

CONTRACT DRAWINGS

GULF COAST AMMONIA PLANT PROJECT GULF COAST AMMONIA TERMINAL DOCK



DATE ISSUED
FEBRUARY 23, 2018

**GULF COAST AMMONIA
GALVESTON COUNTY, TEXAS**

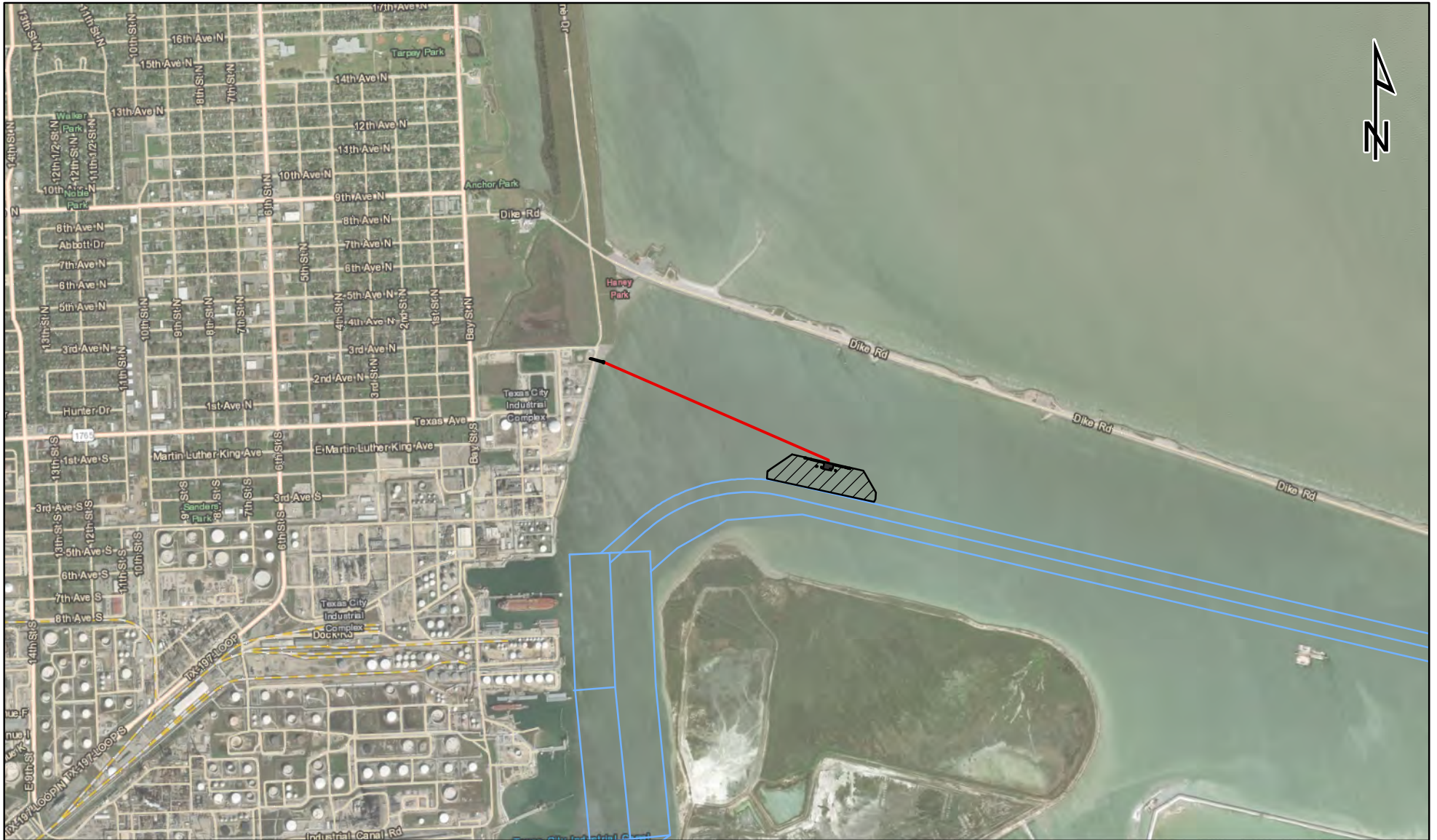
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LOCATION MAP

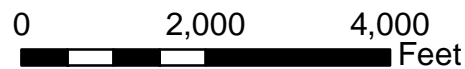


ARCADIS U.S., INC.

CITY: HOUSTON, TX; DW: GROUP; ENROAD; DR: W. BERRY; LD: P.C.; PM: TM; LVR: ON; OFF: REF; PLOT: 11:10 AM; BY: REGIS, JASON; XREFS: Cover_inde_color.png; MAGES: 11:10 AM; BY: REGIS, JASON; DW: 10:49:00 AM; Doc: drawings-00-00 DRAWINGS SUBMITTAL - 8x1102-0001-0001.dwg; LAYOUT: COVER-2304; SAVED: 2/23/2018 11:04 AM; ACADVER: 2016 (LMS TECH); PAGESETUP: ...; PLOTSTYLETABLE: AUS-NCISMOD-HALF-MONO.CTB; PLOTTED: 2/23/2018



- Dock
- Dredge Area
- Pipeline
- Channel and Centerline



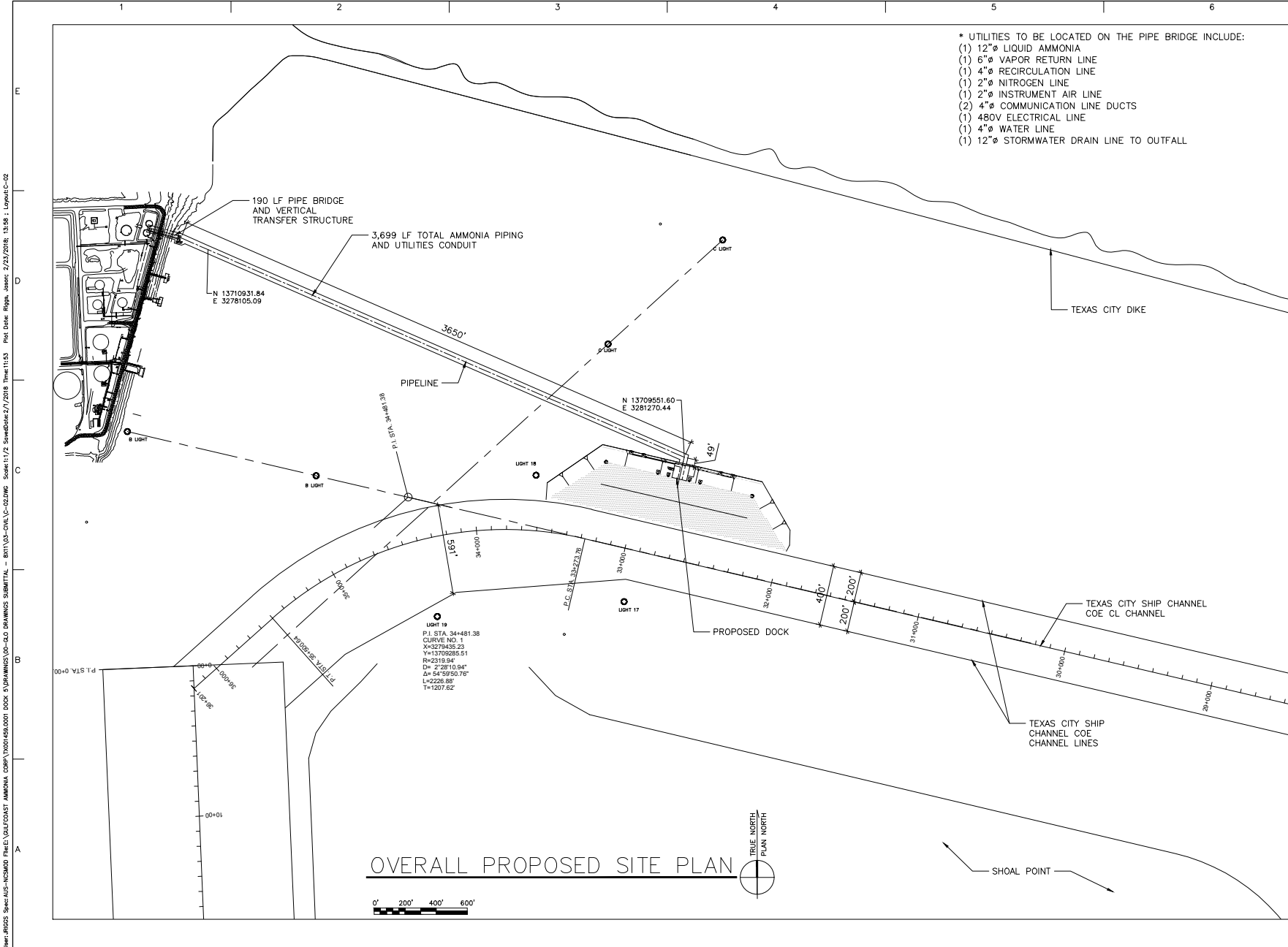
GCA Remote Dock Vicinity
Texas City, Texas

Geosyntec
consultants

Austin, TX.

February 2018

Figure
1



- * UTILITIES TO BE LOCATED ON THE PIPE BRIDGE INCLUDE:
- (1) 12"Ø LIQUID AMMONIA
 - (1) 6"Ø VAPOR RETURN LINE
 - (1) 4"Ø RECIRCULATION LINE
 - (1) 2"Ø NITROGEN LINE
 - (1) 2"Ø INSTRUMENT AIR LINE
 - (2) 4"Ø COMMUNICATION LINE DUCTS
 - (1) 480V ELECTRICAL LINE
 - (1) 4"Ø WATER LINE
 - (1) 12"Ø STORMWATER DRAIN LINE TO OUTFALL



LEGAL ENTITY:
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CONSULTANTS

SEALS

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CONSTRUCTION

GALVESTON CO., TEXAS CITY,
TEXAS

GULF COAST AMMONIA
PLANT PROJECT

GULF COAST AMMONIA
TERMINAL DOCK,
408 SEAWALL PIPE
BRIDGE CROSSING

ARCADIS PROJ. NO. TX001459.0001

NO.	DATE	ISSUED FOR	BY

COPYRIGHT: ARCADIS U.S., INC.
2015

DATE: FEBRUARY 23, 2018
PROJECT NO.: TX001459.0001
FILE NAME: C-02
DESIGNED BY: J. RIGGS
DRAWN BY: C. BOOTH
CHECKED BY: J. RIGGS

SHEET TITLE

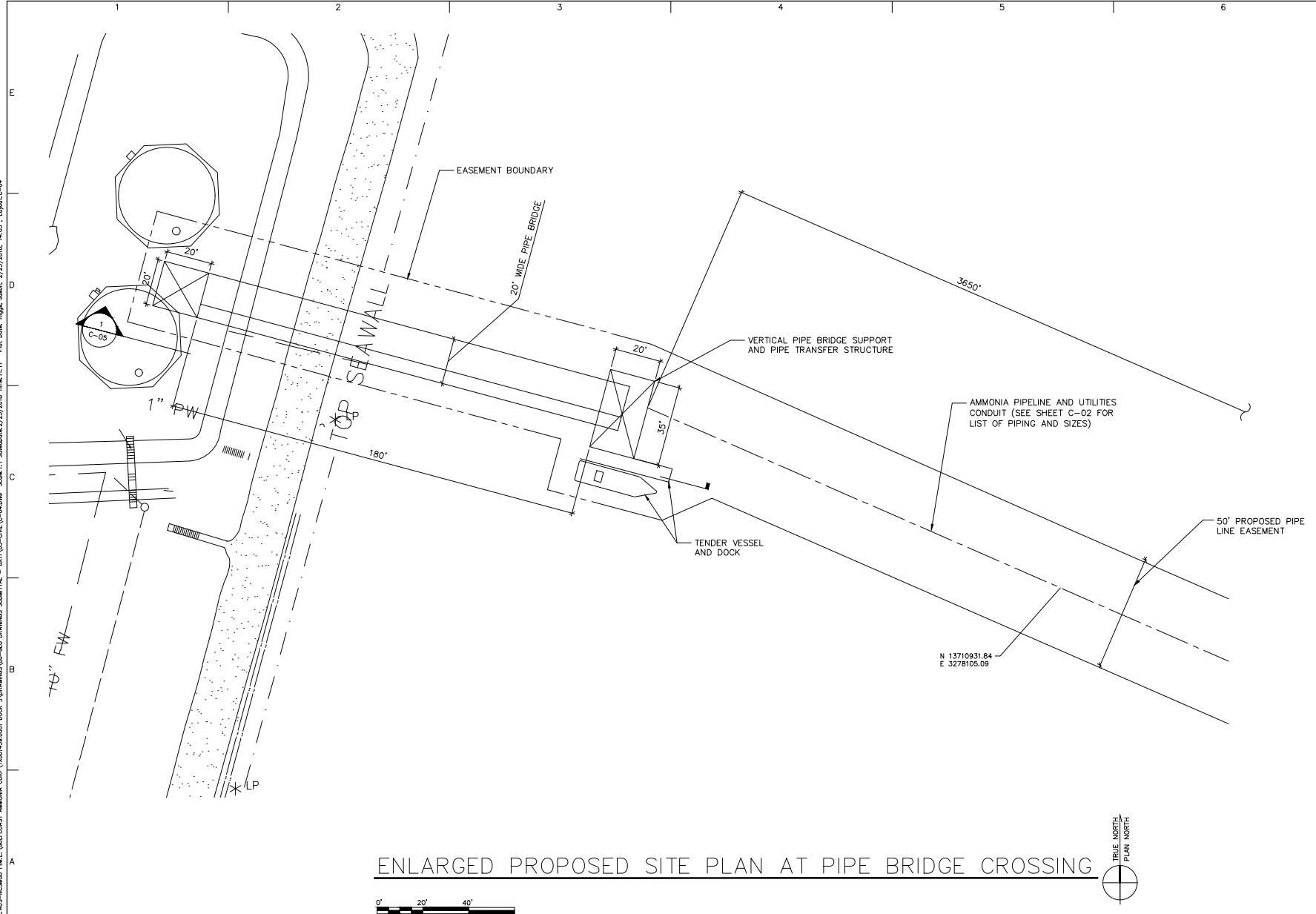
GCA TERMINAL DOCK

OVERALL PROPOSED
SITE PLAN

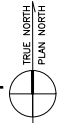
SCALE: AS SHOWN

C-02
SHEET 3 OF 11

User: J.RIGGS, Spec: AUS-INC3000, Pfile: GULFCOAST, AMMONIA, CORP, TX001459.0001, D00: 5, DRAWINGS, V0: GLO, DRAWINGS, SUBMITTAL, - 8011, U3-DVA, C-02, DWG, Scale: 11/2, Served: 2/7/2018, Time: 11:53, Plot Date: Rigg, J, Date: 2/23/2018, 13:58, Layout: C-02



ENLARGED PROPOSED SITE PLAN AT PIPE BRIDGE CROSSING



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DATE: FEBRUARY 23, 2018
PROJECT NO.: TX001459.0001
FILE NAME: C-04
DESIGNED BY: J. RIGGS
DRAWN BY: C. BOOTH
CHECKED BY: J. RIGGS

SHEET TITLE

GCA TERMINAL DOCK

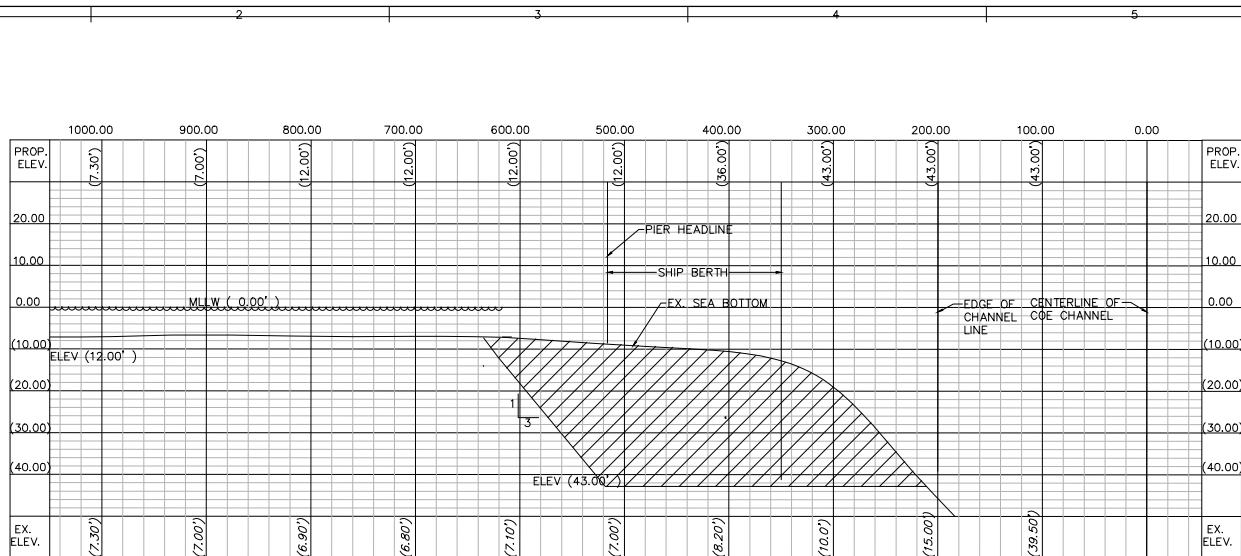
ENLARGED PROPOSED
SITE PLAN AT PIPE
BRIDGE CROSSING

SCALE: AS SHOWN

C-04
SHEET 5 OF 11

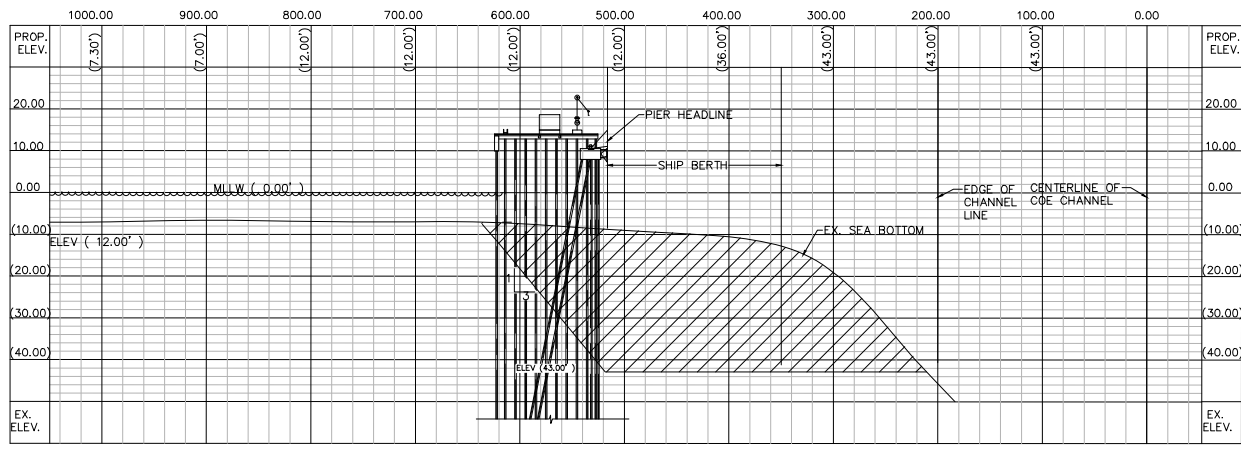
User: J.RIGGS Spw: AUS-INC3000 File: GULF COAST AMMONIA CORP\TX001459.0001 D00: 5\DRAWINGS\JOB-GLO DRAWINGS SUBMITTAL - 8011\JOB-DVA\JOB-DRAWING Scale: 1:1 Scale Date: 2/23/2018 Time: 11:17 Plot Date: Rigs: Jans: 2/23/2018 14:05 Layout: C-04

User: ARJDS Spec: AUS-INC3000 Phase: GULFCOAST AMMONIA Comp: TX001459.000 Doc: 5 DRAWINGS-VIS-OLD DRAWINGS SUBMITTAL - 811133-DVA-C-5.DWG Scale: 1:1 Saved: 2/23/2018 Time: 11:21 Plot Date: Regn. Jans: 2/23/2018 11:21 : Layout: C-5



DREDGED CHANNEL CROSS SECTION
STA 33+000

SCALE:
HORZ 1" = 60'
VERT 1" = 15'



DREDGED CHANNEL CROSS SECTION
STA 32+755

SCALE:
HORZ 1" = 60'
VERT 1" = 15'



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TEXAS

GULF COAST AMMONIA
PLANT PROJECT

GULF COAST AMMONIA
TERMINAL DOCK,
408 SEAWALL PIPE
BRIDGE CROSSING

ARCADIS PROJ. NO. TX001459.0001

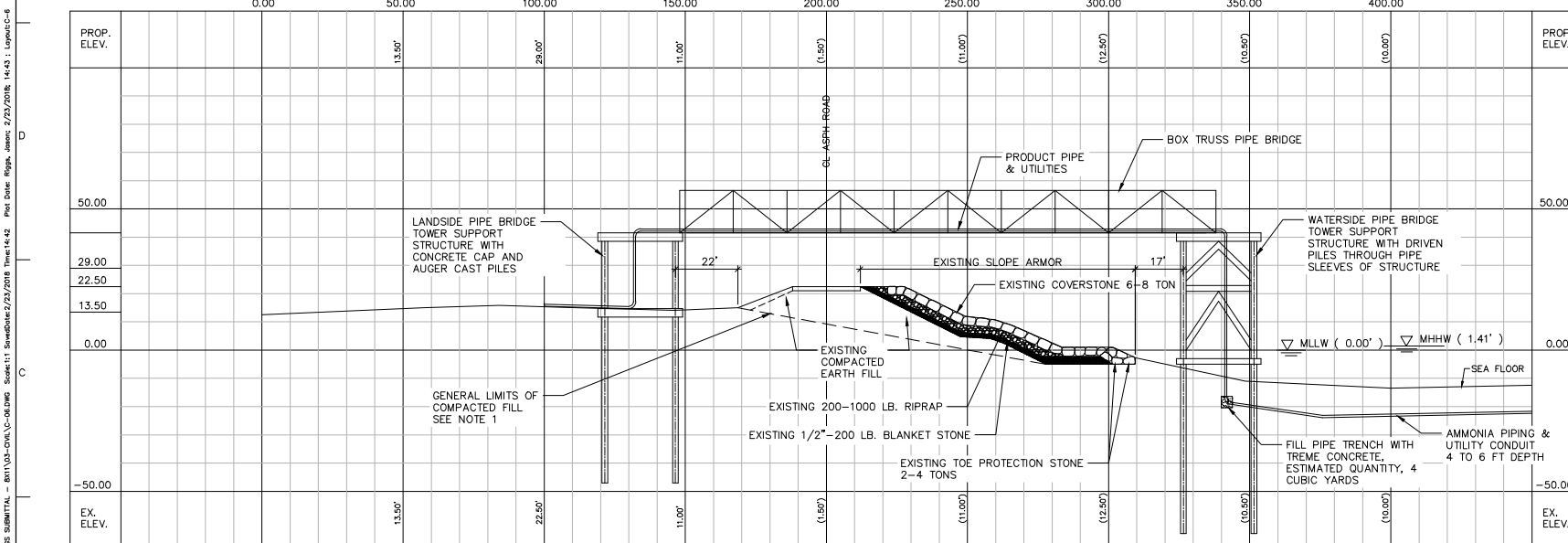
NO.	DATE	ISSUED FOR	BY

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DATE: FEBRUARY 23, 2018
PROJECT NO.: TX001459.0001
FILE NAME: C-5
DESIGNED BY: F. RAMPS
DRAWN BY: F. RAMPS
CHECKED BY: J. RIGGS

SHEET TITLE
GCA TERMINAL DOCK
OFF SHORE DOCK
DREDGING
CROSS SECTIONS

SCALE: AS SHOWN

C-05
SHEET OF 11



1 SEAWALL PIPE BRIDGE SECTION
C-04

NOTE:

1. LEVEE STATIONING, GENERAL LIMITS OF COMPACTED FILL AND EXISTING MATERIALS OF THE LEVEE SHOWN ARE BASED ON U.S. ARMY CORPS OF ENGINEERS' TEXAS CITY, TEXAS LEVEE STA. 446+10 TO STA. 477+27 AS-BUILT DRAWINGS DATED JANUARY 1967.

SCALE:
1" = 20'

- * UTILITIES TO BE LOCATED ON THE PIPE BRIDGE INCLUDE:
- (1) 12"Ø LIQUID AMMONIA
 - (1) 6"Ø VAPOR RETURN LINE
 - (1) 4"Ø RECIRCULATION LINE
 - (1) 2"Ø NITROGEN LINE
 - (1) 2"Ø INSTRUMENT AIR LINE
 - (2) 4"Ø COMMUNICATION LINE DUCTS
 - (1) 480V ELECTRICAL LINE
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TEXAS

GULF COAST AMMONIA
PLANT PROJECT

GULF COAST AMMONIA
TERMINAL DOCK,
408 SEAWALL PIPE
BRIDGE CROSSING

ARCADIS PROJ. NO. TX001459.0001

NO.	DATE	ISSUED FOR	BY

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DATE: FEBRUARY 23, 2018

PROJECT NO.: TX001459.0001

FILE NAME: C-06

DESIGNED BY: J. RIGGS

DRAWN BY: C. BOOTH

CHECKED BY: J. RIGGS

SHEET TITLE

GCA TERMINAL DOCK

OFF SHORE DOCK
SEAWALL
CROSS SECTIONS

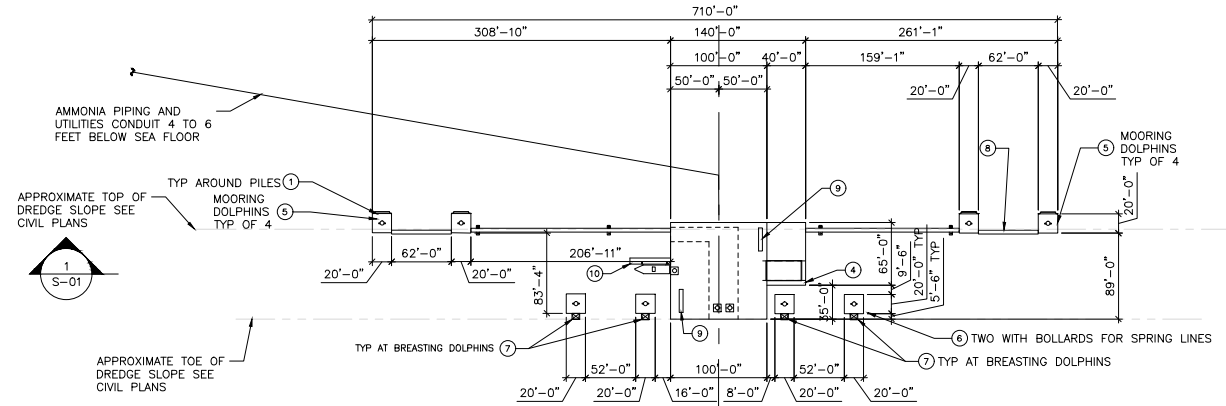
SCALE: AS SHOWN

C-06

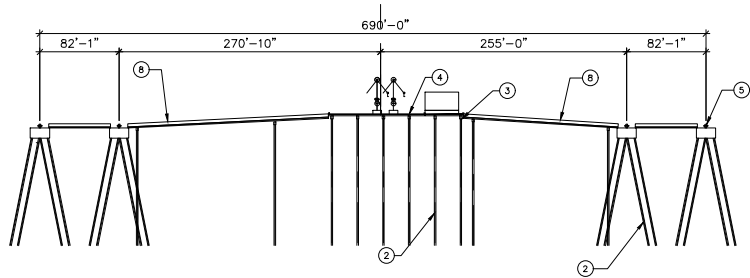
SHEET 7 OF 11

User: ARCADIS_Spec-AUS-INC2000_PlanE:\GULFCOAST_AMMONIA_CORP\TX001459.0001_DOC\DRAWINGS\JOB-OLD DRAWINGS SUBMITTAL - 6011\03-DWG-C-06.DWG Scale: 1:1 Sheet: 7 of 11 Date: 2/23/2018 Time: 14:42 Plot Date: RIGGS, Jason: 2/23/2018 14:43 Layout: C-06

DOCK AREA AND ACCESS PLATFORM AREAS = 14,600 SF
 FLOATING DOCK AREA = 240 SF
 DOLPHIN AREA = 3,200 SF



DOCK PLAN
 1/64" = 1'-0"
 0 32' 64' 128'



SECTION 1
 1/64" = 1'-0"
 0 32' 64' 128'

KEY NOTES

- PILES DESIGNED TO ACCOUNT FOR SCOUR AROUND PILES DUE TO PROPELLER WASH.
- DRIVEN CONCRETE PILES. ESTIMATED SIZE 24 IN SQUARE OR 36 IN DIAMETER ROUND PILES, ESTIMATED QUANTITY 145.
- PRE-CAST OR CAST IN PLACE (CIP) CONCRETE FRAMING OR STEEL FRAMING, ESTIMATED SIZE 3 FT-6 IN WIDE X 4 FT-0 IN HIGH IF CONCRETE.
- PRE-CAST CONCRETE FLAT DOCK SLAB WITH REINFORCED CIP CONCRETE TOPPING OR CIP CONCRETE DECK. ESTIMATED SIZE 2 FT-0 IN THICK, 1 FT-6 IN THICK PRECAST AND 8 IN THICK CAST IN PLACE CONCRETE TOPPING.
- MOORING DOLPHIN WITH 6 OR 4 PILE GROUP AND HEAVY LOAD RATED MOORING DEVICE. ESTIMATED SIZE 10 OR 20 FT-0 IN SQUARE BY 10 FT-6 IN DEEP.
- BREASTING DOLPHIN WITH 6 PILE GROUP, SUPER CONE FENDER AND 300 TON RATED MOORING DEVICE. ESTIMATED DOLPHIN SIZE 20 FT-0 IN SQUARE BY 10 FT-6 IN DEEP REINFORCED CIP CONCRETE.
- SUPER CONE FENDERS.
- ALUMINUM MOORING DOLPHIN ACCESS PLATFORM/CATWALKS, TRUSS STYLE PRE-FABRICATED BRIDGE STRUCTURE WITH INTERMEDIATE PILE SUPPORT WHERE SHOWN, ESTIMATED SIZE 4 FT-0 IN WIDE WITH 3 FT-6 IN HIGH SIDES.
- TELESCOPING GANGWAY SHIPS LADDER.
- FLOATING DOCK AND ACCESS STAIRS FOR 30'-0" TO 36'-0" VESSEL.

NOTE: STRUCTURAL DETAILS AND TYPE ARE CONCEPTUAL IN NATURE AND MAY VARY AS DESIGN PROGRESSES BY THE ENGINEERING PROCUREMENT CONTRACTOR. LOCATION OF MOORING DEVICES AND DOCK WORKING PLATFORM SHALL REMAIN IN THE SAME GENERAL LOCATION AS SHOWN.

PRELIMINARY DESIGN LOADS

- DEAD LOAD AS APPLICABLE
- LIVE LOAD
- DOCK LOADING - 300 PSF, 3,000 LBS.
- ACCESS CATWALKS - 60 PSF, 500 LBS.
- WIND LOADING 155 MPH PER ASCE 7-10
- SEISMIC CRITERIA (PER IBC 2012/2015, ASCE 7-10)
 $S_s = 0.070g$ $S_1 = 0.078g$
 SOIL SITE CLASSIFICATION E

SUMMARY OF WIND AND WATER LEVEL DESIGN CRITERIA

PARAMETER	DESCRIPTION	VALUE [UNITS]	NOTES
SEA-LEVEL RISE	MEAN VALUE BY 2050	2.4 FT	BASED ON NRC (2012) REPORT
CURRENT VELOCITY	TYPICAL	1.0 KNOT AT 0 & 180 DEG	OCIMF GUIDELINES
WIND SPEED	1% WIND SPEED	60 KNOTS	ALL DIRECTIONS, 30-SEC, 10-M ALTITUDE
	OPERATIONAL SPEED	35 KNOTS	ALL DIRECTIONS, 30-SEC, 10-M ALTITUDE
WATER LEVELS	DHT	3.7 FT-NAVD88	DESIGN HIGH TIDE
	DLT	-1.3 FT-NAVD88	DESIGN LOW TIDE
	1% STORM SURGE (FUTURE)	15.2 FT-NAVD88	PRESENT DAY FEMA SWE PLUS SLR BY 2066

TOP OF WORKING PLATFORM EL. 26.0'
 TOP OF DOLPHINS EL. 11.5'
 MLLW EL. 0.0'

DREDGE EL. -43.0'

PILE TIP EL. -110.0'

SUMMARY OF WAVE DESIGN CRITERIA

PARAMETER	OPERATIONAL LEVEL	STORM CONDITIONS
WIND SPEED (KNOTS)	35	60
WIND DIRECTION (DEGREES)	110	110
WIND-WAVE DIRECTION	EAST-SOUTHEAST	EAST-SOUTHEAST
SIGNIFICANT WAVE HEIGHT (FEET), H_{m0}	2.7	6.0
SPECTRAL PEAK PERIOD (SECONDS), T_p	3.3	4.6



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GALVESTON CO., TEXAS CITY, TEXAS

GULF COAST AMMONIA PLANT PROJECT

GULF COAST AMMONIA TERMINAL DOCK, 408 SEAWALL PIPE BRIDGE CROSSING

ARCADIS PROJ. NO. TX001459.0001

NO. DATE ISSUED FOR BY

COPYRIGHT: ARCADIS U.S., INC. 2015

DATE: FEBRUARY 23, 2018

PROJECT NO.: TX001459.0001

FILE NAME: S-1

DESIGNED BY: J. RIGGS

DRAWN BY: C. BOOTH

CHECKED BY: J. RIGGS

SHEET TITLE

GCA TERMINAL DOCK

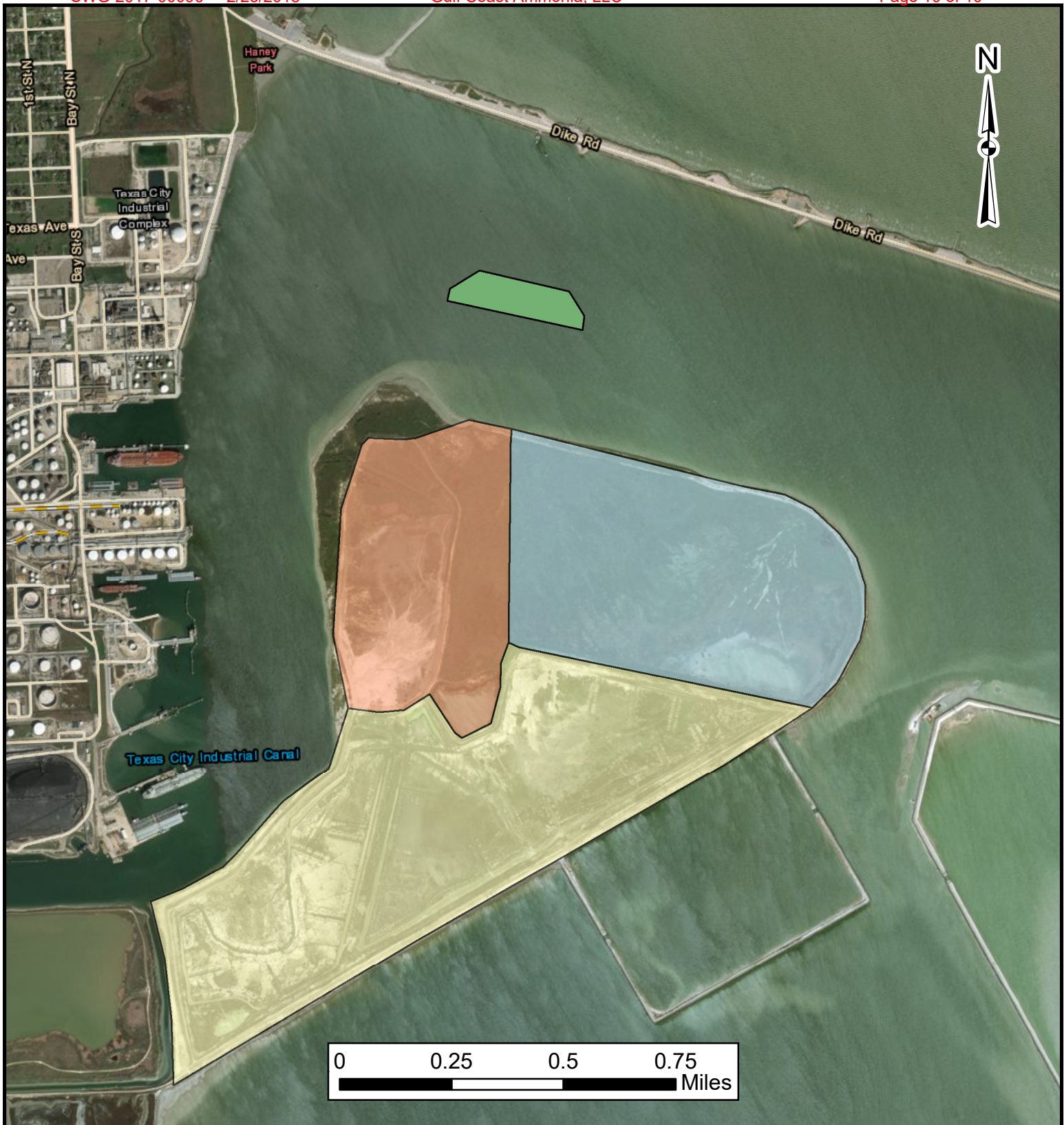
OFF SHORE DOCK PLAN AND SECTION

SCALE: AS SHOWN

S-01

SHEET 8 OF 11

User: ARIGGS Spec: AUS-INC3000 FILE: GULFCOAST AMMONIA CORP\TX001459.0001 DOCK & DOLPHINS\DOCK-DO DRAWINGS SUBMITTAL - 6011\US-STRUCTURAL\5-1\DWG Scale: 1/64" = 1'-0" Time: 08:11 Date: 2/23/2018 14:29: 14:29 : Layout: S-1




 Dredge Footprint

Placement Area

 Texas General Land Office

 USACE Cells 5 and 6

 City of Texas City

Gulf Coast Ammonia
 Dredge Placement Areas
 USACE Real Estate Application
 Galveston Bay, Texas City, Texas

Geosyntec[®]
 consultants

FIGURE

4

Austin

January 2018