TAKU DOCK RECONFIGURATION

VOLUME II of II

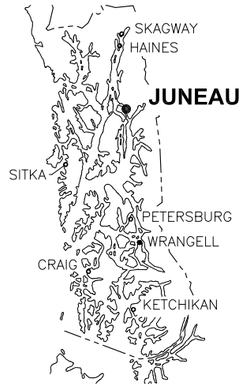
Contract No. DH13-437

MAY 2013

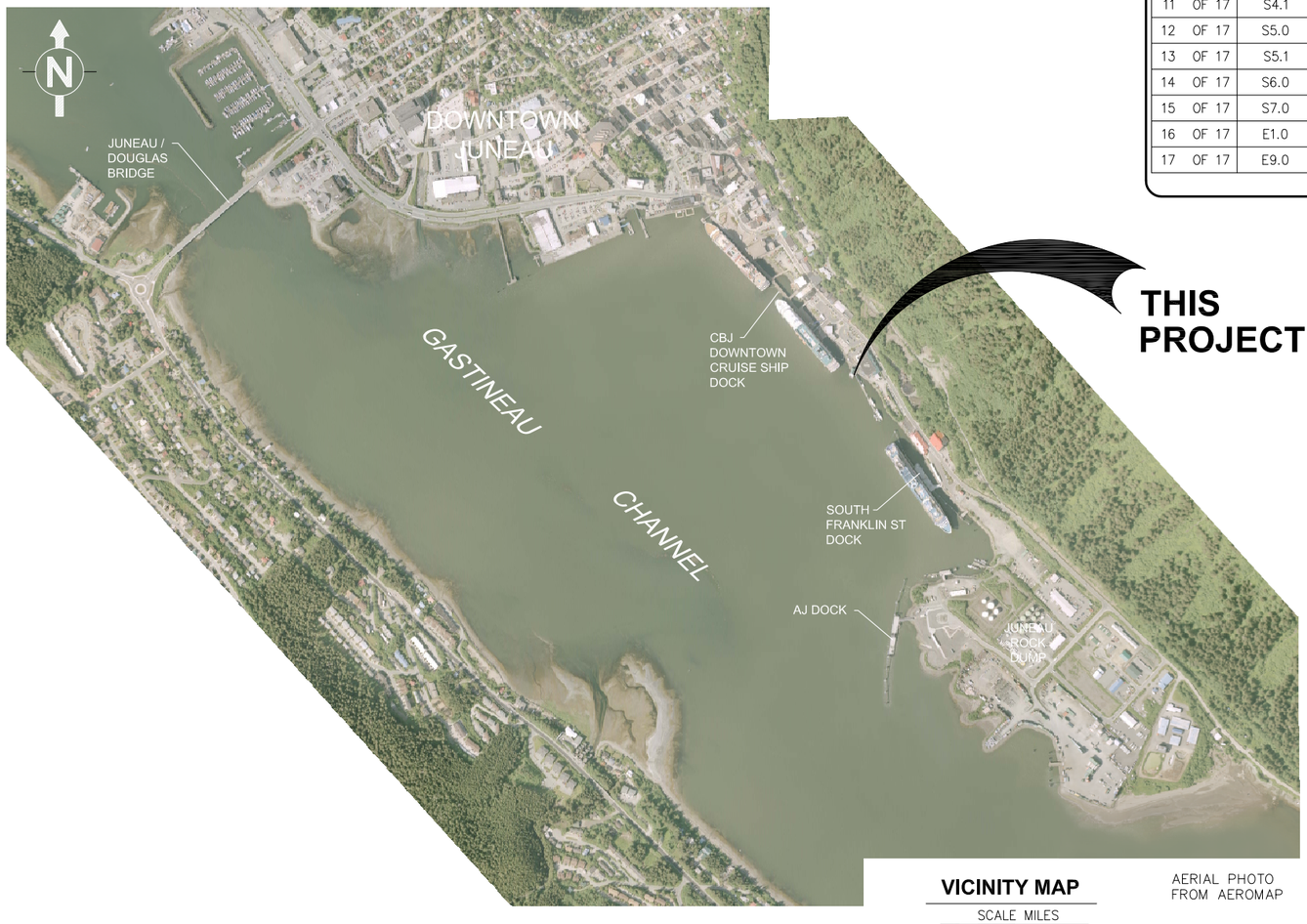
CITY & BOROUGH OF JUNEAU, ALASKA

TAKU DOCK RECONFIGURATION
2013

LOCATION MAP



SOUTHEAST ALASKA



THIS PROJECT

VICINITY MAP

SCALE MILES

0 ⅛ ¼

AERIAL PHOTO FROM AEROMAP

DRAWING INDEX

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3 OF 17	S2.0	NEW DOCK FRAMING PLAN
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CITY & BOROUGH OF JUNEAU DOCKS & HARBORS

REVISIONS

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.

PND ENGINEERS, INC.
9360 Glacier Highway Suite 100
Juneau, Alaska 99801
Phone: 907-586-2093
Fax: 907-586-2099
www.pndengineers.com

DESIGN: PND CHECKED: CMG
DRAWN: WRB APPROVED: CMG
SCALE: AS SHOWN
DATE: 05/2/13

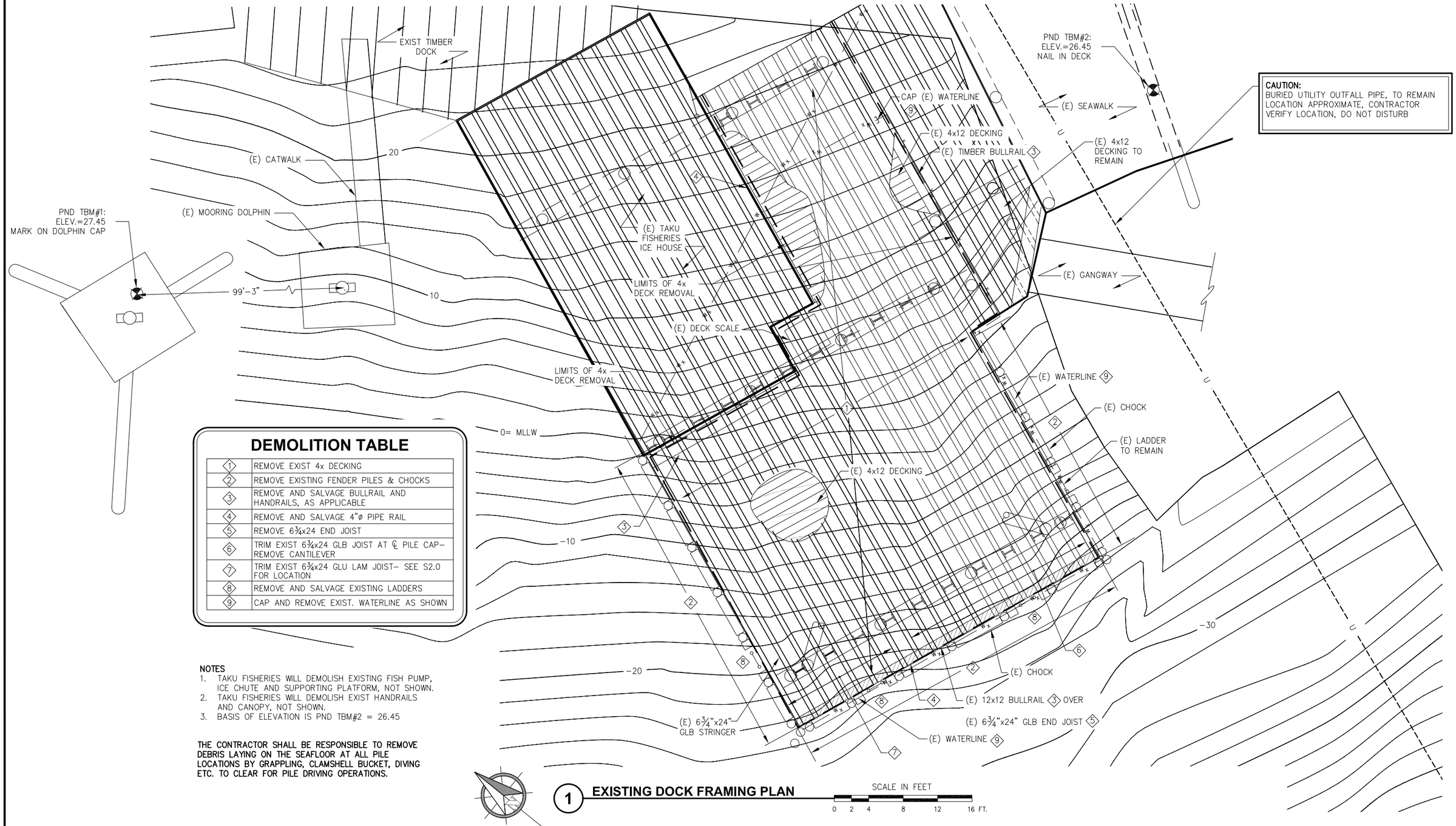
STATE OF ALASKA — Christopher Gianotti — CE-7559 — REGISTERED PROFESSIONAL ENGINEER

CITY AND BOROUGH OF JUNEAU
TAKU DOCK RECONFIGURATION
CONTRACT NO. DH13-437

SHEET TITLE:
COVER SHEET, VICINITY MAP AND DRAWING INDEX

PN&D PROJECT NO. 102050.05 | DWG. FILE:

S0.1
SHEET 1 OF 17



DEMOLITION TABLE

1	REMOVE EXIST 4x DECKING
2	REMOVE EXISTING FENDER PILES & CHOCKS
3	REMOVE AND SALVAGE BULLRAIL AND HANDRAILS, AS APPLICABLE
4	REMOVE AND SALVAGE 4"ø PIPE RAIL
5	REMOVE 6¾x24 END JOIST
6	TRIM EXIST 6¾x24 GLB JOIST AT ℄ PILE CAP– REMOVE CANTILEVER
7	TRIM EXIST 6¾x24 GLU LAM JOIST– SEE S2.0 FOR LOCATION
8	REMOVE AND SALVAGE EXISTING LADDERS
9	CAP AND REMOVE EXIST. WATERLINE AS SHOWN

NOTES
1. TAKU FISHERIES WILL DEMOLISH EXISTING FISH PUMP, ICE CHUTE AND SUPPORTING PLATFORM, NOT SHOWN.
2. TAKU FISHERIES WILL DEMOLISH EXIST HANDRAILS AND CANOPY, NOT SHOWN.
3. BASIS OF ELEVATION IS PND TBM#2 = 26.45

THE CONTRACTOR SHALL BE RESPONSIBLE TO REMOVE DEBRIS LAYING ON THE SEAFLOOR AT ALL PILE LOCATIONS BY GRAPPLING, CLAMSHELL BUCKET, DIVING ETC. TO CLEAR FOR PILE DRIVING OPERATIONS.

1 EXISTING DOCK FRAMING PLAN

SCALE IN FEET
0 2 4 8 12 16 FT.

CITY & BOROUGH OF JUNEAU — DOCKS & HARBORS

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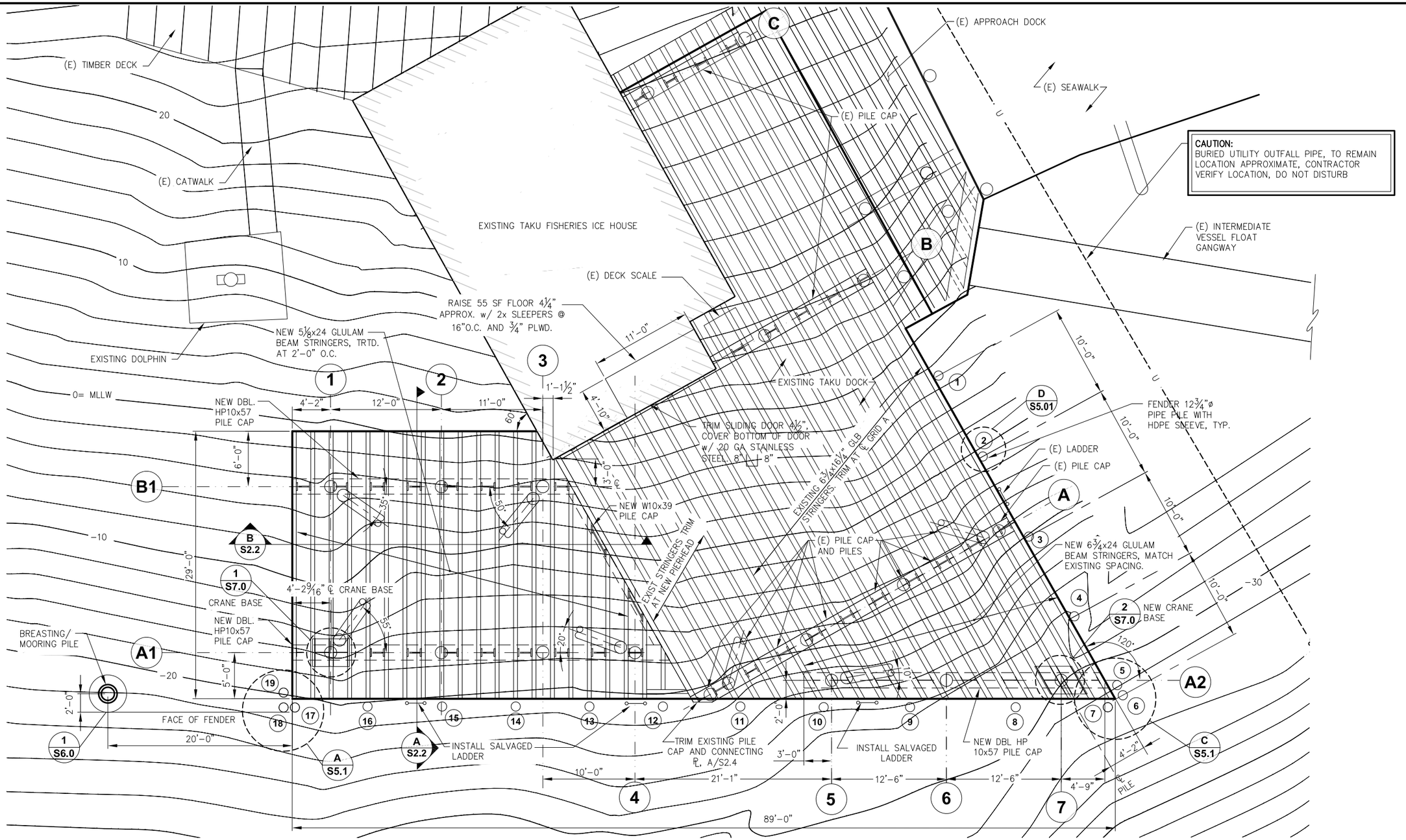
DATE: 05/2/13

CITY AND BOROUGH OF JUNEAU
TAKU DOCK RECONFIGURATION
CONTRACT NO. DH13-437

SHEET TITLE:
EXISTING DOCK FRAMING AND DEMOLITION PLAN

PN&D PROJECT NO. 102050.05 DWG. FILE: S1.0.DWG

S1.0
SHEET 2 OF 17



1 DOCK FRAMING PLAN

SCALE IN FEET

0 2 4 8 12 16 FT.

NOTE:
(16) INDICATES DOCK FENDER PILE IDENTIFICATION NUMBER.

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Christopher Gianotti
CE-7559
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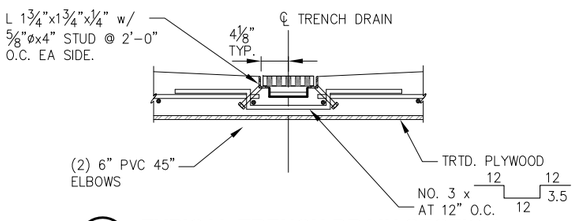
SHEET TITLE: **NEW DOCK FRAMING PLAN**

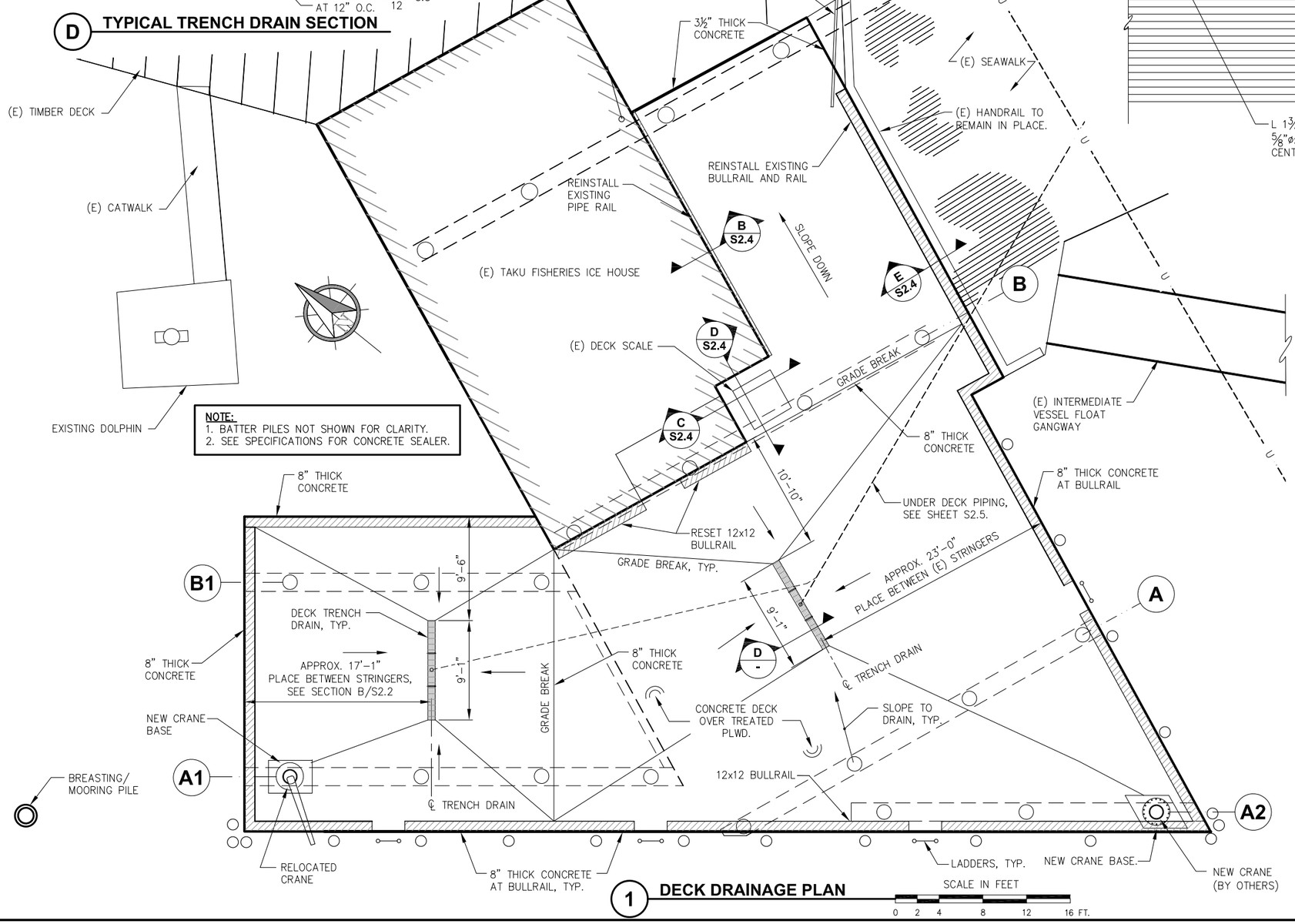
PN&D PROJECT NO. 102050.05 DWG. FILE: S2.0.DWG

S2.0
SHEET 3 OF 17



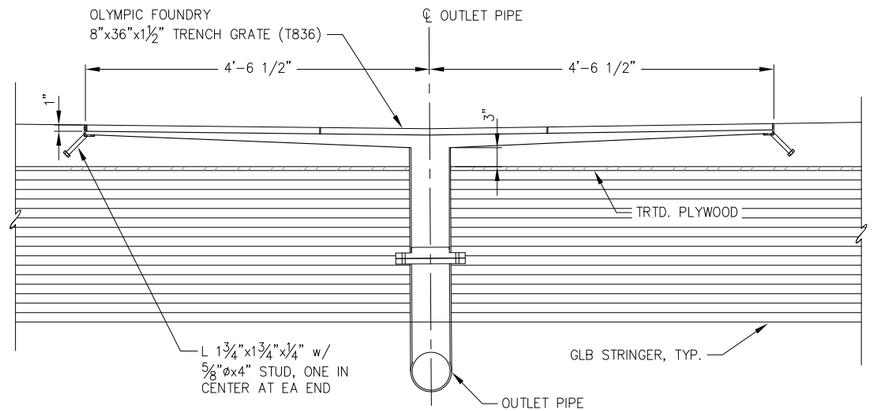
D TYPICAL TRENCH DRAIN SECTION

CAUTION:
BURIED UTILITY OUTFALL PIPE, TO REMAIN LOCATION APPROXIMATE, CONTRACTOR VERIFY LOCATION, DO NOT DISTURB

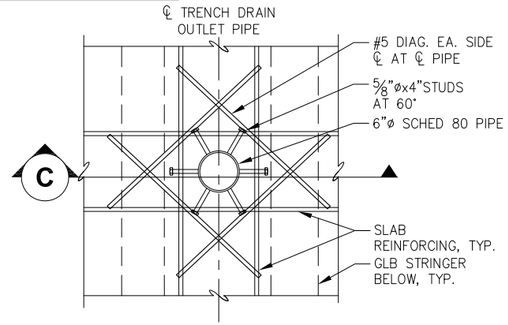


1 DECK DRAINAGE PLAN

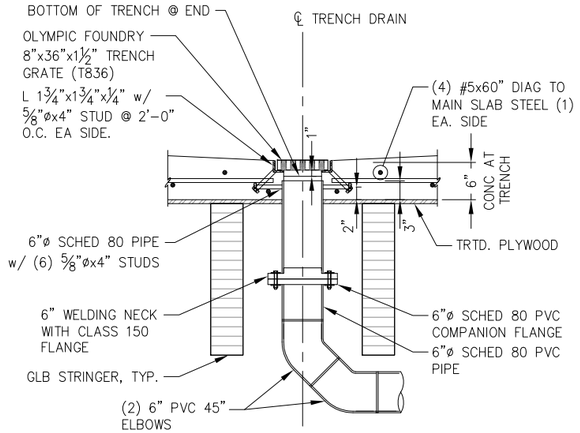
SCALE IN FEET
0 2 4 8 12 16 FT.



A TRENCH DRAIN PROFILE



B TRENCH DRAIN OUTLET PIPE



C TRENCH DRAIN OUTLET

CITY & BOROUGH OF JUNEAU DOCKS & HARBORS

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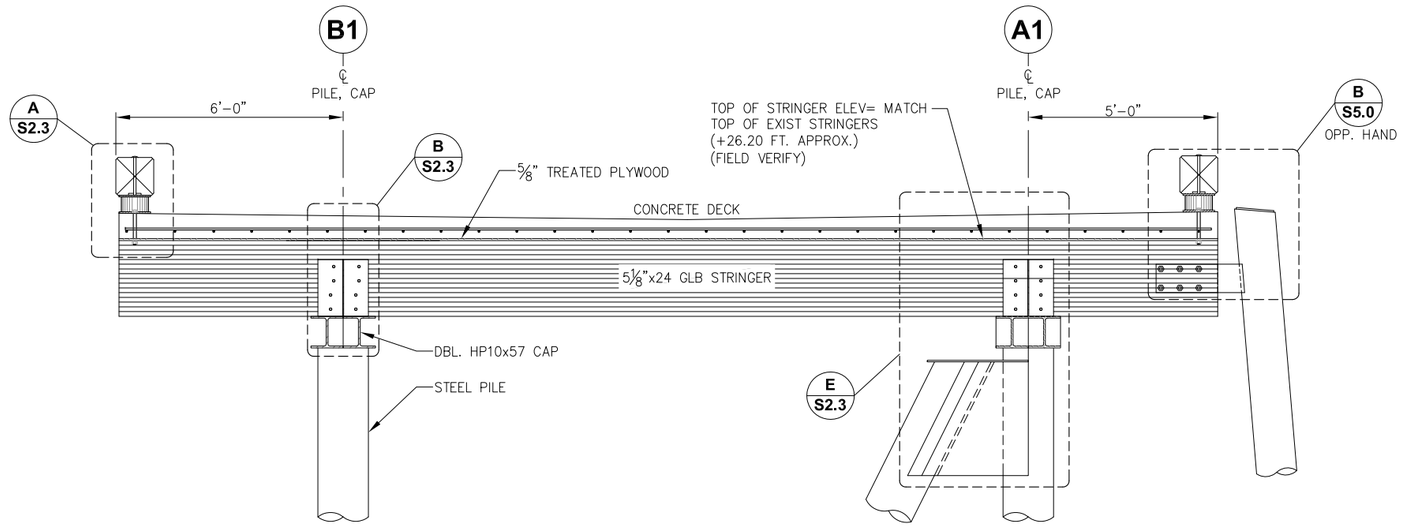
STATE OF ALASKA — Christoffer Glanotti — CE-7559 — REGISTERED PROFESSIONAL ENGINEER
DATE: 05/2/13

CITY AND BOROUGH OF JUNEAU
TAKU DOCK RECONFIGURATION
CONTRACT NO. DH13-437

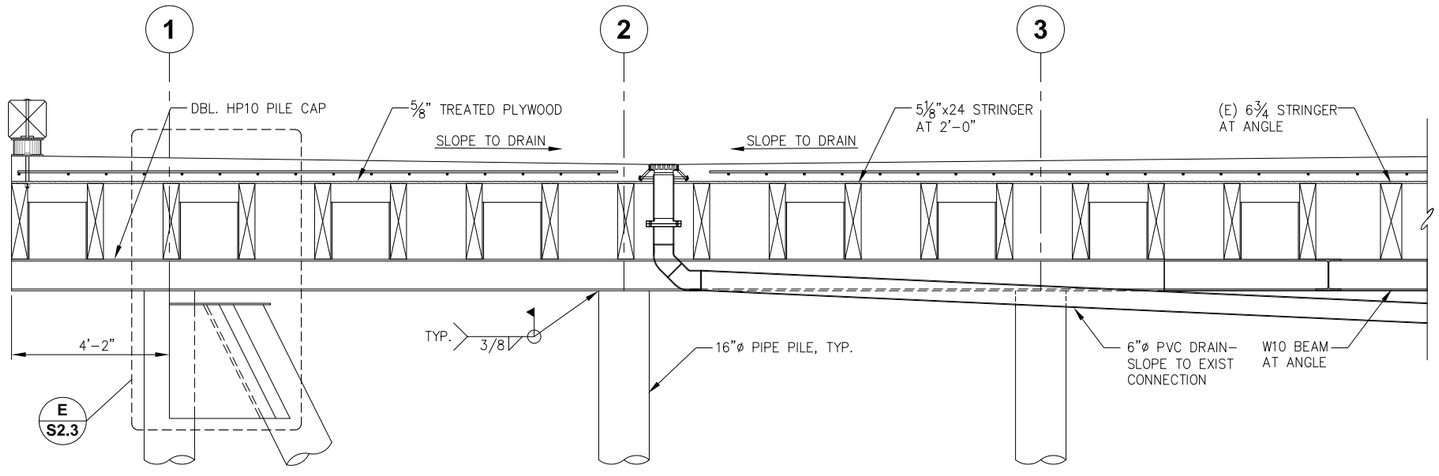
SHEET TITLE:
DOCK DECK DRAINAGE PLAN

PND PROJECT NO. 102050.05 | DWG. FILE: S2.1.DWG

S2.1
SHEET 4 OF 17



A DOCK SECTION



B DOCK EXTENSION SECTION

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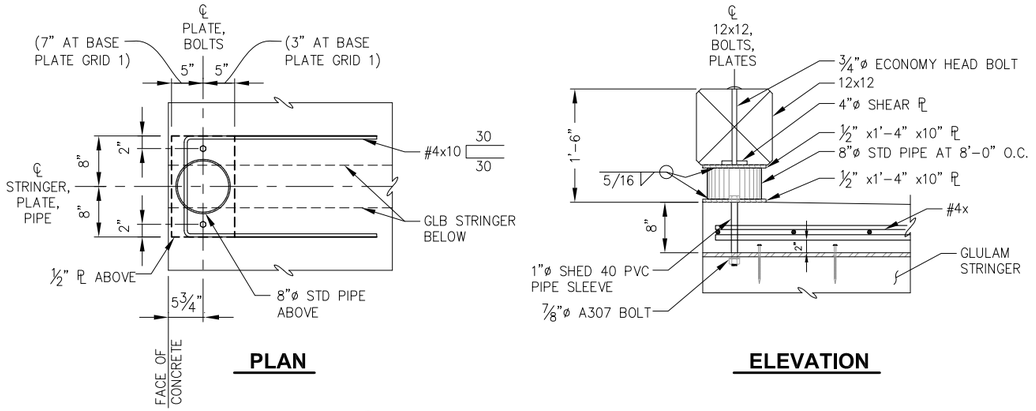
CITY AND BOROUGH OF JUNEAU
TAKU DOCK RECONFIGURATION
CONTRACT NO. DH13-437

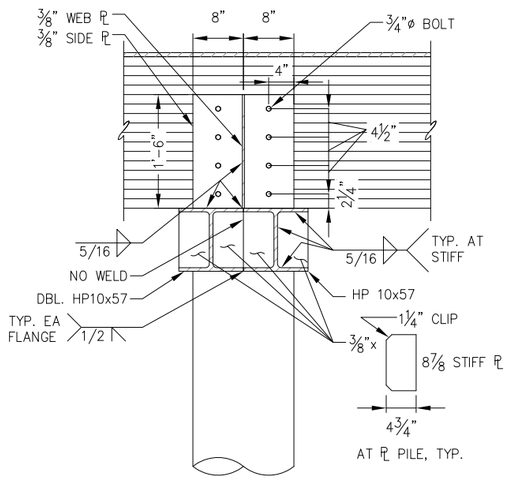
SHEET TITLE: **NEW DOCK SECTIONS**

PN&D PROJECT NO.: 102050.05 DWG. FILE: S2.2.DWG

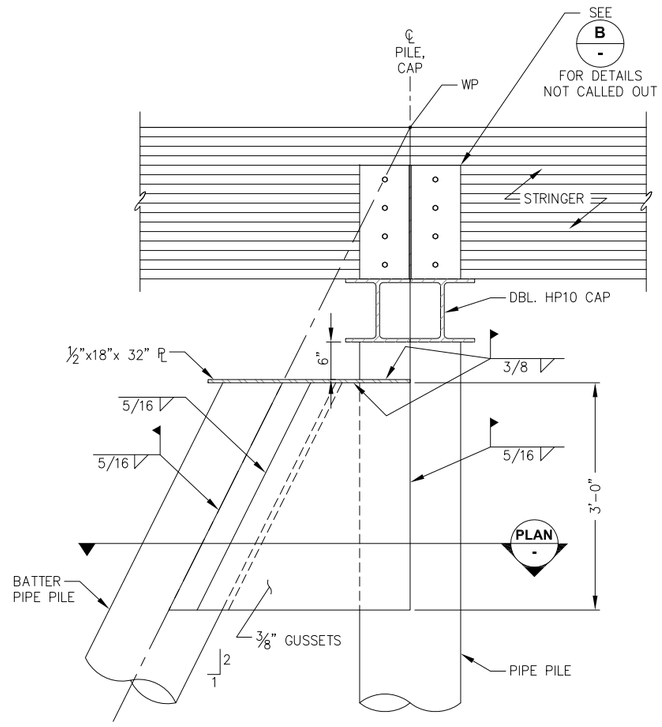
S2.2
SHEET 5 OF 17

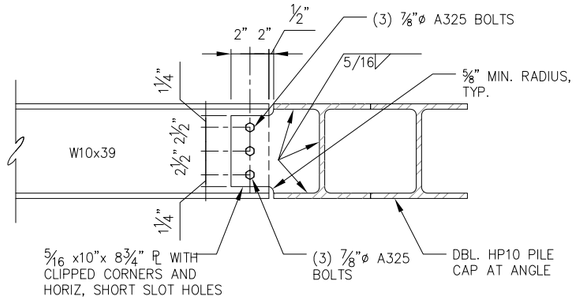


A BULLRAIL DETAIL

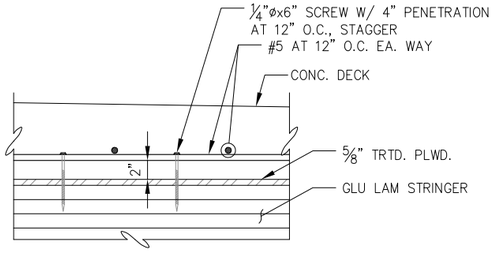


B GLU LAM STRINGER TO PILE CAP DETAIL

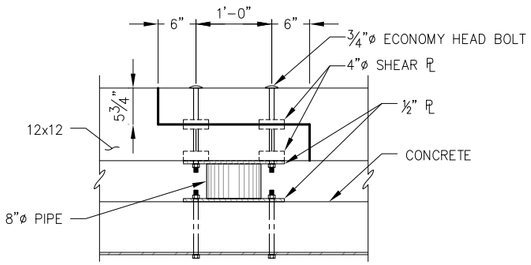




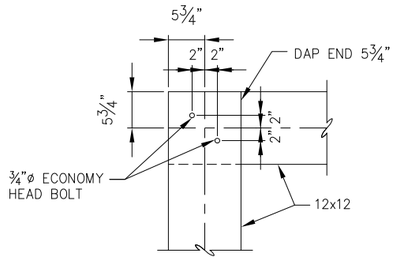
C W10 TO PILE CAP



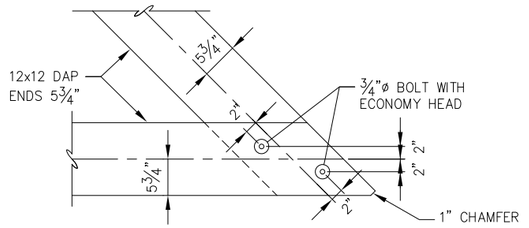
D SLAB DETAIL



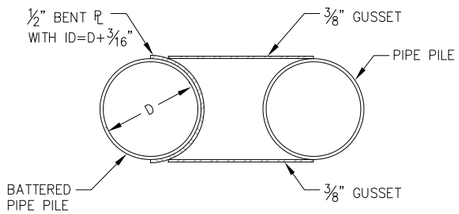
F BULLRAIL SPLICE DETAIL



G TYPICAL BULLRAIL CORNER DETAIL



H S CORNER BULLRAIL DETAIL



PLAN

E BATTER PILE CONNECTION

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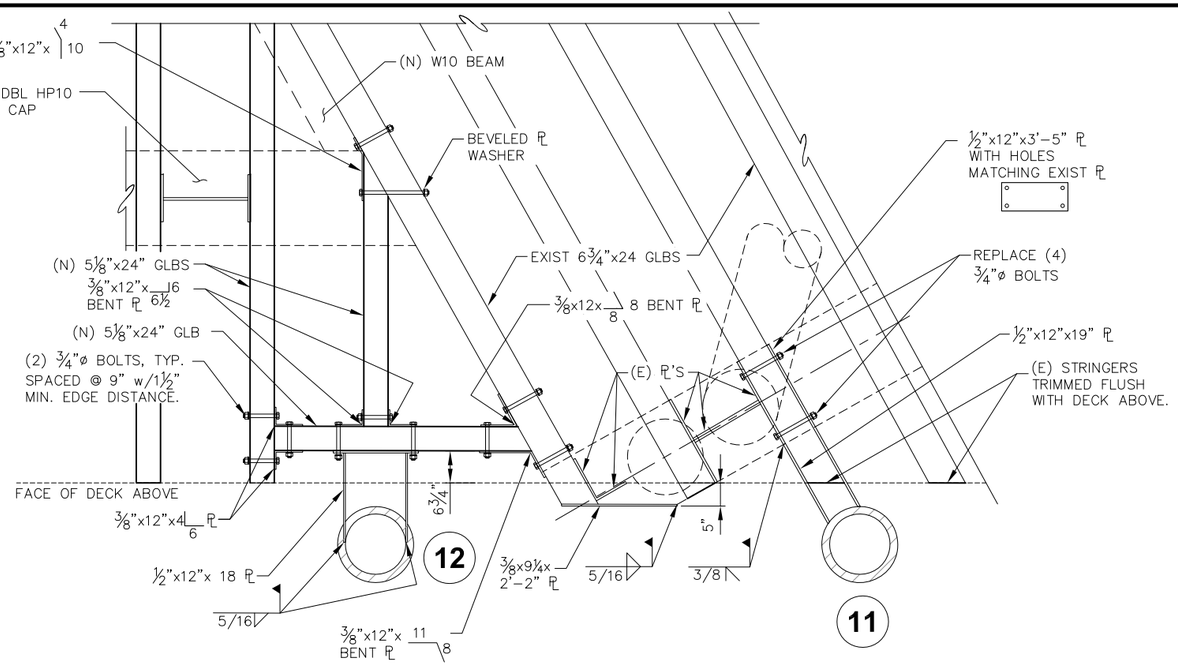
STATE OF ALASKA — 10TH — Christopher Gianotti — CE-7559 — REGISTERED PROFESSIONAL ENGINEER

CITY AND BOROUGH OF JUNEAU
TAKU DOCK RECONFIGURATION
CONTRACT NO. DH13-437

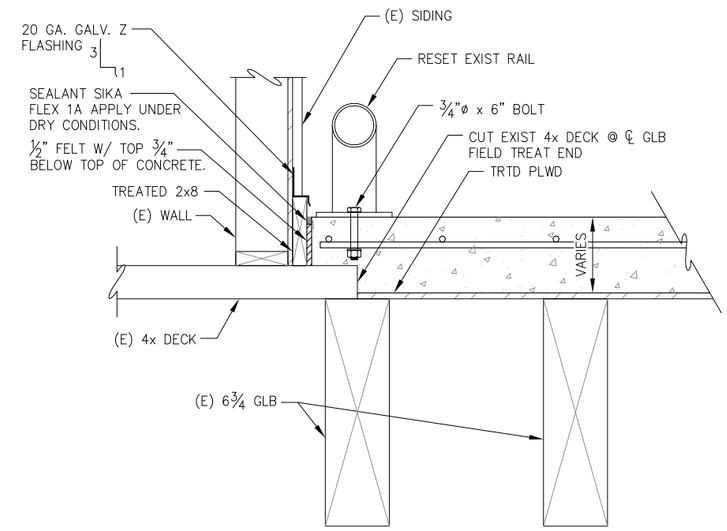
SHEET TITLE: **DOCK DETAILS**

PN&D PROJECT NO. 102050.05 DWG. FILE: S2.2.DWG

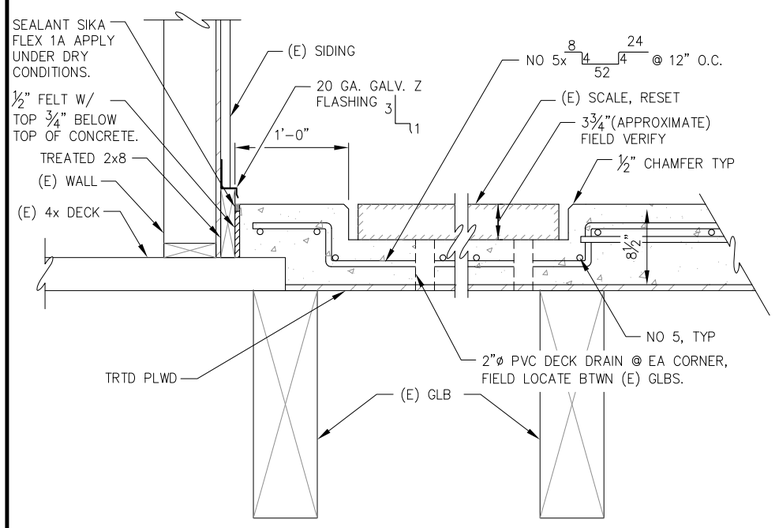
S2.3
SHEET 6 OF 17



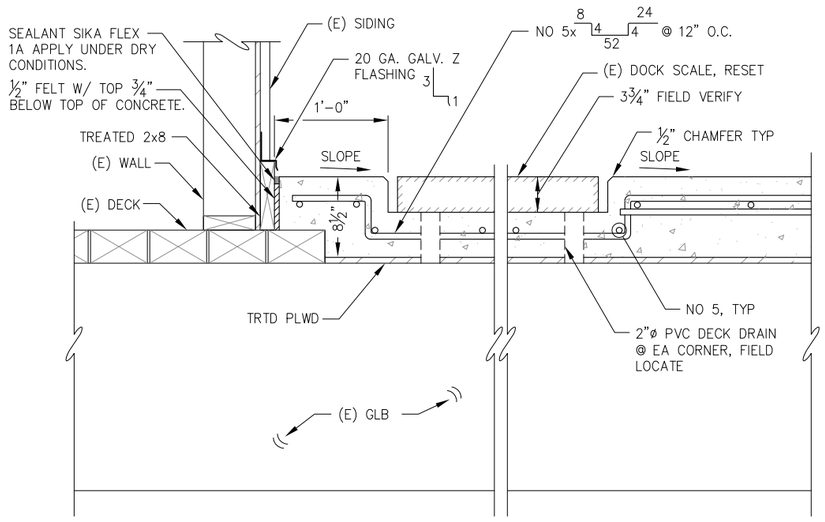
A **ENLARGEMENT AT FENDER PILES 11 AND 12**



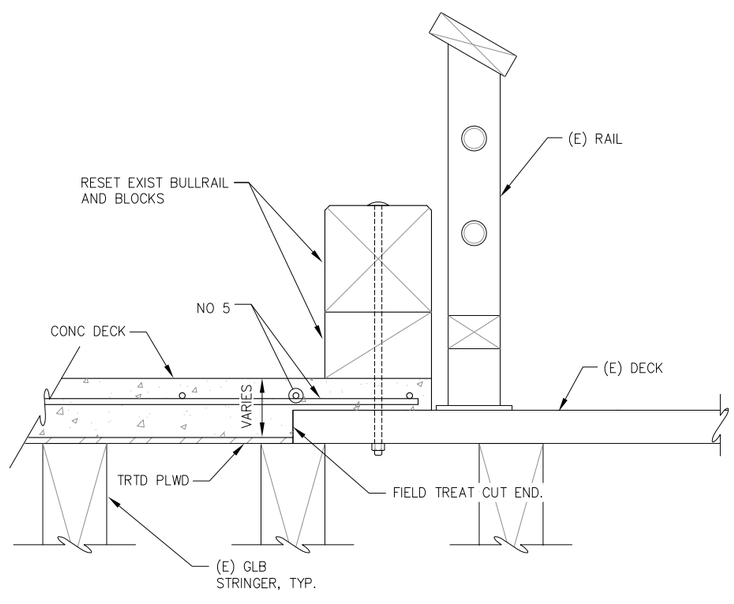
B **DECK AT EXISTING BLDG**



C **SECTION @ DOCK SCALE**



D **DOCK SCALE DETAIL**



E **SECTION**

CITY & BOROUGH OF JUNEAU DOCKS & HARBORS

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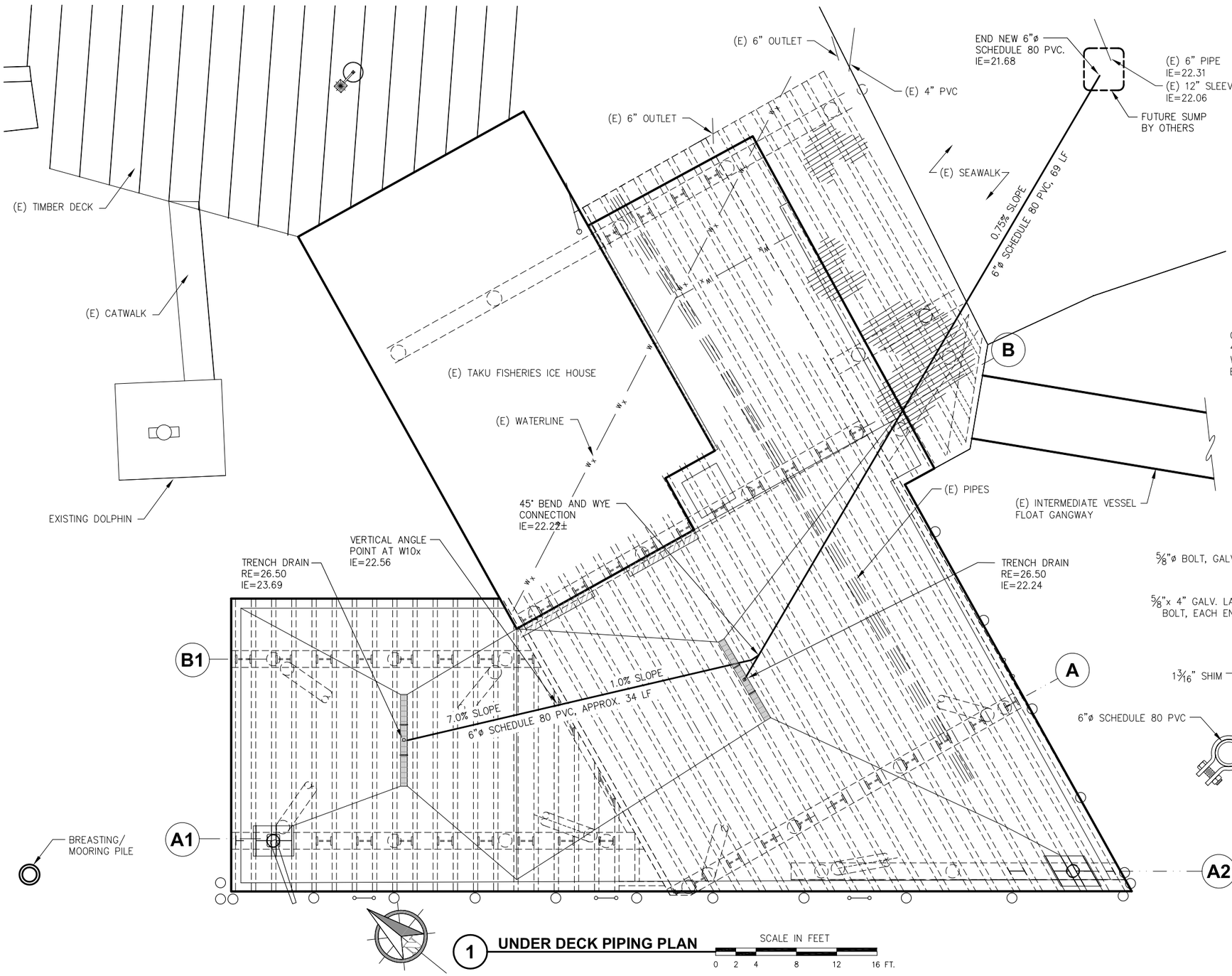
STATE OF ALASKA 49TH Christopher Gianotti CE-7559 REGISTERED PROFESSIONAL ENGINEER

CITY AND BOROUGH OF JUNEAU
TAKU DOCK RECONFIGURATION
CONTRACT NO. DH13-437

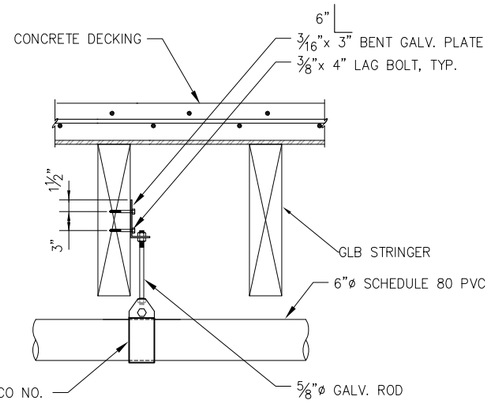
SHEET TITLE: **DOCK DETAILS**

PN&D PROJECT NO. 102050.05 DWG. FILE: S2.2.DWG

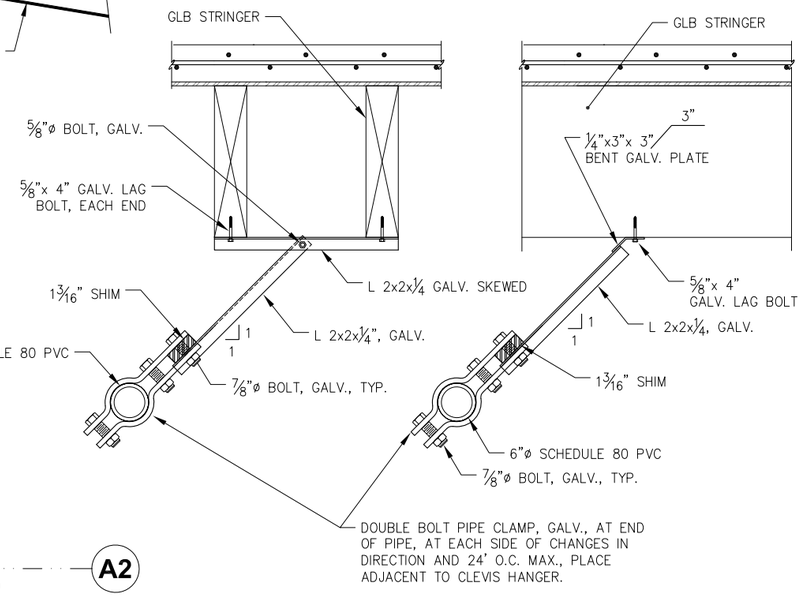
S2.4
SHEET 7 OF 17



1 **UNDER DECK PIPING PLAN**



A **PIPE HANGER DETAIL**



B **SWAY STRUT DETAILS**

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CITY AND BOROUGH OF JUNEAU
TAKU DOCK RECONFIGURATION
CONTRACT NO. DH13-437

SHEET TITLE: **UNDER DOCK PIPING PLAN**

PN&D PROJECT NO. 102050.05 DWG. FILE. S2.5.DWG

S2.5
SHEET 8 OF 17

STRUCTURAL GENERAL NOTES

1.0 DESIGN CRITERIA

1.1 LIVE LOADS
250 PSF UNIFORM LOAD
HS15 TRUCK LOAD
10,000 POUND FORKLIFT AXLE LOAD

1.2 DEAD LOADS
ALL APPLICABLE DEAD LOADS

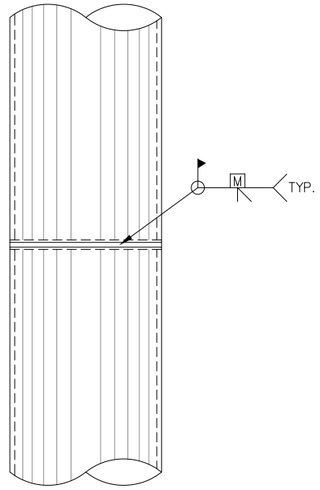
1.3 SEISMIC LOAD
SITE CLASS D
Ss = 0.56g; Fa = 1.35; Sds = 0.51g
S1 = 0.27g; Fv = 1.86; Sd1 = 0.33g
R = 3.25 (ORDINARY CONCENTRIC STEEL BRACED FRAME)
Cs = 0.17 g

1.4 CODE
2009 EDITION OF THE INTERNATIONAL BUILDING CODE AS AMENDED BY THE CITY AND BOROUGH OF JUNEAU.

MATERIALS AND CONSTRUCTION
SEE SPECIFICATIONS FOR SPECIFIC DETAILS INCLUDING SUBMITTALS.

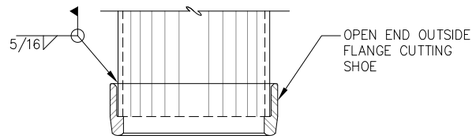
ABBREVIATIONS

AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AITC	AMERICAN INSTITUTE OF TIMBER CONSTRUCTION
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
CL	CENTERLINE
CLR	CLEAR
CONC	CONCRETE
CP	COMPLETE PENETRATION
DBL	DOUBLE
(E)	EXISTING
EA	EACH
EW	EACH WAY
EXIST	EXISTING
FS	FAR SIDE
FT	FEET OR FOOT
Fy	YIELD STRENGTH
g	ACCELERATION DUE TO GRAVITY
GLB	GLUED LAMINATED TIMBER BEAM
GLU LAM	GLUED LAMINATED TIMBER
HDPE	HIGH DENSITY POLYETHYLENE
HSS	HOLLOW STRUCTURAL SECTION
IBC	INTERNATIONAL BUILDING CODE
NS	NEAR SIDE
NDS	NATIONAL DESIGN STANDARD
NO	NUMBER
OC	ON CENTER
OD	OUTSIDE DIAMETER
PL	PLATE
PLWD	PLYWOOD
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLY VINYL CHLORIDE
SDR	STANDARD DIMENSIONAL RATIO
SHED	SCHEDULE
STD	STANDARD
STIFF	STIFFENER
t	THICKNESS
TRTD	TREATED
TYP	TYPICAL
WP	WORK POINT

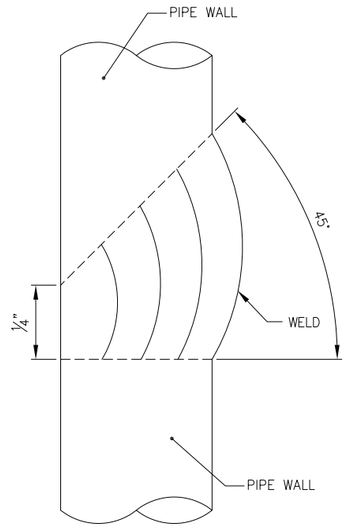


1 TYPICAL PILE SPLICE DETAILS

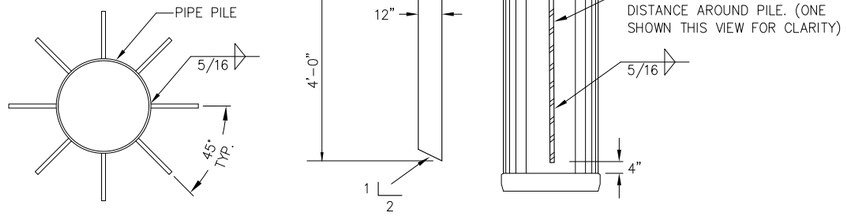
NOTES:
1. SEE SPECIFICATIONS FOR REQUIREMENTS FOR PILE DRIVING INCLUDING MINIMUM HAMMER SIZE, SUBMITTALS, PILE MATERIALS, SPLICES, TIPS.
2. TENSION CAPACITY SHALL BE ESTIMATED FROM DRIVING RECORDS AND TESTING. SEE SPECIFICATIONS.
3. DRIVE FENDER PILES TO 30 FEET MINIMUM EMBEDMENT.



2 TYPICAL PILE TIP DETAIL



3 TYPICAL WELD DETAIL



PLAN ELEVATION

4 PILE FIN DETAILS

PILE SCHEDULE

GRID LOCATION	ORIENTATION	SIZE		ULTIMATE LOAD			MINIMUM SUPPLIED LENGTH (FEET)
		OD	t	TIPS	COMPRESSION KIPS	TENSION KIPS	
A1–1	VERTICAL	16"	0.500"	F/CS	70	20	105
A1–1	BATTER	16"	0.500"	CS	50	--	120
A1–2	VERTICAL	16"	0.500"	CS	60	--	105
A1–3	VERTICAL	16"	0.500"	CS	60	--	105
A1–4	VERTICAL	16"	0.500"	F/CS	35	35	105
A1–4	BATTER	16"	0.500"	CS	65	--	120
A2–5	VERTICAL	16"	0.500"	F/CS	35	20	105
A2–5	BATTER	16"	0.500"	CS	35	--	120
A2–6	VERTICAL	16"	0.500"	CS	60	--	105
A2–7	VERTICAL	16"	0.500"	CS	60	--	105
B1–1	VERTICAL	16"	0.500"	F/CS	70	15	105
B1–1	BATTER	16"	0.500"	CS	45	--	120
B1–2	VERTICAL	16"	0.500"	CS	75	--	105
B1–3	VERTICAL	16"	0.500"	CS	60	20	105
B1–3	BATTER	16"	0.500"	F/CS	45	--	120
BREASTING PILE	VERTICAL	24"	0.500"	CS	--	--	105
FENDERS	1H : 12V	12¾"	0.500"	CS	--	--	85

NOTES:
CS INDICATES CUTTING SHOE
F/CS INDICATES FINS w/ CUTTING SHOE

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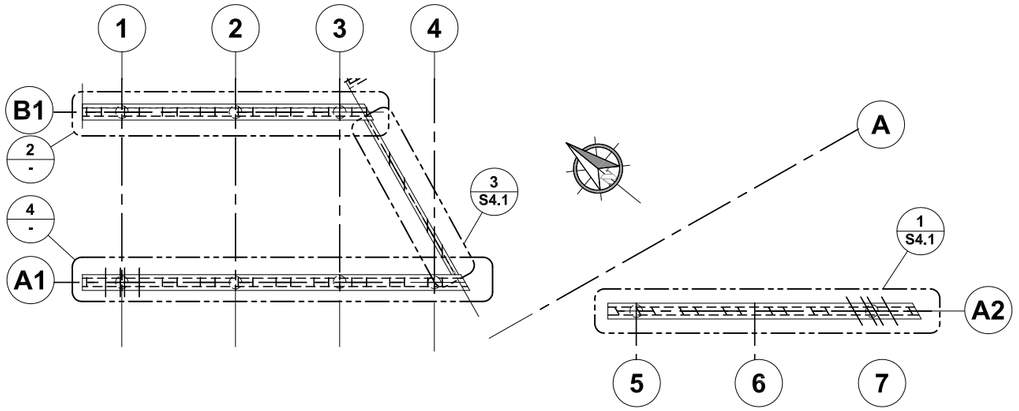
CITY AND BOROUGH OF JUNEAU
TAKU DOCK RECONFIGURATION
CONTRACT NO. DH13-437

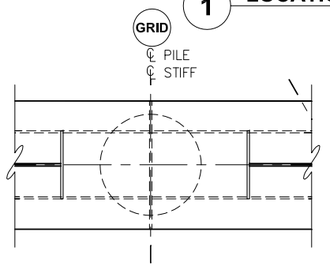
SHEET TITLE: **GENERAL NOTES AND PILES**

PN&D PROJECT NO. 102050.05 DWG. FILE: S3.0.DWG

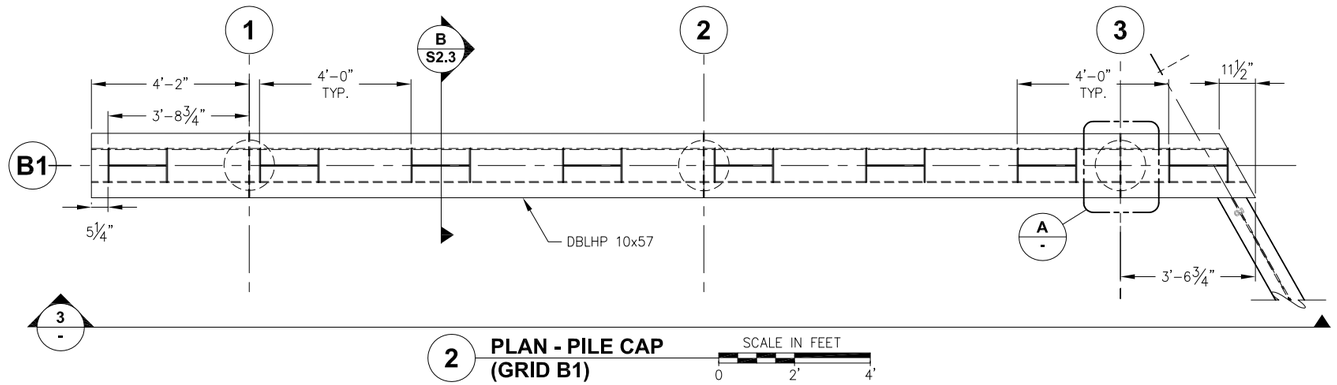
S3.0
SHEET 9 OF 17



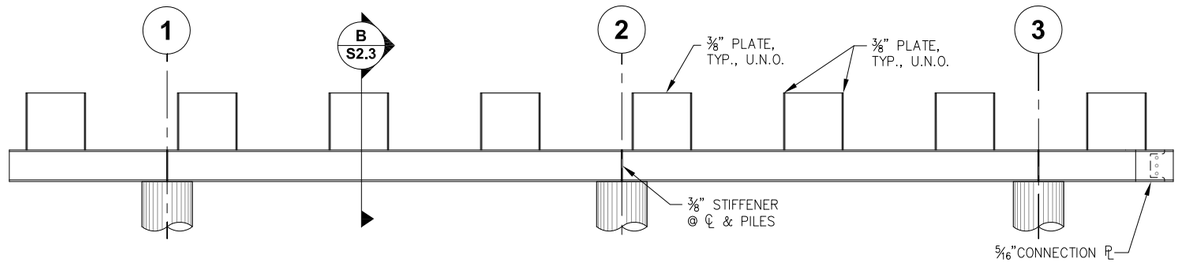
1 **LOCATION PLAN** SCALE IN FEET 0 8 16 FT.



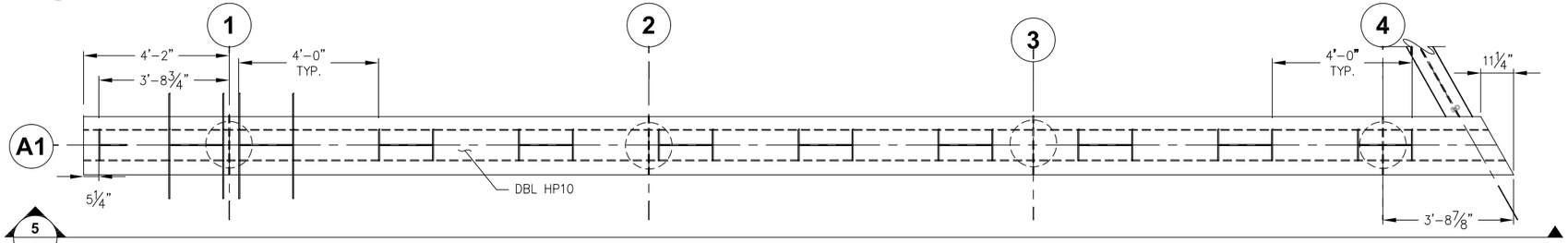
A **STIFF PLATES OVER PILE, TYP.** SCALE IN INCHES 0 12 24



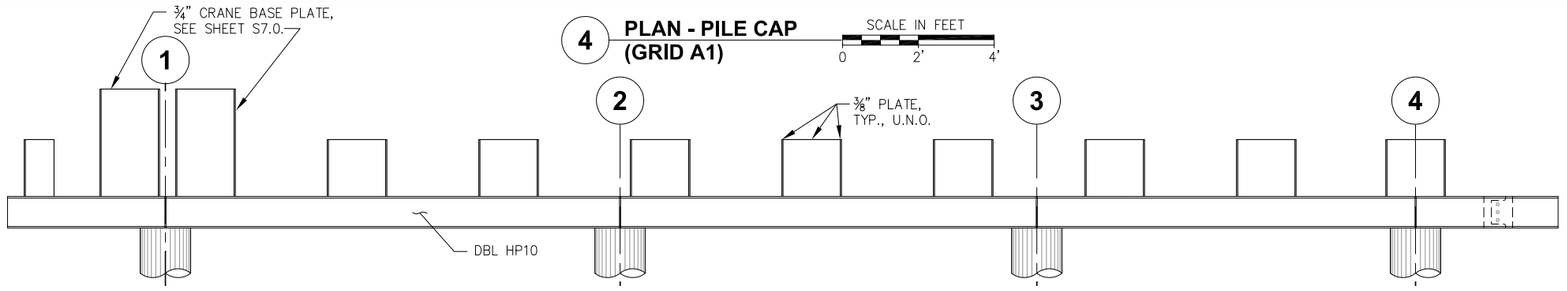
2 **PLAN - PILE CAP (GRID B1)** SCALE IN FEET 0 2' 4'



3 **ELEVATION - PILE CAP (GRID B1)** SCALE IN FEET 0 2' 4'



4 **PLAN - PILE CAP (GRID A1)** SCALE IN FEET 0 2' 4'



5 **ELEVATION - PILE CAP (GRID A1)** SCALE IN FEET 0 2' 4'

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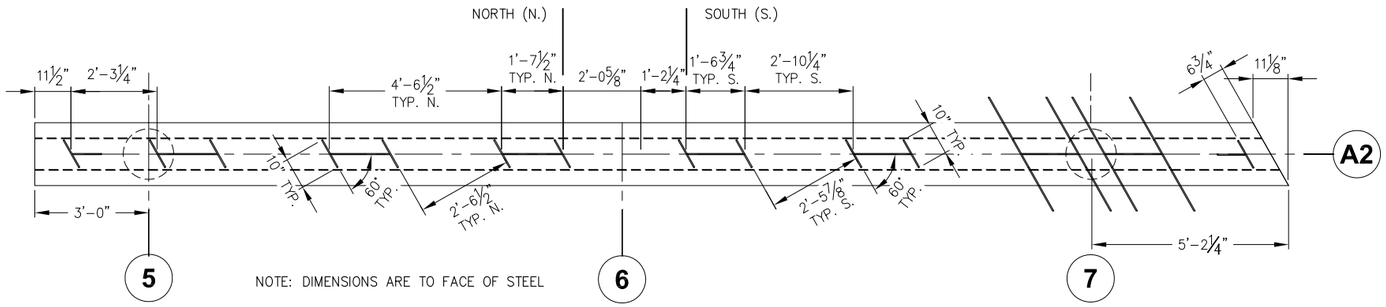
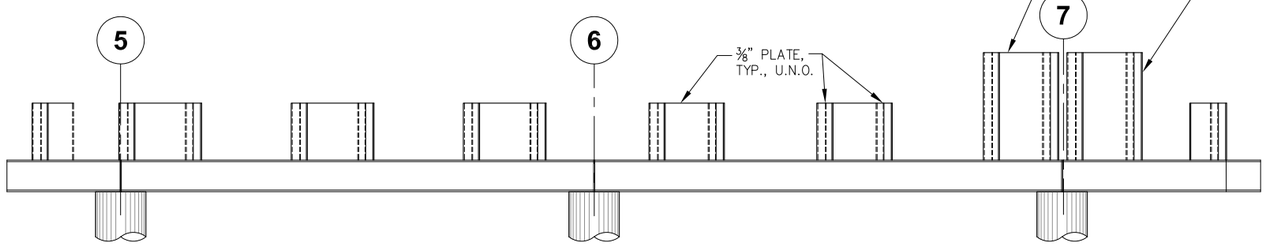
SHEET TITLE: **PILE CAPS**

PN&D PROJECT NO. 102050.05 DWG. FILE: S4.0.DWG

S4.0
SHEET 10 OF 17



1 **PLAN - PILE CAP (GRID A2)** SCALE IN FEET 0 2' 4'



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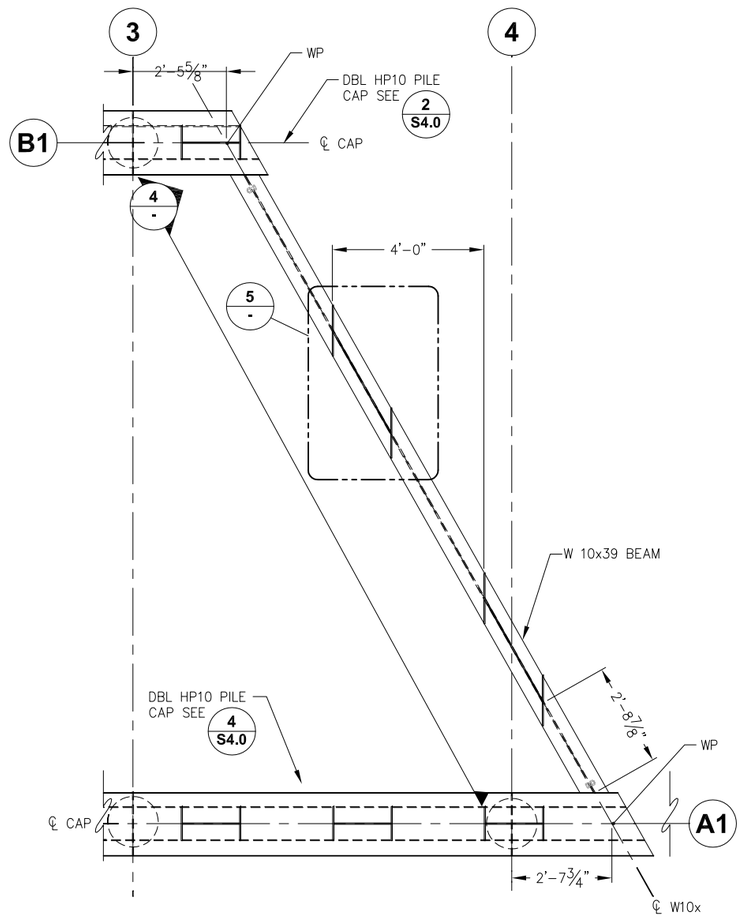
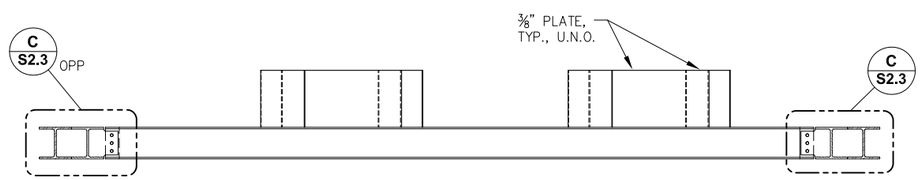
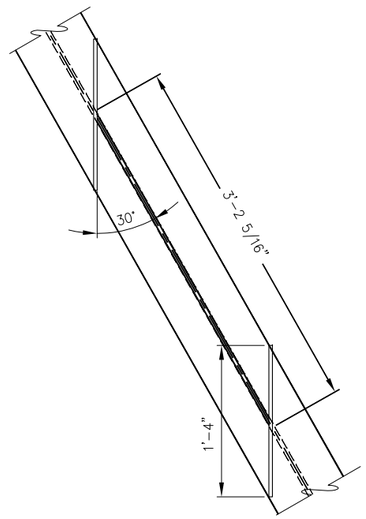


3 **PLAN - W10x STEEL BEAM** SCALE IN FEET 0 2' 4'



4 **ELEVATION - W10x STEEL BEAM** SCALE IN FEET 0 2' 4'



5 **ANGLED STRINGER CONNECTION PLATE AT ℄ W10x STEEL BEAM** SCALE IN INCHES 0 6 12 IN

SCALE IN INCHES 0 12 24

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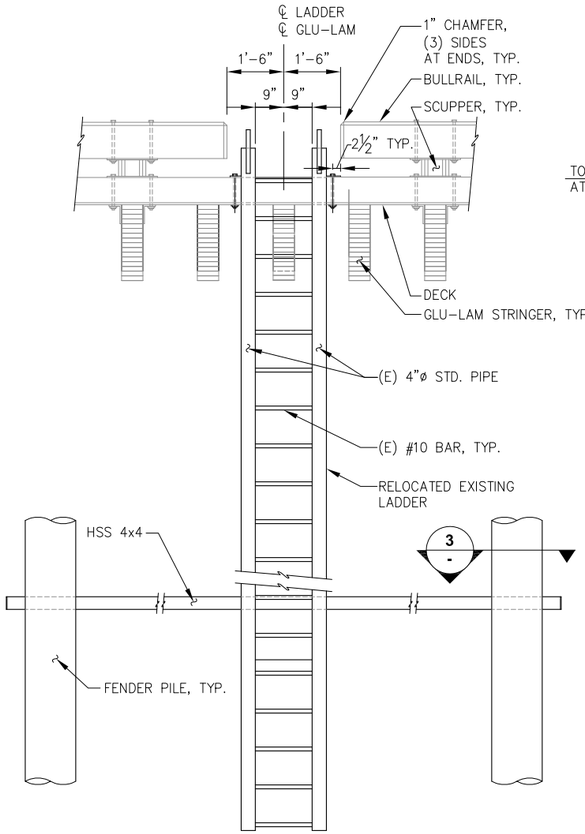
TAKU DOCK RECONFIGURATION
CONTRACT NO. DH13-437

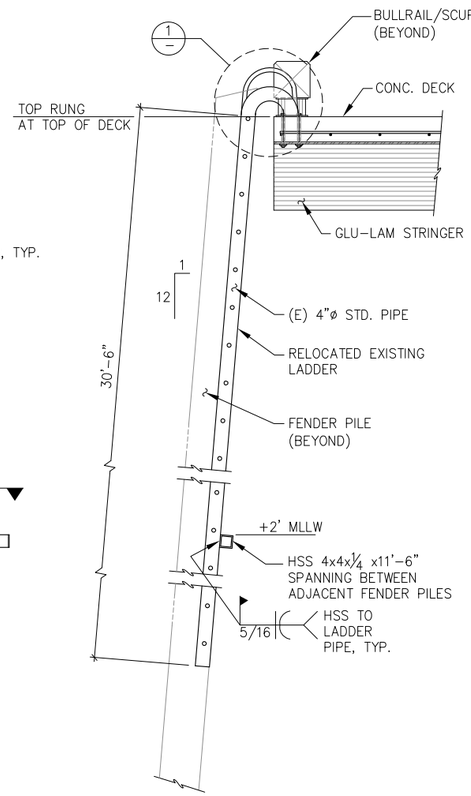
SHEET TITLE: **PILE CAPS**

PN&D PROJECT NO. 102050.05 DWG. FILE. S4.0.DWG

S4.1
SHEET 11 OF 17

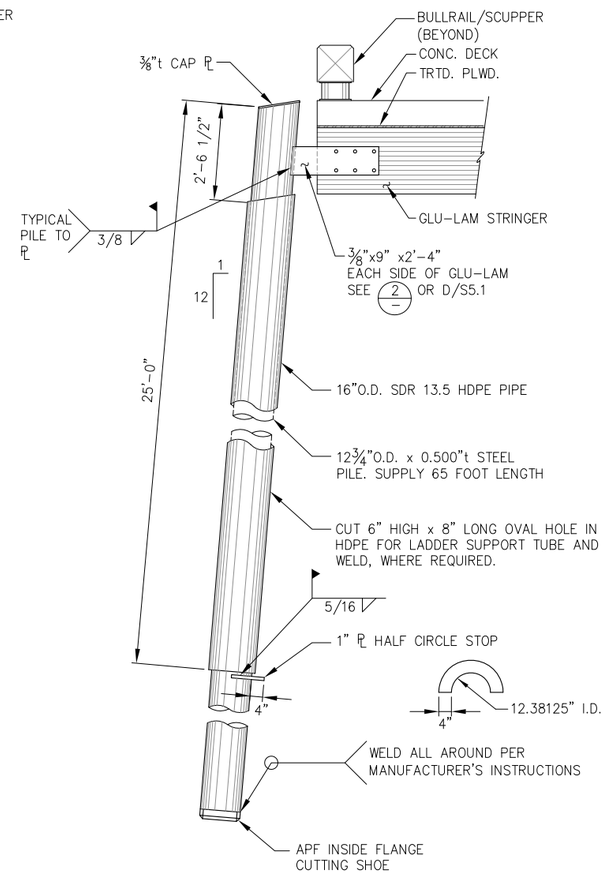


FRONT ELEVATION

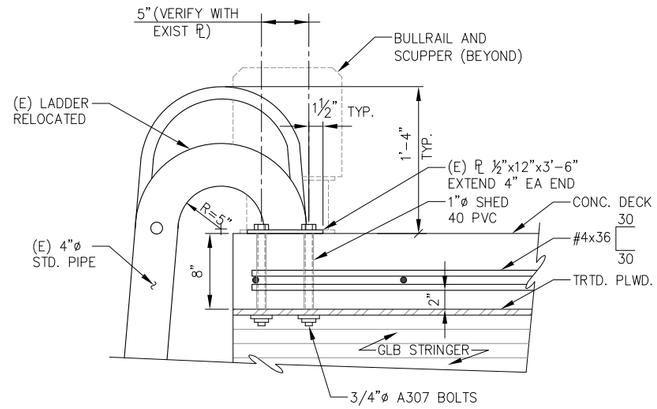


SECTION

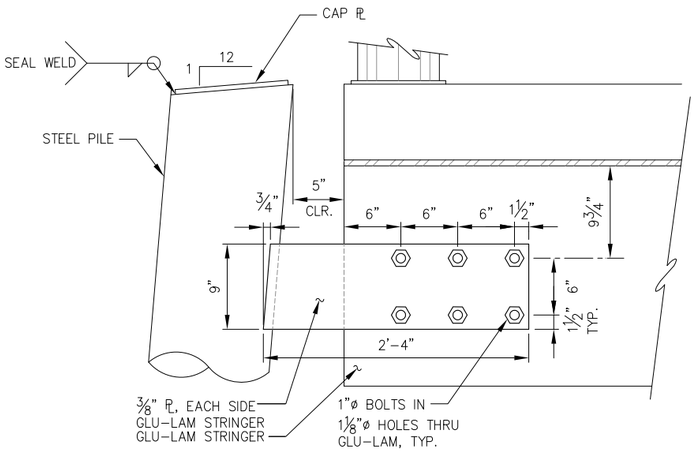
A TYPICAL LADDER



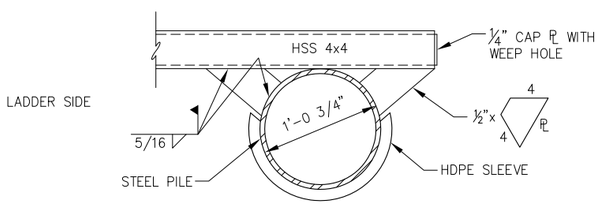
B TYPICAL FENDER PILE



1 TYPICAL LADDER TO DECK CONNECTION



2 TYPICAL PILE TO STRINGER CONNECTION



3 LADDER SUPPORT

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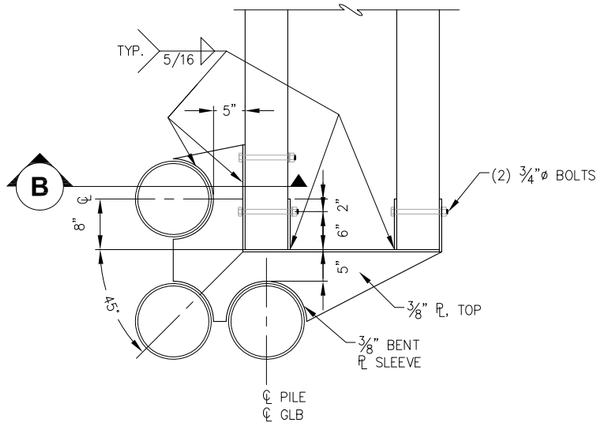
TAKU DOCK RECONFIGURATION
CONTRACT NO. DH13-437

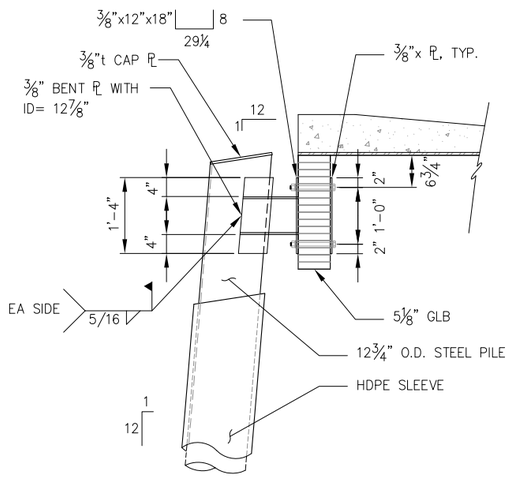
SHEET TITLE: LADDERS AND FENDERS

PND PROJECT NO. 102050.05 DWG. FILE: S5.0.DWG

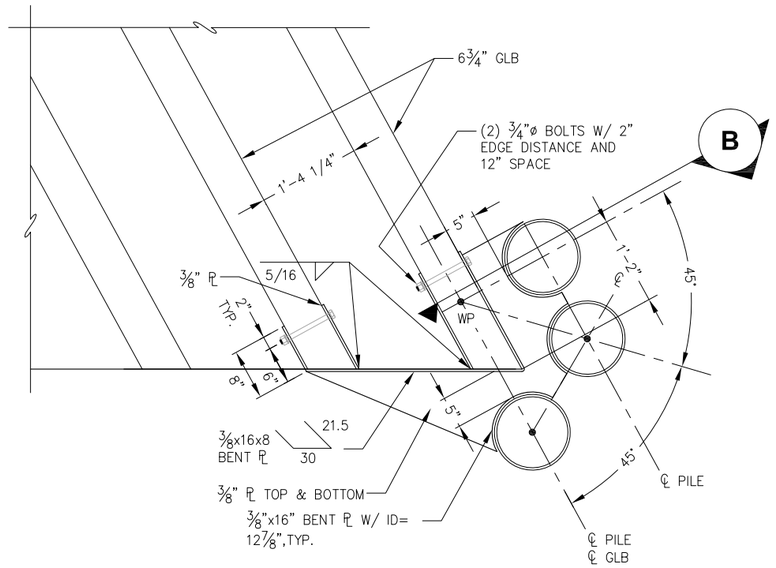
S5.0
SHEET 12 OF 17



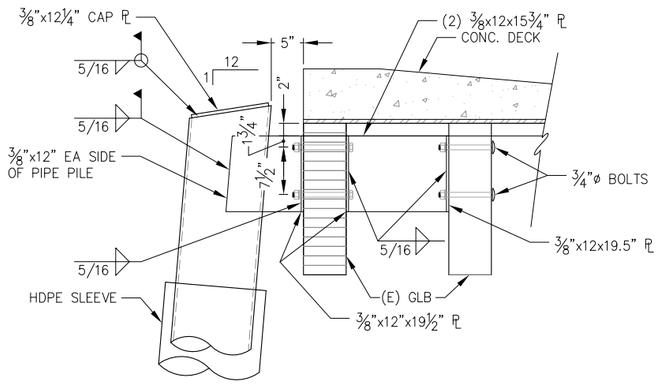
A N.W. CORNER FENDER PILE DETAIL



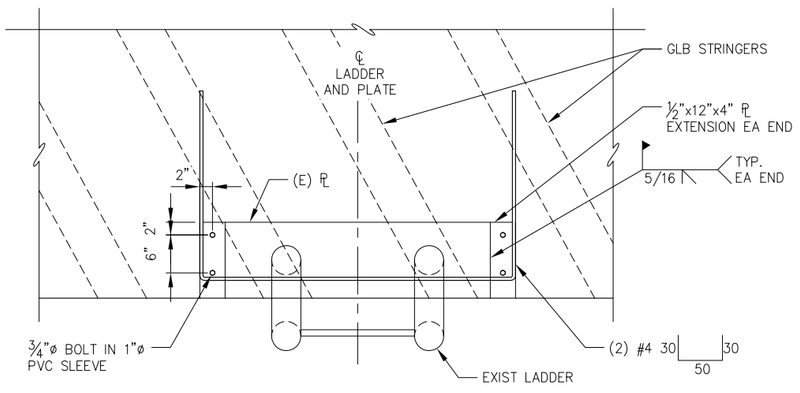
B CORNER PILE SECTION



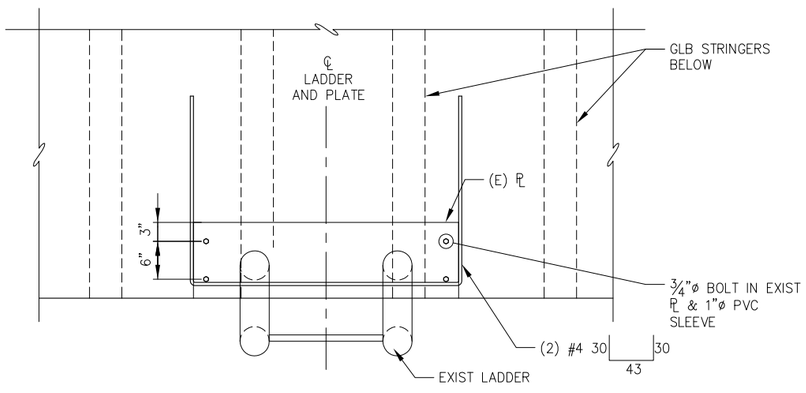
C S. CORNER PILE DETAIL



D FENDER PILE TO DOCK CONNECTION S.E. SIDE OF DOCK



E LADDER TO DECK RE-INSTALL AT EXISTING DOCK EXTENSION



F LADDER TO DECK RE-INSTALL AT NEW DOCK

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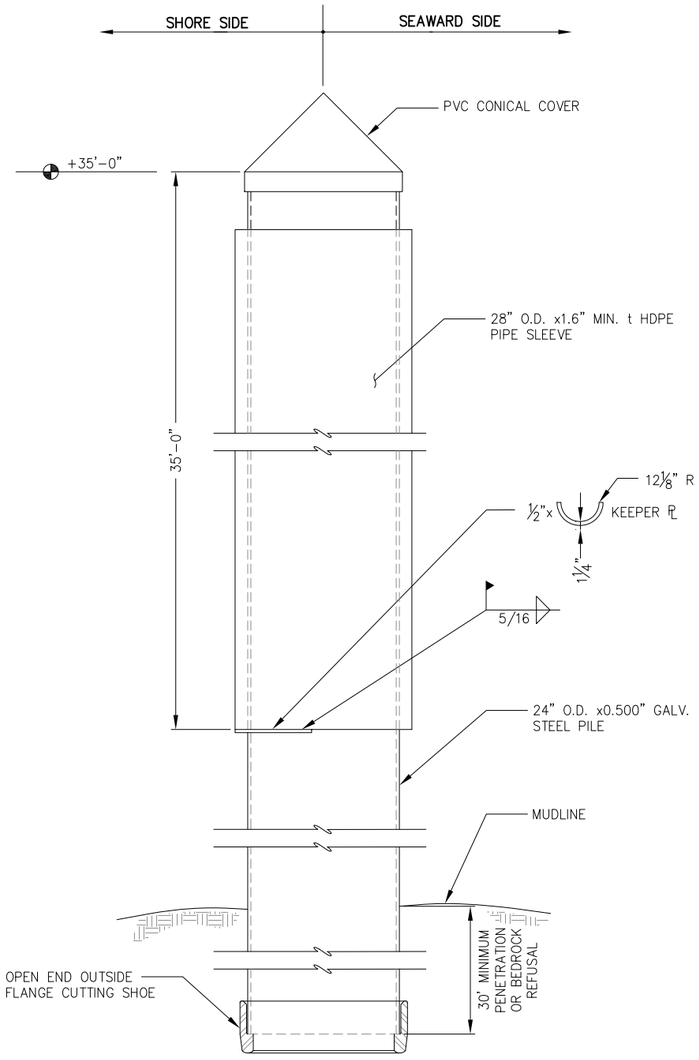
CONTRACT NO. DH13-437

SHEET TITLE: **LADDERS AND FENDERS**

PN&D PROJECT NO. 102050.05 DWG. FILE: S5.1.DWG

S5.1 SHEET 13 OF 17



1 BREASTING PILE

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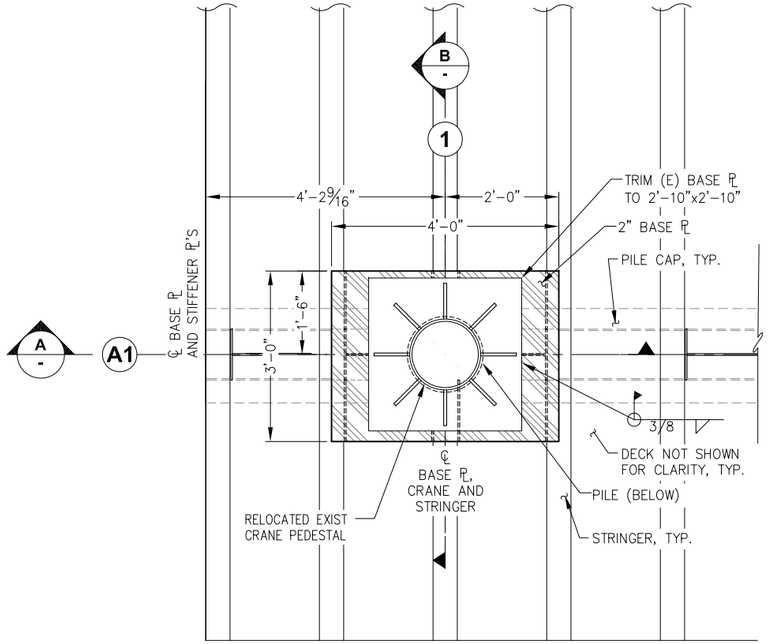
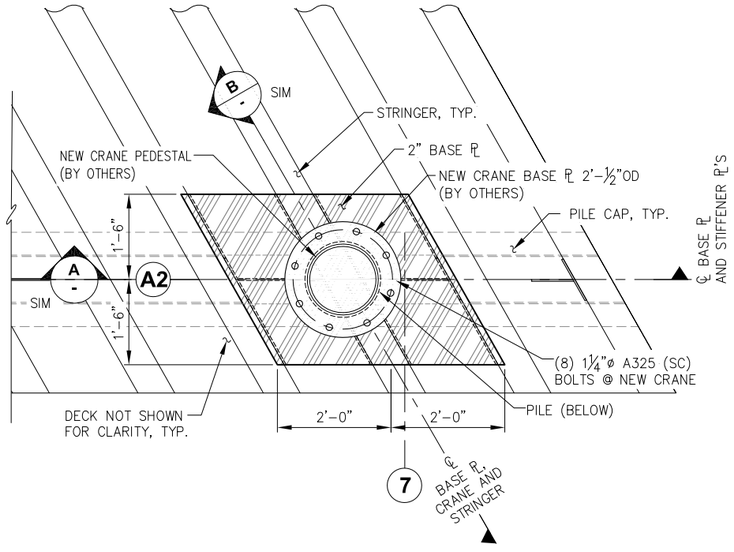
SHEET TITLE:
BREASTING & MOORING PILE

PN&D PROJECT NO. 102050.05 DWG. FILE: S6.0.DWG

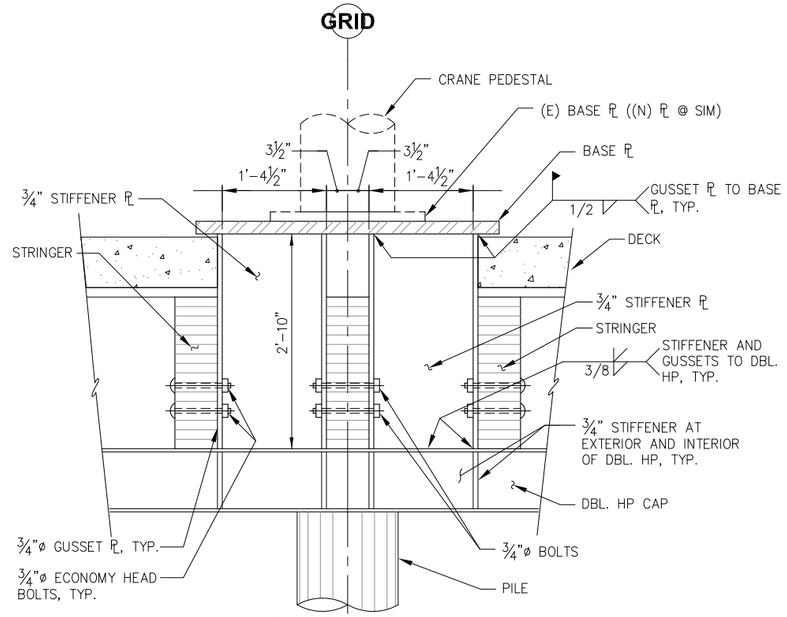
S6.0
SHEET 14 OF 17



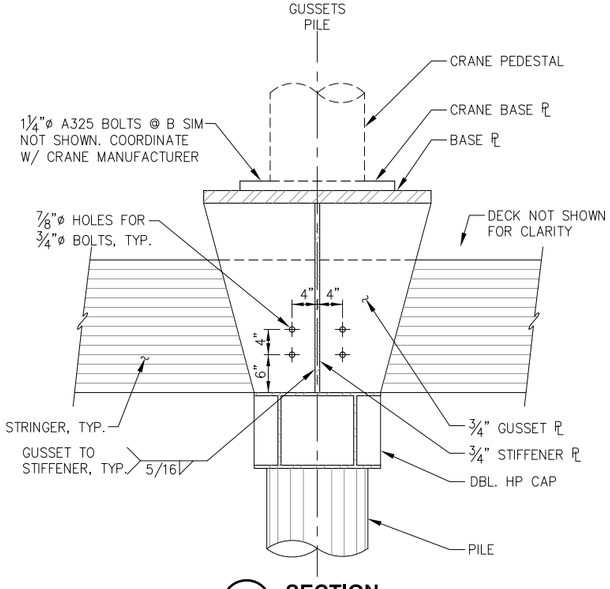
1 CRANE BASE PLAN NEAR A1 - 1



2 CRANE BASE PLAN NEAR A2 - 7



A SECTION



B SECTION

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CONTRACT NO. DH13-437

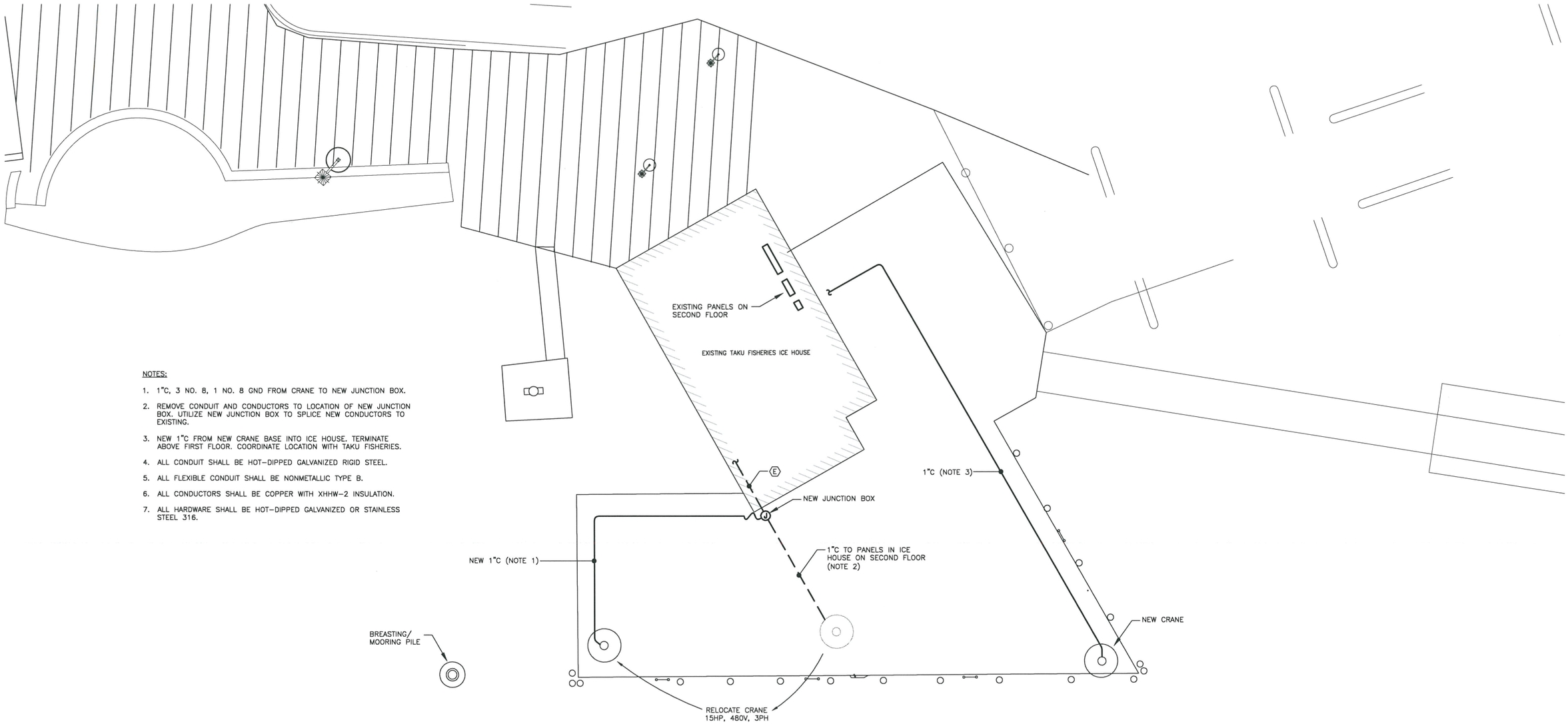
SHEET TITLE: **CRANE BASE**

S7.0
SHEET 15 OF 17

PN&D PROJECT NO. 102050.05 DWG. FILE: S7.0.DWG

NOTES:

1. 1"C, 3 NO. 8, 1 NO. 8 GND FROM CRANE TO NEW JUNCTION BOX.
2. REMOVE CONDUIT AND CONDUCTORS TO LOCATION OF NEW JUNCTION BOX. UTILIZE NEW JUNCTION BOX TO SPLICE NEW CONDUCTORS TO EXISTING.
3. NEW 1"C FROM NEW CRANE BASE INTO ICE HOUSE. TERMINATE ABOVE FIRST FLOOR. COORDINATE LOCATION WITH TAKU FISHERIES.
4. ALL CONDUIT SHALL BE HOT-DIPPED GALVANIZED RIGID STEEL.
5. ALL FLEXIBLE CONDUIT SHALL BE NONMETALLIC TYPE B.
6. ALL CONDUCTORS SHALL BE COPPER WITH XHHW-2 INSULATION.
7. ALL HARDWARE SHALL BE HOT-DIPPED GALVANIZED OR STAINLESS STEEL 316.



1 SITE PLAN - ELECTRICAL

Mar. 27, 2013 - 8:30am
F:\Projects\137 PN&D\103 Taku Fisheries Dock\Drawings\Working\E1.0.dwg (Layout tab)

HAIGHT & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
526 Main Street, Juneau, AK 99801
(907) 586-9788

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DRAWN: ____ APPROVED: ____

SCALE: SCALE IN FEET
0 2 4 8 16 FT.

STATE OF ALASKA
48th
B.C. HAIGHT
EE 4800
REGISTERED PROFESSIONAL ENGINEER
DATE: Mar 27, 2013

CITY AND BOROUGH OF JUNEAU
TAKU DOCK RECONFIGURATION
CONTRACT NO. DH13-437

SHEET TITLE: ELECTRICAL PLAN

PN&D PROJECT NO. 102050.05 | DWG. FILE: E1.0.DWG

E1.0
SHEET 16 OF 17

SPECIFICATION

GENERAL

1.1 DEFINITIONS

A. IMC: Intermediate metal conduit.

B. LFNC: Liquidtight flexible nonmetallic conduit.

C. PVC: Polyvinyl chloride.

D. RSC: Rigid steel conduit.

1.2 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70.

1.3 COORDINATION

A. Coordinate chases, slots, inserts, sleeves, and openings with general construction work and arrange in structure during progress of construction to facilitate the electrical installations that follow.

B. Sequence, coordinate, and integrate installing electrical materials and equipment for efficient flow of the Work.

1.4 FIELD QUALITY CONTROL

A. Inspect installed components for damage and faulty work, including the following:

1. Supporting devices for electrical components.
2. Electrical identification.
3. Electrical demolition.
4. Cutting and patching for electrical construction.
5. Touchup painting.

1.5 REFININSHING AND TOUCHUP PAINTING

A. Refinish and touchup paint.

1. Clean damaged and disturbed areas and apply primer, intermediate, and finish coats to suit the degree of damage at each location.
2. Follow paint manufacturer's written instructions for surface preparation and for timing and application of successive coats.
3. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
4. Repair damage to paint finishes with matching touchup coating recommended by manufacturer.

1.6 CLEANING AND PROTECTION

A. On completion of installation, including fittings and devices, inspect exposed finish. Remove burrs, dirt, paint spots, and construction debris.

B. Protect equipment and installations and maintain conditions to ensure that coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

BASIC MATERIALS AND METHODS

1.1 SUPPORTING DEVICES.

A. Material: Cold-formed steel, with corrosion-resistant coating acceptable to authorities having jurisdiction.

B. Metal Items for Use Outdoors, in Damp Locations, or in corrosive environments: Hot-dip galvanized steel, or stainless steel 316.

C. Slotted-Steel Channel Supports: Flange edges turned toward web, and 9/16-inch-diameter slotted holes at a maximum of 2 inches o.c., in webs.

1. Channel Thickness: Selected to suit structural loading.
2. Fittings and Accessories: Products of the same manufacturer as channel supports.

D. Raceway and Cable Supports: Manufactured clevis hangers, riser clamps, straps, threaded C-clamps with retainers, and wall brackets.

E. Expansion Anchors: Carbon-steel wedge or sleeve type.

F. Toggle Bolts: All-steel springhead type.

G. Powder-Driven Threaded Studs: Heat-treated steel.

H. Electrical Supporting Device Application:

1. Damp Locations and Outdoors: Hot-dip galvanized materials, stainless steel materials, or nonmetallic, U-channel system components.
2. Selection of Supports: Comply with manufacturer's written instructions.
3. Strength of Supports: Adequate to carry present and future loads, time a safety factor of at least four; minimum of 200-lb design load.

I. Support Installation:

1. Install support devices to securely and permanently fasten and support electrical components.
2. Install individual and multiple raceway hangers and riser clamps to support raceways. Provide U-bolts, clamps, attachments, and other hardware necessary for hanger assemblies and for securing hanger rods and conduits.
3. Support parallel runs of horizontal raceways together on trapeze- or bracket-type hangers.
4. Size supports for multiple raceway installations so capacity can be increased by a 25 percent minimum in the future.
5. Support individual horizontal raceways separate, malleable-iron pipe hangers or clamps.
6. Install ¼-inch diameter or larger threaded steel hanger rods, unless otherwise indicated.
7. Separately support cast boxes that are threaded to raceways and used for fixture support. Support sheet-metal boxes directly from the building structure or by bar hangers.
8. Securely fasten electrical items and their supports to the structure, unless otherwise indicated. Perform fastening according to the following unless other fastening methods are indicated:
   a. Wood: Fasten with wood screws or screw-type nails.
   b. New Concrete: Concrete inserts with machine screws and bolts.
   c. Existing Concrete: Expansion bolts.
   d. Instead of expansion bolts, threaded studs driven by a powder charge and provided with lock washers may be used in existing concrete.
   e. Steel: Welded threaded studs or spring-tension clamps on steel. Field Welding: Comply with AWS D1.1. Welding to steel structure may be used only for threaded studs, not for conduits, pipe straps, or other items. Light Steel: Sheet-metal screws. Fasteners: Select so the load applied to each fastener does not exceed 25 percent of its proof-test load.

1.2 IDENTIFICATION

A. Identification Devices: A single type of identification product for each application category. Use colors prescribed by ANSI A13.1, NFPA 70, and these Specifications.

B. Tape Markers for Wire: Vinyl or vinyl-cloth, self-adhesive, wraparound type with preprinted numbers and letters.

C. Color-Coding Cable Ties: Type 6/6 nylon, self-locking type. Colors to suit coding scheme.

D. Installation:

1. Install at locations for most convenient viewing without interference with operation and maintenance of equipment.
2. Color-code 480/277-V system secondary service, feeder, and branch-circuit conductors throughout the secondary electrical system as follows:
   a. Phase A: Brown
   b. Phase B: Orange
   c. Phase C: Yellow

1.3 DEMOLITION

A. Protect existing electrical equipment and installations indicated to remain. If damaged or disturbed in the course of the Work, remove damaged portions and install new products of equal capacity, quality, and functionality.

B. Accessible Work: Remove exposed electrical equipment and installations, indicated to be demolished, in their entirety.

C. Abandoned Work: Cut and remove buried raceway and wiring, indicated to be abandoned in place, 2 inches below the surface of adjacent construction. Cap raceways and patch surface to match exiting finish.

D. Remove demolished material from Project site.

E. Remove, store, clean, reinstall, reconnect, and make operational components indicted for relocation.

1.4 CUTTING AND PATCHING

A. Cut, channel, chase, and drill floors, walls, partitions, ceilings, and other surfaces required to permit electrical installations. Perform cutting by skilled mechanics of trades involved.

B. Repair and refinish disturbed finish materials and other surfaces to match adjacent undisturbed surfaces. Install new fireproofing where existing firestopping has been disturbed. Repair and refinish materials and other surfaces by skilled mechanics of trades involved.

1.5 TOUCHUP PAINT

A. For Equipment: Equipment manufacturer's paint selected to match installed equipment finish.

B. Galvanized Surfaces: Zinc-rich paint recommended by item manufacturer.

GROUNDING

1.1 GROUNDING CONDUCTORS

A. Material: Copper, only.

B. Equipment Grounding Conductors: Insulated with green-colored insulation.

1.2 CONNECTOR PRODUCTS

A. Comply with IEEE 837 and UL 467; listed for use for specific types, sizes, and combinations of conductors and connected items.

B. Bolted Connectors: Bolted-pressure-type connectors, or compression type.

C. Crimped Connectors: High compression type, in kit form, and selected per manufacturer's written instructions.

1.3 INSTALLATION

A. In raceways, use insulated equipment grounding conductors.

B. Crimp Connections: Use for connections to structural steel and for underground connections, except those at test wells.

C. Equipment Grounding Conductor Terminations: Use bolted pressure clamps.

CONDUCTORS AND CABLES

1.1 CONDUCTOR AND CABLE MATERIAL

A. Copper complying with NEMA WC 5 or 7; stranded for No. 8 AWG and larger.

B. Insulation Types: Type XHHW – 2complying with NEMA WC 5 or 7.

1.2 CONDUCTOR AND INSULATION APPLICATIONS

A. Exposed Feeders: Type XHHW – 2, single conductors in raceway.

B. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

C. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

1. Use oxide inhibitor in each splice and tap conductor for all conductors located in moist or corrosive environments.

RACEWAYS

1.1 CONDUIT AND TUBING

A. Rigid Steel Conduit: ANSI C80.1

B. Fittings: NEMA FB 1; compatible with conduit and tubing materials.

C. LFNC: UL 1660, Federal Specification WW-C-566C, and ANSI/NFPA 79. The conduit, including fittings shall remain flexible to 0 degrees Fahrenheit, or lower.

1. Type B: Provide LFNC with a polyvinyl chloride (PVC) spiral completely surrounded by flexible PVC, suitable for a wet or dry environment. This conduit shall be listed for 600 volt use, outdoor use, and Class I, Div. 2, Class 11, Div. 1, & Class 111, Div. 1 locations. The outer covering shall be resistant to oil products, mild acids, and sunlight.

1.2 INSTALLATION

A. Outdoors:

1. Exposed: Rigid steel.
2. Concealed: Rigid steel.
3. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFNC.
4. Boxes and Enclosures: NEMA 250, Type 4x.

B. Minimum Raceway Size: ½-inch trade size.

C. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid Steel Conduit: Use threaded rigid steel conduit fittings, unless otherwise indicated.

D. Install exposed raceways, and raceways, parallel or at right angles to nearby surfaces or structural members and follow surface contours as much as possible.

E. Join raceways with fittings designed and approved for that purpose and make joints tight.

1. Use insulating bushings to protect conductors.

F. Tighten set screws of threadless fittings with suitable tools.

G. Terminations:

1. Where raceways are terminated with locknuts and bushings, align raceways to enter squarely and install locknuts with dished part against box. Use two locknuts, one inside and one outside box.
2. Where raceways are terminated with threaded hubs, screw raceways or fittings tightly into hub so end bears against wire protection shoulder. Where chase nipples are used, align raceways so coupling is square to box; tighten chase nipple so no threads are exposed.

H. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.

I. Flexible Connections: Use maximum of 36 inches of flexible conduit for equipment subject to vibration, noise transmission, or movement; for all motors; and for transitions across separated structures.. Install separate ground conductor across flexible connections.

BOXES, ENCLOSURES, AND CABINETS

1.1 Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

1.2 Cast-Metal Pull and Junction Boxes: NEMA FB 1, cast aluminum with gasketed cover.

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HAIGHT & ASSOCIATES
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REVISIONS

REV.	DATE	DESCRIPTION	DWN.	CKD.	APP.

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DESIGN: ____ CHECKED: ____
DRAWN: ____ APPROVED: ____

SCALE: SCALE IN FEET
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STATE OF ALASKA
B.C. HAIGHT
EE 4800
PROFESSIONAL ENGINEER
DATE: Mar 27, 2013

CITY AND BOROUGH OF JUNEAU
TAKU DOCK RECONFIGURATION
CONTRACT NO. DH13-437

SHEET TITLE: **SPECIFICATION**

PROJECT NO.: 102050.05 | DWG. FILE: E1.0.DWG

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SHEET 17 OF 17