY: ALW</p> <p>DATE: 11-07-2025</p> <p>SCALE: NTS</p> <p>SHEET NO.: C203</p> <p>PROJECT NO.: 00175013.092A</p>								

<p>Standard Detail & Specifications Silt Fence</p> <p>Min. 40" stake length Reinforcing strip over geosynthetic fabric (Typ. each stake) Flow Embed fabric min. 8" vertically into ground Min. 24" stake length above ground Min. 16" stake length driven into ground Section Flow Ends placed upslope to contain runoff G' Max. 2" X 2" wooden post (Typ.) Plan DATA Max. controlled slope</p> <p>Source: Adapted from MD Stds. & Specs. for ESC Symbol: SF Detail No. DE-ESC-3.1.2.1 Sheet 1 of 2 Effective July 2023</p>			<p>Standard Detail & Specifications Silt Fence</p> <p>Construction Detail</p> <p>Posts Staple Section A Section B Staple Top</p> <p>Construction Notes:</p> <ol style="list-style-type: none"> 1. Geosynthetic fabric to be fastened securely to fence posts with wire ties or staples. 2. When two sections of filter cloth adjoin each other they shall be overlapped by six inches and folded. 3. Maintenance shall be performed as needed and material removed when "bulges" develop in the silt fence. <p>Materials:</p> <ol style="list-style-type: none"> 1. Stakes: Steel (either T or U) or 2" x 2" hardwood 2. Geosynthetic Fabric: Type GD-I 3. Reinforcing strip: Wooden lath or plastic strip <p>Source: Adapted from MD Stds. & Specs. for ESC Symbol: SF Detail No. DE-ESC-3.1.2.1 Sheet 2 of 2 Effective July 2023</p>	<p>Standard Detail & Specifications Concrete Washout</p> <p>Plan View Length, l = 6' MIN. Width, w = 6' MIN. Depth, d = 3' MIN. Berm required on all sides (excluding access drive location) Concrete Washout Sign Access drive to be paved or meet material specifications of a Stabilized Construction Entrance (DE-ESC-3.4.7) 10' min. Connect to paved or gravel surface Section A-A DO NOT USE KEYED LINER. USE ALTERNATE LINER OPTION BELOW. Compacted Berm with liner keyed underneath (or see sandbag option below) 1 mil polyethylene liner 2% slope Paved or gravel access drive to connect to solid surface Undisturbed or compacted earth Note: Prefabricated concrete washout option not shown. Alternate Liner Option Compacted Berm with liner overtop with a sandbag or concrete block anchor Sandbag or concrete block</p> <p>Source: Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3 Symbol: CW Detail No. DE-ESC-3.6.2 Sheet 1 of 2 Effective July 2023</p>	<p>Standard Detail & Specifications Concrete Washout</p> <p>Construction Notes:</p> <ol style="list-style-type: none"> 1. Locate washout area a minimum of 50 feet from open channels, stormdrain inlets, wetlands or waterbodies. 2. Locate washout area so that it is accessible to concrete equipment (service with a minimum 10 foot wide gravel accessway), but so it is not in a highly active construction area causing accidental damage. 3. Minimum dimensions for prefabricated units are 4 feet by 4 feet by 1 foot deep with a minimum 4mil polyethylene plastic liner. Minimum dimensions for constructed concrete washout areas are 6 feet by 6 feet by 3 feet deep, with a minimum 10mil polyethylene liner, 2:1 side slopes, and a 1 foot high by 1 foot wide compacted fill berm. 4. The liner must be free of tears or holes and placed over smooth surfaces to prevent puncturing. For excavated washouts, anchor the liner underneath the berm or overtop with sandbags or concrete blocks to hold in place. 5. Provide a sign designating the washout area, and for large construction sites, provide signs throughout directing traffic to its location. 6. Allow washed out concrete mixture to harden through evaporation of the wastewater. Once the facility has reached 75 percent of its capacity, remove the hardened concrete by reusing the broken aggregate onsite, recycling, or disposing of offsite. The hardened material can be buried on site with minimum of 1 foot of clean, compacted fill. 7. Apply a new liner before reusing the station for additional washouts after maintenance has occurred. <p>Source: Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3 Symbol: CW Detail No. DE-ESC-3.6.2 Sheet 2 of 2 Effective July 2023</p>
<p>Standard Detail & Specifications Soil Stockpile</p> <p>DATA Max. height (H) Stockpile entrance to be located on upslope side 3' separation (min.) Perimeter control (i.e. silt fence) Plan Max. height 20' (10' on residential lot) unless local requirements more restrictive Stabilize per Temporary Stabilization specifications 2' 1 max. Install perimeter control per specification Section A-A</p> <p>Source: Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3 Symbol: SP Detail No. DE-ESC-3.7.3 Sheet 1 of 2 Effective July 2023</p>			<p>Standard Detail & Specifications Soil Stockpile</p> <p>Construction Notes:</p> <ol style="list-style-type: none"> 1. Locate stockpiles so that they are 50 feet from any storm drain inlet, open channel, wetland or waterbody. Redirect any concentrated flow around the stockpile using an approved erosion and sediment control measure. 2. Secure the perimeter of the stockpile with an approved erosion and sediment control perimeter device. 3. If stockpile is to remain inactive for more than 14 calendar days, the stockpile must be vegetated. Follow the temporary vegetation specifications. The vegetation chosen shall last the duration of the stockpile; the stockpile shall be restabilized if the temporary vegetation dies or erosion results. <p>Source: Adapted from Colorado Urban Storm Drainage Criteria Manual, Vol 3 Symbol: SP Detail No. DE-ESC-3.7.3 Sheet 2 of 2 Effective July 2023</p>	<p>REVISIONS: BY: _____ DESCRIPTION: _____ DATE: _____</p> <p>LEIPSIC RESEARCH DOCK FACILITY</p> <p>EROSION & SEDIMENT CONTROL DETAILS</p> <p>SEAL: </p> <p>CIVIL ENGINEER: DESIGNED BY: ALW DRAWN BY: DFS CHECKED BY: ALW DATE: 11-07-2025 SCALE: NTS SHEET NO.: C204 PROJECT NO.: 00175013.092A</p>	