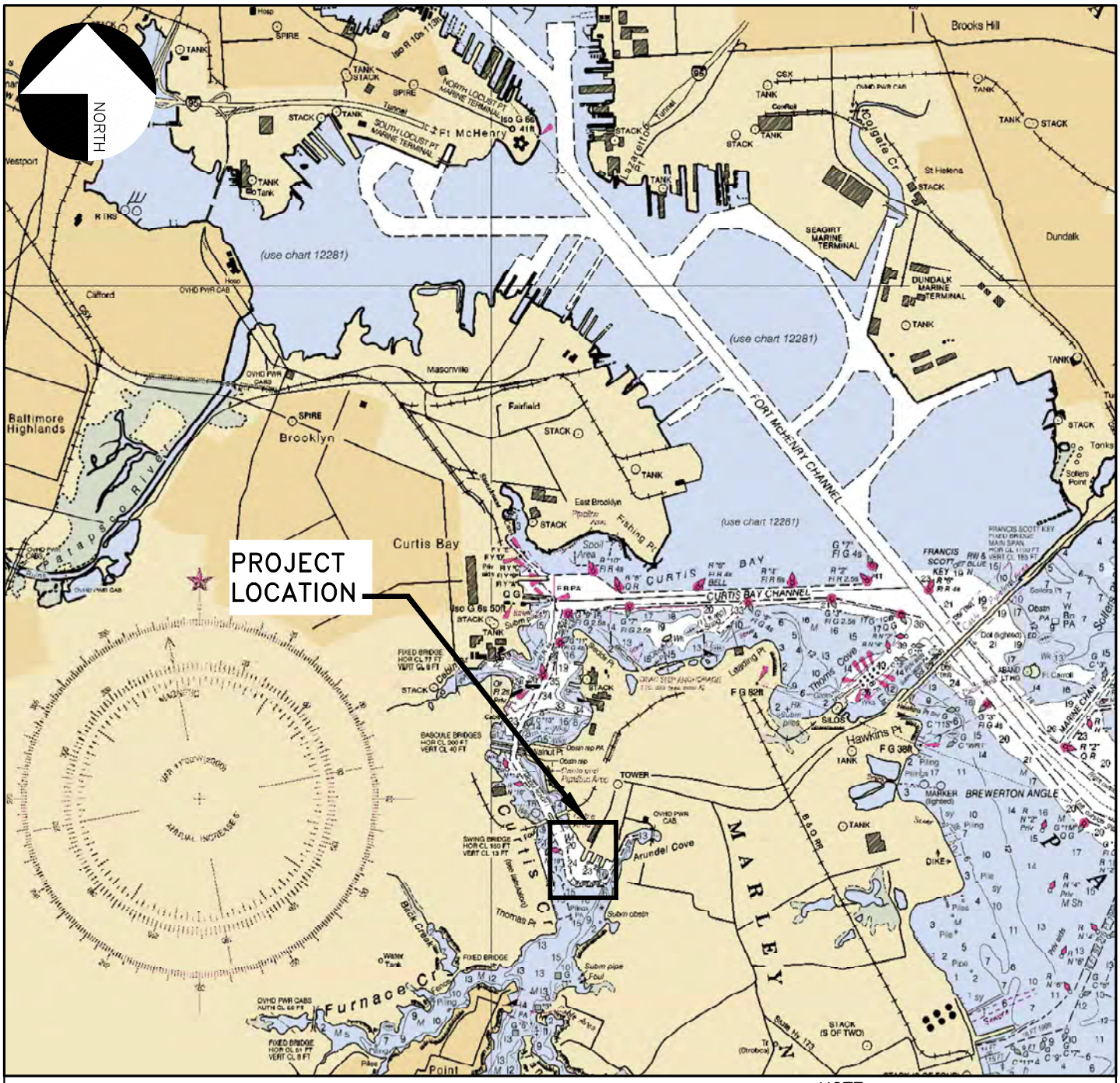


VICINITY MAP

NOTE: B-CKGROUND T-KEN FROM NO - CH-RT 12278, 70TH ED., M-R. 4/00

SUMM-RY

PROJECT WILL CONSIST OF CONSTRUCTION OF TWO (2) FINGER PIERS, IMPROVEMENTS TO THE EXISTING M-RGIN-L WH-RF -ND BULKHE-D, -ND ONE (1) OUTF-LL TO SUPPORT THE LIFTING -ND TR-NSPORT OF USCG F-ST RESPONSE CUTTERS (FRC) FOR M-INTEN-NCE -ND REP-IR -CTIVITIES.

0 5000' 10000'

1" = 5000'

FACILITIES DESIGN & CONSTRUCTION CENTER

PROJECT NO:	A/E PROJECT NO.: 221747
CAD FILE NAME:	80-8211842PT1001.dwg
DESIGNED BY:	JW
DRAWN BY:	RB
EDITED BY:	RB
CHECKED BY:	AF

23-WL-0088
202360149
3/22/23
1 of 30

SHEET TITLE

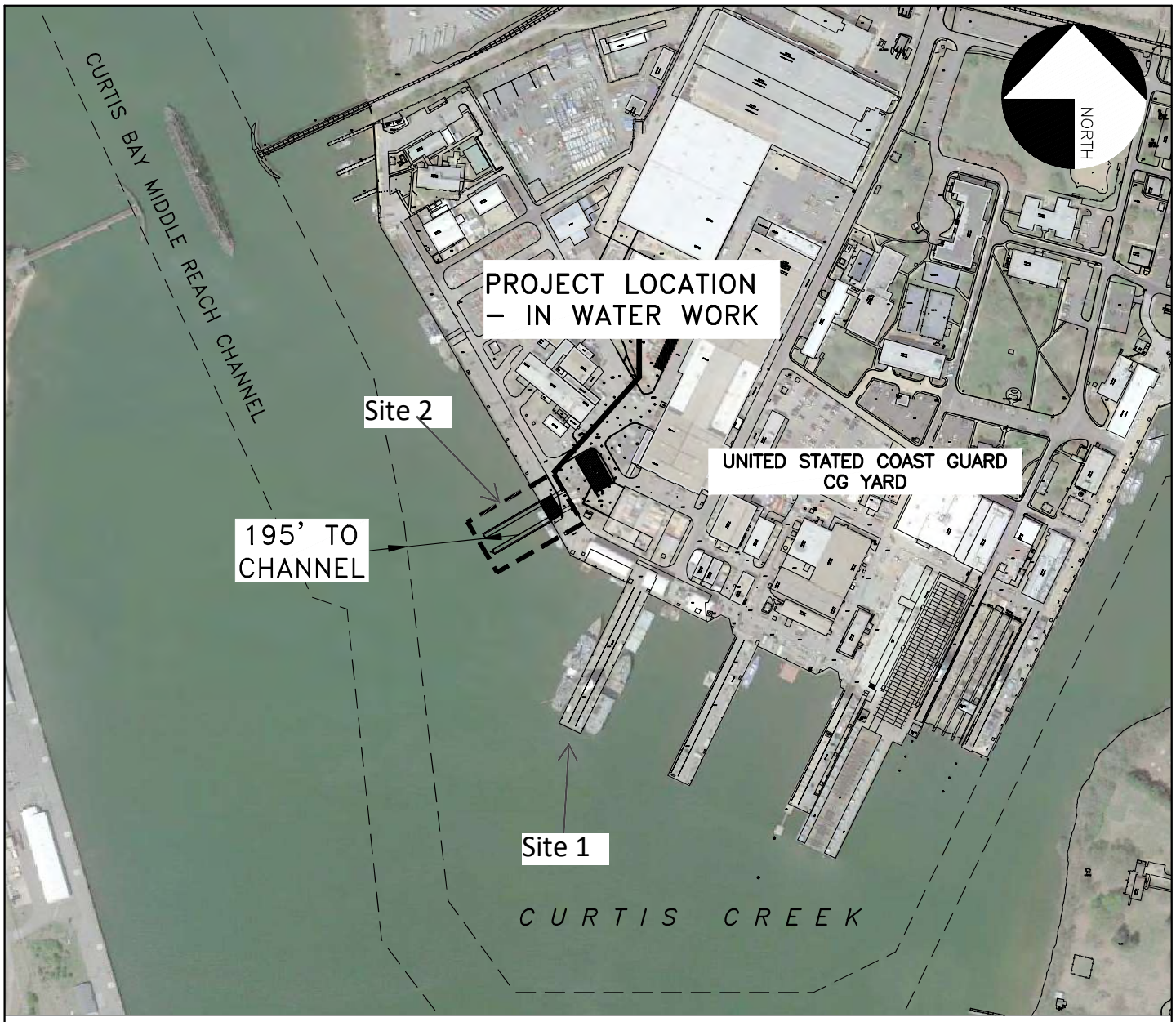
FRC RDAP

UNITED STATES COAST GUARD CURTIS BAY
CG YARD MARYLAND

FACILITIES DESIGN & CONSTRUCTION CENTER
CG YARD
CURTIS BAY, MARYLAND

SHEET 1 OF 7

RBENNINGTON::Q:\B-\221747\20 C-DD__-CTIVE__PERMITS\80-8211842PT1001.DWG L-YOUT: L-YOUT1 9/01/2022 7:19PM DMSC-LE: 1 R21.0



LOCATION MAP

0 400' 800'

1" = 400'

FACILITIES DESIGN & CONSTRUCTION CENTER

PROJECT NO:	A/E PROJECT NO.: 221747
CAD FILE NAME:	80-8211842PT1002.dwg
DESIGNED BY:	JW
DRAWN BY:	RB
EDITED BY:	RB
CHECKED BY:	AF

23-WL-0088
202360149
3/22/23
2 of 30

SHEET TITLE

FRC RDAP

UNITED STATES COAST GUARD CG YARD — CURTIS BAY MARYLAND

FACILITIES DESIGN & CONSTRUCTION CENTER
CG YARD
CURTIS BAY, MARYLAND

SHEET 2 OF 7

RBENNINGTON:G:\BA\221747\20 CADD_ACTIVE_PERMITS\80-8211842PT1002.DWG LAYOUT: LAYOUT1 9/08/2022 11:35PM DIMSCALE: 1 R21.0

Site 1

SURVEY NOTES

HORIZONTAL DATUM:	MARYLAND STATE PLANE, INT. FEET, GROUND, NAD 83
VERTICAL DATUM:	NAVD 88 (FT)
SURVEY DATE:	NOVEMBER 16TH 2021
CONTROL:	NGS JV5745 561028.56 1433363.54 50.50

SCOPE OF WORK - DEMOLITION

1. REMOVE EXISTING FOAM FILLED FENDERS.
2. REMOVE APPROXIMATELY 215 FT OF EXISTING TIMBER CURB SURROUNDING THE PIER.
3. REMOVE EXISTING EXTRUDED D-FENDER AT END OF PIER.

SITE CONDITIONS

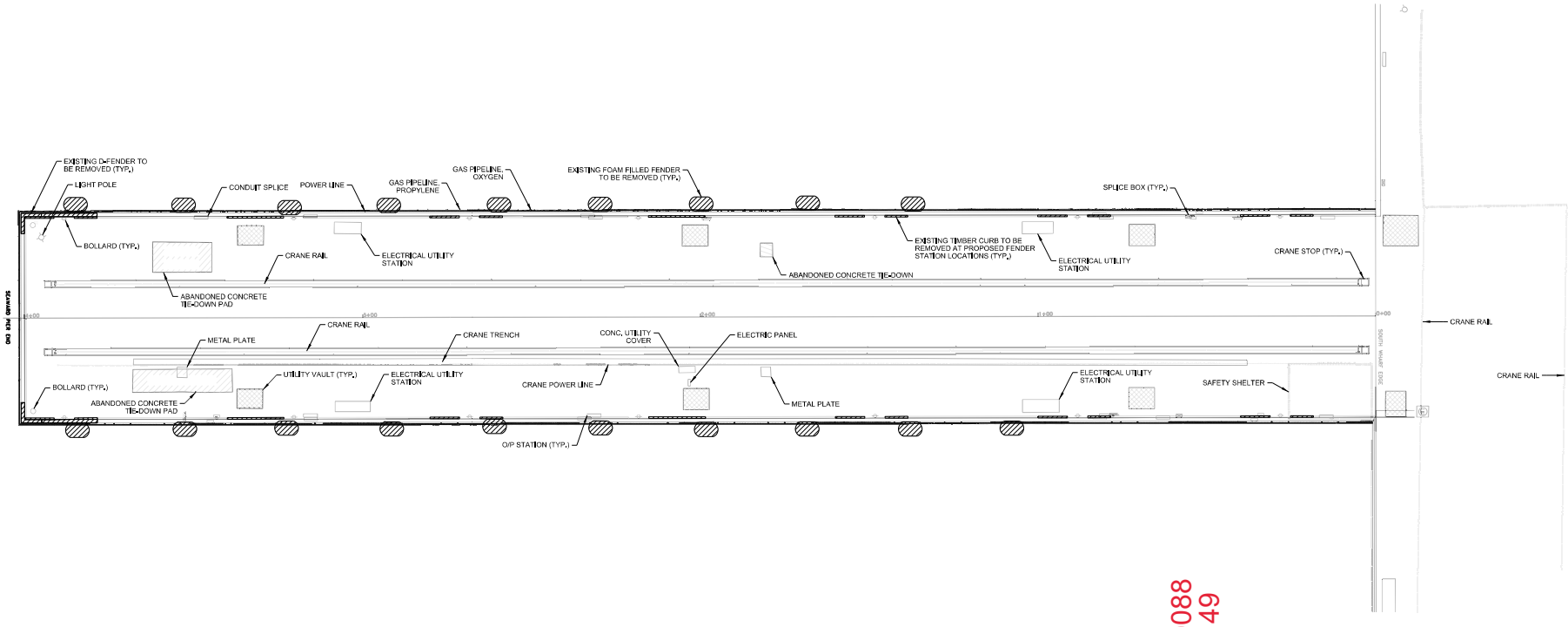
1. THE CONTRACTOR SHALL VERIFY THE CONDITIONS OF THE EXISTING SITE, EQUIPMENT AND FACILITIES POTENTIALLY AFFECTED BY THE WORK UNDER THIS CONTRACT AND PHOTOGRAPH AND/OR VIDEOTAPE THE CONDITIONS IN ORDER TO DOCUMENT THEIR PRE-CONSTRUCTION CONDITION. COPIES OF THE PHOTOS AND VIDEOS SHALL BE SUBMITTED TO THE CONTRACTING OFFICER PRIOR TO STARTING WORK.
2. THE CONTRACTOR SHALL USE PROACTIVE MEASURES TO LOCATE, PROTECT AND MAINTAIN EXISTING FEATURES TO REMAIN, WHICH SHALL INCLUDE BUT NOT BE LIMITED TO: TIMBER CURBS, TIMBER FENDERS AND BOLLARDS.
3. THE CONTRACTOR SHALL USE PROACTIVE MEASURES TO LOCATE, PROTECT AND MAINTAIN EXISTING UTILITIES INCLUDING ELECTRICAL, OXYGEN AND PROPYLENE GAS LINES, WATER AND STEAM LINES AND THE ASSOCIATED VAULTS AND STATIONS.
4. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

LEGEND

DENOTES AREAS OF REMOVAL

EXP. DATE: 11/30/2024

STATE OF ILLINOIS — ANNA M. DUKES — 081-005598 — CHICAGO, ILLINOIS — LICENSED STRUCTURAL ENGINEER



23-WL-0088
202360149
3/22/23
3 of 30

A1 EXISTING SITE & DEMOLITION PLAN - PIER 1

SCALE: 1/16" = 1'-0"

0' 8' 16' 32'

PLAN NORTH

U.S.C.G. — U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

SCALE: AS SHOWN

PLOTTING SCALE: 1:1

A/E COMPANY: AECOM TECHNICAL SERVICES, INC. 2000 CENTER ST #600, BERKELEY, CA 94704
A/E PROJECT NO.: P0021009
CONSULTING A/E:

U.S. COAST GUARD YARD
BALTIMORE, MARYLAND
PIER 1 REINFORCEMENT

PROJECT ENGINEER: HAL MOORE
DRAWN BY: RP
DESIGNED BY: RP
CHECKED BY: AMD

USCG PROJECT NO. 17077513
USCG DRAWING NO. 17077513-C-001
USCG FILENAME 17077513C001.DWG
SHEET 2 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC AT USCG YARD - BALTIMORE, MD

CIVIL

EXISTING SITE & DEMOLITION PLAN - PIER 1

SHEET ID
WATERFRONT
C-001

Site 1

GENERAL NOTES

1. SEE SHEET S-105 FOR THE PROPOSED FENDER STATION PLAN AND SHEET S-303 FOR THE PROPOSED FENDER STATION SECTION
2. SEE SHEET S-106 FOR THE PROPOSED DOLPHIN PLAN AND SHEET S-304 FOR THE PROPOSED DOLPHIN SECTIONS
3. MINIMUM DISTANCE TO THE TOE OF THE FEDERAL NAVIGATION CHANNEL FROM THE PROPOSED DOLPHINS IS APPROXIMATELY 335 FEET. APPROXIMATE COORDINATES OF THE CHANNELWARD MOST CORNERS OF THE DOLPHINS ARE:

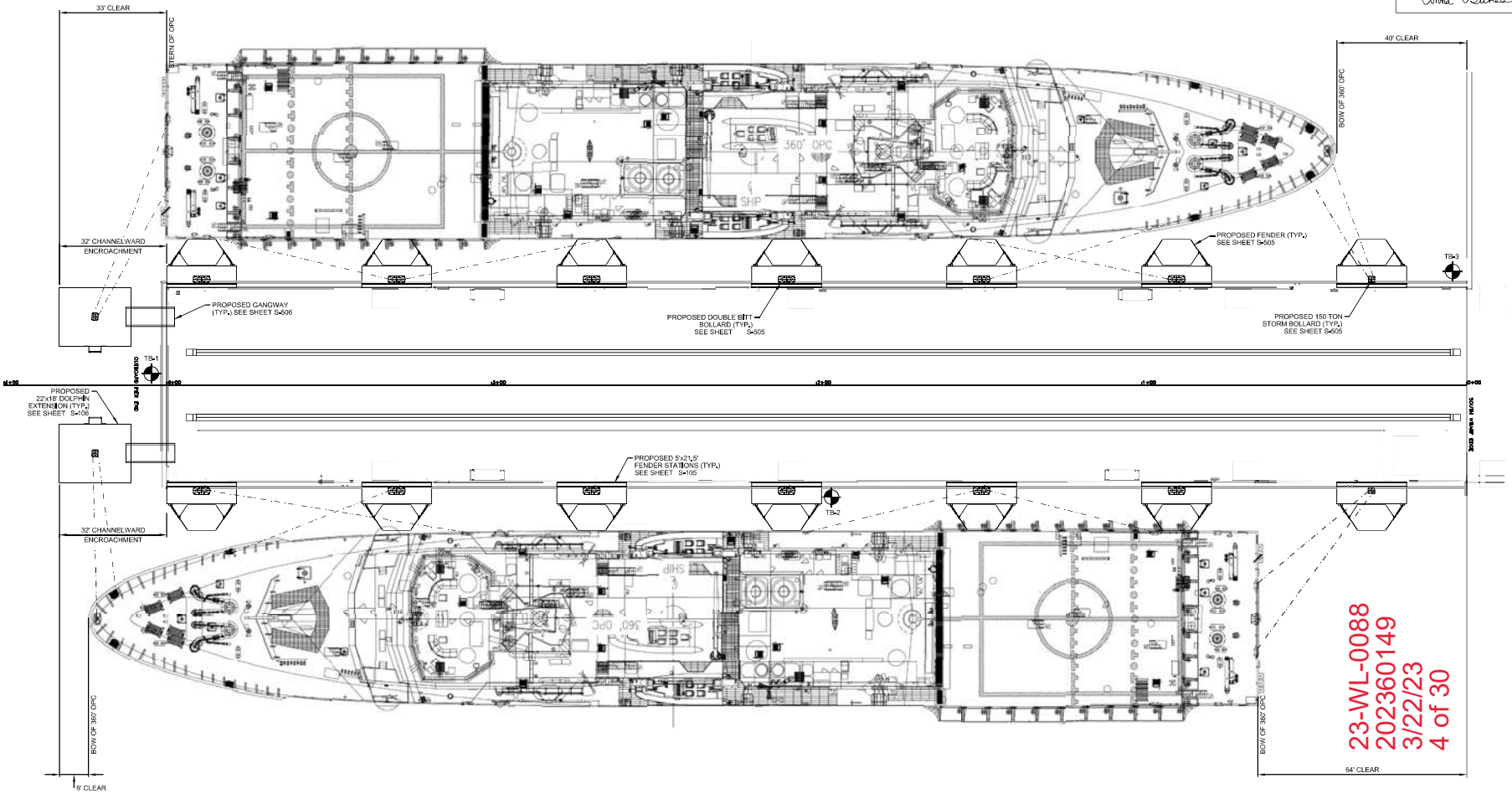
39°11'49.95" N, 76°34'22.57" W
39°11'49.70" N, 76°34'21.87" W

SCOPE OF WORK

1. INSTALL SEVEN (7) NEW FENDER STATIONS 60 FT APART ALONG EACH SIDE OF THE PIER. EACH NEW FENDER STATION WILL INCLUDE A NEW REINFORCED CONCRETE CAP SUPPORTED ON SIX (6) HP 18X157 PILES. NEW STATIONS ON OPPOSITE SIDE OF THE PIER WILL BE CONNECTED BY THREE (3) 1.75-INCH DIAMETER TIE RODS. STATIONS WILL HAVE NEW MOORING BOLLARDS AND FOAM FILLED FENDERS.
2. EXTEND THE PIER BY INSTALLING TWO (2) REINFORCED CONCRETE DOLPHIN EXTENSIONS AT THE END OF THE PIER SUPPORTED ON TWELVE (12) HP 18X157 PILES.
3. INSTALL A GANGWAY BETWEEN THE EXISTING PIER AND EACH PROPOSED DOLPHIN EXTENSION.
4. INSTALL NEW LADDER AT EACH PROPOSED DOLPHIN EXTENSION.
5. WORK ASSOCIATED WITH THESE ITEMS ARE FURTHER DESCRIBED IN THE SPECIFICATION SECTIONS AND/OR ARE SHOWN ON THE CONTRACT DRAWINGS. INCIDENTAL WORK ITEMS NOT LISTED ABOVE AND NECESSARY FOR COMPLETING THE PROJECT SHALL BE INCLUDED.
6. CONTRACTOR SHALL LIMIT DISRUPTION TO COAST GUARD OPERATIONS AND ENSURE ACCESS FOR YARD PERSONNEL DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE WITH THE YARD TO MAINTAIN ACCESS TO SUPPORT FACILITIES AND EQUIPMENT.

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-055598
CHICAGO, IL 60601
LICENSED STRUCTURAL ENGINEER



A1 PROPOSED SITE LAYOUT & MOORING PLAN

SCALE: 1/16" = 1'-0"

0' 8' 16' 32'

PLAN NORTH

U.S.C.G.
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

SCALE: AS SHOWN
PLOTTING SCALE: 1:1

A/E COMPANY:
TRUMBOR/GUEST CORPORATION
2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.:
PSC1210057
CONSULTING A/E:

U.S. COAST GUARD YARD
3401 HAWKINS POINT ROAD
BALTIMORE, MD 21226

PROJECT ENGINEER:
HA MOORE
DRAWN BY:
BMM
DESIGNED BY:
BMM
CHECKED BY:
AMD
APPROVED BY:
SHJ

USCG PROJECT NO.
17007513
USCG DRAWING NO.
17007513-002
USCG FILENAME
17007513C002.DWG
SHEET 3 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC
AT USCG YARD - BALTIMORE, MD

CIVIL

PROPOSED SITE LAYOUT & MOORING PLAN

SHEET ID
CIVIL
C-002

WATERFRONT STRUCTURAL NOTES

A. GENERAL

1. NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER THESE GENERAL NOTES AND TYPICAL DETAILS. TYPICAL DETAILS SHALL BE USED WHENEVER APPLICABLE.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE STARTING WORK, AND SHALL RESOLVE CONFLICTS ON THE PLANS WITH THE ENGINEER BEFORE PROCEEDING WITH CONSTRUCTION. IN NO CASE SHALL DIMENSIONS BE SCALED FROM PLANS, SECTIONS, OR DETAILS ON THE STRUCTURAL DRAWINGS.
3. WHERE A CONSTRUCTION DETAIL IS NOT SHOWN OR NOTED, THE DETAIL SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.
4. THE CONTRACTOR SHALL DETERMINE THE LOCATION OF UTILITY SERVICES IN THE AREA TO BE EXCAVATED, BEFORE BEGINNING EXCAVATION.
5. NO PIPES, DUCTS, SLEEVES, CHASES, ETC. SHALL BE PLACED IN FOOTINGS, NOR SHALL ANY STRUCTURAL MEMBER BE CUT FOR PIPES, DUCTS, ETC. THE CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FOR INSTALLATION OF ANY ADDITIONAL PIPES, DUCTS, ETC.
6. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT APPLICABLE UNIFIED FACILITIES CRITERIA (UFC) AND THE 2021 INTERNATIONAL BUILDING CODE (IBC).
7. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR ALL CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, PROCEDURES, AND JOB SITE SAFETY.
8. EACH SUBCONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS RELATING TO THEIR WORK BEFORE BEGINNING CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE CONTRACTOR IMMEDIATELY. FAILURE TO REPORT SUCH DISCREPANCIES INDICATES THE SUBCONTRACTOR'S ACCEPTANCE OF SUCH CONDITIONS.

B. FOUNDATION

1. CHARACTER OF FOUNDATION SOIL BASED ON REPORT BY VERDANTAS DBA DUFFIELD ASSOCIATES.
2. FOUNDATIONS ARE DESIGNED TO BE FOUNDED ON COMPETENT FORMATION.

C. STEEL HP PILES

1. STEEL HP 18X157 PILES SHALL BE IN ACCORDANCE WITH ASTM A690 AND SHALL BE 50 KSI. STEEL HP 16X183 PILES ARE AN ACCEPTABLE ALTERNATIVE.
2. PILES SHALL BE DRIVEN TO THE REQUIRED DEPTH OF PENETRATION ESTABLISHED IN THESE CONTRACT DOCUMENTS.
3. ANY PILE CRACKED, DEFORMED OR OTHERWISE DAMAGED BY PILE DRIVING SHALL BE REPLACED.
4. PERMANENT PILING SHALL BE COATED WITH EPOXY POLYAMIDE FROM ELEVATION +4' TO -36'.

D. TIDAL INFORMATION

NOAA STATION 8574680, BALTIMORE, MD
EPOCH: 1983-2001 DATUM: MLW

HAT: HIGHEST ASTRONOMICAL TIDE = 2.00'
MHHW: MEAN HIGHER-HIGH WATER = 1.44'
MHW: MEAN HIGH WATER = 1.15'
MSL: MEAN SEA LEVEL = 0.59'
MLW: MEAN LOW WATER = 0.00'
MLLW: MEAN LOWER-LOW WATER = -0.22'
LAT: LOWEST ASTRONOMICAL TIDE = -0.87'

E. PROJECT PHASING

1. THE CONTRACTOR SHALL DEVELOP AND SUBMIT A DETAILED CONSTRUCTION PHASING PLAN TO THE COR FOR COORDINATION, REVIEW AND APPROVAL. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION OPERATIONS AND PHASING DURING THE PRE-CONSTRUCTION MEETING. THE CONTRACTOR SHALL PROVIDE SUFFICIENT CREWS AND EQUIPMENT NECESSARY TO ACCOMPLISH WORK IN THE TIME PERIOD SPECIFIED. INCLUDE PROPOSED WORK HOURS AND SCHEDULE IN PHASING PLAN INCLUDING DURATIONS WHEN SECTIONS OF THE PIER WILL BE OUT OF SERVICE.
2. ACCOMPLISH WORK IN A MANNER THAT CAUSES MINIMAL IMPACT ON NORMAL COAST GUARD YARD OPERATIONS. THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER'S REPRESENTATIVE AT LEAST FIVE (5) WORKING DAYS IN ADVANCE OF ANY PLANNED OUTAGES OF WATER, ELECTRICAL, TELEPHONE OR SANITARY FACILITIES. NOTIFY THE CONTRACTING OFFICER'S REPRESENTATIVE AT LEAST ONE (1) WEEK PRIOR TO BEGINNING CONSTRUCTION.
3. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

REINFORCING BAR LAP SPLICE

BAR SIZE	UNCOATED		EPOXY-COATED	
	TOP BARS	OTHER	TOP BARS	OTHER
#3	22"	17"	28"	25"
#4	29"	22"	38"	33"
#5	36"	28"	47"	42"
#6	43"	33"	57"	50"
#7	63"	49"	82"	73"
#8	72"	56"	94"	83"
#9	81"	63"	106"	94"

GRADE 60 BARS, 5000 PSI CONC.
CLASS B LAP SPLICE

Site 1

F. REINFORCED CONCRETE

1. CONCRETE WORK SHALL CONFORM TO ALL REQUIREMENTS OF ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS", EXCEPT AS MODIFIED BY THESE NOTES.
2. CEMENT SHALL CONFORM TO ASTM C150, TYPE V.
3. AGGREGATES FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33.
4. READY-MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C94.
5. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 5,000 PSI.
6. ADMIXTURES MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER. ADMIXTURES SHALL COMPLY WITH ASTM C494 & C1017 AND BE OF A TYPE THAT INCREASES THE WORKABILITY OF THE CONCRETE, BUT SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT (CALCIUM CHLORIDE SHALL NOT BE USED).
7. WATER/CEMENT RATIO SHALL NOT EXCEED 0.40 FOR 5000 PSI CONCRETE.
8. MAXIMUM SLUMP SHALL BE 4" BEFORE THE ADDITION OF ADMIXTURES.
9. ENGINEER SHALL REVIEW AND APPROVE MIX DESIGNS BEFORE INSTALLATION.
10. BAR REINFORCEMENT SHALL BE ASTM A615, GRADE 60 TYP. U.N.O.
11. BAR REINFORCEMENT FOR THE FENDER STATIONS SHALL BE EPOXY COATED. BAR COUPLERS SHALL BE COMPATIBLE W/ REBAR COATING.
12. LOCATE SPLICES IN REINFORCING ONLY WHERE DETAILED ON THE DRAWINGS. MINIMUM LAP SPLICES OF REINFORCING BARS SHALL BE PER LAP SPLICE TABLE. STAGGER SPLICE LOCATION 40 BAR DIAMETERS MINIMUM. TOP BARS SHALL BE SPLICED AT MIDSPAN AND BOTTOM BARS SHALL BE SPLICED AT CENTERLINE OF BENTS. NO MORE THAN ONE HALF OF THE REINFORCING SHALL BE SPLICED IN ANY ONE SPAN.
13. REINFORCING DETAILING, BENDING, AND PLACING SHALL BE IN ACCORDANCE WITH THE CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE", LATEST EDITION.
14. REINFORCING STEEL SHALL BE PROVIDED WITH THE FOLLOWING AMOUNTS OF COVER FOR CAST-IN-PLACE CONCRETE:
    A) U.N.O.: 3"
    B) TOP OF CURB & TOP OF DECK: 2"
    C) INSIDE FACE OF TRENCH WALLS: 2"
15. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS, AND INSERTS SHALL BE WELL SECURED IN POSITION WITH WIRE POSITIONERS BEFORE PLACING CONCRETE OR GROUT.
16. CENTER REINFORCEMENT IN SLABS, UNLESS NOTED OTHERWISE.
17. NO CONDUIT PLACED IN A CONCRETE SLAB SHALL HAVE AN OUTSIDE DIAMETER GREATER THAN 1/3 THE THICKNESS OF THE SLAB. NO CONDUIT SHALL BE EMBEDDED IN A SLAB THAT IS LESS THAN 3-1/2" THICK, EXCEPT FOR LOCAL OFFSETS, MINIMUM CLEAR DISTANCE BETWEEN CONDUITS SHALL BE THREE DIAMETERS ON CENTER.
18. REFER TO DRAWINGS OF OTHER DISCIPLINES FOR MOLDS, GROOVES, CLIPS, ORNAMENTS, OR GROUNDS REQUIRED TO BE CAST INTO CONCRETE.
19. PROJECTING CORNERS OF SLABS, BEAMS, WALLS, COLUMNS, ETC., SHALL BE FORMED WITH A 3/4" CHAMFER.
20. DOWEL BARS SHALL BE PLAIN, ROUND BARS PER ASTM M227 GRADE 70 THROUGH 80 AND EPOXY COATED PER ASTM A1078.

G. STRUCTURAL STEEL

1. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE 2021EDITION OF IBC CHAPTER 22.
2. STRUCTURAL STEEL SHALL CONFORM TO ASTM A36 FOR PLATES, CHANNELS & ANGLES, ASTM A500 GRADE B FOR HOLLOW STRUCTURAL SHAPES, ASTM A53 GRADE B FOR PIPES, AND ASTM A992 FOR I-BEAMS.
3. MACHINE BOLTS AND ANCHOR BOLTS SHALL BE GRADE A CONFORMING TO ASTM A307.
4. NUTS SHALL CONFORM TO ASTM A563, HEX GRADE A.
5. THREADED ROD SHALL CONFORM TO ASTM A36 OR ASTM F1554 GRADE 36.
6. GALVANIZED HARDWARE SHALL MEET THE REQUIREMENTS OF ASTM A153 AND GALVANIZED STEEL SHAPES SHALL MEET THE REQUIREMENTS OF ASTM A123.
7. STAINLESS STEEL THREADED ROD SHALL CONFORM TO ASTM F593.
8. NUTS & WASHERS FOR STAINLESS STEEL THREADED ROD SHALL CONFORM TO ASTM F594.
9. ALL WELDING SHALL BE DONE BY THE SHIELDED ARC PROCESS USING APPROVED ELECTRODES PER AWS SPECIFICATION E70XX (LOW HYDROGEN ELECTRODES). WELDING SHALL CONFORM TO THE LATEST EDITION OF AWS D1.1 AND SHALL BE PERFORMED BY CERTIFIED WELDERS QUALIFIED UNDER THE PROCEDURES CONTAINED THEREIN.
10. STRUCTURAL STEEL SHOP DRAWINGS SHALL BE SUBMITTED TO AND REVIEWED BY THE ENGINEER BEFORE FABRICATION.
11. MOORING HARDWARE SHALL BE STRESS-RELIEVED CAST STEEL OR DUCTILE CAST IRON CONFORMING TO ASTM A27.

H. PIER TIMBERWORK

1. ALL WOOD MEMBERS SHALL BE DOUGLAS-FIR (DF) GRADE MARKED BY A RECOGNIZED GRADING AGENCY (WCLIB OR WWPA).
2. WOOD GRADES:
    WALES & CHOCKS - GRADE No. 1
    BLOCKING - GRADE No. 1
    DECKING & HANDRAILS - "SELECT" GRADE
3. ALL BOLT HEADS AND NUTS BEARING ON WOOD SHALL HAVE STANDARD CUT WASHERS. ALL BOLT HOLES IN WOOD SHALL BE DRILLED 1/32" TO 1/16" DIAMETER LARGER THAN NOMINAL BOLT DIAMETERS.
4. BOLTS IN WOOD SHALL NOT BE LESS THAN 7 DIAMETERS FROM THE END AND 4 DIAMETERS FROM THE EDGE OF THE MEMBER.
5. MOISTURE CONTENT OF WOOD AT TIME OF INSTALLATION SHALL NOT EXCEED 19%.
6. LAG SCREWS: PREDRILL WITH A BIT SIZE OF 65% OF THE SHANK DIAMETER FOR THE THREADED PORTION. LEAD HOLES SHALL BE THE SAME LENGTH AND DIAMETER AS THE UNTHREADED PORTION. PROVIDE CUT WASHERS UNDER HEADS WHICH BEAR ON WOOD.
7. PRESERVATIVE PRESSURE TREATED LUMBER SHALL BE TREATED IN ACCORDANCE WITH CURRENT AWPA STANDARDS WITH ACZA, ACA, CCA OR OTHER APPROVED TREATMENT FOR AWPA U1 USE CATEGORY 5 - SALTWATER CONTACT. MINIMUM RETENTION BY ASSAY SHALL BE 0.5 PCF.
8. LUMBER SHALL BE FABRICATED TO LENGTH PRIOR TO TREATMENT AS MUCH AS PRACTICABLE. FIELD TREAT CUT ENDS, NOTCHES, BOLT HOLES, ETC. OF ALL P.T. TIMBER WITH PRESERVATIVE, SUCH AS 2% COPPER NAPHTHENATE, ACCORDING TO AWPA M4.

I. DESIGN CRITERIA

MOORING TYPE: III
RISK CATEGORY: IV
WIND LOAD: 30s GUST
50 & 100 YEAR RETURN PERIOD
WIND EXPOSURE: D

J. DESIGN LOADS

DEAD LOADS:
STEEL WALERS ATTACHMENTS
CONCRETE ENCASEMENT
STEEL H-PILE
MOORING HARDWARE, FENDERS, CHAINS

LIVE LOADS: APPLIED ON EXISTING PIER
DISTRIBUTED LIVE LOAD: 200 PSF
AXLE LIVE LOAD: 22,000 LBS
CRANE WHEEL LOAD: 50,000 LBS

LIVE LOADS:
NEW GANGWAY: 100 PSF UNIFORM, 500 LBS POINT LOAD ANY LOCATION
MOORING DESIGN WIND SPEED: 86.1 MPH ON STRUCTURES (ASD)
MOORING DESIGN CURRENT SPEED: 0.516 KNOTS

LOAD COMBINATIONS:
UFC 4-152-01 CHAPTER 3

BERTHING VELOCITY: OPC IMPACT AT 1.5 FPS @ 15 DEGREE APPROACH ANGLE

MOORING HARDWARE:
8' DIA. X 14' LONG FOAM FILLED FENDERS - USCG SPECIFIED FOR FENDER STATIONS
100 TON DOUBLE BITT BOLLARD - USCG SPECIFIED FOR FENDER STATIONS

23-WL-0088
20236O149
3/22/23
5 of 30

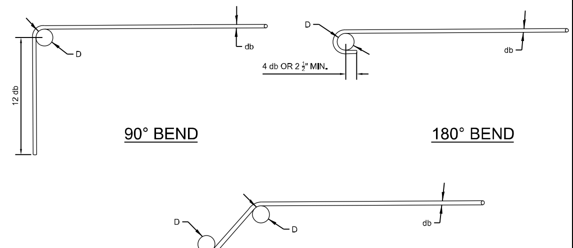
K. VESSEL DATA

LENGTH: 360 FT
WATERLINE LENGTH: 340 FT
BEAM: 54 FT
DRAFT: 17 FT (FULL STORES)
17 FT (⅓ STORES)
DISPLACEMENT: 4,655 (FULL STORES)
4,320 (⅓ STORES)
WIND PRESENTMENT: 3,340 SF (TRANSVERSE)
13,432 SF (LONGITUDINAL)
HEIGHT (HULL): 32.49 FT
HEIGHT (SUPERSTRUCTURE): 106.83 FT
EMPIRIAL WIND COEFFICIENT: 1.02
DRAG COEFFICIENT: 0.70 (BOW)
0.80 (STERN)
WIND ANGLE: 120°
WIND YAW MOMENT: 68° (ZERO MOMENT ANGLE)
0.02 (NEGATIVE PEAK VALUE)
0.12 (POSITIVE PEAK VALUE)
PROPELLER AREA RATIO: 100

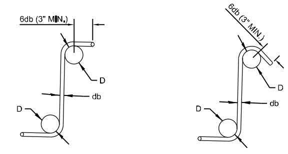
EXP. DATE: 11/30/2024
STATE OF ILLINOIS
ANNA M. DUKES
081-005598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER
Anna Dukes

NOTE:

D=6db FOR #3 THRU #8
D=8db FOR #9 THRU #11
D=10db FOR # 14 THRU #18



D8 TYPICAL REINFORCEMENT BENDS
NOT TO SCALE



BAR SIZE	#3	#4	#5	#6	#7	#8
D	1 ½"	2"	2 ½"	4 ½"	5 ¼"	6"

A8 TYPICAL STIRRUP BENDS
NOT TO SCALE

U.S.C.G.
CE
U.S. COAST GUARD
CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

PLOTTING SCALE: 1:1
SCALE: AS SHOWN

A/E COMPANY:
TRANSYSTEMS CORPORATION
2000 CENTER ST #303, BERKELEY, CA 94704
510-835-2761
A/E PROJECT NO.:
P501210057
CONSULTING A/E:

U.S. COAST GUARD YARD
2401 HAWKINS POINT ROAD
BALTIMORE, MD 21226
PROJECT ENGINEER:
H.M. MOORE
DESIGNED BY:
ES
DRAWN BY:
BMJ
EDITED BY:
BMJ
CHECKED BY:
AMD

USCG PROJECT NO.
17077513
USCG DRAWING NO.
17077513-D
USCG FILENAME
17077513XXXX.DWG
SHEET 5 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC AT USCG YARD - BALTIMORE, MD
WATERFRONT
GENERAL NOTES

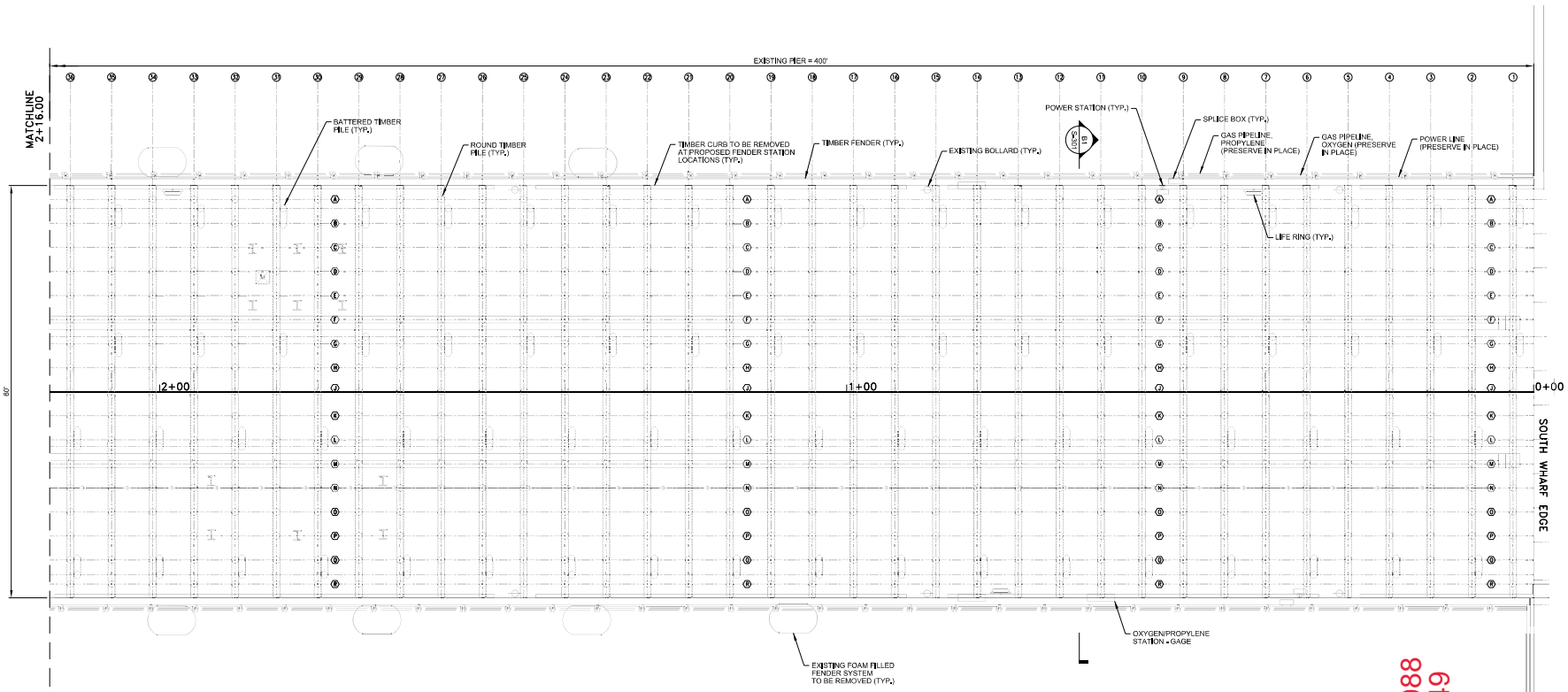
SHEET ID
WATERFRONT
S-001

GENERAL NOTES

1. SEE EXISTING SITE PLAN ON SHEET C-001 FOR UTILITIES.

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-085598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER



23-WL-0088
202360149
3/22/23
6 of 30

Site 1

A1 EXISTING PLAN - PIER 1
SCALE 1/8" = 1'-0"

0' 4' 8' 16'

PLAN NORTH

U.S.C.G.
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

SCALE: AS SHOWN
PLOTTING SCALE: 1:1

A/E COMPANY:
TRANSYSTEMS CORPORATION
2000 CENTER ST #203, BERKELEY, CA 94704
510-900-1000
A/E PROJECT NO.:
P0121057
CONSULTING A/E:

U.S. COAST GUARD YARD
BALTIMORE, MARYLAND
SITE 1 - WATERFRONT

PROJECT ENGINEER:
HOA MOORE
DESIGNED BY:
IIP
DRAWN BY:
IIP
CHECKED BY:
AMD
REVIEWED BY:
IIP

USCG PROJECT NO.
1707513
USCG DRAWING NO.
1707513
USCG FILENAME
1707513S101.DWG
SHEET 6 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC
AT USCG YARD - BALTIMORE, MD

WATERFRONT

EXISTING PLAN - PIER 1

SHEET ID
WATERFRONT
S-101

GENERAL NOTES

1. SEE EXISTING SITE PLAN ON SHEET C-001 FOR UTILITIES.

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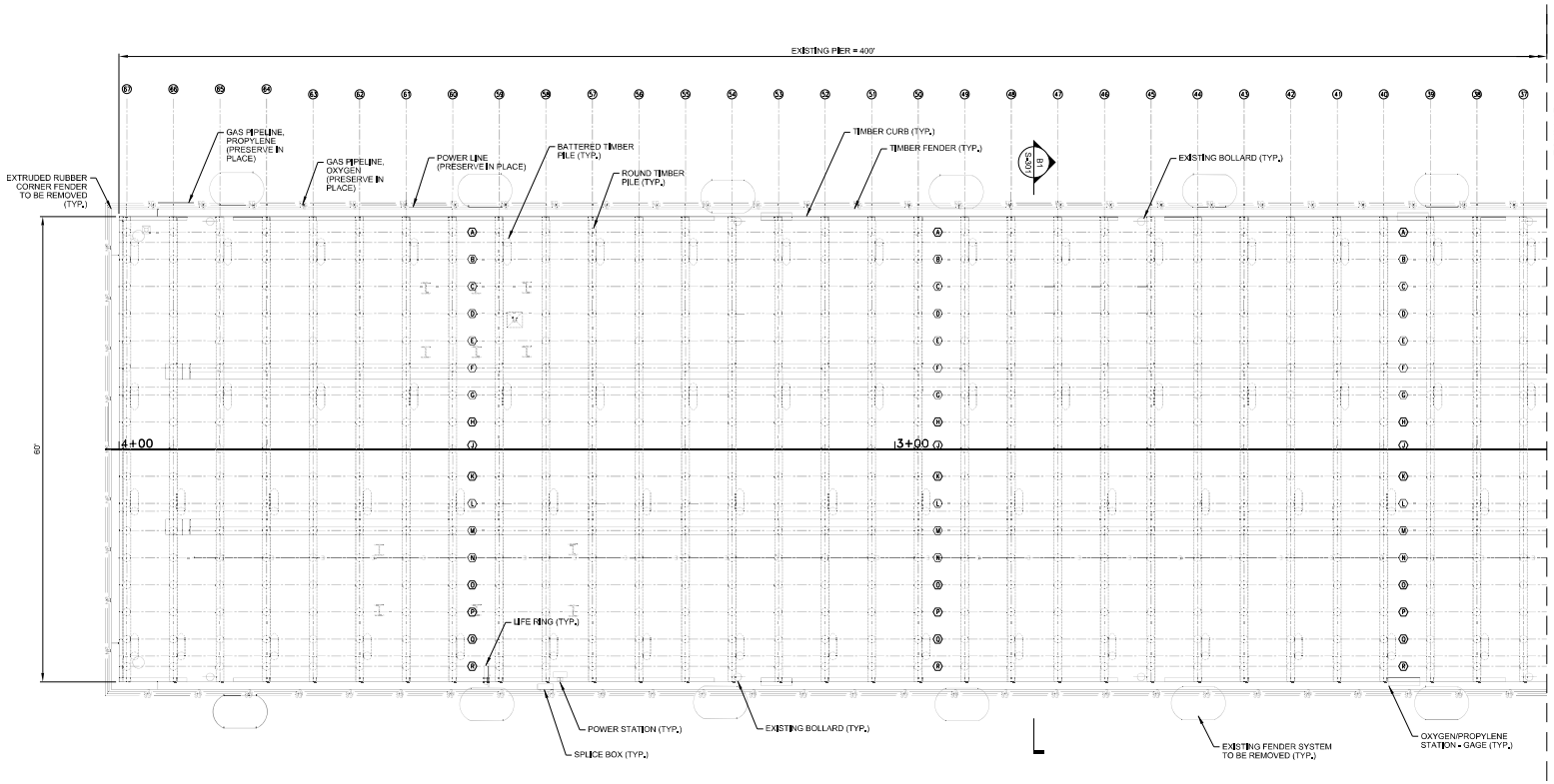
202360149
3/22/23
7 of 30

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-085598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER



Site 1

A1 EXISTING PLAN - PIER 1
SCALE 1/8" = 1'-0"

0' 4' 8' 16'

PLAN NORTH
TRUE NORTH

U.S.C.G.
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

PLOTTING SCALE: 1:1
SCALE: AS SHOWN

A/E COMPANY:
TRANSSOLUTIONS CORPORATION
2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.:
PSD1210057
CONSULTING A/E:

U.S. COAST GUARD YARD
3651 HAWKINS POINT ROAD
BALTIMORE, MARYLAND
PROJECT ENGINEER:
HOA MOORE
DESIGNED BY:
IIP
DRAWN BY:
IIP
CHECKED BY:
AMD
REVIEWED BY:
IIP

USCG PROJECT NO.
1707513
USCG DRAWING NO.
1707513-A
USCG FILENAME
1707513S102.DWG
SHEET 7 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC
AT USCG YARD - BALTIMORE, MD

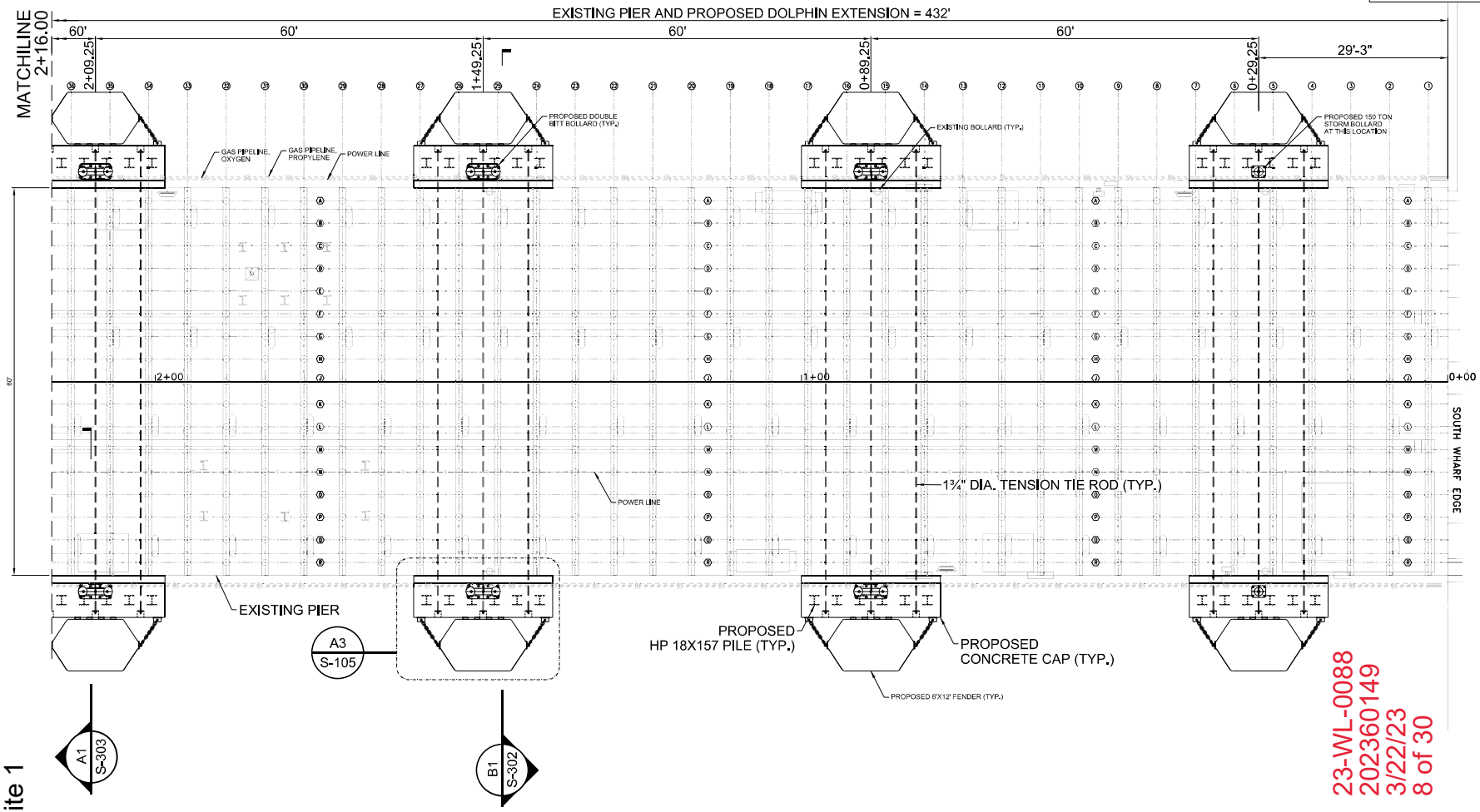
WATERFRONT

EXISTING PLAN - PIER 1

SHEET ID
WATERFRONT
S-102

PILE DATA TABLE

PILE LOCATION	NO. OF PILES	TOP OF PILE ELEVATION	SECTION	PILE TIP ELEVATION	PILE LENGTH
FENDER STATIONS	84	+4.53	HP18X157	-70.22	74'-9"
DOLPHINS	24	+5.28	HP18X157	-70.22	75'-6"



Site 1

A1 PROPOSED PLAN - PIER 1
SCALE 1/8" = 1'-0"

0' 4' 8' 16'

PLAN NORTH

23-WL-0088
202360149
3/22/23
8 of 30

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-085598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

U.S.C.G.
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

SCALE: AS SHOWN
PLOTTING SCALE: 1:1

A/E COMPANY: TRANSSOLUTIONS CORPORATION, 2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.: P0012210057
CONSULTING A/E:

U.S. COAST GUARD YARD SALT LAKE WEST TRUCK ROAD BALTIMORE, MARYLAND 21226

PROJECT ENGINEER: +JA MOORE
DRAWN BY: IIP
DESIGNED BY: IIP
CHECKED BY: AMD
REVIEWED BY: IIP

USCG PROJECT NO. 1707513
USCG DRAWING NO. 1707513A
USCG FILENAME 1707513
SHEET 8 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC AT USCG YARD - BALTIMORE, MD

WATERFRONT

PROPOSED PLAN - PIER 1

SHEET ID
WATERFRONT
S-103

GENERAL NOTES

1. CONTRACTOR TO PROVIDE DESIGN FOR GANGWAY TO OWNER FOR REVIEW AND APPROVAL.
2. FOR PILE DATA SEE SHEET S-103.

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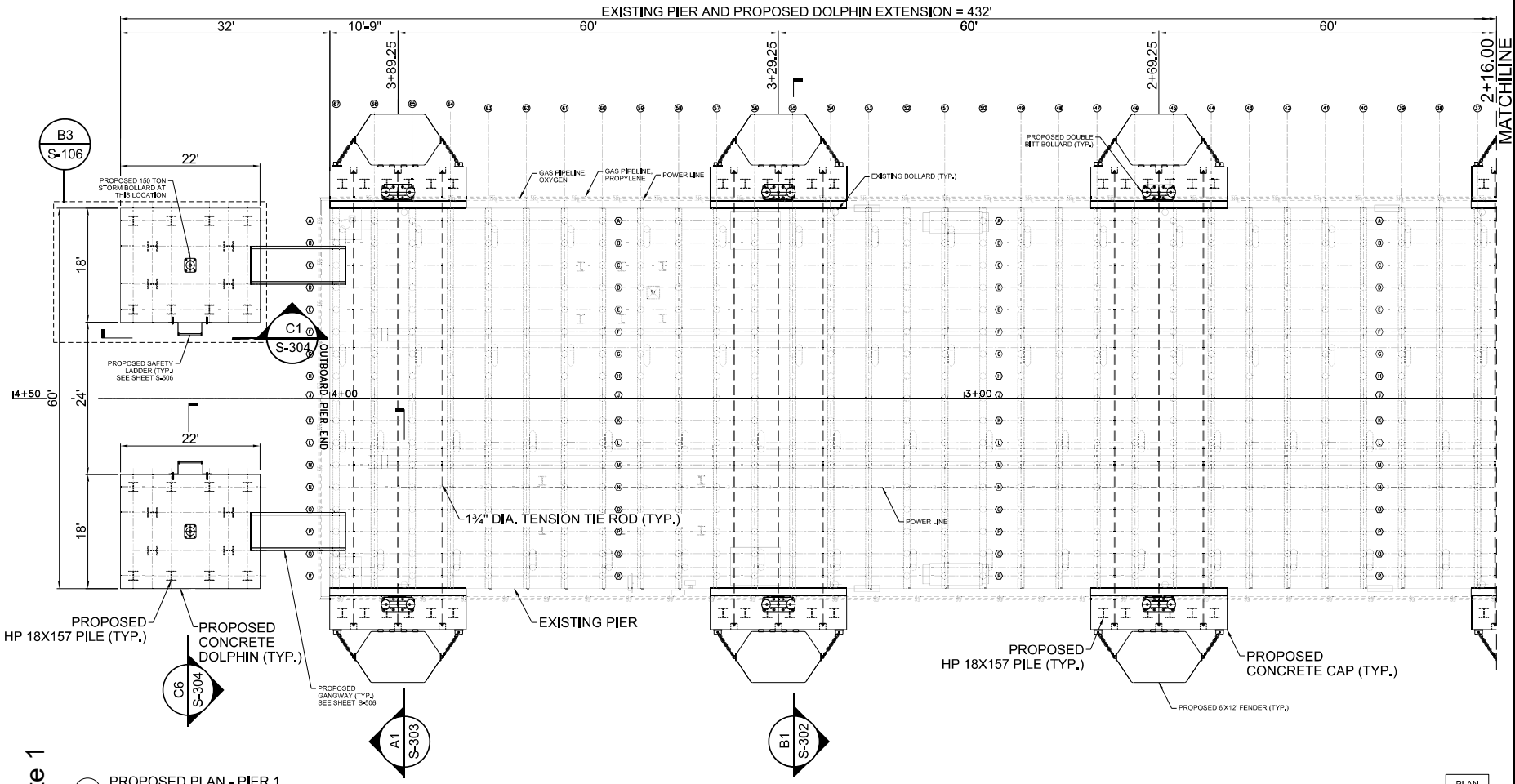
202360149
3/22/23
9 of 30

EXP. DATE: 11/30/2024

STATE OF ILLINOIS — ANNA M. DUKES — 081-085598 — CHICAGO, ILLINOIS — LICENSED STRUCTURAL ENGINEER



Site 1

A1 PROPOSED PLAN - PIER 1
SCALE 1/8" = 1'-0"

U.S.C.G. CE — U.S. COAST GUARD CIVIL ENGINEERING

MARK	DISCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

SCALE: AS SHOWN
PLOTTING SCALE: 1:1

A/E COMPANY: TRANSSOLUTIONS CORPORATION, 2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.: P0121005/
CONSULTING A/E:

U.S. COAST GUARD YARD SALT HANDLING FACILITY, 1000 ROBINS POINT ROAD, BALTIMORE, MD 21226

PROJECT ENGINEER: LA MOORE
DRAWN BY: BP
DESIGNED BY: BP
CHECKED BY: AMD
REVIEWED BY: BP

USCG PROJECT NO. 1707513
USCG DRAWING NO. 1707513-A
USCG FILENAME 1707513
SHEET 9 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC AT USCG YARD - BALTIMORE, MD

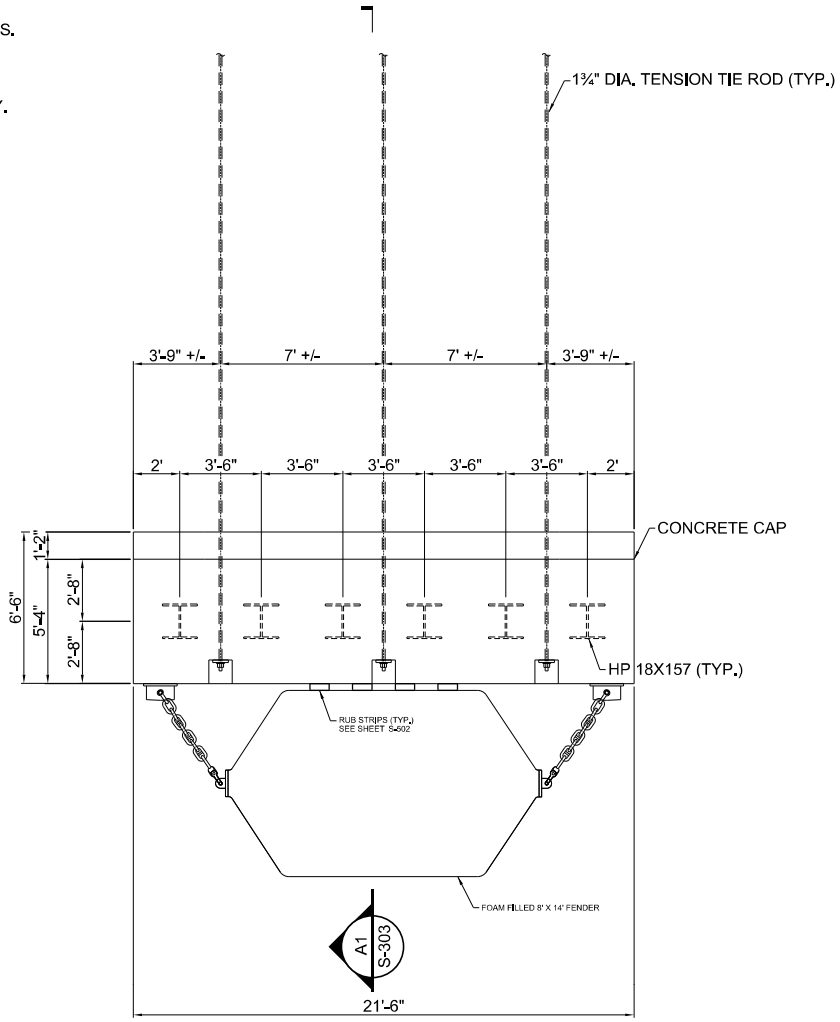
WATERFRONT

PROPOSED PLAN - PIER 1

SHEET ID
WATERFRONT
S-104

GENERAL NOTES

1. ONE FENDER STATION SHOWN. OTHERS SIMILAR.
2. SEE SHEETS S-501 & S-502 FOR FENDER STATION DETAILS.
3. SPACE TENSION TIE RODS TO MISS EXISTING PILES.
4. SEE SHEET S-505 FOR MOORING DETAILS.
5. SLIDING PLATE AND BOLLARD NOT SHOWN FOR CLARITY.



A3 PROPOSED PLAN - FENDER STATION
SCALE: 3/8" = 1'-0"

0' 2' 4' 6'

PLAN NORTH
TRUE N

Site 1

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-005598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

23-WL-0088
202360149
3/22/23
10 of 30

U.S.C.G.
U.S. COAST GUARD
CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

PLOTTING SCALE: 1:1
SCALE: AS SHOWN

AE COMPANY:
TRANSSOLUTIONS CORPORATION
2000 CENTER ST #203, BERKELEY, CA 94704
AE PROJECT NO.:
PD12210057
CONSULTING A/E:

U.S. COAST GUARD YARD
BALTIMORE, MARYLAND
PROJECT ENGINEER:
DESIGNED BY: DRAWN BY:
CHECKED BY:
CERTIFIED BY:

USCG PROJECT NO.
USCG DRAWING NO.
USCG FILENAME
SHEET 10 OF 25

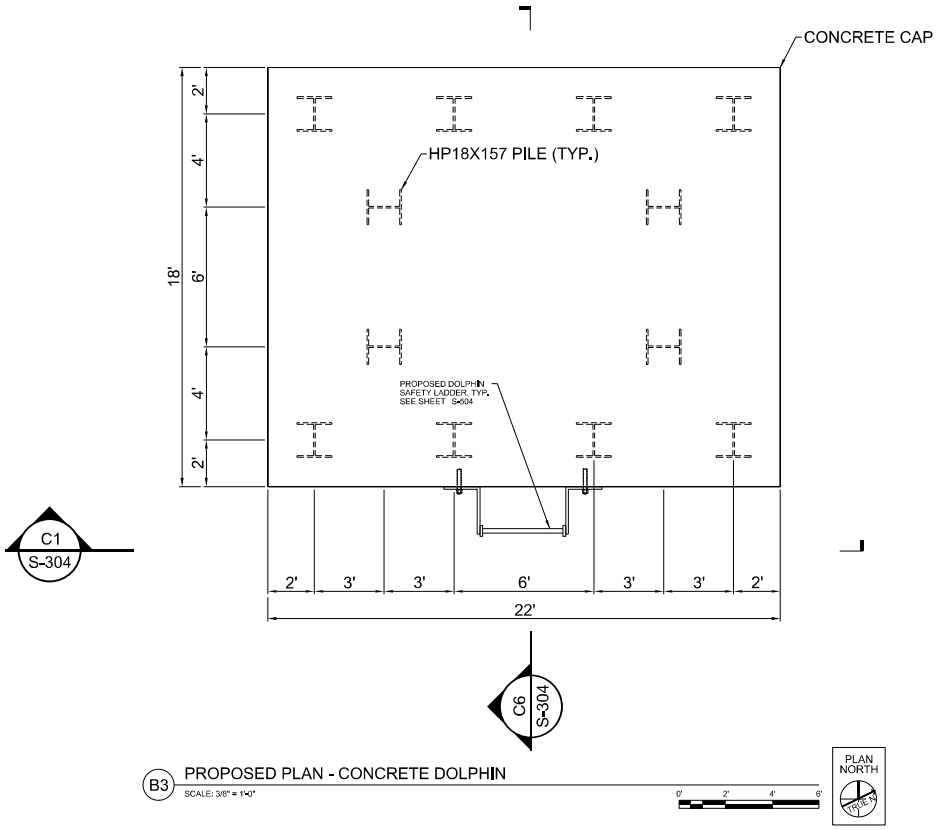
DESIGN FEB 1 REINFORCEMENT FOR OPC
AT USCG YARD - BALTIMORE, MD

WATERFRONT
PROPOSED PLAN
FENDER STATION

SHEET ID
WATERFRONT
S-105

GENERAL NOTES

1. NORTH DOLPHIN EXTENSION SHOWN. SOUTH DOLPHIN EXTENSION SIMILAR.
2. BOLLARD NOT SHOWN FOR CLARITY. SEE SHEET S-505 FOR MOORING DETAILS.
3. GANGWAY NOT SHOWN FOR CLARITY. SEE SHEET S-506 FOR GANGWAY DETAILS.



B3 PROPOSED PLAN - CONCRETE DOLPHIN
SCALE: 3/8" = 1'-0"

0' 2' 4' 6'

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-005598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

Anna Dukes

Site 1

23-WL-0088
202360149
3/22/23
11 of 30

U.S.C.G.
U.S. COAST GUARD
CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

PLOTTING SCALE: 1:1
SCALE: AS SHOWN

AE COMPANY:
TRANSSYSTEMS CORPORATION
2000 CENTER ST #203, BERKELEY, CA 94704
510-845-7549
AE PROJECT NO.:
P0121057
CONSULTING AE:

U.S. COAST GUARD YARD
BALTIMORE FY21 PIER ROAD
STRUCTURAL UPGRADE

PROJECT ENGINEER:
I-AN MOORE
DESIGNED BY:
ES
EDITED BY:
HP
DRAWN BY:
HP
CHECKED BY:
AMD

USCG PROJECT NO.
17077515
USCG DRAWING NO.
17077515-02
USCG FILENAME
17077515
SHEET 11 OF 25

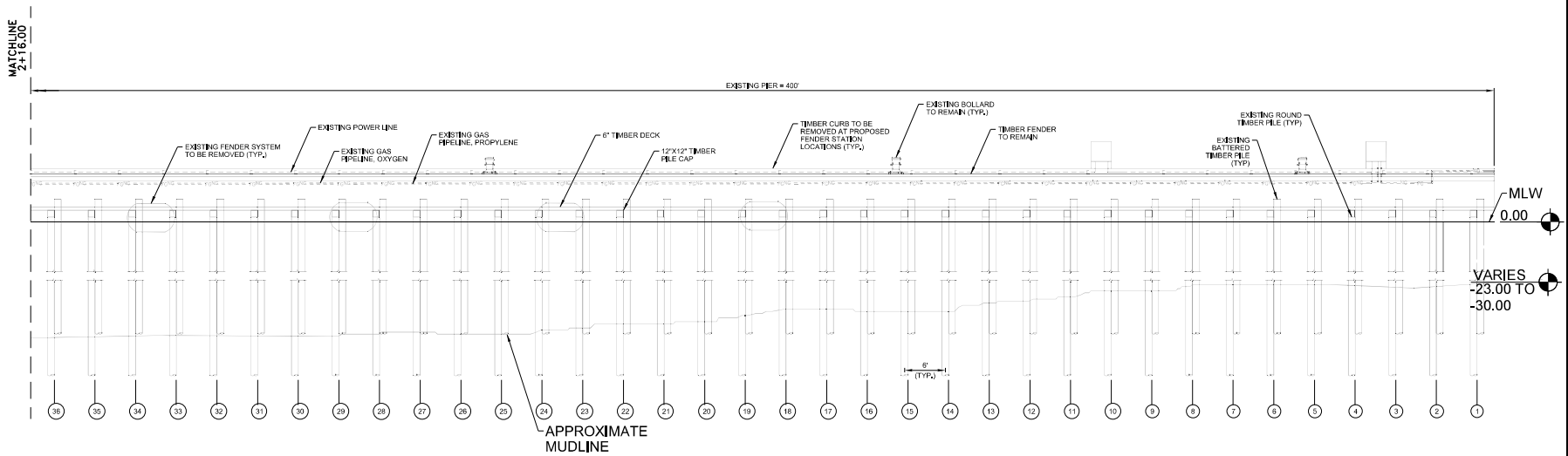
DESIGN FEB 1 REINFORCEMENT FOR OPC
AT USCG YARD - BALTIMORE, MD

WATERFRONT
PROPOSED PLAN
DOLPHIN EXTENSION

SHEET ID
WATERFRONT
S-106

GENERAL NOTES

1. OTHER SIDE OF PIER 1 SIMILAR.



C1 EXISTING ELEVATION - PIER 1 (LOOKING WEST)

SCALE 1/8" = 1'-0"

0' 4' 8' 16'

Site 1

23-WL-0088
202360149
3/22/23
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EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-085598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

U.S.C.G.
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

PLOTTING SCALE: 1:1
SCALE: AS SHOWN

A/E COMPANY: TRANSSOLUTIONS CORPORATION, 2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.: PD12210057
CONSULTING A/E:

U.S. COAST GUARD YARD
BALTIMORE, MD 21226
PIER 1 REINFORCEMENT
PROJECT ENGINEER: +JA MOORE
DESIGNED BY: IIP
DRAWN BY: IIP
CHECKED BY: AMD
REVIEWED BY: IIP

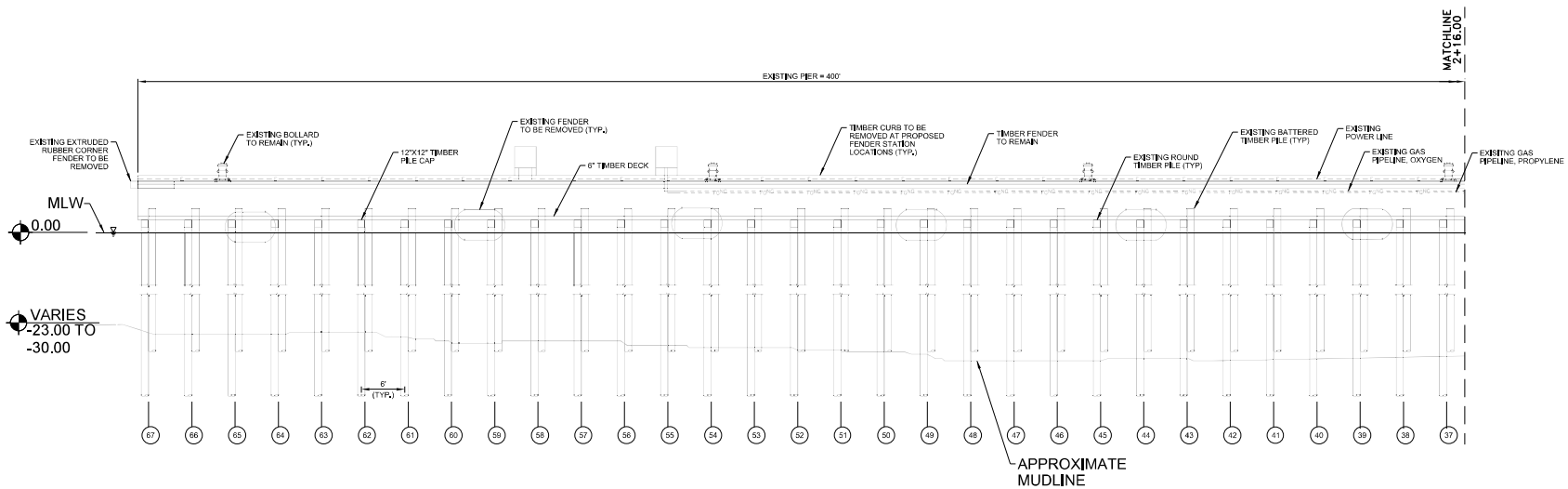
USCG PROJECT NO. 1707513
USCG DRAWING NO. 1707513-A
USCG FILENAME 1707513
SHEET 12 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC AT USCG YARD - BALTIMORE, MD
WATERFRONT
EXISTING ELEVATION - PIER 1

SHEET ID
WATERFRONT
S-201

GENERAL NOTES

1. OTHER SIDE OF PIER 1 SIMILAR.



C1 EXISTING ELEVATION - PIER 1 (LOOKING WEST)

SCALE 1/8" = 1'-0"

0' 4' 8' 16'

EXP. DATE: 11/30/2024

STATE OF ILLINOIS — ANNA M. DUKES — 081-005598 — CHICAGO, ILLINOIS — LICENSED STRUCTURAL ENGINEER

Anna Dukes

Site 1

23-WL-0088
202360149
3/22/23
13 of 30

U.S.C.G. CE — U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

PLOTTING SCALE: 1:1 — SCALE: AS SHOWN

A/E COMPANY: TETRA TECH, INC. CORPORATION, 2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.: PDI121057
CONSULTING A/E:

U.S. COAST GUARD YARD
BALTIMORE, MARYLAND
PROJECT ENGINEER: LAN MOORE
DESIGNED BY: BP
DRAWN BY: BP
REVIEWED BY: BP
CHECKED BY: AMD

USCG PROJECT NO. 17077513
USCG DRAWING NO. 17077513-S-202
USCG FILENAME 17077513
SHEET 13 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC AT USCG YARD - BALTIMORE, MD

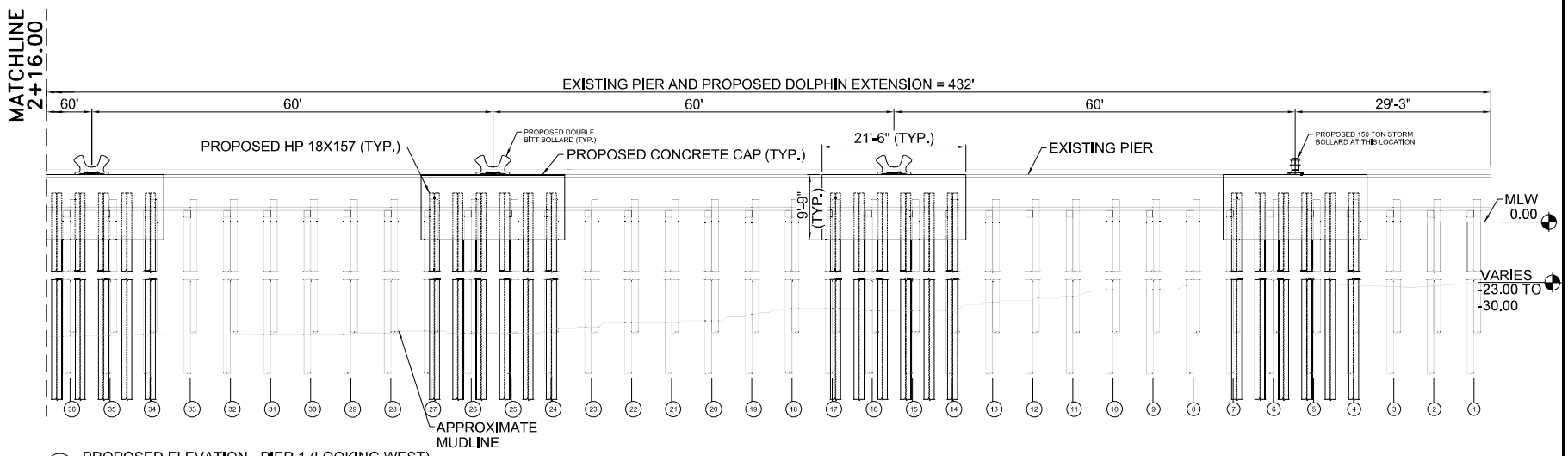
WATERFRONT

EXISTING ELEVATION - PIER 1

SHEET ID
WATERFRONT
S-202

GENERAL NOTES

1. PROPOSED FOAM-FILLED FENDERS NOT SHOWN FOR CLARITY. SEE SHEETS-303 , S-501 & S-502 FOR FENDER DETAILS.



C1 PROPOSED ELEVATION - PIER 1 (LOOKING WEST)

SCALE 1/8" = 1'-0"

0' 4' 8' 16'

Site 1

EXP. DATE: 11/30/2024

STATE OF ILLINOIS — ANNA M. DUKES — 081-005598 — CHICAGO, ILLINOIS — LICENSED STRUCTURAL ENGINEER

Anna Dukes

23-WL-0088
202360149
3/22/23
14 of 30

U.S.C.G. CE — U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

PLOTTING SCALE: 1:1 — SCALE: AS SHOWN

AE COMPANY: TRANSSOLUTIONS CORPORATION, 2000 CENTER ST #203, BERKELEY, CA 94704
AE PROJECT NO.: P0121005/
CONSULTING AE:

U.S. COAST GUARD YARD SALT LAKE WORKING FOR YARD ROAD BALTIMORE, MARYLAND 21226

PROJECT ENGINEER: +JA MOORE
DESIGNED BY: IIP
DRAWN BY: IIP
CHECKED BY: AMD
VERIFIED BY: IIP

USCG PROJECT NO. 17077515
USCG DRAWING NO. 17077515
USCG FILENAME 17077515
SHEET 14 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC AT USCG YARD - BALTIMORE, MD

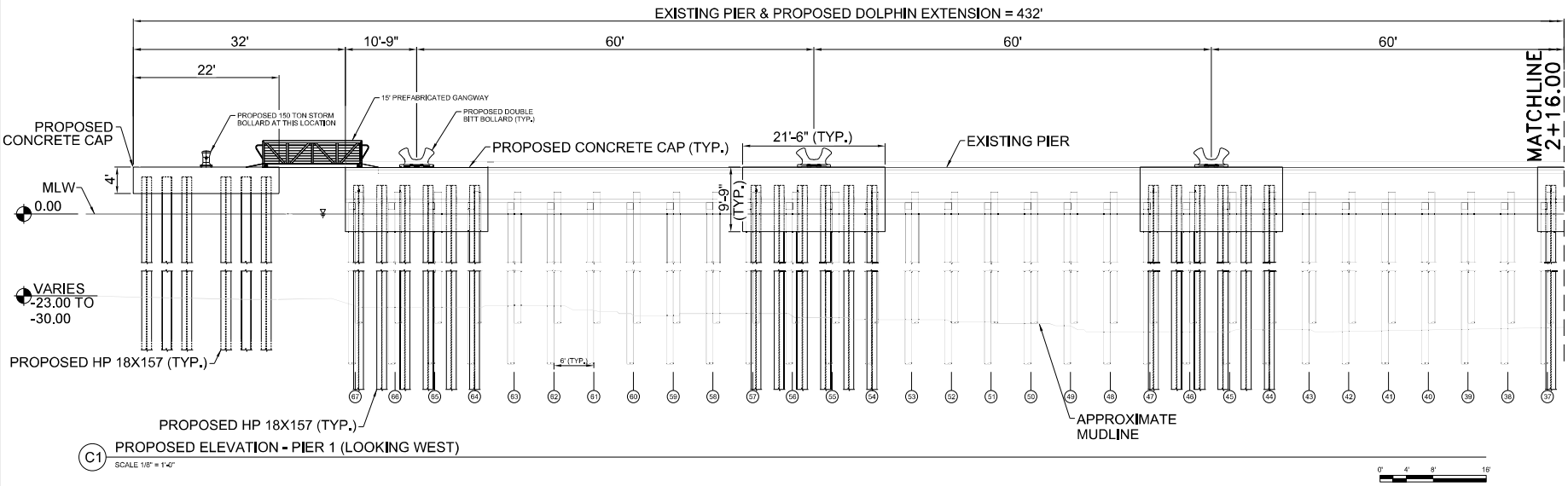
WATERFRONT

PROPOSED ELEVATION - PIER 1

SHEET ID
WATERFRONT
S-203

GENERAL NOTES

1. PROPOSED FOAM-FILLED FENDERS NOT SHOWN FOR CLARITY. SEE SHEETS-303 ,S-501 & S-502 FOR FENDER DETAILS.



C1 PROPOSED ELEVATION - PIER 1 (LOOKING WEST)

SCALE 1/8" = 1'-0"

Site 1

23-WL-0088
202360149
3/22/23
15 of 30

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-085598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

U.S.C.G.
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

SCALE: AS SHOWN
PLOTTING SCALE: 1:1

A/E COMPANY: HOWARD/STEIN-HUDSON CORPORATION, 2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.: PD12210057
CONSULTING A/E:

U.S. COAST GUARD YARD
BALTIMORE, MARYLAND
PIER 1 REINFORCEMENT

PROJECT ENGINEER: LAN MOORE
DRAWN BY: BP
DESIGNED BY: BP
CHECKED BY: AMD
REVIEWED BY: BP

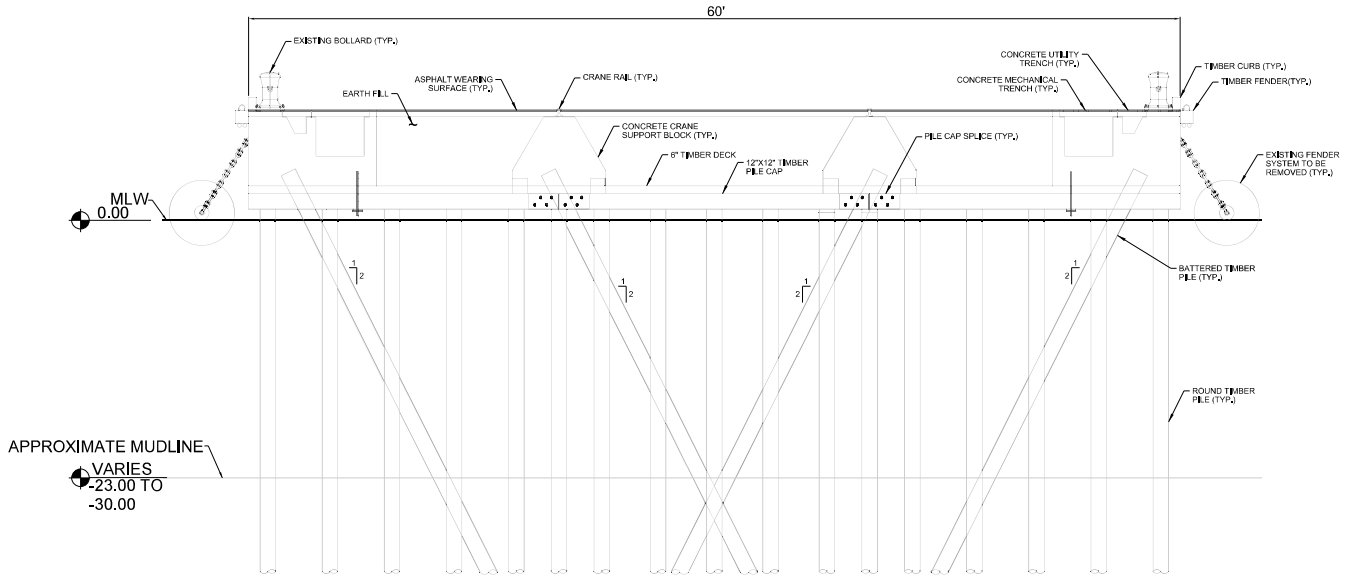
USCG PROJECT NO. 1707/515
USCG DRAWING NO. 1707/515
USCG FILENAME 1707/515
SHEET 15 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC AT USCG YARD - BALTIMORE, MD

WATERFRONT

PROPOSED ELEVATION - PIER 1

SHEET ID
WATERFRONT
S-204



B1 EXISTING SECTION - PIER 1

SCALE: 1/4" = 1'-0"

0' 2' 4' 8'

Site 1

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-005598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

23-WL-0088
202360149
3/22/23
16 of 30

U.S.C.G.
CE
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

PLOTTING SCALE: 1:1
SCALE: AS SHOWN

A/E COMPANY:
TTNOVSYSTEMS CORPORATION
2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.:
PD12210057
CONSULTING A/E:

U.S. COAST GUARD YARD
BALTIMORE, MARYLAND
PROJECT ENGINEER:
HOA MOORE
DESIGNED BY:
BP
DRAWN BY:
BP
VERIFIED BY:
BP
CHECKED BY:
AMD

USCG PROJECT NO.
17077513
USCG DRAWING NO.
17077513-A
USCG FILENAME
17077513
SHEET 16 OF 25

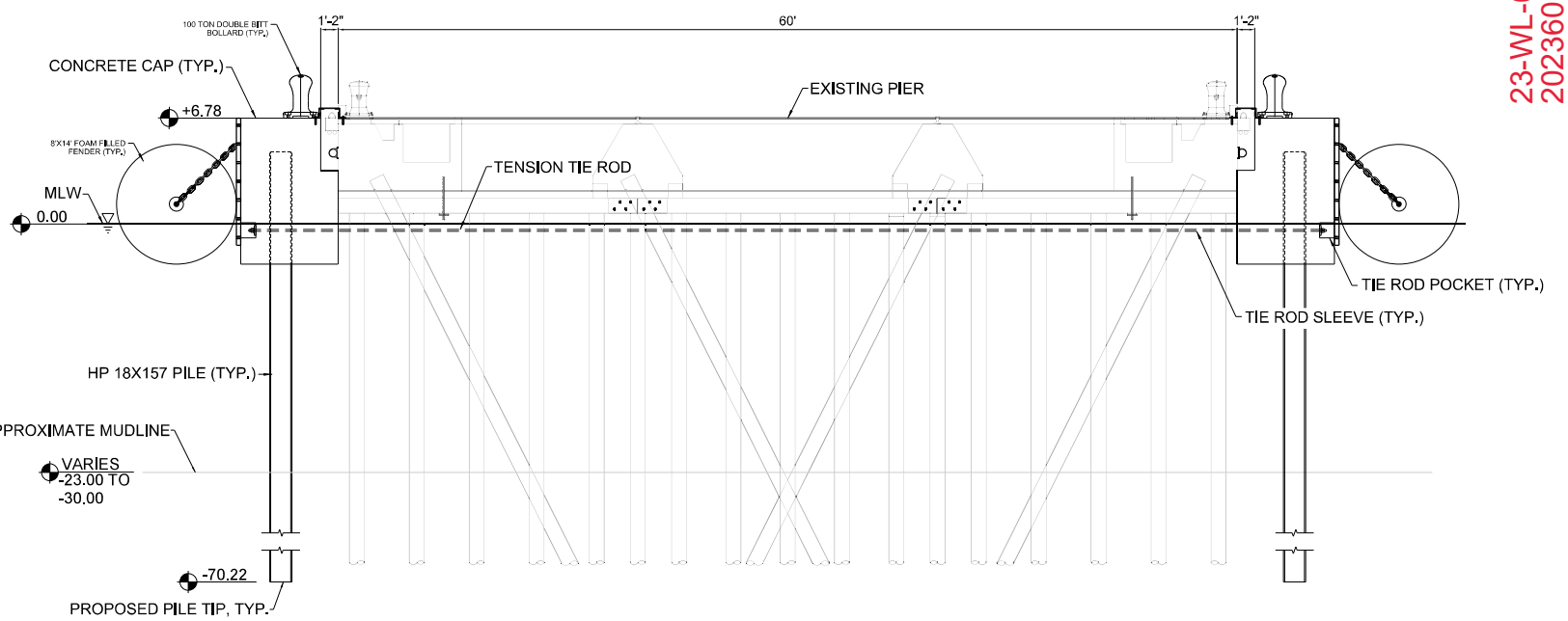
DESIGN PIER 1 REINFORCEMENT FOR OPC
AT USCG YARD - BALTIMORE, MD

WATERFRONT
EXISTING SECTION
PIER 1

SHEET ID
WATERFRONT
S-301

GENERAL NOTES

1. SEE SHEETS S-501 AND S-502 FOR FENDER STATION DETAILS.
2. SEE SHEET S-505 FOR MOORING DETAILS.



B1 PROPOSED SECTION - PIER 1

SCALE: 1/4" = 1'-0"

0' 2' 4' 8'

Site 1

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-005598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

Anna Dukes

23-WL-0088
202360149
3/22/23
17 of 30

U.S.C.G.
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

PLOTTING SCALE: 1:1
SCALE: AS SHOWN

A/E COMPANY:
TRANSYSTEMS CORPORATION
2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.:
P0121057
CONSULTING A/E:

U.S. COAST GUARD YARD
3401 HAWKINS POINT ROAD
BALTIMORE, MD 21226

PROJECT ENGINEER:
+JA MOORE
DESIGNED BY:
BIP
DRAWN BY:
BIP
CHECKED BY:
AMD
REVIEWED BY:
BIP

USCG PROJECT NO.
1707513
USCG DRAWING NO.
1707513-A
USCG FILENAME
1707513
SHEET 17 OF 25

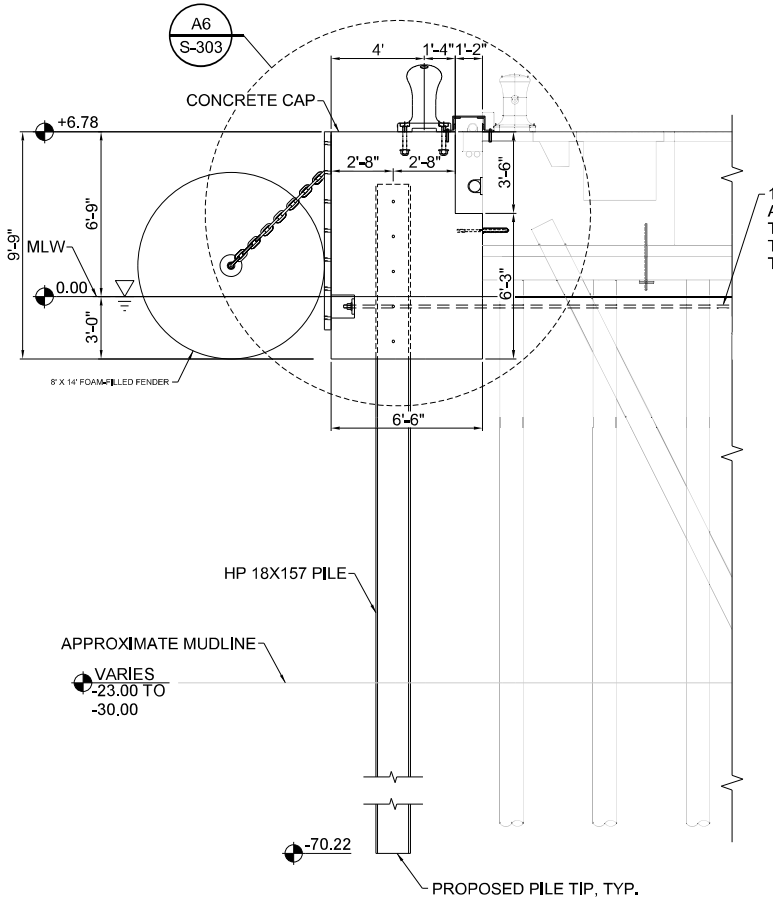
DESIGN PIER 1 REINFORCEMENT FOR OPC
AT USCG YARD - BALTIMORE, MD

WATERFRONT
PROPOSED SECTION
PIER 1

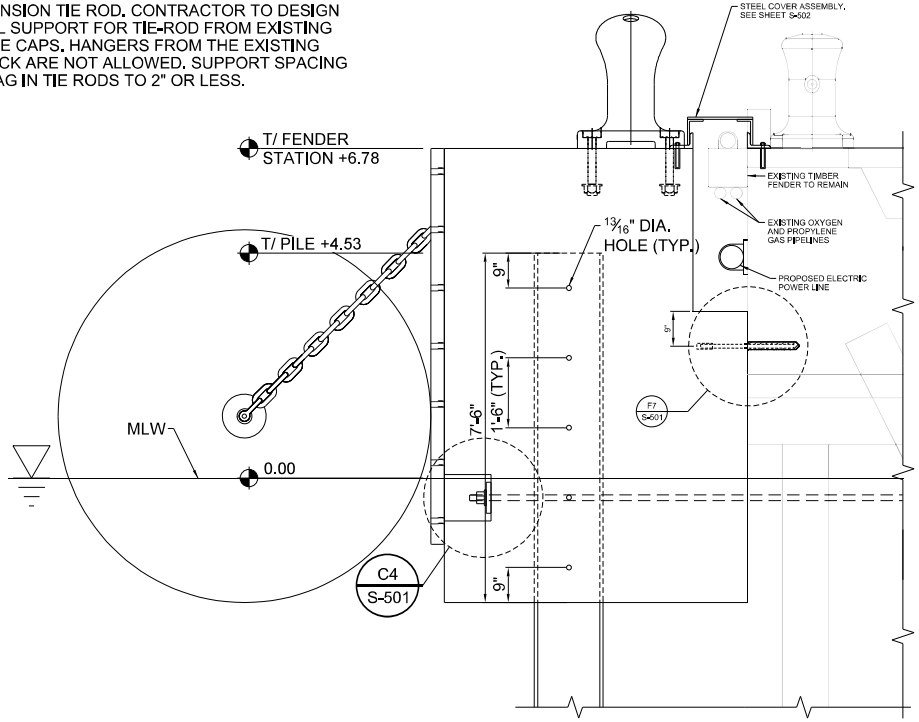
SHEET ID
WATERFRONT
S-302

GENERAL NOTES

1. SEE SHEET S-501 AND S-502 FOR FENDER STATION DETAILS.
2. SEE SHEET S-505 FOR MOORING DETAILS.



A1 PROPOSED SECTION - FENDER STATION
SCALE: 3/8" = 1'-0"



A6 PROPOSED SECTION - FENDER STATION
SCALE: 3/4" = 1'-0"

Site 1

23-WL-0088
202360149
3/22/23
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EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-005598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

SCALE: AS SHOWN
PLOTTING SCALE: 1:1

A/E COMPANY:
TRANSSYSTEMS CORPORATION
2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.:
P0012210057
CONSULTING A/E:

U.S. COAST GUARD YARD
SALT HAVEN DRIVE & YARD ROAD
BALTIMORE, MARYLAND

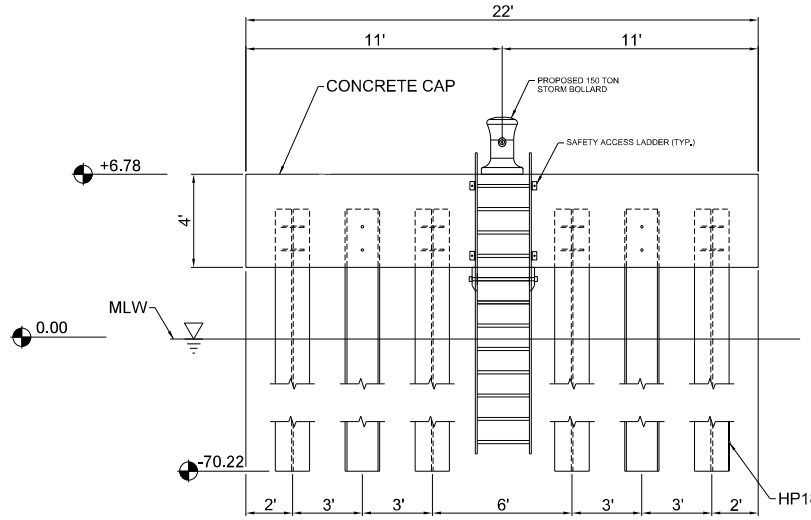
PROJECT ENGINEER:
+JA MOORE
DESIGNED BY:
IIP
DRAWN BY:
IIP
CHECKED BY:
AMD

USCG PROJECT NO.
17077513
USCG DRAWING NO.
17077513-A
USCG FILENAME
17077515
SHEET 18 OF 25

DESIGN FEB 1 REINFORCEMENT FOR OPC
AT USCG YARD - BALTIMORE, MD

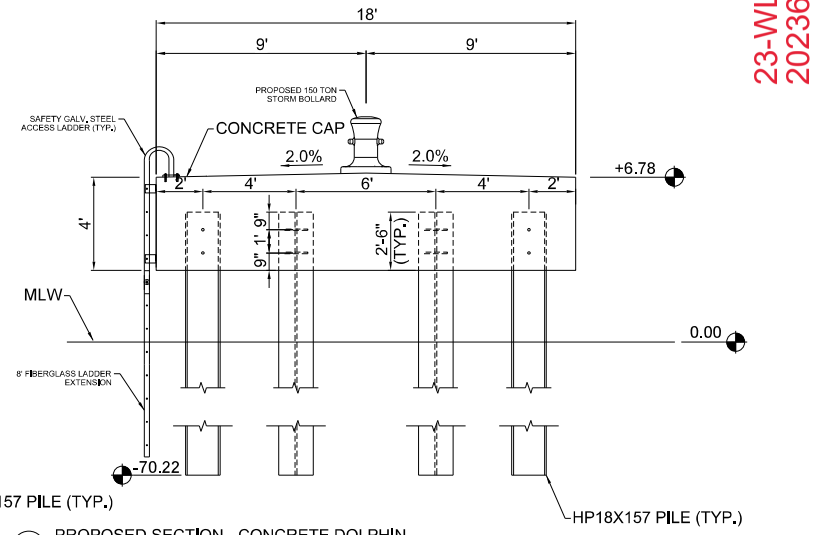
WATERFRONT
PROPOSED SECTION
FENDER STATION

SHEET ID
WATERFRONT
S-303



C1 PROPOSED ELEVATION - CONCRETE DOLPHIN

SCALE: 3/8" = 1'-0"



C6 PROPOSED SECTION - CONCRETE DOLPHIN

SCALE: 3/8" = 1'-0"

Site 1

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-005598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

23-WL-0088
202360149
3/22/23
19 of 30

U.S.C.G.
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

PLOTTING SCALE: 1:1
SCALE: AS SHOWN

A/E COMPANY:
TRANSSYSTEMS CORPORATION
2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.:
P0121057
CONSULTING A/E:

U.S. COAST GUARD YARD
BALTIMORE, MARYLAND
PROJECT ENGINEER:
H.M. MOORE
DRAWN BY: IIP
DESIGNED BY: IIP
CHECKED BY: AMD
REVIEWED BY: IIP

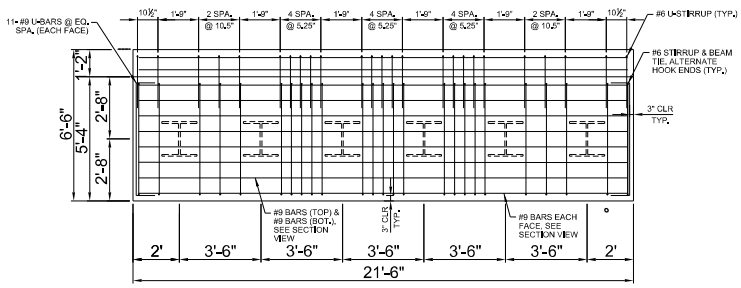
USCG PROJECT NO.
17077513
USCG DRAWING NO.
17077513-A
USCG FILENAME
17077513
SHEET 19 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC
AT USCG YARD - BALTIMORE, MD

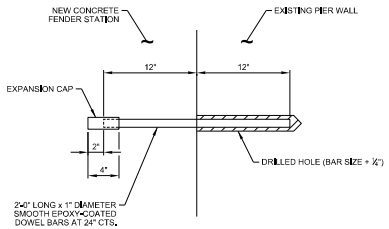
WATERFRONT

PROPOSED SECTION
DOLPHIN EXTENSION

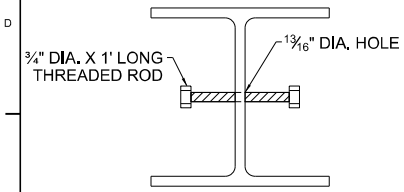
SHEET ID
WATERFRONT
S-304



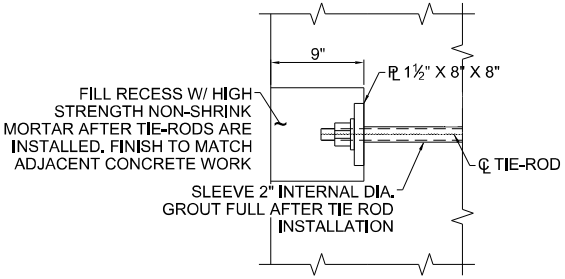
E1 PROPOSED PLAN - FENDER STATION CAP
SCALE: 3/8" = 1'-0"



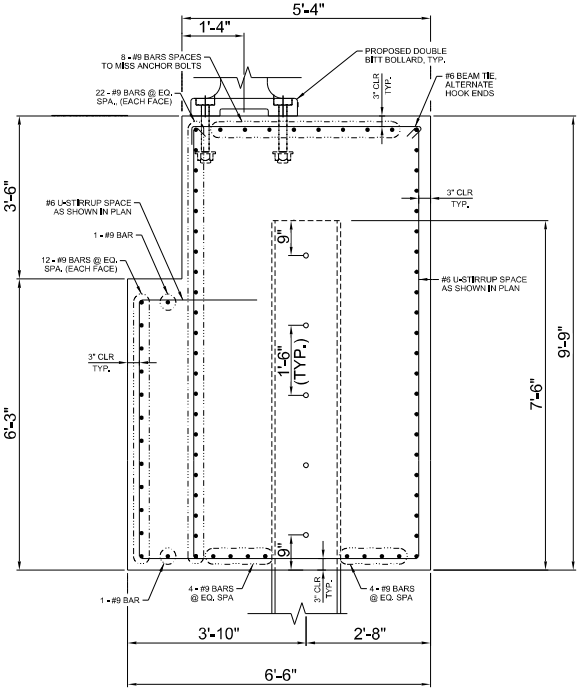
F7 DOWEL BAR DETAIL
SCALE: 1 1/2" = 1'-0"



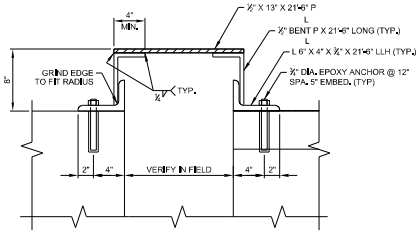
C1 PILE THREADED ROD DETAIL
NOT TO SCALE



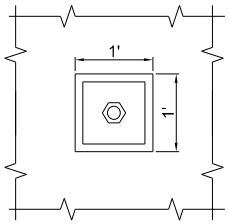
C4 TIE-ROD BLOCKOUT - SECTION
SCALE: 1 1/2" = 1'-0"



A7 PROPOSED SECTION - FENDER STATION CAP
SCALE: 3/8" = 1'-0"



A1 STEEL COVER ASSEMBLY DETAIL
SCALE: 1 1/2" = 1'-0"



A4 TIE-ROD BLOCKOUT - ELEVATION
SCALE: 1 1/2" = 1'-0"

Site 1

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-085598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

23-WL-0088
202360149
3/22/23
20 of 30

U.S.C.G.
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

PLOTTING SCALE: 1:1
SCALE: AS SHOWN

AE COMPANY: TRANSSYSTEMS CORPORATION, 2000 CENTER ST #203, BERKELEY, CA 94704
AE PROJECT NO.: P0021210057
CONSULTING AE:

U.S. COAST GUARD YARD
3401 HAWKINS POINT ROAD
BALTIMORE, MD 21226

DRAWN BY: IIP
CHECKED BY: AMD
PROJECT ENGINEER: HA MOORE
DESIGNED BY: IIP
REVIEWED BY: IIP

USCG PROJECT NO. 1707513
USCG DRAWING NO. 1707513
USCG FILENAME 1707513
SHEET 20 OF 25

DESIGN PER 1 REINFORCEMENT FOR OPC AT USCG YARD - BALTIMORE, MD

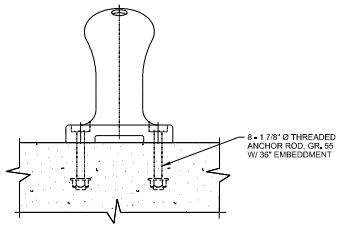
WATERFRONT

PROPOSED DETAILS
FENDER STATIONS

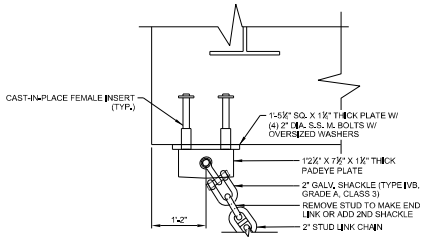
SHEET ID
WATERFRONT
S-501

GENERAL NOTES

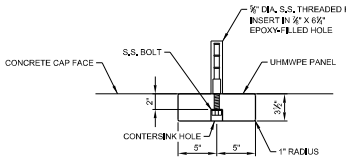
1. SEE SHEET S-505 FOR MOORING DETAILS.



E1 BOLLARD DETAIL SECTION
SCALE: 3/4" = 1'-0"



F4 PADYE CONNECTION TO CONCRETE CAP
SCALE: 3/4" = 1'-0"

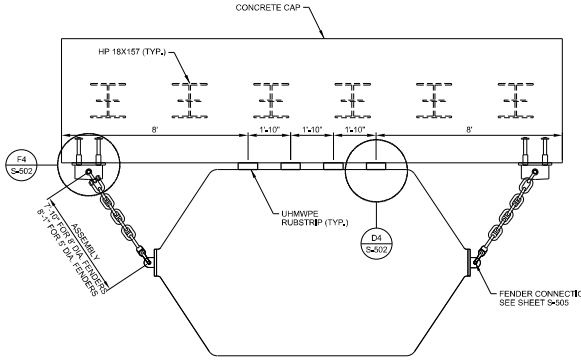


NOTES

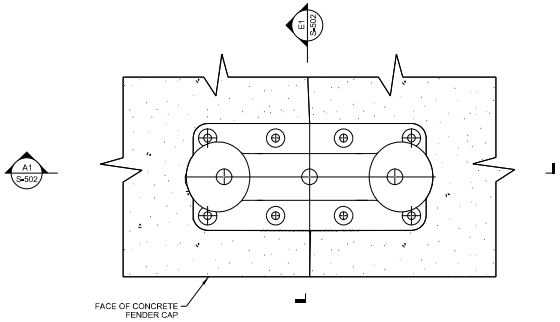
CLEAN HOLE W/ NYLON BRUSH AND WATER JET. USE COMPRESSED AIR TO CLEAN AND DRY HOLE.

ALT: S.S. FERRULE LOOP INSERT CAST INTO FLOAT.

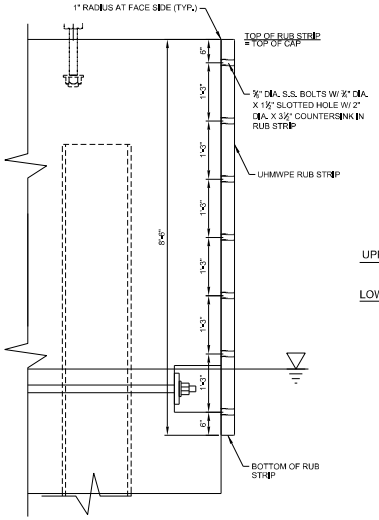
D4 NEW UHMWPE RUB STRIP - DETAIL
SCALE: 1 1/2" = 1'-0"



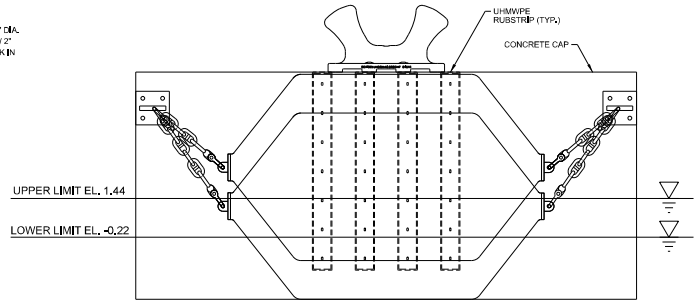
D7 FENDER FRAME - PLAN VIEW
SCALE: 3/8" = 1'-0"



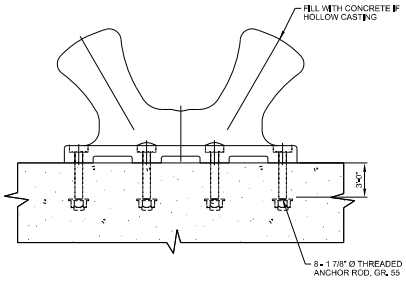
C1 PROPOSED 100 TON DOUBLE BITT BOLLARD PLAN
SCALE: 3/4" = 1'-0"



A4 NEW UHMWPE RUB STRIP - SECTION
SCALE: 3/4" = 1'-0"



A7 FENDER ELEV. @ TYP. CAP
SCALE: 3/8" = 1'-0"



A1 BOLLARD DETAIL SECTION
SCALE: 3/4" = 1'-0"

Site 1

23-WL-0088
202360149
3/22/23
21 of 30

EXP. DATE: 11/30/2024

STATE OF ILLINOIS — ANNA M. DUKES — 081-005598 — CHICAGO, ILLINOIS — LICENSED STRUCTURAL ENGINEER

U.S.C.G. CE — U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

SCALE: AS SHOWN
PLOTTING SCALE: 1:1

A/E COMPANY: TRANSSOLUTIONS CORPORATION, 2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.: PD12210057
CONSULTING A/E:

U.S. COAST GUARD YARD
BALTIMORE, MARYLAND
SITE 1 - WATERFRONT

PROJECT ENGINEER: HJA MOORE
DRAWN BY: IIP
DESIGNED BY: IIP
CHECKED BY: AMD
DESIGNED BY: IIP

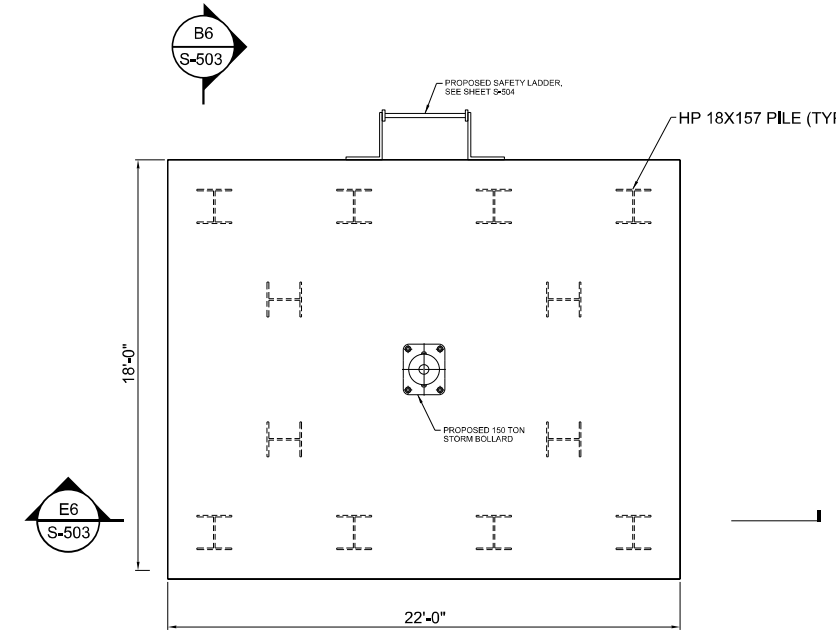
USCG PROJECT NO. 17077513
USCG DRAWING NO. 17077513
USCG FILENAME 17077513
SHEET 21 OF 25

DESIGN FOR 1 REINFORCEMENT FOR OPC AT USCG YARD - BALTIMORE, MD

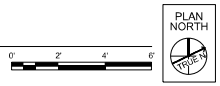
WATERFRONT

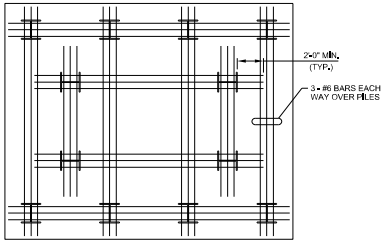
PROPOSED DETAILS
FENDER STATIONS

SHEET ID
WATERFRONT
S-502



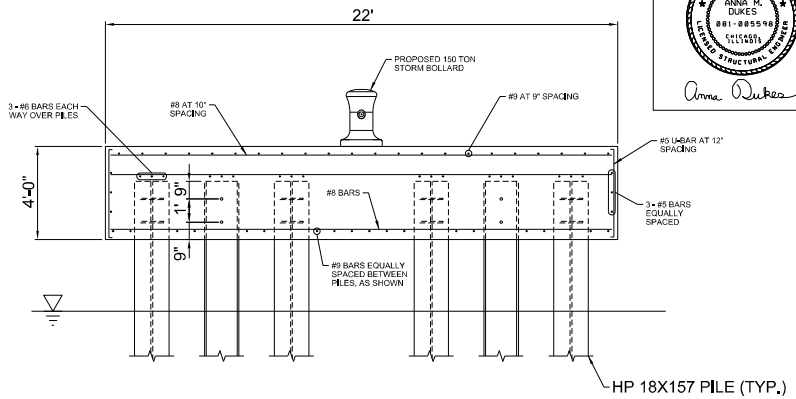
C1 PROPOSED PLAN DOLPHIN
SCALE: 3/8" = 1'-0"



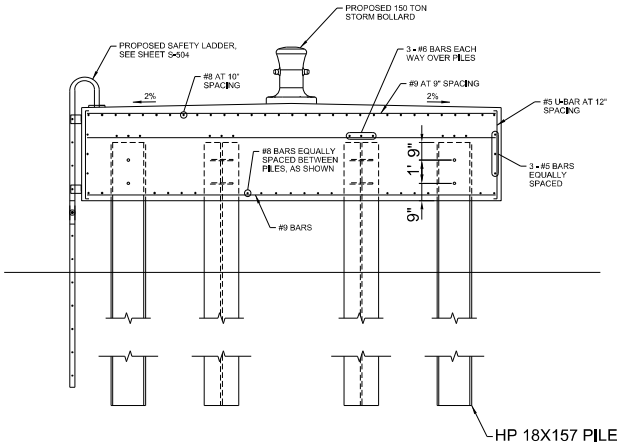


A1 REINFORCING PLACING PLAN
NOT TO SCALE

Site 1



E6 PROPOSED SECTION - CONCRETE DOLPHIN
SCALE: 3/8" = 1'-0"



B6 PROPOSED SECTION - CONCRETE DOLPHIN
SCALE: 3/8" = 1'-0"

23-WL-0088
202360149
3/22/23
22 of 30

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-005598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

U.S.C.G.
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

SCALE: AS SHOWN
PLOTTING SCALE: 1:1

A/E COMPANY:
TRUCKSOFT CORPORATION
2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.:
PSD210057
CONSULTING A/E:

U.S. COAST GUARD YARD
SALT HAVEN & FOWLING ROAD
BALTIMORE, MD 21226

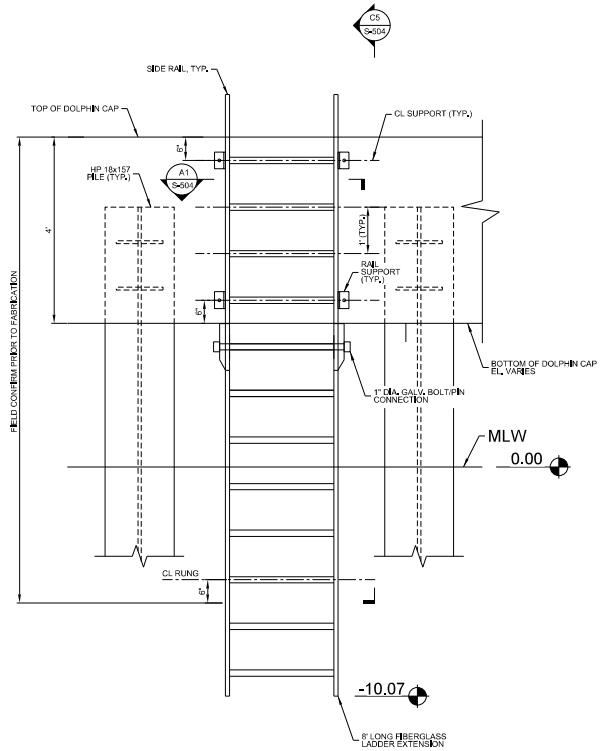
PROJECT ENGINEER:
LAA MOORE
DRAWN BY:
JR
DESIGNED BY:
ESB
CHECKED BY:
AMD
REVIEWED BY:
BMJ

USCG PROJECT NO.
17077513
USCG DRAWING NO.
17077513-A
USCG FILENAME
17077515
SHEET 22 OF 25

DESIGN FOR 1:1 REINFORCEMENT FOR OPC
AT USCG YARD - BALTIMORE, MD

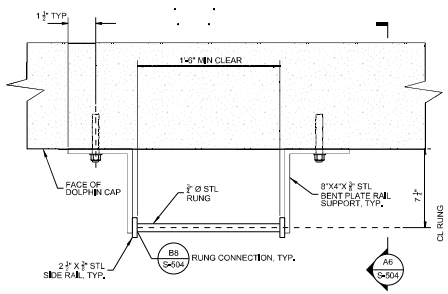
WATERFRONT
PROPOSED DETAILS
DOLPHIN EXTENSION

SHEET ID
WATERFRONT
S-503



C1 SAFETY LADDER ELEVATION VIEW

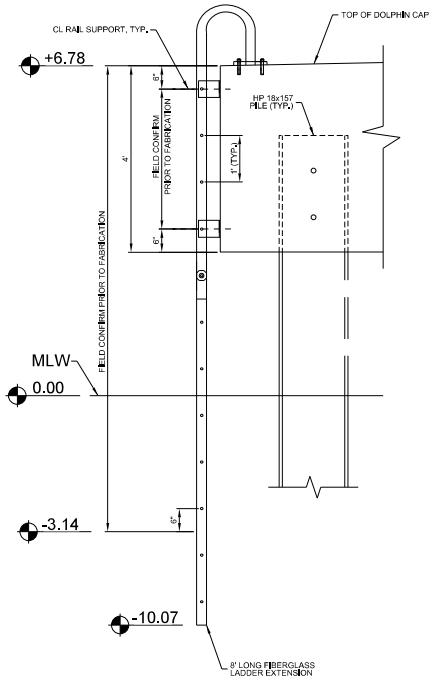
SCALE: 3/4" = 1'-0"



A1 SAFETY LADDER SECTION

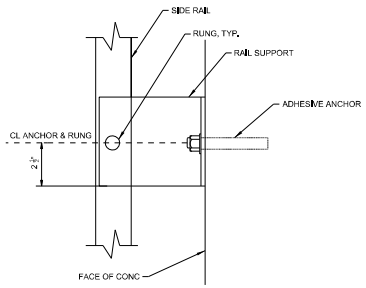
NOT TO SCALE

Site 1



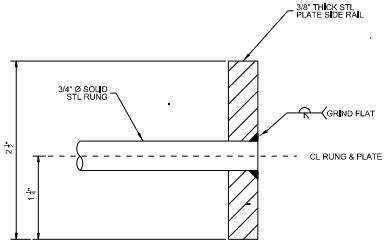
C5 BERTH LADDER

SCALE: 3/4" = 1'-0"



A6 RAIL SUPPORT SECTION

NOT TO SCALE



B8 RUNG CONNECTION

NOT TO SCALE

NOTES:

1. ALL LADDER COMPONENTS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION AND DEBURRING.
2. ALL STEEL COMPONENTS SHALL BE ASTM GRADE A36 U.N.O.
3. ANCHOR BOLTS INSTALLATION SHALL BE PER MANUFACTURER'S INSTRUCTIONS.
4. CONTRACTOR CAN SUBMIT AN ALTERNATE LADDER DESIGN FOR CONSIDERATION ESPECIALLY IF IT WILL REDUCE CONSTRUCTION OR PROCUREMENT DURATION.
5. ANGLED CONNECTION REQUIRED ON BOTH SIDERAILS.

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-005598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

23-WL-0088
202360149
3/22/23
23 of 30

U.S.C.G.
CE
U.S. COAST GUARD
CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

PLOTTING SCALE: 1:1
SCALE: AS SHOWN

A/E COMPANY:
TRANSSYSTEMS CORPORATION
2000 CENTER ST #203, BERKELEY, CA 94704
A/E PROJECT NO.:
P0121057
A/E PROJECT NO.:
P0121057
CONSULTING A/E:

U.S. COAST GUARD YARD
3401 HAWKINS POINT ROAD
BALTIMORE, MD 21226

PROJECT ENGINEER:
HA MOORE
DRAWN BY:
IIP
DESIGNED BY:
IIP
CHECKED BY:
AMD
CERTIFIED BY:
IIP

USCG PROJECT NO.
1707513
USCG DRAWING NO.
1707513
USCG FILENAME
1707513
SHEET 23 OF 25

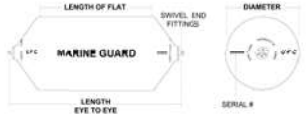
DESIGN PER 1 REINFORCEMENT FOR OPC
AT USCG YARD - BALTIMORE, MD

WATERFRONT
PROPOSED DETAILS
SAFETY LADDER

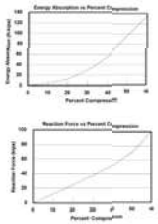
SHEET ID
WATERFRONT
S-504

Site 1

MARINE GUARD™ Foam Filled Fenders OR APPROVED EQUAL
5.0 ft (1.5 m) Diameter x 8.0 ft (2.4 m) Long
Standard Capacity



5.0 Ft. DIAMETER x 8.0 Ft. LONG	English	Metric
PERFORMANCE* (AT 60% COMPRESSION)		
Energy absorption, ft-kip (ton-m)	135	18
Reaction force, kip (ton)	100	45
DIMENSIONS AND WEIGHT		
Diameter, ft (m)	5.0	1.8
Length eye-to-eye, ft (m)	8.0	2.4
Length of flat, ft (m)	4.1	1.2
Skin thickness, in (mm)	1.00	25
Weight, lb. (kg)	1,050	475
Cube, ft³ (m³)	225	6.4
TECHNICAL DATA		
Standoff distance:		
Maximum, ft (m)	5.0	1.8
At 60% compression, ft (m)	2.0	0.6
Safe working end-pull load, kip (kN)	17	76
FOOTPRINT (AT 60% COMPRESSION)		
Maximum width, ft (m)	6.3	1.9
Maximum length, ft (m)	5.9	1.8
Area, ft² (m²)	27.8	2.6
RECOMMENDED SIZES OF MOUNTING HARDWARE		
Chain, in (mm)	1.00	25
Shackles, in (mm)	1.00	25
Swivels, in (mm)	1.00	25

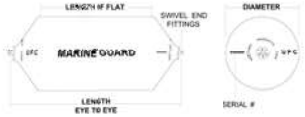


*Above information is for our Standard Capacity Marine Guard™ foam filled marine fenders. Actual values for all sizes may vary plus or minus 15% from stated values due to variations in material properties, dimensional tolerances, temperature and speed of compression.

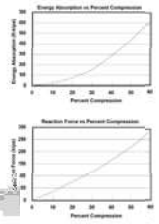
Urethane Products Corporation • 17842 Sampson Ln. • Huntington Beach • California • 92647 • USA
Telephones 1-800-913-0062 • 714-375-4982 • Fax • 714-375-4904

D1 PROPOSED DETAIL - 5'X8' STANDARD CAPACITY FOAM FILLED FENDER
NOT TO SCALE

MARINE GUARD™ Foam Filled Fenders OR APPROVED EQUAL
8.0 ft (2.4 m) Diameter x 14.0 ft (4.3 m) Long
Standard Capacity



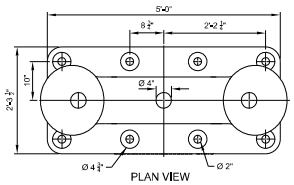
8.0 Ft. DIAMETER x 14.0 Ft. LONG	English	Metric
PERFORMANCE* (AT 60% COMPRESSION)		
Energy absorption, ft-kip (ton-m)	619	85
Reaction force, kip (ton)	288	130
DIMENSIONS AND WEIGHT		
Diameter, ft (m)	8.0	2.4
Length eye-to-eye, ft (m)	14.0	4.3
Length of flat, ft (m)	8.1	2.5
Skin thickness, in (mm)	1.25	32
Weight, lb. (kg)	4,700	2,130
Cube, ft³ (m³)	960	27
TECHNICAL DATA		
Standoff distance:		
Maximum, ft (m)	8.0	2.4
At 60% compression, ft (m)	3.2	1.0
Safe working end-pull load, kip (kN)	70	311
FOOTPRINT (AT 60% COMPRESSION)		
Maximum width, ft (m)	10.0	3.0
Maximum length, ft (m)	10.3	3.1
Area, ft² (m²)	80	7.4
RECOMMENDED SIZES OF MOUNTING HARDWARE		
Chain, in (mm)	[illegible]	[illegible]
Shackles, in (mm)	[illegible]	[illegible]
Swivels, in (mm)	[illegible]	[illegible]



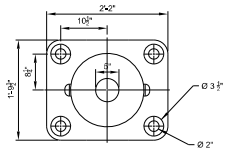
*Above information is for our Standard Capacity Marine Guard™ foam filled marine fenders. Actual values for all sizes may vary plus or minus 15% from stated values due to variations in material properties, dimensional tolerances, temperature and speed of compression.

Urethane Products Corporation • 17842 Sampson Ln. • Huntington Beach • California • 92647 • USA
Telephones 1-800-913-0062 • 714-375-4982 • Fax • 714-375-4904

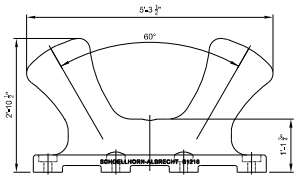
D6 PROPOSED DETAIL - 8'X14' STANDARD CAPACITY FOAM FILLED FENDER
NOT TO SCALE



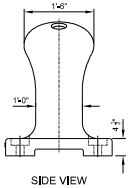
PLAN VIEW



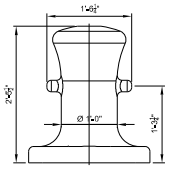
PLAN VIEW



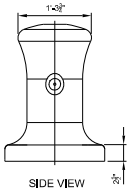
ELEVATION VIEW



SIDE VIEW



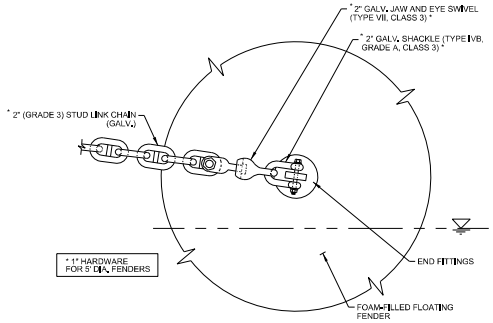
ELEVATION VIEW



SIDE VIEW

A1 PROPOSED DETAIL - 100 TON DOUBLE BITT BOLLARD
NOT TO SCALE

A4 PROPOSED DETAIL - 150 TON SINGLE BITT BOLLARD
NOT TO SCALE



A7 PROPOSED DETAIL - CHAIN TO FENDER DETAIL
NOT TO SCALE

EXP. DATE: 11/30/2024

23-WL-0088
202360149
3/22/23
24 of 30

U.S.C.G. CE
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

SCALE: AS SHOWN
PLOTTING SCALE: 1:1

AE COMPANY: [illegible] CORPORATION
2000 CENTER ST #203, BERKELEY, CA 94704
AE PROJECT NO.: P0012210057
CONSULTING AE:

U.S. COAST GUARD YARD
BALTIMORE, MARYLAND
CIVIL ENGINEERING

PROJECT ENGINEER: +JA MOORE
DRAWN BY: BP
DESIGNED BY: BP
CHECKED BY: AMD
CERTIFIED BY: BP

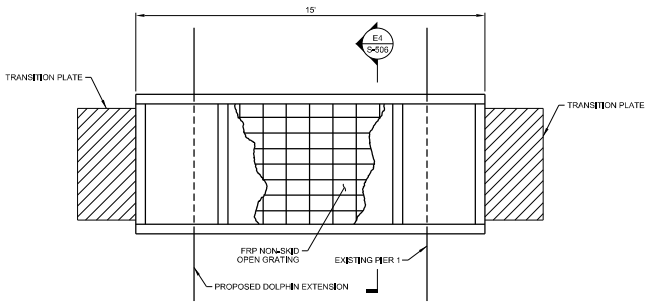
USCG PROJECT NO. 1707513
USCG DRAWING NO. 1707513-S-505
USCG FILENAME 1707513
SHEET 24 OF 25

DESIGN FEB 1 REINFORCEMENT FOR OPC
AT USCG YARD - BALTIMORE, MD

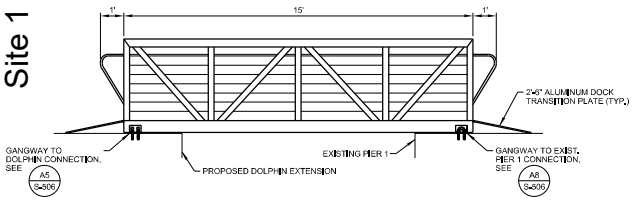
WATERFRONT
PROPOSED DETAILS
MOORING DETAILS

SHEET ID
WATERFRONT
S-505

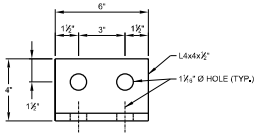
Site 1



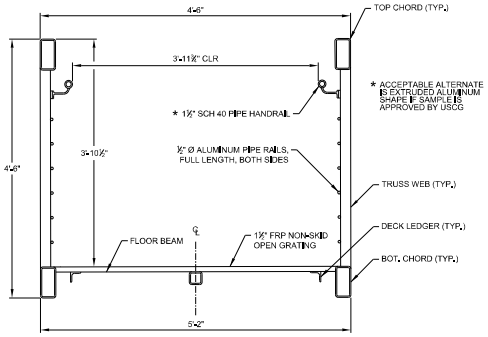
E1 PREFABRICATED ALUMINUM GANGWAY - PLAN
SCALE 3/8" = 1'-0"



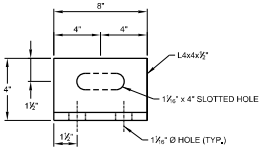
D1 PREFABRICATED ALUMINUM GANGWAY - ELEVATION
SCALE 3/8" = 1'-0"



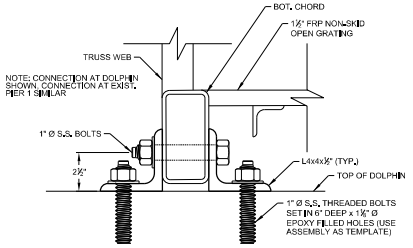
B1 GANGWAY TO DOLPHIN CONNECTION ANGLE
SCALE 3" = 1'-0"



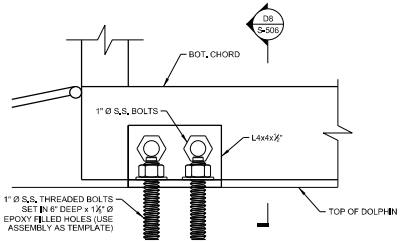
E4 PREFABRICATED ALUMINUM GANGWAY - SECTION
SCALE 1" = 1'-0"



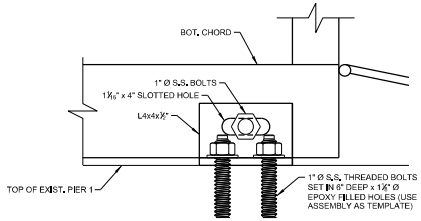
C5 GANGWAY TO EXIST. PIER 1 CONNECTION ANGLE
SCALE 3" = 1'-0"



D8 DOLPHIN/EXIST. PIER 1 CONNECTION - SECTION
SCALE 3" = 1'-0"



A5 GANGWAY TO DOLPHIN CONNECTION
SCALE 3" = 1'-0"



A8 GANGWAY TO EXIST. PIER 1 CONNECTION
SCALE 3" = 1'-0"

GENERAL NOTES

1. FRAMING SHALL BE 6061-T6 ALUMINUM ALLOY CONFORMING TO ASTM B-209, B-221 AND B-308.
2. HANDRAIL SHALL BE 6061-T6 ALUMINUM PIPE AND TUBING OR ALTERNATE APPROVED BY USCG. ASTM B-429. A 4" SPHERE SHALL NOT BE ABLE TO PASS THROUGH THE HANDRAIL. HANDRAIL SHALL EXTEND BEYOND GANGWAY LENGTH.
3. DIRECT CONTACT BETWEEN ALUMINUM AND DISSIMILAR METALS IS NOT PERMITTED.
4. THE MOUNTING OF HANDRAILS SHALL BE SUCH THAT THE COMPLETED HANDRAIL AND SUPPORTING STRUCTURE ARE CAPABLE OF WITHSTANDING A LOAD OF AT LEAST 200 LB APPLIED IN ANY DIRECTION AT ANY POINT ON THE RAIL.
5. ALL ALUMINUM RAILING (EXCEPT POSTS) TO RECEIVE A BRUSH FINISH.
6. THE DETAILS SHOWN ARE FOR GENERAL REFERENCE. THE CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATIONS AND FINAL CONSTRUCTION DETAILS INCLUDING MEMBER SIZING AND CONNECTIONS.
7. THE GANGWAY SHALL HAVE A MINIMUM CLEAR WIDTH OF 3'-11¾".
8. THE GANGWAY SHALL BE DESIGNED FOR A LIVE LOAD OF 100 PSF / A CONCENTRATED LIVE LOAD OF 500 LB PLACED ANYWHERE ON THE GANGWAY.

EXP. DATE: 11/30/2024

STATE OF ILLINOIS
ANNA M. DUKES
081-085598
CHICAGO, ILLINOIS
LICENSED STRUCTURAL ENGINEER

23-WL-0088
202360149
3/22/23
25 of 30

U.S.C.G.
U.S. COAST GUARD CIVIL ENGINEERING

MARK	DESCRIPTION	DATE
1	FINAL DESIGN	SEP 2022

SCALE: AS SHOWN
PLOTTING SCALE: 1:1

AE COMPANY: TRANSSYSTEMS CORPORATION, 2000 CENTER ST #600, BERKELEY, CA 94704
AE PROJECT NO.: P0121005
CONSULTING A/E:

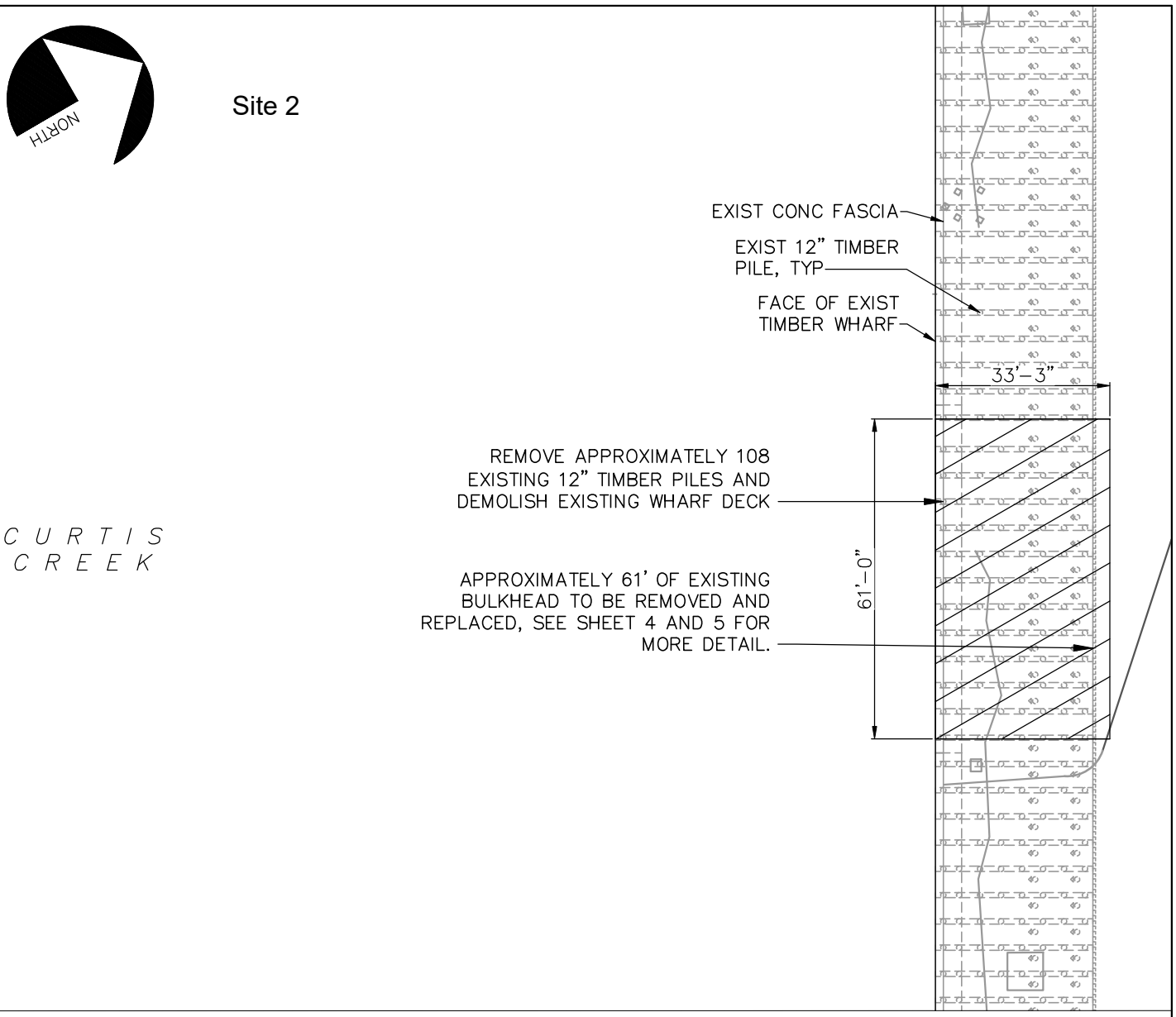
U.S. COAST GUARD YARD
BALTIMORE, MARYLAND
PROJECT ENGINEER: HA MOORE
DRAWN BY: BMJ
DESIGNED BY: BMJ
CHECKED BY: AMD

USCG PROJECT NO. 1707515
USCG DRAWING NO. 1707515-S-506
USCG FILENAME 1707515
SHEET 25 OF 25

DESIGN PIER 1 REINFORCEMENT FOR OPC AT USCG YARD - BALTIMORE, MD

WATERFRONT
PROPOSED DETAILS
GANGWAY

SHEET ID
WATERFRONT
S-506



PLAN – EXISTING CONDITIONS

23-WL-0088
202360149
3/22/23
26 of 30

NOTES

1. 108 EXISTING 12" TIMBER PILES WILL BE DEMOLISHED -ND THE EXISTING M-RGIN-L WH-RF DECK WILL BE DEMOLISHED, TO BE REPL-CED WITH 17 PROPOSED 24" STEEL PIPE PILES -ND - M-RGIN-L WH-RF IN THE S-ME LOC-TION.

0 30' 60'

1" = 30'

FACILITIES DESIGN & CONSTRUCTION CENTER

PROJECT NO:	A/E PROJECT NO.: 221747
CAD FILE NAME:	80-8211842PT1003.dwg
DESIGNED BY:	JW
DRAWN BY:	RB
EDITED BY:	RB
CHECKED BY:	AF

SHEET TITLE

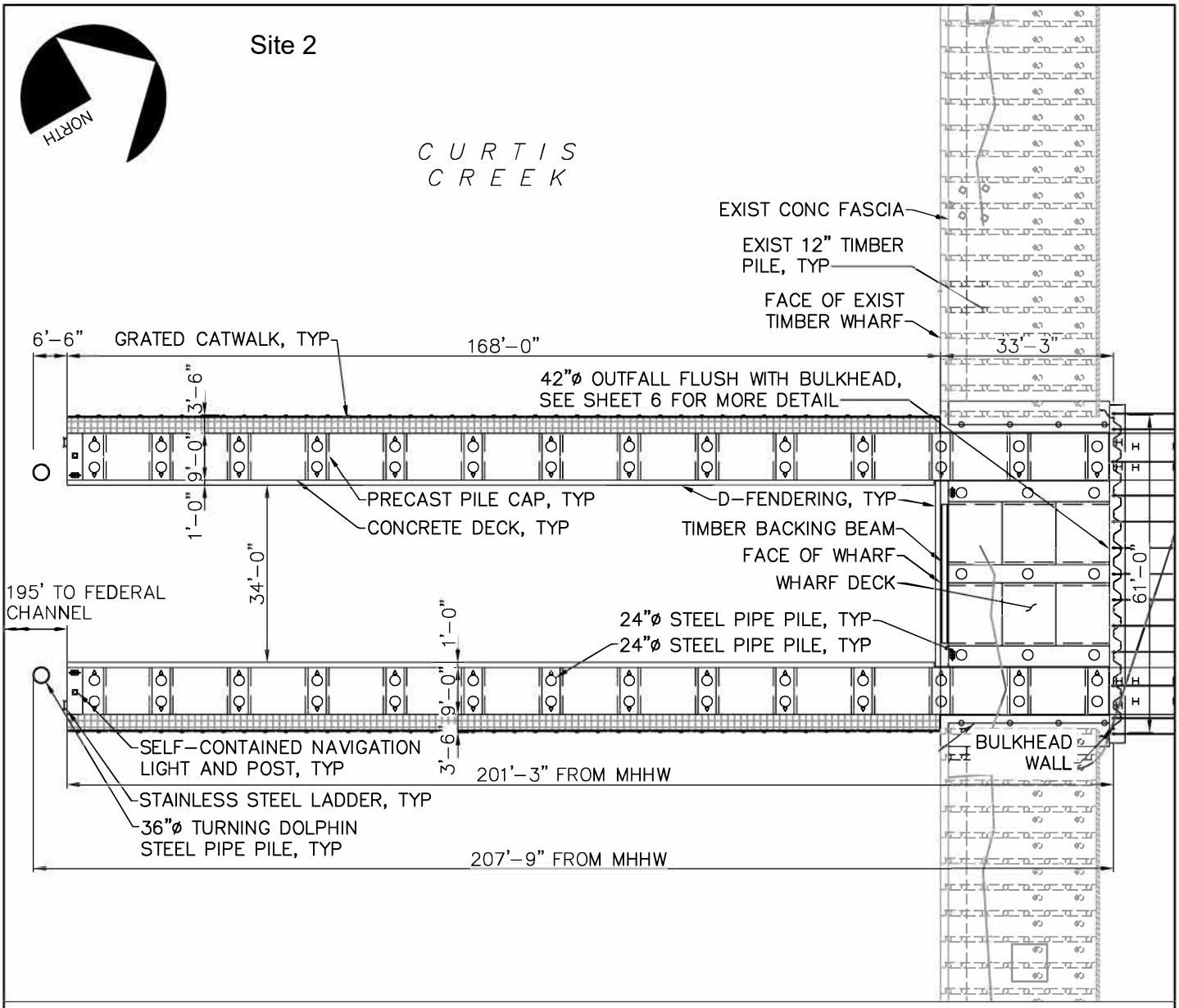
FRC RDAP

UNITED STATES COAST GUARD CURTIS BAY
CG YARD MARYLAND

FACILITIES DESIGN & CONSTRUCTION CENTER
CG YARD
CURTIS BAY, MARYLAND

SHEET 3 OF 7

RBENNINGTON:Q:\B-\221747\20 C-DD_-CTIVE_PERMITS\80-8211842PT1003.DWG L-YOUT: L-YOUT1 9/08/2022 11:35PM DIMSC-LE: 1 R21.0



PLAN – PROPOSED CONDITIONS

NOTES

1. CONSTRUCT TWO (2) FIXED CONCRETE PIERS, EACH 10'X168' WITH A 3.5'X168' GRATED CATWALK. PIERS WILL BE SUPPORTED BY 48 PROPOSED 24" STEEL PIPE PILES.
2. APPROXIMATELY 65' OF EXISTING BULKHEAD WILL BE DEMOLISHED AND REPLACED IN THE APPROXIMATE SAME LOCATION. PRIOR TO DEMOLITION, THE PROPOSED SHEETPILE BULKHEAD WILL BE DRIVEN LANDWARD OF THE EXISTING BULKHEAD, APPROXIMATELY 2'-9" FROM THE EXISTING BULKHEAD. THE 2'-9" OF SOIL MATERIAL BEHIND THE EXISTING BULKHEAD WILL BE ALLOWED TO SLOUGH INTO THE EXISTING SIDE SLOPE.
3. A 42" DIAMETER STORM DRAIN OUTFALL WILL BE CONSTRUCTED, FLUSH TO THE PROPOSED BULKHEAD.
4. REPLACE MARGINAL WHARF DECK IN APPROXIMATE SAME LOCATION.

1" = 30'

0 30' 60'

FACILITIES DESIGN & CONSTRUCTION CENTER

PROJECT NO:	A/E PROJECT NO.: 221747
CAD FILE NAME:	60-8211842PT1004.dwg
DESIGNED BY:	JW
DRAWN BY:	RB
EDITED BY:	RB
CHECKED BY:	AF

23-WL-0088
202360149
3/22/23
27 of 30

SHEET TITLE

FRC RDAP

UNITED STATES COAST GUARD CURTIS BAY
CG YARD MARYLAND

FACILITIES DESIGN & CONSTRUCTION CENTER
CG YARD
CURTIS BAY, MARYLAND

SHEET 4 OF 7

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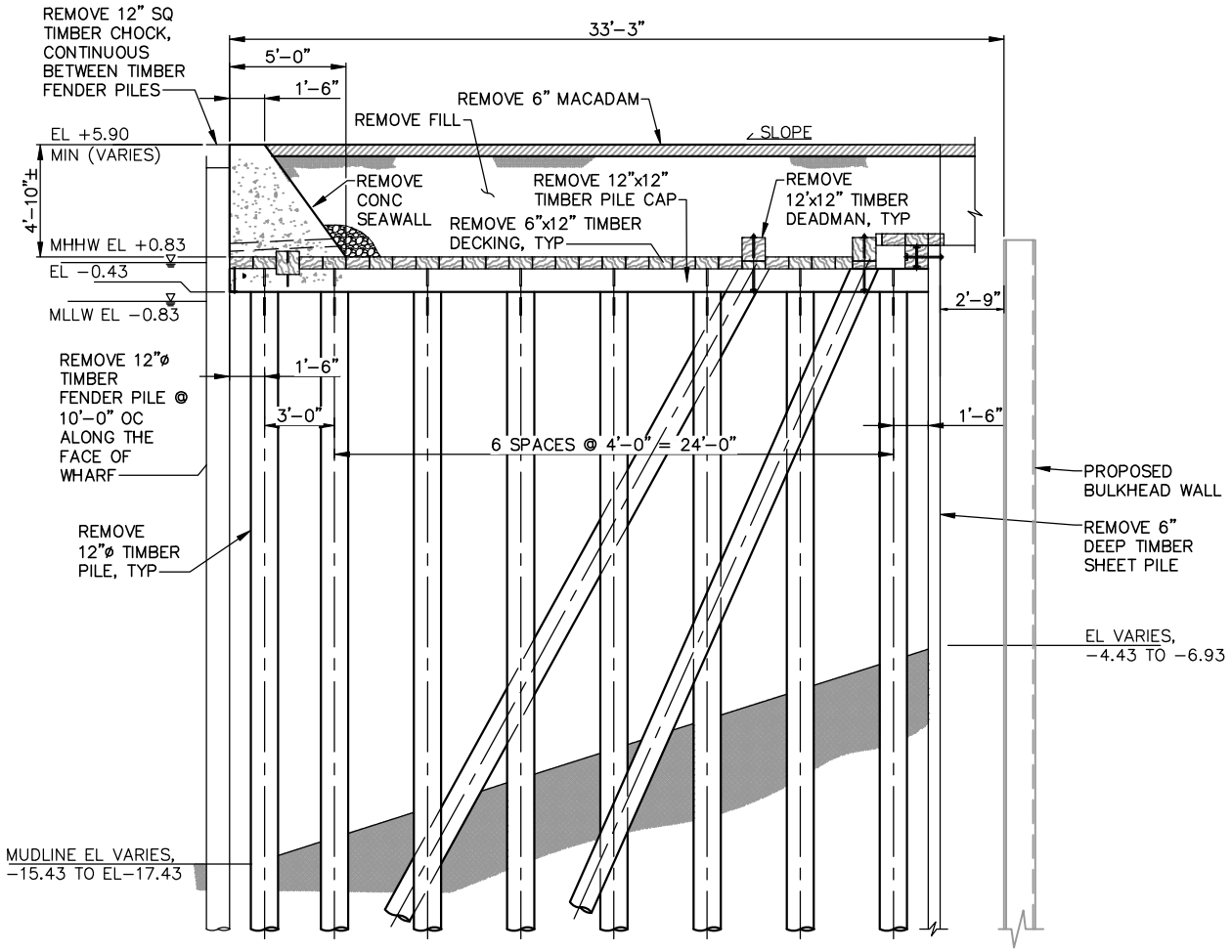

EXISTING SECTION

NTS

NOTES

1. 108 EXISTING 12" TIMBER PILES WILL BE DEMOLISHED AND THE EXISTING MARGINAL WHARF DECK WILL BE DEMOLISHED, TO BE REPLACED WITH 17 PROPOSED 24" STEEL PIPE PILES AND A MARGINAL WHARF IN THE SAME LOCATION.

FACILITIES DESIGN & CONSTRUCTION CENTER

PROJECT NO:	A/E PROJECT NO.: 221747
CAD FILE NAME:	80-8211842PT3001.dwg
DESIGNED BY:	JW
DRAWN BY:	RB
EDITED BY:	RB
CHECKED BY:	AF

23-WL-0088
202360149
3/22/23
28 of 30

SHEET TITLE

FRC RDAP

UNITED STATES COAST GUARD CURTIS BAY
CG YARD MARYLAND

FACILITIES DESIGN & CONSTRUCTION CENTER
CG YARD
CURTIS BAY, MARYLAND

SHEET 5 OF 7

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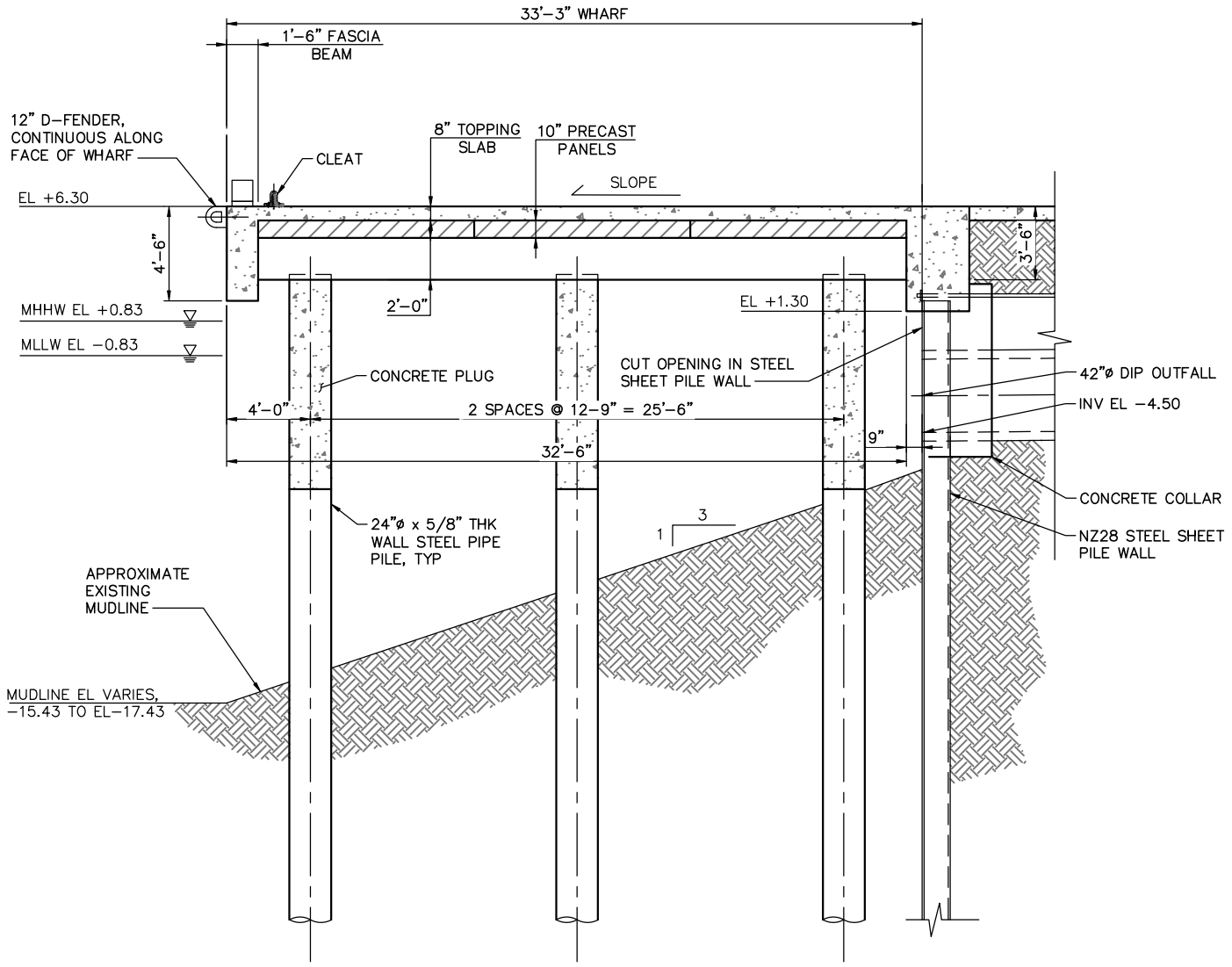

TYPICAL SECTION – PIPE PILE REINFORCEMENT & OUTFALL

NTS

NOTES

1. 61' OF EXISTING BULKHEAD WILL BE DEMOLISHED AND REPLACED IN THE APPROXIMATE SAME LOCATION. PRIOR TO DEMOLITION, THE PROPOSED SHEETPILE BULKHEAD WILL BE DRIVEN LANDWARD OF THE EXISTING BULKHEAD, APPROXIMATELY 2'-9" FROM THE EXISTING BULKHEAD. THE 2'-9" OF SOIL MATERIAL BEHIND THE EXISTING BULKHEAD WILL BE ALLOWED TO SLOUGH INTO THE EXISTING SIDE SLOPE.
2. A 42" DIAMETER STORM DRAIN OUTFALL WILL BE CONSTRUCTED, FLUSH TO THE PROPOSED BULKHEAD.
3. REPLACE MARGINAL WHARF DECK IN APPROXIMATE SAME LOCATION.

FACILITIES DESIGN & CONSTRUCTION CENTER

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CAD FILE NAME:	80-8211842PT3002.dwg
DESIGNED BY:	JW
DRAWN BY:	RB
EDITED BY:	RB
CHECKED BY:	AF

23-WL-0088
202360149
3/22/23
29 of 30

SHEET TITLE

FRC RDAP

UNITED STATES COAST GUARD CURTIS BAY
CG YARD MARYLAND

FACILITIES DESIGN & CONSTRUCTION CENTER
CG YARD
CURTIS BAY, MARYLAND

SHEET 6 OF 7

RBENNINGTON:Q:\BA\221747\20 CADD_ACTIVE_PERMITS\80-8211842PT3002.DWG LAYOUT: LAYOUT1 9/08/2022 11:40PM DIMSCALE: 1 R21.0

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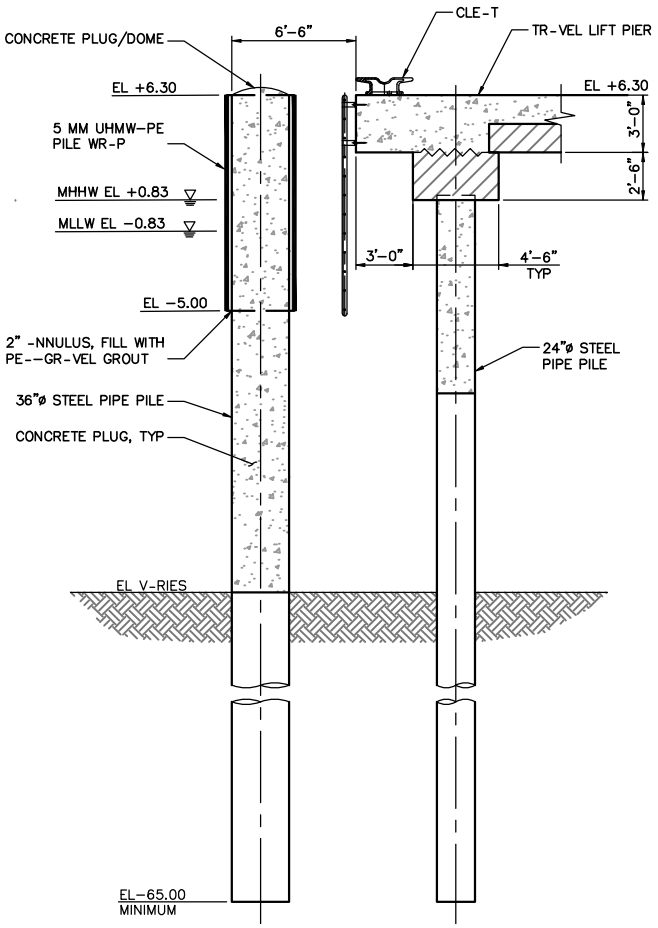
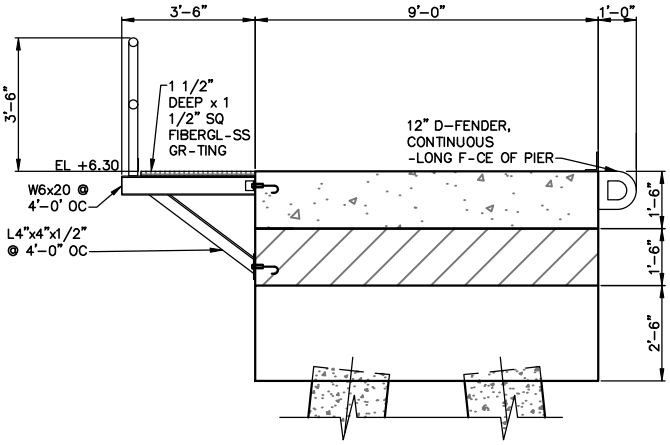


TYPICAL DETAIL – PIER

NTS



TYPICAL DETAIL – GRATED WALKWAY

NTS

FACILITIES DESIGN & CONSTRUCTION CENTER

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DESIGNED BY:	JW
DRAWN BY:	RB
EDITED BY:	RB
CHECKED BY:	AF

23-WL-0088
202360149
3/22/23
30 of 30

SHEET TITLE

FRC RDAP

UNITED STATES COAST GUARD CURTIS BAY
CG YARD MARYLAND

FACILITIES DESIGN & CONSTRUCTION CENTER
CG YARD
CURTIS BAY, MARYLAND

SHEET 7 OF 7

RBENNINGTON:Q:\B-\221747\20 C-DD__CTIVE__PERMITS\80-8211842PT5001.DWG L-YOUT: L-YOUT1 9/08/2022 11:45PM DIMSC-LE: 1 R21.0