Collins Engineers, Inc.
May 24, 2017

Port of Port Arthur - Berth 5 Construction

Port of Port Arthur - Excavation and Dredging Quantity Summary

STATION	CUT AREA BELOW WATER DESIGN DREDGE DEPTH (S.F.)	LENGTH	VOLUME (C.Y.)	CUT AREA ABOVE WATER DESIGN DREDGE DEPTH (S.F.)	LENGTH	VOLUME (C.Y.)	FILL AREA (S.F.)	LENGTH	VOLUME (C.Y.)	CUT OVER-DREDGE BELOW WATER DESIGN 1' DEPTH (S.F.)	LENGTH	VOLUME (C.Y.)
9 + 50	0.0			0.0			0.0			0.0		
		50	1,099.3		50	0.0		50	0.0		50	182.2
10 + 0	1,187.2			0.0			0.0			196.8		
		100	14,008.7		100	2,053.1		100	0.0		100	1,075.0
11 + 0	6,377.5			1,108.7			0.0			383.7		
		100	23,735.6		100	3,238.9		100	14.3		100	1,208.0
12 + 0	6,439.7			640.3			7.7			268.6		
		100	20,005.4		100	1,380.6		100	80.4		100	1,000.4
13 + 0	4,363.2			105.2			35.7			271.6		
		100	11,192.6		100	194.8		100	923.7		100	984.6
14 + 0	1,680.8			0.0			463.1			260.1		
		100	5,914.4		100	0.0		100	1,862.6		100	972.8
15 + 0	1,513.0			0.0			542.7			265.2		
		100	5,413.0		100	0.0		100	1,005.0		100	987.0
16 + 0	1,410.0			0.0			0.0			267.8		
		100	5,073.3		100	0.0		100	0.0		100	989.6
17 + 0	1,329.6			0.0			0.0			266.6		
		100	3,607.6		100	0.0		100	30.7		100	945.7
18 + 0	618.5			0.0			16.6			244.1		
		10	114.5		10	0.0		10	3.1		10	45.2
18 + 10	0.0			0.0			0.0			0.0		
TOTAL			**90,164.4**			**6,867.4**			**3,919.7**			**8,390.6**

Notes:
1. Volumes based on topographic and bathymetric surveys completed by Soutex Surveyors and Engineers as updated on March 23, 2017.

2. See next sheet for sample cross-section defining the volume zones

Estimated Total Dredge Volume

90, 164 CY Dredge Volume to Design Dredge Depth including Maintenance Dredge and Side Slopes
Say 90,500 CY

8,391 CY Dredge Volume for 1-ft Overdredge Allowance
Say 8,500 CY

99,000 CY Dredge Volume

Estimated Total Excavation Volume

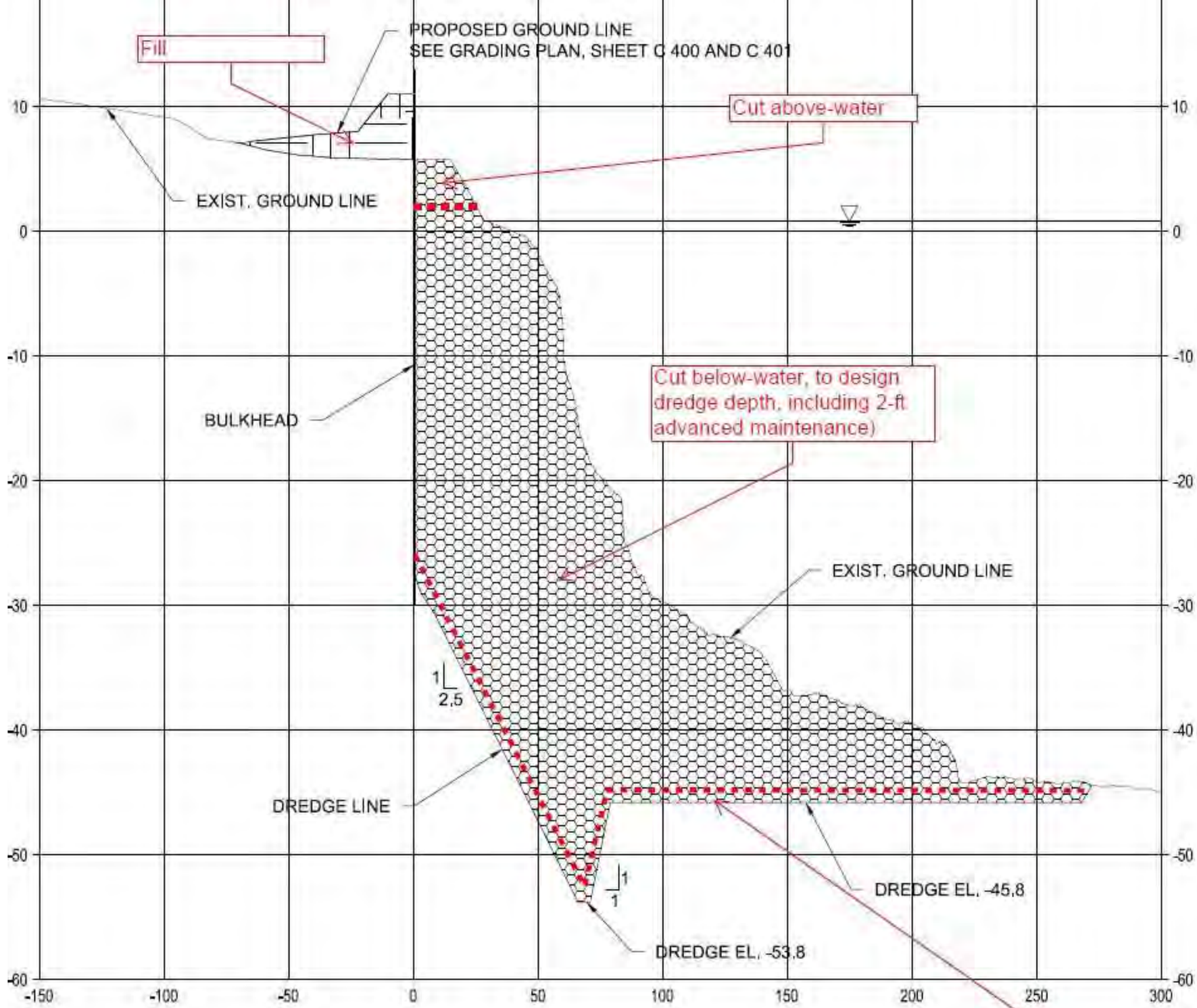
6,867 CY Excavation Volume above High Tide (e.g. dry excavation)

Say 7,000 CY Excavation Volume

Estimated Total Fill Volume

3,920 CY Fill Volume behind Proposed Bulkhead

Say 4,000 CY Fill Volume



Port of Port Arthur - Berth 5 Construction

Collins Engineers, Inc.
May 24, 2017

SAMPLE SECTION FOR VOLUME QUANTITIES

Cut below-water, 1-ft over-dredge

Port of Port Arthur - Berth 5 Construction: Dredge Plan Area to Determine Coordinates for the Full-Depth Dredge Footprint

Collins Engineers, Inc.
May 24, 2017

1 **DREDGE MATERIAL DISPOSAL AREAS**
SCALE: 1" = 6,000'

NOTES

1. CONTOURS SHOWN IN PLAN VIEW ARE PROPOSED FINISH ELEVATIONS (TOP OF ARTICULATED CONCRETE MATS (ACM).
2. CROSS SECTIONS (SHEETS C 101 TO C 105) SHOW FINAL DREDGE ELEVATION (BELOWACM).
3. ELEVATIONS IN NAVD88.
4. CONTRACTOR SHALL DISPOSE OF DREDGE MATERIAL IN ACCORDANCE WITH U.S. ARMY CORP OF ENGINEERS (USACE) PERMIT SWG-2011-04303.
5. CONTRACTOR SHALL COORDINATE DREDGE MATERIAL DISPOSAL WITH THE USACE AND OWNER'S REPRESENTATIVE.

2 PLANS MODIFIED TO EXISTING DREDGING, TOPOGRAPHIC SURVEY AND PROPOSED DREDGING LIMITS
APRIL 7, 2017
TEXAS REGISTERED ENGINEERING FIRM F-9791

1 PLANS MODIFIED TO DELINEATE BERTH 5 LIMITS OF WORK FOR SEPARATE BID AND PLAN MODIFICATIONS.
MARCH 17, 2017
TEXAS REGISTERED ENGINEERING FIRM F-9791

Berth 5 Construction

PORT ARTHUR
PUBLIC PORT

Port of Port Arthur
P.O. Box 1428
Port Arthur, Texas 77641

Lockwood, Andrews & Newnam, Inc.
A LEO A DALY COMPANY
PLANNING ENGINEERING PROGRAM MANAGEMENT
2925 Briarpark Drive
Houston, Texas 77042-3720
Tel 713-266-6900 Fax 713-266-7506

STATE OF TEXAS
GLENN J. GERSCHKE
84923
LICENSED PROFESSIONAL ENGINEER

Collins Engineers, Inc.
Texas Registered Engineering Firm F-9791

REVISIONS

NO.	DESCRIPTION	DATE
0	ISSUE FOR CONSTRUCTION	04/21/16
1	ISSUE FOR SEPARATE BID	04/07/17
2	REVISED DREDGING LIMITS & TOPO	04/07/17

FILE LOG

Manager	ETT
Design	SAG
Draw	CLF
Check	SAG

STAMP

STATE OF TEXAS
E. TYSON THOMAS
51916
REGISTERED PROFESSIONAL ENGINEER

Lockwood, Andrews & Newnam, Inc.
Texas Registered Engineering Firm F-2614

0 50 100
SCALE

Project No. 120-10849-016
Date: April 21, 2016

DREDGING OVERALL PLAN

C 100
16 OF 148

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ProjectWise: pw:\\lodpw.locco.int:projectwise\Documents\Projects\120-10849-016\v-0-Production\v-01-Drawings\02-Design_Phase\
File:C:\10243 - POPA Berth 5\CAD\Sheet Drawings\C 100.dwg Plotted 4/7/2017 1:41 PM By:Matt Roesch

Port of Port Arthur - Berth 5 Construction: Dredge Plan Area to Determine Coordinates for the Full-Depth Dredge Footprint

Collins Engineers, Inc.
May 24, 2017

DREDGE LIMIT COORDINATE TABLE		
Point #	Northing	Easting
1	13893335.52	3570922.54
2	13893639.03	3570882.63
3	13893867.88	3571058.91
4	13894167.52	3571289.70
5	13894036.16	3571460.75
6	13893661.81	3571173.03

Northing/Easting are US Survey Feet, based on Texas State Plane Zone 4 (South Central) coordinate system

0 100
SCALE: 1" = 100'

"PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT" (RELEASE DATE: _____)

ANTHONY M. LEGER
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5481

SURVEYORS NOTES

SOUTEX SURVEYORS & ENGINEERS
T.B.P.E. FIRM #5755 * T.X.L.S. FIRM #10123800

3737 Doctors Drive
Port Arthur, Texas 77642
Tel. 409.983.2004
Fax. 409.983.2005
soutexsurveyors.com

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SHEET TITLE
PORT OF PORT ARTHUR
JEFFERSON COUNTY, TEXAS

PROJECT
COLLINS ENGINEERS, INC.
650 ISLINGTON STREET
PORTSMOUTH, NH 03801

PROJ. NO: 17-0167-A
SCALE: 1" = 100'
PRINT DATE: 5/23/17
DRAWN BY: T. CHASE
CHECKED BY: AML
APPROVED BY: AML
SHEET 1 OF 1

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MEAN HIGHER HIGH WATER (MHHW)	0.00' MHHW	=	1.27' NAVD88
MEAN HIGH WATER (MHW)	0.00' MHW	=	1.21' NAVD88
MEAN SEA LEVEL (MSL)	0.00' MSL	=	0.83' NAVD88
MEAN TIDE LEVEL (MTL)	0.00' MTL	=	0.80' NAVD88
MEAN LOW WATER (MLW)	0.00' MLW	=	0.38' NAVD88
MEAN LOWER LOW WATER (MLLW)	0.00' MLLW	=	0.22' NAVD88
NORTH AMERICAN VERTICAL DATUM 1988 (NAVD88)	0.00' NAVD88	=	0.00' NAVD88
NATIONAL GEODETIC VERTICAL DATUM 1929 (NGVD29)	0.00' NGVD29	=	0.04' NAVD88
CORPS OF ENGINEER'S MEAN LOW TIDE (MLT)	0.00' MLT	=	−1.50' NAVD88

NOTES:

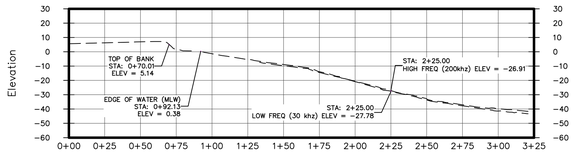
1. COORDINATES SHOWN ARE NAD83, STATE PLANE GRID COORDINATES, TEXAS SOUTH CENTRAL ZONE.

2. ELEVATIONS ARE NAVD88 GEOID DERIVED ORTHOMETRIC HEIGHTS AND ARE REFERENCED TO TCOON TIDAL STATION # 524 "PORT ARTHUR" BENCHMARK "LUB0475C" HAVING A PUBLISHED ELEVATION OF 8.91 FT.

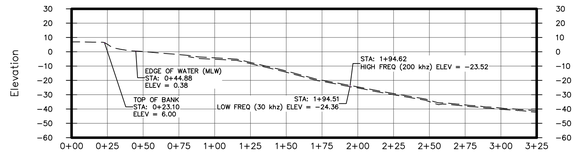
3. CORPS MEAN LOW TIDE (MLT) DATUM CORRELATION BASED ON FIELD SURVEYS OF TIDE BOARDS LOCATED AT: RAINBOW BRIDGE, CORPS OFFICE ON PLEASURE ISLAND, & TURNING BASIN NEAR S.H. 87 BRIDGE OVER THE GCIWW.

4. MICHAEL PREVOST & RICHARD WITMIRE OF THE PORT ARTHUR CORPS OF ENGINEERS OFFICE PROVIDED SOUTEX A DATASHEET FOR LUBC SHOWING AN NAVD88 ELEVATION OF 9.60. THEY ALSO STATED THAT 0.78 FT. NAVD88 = 0.00 FT. MLT. THIS INFORMATION WAS NOT USED BECAUSE FIELD SURVEYS COULD NOT VERIFY THE PUBLISHED ELEVATION OR THE 0.78 FT. CORRELATION.

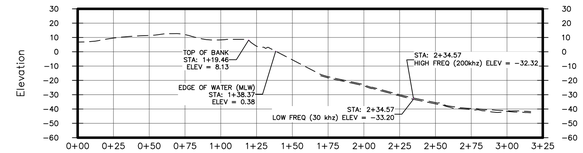
5. NGVD CORRELATION BASED ON NGS VERTCON PROGRAM FOR "LUB0475C" USING NAD83 GEOGRAPHIC COORDINATES OF N 29°52'03.12" W 93°55'48.53"



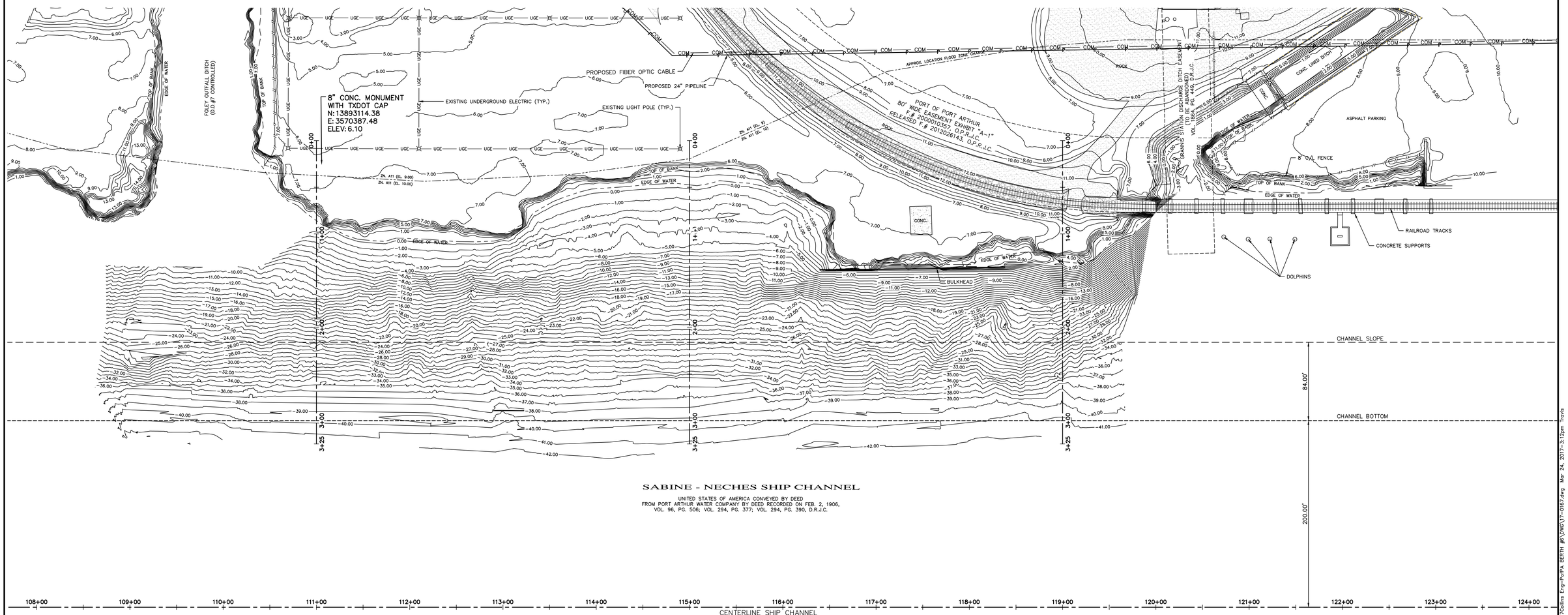
STATION 109+00



STATION 115+00



STATION 119+00



SABINE - NECHES SHIP CHANNEL

UNITED STATES OF AMERICA CONVEYED BY DEED
FROM PORT ARTHUR WATER COMPANY BY DEED RECORDED ON FEB. 2, 1906,
VOL. 96, PG. 506; VOL. 294, PG. 377; VOL. 294, PG. 390, D.R.J.C.

"PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT" (RELEASE DATE: _____)

ANTHONY M. LEGER
REGISTERED PROFESSIONAL LAND SURVEYOR NO. 5481

SURVEYORS NOTES

1. ELEVATIONS SHOWN HEREON ARE NAVD88 ORTHOMETRIC HEIGHTS DERIVED USING GEOID 12A.
2. SHIP CHANNEL CENTERLINE STATIONING IS FROM INFORMATION FROM THE CORPS. OF ENGINEERS
3. BATHYMETRIC SURVEY COMPLETED 3/7/17 USING ASV-ECHOBOAT, SONARMITE ECHOSOUNDER (HIGH FREQ-200KHZ, LOW FREQ-30 KHZ) & SIDE SCAN SONAR (STARFISH 990F) EQUIPMENT AND REPRESENTS THE CONDITIONS AT THE TIME OF THE SURVEY. CONDITIONS AT TIME OF THE PROJECT MAY VARY.

SOUTEX SURVEYORS & ENGINEERS
T.B.P.E. FIRM #5755 * T.X.L.S. FIRM #10123800

3737 Doctors Drive
Port Arthur, Texas 77642
Tel. 409.983.2004
Fax. 409.983.2005
soutexsurveyors.com

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SHEET TITLE

TOPOGRAPHIC AND HYDRO SURVEY
PORT OF PORT ARTHUR BERTH 6
JEFFERSON COUNTY, TEXAS

PROJECT

COLLINS ENGINEERS, INC.
650 ISLINGTON STREET
PORTSMOUTH, NH 03801

PROJ. NO: 17-0167
SCALE: 1" = 50'
PRINT DATE: 3/23/17
DRAWN BY: T. CHASE
CHECKED BY: AML
APPROVED BY: AML

SHEET 1 OF 2

\\SOUTEXSERVER\Data\Vault\PROJECTS\2017\17-0167\Collins Eng-PortPA BERTH #6\DWG\17-0167.dwg Mar 24, 2017-3:12pm Travis

MEAN HIGHER HIGH WATER (MHHW)	0.00' MHHW	=	1.27' NAVD88
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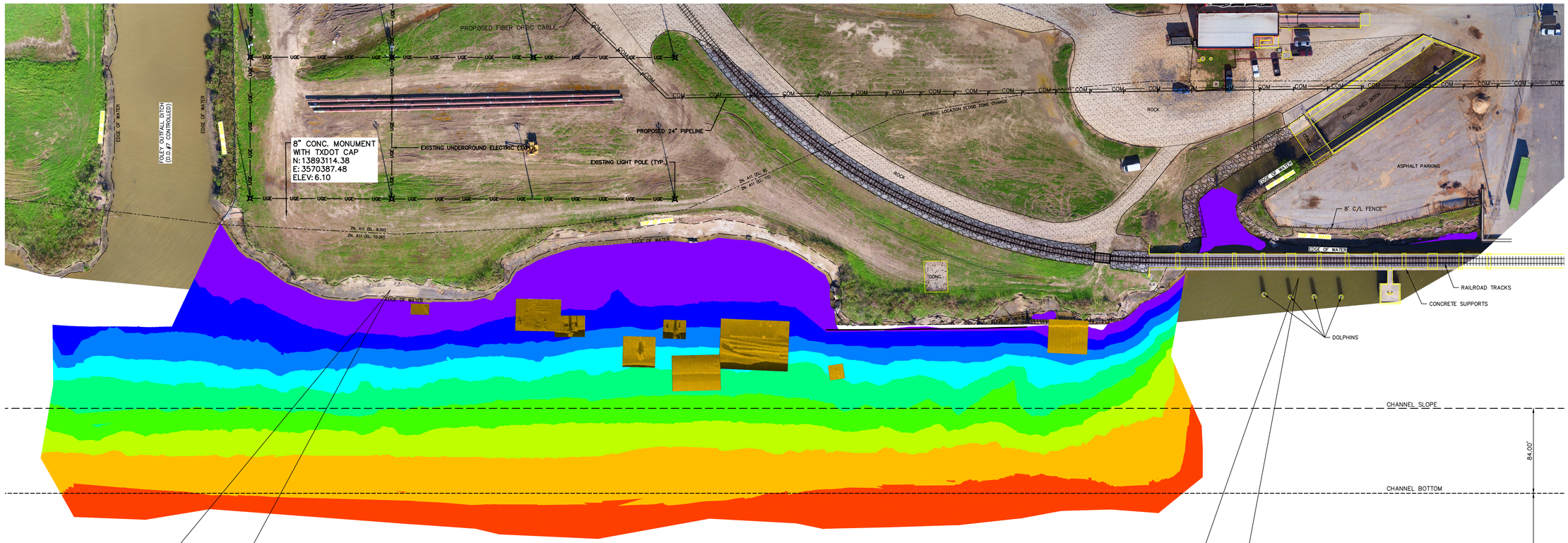

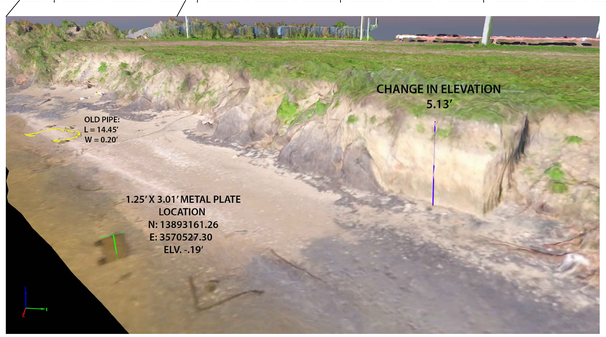

Elevations Table

Number	Minimum Elevation	Maximum Elevation	Area	Color
1	-50.00	-45.00	0.00	
2	-45.00	-40.00	32747.46	
3	-40.00	-35.00	47931.08	
4	-35.00	-30.00	28205.14	
5	-30.00	-25.00	26842.07	
6	-25.00	-20.00	28884.20	
7	-20.00	-15.00	22467.99	
8	-15.00	-10.00	20749.01	
9	-10.00	-5.00	26593.71	
10	-5.00	0.00	43866.10	

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APPROVED BY: AML

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