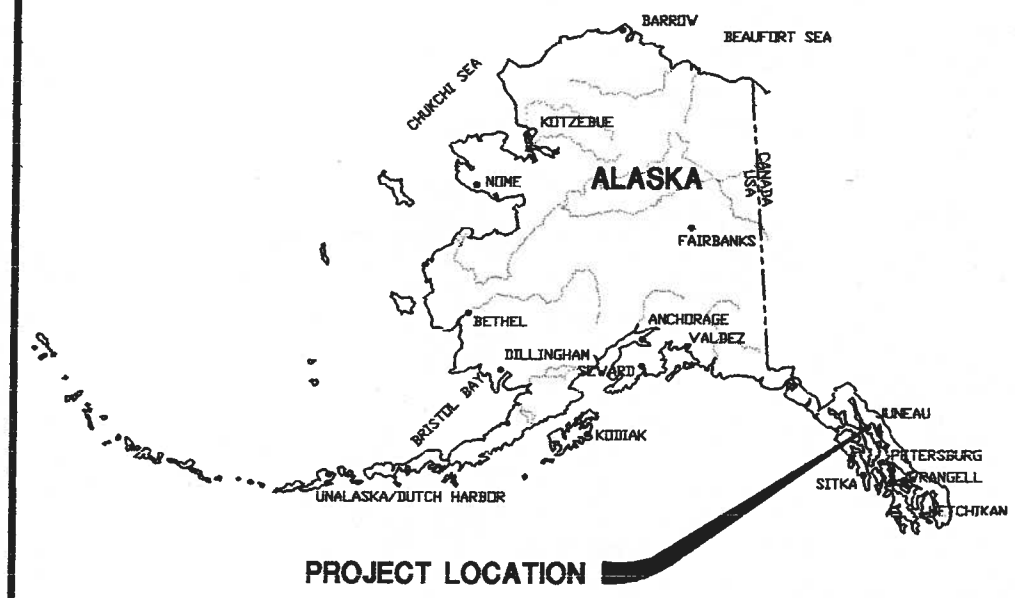
FERRY DOCK MOORING DOLPHIN

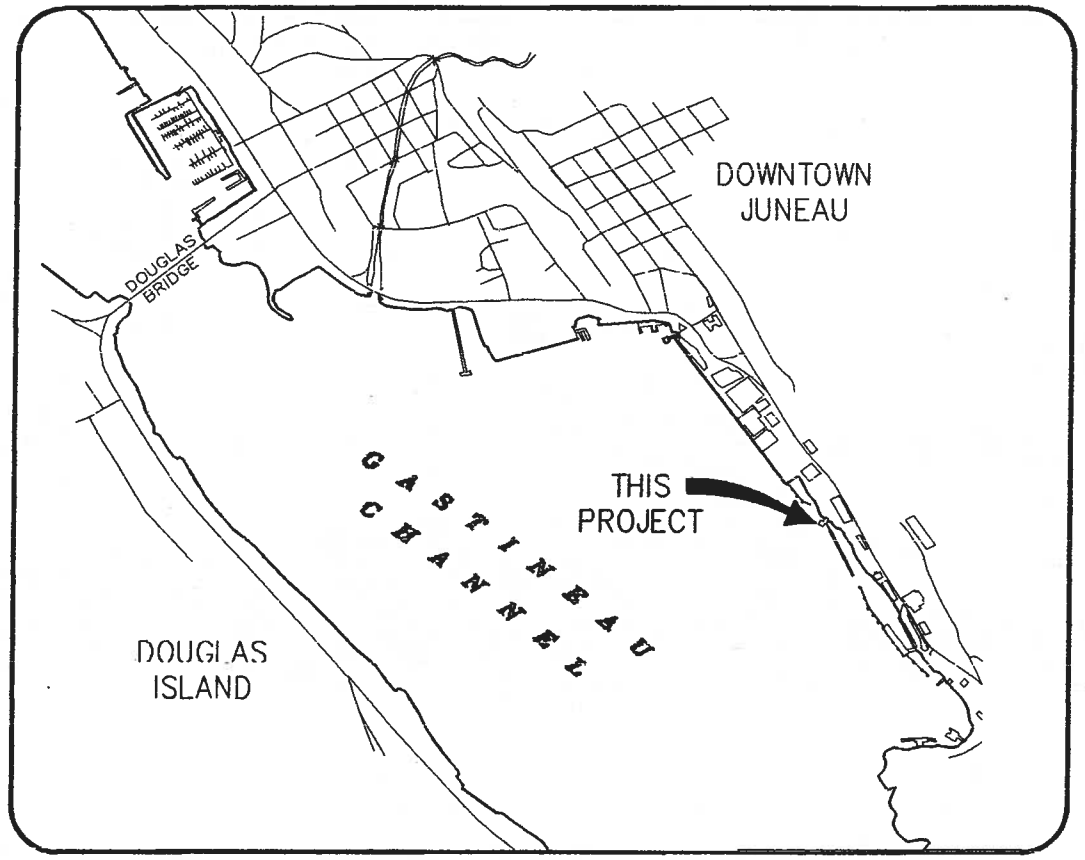
CITY & BOROUGH OF JUNEAU, ALASKA

ENGINEERING DEPARTMENT

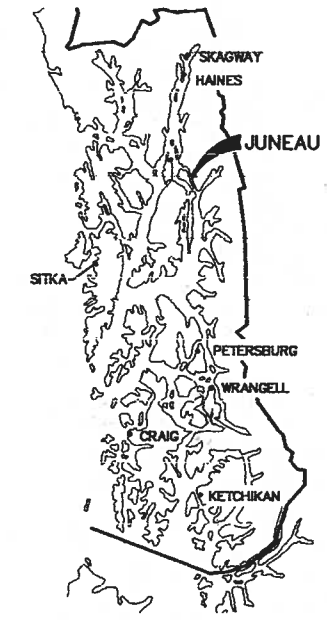
CONTRACT NO. E99-226



STATE MAP



VICINITY MAP



SOUTHEAST ALASKA

DRAWING INDEX	
SHT. NO.	TITLE
1	COVER SHEET AND DRAWING INDEX
2	SITE PLAN
3	MOORING DOLPHIN
4	CATWALK "A"
5	CATWALK "B"
6	PILE AND ROCK ANCHOR DETAILS
7	GENERAL NOTES

APPROVED BY:
HARBORMASTER

SIGNATURE DATE

CHIEF ENGINEER

SIGNATURE DATE

CITY & BOROUGH OF JUNEAU, ALASKA
FERRY DOCK MOORING DOLPHIN

Designed: JLD
Drawn: JLD/TMS
Checked: CRS
Project No: 98261

Peratrovich, Nottingham & Drage, Inc.
Engineering Consultants
3220 Hospital Drive, Suite 200
Juneau, Alaska 99801 (907) 586-2093 FAX (907) 586-2099

Date: JAN. 6, 1999
Scale: AS SHOWN

COVER SHEET AND DRAWING INDEX

sheet 1 of 7

LEGEND

- EXIST. FENCE
- EXIST. PROPERTY LINE (APPROX.)
- EXIST. LIGHT POLE
- TH-1 TEST HOLE LOCATION
- EXIST. TIMBER PILE
- EXIST. STEEL PILE
- EXIST. BUILDING

EXISTING BOLLARDS
CAUTION: OVERSTEEPENED SLOPE AREA
EXIST. TIMBER FENCE
EXIST. CONC. FISHERMAN'S MEMORIAL
EXIST. LIGHT POLE, TYP.
NEW CATWALK "B"
NEW CATWALK "A"
EXIST. CHAIN LINK FENCE
LOT 2
LOT 1
PROPERTY LINES (APPROX. LOCATION)
EXIST. DOLPHIN NO. 27 DECK EL.=25.8
NEW DOLPHIN
90°
RE. BOLLARD
33'-0"
EXIST. DOLPHIN NO. 25
EXIST. DOLPHIN NO. 26 DECK EL.=25.8 (APPROX.)
EXIST. CATWALK, TYP.
EXIST. 20"ø STEEL PILE, TYP.
EXIST. TAKU SMOKERIES ICE HOUSE BUILDING
EXIST. STEEL SUPPORT PILE, TYP.
TH-5
45°
EXIST. DOCK
BASELINE
CENTERLINE OF EXISTING BOLLARDS
EXIST. TIMBER FENDER PILE, TYP.
155'-0"
℄ BOLLARD
RANGE OF ANTICIPATED LOADS
℄ BOLLARD

SITE PLAN

SCALE IN FEET
0 10 20 FT.

TH-1
FEB. 4, 1997
ELEV. = −15' MLLW
SAMPLING METHOD: Ss & Sm
DEPTH (ELEV.)
0' (−15' MLLW)

- Sm: (1A) 31 BLOWS/FT., SP, 3.3% ORGANICS; (1B) 54 BLOWS/6 IN., CHUNK OF WOOD
- SAND W/ TRACE SILT & 3% SAWDUST GRADING TO GRAVELLY SAND W/ 2% SAWDUST
- Sm: (2A) 10 BLOWS/FT., SP, 2% ORGANICS (SAWDUST)
- Sm: (2B) 9 BLOWS/FT.
- 13' (−28' MLLW)
- SAWDUST W/ LESS THAN 5% BARK & WOOD CHUNKS
- Ss: (3) 46 BLOWS/FT.
- 22' (−37' MLLW)
- Sm: (4) 4 BLOWS/FT., ML
- SANDY CLAYEY SILT W/ TRACE GRAVEL & SHELL FRAGMENTS
- 26' (41' MLLW)
- Se: (5) 45 BLOWS/FT., SM
- SAND W/ SOME SILT, TRACE GRAVEL & SHELL FRAGMENTS
- 32.5'−34.5' ROCK
- 40' (−55' MLLW)
- COMPLETION OF DRILLING

NOTE(S)
1. TEST HOLE DRILLED WITH ROTARY WASH AND CASING EQUIPMENT.
2. AN ABANDONED WOOD PILING WAS ENCOUNTERED DURING AN INITIAL ATTEMPT TO SET CASING APPROXIMATELY 8 FEET SOUTHEAST OF THIS LOCATION.

NEW CATWALK "A"
NEW MOORING DOLPHIN
EXISTING ARMOR ROCK TO BE REMOVED AS REQ'D FOR PILE INSTALLATIONS. ARMOR ROCK TO BE REPLACED FOLLOWING PILE INSTALLATIONS (3 LOCATIONS).

SECTION A-A

PRELIMINARY CONTRACT NO. E99-226

CITY & BOROUGH OF JUNEAU, ALASKA
FERRY DOCK MOORING DOLPHIN

Designed: JLD
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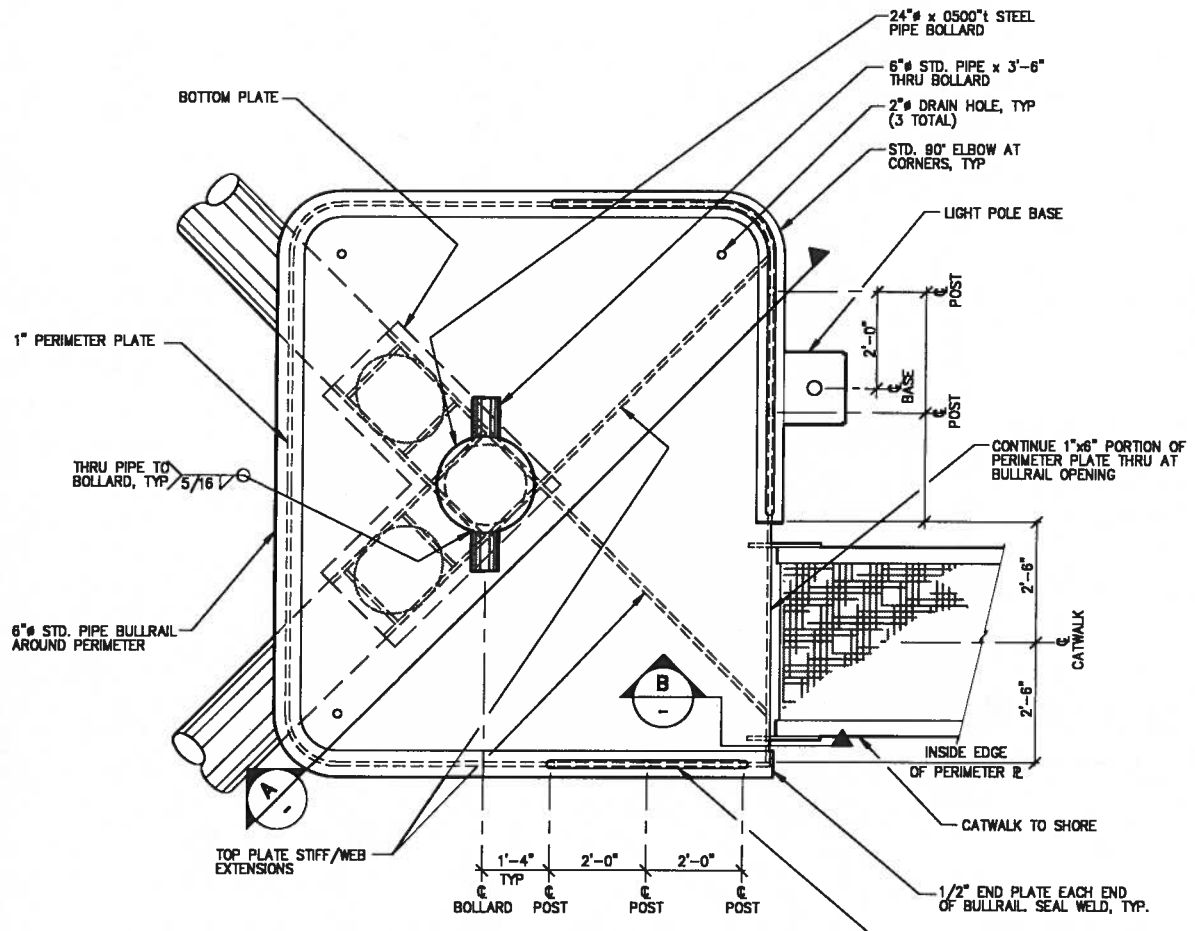
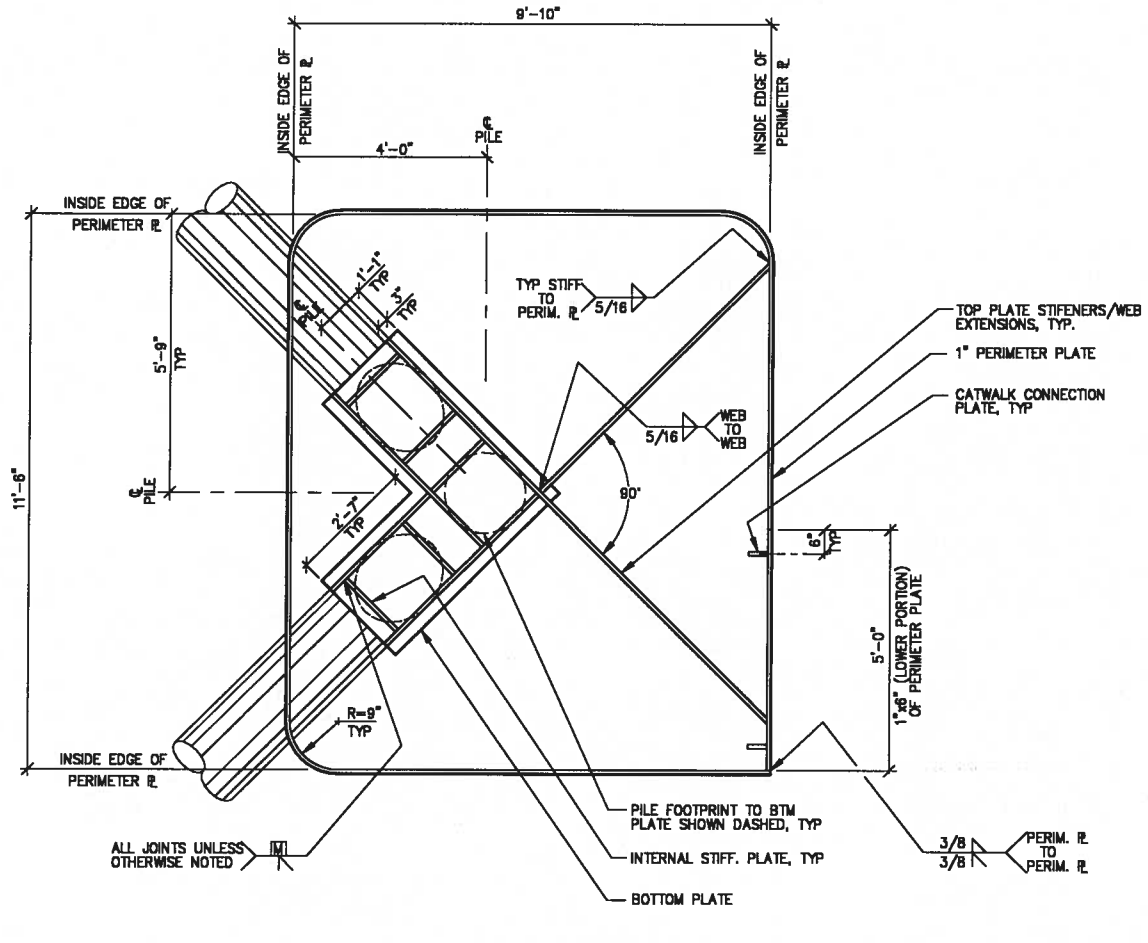
SITE PLAN

sheet 2 of 7

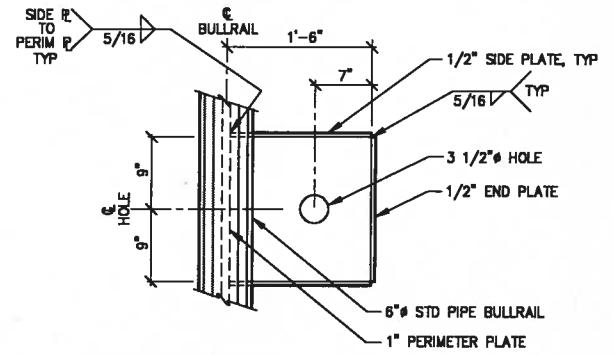


MOORING DOLPHIN PLAN

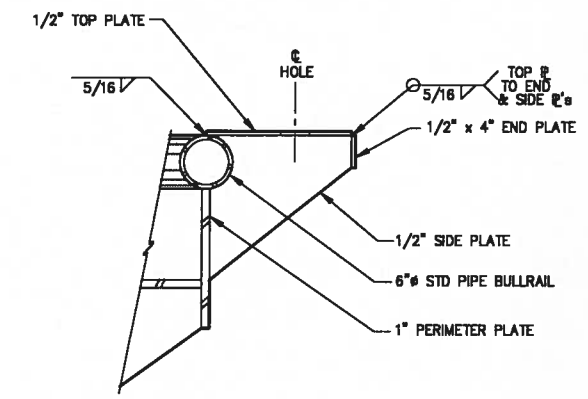


BOTTOM PLATE PLAN

NOTE: ALL PLATE THICKNESS t = 1" UNLESS OTHERWISE SPECIFIED. ALL WELDS ARE COMPLETE PENETRATION WELDS UNLESS OTHERWISE NOTED.



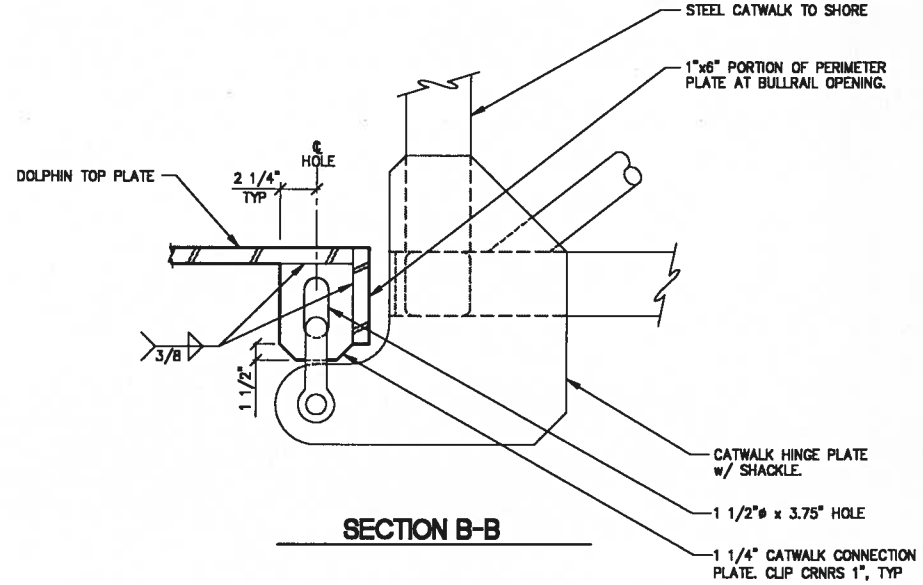
LIGHT POLE BASE - PLAN



LIGHT POLE BASE - ELEVATION

MOORING DOLPHIN ELEVATION (SECTION A-A)

NOTE: ALL PLATE THICKNESS t = 1" UNLESS OTHERWISE SPECIFIED. ALL WELDS ARE COMPLETE PENETRATION WELDS UNLESS OTHERWISE NOTED.



SECTION B-B

PRELIMINARY CONTRACT NO. E99-226

CITY & BOROUGH OF JUNEAU, ALASKA
FERRY DOCK MOORING DOLPHIN

Designed: JLD
Drawn: JLD/TMS
Checked: –
Project No: 98261

Peratrovich, Nottingham & Drage, Inc.
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Juneau, Alaska 99801 (907) 586-2093 FAX (907) 586-2099

Date: DEC. 1998
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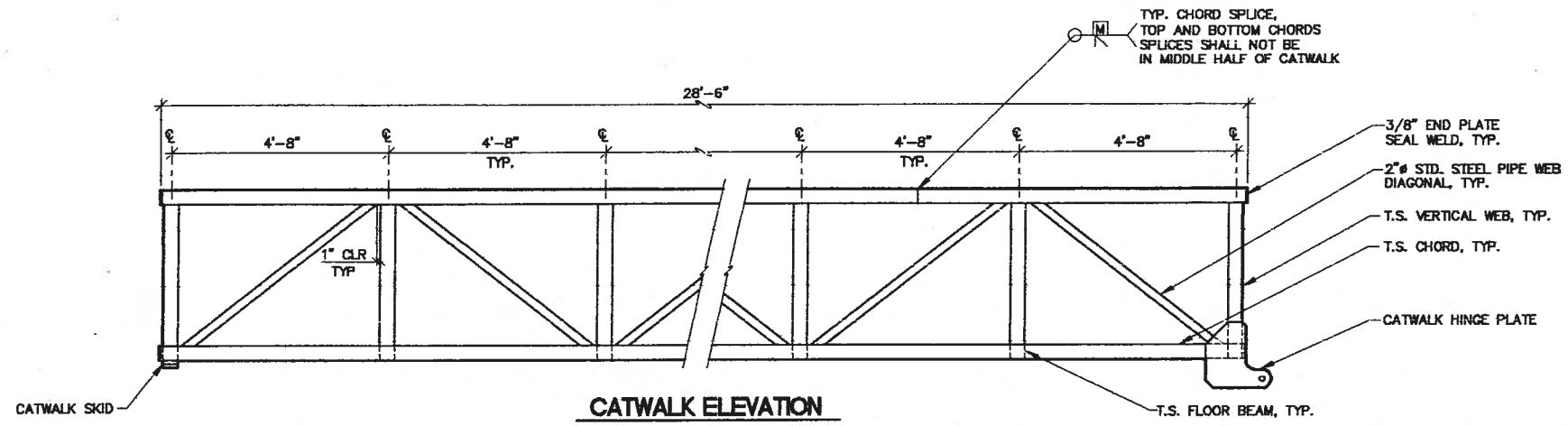
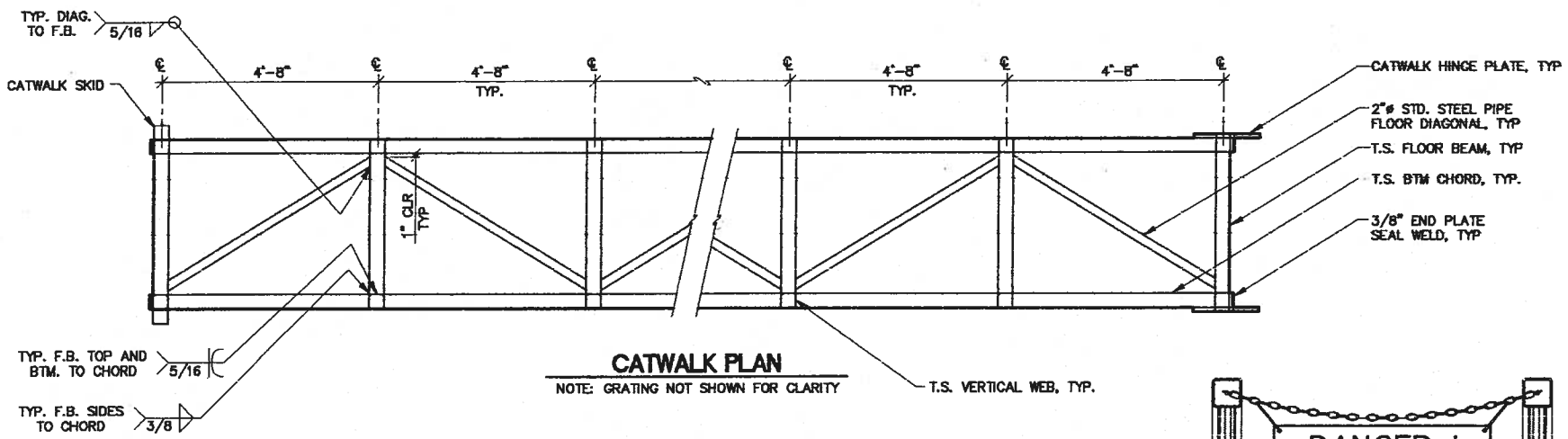
MOORING DOLPHIN

sheet 3 of 7



CATWALK ELEVATION

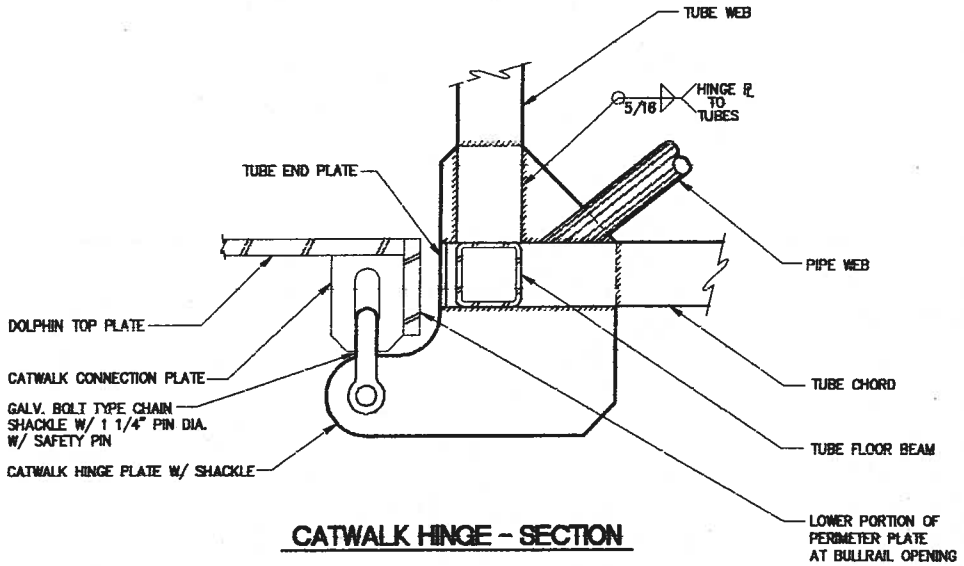


CATWALK PLAN

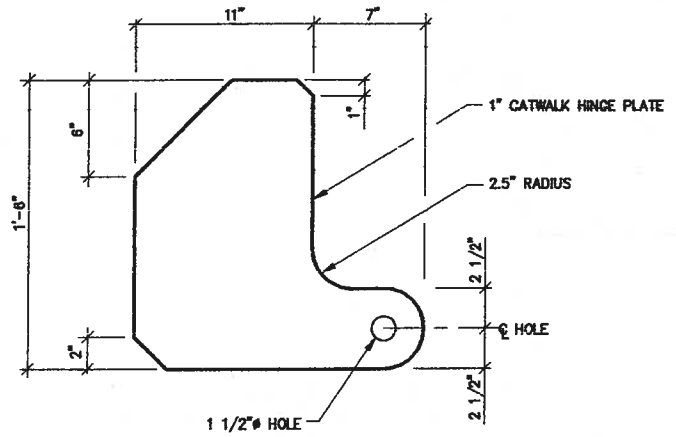
NOTE: GRATING NOT SHOWN FOR CLARITY

CATWALK SIGN

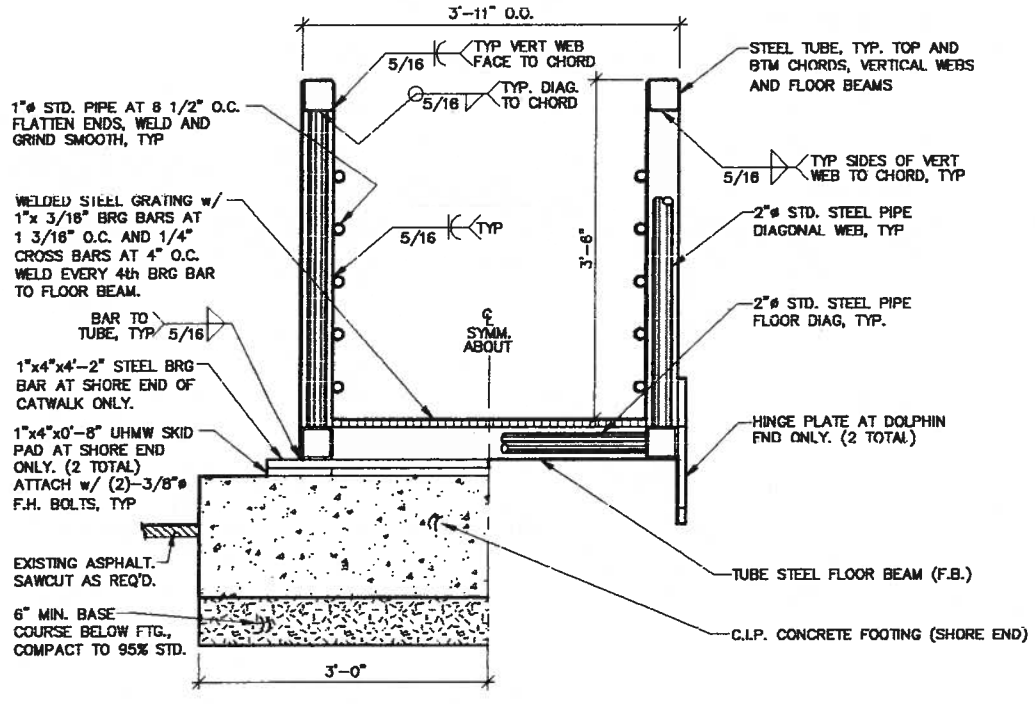
12" x 30" SIGN, SHORE END OF CATWALK, BLACK LETTERING ON YELLOW BACKGROUND, ATTACH TO 1/4" CHAIN WITH EYEBOLT @ ONE END, CLASP @ OTHER END.



CATWALK HINGE - SECTION

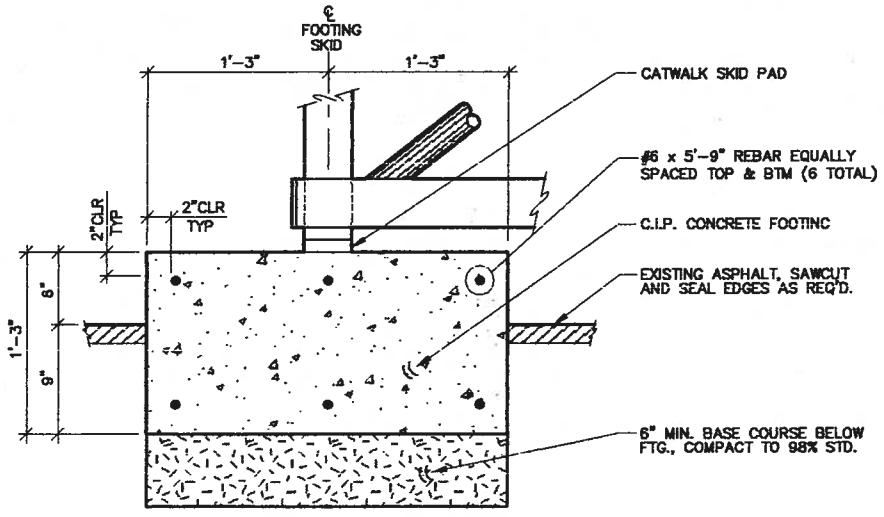


CATWALK HINGE PLATE



TYPICAL CATWALK SECTION

NOTE: ALL CHORDS, FLOOR BEAMS AND VERTICAL WEBS SHALL BE TS 4 x 4 x 5/16"t.



CATWALK SHORE SUPPORT - ELEVATION

CONTRACT NO. E99-226

CITY & BOROUGH OF JUNEAU, ALASKA
FERRY DOCK MOORING DOLPHIN

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Drawn: JLD/TMS
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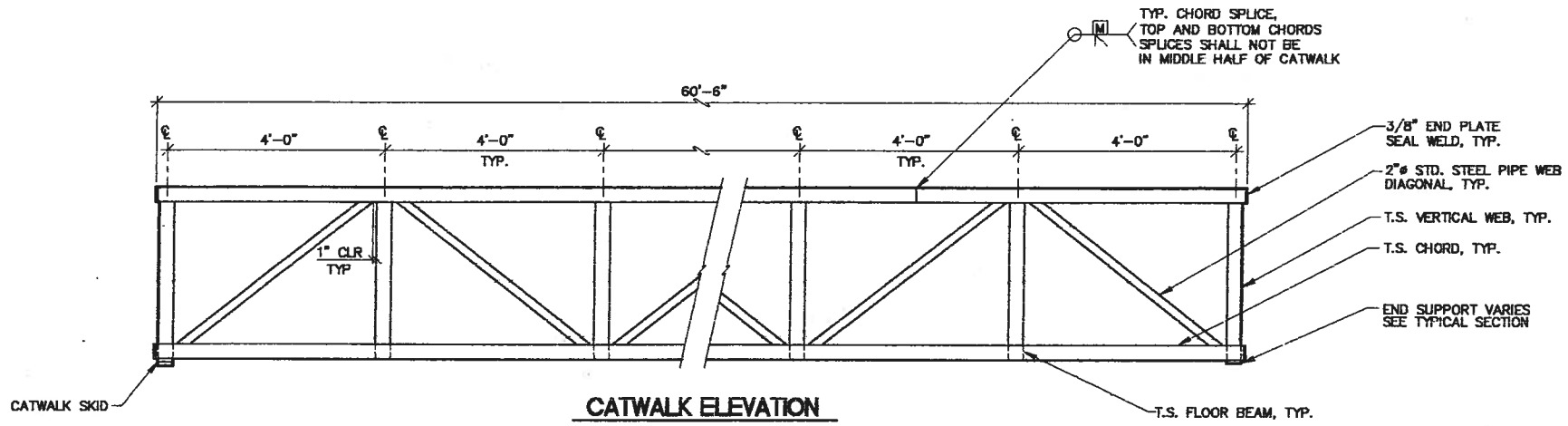
Juneau, Alaska 99801 (907) 586-2093 FAX (907) 586-2099

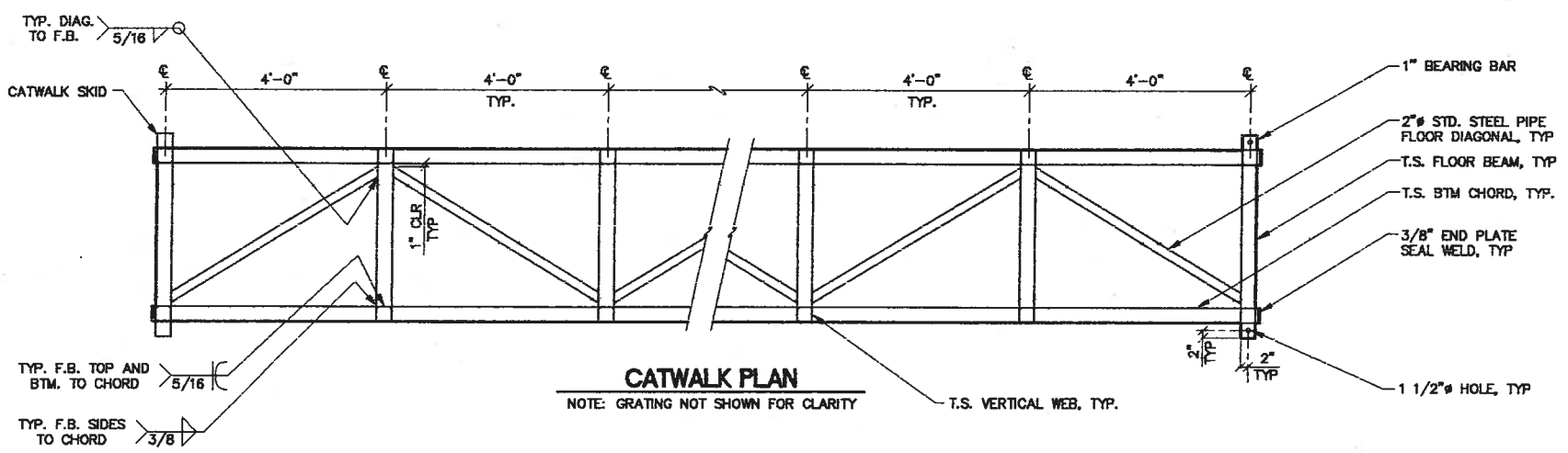
Date: JAN. 6, 1999
Scale: AS SHOWN

CATWALK 'A'

sheet 4 of 7

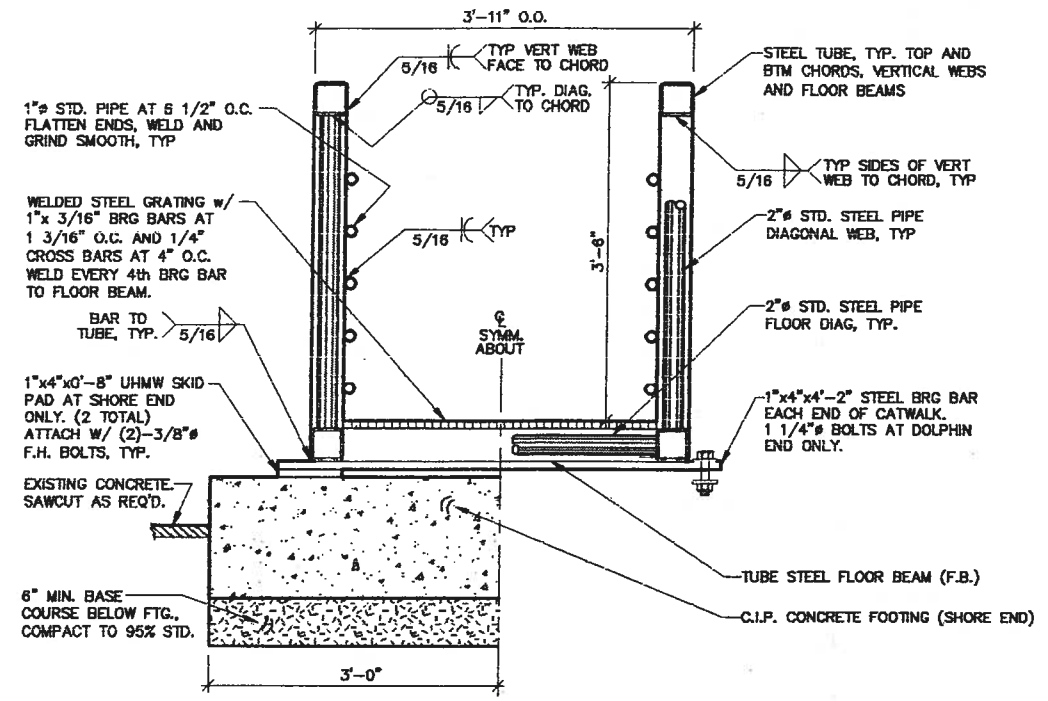


CATWALK ELEVATION



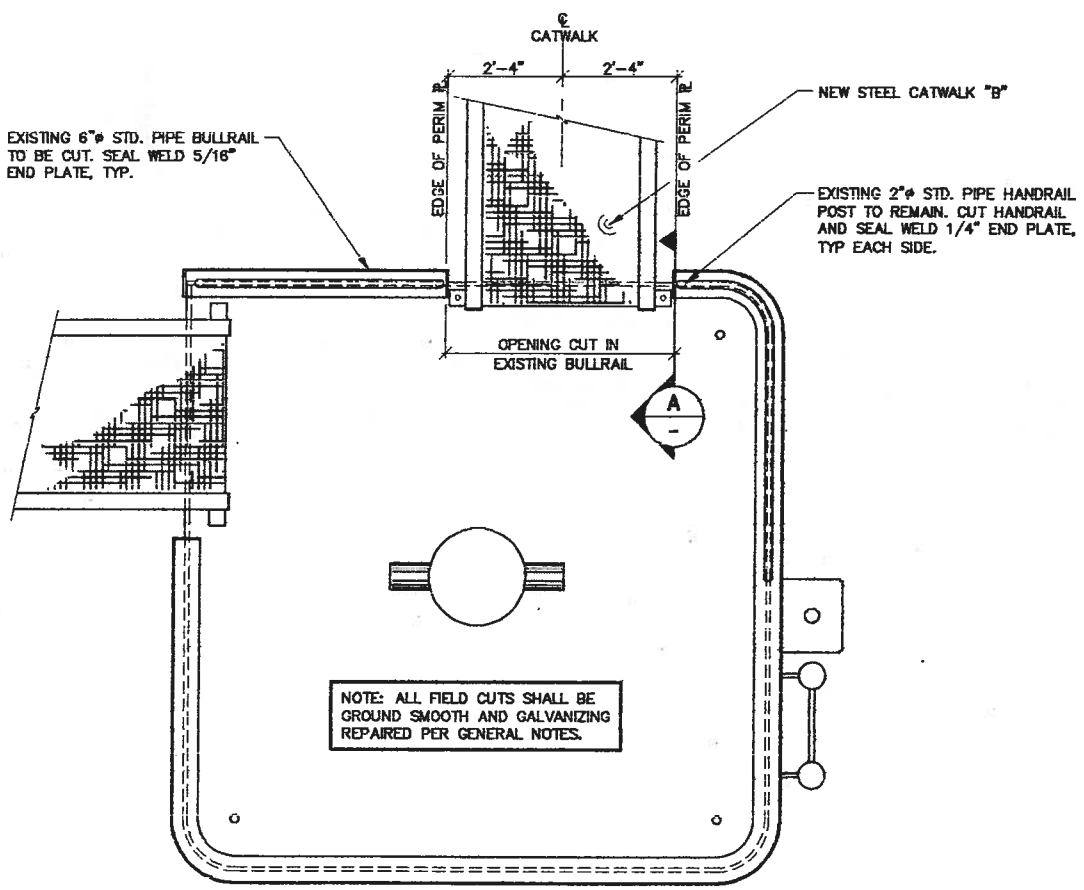
CATWALK PLAN

NOTE: GRATING NOT SHOWN FOR CLARITY

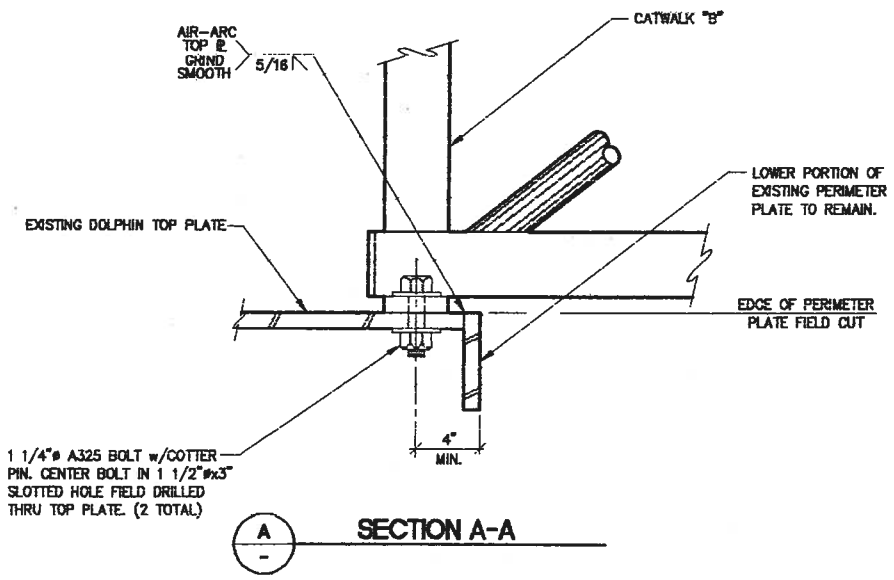


TYPICAL CATWALK SECTION

NOTE: DETAILS NOT SHOWN SIMILAR TO CATWALK "A". PROVIDE SIGN SIMILAR TO CATWALK "A".



EXISTING DOLPHIN - PLAN



SECTION A-A

CONTRACT NO. E99-226

CITY & BOROUGH OF JUNEAU, ALASKA
FERRY DOCK MOORING DOLPHIN

Designed: JLD
Drawn: JLD/TMS
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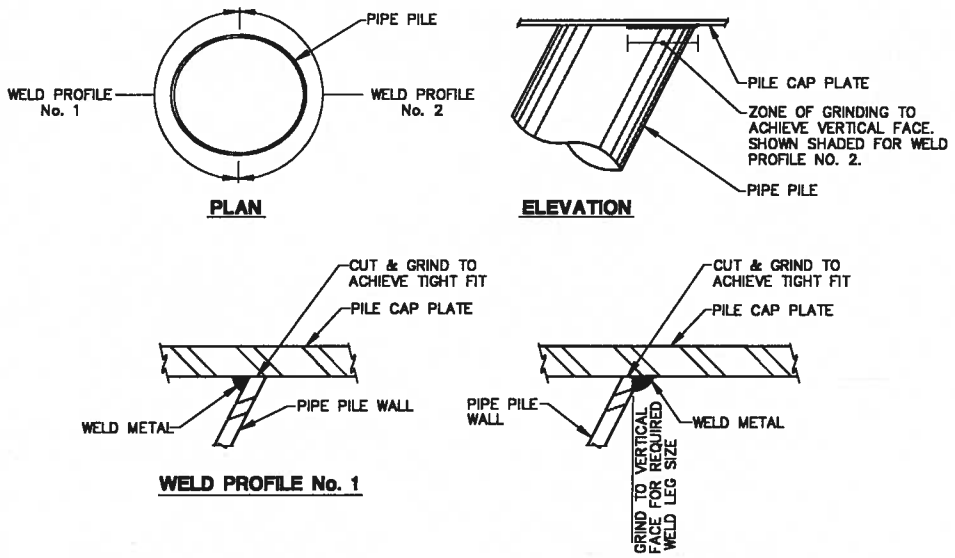
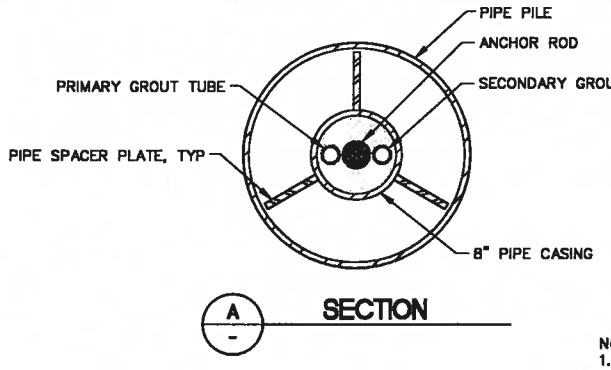
Date: JAN. 6, 1999
Scale: AS SHOWN

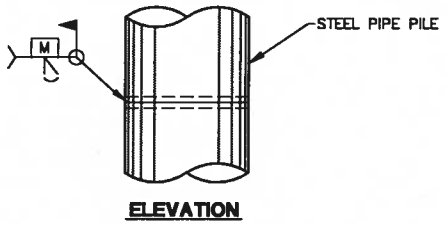
CATWALK "B"

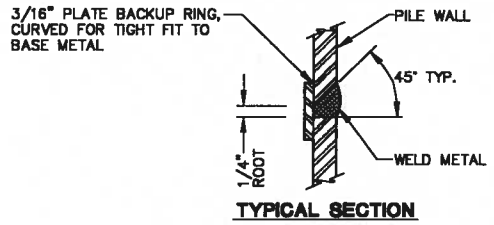
sheet 5 of 7



BATTER PILE WELD DETAILS

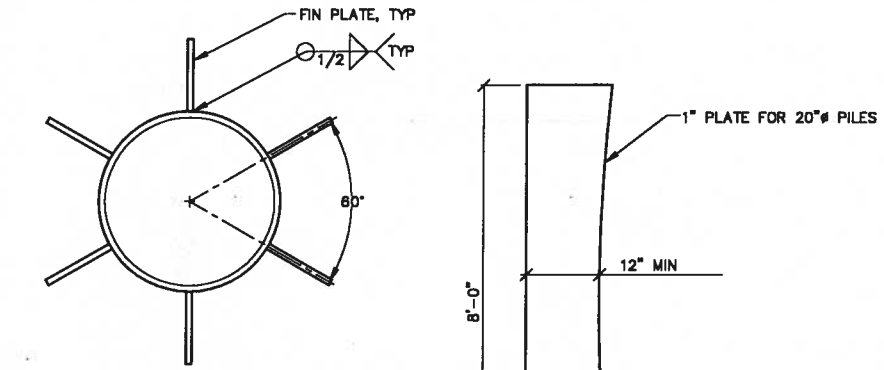






TYPICAL PILE SPLICE WELD

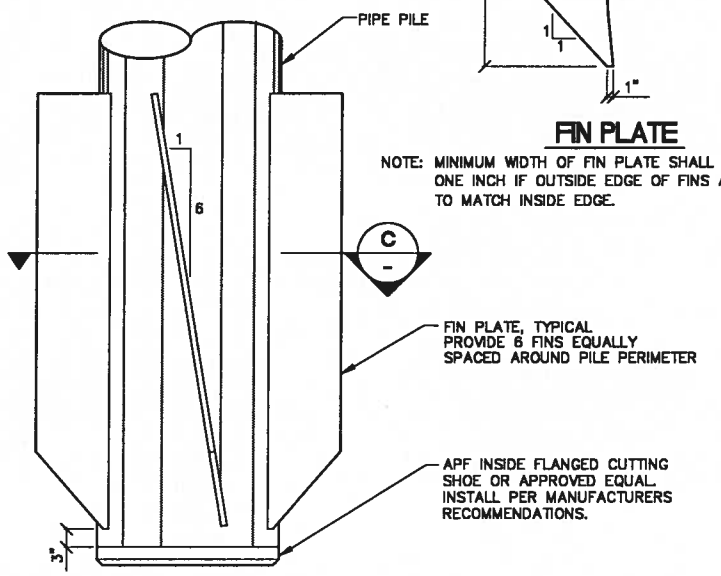
TYPICAL FOR ALL FIELD PIPE PILE SPLICES

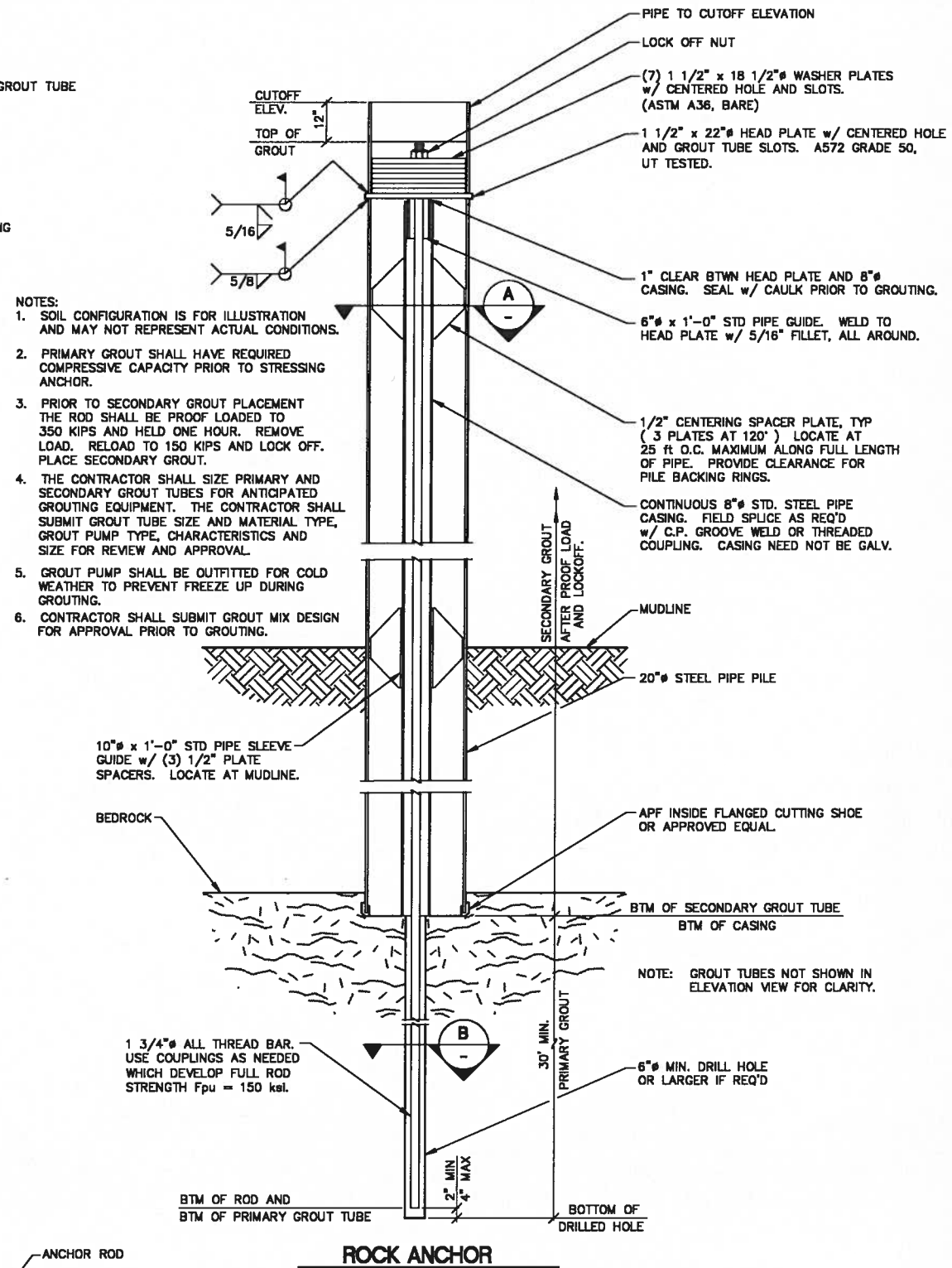


NOTE: MINIMUM WIDTH OF FIN PLATE SHALL INCREASE ONE INCH IF OUTSIDE EDGE OF FINS ARE CURVED TO MATCH INSIDE EDGE.

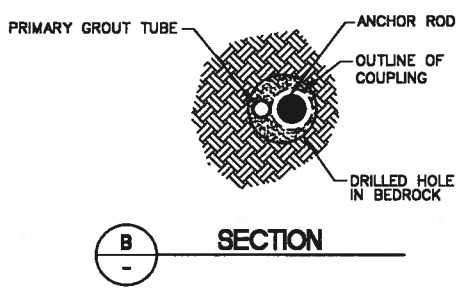
PILE SCHEDULE				
MOORING DOLPHIN				
PILE ORIENT.	SUPPLIED LENGTH	TENSION LOAD (KIPS)	COMPR. LOAD (KIPS)	PILE TIP
NW	110'	–	325	SPIN FIN w/ SHOE
SW	110'	–	325	SPIN FIN w/ SHOE
V	80'	400	–	CUTTING SHOE

NOTE: ALL DOLPHIN SUPPORT PILES SHALL BE OWNER SUPPLIED 20"ø x0.500"t WITH CUTTING SHOE. PILES NOT REQUIRING ROCK ANCHORS SHALL ALSO HAVE SPIN FIN TIPS.





NOTES:
1. SOIL CONFIGURATION IS FOR ILLUSTRATION AND MAY NOT REPRESENT ACTUAL CONDITIONS.
2. PRIMARY GROUT SHALL HAVE REQUIRED COMPRESSIVE CAPACITY PRIOR TO STRESSING ANCHOR.
3. PRIOR TO SECONDARY GROUT PLACEMENT THE ROD SHALL BE PROOF LOADED TO 350 KIPS AND HELD ONE HOUR. REMOVE LOAD. RELOAD TO 150 KIPS AND LOCK OFF. PLACE SECONDARY GROUT.
4. THE CONTRACTOR SHALL SIZE PRIMARY AND SECONDARY GROUT TUBES FOR ANTICIPATED GROUTING EQUIPMENT. THE CONTRACTOR SHALL SUBMIT GROUT TUBE SIZE AND MATERIAL TYPE, GROUT PUMP TYPE, CHARACTERISTICS AND SIZE FOR REVIEW AND APPROVAL.
5. GROUT PUMP SHALL BE OUTFITTED FOR COLD WEATHER TO PREVENT FREEZE UP DURING GROUTING.
6. CONTRACTOR SHALL SUBMIT GROUT MIX DESIGN FOR APPROVAL PRIOR TO GROUTING.



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FERRY DOCK MOORING DOLPHIN

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PILE SCHEDULE AND ROCK ANCHOR

sheet 6 of 7

GENERAL NOTES

DESIGN PARAMETERS

Mooring Load: 150 Kip any horizontal direction at 30° maximum incline from horizontal.

MATERIALS AND CONSTRUCTION

Structural Steel

Dolphin cap steel and miscellaneous plate steel shall be ASTM A36, spray metalized, unless otherwise noted.

Pipe shall be ASTM A53, Grade B, Type E or S, galvanized or spray metalized.

Rock anchor head plates shall be ASTM A572, Grade 50, bare. Outside edges of head plates shall be coated, after installation, per coating repair section. The Contractor shall test each head plate by straight beam UT testing, per AWS D1.1 Section 3.2, to ensure that no discontinuities exist in the plate. Any discontinuity identified shall be considered a rejectable discontinuity.

Steel erection shall conform to AISC standards.

Steel Pipe Piles

Pipe for support piles shall be ASTM A252, Grade 3, with carbon equivalency not to exceed 0.45. Galvanizing is not required on the bottom 20 ft. of pipe piles with spin fin tips. All other pipe piles shall be galvanized full length. Spiral weld pipe may be used only upon Engineer's approval.

Bolts

All bolts shall be ASTM A325. Bolts shall be installed per AISC turn-of-nut tightening, unless otherwise noted. Washers shall be used in all areas where the bolt head or nut shall bear against concrete or against oversized holes in steel (i.e. more than 1/16 inch larger than bolt diameter).

Steel Welding

Welding shall conform to current American Welding Society AWS D1.1 Code. All welders shall be qualified per AWS for the type of welding anticipated. Welds will be spot tested by the Engineer. Welds that fail testing shall be repaired at the Contractor's expense which will include all costs for retesting.

All weld metal shall have a chemistry similar to the base metal and shall have a minimum Charpy Impact Test value of 20 ft-lbs. at -20 degrees F. Welding through coatings will not be permitted. Coating within one inch of the weld shall be removed and repaired after welding per coating repair section.

Galvanizing

All structural steel, pile and hardware shall be galvanized per ASTM A123 or A153 after fabrication, unless otherwise noted. All holes required for galvanizing shall be completely repaired per AWS procedures.

Spray Metalizing

Structural steel requiring spray metalizing shall be spray metalized with aluminum or zinc per the Steel Structures Painting Council (SSPC) Guide No. 23. Minimum dry coating thickness of 10 mils. is required. Metalizing damaged from shipping, handling or other means shall be repaired per coating repair section.

Coating Repair

Galvanizing damaged from shipping, handling, welding or by other means shall be repaired by stick galvanizing with zinc or aluminum alloy sticks, per manufacturer's recommendations, to a minimum thickness of 10 mils. All repairs shall be top coated with a minimum of 3 mils of brush applied cold galvanizing compound containing at least 95% zinc, such as Z.R.C. Cold Galvanizing Compound.

Rock Anchor Rod

Rock Anchor Prestressing Rod shall conform to ASTM A615 and ASTM A722, 150 ksi ultimate stress. Prestressing rod and anchorage shall be Williams type or approved equivalent. Anchor head, nuts and couplers shall be capable of developing the full strength of the rod.

Rock Anchor Grout

Grout for Rock Anchors shall have a minimum allowable unconfined compressive strength of Fc=5,000 psi. Grout shall be pumpable and hydraulic.

UHMW Polyethylene Rubstrip

Ultra High Molecular Weight Polyethylene shall be either a mechanical blend of virgin UHMW resin and ground UHMW chips or cross-linked virgin grade. The material shall be suitable for high impact and severe abrasion. UHMW shall be U.V. stabilized. All edges shall be chamfered as indicated on the drawings.

C.I.P. Concrete

Cement shall conform to ASTM C150 Type II, or Type I or III with tri-calcium aluminate content below 8%. Aggregate shall conform to ASTM C33 with maximum size of 3/4 inch Concrete shall have a minimum 28-day compressive strength of 4,000 psi. Entrained air shall be 4% to 7%. Mix design, mixing, Forming, placing, curing, testing, etc. shall follow the standards set by ACI. Contractor shall submit mix design to Engineer for approval.

Reinforcing Bar

ASTM A615 Deformed Bar, Grade 60, galvanized, except all bent reinforcing shall conform to ASTM A706, galvanized. Detail and place bars in accordance with ACI 318.

Support Pile Installation

All support piles shall be driven. The Contractor shall submit a plan for pile driving. The plan shall contain hammer type and driving method for all pile types. The Contractor shall not mobilize hammers and related equipment prior to receiving written approval of the plan. The Contractor should allow one week for review of the plan by the Engineer. All pile driving methods shall meet the requirements of the permits issued for this project.

Any hammer that causes damage to the piles during driving operations shall be substituted with an acceptable alternate hammer at no additional expense to the Owner. Impact hammer shall be supplied with new capblock cushions, which shall be changed at the manufacturers recommended cycle. The Contractors driving plan shall include manufacturers recommendations and information on hammer cushion.

Driving methods for battered piles shall utilize a driving template that shall remain in place until the pile cap has been attached to the piles and/or piles have been rigidly braced into position.

Piles shall be placed within 1% of specified vertical alignment and within 2 inches of specified location at cutoff. Batter piles with a 2V:1H slope shall be placed so their slope varies between 5 7/8 and 6 3/8 inches horizontal to one foot vertical and within 2 inches of location at cutoff. Piles hitting obstacles, misaligned piles and piles that have not achieved minimum penetration prior to refusal shall be pulled by the Contractor with a vibratory hammer and redriven at no additional cost to the Owner. A vibratory hammer with the minimum requirements equivalent to a APE 200 must be available and on site during all pile driving operations.

Piles will be owner supplied in the length specified on the Pile Schedule. Piles shall be driven full length to cutoff elevation unless bedrock refusal is obtained. Pile capacities and refusal shall be determined solely by the Engineer. All piles encountering bedrock shall be adequately seated into the bedrock as determined by the Engineer.

Piles shall be driven full length with an impact hammer having a minimum rated energy of 60,000 ft-lbs. Piles shall be driven to capacities indicated on the Pile Schedule and/or to anticipated bedrock depth.

All pile installation shall be conducted with the Engineer present. The Contractor shall assist the Engineer in monitoring the pile driving. The Contractor shall mark each pile with one foot increments with every five-foot increment numbered. The marks shall be visible/readable from all sides of the pile.

All steel pipe pile cutoffs on this project shall become the property of the Owner. The Contractor shall remove the pipe from the project site and shall neatly stack the pipe, as approved by the Engineer, at the Yacht Club site located within two miles of the project site.

Surveys

All construction surveys shall be provided by the Contractor. All existing monuments shall be maintained by the Contractor.

Submittals

Shop drawings for all fabricated materials shall be submitted to the Engineer for written approval prior to fabrication or shipping of any item. Certifications, manufacturers data and other information for all materials, including those not specifically noted in the General Notes or shown on individual drawings, shall be submitted to the Engineer for written approval. All methods and materials shall conform to the Contract Documents, General Notes, the plans, good workmanship, generally accepted industry standards, and manufacturers recommendations. A minimum of three sets shall be provided with each submittal. The reviewed copy will be returned and marked as required for acceptance or non-acceptance.

The following is a list of required submittals for this project. The Engineer may require additional submittals.

1. Steel certification for all steel used including chemistry, yield, and mill numbers.
2. Galvanizing Certification and/or Metalizing Certifications.
3. AWS Welding Certification for all welders utilized on the project.
4. Proposed welding procedures.
5. Steel fabrication drawings.
6. Pile driving hammers and pile driving methods/plan including template drawings.
7. Rock Anchor grout mix design.

PRELIMINARY **CONTRACT NO. E99-226**

CITY & BOROUGH OF JUNEAU, ALASKA
FERRY DOCK MOORING DOLPHIN

Designed: JLD
Drawn: JLD/TMS
Checked: -
Project No: 98261

Peratrovich, Nottingham & Drage, Inc.
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Date: DEC. 1998
Scale: AS SHOWN

GENERAL NOTES

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