



**US Army Corps
of Engineers**
Philadelphia District

Wanamaker Building
100 Penn Square East
Philadelphia, PA 19107-3390
ATTN: CENAP-OP-R

Public Notice

Public Notice No.	Date
CENAP-OP-R-2008-0050-39	10 August 2020

Application No.	File No.
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In Reply Refer to:
REGULATORY BRANCH

This District has received an application for a Department of the Army permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344).

The purpose of this notice is to solicit comments and recommendations from the public concerning issuance of a Department of the Army permit for the work described below.

APPLICANT: Delaware City Refining Company LLC

AGENT: Brian J. Devine
Duffield Associates, Incorporated
5400 Limestone Rd.
Wilmington, Delaware 19808

WATERWAY: Delaware River

LOCATION: Dredging would be performed at tax map number 12-009-00-001 (as shown on the attached plans) and dredged material would be disposed on property identified as 1771 River Road and 22 Washington Street, all sites located within Delaware City, New Castle County, Delaware.

ACTIVITY: The applicant proposes to perform maintenance dredging at the Delaware City Refining facilities navigation channel, berthing area and the cooling water intake channel. This office previously issued a permit for work at these locations on December 28, 2000 (file number CENAP-OP-R-200001583-39) and in 2010 under the above referenced file number. As previously authorized, work would be performed using hydraulic dredging equipment with the dredged material being disposed at the applicant's permanent disposal sites known as CDF Area 1, CDF Area 2, CDF Area 3A and Area 3B, located at Delaware City Refining Company LLC owned property.

Approximately 14,150 linear feet of the facilities navigation channel, approximately three hundred (300) feet in width, would be dredged to a depth thirty seven (37) feet below mean low water \pm 2 feet over-dredge; the approximately twenty (20) acre berthing area would be dredged to a depth of forty (40) feet below mean low water \pm 2 feet over-dredge; and approximately ten (10) acres of the cooling water intake would be dredged to a depth of twelve (12) feet below mean low water \pm 2 feet over-dredge. The dredged material, composed primarily of silt, with clay and sand, would be pumped via pipeline to the disposal site(s) indicated above. Vessels

using the site to offload product are up to nine hundred (900) feet in length, with a draft of thirty nine (39) feet. The access channel and berthing area are typically dredged annually or every three (3) years, and typically generates approximately nine hundred thousand (900,000) cubic yards of material annually within ninety three (93) acres of the waterway. The cooling water intake is typically dredged two (2) times a year and typically generating one hundred seventy five (175,000) thousand cubic yards of material within approximately ten (10) acres of the waterway. As such, the applicant has requested that if a permit is issued for this activity, that a permit condition be added to allow for ten (10) years of maintenance dredging at the project site.

PURPOSE: The applicant's stated purpose is to allow access to the refinery and the need for the increased depth at the site is to maintain ship access and to reduce ship/barge traffic and lightening events for vessels using the site.

A preliminary review of this application indicates that species listed under the Endangered Species Act or their critical habitat pursuant to Section 7 of the ESA as amended, may be present in the action area, the shortnose sturgeon (*Acipenser brevirostrum*) and the second would be Atlantic sturgeon (*Acipenser oxyrinchus*) and its critical habitat. The ACOE will forward this PN to the National Marine Fisheries Service with a request for technical assistance on whether any ESA listed species or their critical habitat maybe present in the area which would be affected by the proposed activity. The Philadelphia District will evaluate the potential effects of the proposed actions on ESA listed species or their critical habitat and will consult with NOAA Fisheries as appropriate. ESA Section 7 consultation will be concluded prior to the final decision on this permit application.

The decision whether to issue a permit will be based on an evaluation of the activity's probable impact including its cumulative impacts on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the work must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the work will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs and welfare of the people. A Department of the Army permit will be granted unless the District Engineer determines that it would be contrary to the public interest.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Comments on the proposed work should be submitted, in writing, within 30 days to the District Engineer, via regular mail to U.S. Army Corps of Engineers, Philadelphia District,

Wanamaker Building, 100 Penn Square East, Philadelphia, Pennsylvania 19107-3390 or via email at Philadelphiadistrictregulatory@usace.army.mil. Due to the COVID19 situation, we strongly encourage comments be submitted electronically.

The USACE Cultural Resource Specialist is currently reviewing the proposed permit action for potential impacts to Historic Properties eligible for or listed on the National Register of Historic Places. A determination of effects will be coordinated with the State Historic Preservation Office, the Tribes and other consulting parties.

The Magnuson-Stevens Fishery Conservation and Management Act requires all federal agencies to consult with the NOAA Fisheries all actions, or proposed actions, permitted, funded, or undertaken by the agency that may adversely affect Essential Fish Habitat (EFH). A preliminary review of this application indicates that EFH is present within the project area. The Philadelphia District will evaluate the potential effects of the proposed actions on EFH and will consult with NOAA Fisheries as appropriate. Consultation will be concluded prior to the final decision on this permit application.

In accordance with Section 307(c) of the Coastal Zone Management Act of 1972, applicants for Federal Licenses or Permits to conduct an activity affecting land or water uses in a State's coastal zone must provide certification that the activity complies with the State's Coastal Zone Management Program. The applicant has stated that the proposed activity complies with and will be conducted in a manner that is consistent with the approved State Coastal Zone Management (CZM) Program. No permit will be issued until the State has concurred with the applicant's certification or has waived its right to do so. Comments concerning the impact of the proposed and/or existing activity on the State's coastal zone should be sent to this office, with a copy to the State's Office of Coastal Zone Management.

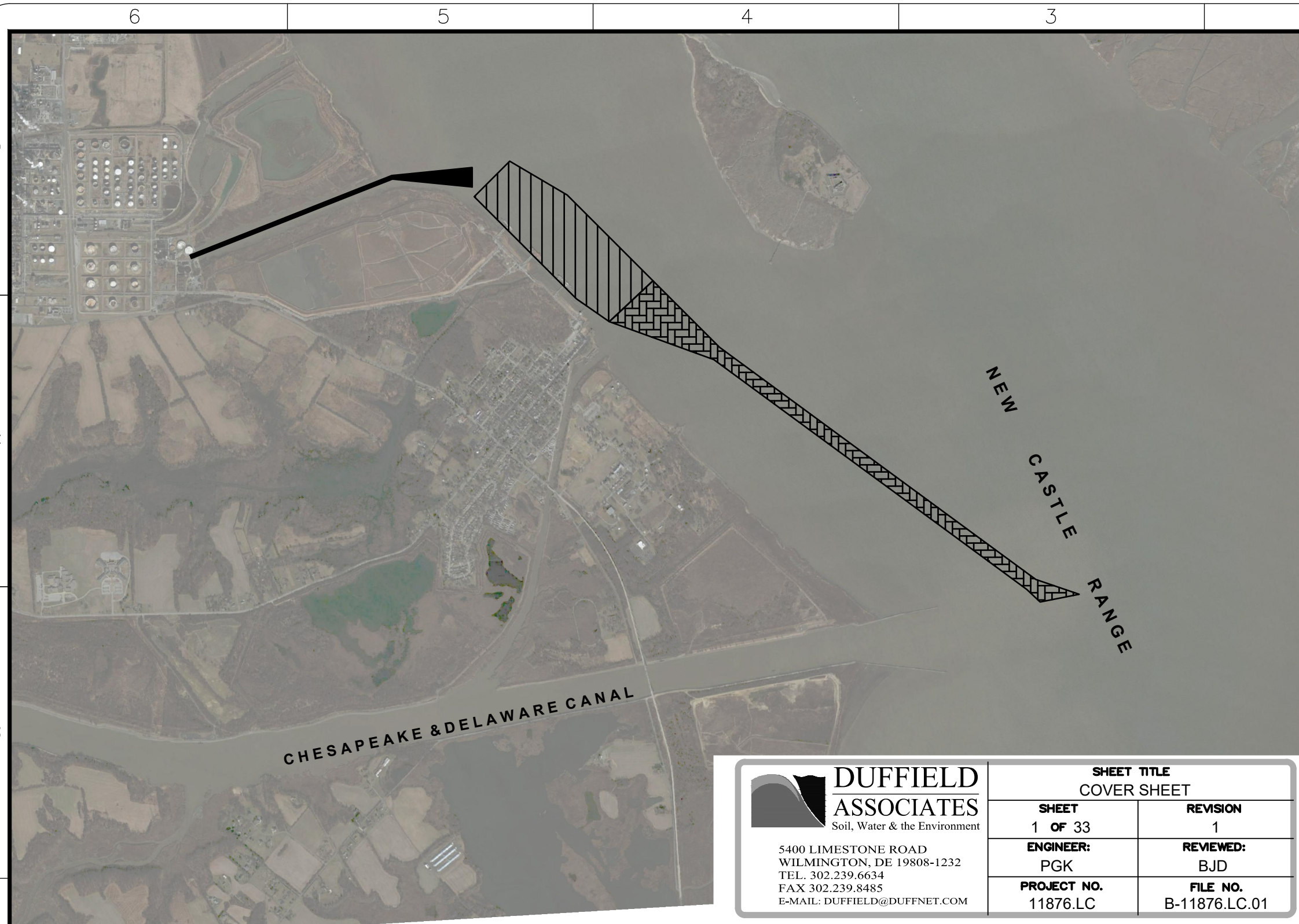
In accordance with Section 401 of the Clean Water Act, a Water Quality Certificate is necessary from the State government in which the work is located. Any comments concerning the work described above which relate to Water Quality considerations should be sent to this office with a copy to the State.

The evaluation of the impact of the work described above on the public interest will include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404(b) of the Clean Water Act.

Any person may request, in writing, to the District Engineer, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state in writing, with particularity, the reasons for holding a public hearing.




Additional information concerning this permit application may be obtained by calling Lawrence Slavitter at 215-656-6734, via email at lawrence.m.slavitter@usace.army.mil, or writing this office at the above address.

Todd A. Schaible
Chief, Regulatory Branch







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LEGEND

-  NAVIGATION CHANNEL
 BERTH AREA & TURNING BASIN
 COOLING WATER INTAKE CHANNEL

NOTE: THIS DRAWING CONTAINS AERIAL IMAGES
DOWNLOADED FROM THE DELAWARE
ENVIRONMENTAL MONITORING & ANALYSIS CENTER
(DEMAC) WEBSITE.

UNIT #15 WATER TERMINAL
AREA:

LINE #		SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #		<div></div>		
										WORK ASSIGNMENT #		T/A PPG #			
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1	6/2020	REVISED BATHYMETRY						PIPING AND INSTRUMENT DIAGRAM			APPROVED	REVIEWED	DATE	DRAWING NUMBER & FILENAME	REVISION
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE					10/25/19	. - . - . - SHTO#		.

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APPLICANT:

DELAWARE CITY REFINING COMPANY, LLC
P.O. BOX 7000
DELAWARE CITY, DE 19706

OWNER:

DELAWARE CITY REFINING COMPANY, LLC
P.O. BOX 7000
DELAWARE CITY, DE 19706

PARCEL NUMBER:

12-009.00.001

EXISTING ZONING:

HEAVY INDUSTRIAL (HI)

REGULATORY AGENCIES:

U.S. ARMY CORPS OF ENGINEERS' PHILADELPHIA DISTRICT (USACE)
DELAWARE DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL (DNREC)

EXISTING PERMITS:

USACE - CENAP-OP-R-2008-0050-39 (EXPIRES DECEMBER 31, 2020)
DNREC - SP-174/10 & WQ-175/10 (EXPIRES DECEMBER 31, 2020)

PURPOSE:

THE PURPOSE OF THESE DRAWINGS ARE TO DEPICT THE PROPOSED AREAS TO BE DREDGED.
DRAWINGS ARE NOT FOR BIDDING.

BATHYMETRY:

THESE DRAWINGS ARE ADAPTED FROM DRAWINGS PREPARED BY VAN DEMARK & LYNCH, INC.
BATHYMETRIC SURVEYS OF THE NAVIGATION CHANNEL WAS PERFORMED IN MAY 2020, THE BERTH
AREAS WAS PERFORMED IN JULY 2019 AND THE COOLING WATER INTAKE CHANNEL IN APRIL 2018.

VERTICAL DATUM:

MEAN LOW LOW WATER - MLLW

HORIZONTAL DATUM:

DELAWARE STATE PLANE, NORTH AMERICAN DATUM 1927 - NAD 27

DUFFIELD ASSOCIATES

Soil, Water & the Environment

5400 LIMESTONE ROAD
WILMINGTON, DE 19808-1232
TEL. 302.239.6634
FAX 302.239.8485
E-MAIL: DUFFIELD@DUFFNET.COM

SHEET TITLE

PROJECT INFORMATION & NOTES

SHEET	REVISION
2 OF 33	1
ENGINEER:	REVIEWED:
PGK	BJD
PROJECT NO.	FILE NO.
11876.LC	B-11876.LC.01

LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #	
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UNIT #15 WATER TERMINAL AREA:

Delaware City Refining Company

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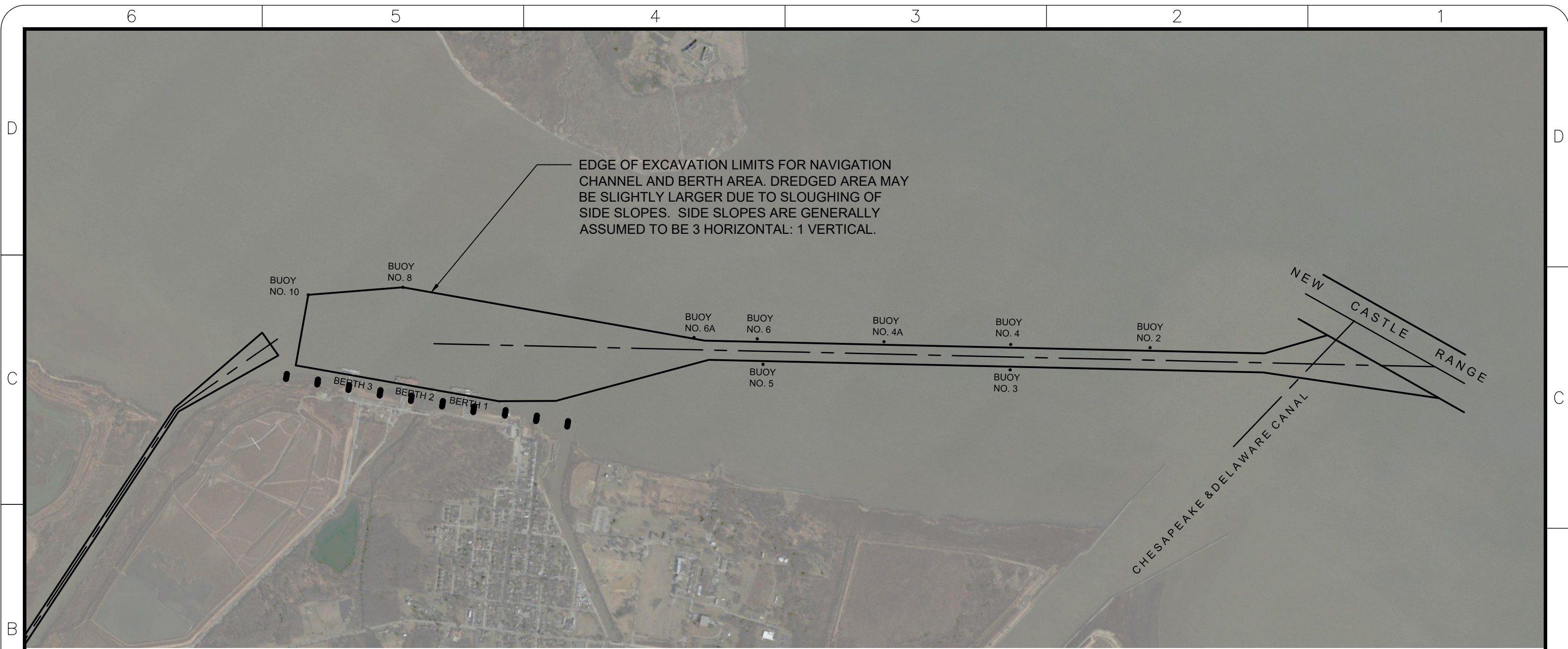
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NOTE: THIS DRAWING IS BASED ON AERIAL IMAGES PROVIDED BY THE STATE OF DELAWARE. DATE OF AERIAL IMAGES IS 2012.






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SHEET TITLE	
NAVIGATION CHANNEL & BERTH PLAN	
SHEET 3 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

UNIT #15 WATER TERMINAL AREA:

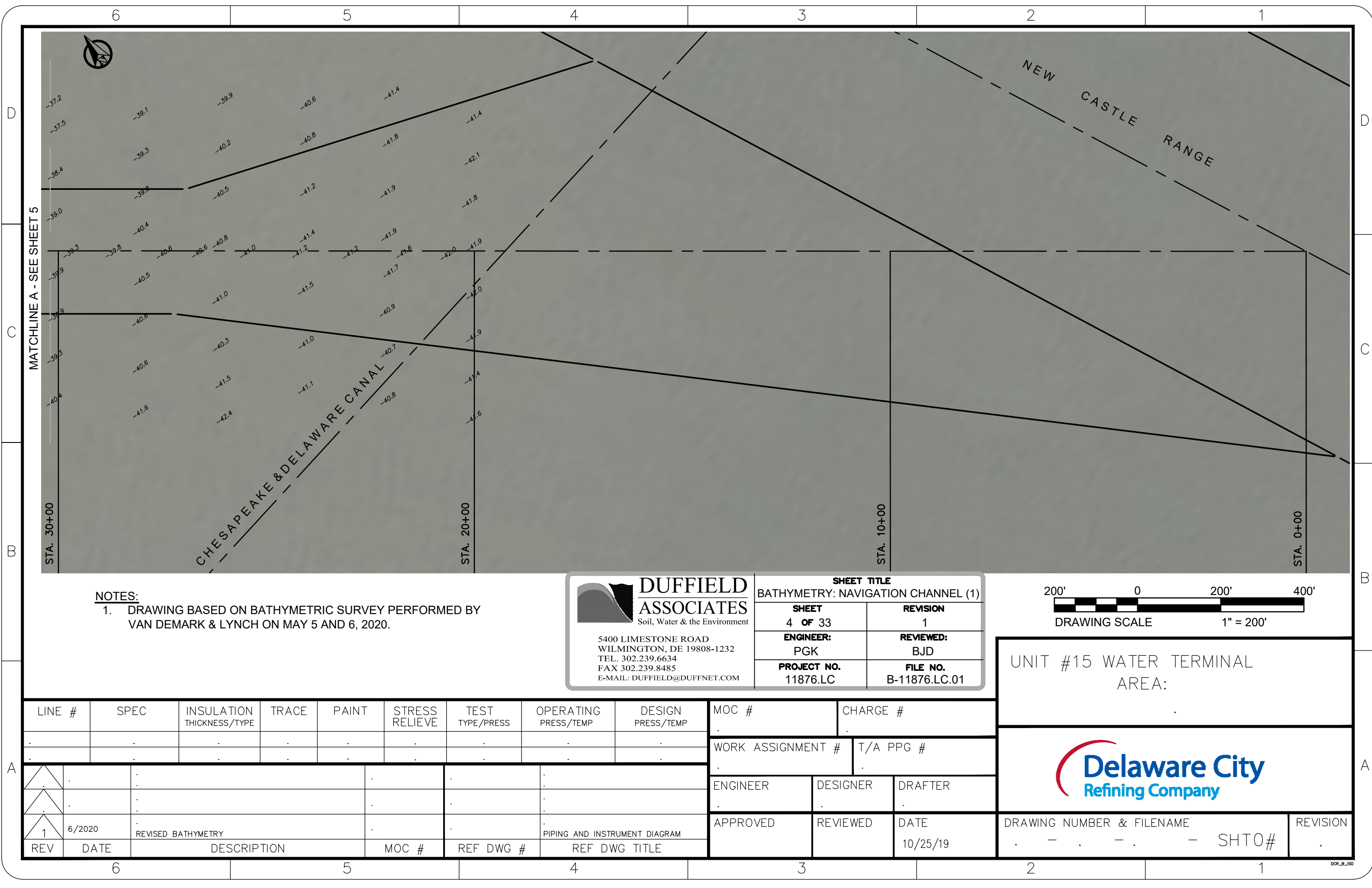


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REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE			

ENGINEER	DESIGNER	DRAFTER
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APPROVED	REVIEWED	DATE
		10/25/19



NOTES:

1. DRAWING BASED ON BATHYMETRIC SURVEY PERFORMED BY VAN DEMARK & LYNCH ON MAY 5 AND 6, 2020.




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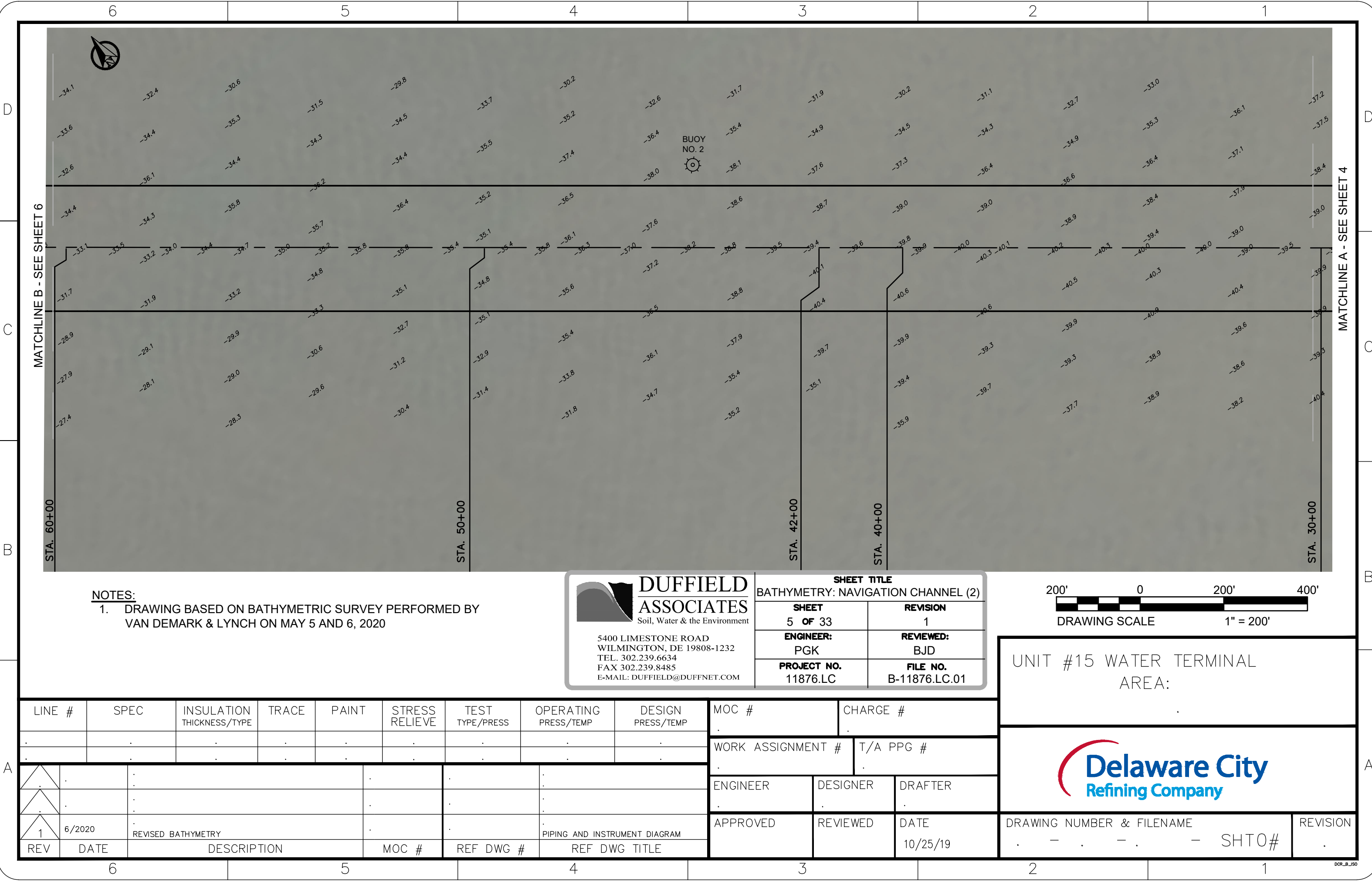
SHEET TITLE	
BATHYMETRY: NAVIGATION CHANNEL (1)	
SHEET 4 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01




UNIT #15 WATER TERMINAL
AREA:



LINE #		SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #	<div></div>	
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REV	DATE	DESCRIPTION				MOC #	REF DWG #	REF DWG TITLE			DRAWING NUMBER & FILENAME		REVISION
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NOTES:
1. DRAWING BASED ON BATHYMETRIC SURVEY PERFORMED BY VAN DEMARK & LYNCH ON MAY 5 AND 6, 2020




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SHEET TITLE
BATHYMETRY: NAVIGATION CHANNEL (2)

SHEET 5 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01






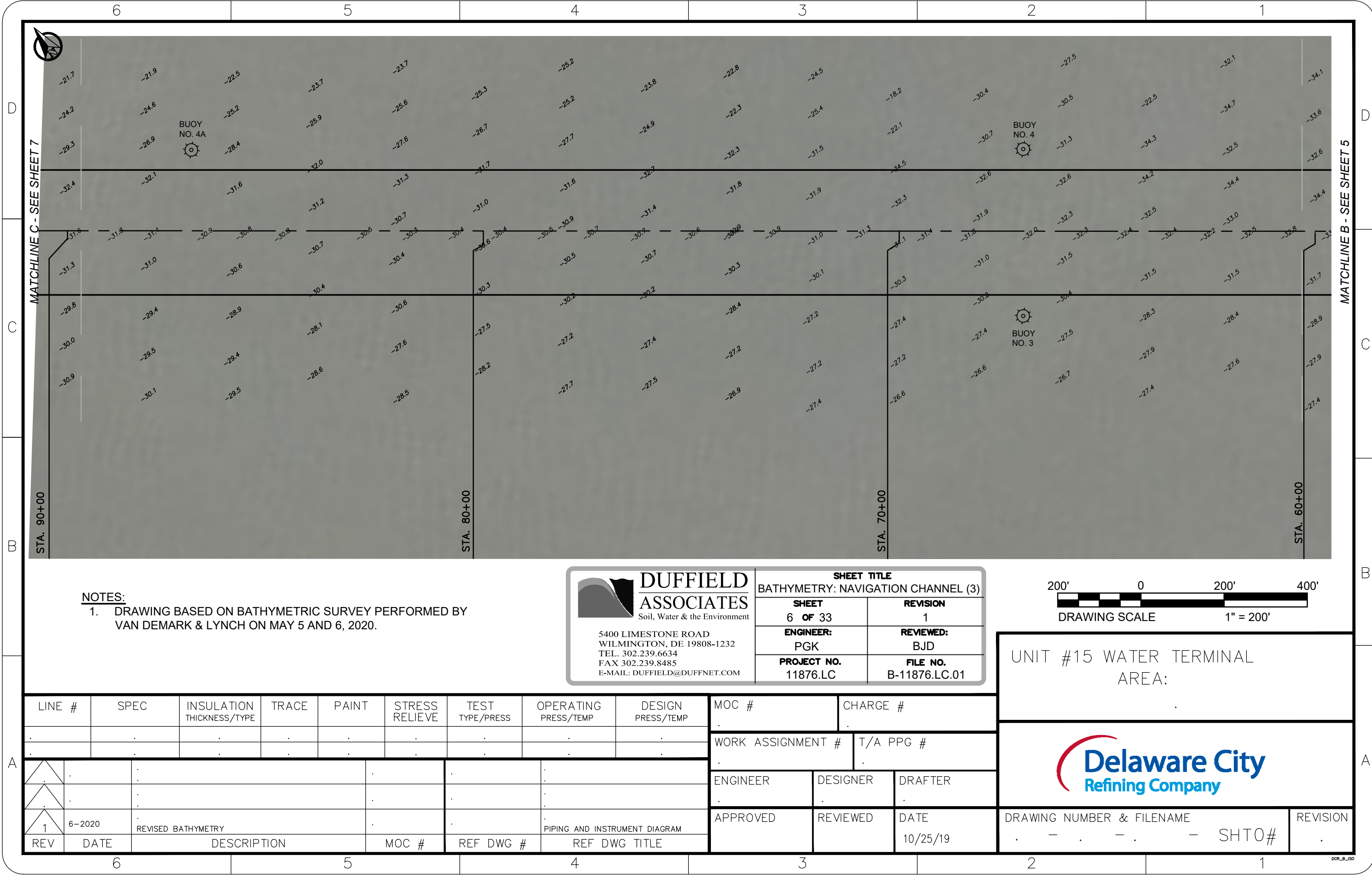
UNIT #15 WATER TERMINAL AREA:



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REVISION
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LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #
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REV	DATE	DESCRIPTION	MOC #	REF DWG #	REF DWG TITLE	DATE	10/25/19			



NOTES:

1. DRAWING BASED ON BATHYMETRIC SURVEY PERFORMED BY VAN DEMARK & LYNCH ON MAY 5 AND 6, 2020.



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SHEET TITLE

BATHYMETRY: NAVIGATION CHANNEL (3)

SHEET
6 OF 33

REVISION
1

ENGINEER:
PGK

REVIEWED:
BJD

PROJECT NO.
11876.LC

FILE NO.
B-11876.LC.01



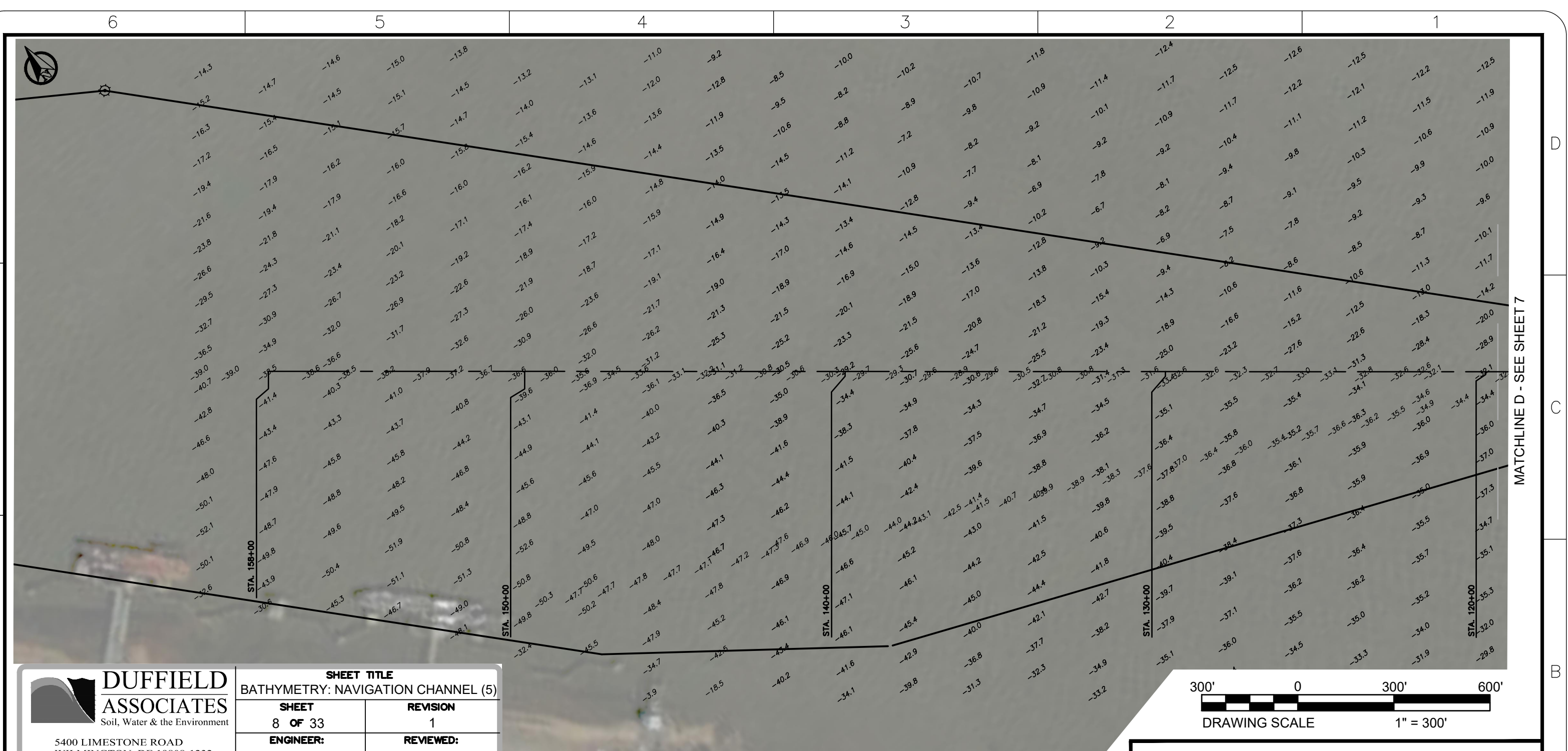
DRAWING SCALE

1" = 200'

UNIT #15 WATER TERMINAL
AREA:



LINE #SPECINSULATION THICKNESS/TYPETRACEPAINTSTRESS RELIEVETEST TYPE/PRESSOPERATING PRESS/TEMPDESIGN PRESS/TEMP									MOC #		CHARGE #							
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													10/25/19		- - - SHT0#			





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SHEET TITLE	
BATHYMETRY: NAVIGATION CHANNEL (5)	
SHEET 8 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

NOTES:
1. DRAWING BASED ON BATHYMETRIC SURVEY PERFORMED BY VAN DEMARK & LYNCH ON MAY 5 AND 6, 2020.

UNIT #15 WATER TERMINAL AREA:

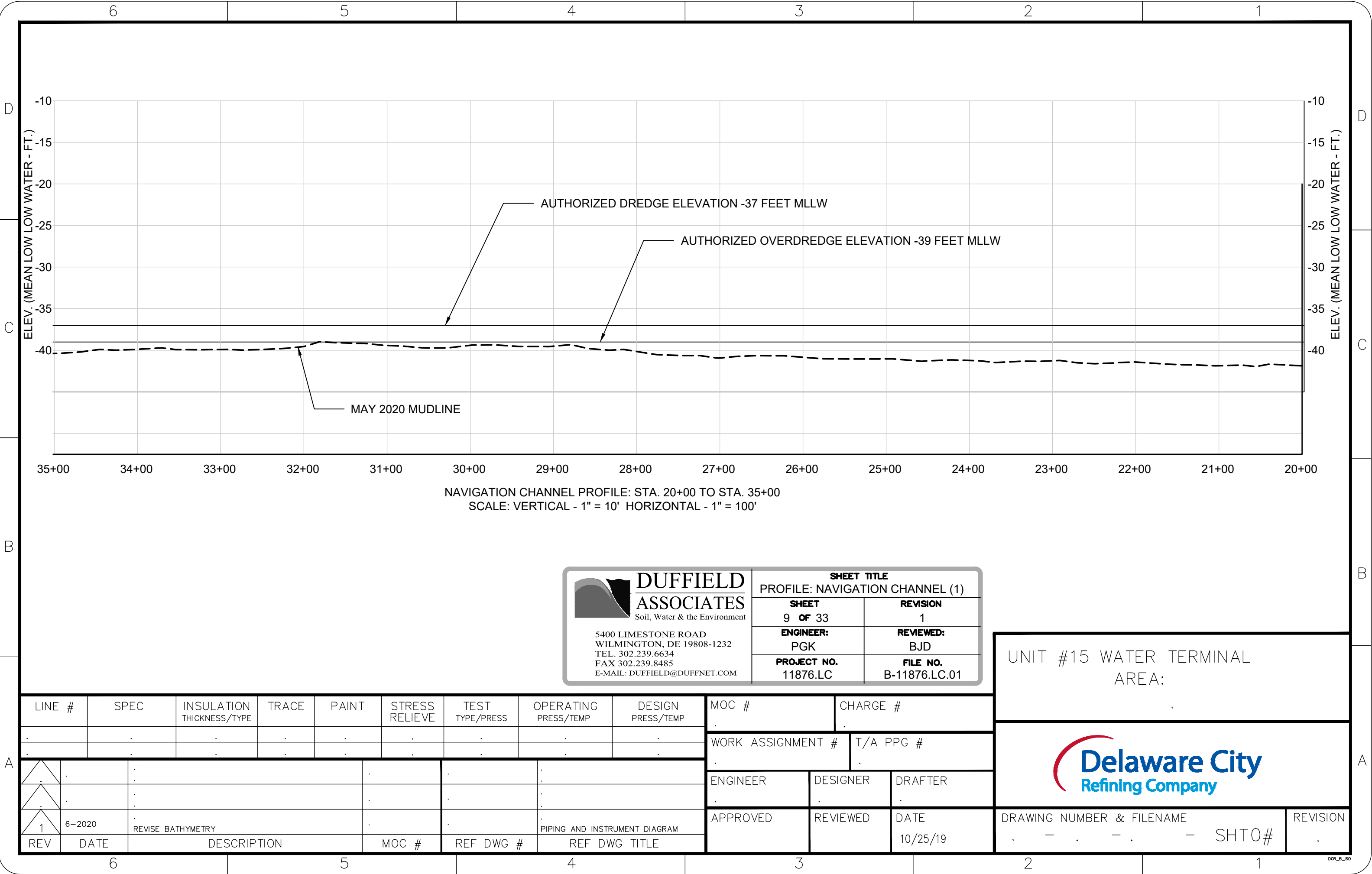
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1	6-2020	REVISE BATHYMETRY						
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE	

MOC #	CHARGE #	
WORK ASSIGNMENT #	T/A PPG #	
ENGINEER	DESIGNER	DRAFTER
APPROVED	REVIEWED	DATE 10/25/19




DRAWING NUMBER & FILENAME
- - - SHTO#

REVISION
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NAVIGATION CHANNEL PROFILE: STA. 20+00 TO STA. 35+00
SCALE: VERTICAL - 1" = 10' HORIZONTAL - 1" = 100'



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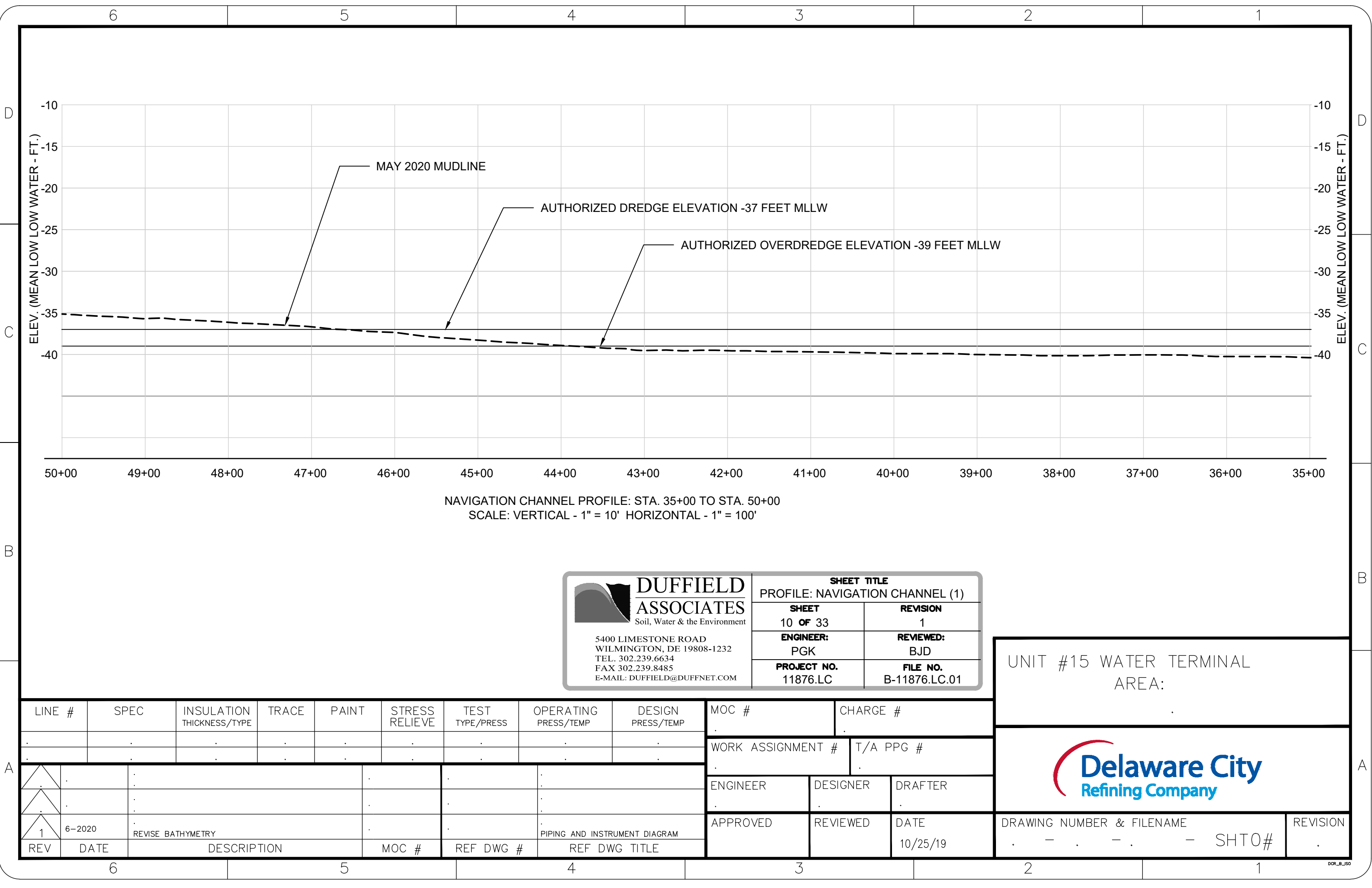
SHEET TITLE	
PROFILE: NAVIGATION CHANNEL (1)	
SHEET 9 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

UNIT #15 WATER TERMINAL
AREA:




DRAWING NUMBER & FILENAME - - - SHT0#		REVISION .
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LINE #		SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #		CHARGE #				
										WORK ASSIGNMENT #		T/A PPG #				
											ENGINEER		DESIGNER		DRAFTER	
											APPROVED		REVIEWED		DATE 10/25/19	
1	6-2020	REVISE BATHYMETRY						PIPING AND INSTRUMENT DIAGRAM								
REV	DATE	DESCRIPTION				MOC #	REF DWG #	REF DWG TITLE								



NAVIGATION CHANNEL PROFILE: STA. 35+00 TO STA. 50+00
SCALE: VERTICAL - 1" = 10' HORIZONTAL - 1" = 100'




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SHEET TITLE
PROFILE: NAVIGATION CHANNEL (1)




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ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

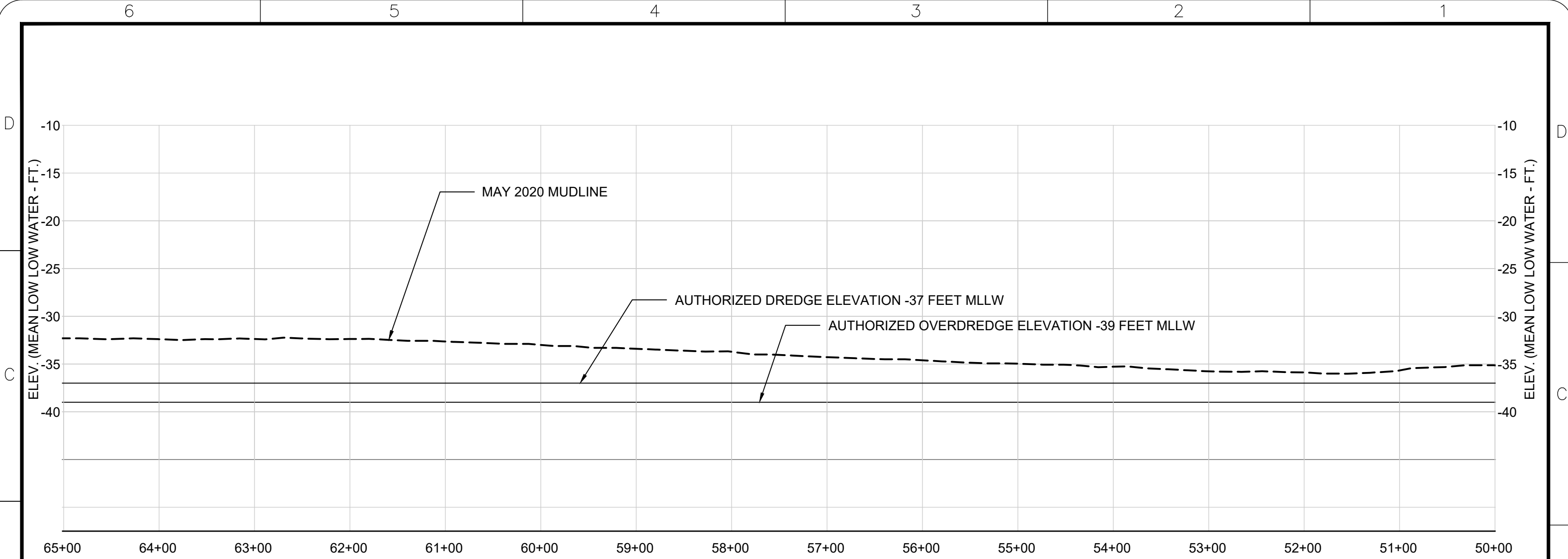
UNIT #15 WATER TERMINAL
AREA:




DRAWING NUMBER & FILENAME
- - - SHT0#

REVISION
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LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #
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	ENGINEER	DESIGNER
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	6-2020	REVISE BATHYMETRY	PIPING AND INSTRUMENT DIAGRAM	APPROVED	REVIEWED
REV	DATE	DESCRIPTION	MOC #	REF DWG #	REF DWG TITLE	DATE	10/25/19			



NAVIGATION CHANNEL PROFILE: STA. 50+00 TO STA. 65+00
SCALE: VERTICAL - 1" = 10' HORIZONTAL - 1" = 100'




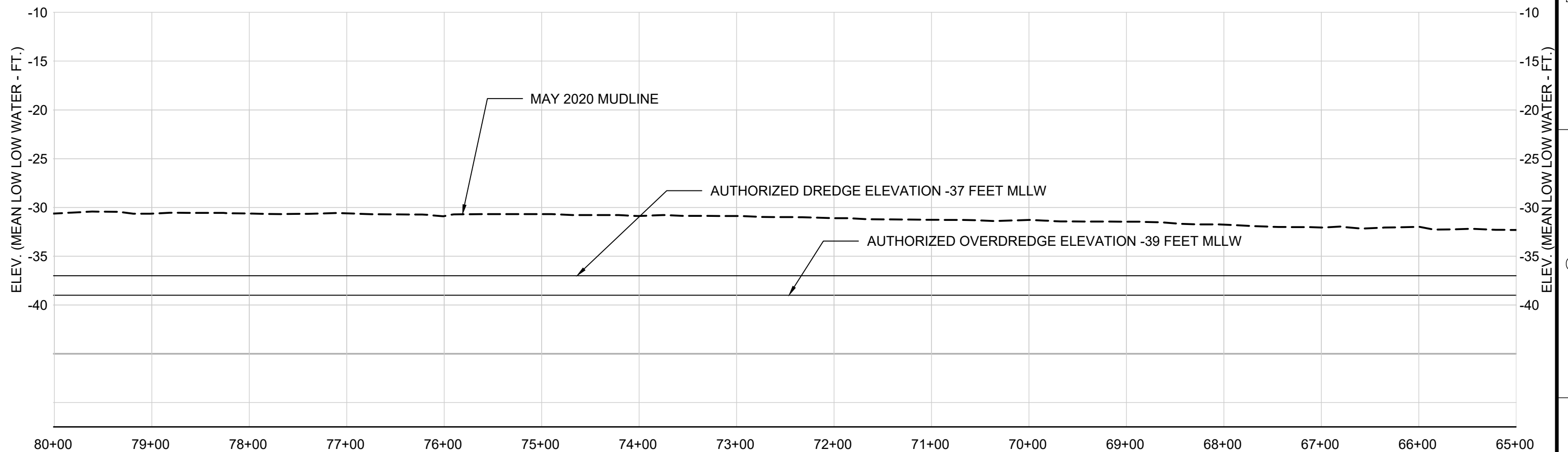
DUFFIELD ASSOCIATES
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SHEET TITLE	
PROFILE: NAVIGATION CHANNEL (2)	
SHEET 11 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01


UNIT #15 WATER TERMINAL
AREA:



LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #	<div></div>			
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1	6-2020	REVISED BATHYMETRY			.	.	PIPING AND INSTRUMENT DIAGRAM			APPROVED	REVIEWED	DATE	DRAWING NUMBER & FILENAME	REVISION
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE					10/25/19	. - . - . - SHTO#	.








NAVIGATION CHANNEL PROFILE: STA. 65+00 TO STA. 80+00
SCALE: VERTICAL - 1" = 10' HORIZONTAL - 1" = 100'

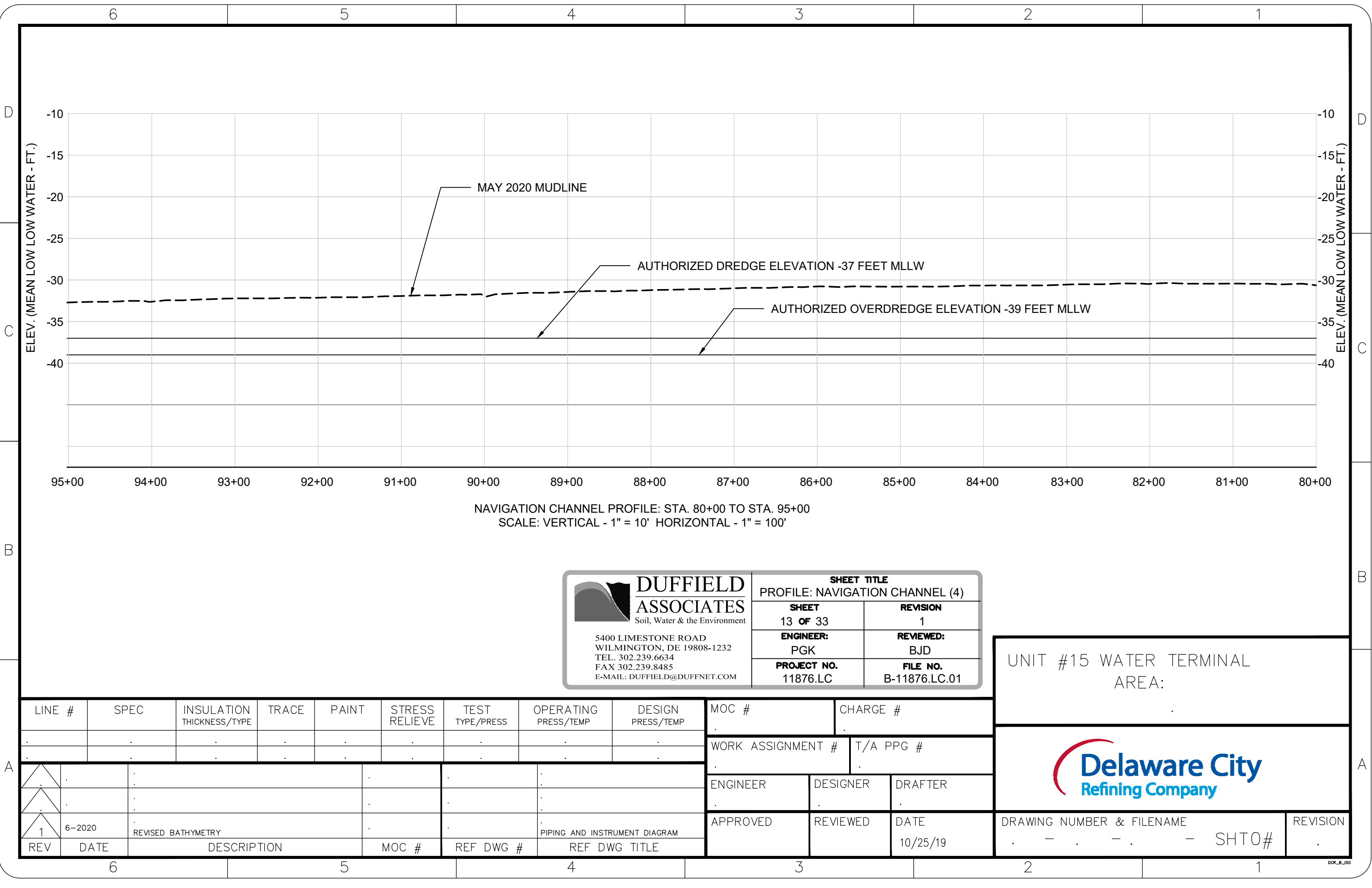
 DUFFIELD ASSOCIATES Soil, Water & the Environment 5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL. 302.239.6634 FAX 302.239.8485 E-MAIL: DUFFIELD@DUFFNET.COM	SHEET TITLE PROFILE: NAVIGATION CHANNEL (3)	
	SHEET 12 OF 33	REVISION 1
	ENGINEER: PGK	REVIEWED: BJD
	PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01


UNIT #15 WATER TERMINAL
AREA:



Delaware City
Refining Company

LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #			REVISION
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		ENGINEER	DESIGNER	DRAFTER	DRAWING NUMBER & FILENAME - - - SHTO#	.
		
		
	6-2020	REVISED BATHYMETRY			.	.	PIPING AND INSTRUMENT DIAGRAM		APPROVED	REVIEWED	DATE 10/25/19		
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE						







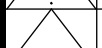

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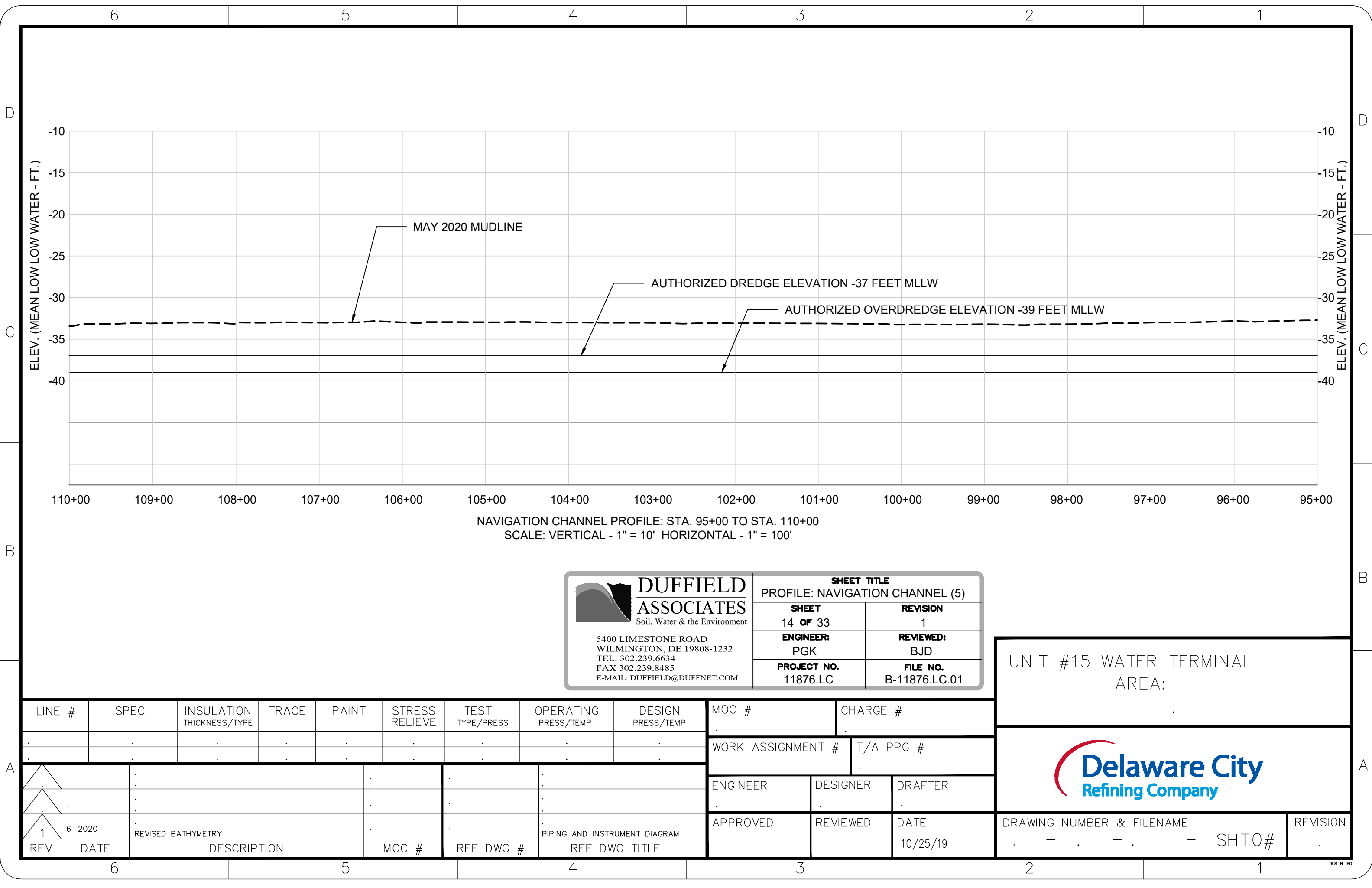
SHEET TITLE	
PROFILE: NAVIGATION CHANNEL (4)	
SHEET 13 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

UNIT #15 WATER TERMINAL
AREA:




DRAWING NUMBER & FILENAME - - - SHT0#		REVISION .
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LINE #		SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #		CHARGE #		
			
		.	.	.	.	.	.	.	.	WORK ASSIGNMENT #		T/A PPG #		
			
	.	.				.	.	.			ENGINEER		DESIGNER	DRAFTER

	6-2020	REVISED BATHYMETRY				.	.	PIPING AND INSTRUMENT DIAGRAM			APPROVED		REVIEWED	DATE
1	6-2020	REVISED BATHYMETRY				.	.	PIPING AND INSTRUMENT DIAGRAM			APPROVED		REVIEWED	DATE
REV	DATE	DESCRIPTION				MOC #	REF DWG #	REF DWG TITLE					10/25/19	




NAVIGATION CHANNEL PROFILE: STA. 95+00 TO STA. 110+00
SCALE: VERTICAL - 1" = 10' HORIZONTAL - 1" = 100'



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


SHEET TITLE	
PROFILE: NAVIGATION CHANNEL (5)	
SHEET 14 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

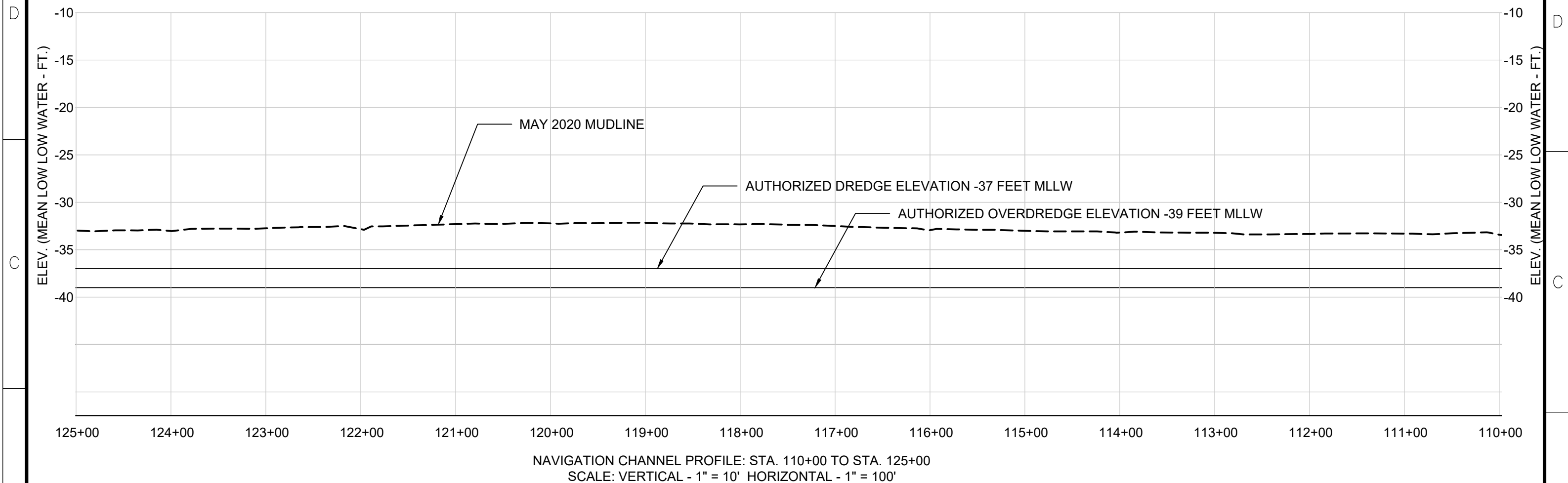
UNIT #15 WATER TERMINAL
AREA:




DRAWING NUMBER & FILENAME
- - - SHT0#

REVISION
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LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAIN	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #
.
.	.	.	.	.	.	.	.	.	WORK ASSIGNMENT #	T/A PPG #
	.	.	.	.	.	.	.	.	ENGINEER	DESIGNER
	.	.	.	.	.	.	.	.	DESIGNER	DRAFTER
	6-2020	REVISED BATHYMETRY	.	.	.	.	.	PIPING AND INSTRUMENT DIAGRAM	APPROVED	REVIEWED
REV	DATE	DESCRIPTION	MOC #	REF DWG #	REF DWG TITLE	DATE	10/25/19			

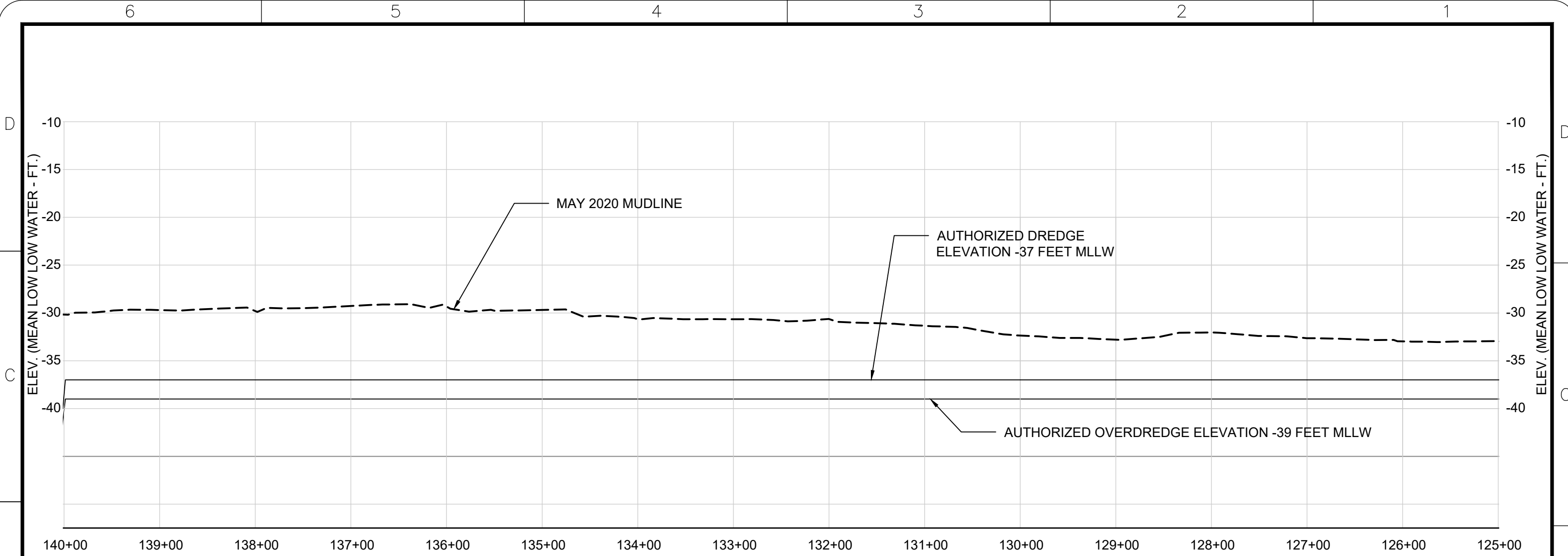


 DUFFIELD ASSOCIATES Soil, Water & the Environment 5400 LIMESTONE ROAD WILMINGTON, DE 19808-1232 TEL. 302.239.6634 FAX 302.239.8485 E-MAIL: DUFFIELD@DUFFNET.COM	SHEET TITLE PROFILE: NAVIGATION CHANNEL (6)	
	SHEET 15 OF 33	REVISION 1
	ENGINEER: PGK	REVIEWED: BJD
	PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01


UNIT #15 WATER TERMINAL
AREA:



LINE #		SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #		CHARGE #		<div></div>	
										WORK ASSIGNMENT #		T/A PPG #			
												ENGINEER		DESIGNER	DRAFTER
															
															
1	6-2020	REVISED BATHYMETRY						PIPING AND INSTRUMENT DIAGRAM			APPROVED	REVIEWED	DATE	DRAWING NUMBER & FILENAME	
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE					10/25/19	- - - SHTO#		REVISION




NAVIGATION CHANNEL PROFILE: STA. 125+00 TO STA. 140+00
SCALE: VERTICAL - 1" = 10' HORIZONTAL - 1" = 100'



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SHEET TITLE	
PROFILE: NAVIGATION CHANNEL (7)	
SHEET 16 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

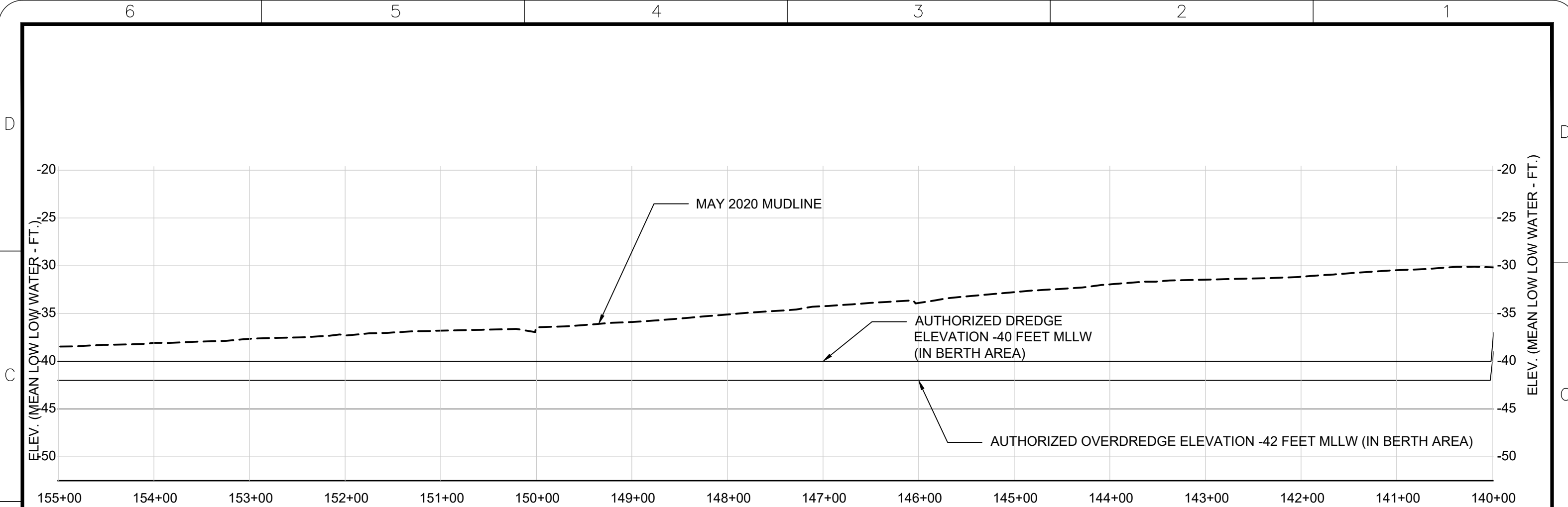
UNIT #15 WATER TERMINAL
AREA:




DRAWING NUMBER & FILENAME - - - SHTO#		REVISION .
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LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #	
.	
.	.	.	.	.	.	.	.	.	WORK ASSIGNMENT #	T/A PPG #	
.	
	.				.	.	.	.	ENGINEER	DESIGNER	DRAFTER

	6-2020	REVISED BATHYMETRY			.	.	.	PIPING AND INSTRUMENT DIAGRAM	APPROVED	REVIEWED	DATE
1	6-2020	REVISED BATHYMETRY			.	.	.	PIPING AND INSTRUMENT DIAGRAM	APPROVED	REVIEWED	DATE
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE				10/25/19




NAVIGATION CHANNEL PROFILE: STA. 140+00 TO STA. 155+00
SCALE: VERTICAL - 1" = 10' HORIZONTAL - 1" = 100'



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SHEET TITLE	
PROFILE: NAVIGATION CHANNEL (7)	
SHEET 17 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01




UNIT #15 WATER TERMINAL
AREA:



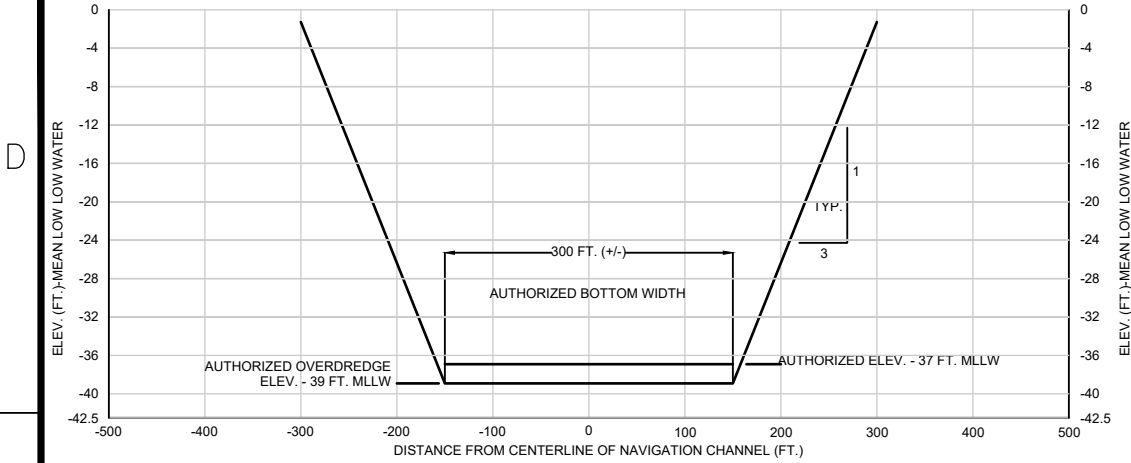
DRAWING NUMBER & FILENAME
- - - SHTO#

REVISION
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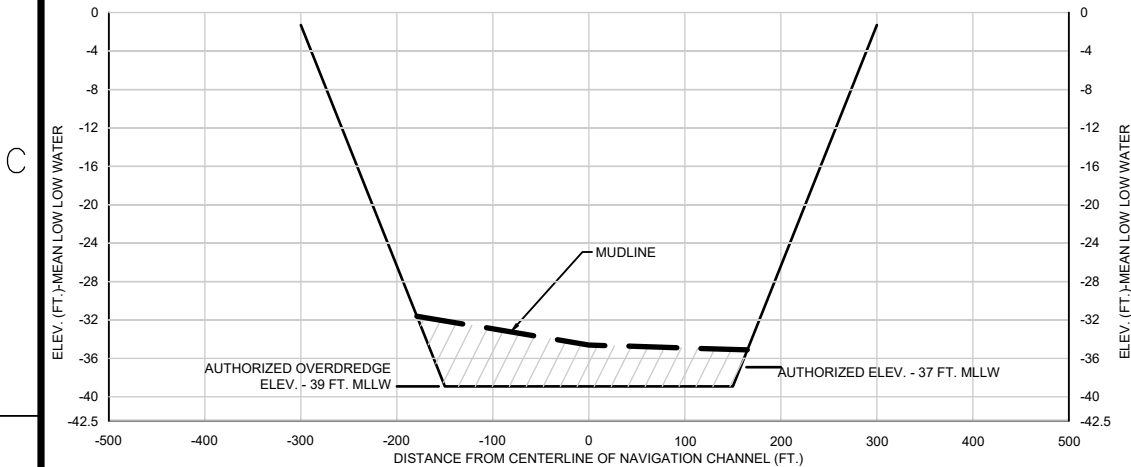
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LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #
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.	WORK ASSIGNMENT #	T/A PPG #
.
	ENGINEER	DESIGNER
	DRAFTER
	APPROVED	REVIEWED
1	6-2020	REVISED BATHYMETRY	PIPING AND INSTRUMENT DIAGRAM	.	DATE	10/25/19
REV	DATE	DESCRIPTION	MOC #	REF DWG #	REF DWG TITLE					

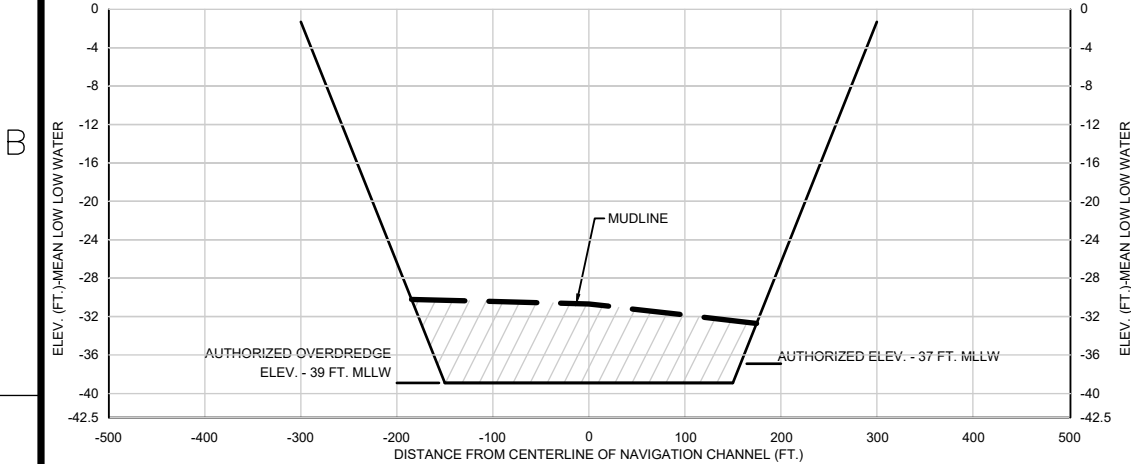
DREDGING TEMPLATE FOR NAVIGATION CHANNEL



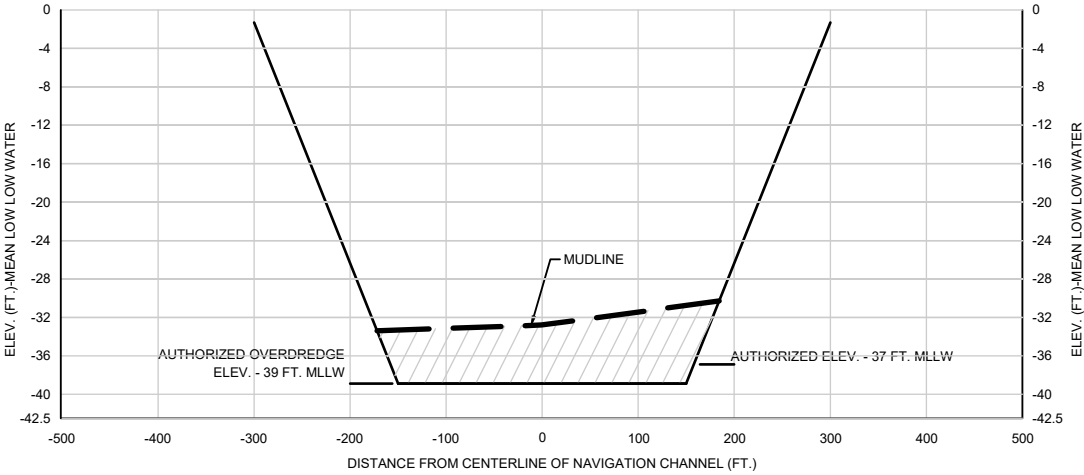
NAVIGATION CHANNEL STA. 56+00



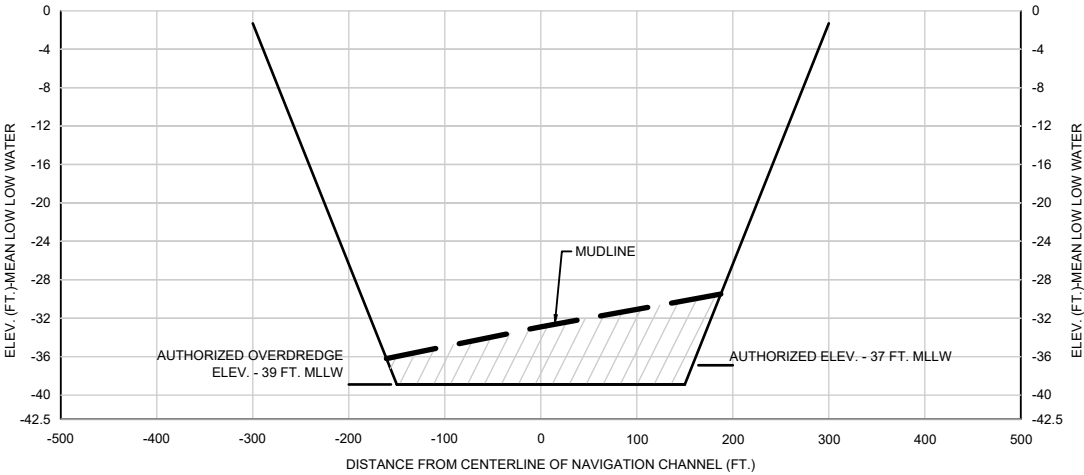
NAVIGATION CHANNEL STA. 76+00




NAVIGATION CHANNEL STA. 96+00



NAVIGATION CHANNEL STA. 106+00





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

SHEET TITLE	
CROSS SECTIONS: NAVIGATION CHANNEL	
SHEET 18 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

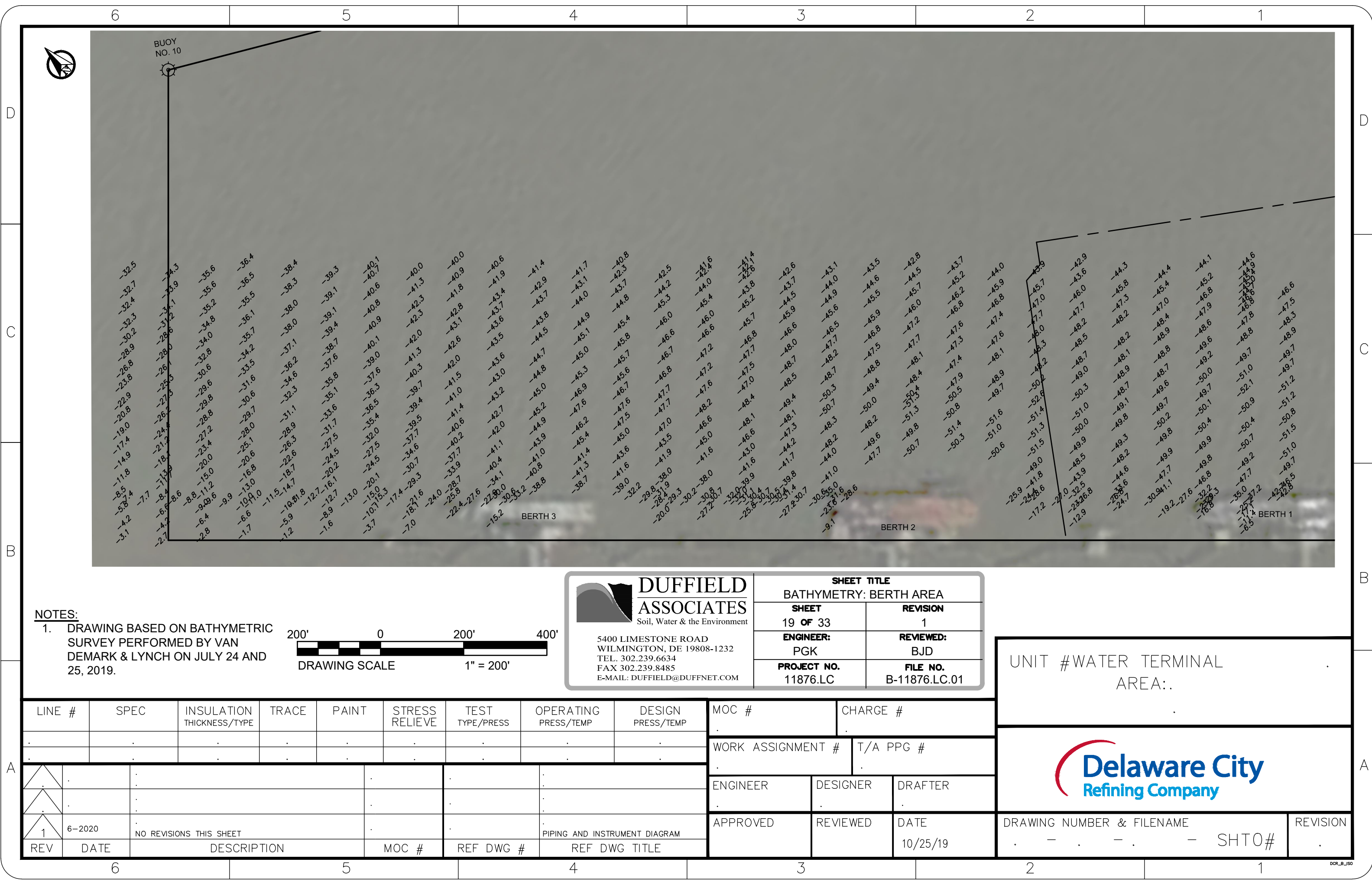
SCALE: VERTICAL - 1" = 20' HORIZONTAL - 1" = 200'

UNIT #15 WATER TERMINAL
AREA:



DRAWING NUMBER & FILENAME		REVISION
. - . - . - SHTO#		.

LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #
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	6-2020	REVISED BATHYMETRY	PIPING AND INSTRUMENT DIAGRAM	.	.
REV	DATE	DESCRIPTION	MOC #	REF DWG #	REF DWG TITLE	APPROVED	DESIGNER	DRAFTER	DATE	10/25/19



NOTES:
1. DRAWING BASED ON BATHYMETRIC SURVEY PERFORMED BY VAN DEMARK & LYNCH ON JULY 24 AND 25, 2019.



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SHEET TITLE
BATHYMETRY: BERTH AREA

SHEET 19 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

UNIT #WATER TERMINAL AREA:.

DRAWING NUMBER & FILENAME - - - SHTO#		REVISION .
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LINE #		SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #		CHARGE #	
										WORK ASSIGNMENT #		T/A PPG #	
										ENGINEER		DESIGNER	DRAFTER
1		6-2020	NO REVISIONS THIS SHEET						PIPING AND INSTRUMENT DIAGRAM	APPROVED		REVIEWED	DATE
REV		DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE					10/25/19

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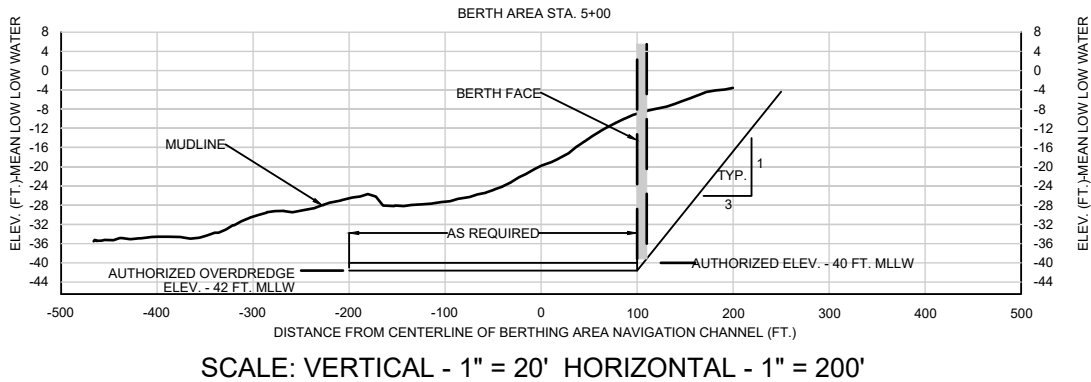
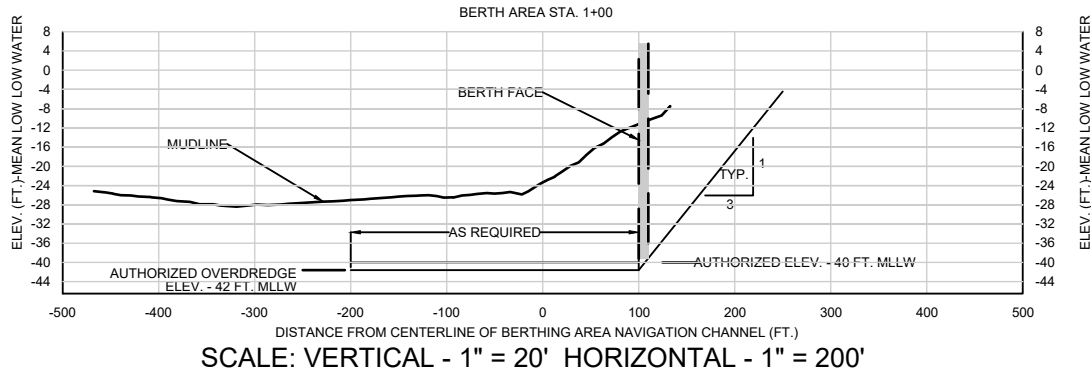
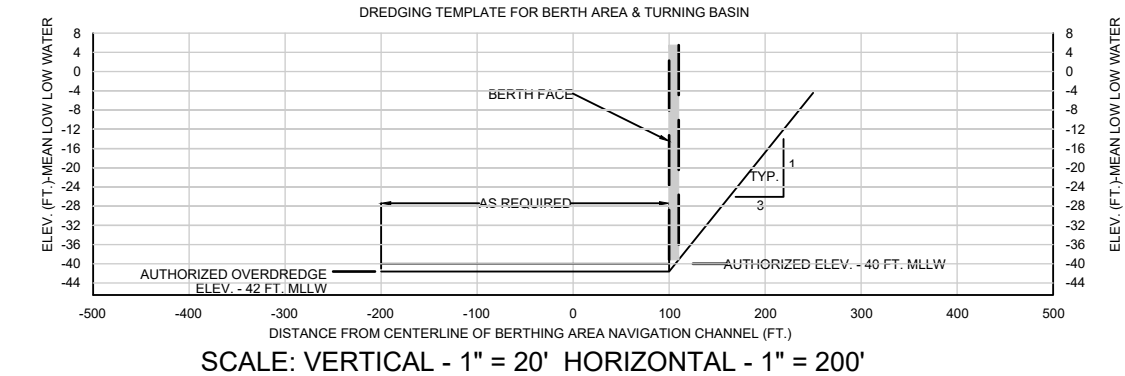
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SHEET TITLE	
CROSS SECTIONS: BERTH AREA	
SHEET 20 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

UNIT #15 WATER TERMINAL
AREA:




LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #
.
.	.	.	.	.	.	.	.	.	WORK ASSIGNMENT #	T/A PPG #
	.	.	.	.	.	.	.	.	ENGINEER	DESIGNER
	.	.	.	.	.	.	.	.	DRAFTER	.
	6-2020	NO REVISIONS THIS SHEET				.	.	.	APPROVED	REVIEWED
REV	DATE	DESCRIPTION				MOC #	REF DWG #	REF DWG TITLE	DATE	10/25/19


DRAWING NUMBER & FILENAME										REVISION
.	-	.	-	.	-	SHTO#	.	.	.	.

[illegible][illegible]

NOTES:

1. HISTORIC DREDGE VOLUMES ARE BASED ON INFORMATION AVAILABLE TO DELAWARE CITY REFINING COMPANY FROM PRESENT AND PAST OWNERS.
2. COMBINED DREDGING EVENT WITH BERTH AREAS.


 DUFFIELD ASSOCIATES Soil, Water & the Environment	SHEET TITLE NAVIGATION CHANNEL DREDGING	
	SHEET 21 OF 33	REVISION 1
	ENGINEER: PGK	REVIEWED: BJD
	PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01


LINE #		SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #		CHARGE #		<div></div>	
										WORK ASSIGNMENT #		T/A PPG #			
<div><div></div></div>										ENGINEER		DESIGNER	DRAFTER		
<div><div></div></div>															
<div><div>1</div></div>	6-2020	NO REVISIONS THIS SHEET							PIPING AND INSTRUMENT DIAGRAM	APPROVED		REVIEWED	DATE	DRAWING NUMBER & FILENAME	
REV	DATE	DESCRIPTION				MOC #	REF DWG #	REF DWG TITLE					10/25/19	- - - SHTO#	
														REVISION	

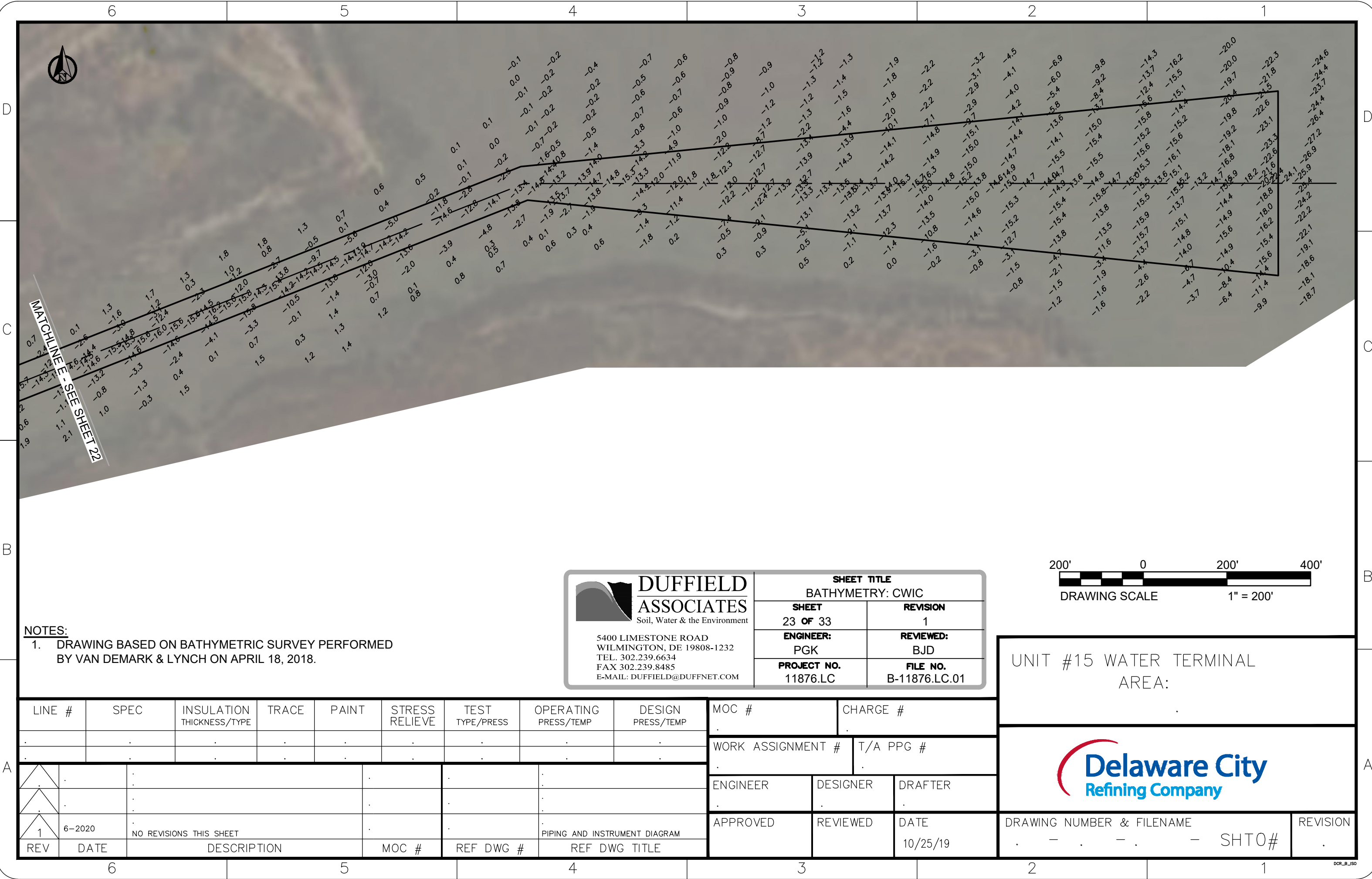
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NOTES:

1. HISTORIC DREDGE VOLUMES ARE BASED ON INFORMATION AVAILABLE TO DELAWARE CITY REFINING COMPANY FROM PRESENT AND PAST OWNERS.
2. COMBINED DREDGING EVENT WITH NAVIGATION CHANNEL AND BERTH & TURNING BASIN AREAS.


 DUFFIELD ASSOCIATES Soil, Water & the Environment	SHEET TITLE BERTH AREA DREDGING	
	SHEET 22 OF 33	REVISION 1
	ENGINEER: PGK	REVIEWED: ---
	PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

LINE #		SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #		CHARGE #		<div></div>		REVISION	
										WORK ASSIGNMENT #		T/A PPG #					
<div><div></div></div>												ENGINEER	DESIGNER	DRAFTER			
<div><div></div></div>																	
<div><div>1</div></div>	6-2020	NO REVISIONS THIS SHEET						PIPING AND INSTRUMENT DIAGRAM			APPROVED	REVIEWED	DATE	DRAWING NUMBER & FILENAME			
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE					10/25/19	- - - SHTO#				



NOTES:

1. DRAWING BASED ON BATHYMETRIC SURVEY PERFORMED BY VAN DEMARK & LYNCH ON APRIL 18, 2018.

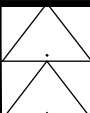




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SHEET TITLE	
BATHYMETRY: CWIC	
SHEET 23 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01



LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP
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	6-2020	NO REVISIONS THIS SHEET			.	.	.	PIPING AND INSTRUMENT DIAGRAM
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE	

MOC #		CHARGE #	
.		.	
WORK ASSIGNMENT #		T/A PPG #	
.		.	
ENGINEER	DESIGNER	DRAFTER	
.	.	.	
APPROVED	REVIEWED	DATE	
.	.	10/25/19	

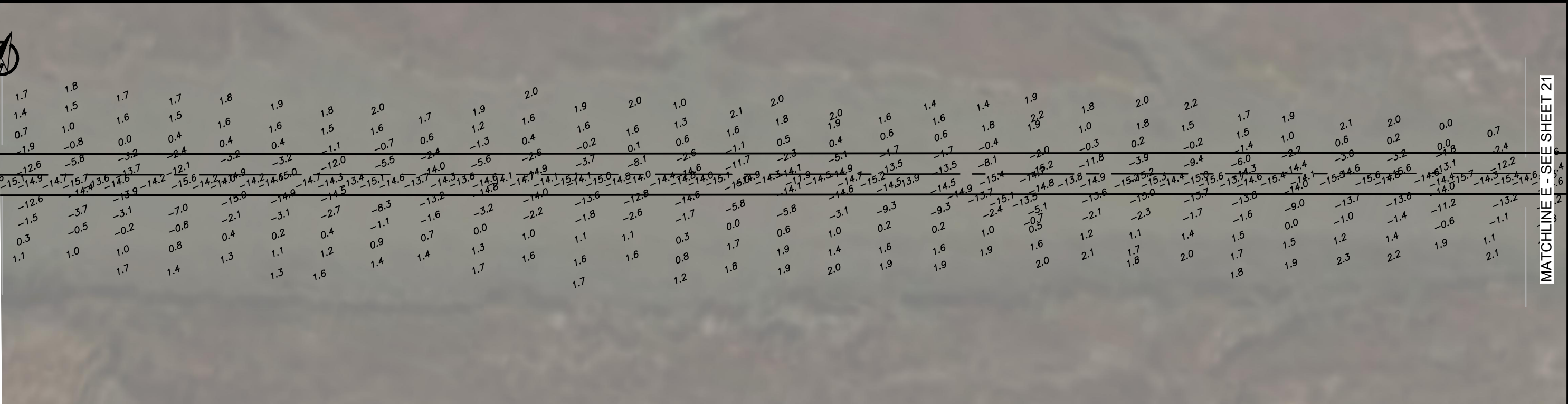
UNIT #15 WATER TERMINAL AREA:



DRAWING NUMBER & FILENAME		REVISION
. - . - . - SHTO#		.

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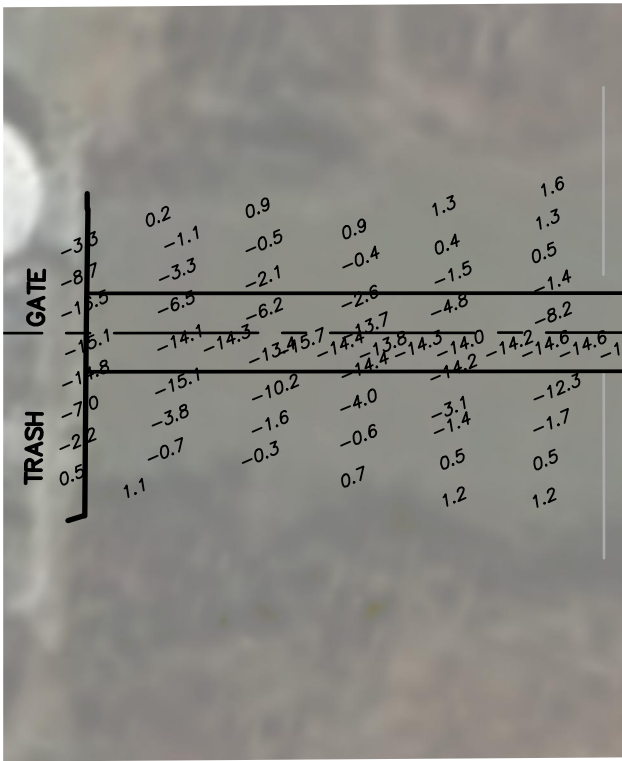
MATCHLINE F - SEE BELOW



MATCHLINE E - SEE SHEET 21


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B



MATCHLINE F - SEE ABOVE

- NOTES:
- DRAWING BASED ON BATHYMETRIC SURVEY PERFORMED BY VAN DEMARK & LYNCH ON APRIL 18, 2018.



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SHEET TITLE
BATHYMETRY: CWIC

SHEET 24 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01



A

LINE #		SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #		CHARGE #	
										WORK ASSIGNMENT #		T/A PPG #	
										ENGINEER		DESIGNER	DRAFTER
		6-2020	NO REVISIONS THIS SHEET						PIPING AND INSTRUMENT DIAGRAM	APPROVED		REVIEWED	DATE
REV		DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE					




DRAWING NUMBER & FILENAME

. - . - . - SHTO#

REVISION

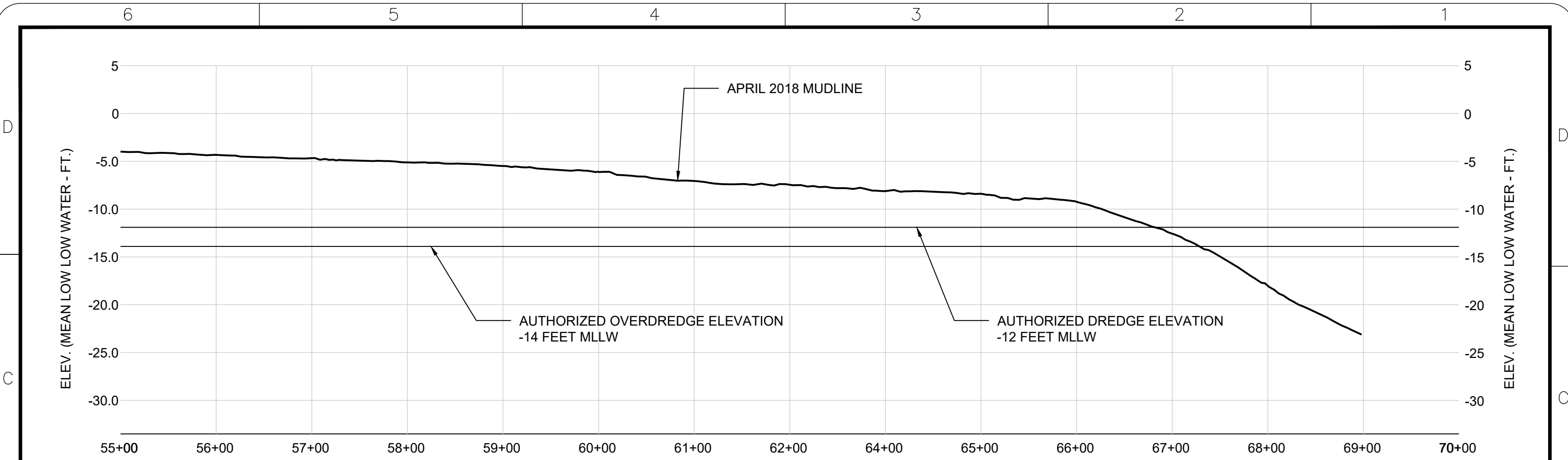
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UNIT #15 WATER TERMINAL AREA:




DRAWING NUMBER & FILENAME

REVISION




COOLING WATER INTAKE CHANNEL PROFILE: STA 55+00 TO STA. 70+00
SCALE: VERTICAL - 1" = 10' HORIZONTAL - 1" = 100'



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SHEET TITLE	
PROFILE: CWIC (1)	
SHEET 25 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01




UNIT #15 WATER TERMINAL
AREA:.



DRAWING NUMBER & FILENAME
- - - SHT0#

REVISION
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LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #
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.	WORK ASSIGNMENT #	T/A PPG #
.
	ENGINEER	DESIGNER
	DRAFTER
	6—2020	NO REVISIONS THIS SHEET				.	.	PIPING AND INSTRUMENT DIAGRAM	APPROVED	REVIEWED
1	6—2020	NO REVISIONS THIS SHEET				.	.	PIPING AND INSTRUMENT DIAGRAM	DATE	10/25/19
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE			

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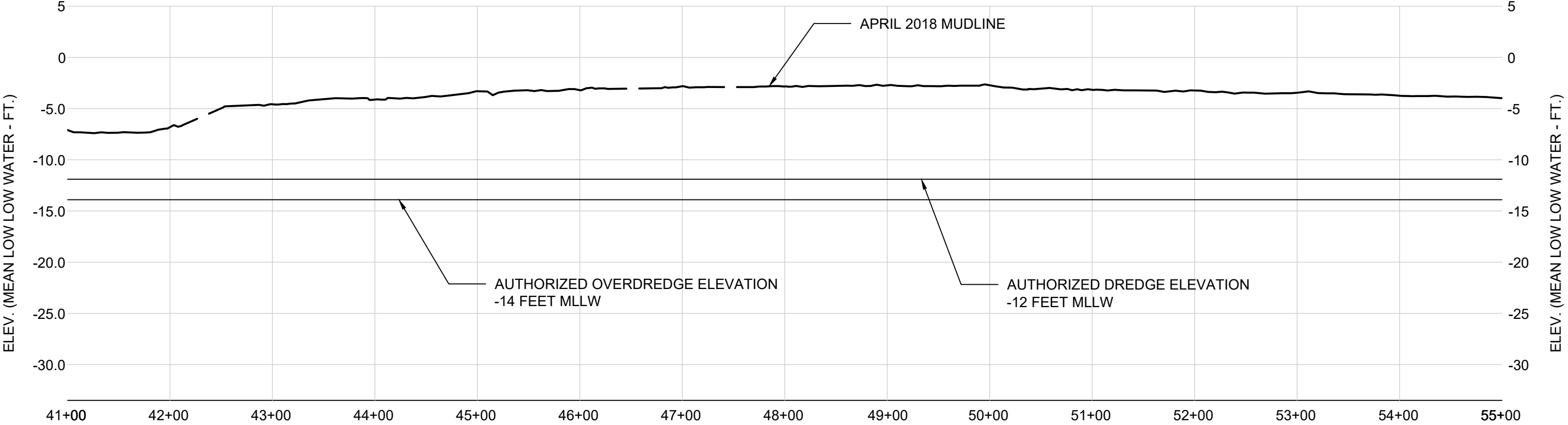
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COOLING WATER INTAKE CHANNEL PROFILE: STA 41+00 TO STA. 55+00
SCALE: VERTICAL - 1" = 10' HORIZONTAL - 1" = 100'




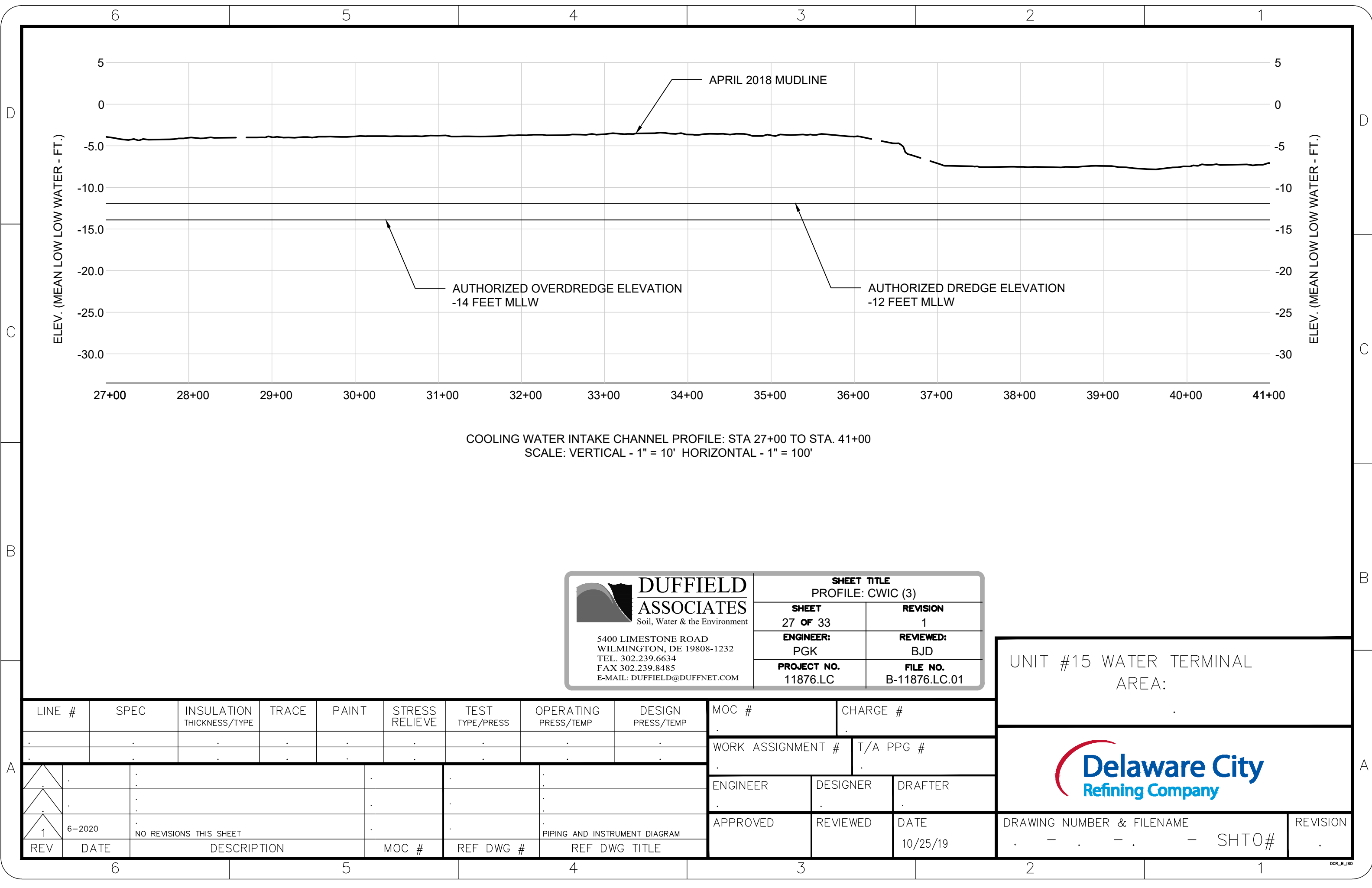
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SHEET TITLE	
PROFILE: CWIC (2)	
SHEET 26 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01


UNIT #15 WATER TERMINAL
AREA:.



LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #	<div></div>		
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<div><div></div><div></div></div>	WORK ASSIGNMENT #		T/A PPG #		
<div><div></div><div></div></div>	ENGINEER	DESIGNER	DRAFTER		
<div><div></div><div></div></div>	6-2020	NO REVISIONS THIS SHEET			.	.	.	PIPING AND INSTRUMENT DIAGRAM	APPROVED	REVIEWED	DATE	DRAWING NUMBER & FILENAME	
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE				10/25/19	. - . - . - SHTO#	REVISION




COOLING WATER INTAKE CHANNEL PROFILE: STA 27+00 TO STA. 41+00
SCALE: VERTICAL - 1" = 10' HORIZONTAL - 1" = 100'






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FAX 302.239.8485
E-MAIL: DUFFIELD@DUFFNET.COM

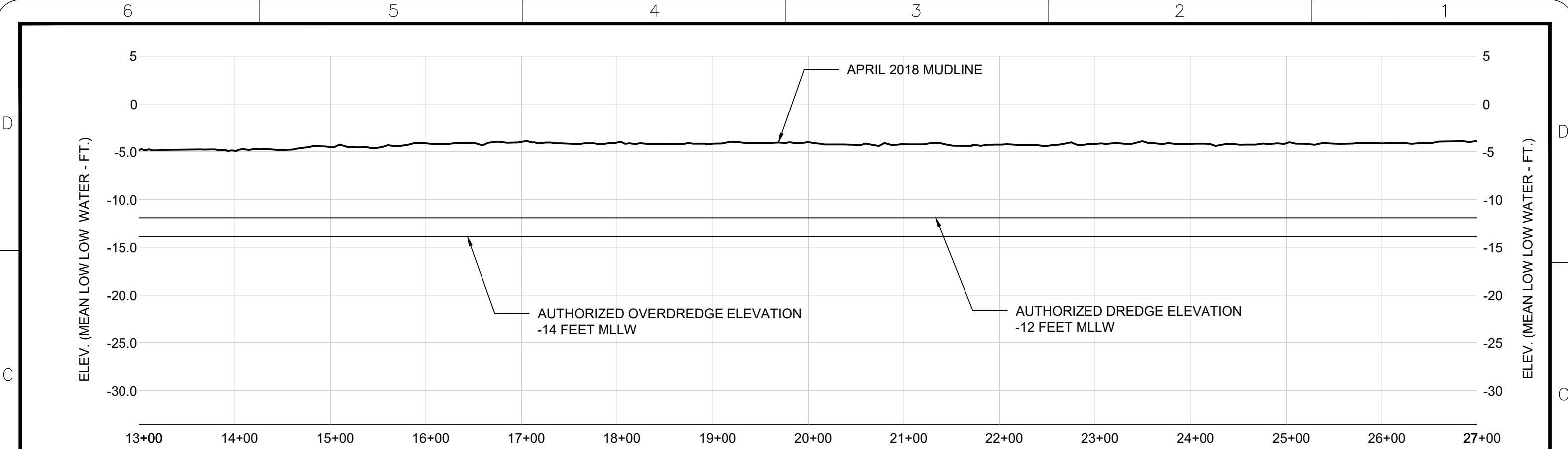
SHEET TITLE	
PROFILE: CWIC (3)	
SHEET 27 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

UNIT #15 WATER TERMINAL
AREA:




DRAWING NUMBER & FILENAME - - - SHT0#		REVISION .
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LINE #		SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #		CHARGE #	
		
		.	.	.	.	.	.	.	.	WORK ASSIGNMENT #		T/A PPG #	
		
	.	.				.	.	.	.	ENGINEER		DESIGNER	DRAFTER

	.	.				.	.	.	.	APPROVED		REVIEWED	DATE
1	6-2020	NO REVISIONS THIS SHEET				.	.	.	PIPING AND INSTRUMENT DIAGRAM				10/25/19
REV	DATE	DESCRIPTION				MOC #	REF DWG #	REF DWG TITLE					



COOLING WATER INTAKE CHANNEL PROFILE: STA 13+00 TO STA. 26+00
SCALE: VERTICAL - 1" = 10' HORIZONTAL - 1" = 100'



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SHEET TITLE	
PROFILE: CWIC (4)	
SHEET 28 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

UNIT #15 WATER TERMINAL
AREA:.



LINE #		SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #		CHARGE #		
										WORK ASSIGNMENT #		T/A PPG #		
										ENGINEER		DESIGNER		
												DRAFTER		
										APPROVED		REVIEWED		
												DATE		
												10/25/19		
REV		DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE		DRAWING NUMBER & FILENAME				REVISION
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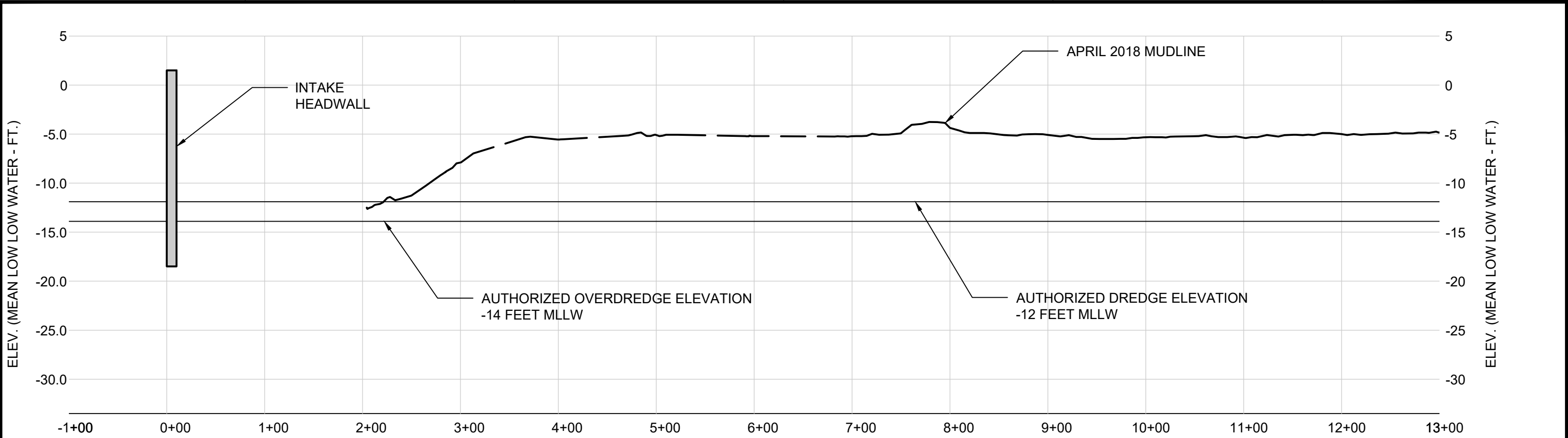
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COOLING WATER INTAKE CHANNEL PROFILE: STA 0+00 TO STA. 13+00
SCALE: VERTICAL - 1" = 10' HORIZONTAL - 1" = 100'



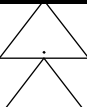
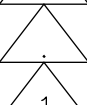

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SHEET TITLE	
PROFILE: CWIC (5)	
SHEET 29 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

UNIT #15 WATER TERMINAL
AREA:



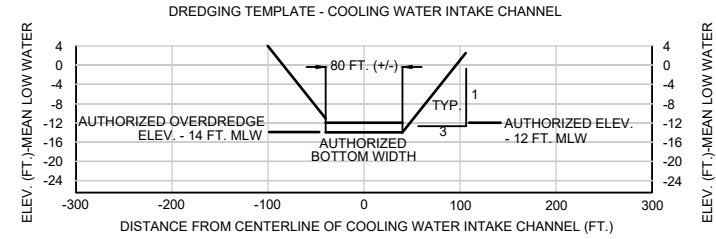
DRAWING NUMBER & FILENAME - - - SHT0#		REVISION .
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LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #
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	6-2020	NO REVISIONS THIS SHEET				.	.	PIPING AND INSTRUMENT DIAGRAM	APPROVED	REVIEWED
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE			

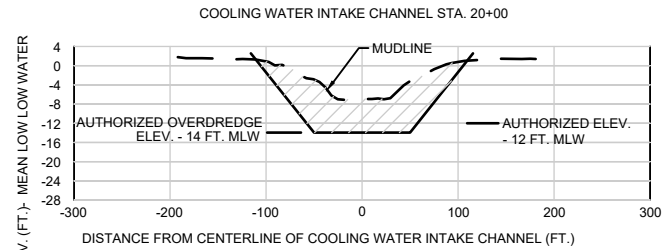
ENGINEER	DESIGNER	DRAFTER
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DATE 10/25/19		

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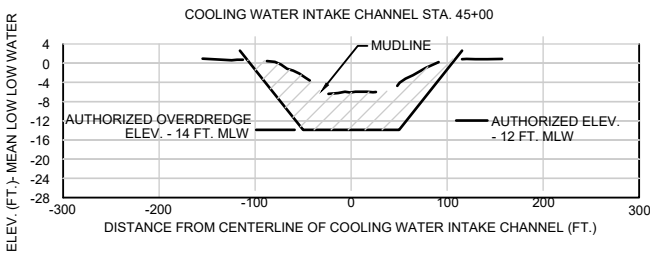
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SCALE: VERTICAL - 1" = 20' HORIZONTAL - 1" = 200'



SCALE: VERTICAL - 1" = 20' HORIZONTAL - 1" = 200'




SCALE: VERTICAL - 1" = 20' HORIZONTAL - 1" = 200'

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SHEET TITLE

CROSS SECTIONS: CWIC


SHEET	REVISION
30 OF 33	1
ENGINEER:	REVIEWED:
PGK	PGK
PROJECT NO.	FILE NO.
11876.LC	B-11876.LC.01

A

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LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #	CHARGE #	<div></div>		
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<div><div></div></div>	WORK ASSIGNMENT #		T/A PPG #		
<div><div></div></div>	ENGINEER	DESIGNER	DRAFTER		
<div><div>1</div></div>	6-2020	NO REVISIONS THIS SHEET			.	.	.	PIPING AND INSTRUMENT DIAGRAM	APPROVED	REVIEWED	DATE	DRAWING NUMBER & FILENAME	
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE				10/25/19	. - . - . - SHTO#	REVISION

UNIT #15 WATER TERMINAL AREA:.



DRAWING NUMBER & FILENAME

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REVISION

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HISTORIC COOLING WATER INTAKE
CHANNEL DREDGING (1)

DREDGING EVENT

VOLUME
(CUBIC YARDS)

FALL 1997

346000

FALL 1999

135000

SPRING 2001

32000

FALL 2001

231000

FALL 2004

266000

SPRING 2005

82000

FALL 2005

182000

SPRING 2006

73000

FALL 2006

111000

FALL 2010

142400

SPRING 2011

118800

FALL 2011

101200

SPRING 2012

91200

FALL 2012

100400

SPRING 2013

107300

FALL 2013

90750

SPRING 2014

107800

HISTORIC COOLING WATER INTAKE
CHANNEL DREDGING (1)

DREDGING EVENT

VOLUME
(CUBIC YARDS)

FALL 2014

93000

SPRING 2015

107800

FALL 2015

51950

SPRING 2016

109215

FALL 2016

107800

SPRING 2017

113700

FALL 2017

105400

SPRING 2018

187800

FALL 2018

74150

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SHEET TITLE
CWIC DREDGING

SHEET
31 OF 33

ENGINEER:
PGK

PROJECT NO.
11876.LC

REVISION
1

REVIEWED:
BJD

FILE NO.
B-11876.LC.01

NOTES:

1. HISTORIC DREDGE VOLUMES ARE BASED ON INFORMATION AVAILABLE TO DELAWARE CITY REFINING COMPANY FROM PRESENT AND PAST OWNERS.

LINE #

SPEC

INSULATION
THICKNESS/TYPE

TRACE

PAINT

STRESS
RELIEVE

TEST
TYPE/PRESS

OPERATING
PRESS/TEMP

DESIGN
PRESS/TEMP

1

6-2020

NO REVISIONS THIS SHEET

PIPING AND INSTRUMENT DIAGRAM

REV

DATE

DESCRIPTION

MOC #

REF DWG #

REF DWG TITLE

MOC #

CHARGE #

WORK ASSIGNMENT #

T/A PPG #

ENGINEER

DESIGNER

DRAFTER

APPROVED

REVIEWED

DATE
10/25/19

UNIT #15

WATER TERMINAL
AREA:

Delaware City
Refining Company

DRAWING NUMBER & FILENAME
- - - SHT0#

REVISION
.

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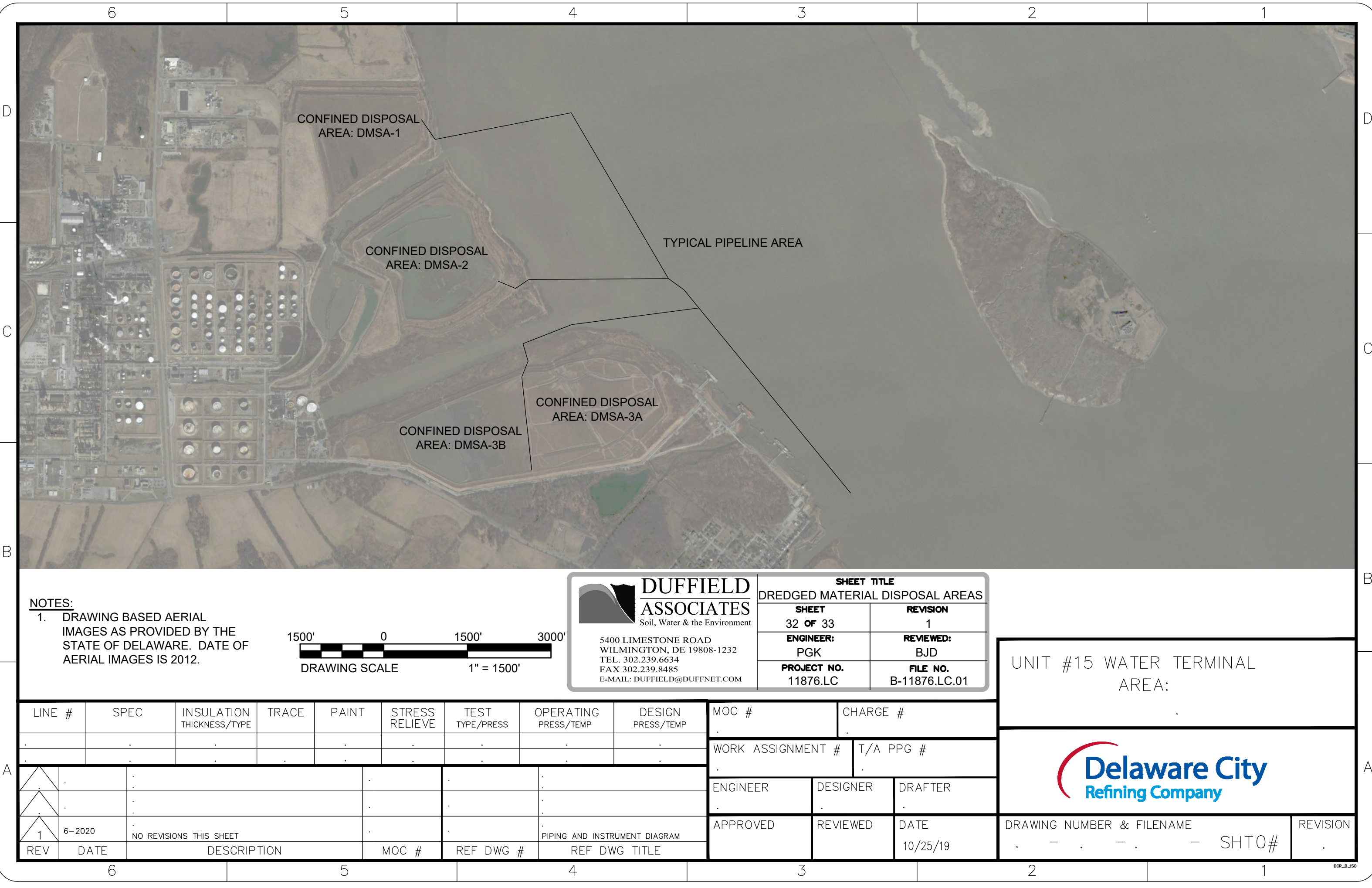
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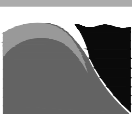
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DCR_B_150



NOTES:
1. DRAWING BASED AERIAL IMAGES AS PROVIDED BY THE STATE OF DELAWARE. DATE OF AERIAL IMAGES IS 2012.






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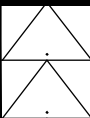
SHEET TITLE	
DREDGED MATERIAL DISPOSAL AREAS	
SHEET 32 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

UNIT #15 WATER TERMINAL AREA:

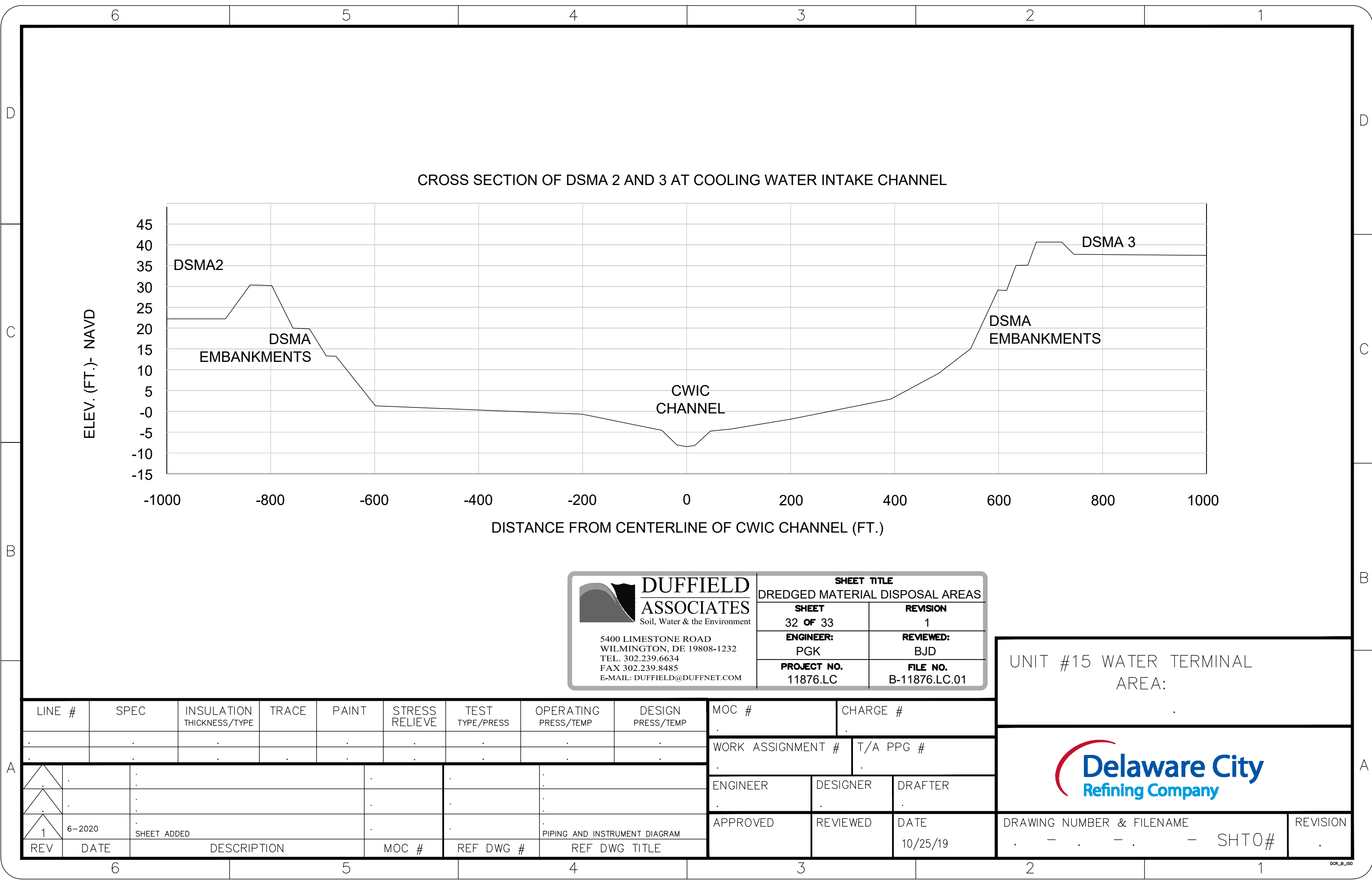



DRAWING NUMBER & FILENAME
- - - SHTO#

REVISION
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LINE #	SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP
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	6-2020	NO REVISIONS THIS SHEET				.	.	PIPING AND INSTRUMENT DIAGRAM
REV	DATE	DESCRIPTION			MOC #	REF DWG #	REF DWG TITLE	

MOC #		CHARGE #	
.		.	
WORK ASSIGNMENT #		T/A PPG #	
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ENGINEER	DESIGNER	DRAFTER	
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

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SHEET TITLE	
DREDGED MATERIAL DISPOSAL AREAS	
SHEET 32 OF 33	REVISION 1
ENGINEER: PGK	REVIEWED: BJD
PROJECT NO. 11876.LC	FILE NO. B-11876.LC.01

UNIT #15 WATER TERMINAL AREA:



DRAWING NUMBER & FILENAME - - - SHTO#		REVISION .
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LINE #		SPEC	INSULATION THICKNESS/TYPE	TRACE	PAINT	STRESS RELIEVE	TEST TYPE/PRESS	OPERATING PRESS/TEMP	DESIGN PRESS/TEMP	MOC #		CHARGE #	
		
		.	.	.	.	.	.	.	.	WORK ASSIGNMENT #		T/A PPG #	
		
	.	.				.	.	.	.	ENGINEER		DESIGNER	DRAFTER

	.	.				.	.	.	.	APPROVED		REVIEWED	DATE
1	6-2020	SHEET ADDED				.	.	.	PIPING AND INSTRUMENT DIAGRAM	.		.	10/25/19
REV	DATE	DESCRIPTION				MOC #	REF DWG #	REF DWG TITLE					