

PILE DRIVING RECORD

STATE OF ALASKA
DEPARTMENT OF HIGHWAYS

SHEET OF
FORMULA USED TO DETERMINE BEARING

$$P = \frac{2 \text{ WHR}}{S + 0.1}$$

INSTR: A SKETCH SHOWING THE LOCATION OF THE PILES BY NUMBER SHALL BE DRAWN ON THE BACK OF THIS FORM OR ON AN ATTACHED SHEET

STRUCTURE NAME NS	CONTRACTOR TAMICO, INC.	HIGHWAY NAME WIRANGELL FERRY TERMINAL	BRIDGE NO.
-----------------------------	-----------------------------------	---	------------

PROJECT NO. 75279	DISTRICT AMHS	TYPE OF BRIDGE LEAD IN STRUCTURE
-----------------------------	-------------------------	--

TYPE OF HAMMER AIR	MANUFACTURER VULCAN #1	WT. OF RAM OR GRAVITY HAMMER 5,000	STROKE LENGTH, MAX. 36"	NO. BLOWS PER MIN. 60	MFG'S. MAXIMUM ENERGY RATING 15,000
------------------------------	----------------------------------	--	-----------------------------------	---------------------------------	---

DATE	ABUTMENT OR PIER NO	PILE NO	TYPE OF PILE (SPECIFY TIP & BUTT DIAMETER OF TIMBER & CONCRETE PILE IN INCHES)	LENGTH PLACED IN LEADS INCLUDING EXTENSIONS (FT)	CUTOFF LENGTH (FT)	NET LENGTH CUT OFF TO TIP (FT)	PENETRATION IN GROUND (FT)	PILE CUTOFF ELEVATION	OBSERVED GROUND ELEVATION	PILE TIP ELEVATION	DROP OF HAMMER (INCHES)	AVERAGE PENETRATION OF LAST 5 BLOWS	COMPUTED BEARING (TONS)	REMARKS
														SPECIFY BATTER, IF ANY HOW DID PILE DRIVE? SPECIFY SPLICES CORE STOPPERS EXTENSION LENGTHS USED
1994	NS	1	18"φx.5"	72 ⁴	12 ³	60 ¹		25 ²²		-34 ⁹	36	.013	132	VERTICAL, DRIVESHOE
6-20	NS	2	↓	72 ³	13 ⁶	58 ² 56 ⁷		25 ²³		-31 ⁵	36			VERTICAL, DRIVE SHOES
6-21	NS	3		80 ⁵	13 ⁶	66 ⁹		31 ²²		-35 ⁷	36			3:1 BATTER, DRIVESHOE
6-21	NS	4		81 ⁷	10 ³	71 ⁴		31 ²³		-40 ³	36			3:1 BATTER, DRIVESHOES
6-21	NS	5		81 ²	12 ⁰	69 ²		31 ²³		-38 ⁰	36			4:1 BATTER, DRIVE SHOES
6-21	NS	6		81 ³	13 ³	68 ⁰		31 ²³		-36 ⁸	36			3:1 BATTER, DRIVESHOES
							392 ³							
6-28	NS	7	24"φx.5"	70 ²	8 ⁸	61 ⁴	7 ¹	32 ³³	-22	-29 ¹	36			VERT., DRIVESHOES
6-28	NS	8	↓	70 ³	11 ⁶	58 ⁷	10 ⁵	25 ²²	-23	-33 ⁵	36			VERT., DRIVESHOES
6-28	NS	9		69 ²	11 ⁶	58 ³	9 ¹	25 ²²	-24	-33 ¹	36			VERT., DRIVE SHOES
6-28	NS	10		69 ²	12 ⁶	57 ³	8 ¹	25 ²²	-24	-32 ¹	36			VERT., DRIVESHOES
6-28	NS	11		70 ³	6 ⁴	63 ²	7 ⁶	32 ³³	-24	-31 ⁶	36			VERT., DRIVE SHOES
							299 ⁶							

PREPARED BY NAME A.K. SHEPARD	DATE 6-28-94	CHECKED BY NAME J. M. ...	DATE 7-29-94	TOTAL LENGTH FURNISHED 18" = 392³ 24" = 299⁶
--	------------------------	--	------------------------	--

DISTRIBUTION OF COPIES:
DISTRICT ENGINEER
HEADQUARTERS
FOUNDATION GEOLOGIST COLLEGE

DH-99
(R 8-67)

PILE DRIVING RECORD

STATE OF ALASKA
DEPARTMENT OF HIGHWAYS

SHEET _____ OF _____
FORMULA USED TO DETERMINE BEARING

$$P = \frac{2WHQ}{S+0.1}$$

INSTR: A SKETCH SHOWING THE LOCATION OF THE PILES BY NUMBER SHALL BE DRAWN ON THE BACK OF THIS FORM OR ON AN ATTACHED SHEET

STRUCTURE NAME: STANDARD MOORING N-2 CONTRACTOR: TAMICO, INC. HIGHWAY NAME: WRANGELL FERRY TERMINAL BRIDGE NO. _____

PROJECT NO.: 75279 DISTRICT: AMHS TYPE OF BRIDGE: MOORING STRUCTURE

TYPE OF HAMMER: AIR MANUFACTURER: VULCAN #1 WT. OF RAM OR GRAVITY HAMMER: 5,000 STROKE LENGTH, MAX.: 36" NO. BLOWS PER MIN.: 60 MFG'S. MAXIMUM ENERGY RATING: 15,000

DATE	ABUTMENT OR PIER NO	PILE NO.	TYPE OF PILE (SPECIFY TIP & BUTT DIAMETER OF TIMBER & CONCRETE PILE IN INCHES)	LENGTH PLACED IN LEADS INCLUDING EXTENSIONS (FT)	CUTOFF LENGTH (FT)	NET LENGTH CUT OFF TO TIP (FT)	PENETRATION IN GROUND (FT)	PILE CUTOFF ELEVATION	OBSERVED GROUND ELEVATION	PILE TIP ELEVATION	DROP OF HAMMER (INCHES)	AVERAGE PENETRATION OF LAST 5 BLOWS	COMPUTED BEARING (TONS)	REMARKS SPECIFY BATTER IF ANY HOW DID PILE DRIVE? SPECIFY SPLICES CORE STOPPERS. EXTENSION LENGTHS USED
1994	N2	1	18"φ x .5"			57 ⁴	8 ²	25 ²³	-24	-32 ²				VERTICAL, DRIVE SHOES
	N2	2	18"φ x .5"			59 ⁷	4 ⁵	31 ²²	-24	-28 ⁵				3:1, DRIVE SHOES
	N2	3	18"φ x .5"			58 ⁵	3 ³	31 ²²	-24	-27 ³				3:1, DRIVE SHOES
						175 ⁶								
	N2	4	24"φ x .5"	70 ⁵	13 ³	57 ³	6 ¹	25 ²³	-26	-32 ¹				VERT. DRIVE SHOES
	N2	5	24"φ x .5"	70 ⁵	12 ⁵	58 ⁰	6 ⁸	25 ²³	-26	-32 ⁸				VERT. DRIVE SHOES
	N2	6	24"φ x .5"	70 ⁴	13 ¹	57 ³	5 ¹	25 ²³	-27	-32 ¹				VERT. DRIVE SHOES
	N2	7	24"φ x .5"	70 ⁷	13 ⁵	57 ²	5 ⁰	25 ²²	-27	-32 ⁰				VERT. DRIVE SHOES
						229 ⁸								

PREPARED BY: A.K. SHEPARD DATE: 7-28-94 CHECKED BY: J. W. [Signature] DATE: 7-29-94 TOTAL LENGTH FURNISHED: 18" = 175⁶ 24" = 229⁸

11 DISTRICT ENGINEER
 12 HEADQUARTERS
 DISTRIBUTION OF COPIES:

PILE DRIVING RECORD

STATE OF ALASKA
DEPARTMENT OF HIGHWAYS

SHEET OF
FORMULA USED TO DETERMINE BEARING
 $P = \frac{2WHQ}{S+0.1}$

INSTR: A SKETCH SHOWING THE LOCATION OF THE PILES BY NUMBER SHALL BE DRAWN ON THE BACK OF THIS FORM OR ON AN ATTACHED SHEET

STRUCTURE NAME: **N-4** CONTRACTOR: **TAMICO, INC.** HIGHWAY NAME: **WIRANGELL FERRY TERMINAL** BRIDGE NO.:

PROJECT NO.: **75279** DISTRICT: **AMHS** TYPE OF BRIDGE: **STANDARD MOORING STRUCTURE**

TYPE OF HAMMER: **AIR** MANUFACTURER: **VULCAN #1** WT. OF RAM OR GRAVITY HAMMER: **5,000** STROKE LENGTH, MAX.: **36"** NO. BLOWS PER MIN.: **60** MFG'S. MAXIMUM ENERGY RATING: **15,000**

DATE	ABUTMENT OR PIER NO.	PILE NO.	TYPE OF PILE (SPECIFY TIP & BUTT DIAMETER OF TIMBER & CONCRETE PILE IN INCHES)	LENGTH PLACED IN LEADS INCLUDING EXTENSIONS (FT.)	CUTOFF LENGTH (FT.)	NET LENGTH CUT OFF TO TIP (FT.)	PENETRATION IN GROUND (FT.)	PILE CUTOFF ELEVATION	OBSERVED GROUND ELEVATION	PILE TIP ELEVATION	DROP OF HAMMER (INCHES)	AVERAGE PENETRATION OF LAST 5 BLOWS	COMPUTED BEARING (TONS)	REMARKS SPECIFY BATTER IF ANY HOW DID PILE DRIVE? SPECIFY SPLICES CORE STOPPERS EXTENSION LENGTHS USED
1994	N4	1	18"φ x .5"	72 ⁵	13 ⁸	58 ⁷		25 ²³		-33 ⁵	36"	100B/ INCH	136	VERTICAL, DRIVE SHOE
6-16	N4	2	18"φ x .5"	81 ⁰	18 ²	62 ¹		31 ²²		-30 ⁹	36"			3:1, DRIVE SHOE
6-16	N4	3	18"φ x .5"	80 ⁶	14 ⁷	65 ²		31 ²²		-34 ⁷	36"			3:1, DRIVE SHOE
						186 ⁷								
6-28	N4	4	24"φ x .5"	69 ⁹	10 ⁰	59 ²		25 ²³		-34 ⁷	36	90B/IN	135	VERTICAL, DRIVESHOE
6-28	N4	5	24"φ x .5"	70 ²	11 ⁶	58 ⁶		25 ²³		-33 ⁴	36	150B/ INCH	140	" "
6-28	N4	6	24"φ x .5"	70 ³	12 ⁶	57 ⁷		25 ²²		-32 ⁵	36	180B/ INCH	142	" "
6-28	N4	7	24"φ x .5"	69 ²	12 ⁵	57 ⁴		25 ²²		-32 ³	36	140B/ INCH	140	" "
						233 ⁶								

PREPARED BY: **A.K. SHEPARD** DATE: **6-28-94** CHECKED BY: **J. M. Schaeffer** DATE: **7-29-94** TOTAL LENGTH FURNISHED: **18" = 186⁷ 24" = 233⁶**

(1) DISTRICT ENGINEER
 (2) HEADQUARTERS
 FOUNDATION GEOLOGIST, COLLEGE
 DISTRIBUTION OF COPIES:

DH-99
(R 8-67)

PILE DRIVING RECORD

STATE OF ALASKA
DEPARTMENT OF HIGHWAYS

SHEET OF
FORMULA USED TO DETERMINE BEARING

$$P = \frac{2WHQ}{S+0.1}$$

INSTR: A SKETCH SHOWING THE LOCATION OF THE PILES BY NUMBER SHALL BE DRAWN ON THE BACK OF THIS FORM OR ON AN ATTACHED SHEET

STRUCTURE NAME: **STANDARD MOORING N-3** CONTRACTOR: **TAMICO, INC.** HIGHWAY NAME: **WRANGELL FERRY TERMINAL** BRIDGE NO.:

PROJECT NO.: **75279** DISTRICT: **AMHS** TYPE OF BRIDGE: **MOORING STRUCTURE**

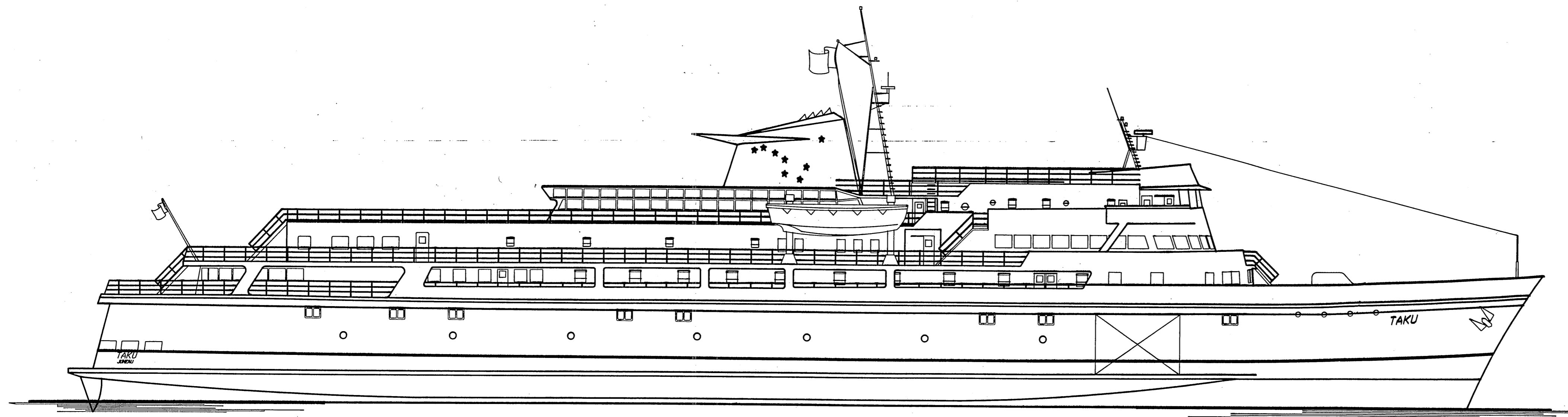
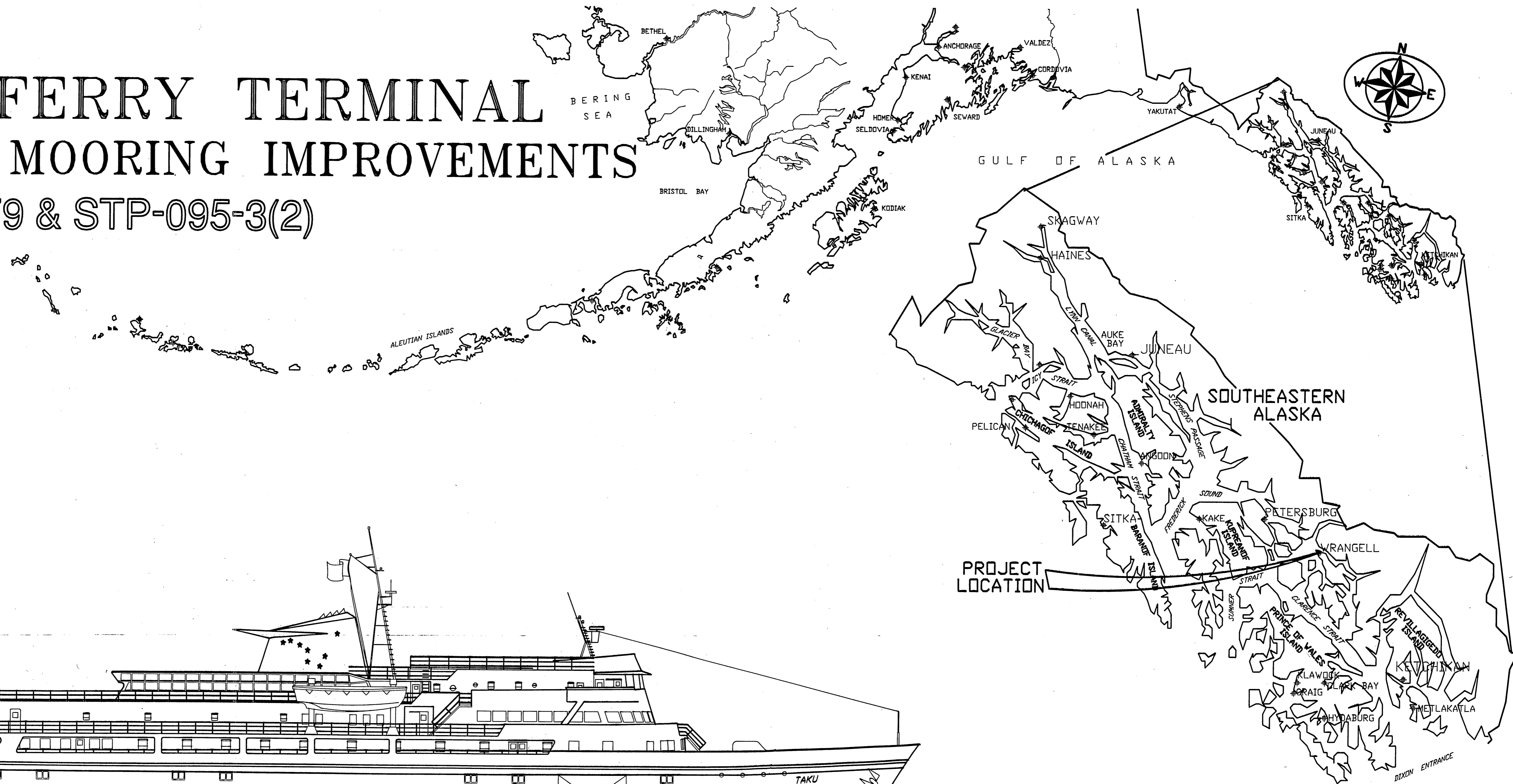
TYPE OF HAMMER: **AIR** MANUFACTURER: **VULCAN #1** WT. OF RAM OR GRAVITY HAMMER: **5,000** STROKE LENGTH, MAX.: **36"** NO. BLOWS PER MIN.: **60** MFG'S. MAXIMUM ENERGY RATING: **15,000**

DATE	ABUTMENT OR PIER NO	PILE NO	TYPE OF PILE (SPECIFY TIP & BUTT DIAMETER OF TIMBER & CONCRETE PILE IN INCHES)	LENGTH PLACED IN LEADS INCLUDING EXTENSIONS (FT.)	CUTOFF LENGTH (FT.)	NET LENGTH CUT OFF TO TIP (FT.)	PENETRATION IN GROUND (FT.)	PILE CUTOFF ELEVATION	OBSERVED GROUND ELEVATION	PILE TIP ELEVATION	DROP OF HAMMER (INCHES)	AVERAGE PENETRATION OF LAST 5 BLOWS	COMPUTED BEARING (TONS)	REMARKS SPECIFY BATTER IF ANY HOW DID PILE DRIVE? SPECIFY SPLICES CORE STOPPERS EXTENSION LENGTHS USED
6-15	N3	1	18"φx.5"	72 ⁵	16 ⁶	55 ⁹	6 ⁷	25 ²²	-24	-30 ⁷	36	100B/INCH	136	DRIVE VERTICAL, SHOE
6-16	N3	2	18"φx.5"	80 ⁶	22 ³	58 ⁶	4 ⁵	31 ²²	-23	-27 ⁴	36	60B/INCH	128	3:1, DRIVE SHOE
6-16	N3	3	18"φx.5"	80 ⁹	20 ⁴	60 ⁵	6 ³	31 ²²	-23	-29 ³	36	60B/INCH	128	3:1, DRIVE SHOE
						174 ⁰ 175 ⁰								
6-28	N3	4	24"φx.5"	70 ³	12 ²	57 ⁴		25 ²²		-32 ³	36	80B/INCH	133	VERT., DRIVE SHOE
6-28	N3	5	24"φx.5"	70 ³	13 ⁰	57 ³		25 ²²		-32 ¹	36	60B/INCH	128	VERT., DRIVE SHOE
6-28	N3	6	24"φx.5"	70 ³	13 ²	57 ¹		25 ²²		-31 ⁹	36	53B/INCH	126	VERT., DRIVE SHOE
6-28	N3	7	24"φx.5"	70 ³	13 ³	57 ⁰		25 ²²		-31 ⁸	36	40B/INCH	120	VERT., DRIVE SHOE
						228 ⁸								

PREPARED BY: **A.K. SHEPARD** DATE: **6-28-94** CHECKED BY: **J. W. Wierschke/lee** DATE: **7-29-94** TOTAL LENGTH FURNISHED: **18" = 175⁰, 24" = 228⁸**

DISTRIBUTION OF COPIES: DISTRICT ENGINEER HEADQUARTERS

WRANGELL FERRY TERMINAL FENDERING & MOORING IMPROVEMENTS PROJECT NO. 75279 & STP-095-3(2)

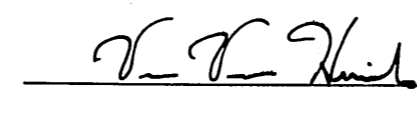



AS-BUILT PLANS

CONTRACTOR: TAMICO PETERS BLDG, AK
 COMPLETED: OCTOBER 1994
 "PROS. ENG: A.K. SHEPARD
 4-2695

**STATE
OF
ALASKA**

DEPARTMENT OF TRANSPORTATION
& PUBLIC FACILITIES
MARINE FACILITIES

APPROVED

 Shore Facilities Engineer
 Recommend For Approval 
 Group Design Chief
 Sheet 1 of 15

INDEX TO SHEETS			
1	TITLE SHEET	8/10	LEAD-IN MOORING STRUCTURE
2	GENERAL NOTES & QUANTITIES	11/12	CATWALK DETAILS
3	EXISTING FACILITY	13	MISCELLANEOUS DETAILS
4	SEAWARD LAYOUT	14/15	ELECTRICAL
5/7	STANDARD MOORING STRUCTURE		

ESTIMATE OF QUANTITIES

ITEM NO.	ITEM	ESTIMATED QUANTITIES	UNIT
110	Mobilization	300,000	All Req'd L.S.
111	Temp. Erosion & Pollution Control	0	All Req'd C.S.
114	Traffic Maintenance and Control	5,000	All Req'd L.S.
116	Furnish and Maintain Field Office	10,000	
120	DBE & WBE Adjustment	0	All Req'd C.S.
201	Removal of Structures and Obstructions	20,000	All Req'd L.S.
205	Riprap, Class IV	10,000 (78 CY.)	L.S.
301(1)	18"φ x 1/2" wall Pipe Pile, Furnished	32,536	1095-519.6 L.F.
301(2)	18"φ x 1/2" wall Pipe Pile, Driven	22,500	15 EA.
301(3)	24"φ x 1/2" wall Pipe Pile, Furnished	39,672	1164-991.8 L.F.
301(4)	24"φ x 1/2" wall Pipe Pile, Driven	25,500	17 EA.
301(5A)	Drilled Pile Sockets, Furnished	DELETED C.O.#2	All Req'd L.S.
301(5B)	Drilled Pile Sockets, Installed	DELETED C.O.#2	-8- EA.
302(1)	"Standard" Mooring Structure, Cap & Fender System	210,000	3 EA.
302(2)	"Lead-in" Mooring Structure N5, Cap & Fender System	100,000	1 EA.
302(3)	Catwalks	60,000	All Req'd L.S.
302(4)	Upgrade Existing Fender Systems, Structures S2 & S4	60,000	6 EA.
308(1)	New Prestressed Pile Anchors	65,000	13 EA.
308(2)	Retrofit Prestressed Pile Anchors	48,000	8/B per #4 EA.
501	Electrical and Illumination System	25,000	All Req'd L.S.

NEW ITEMS ESTABLISHED BY C.O.

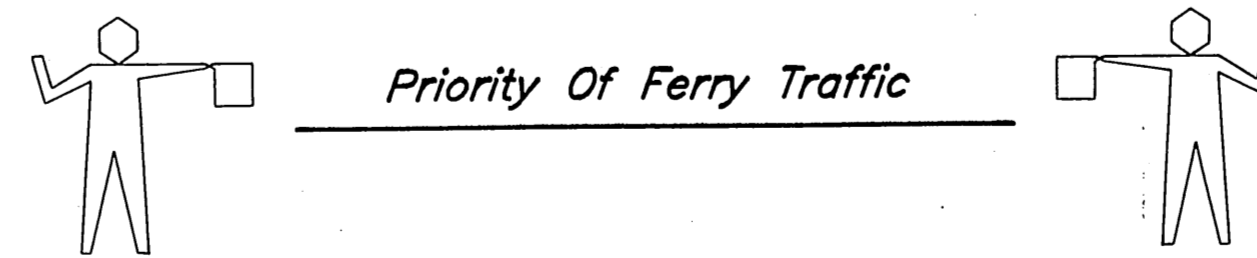
301(5C)	DRILLED PILE SOCKETS, FURN.	C.O.#2	13,713	A.R.	L.S.
301(6)	REGAWAHIZE SPICE WELDS	C.O.#1	1,707	A.R.	L.S.
302(5)	EXTRA DOLPHIN WORK	C.O.#4	6,027	A.R.	L.S.
308(3)	RETROFIT PRESTRESSED PILE ANCHOR	C.O.#3	18,595	A.R.	L.S.

Plan Sheet 2 of 15: Revise the table showing structures to require prestressed pile anchor retrofit to include an additional two (2) anchor retrofits at Mooring Structure "S3" (Lead-in). The retrofits are to be located in the two outboard batters and will require 50 ton uplift. The batters on Structures "N1", "S1", and "S3" also require 50 ton uplift. Uplift to be in accordance with Section 308-3.05 of the Specifications.

GENERAL NOTES

Specifications:
Construction: Per Contract Documents for Project No. STP-095-3(2) / 75279
Design: Restraint and Mooring Structures: Marine Facilities Design Standards.
Design Loads: Mooring Structure: Berthing E 30 ft. - Kips Mooring Line - 30 Kips
 Catwalks and Gangways: LL - 60 psf
Design Unit Stresses:
 Steel: A36 F_y = 20 Ksi
 A252 Gr. 2 F_y = 19.25 Ksi
 A500 Gr. B F_y = 25 Ksi
 A572 F_y = 27 Ksi
 A108 F_y = 29 Ksi
 A608 Gr. D F_y = 30 Ksi
 Fender Timber: EKKI, F_b = 4.0 Ksi.
 Concrete: Min. 28 day strength F_c: Class A-A = 5 ksi. & Class A = 4 ksi.
 Reinforcement: F_y = 60 ksi
Materials:
 Steel: Tube Sections A500 Gr. B
 Pile A252 Gr. 2, A501 or A53, Gr. B, type E or S
 Pipe A53, Gr. B, type E or S
 Stainless Type 302, 304 or 316
 All other shall be A36 or A572 as noted.
 Charpy Group 2 impact requirements shall apply.
 Timber: Fender Faces: EKKI (Lophira Procera)
 Concrete: Class A-A & Class A
Protective Coatings:
 Catwalks: Catwalks Shall be Galvanized after fabrication.
 Pipe Piles and Structural Steel Caps, Wales, Rails and Hardware: Galvanized after fabrication
 Reinforcing Steel: Epoxy Coat
 EKKI: Untreated.
Piling: Size: 18" dia. x 1/2" wall steel pipe or 24" dia. x 1/2" wall steel pipe
Tips: Reinforced tips w/ APF 0-14000 or APF 0-14001 Drive Shoes or Approved Equal. Drive Shoes Are Required At All Piles.
Driving Requirements: (See table this sheet)

As-Built Drawings : As-Built Drawings Of Catwalks And Mooring Structures Are Available For Inspection By Prospective Bidders at the Marine Facilities Engineering Office, 3132 Channel Drive, In Juneau AK. Contact Rob Miller or William Nelson at (907)465-2734.



- Once the Contractor begins improvements the following will remain in force until the project is completed.
 - The Contractor shall conduct his operations so as not to interfere with normal scheduled ferry access or vehicular traffic to and from the existing ferry facilities.
 - Ferry traffic shall have priority over construction activities and it shall be the Contractor's responsibility to coordinate his activities with ferry arrivals and departures.
- The Contractor shall not stockpile any materials in the existing staging area without approval of the Engineer.
- Terminal personnel will stage traffic, and operate the transfer equipment.
- Contractor shall provide safe access and lighting for terminal personnel to tie up points as required throughout the contract.

NEW PILING DATA

PILE LOCATION (Layout Sht. 4) STRUCTURE ORIENTATION & (pile tip)	Piles	DIA. inches	CAPACITY (TONS)		ELEVATIONS		TIP ELEVATIONS		TOTAL ESTIMATED LENGTH
			BEARING	UPLIFT	APPROX MUDDLINE	CUT-OFF	MIN.	EST.	
MOORING STRUCTURE "N2" (STD)									
Fender	4	24	10	---	-28	25.22	-34	-43	273
Vertical	1	18	120	120	-25	25.22	-33	-45	70
3:1 batter	2	18	65	50	-19	31.22	-27	-39	148
MOORING STRUCTURE "N3" (STD)									
Fender	4	24	10	---	-28	25.22	-34	-43	273
Vertical	1	18	120	120	-27	25.22	-35	-47	72
3:1 batter	2	18	65	50	-21	31.22	-29	-41	152
MOORING STRUCTURE "N4" (STD)									
Fender	4	24	10	---	-28	25.22	-34	-43	273
Vertical	1	18	120	120	-27	25.22	-35	-47	72
3:1 batter	2	18	65	50	-22	31.22	-30	-42	154
MOORING STRUCTURE "N5" (LEAD-IN)									
Fender	5	24	10	---	-26	25.22 32.33	-32	-41	345
Vertical	2	18	120	120	-23	25.22	-31	-43	136
3:1 batter	3	18	65	50	-18	31.22	-26	-38	219
4:1 batter	1	18	65	50	-19	31.22	-27	-39	72

EXISTING PILING DATA FOR INFORMATION ONLY

THE FOLLOWING STRUCTURES REQUIRE PRESTRESS PILE ANCHOR RETROFIT AT BATTER PILES.

MOORING STRUCTURE "N1" (STD)									
Fender	4	24	ROCK	---	-21	25.19	-26/-28		
Vertical	1	18	ROCK	S ₂₀	-15	25.19	-29		
3:1 batter	2	18	ROCK	---	-15	31.16	-26/-29		
MOORING STRUCTURE "S1" (STD)									
Fender	4	24	ROCK	---	-21	25.19	-31		
Vertical	1	18	ROCK	S ₂₀	-18	25.19	-89		
3:1 batter	2	18	ROCK	---	-15	31.16	-28/-29		
MOORING STRUCTURE "S3" (STD)									
Fender	4	24	ROCK	---	-30	25.19	-50/-52		
Vertical	1	18	ROCK	S ₂₀	-29	25.19	-49		
3:1 batter	2	18	ROCK	---	-27	31.19	-44/-47		

MOORING STRUCTURE "S3" (LEAD-IN) ② 18 ROCK S₂₀ ADD BIDDING #4

STAMP

DO NOT SCALE THIS DRAWING - USE DIMENSIONS

STATE OF ALASKA
 DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

WRANGELL ALASKA

QUANTITIES AND GENERAL NOTES

DESIGNED RWM CHECKED BAS DRAWN WVN DATE AUG, 1993
 PROJECT NUMBER STP-095-3(2) / 75279 SHEET 2 OF 15

WRC-2

COORDINATE DATA TABLE		
DESCRIPTION	NORTHING	EASTING
BR-1 BEGIN TRANSFER BRIDGE AT BACK OF ABUTMENT WALL	9960.537	10153.998
BR-2 P.I. AT Q TRANSFER BRIDGE AND FACE OF FENDER LINE	9963.353	9992.693
BC-1 (BRASS CAP IN CASE IN STAGING AREA)	9847.475	10259.448
BC-2 (BRASS CAP IN CASE IN STAGING AREA)	9919.455	10258.820
BC-3 (BRASS CAP IN CASE IN STAGING AREA)	9999.663	10349.679

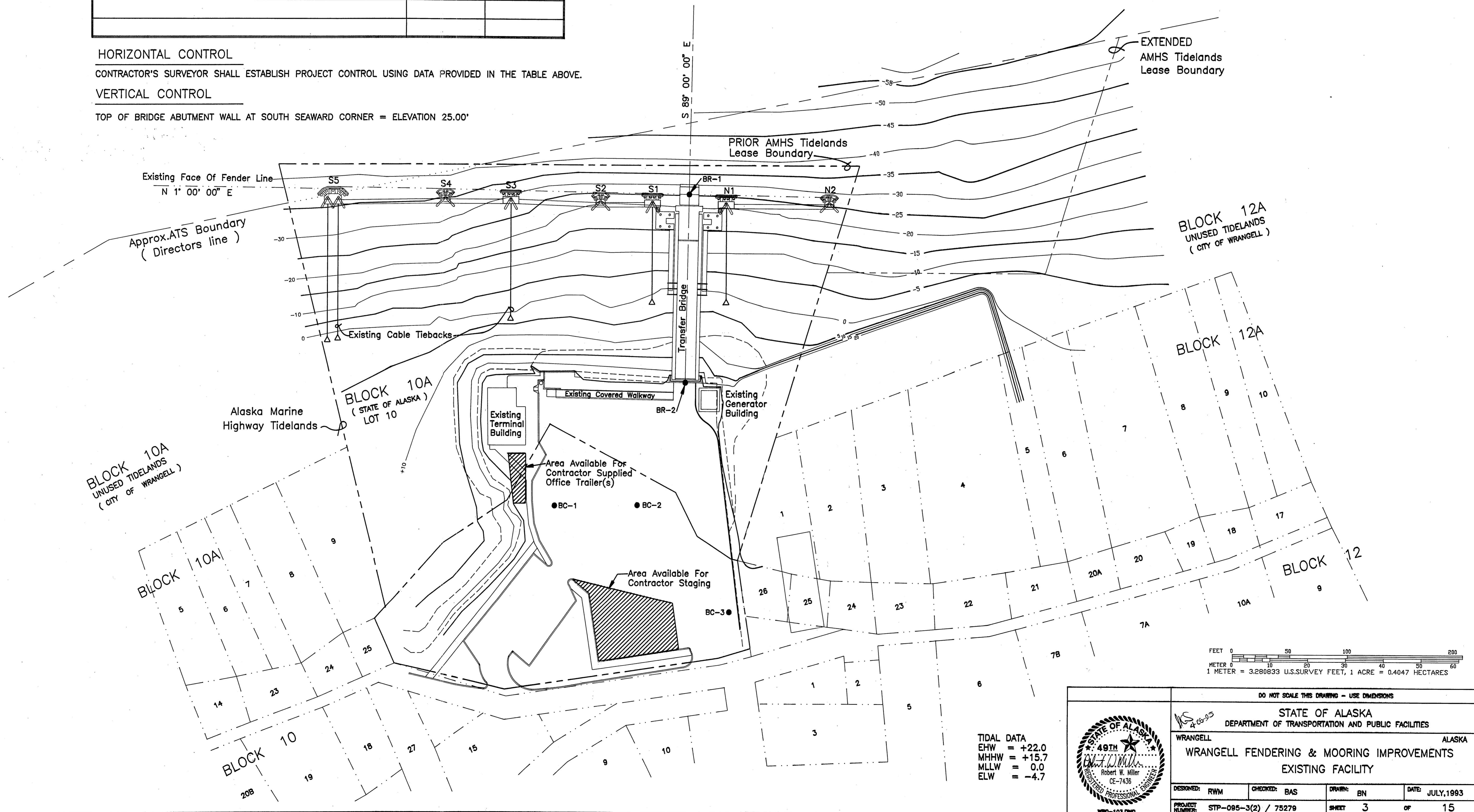
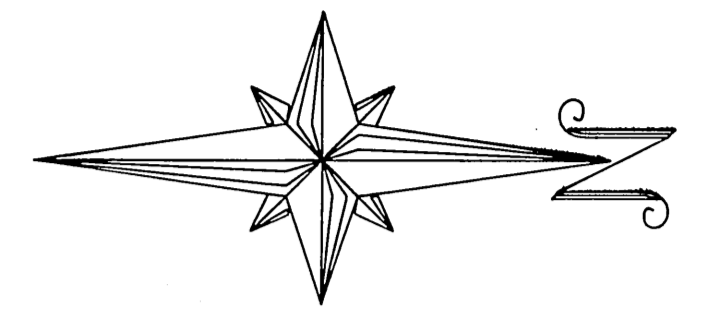
HORIZONTAL CONTROL

CONTRACTOR'S SURVEYOR SHALL ESTABLISH PROJECT CONTROL USING DATA PROVIDED IN THE TABLE ABOVE.

VERTICAL CONTROL

TOP OF BRIDGE ABUTMENT WALL AT SOUTH SEAWARD CORNER = ELEVATION 25.00'

ZIMOVIA STRAIT

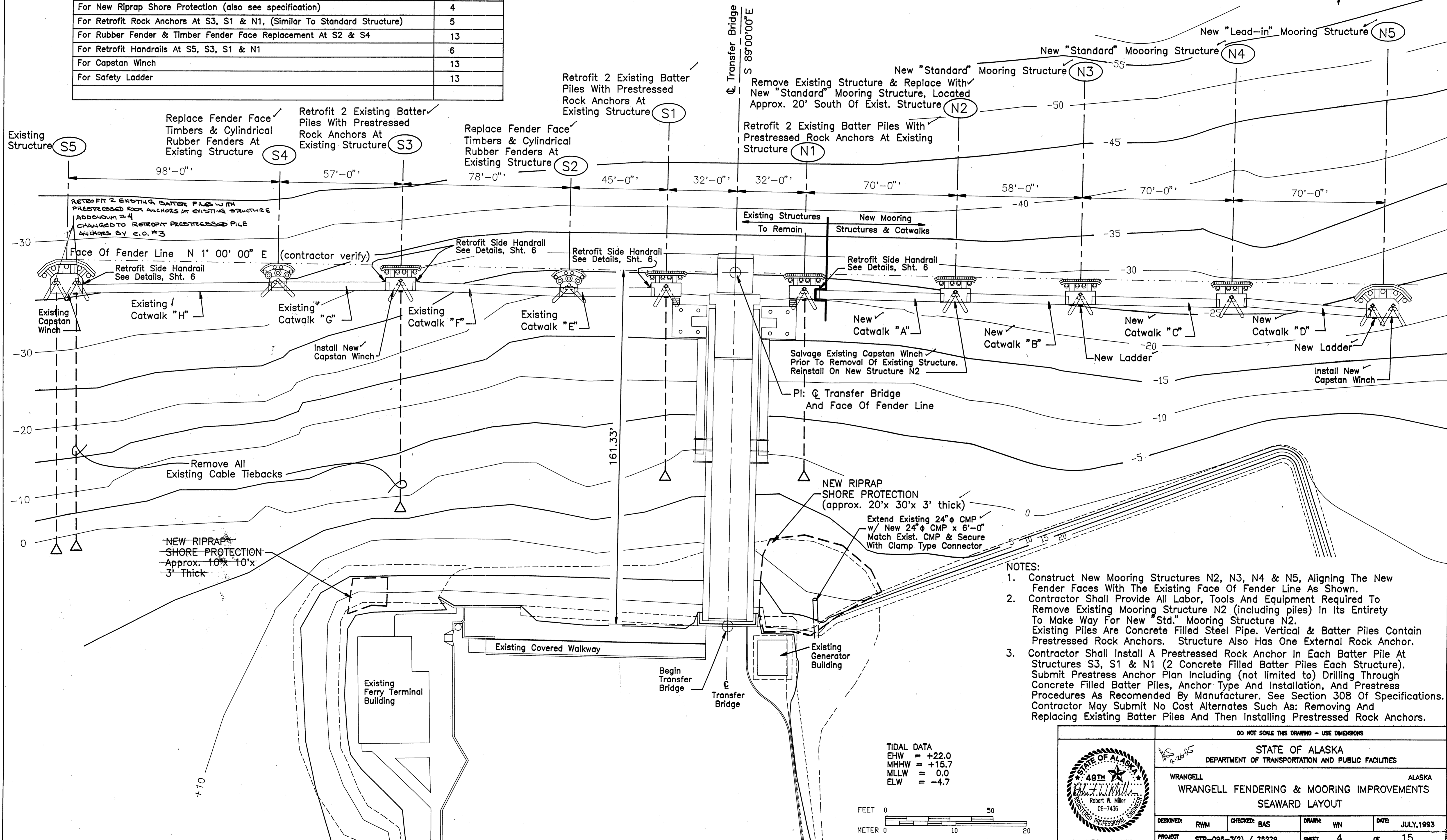
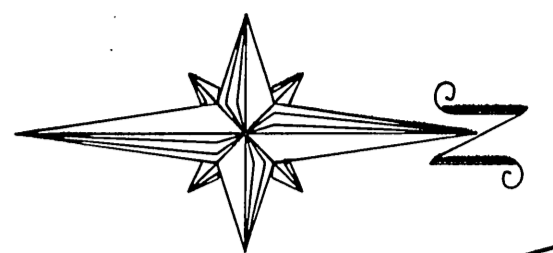


TIDAL DATA
 EHW = +22.0
 MHHW = +15.7
 MLLW = 0.0
 ELW = -4.7

	DO NOT SCALE THIS DRAWING - USE DIMENSIONS			
	STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES			
	WRANGELL		ALASKA	
WRANGELL FENDERING & MOORING IMPROVEMENTS EXISTING FACILITY				
DESIGNED: RWM	CHECKED: BAS	DRAWN: BN	DATE: JULY, 1993	
PROJECT NUMBER: STP-085-3(2) / 75278		SHEET 3 OF 15		

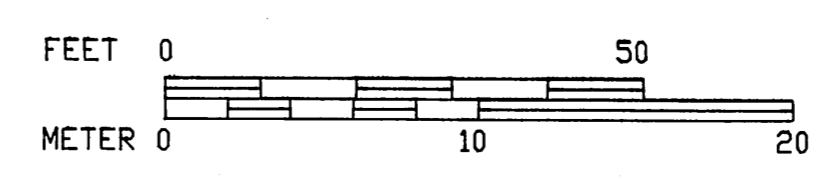
REFERENCES	SHEETS
For New "Standard" Mooring Structures N2, N3 & N4; Caps, Fenders & Anchors	5, 6 & 7
For New "Lead-in" Mooring Structure N5, Cap & Fender (Anchor Same As Above)	8, 9 & 10
For New Catwalks A, C & D	11
For New Catwalk B	12
For New Riprap Shore Protection (also see specification)	4
For Retrofit Rock Anchors At S3, S1 & N1, (Similar To Standard Structure)	5
For Rubber Fender & Timber Fender Face Replacement At S2 & S4	13
For Retrofit Handrails At S5, S3, S1 & N1	6
For Capstan Winch	13
For Safety Ladder	13

ZIMOVIA STRAIT



- NOTES:**
- Construct New Mooring Structures N2, N3, N4 & N5, Aligning The New Fender Faces With The Existing Face Of Fender Line As Shown.
 - Contractor Shall Provide All Labor, Tools And Equipment Required To Remove Existing Mooring Structure N2 (including piles) In Its Entirety To Make Way For New "Std." Mooring Structure N2. Existing Piles Are Concrete Filled Steel Pipe. Vertical & Batter Piles Contain Prestressed Rock Anchors. Structure Also Has One External Rock Anchor.
 - Contractor Shall Install A Prestressed Rock Anchor In Each Batter Pile At Structures S3, S1 & N1 (2 Concrete Filled Batter Piles In Each Structure). Submit Prestress Anchor Plan including (not limited to) Drilling Through Concrete Filled Batter Piles, Anchor Type And Installation, And Prestress Procedures As Recommended By Manufacturer. See Section 308 Of Specifications. Contractor May Submit No Cost Alternates Such As: Removing And Replacing Existing Batter Piles And Then Installing Prestressed Rock Anchors.

TIDAL DATA
 EHW = +22.0
 MHHW = +15.7
 MLLW = 0.0
 ELW = -4.7



DO NOT SCALE THIS DRAWING - USE DIMENSIONS

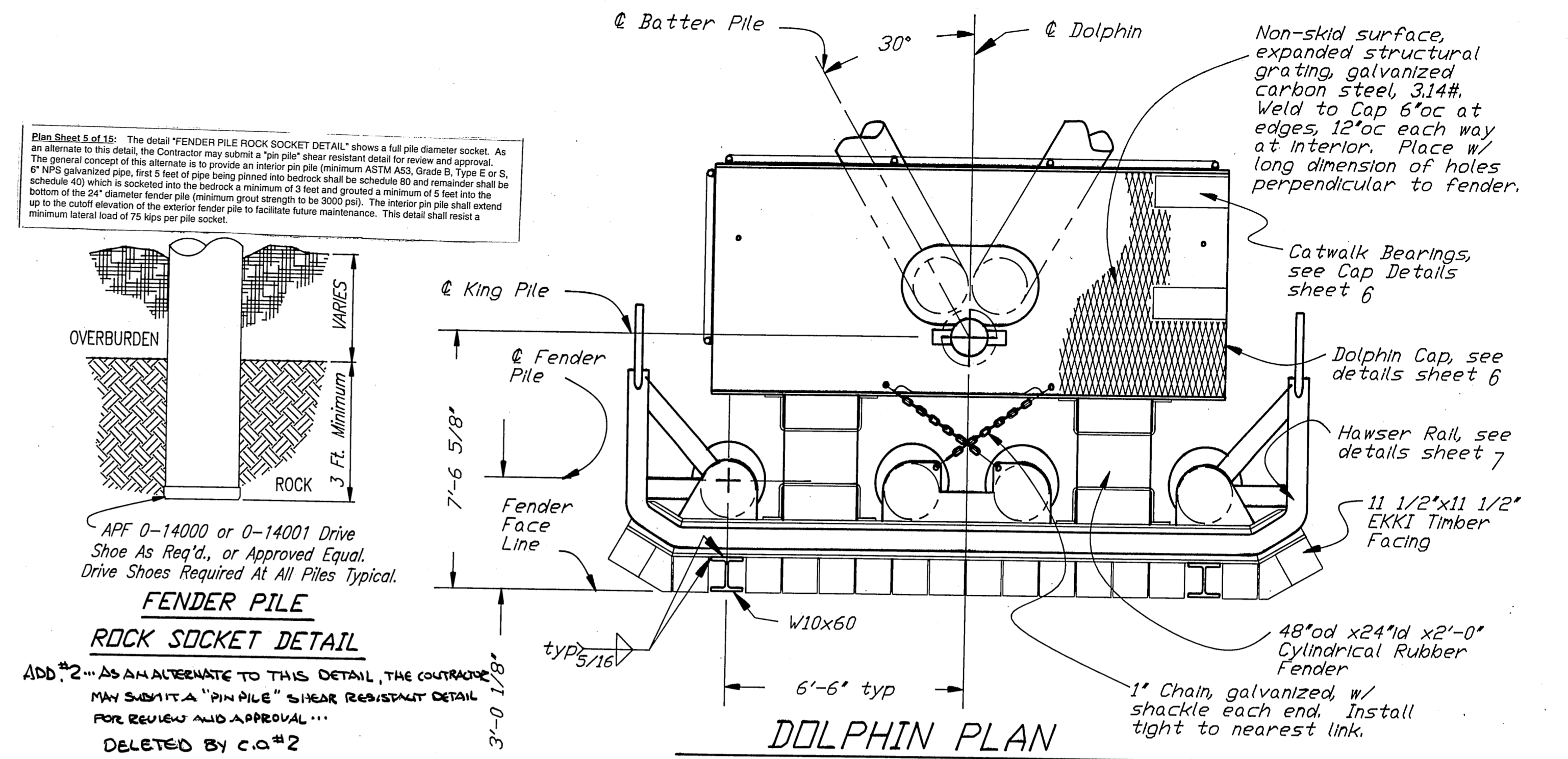
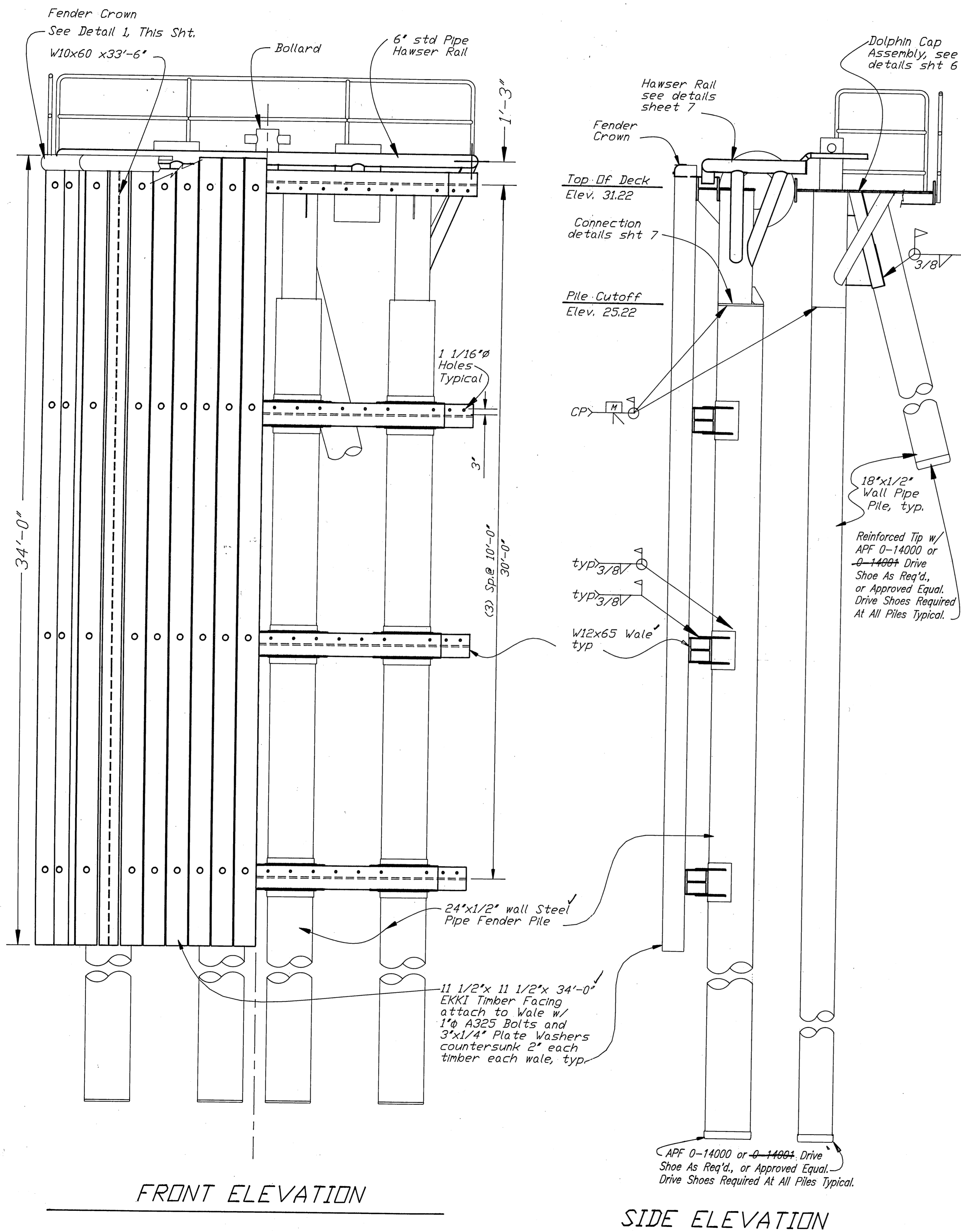
49th
Robert W. Miller
CE-7436
PROFESSIONAL ENGINEER

STATE OF ALASKA
 DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

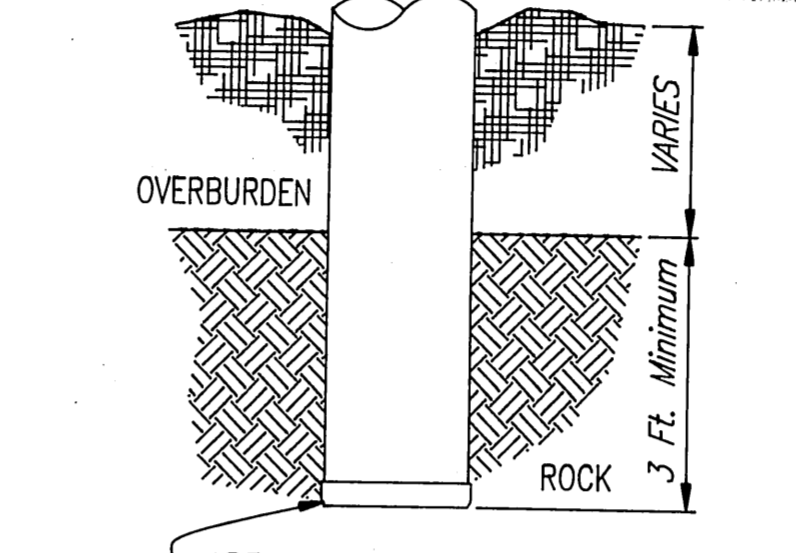
WRANGELL ALASKA
 WRANGELL FENDERING & MOORING IMPROVEMENTS
 SEAWARD LAYOUT

DESIGNED: RWM	CHECKED: BAS	DRAWN: WN	DATE: JULY, 1993
PROJECT NUMBER: STP-095-3(2) / 75279	SHEET: 4	OF: 15	

WRG-104.DWG



Plan Sheet 5 of 15: The detail 'FENDER PILE ROCK SOCKET DETAIL' shows a full pile diameter socket. As an alternate to this detail, the Contractor may submit a 'pin pile' shear resistant detail for review and approval. The general concept of this alternate is to provide an interior pin pile (minimum ASTM A53, Grade B, Type E or S, schedule 40) which is socketed into the bedrock a minimum of 3 feet and grouted a minimum of 5 feet into the bottom of the 24" diameter fender pile (minimum grout strength to be 3000 psi). The interior pin pile shall extend up to the cutoff elevation of the exterior fender pile to facilitate future maintenance. This detail shall resist a minimum lateral load of 75 kips per pile socket.

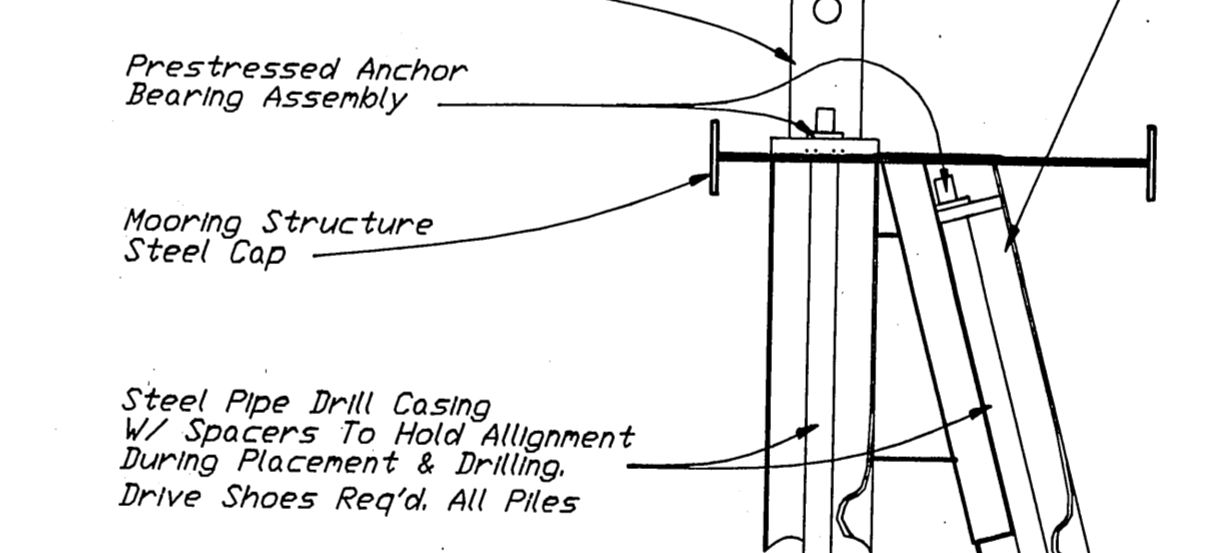


**FENDER PILE
ROCK SOCKET DETAIL**

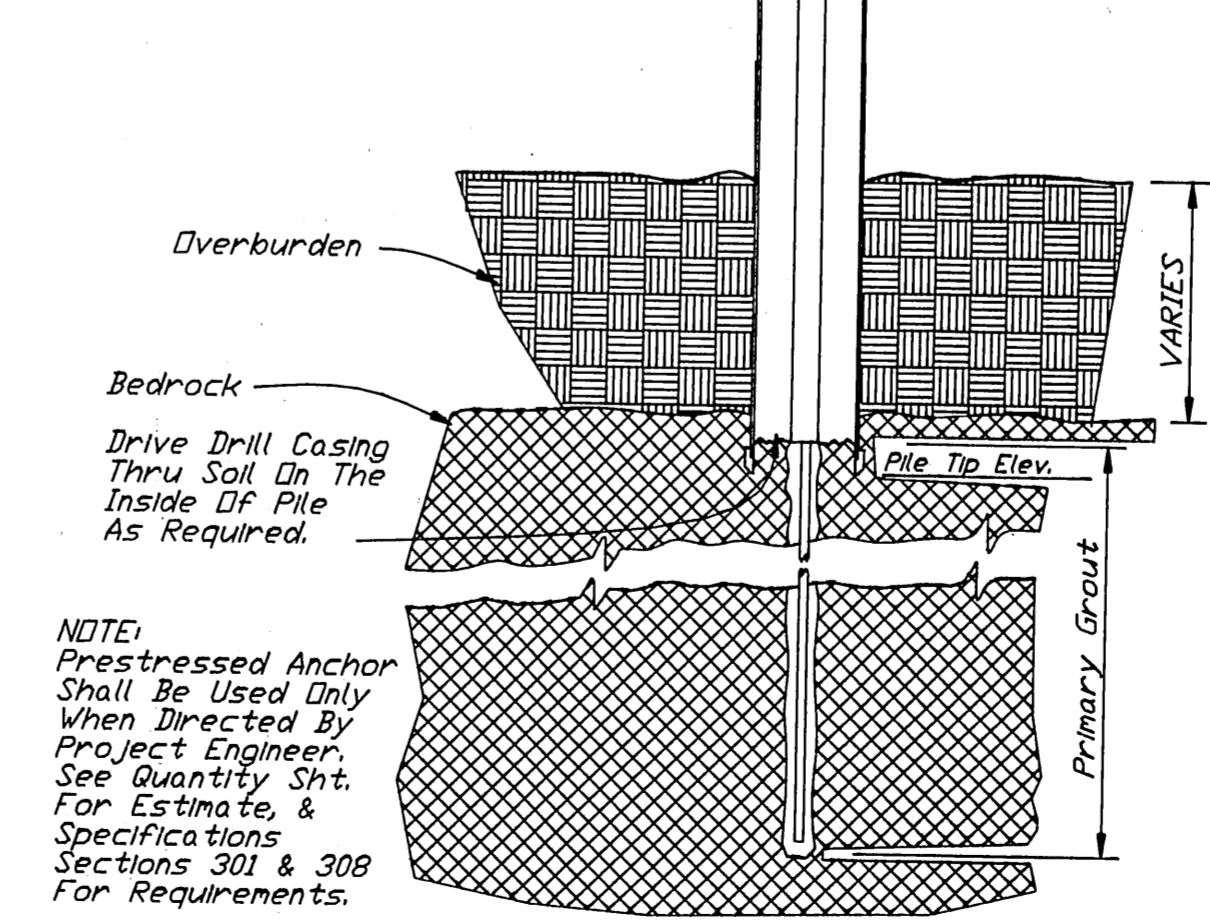
ADD #2... AS AN ALTERNATE TO THIS DETAIL, THE CONTRACTOR
MAY SUBMIT A "PIN PILE" SHEAR RESISTANT DETAIL
FOR REVIEW AND APPROVAL...

DELETED BY C.O.#2

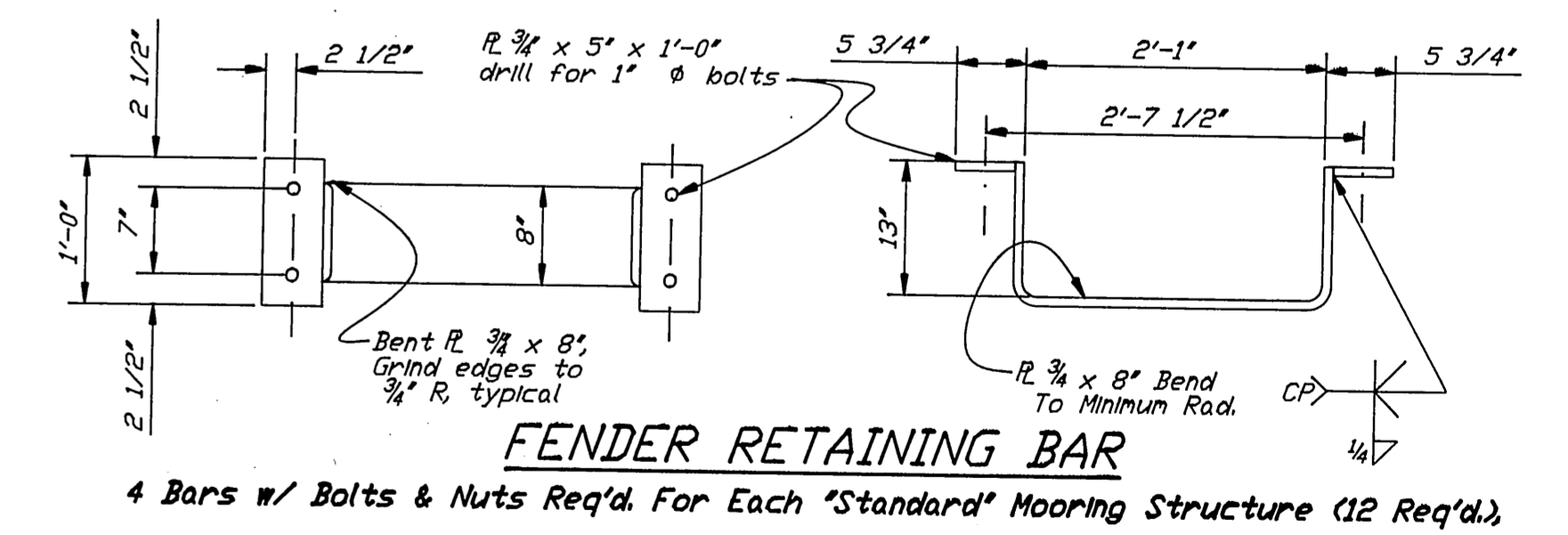
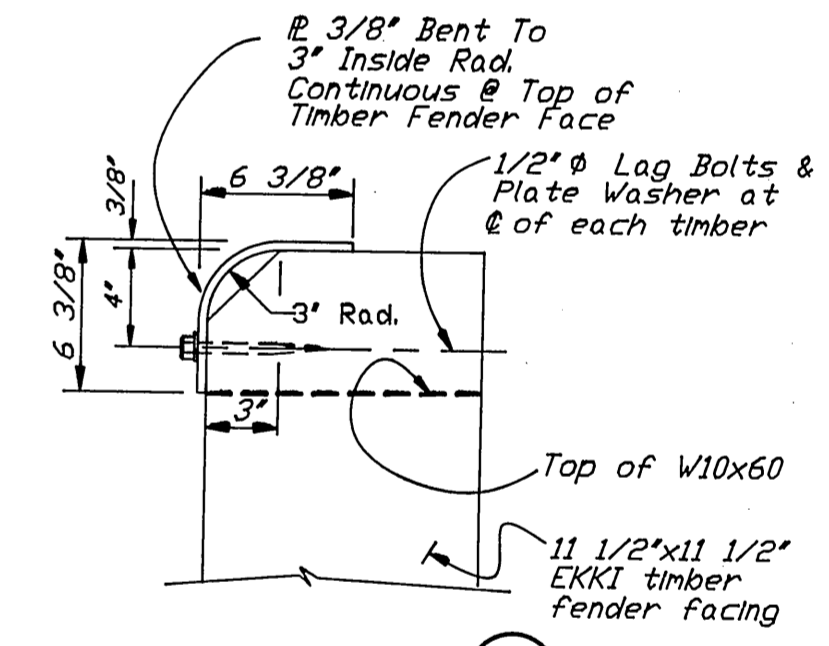
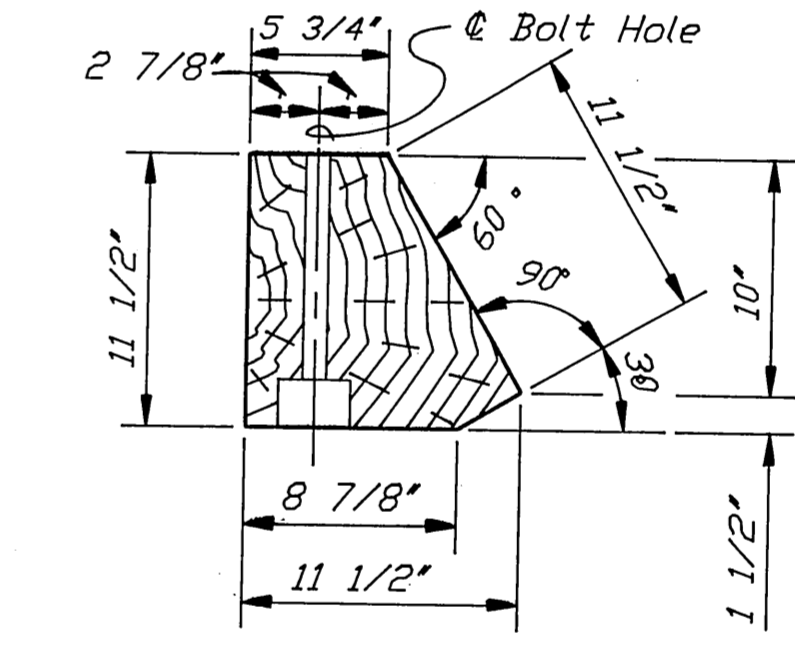
NOTE:
Piles To Receive Retrofit Prestressed Pile Anchors
Are The Batter Piles At Structures N1, S1 & S3. ~~ADD #4~~ **ADD #4**
These Piles Are Concrete Filled & Will Require Drilling Prior To
Installation Of Anchors. See Section 308 Of The Specifications
For Contractor Options. Submit Procedure & Drawings For Approval.



Both Vertical & Batter Piles Shall
Be Driven To Refusal As Shown
In The Pile Data Table, Sht.2



PRESTRESSED PILE ANCHOR
CONTRACTOR TO SUBMIT DETAILS



DO NOT SCALE THIS DRAWING - USE DIMENSIONS

4-26-95

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

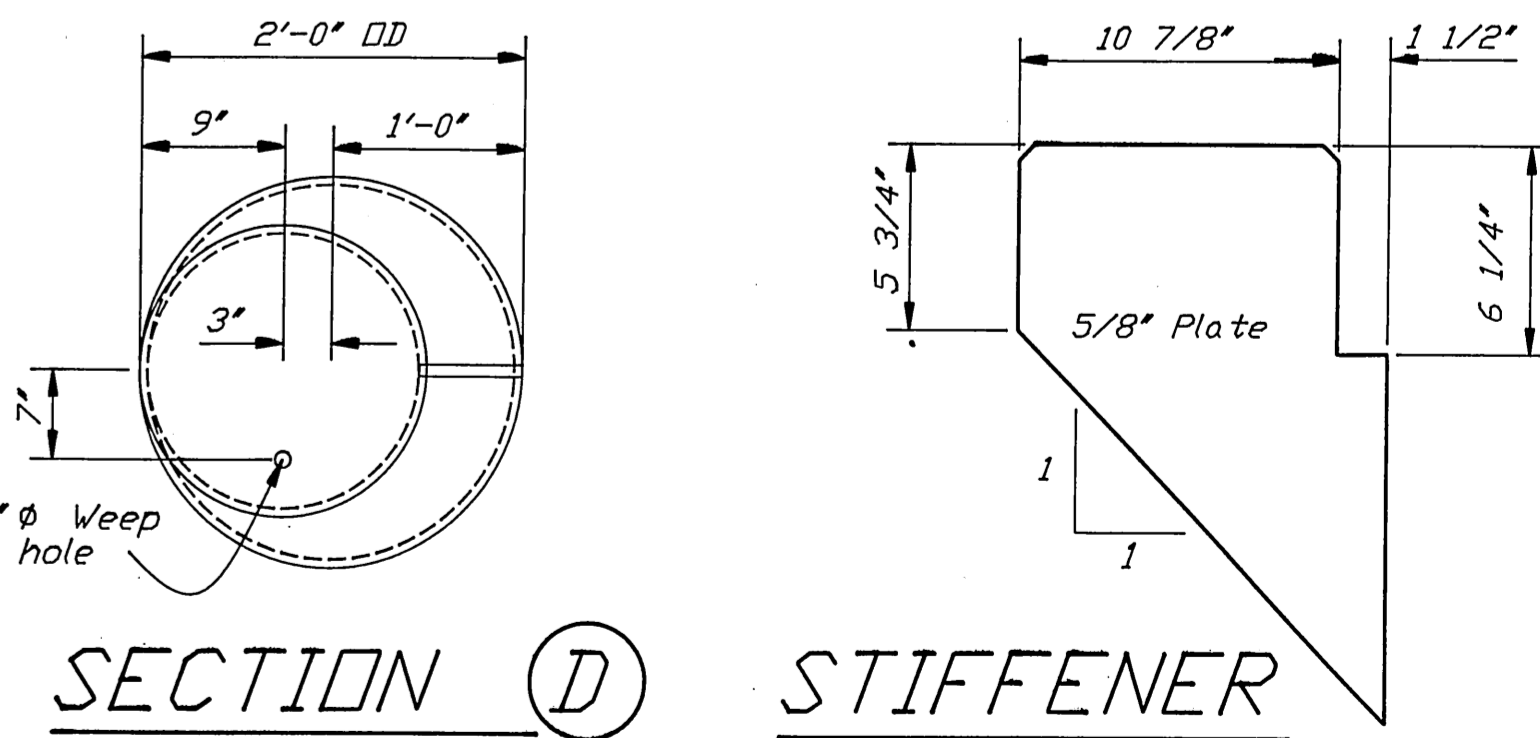
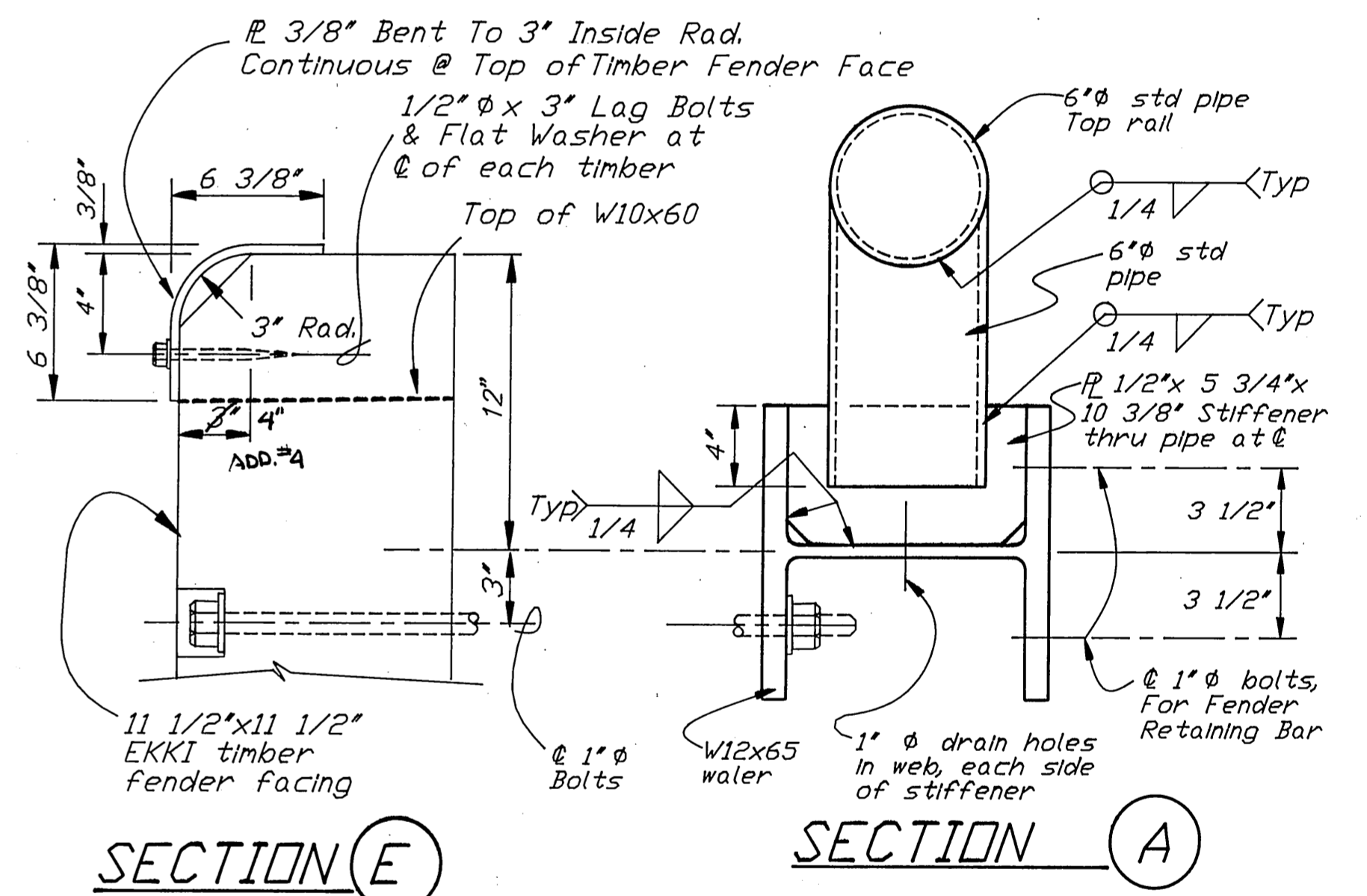
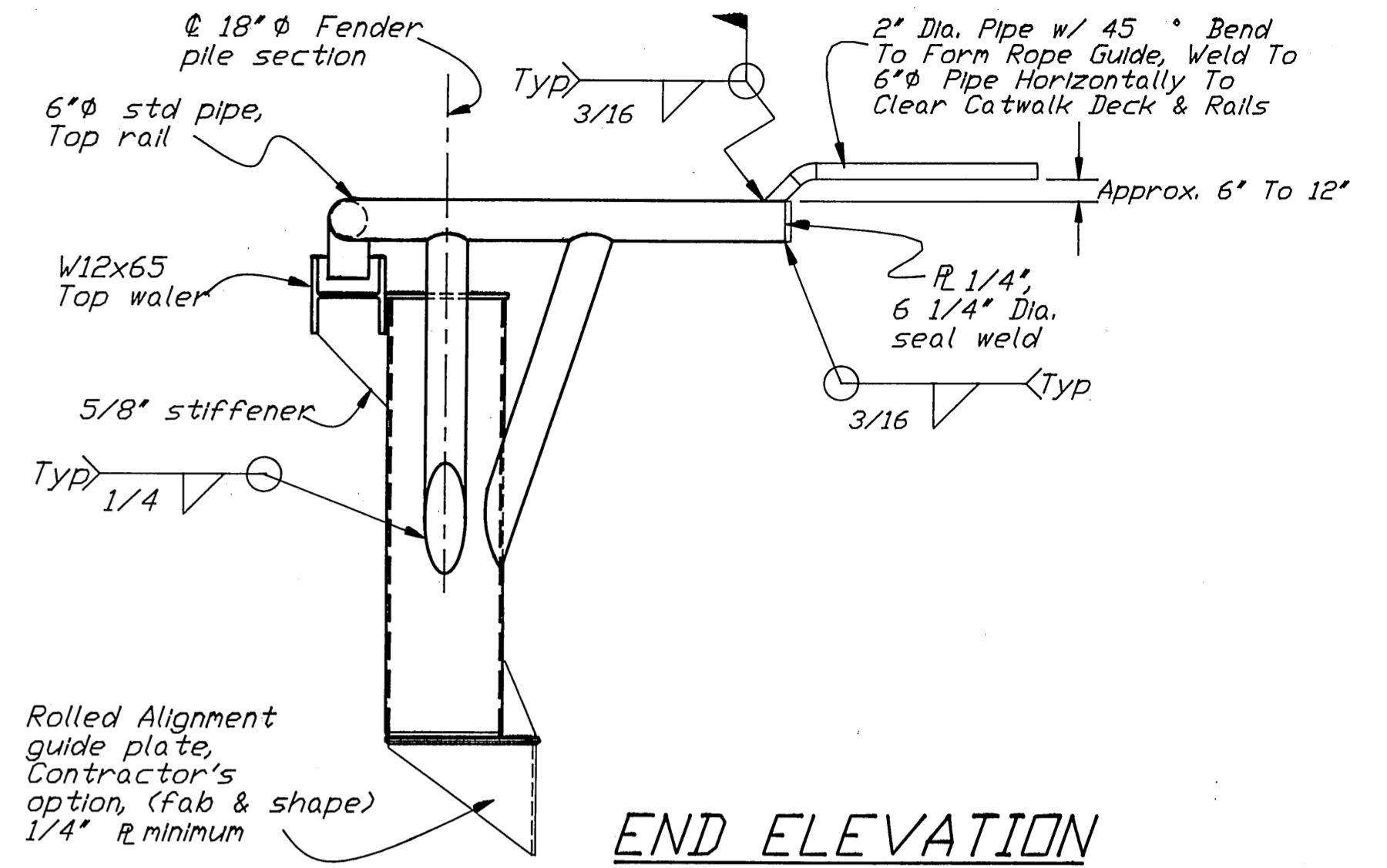
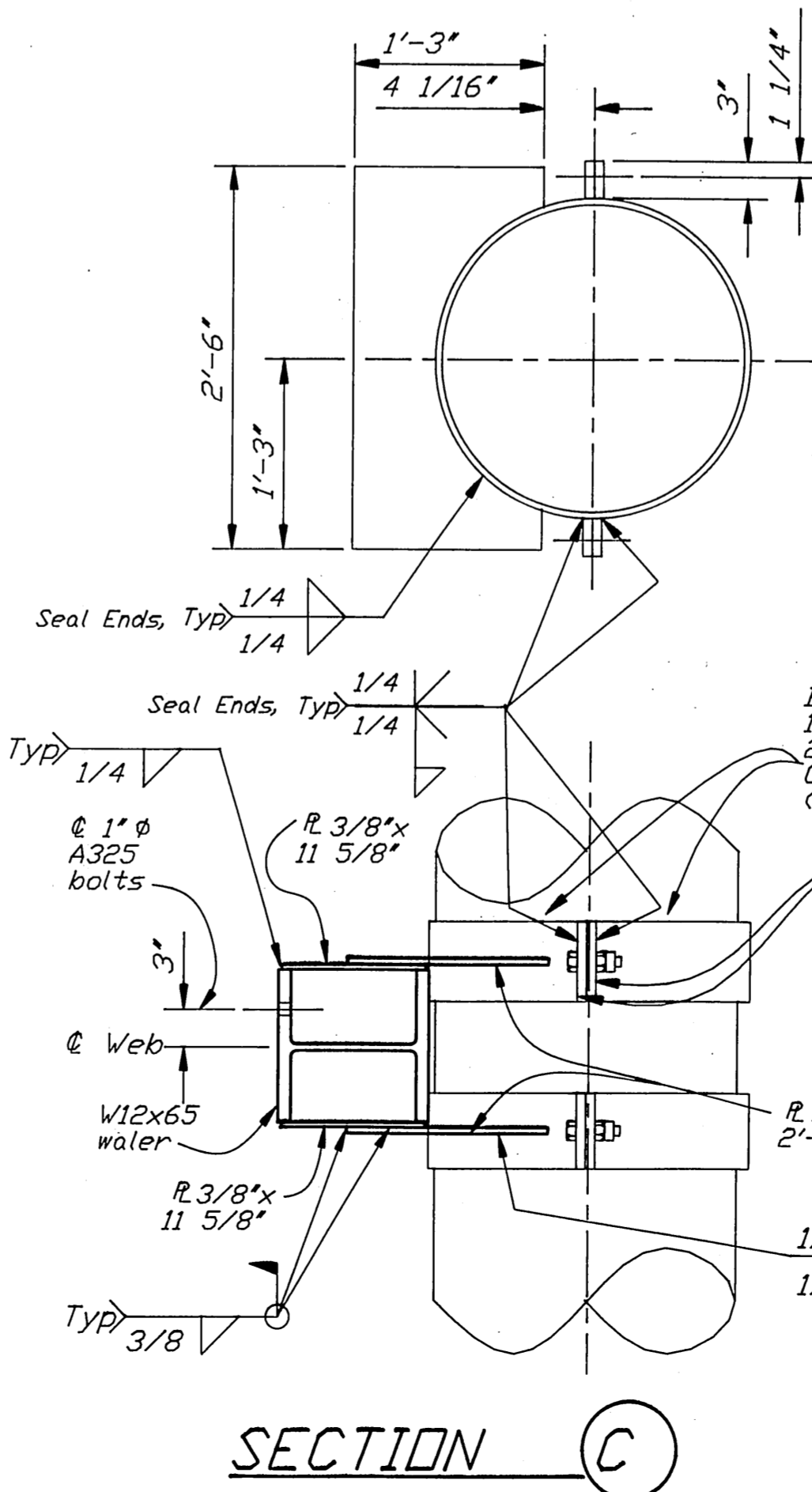
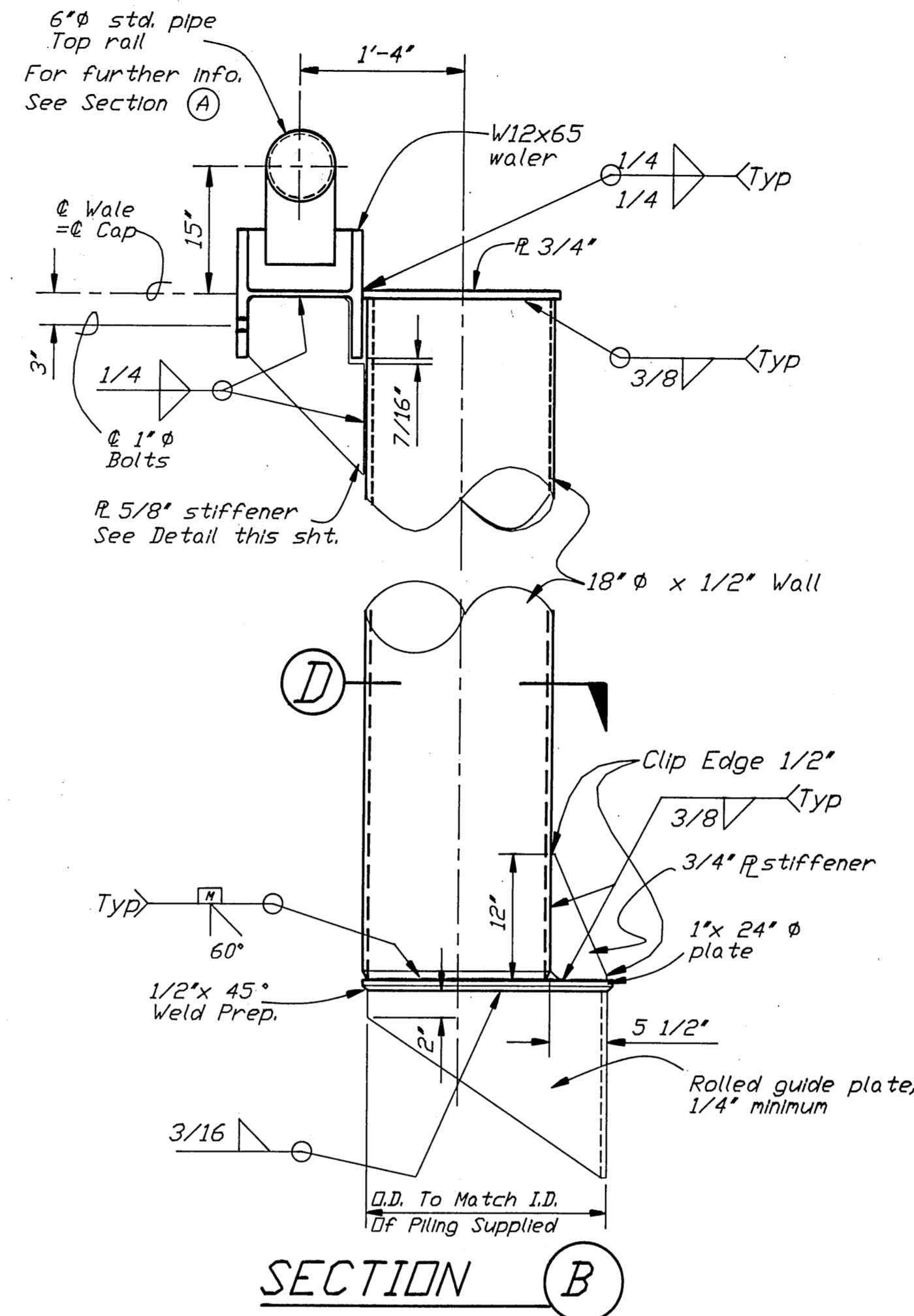
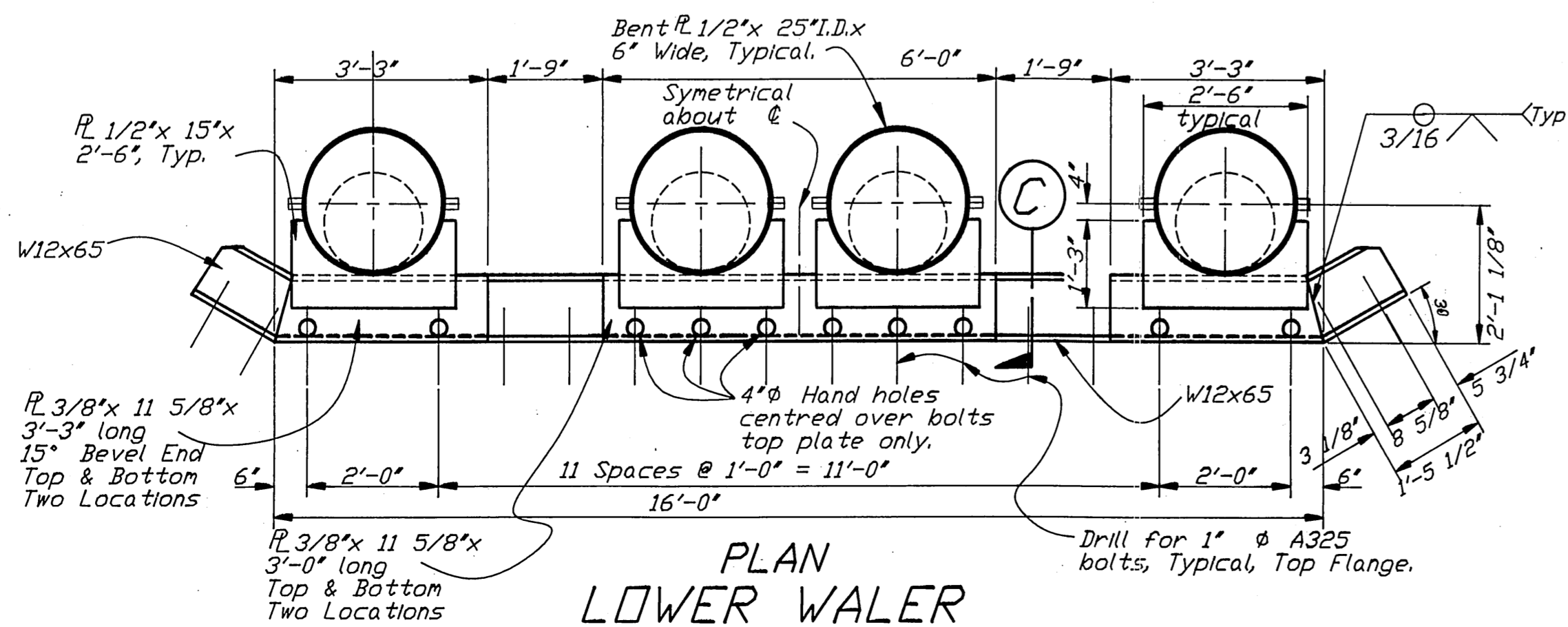
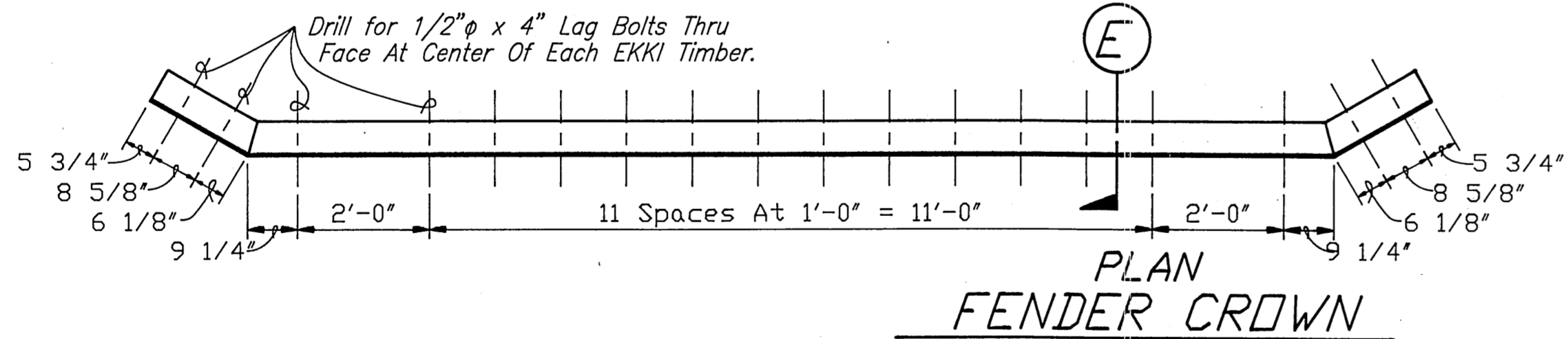
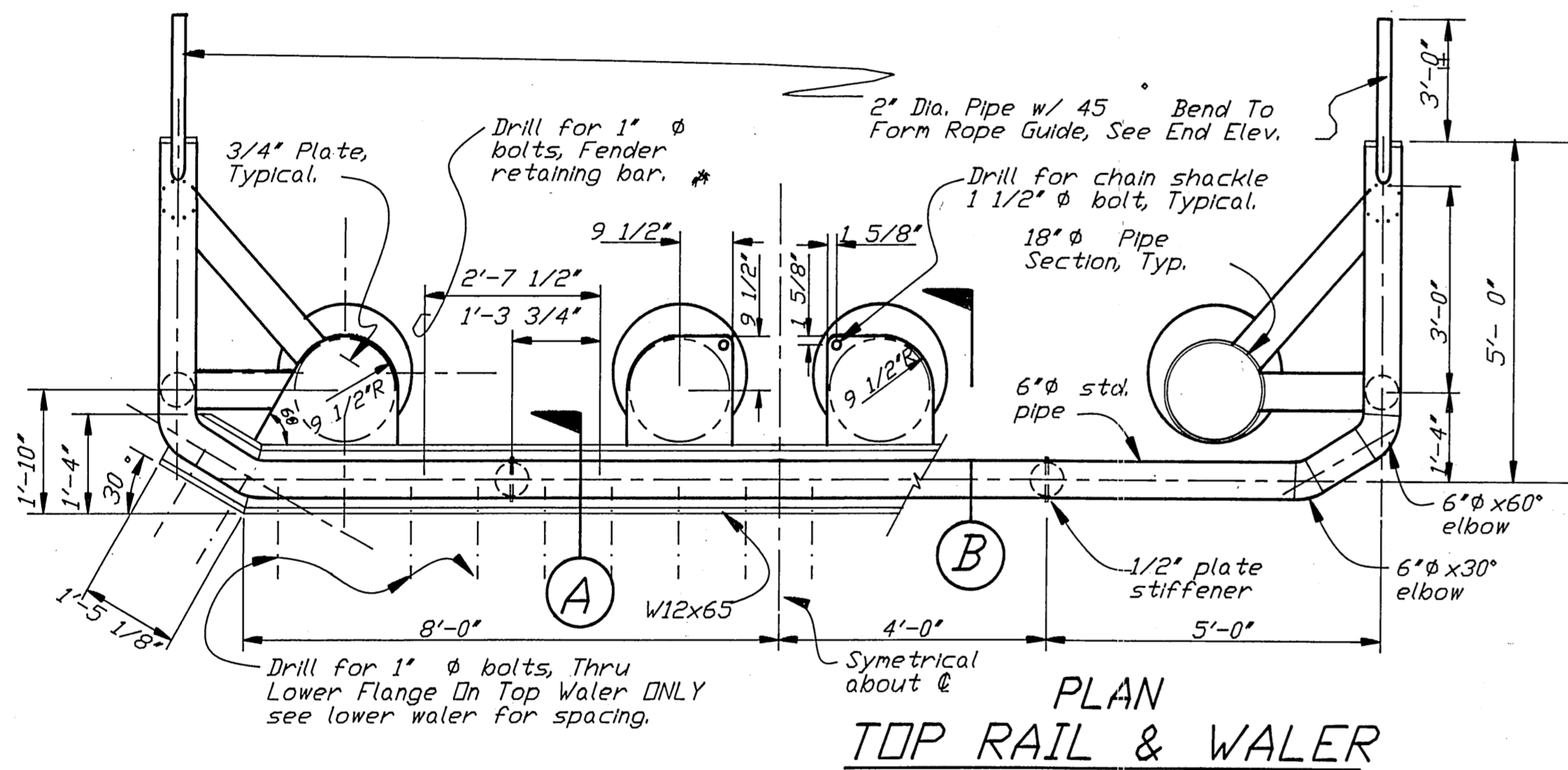
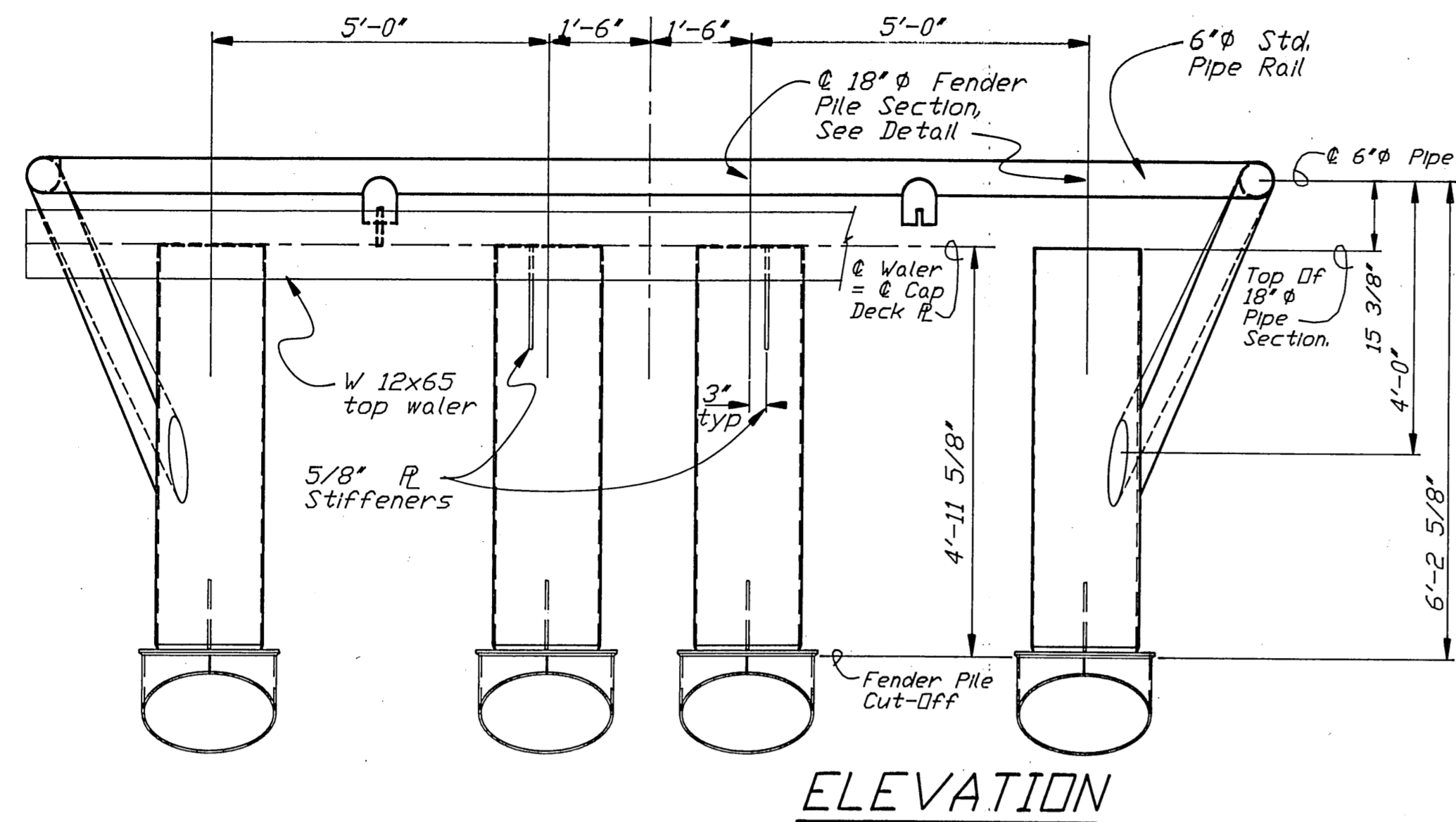
WRANGELL ALASKA
**STANDARD MOORING STRUCTURE
PLAN AND ELEVATION**

DESIGNED: BAS CHECKED: RWM DRAWN: BN DATE: AUG.199

PROJECT NUMBER: STP-095-3(2) / 75279 SHEET 5 OF 15

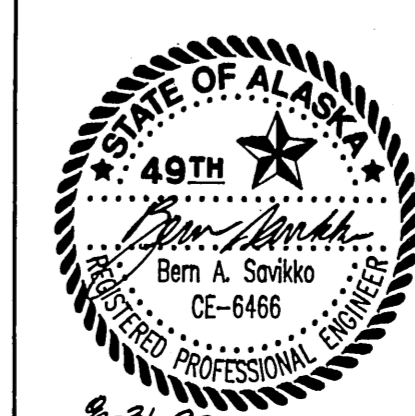
8-31-93
MSI-STD

STATE OF ALASKA
49TH
Bert A. Savikko
CE-6466
REGISTERED PROFESSIONAL ENGINEER

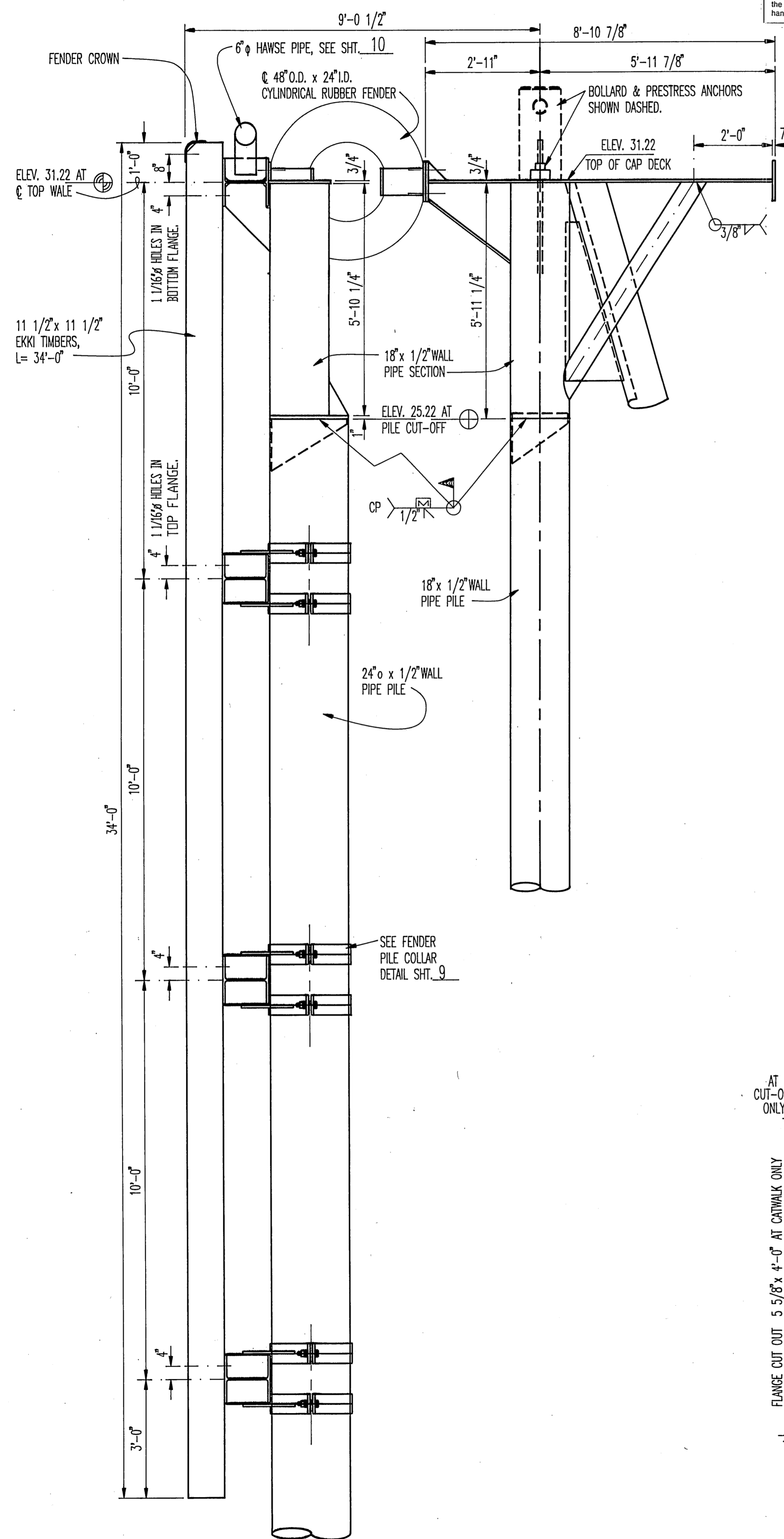


Plan Sheet 2 of 15: The detail "SECTION E" shows a 1/2" diameter X 3" long lag bolt to fasten the fender crown to the top of the fender timbers. The lag bolt should be 4" long to match a similar detail on other sheets.

DO NOT SCALE THIS DRAWING - USE DIMENSIONS			
STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES			
WRANGELL		ALASKA	
STANDARD MOORING STRUCTURE FENDER DETAILS			
DESIGNED: BAS	CHECKED: RWM	DRAWN: Geol/WN	DATE: AUG.1993
PROJECT NUMBER: STP-095-3(2) / 75279	SHEET 7	OF	15



MSI-FNDR 8-31-93



SECTION "A",
MOORING STRUCTURE SECTIONAL ELEVATION

Plan Sheet 8 of 15: The detail "MOORING STRUCTURE CAP, PLAN" indicates a W10x100 vertical member on the upper left hand portion of the detail. All of these vertical members are W10x60 as labeled in the upper right hand portion of this detail.

NOTE: 6" HAWSE PIPE NOT SHOWN THIS VIEW FOR CLARITY, SEE DETAILS SHT. 10

MILLED EKKI CORNER TIMBERS, TYP. SEE DETAIL THIS SHT.

ADD #A W10x100, L=34'-0", TYP.

11 1/2" x 11 1/2" EKKI TIMBERS, TYP. SEE DETAIL THIS SHEET.

48" O.D. x 24" I.D. x 1'-6" CYLINDRICAL RUBBER FENDER

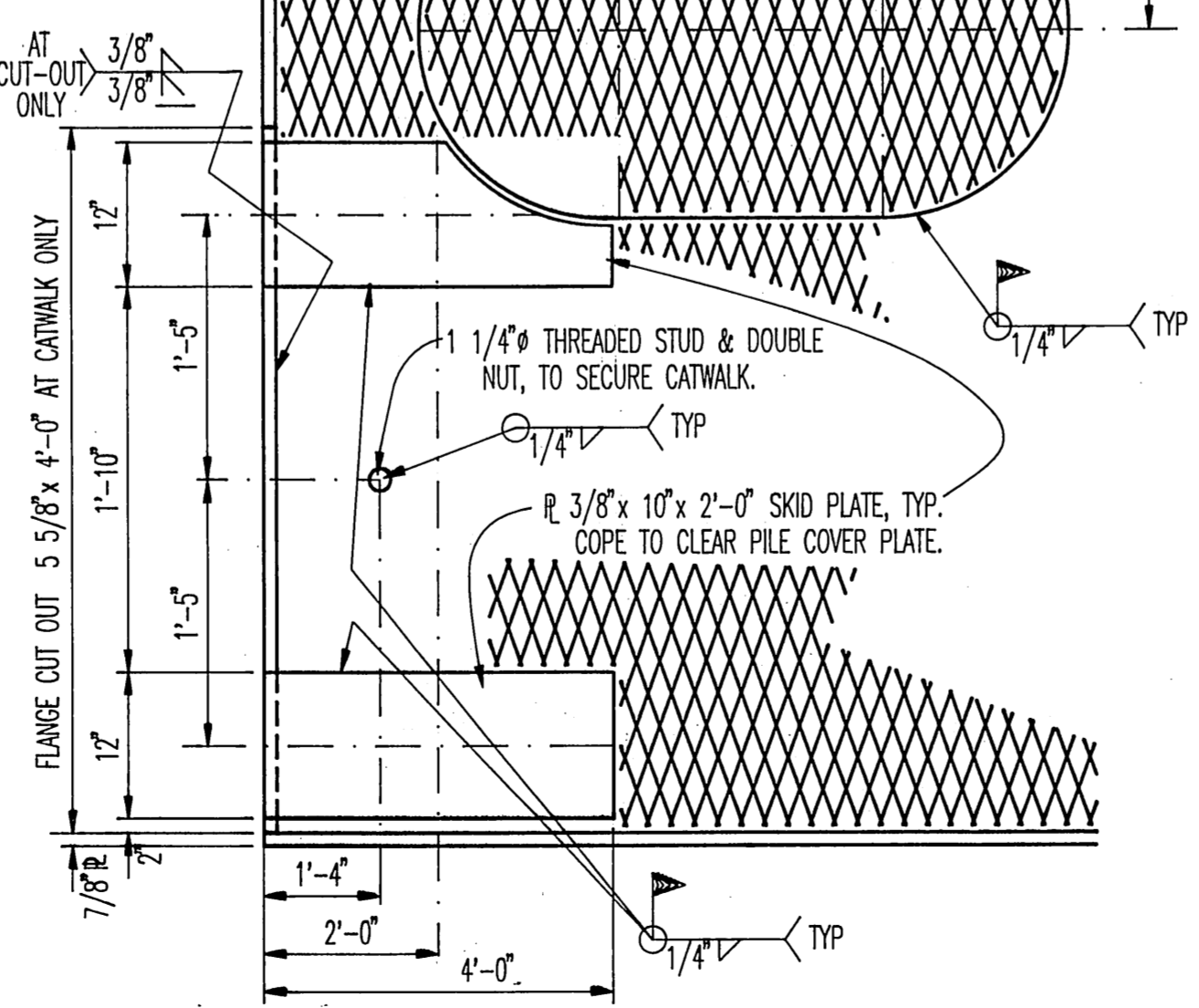
CATWALK BEARING & 1 1/4" THREADED STUD THIS SIDE ONLY.

GRATING NOTE:
3.14 LB. GALV. CARBON STEEL EXPANDED STRUCTURAL GRATING PLACE W/ LONG DIMENSION PERPENDICULAR TO FENDER FACE. WELD TO DECK P AT 6" O.C. ALONG EDGE & AT 12" x 12" SPACING FOR INTERIOR WELDS.

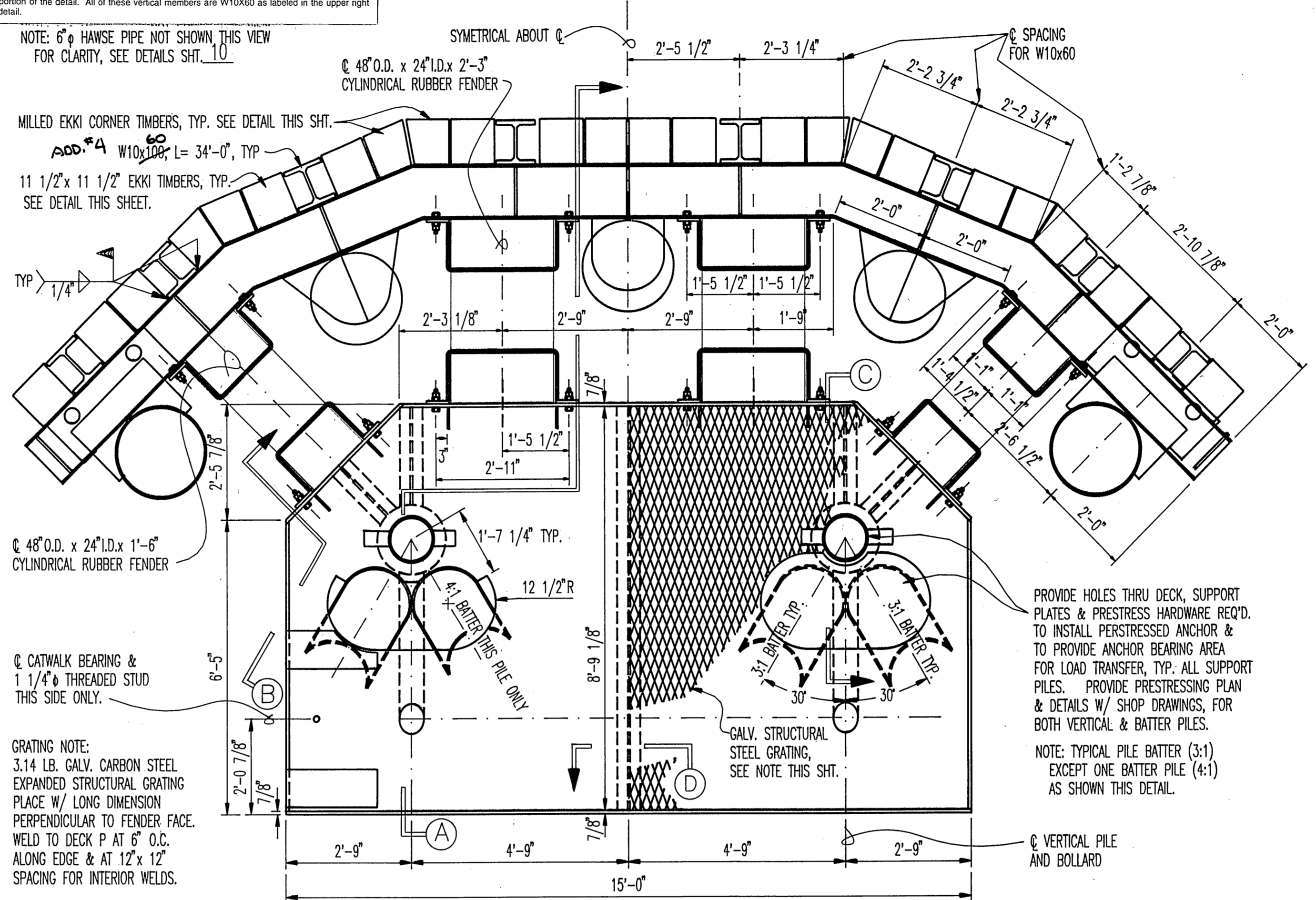
3/8" x 2'-1 1/2" x 3'-8 3/4" PILE COVER. CUT PLATE TO CLEAR PRESTRESS ANCHORS.

1 1/4" THREADED STUD & DOUBLE NUT, TO SECURE CATWALK.

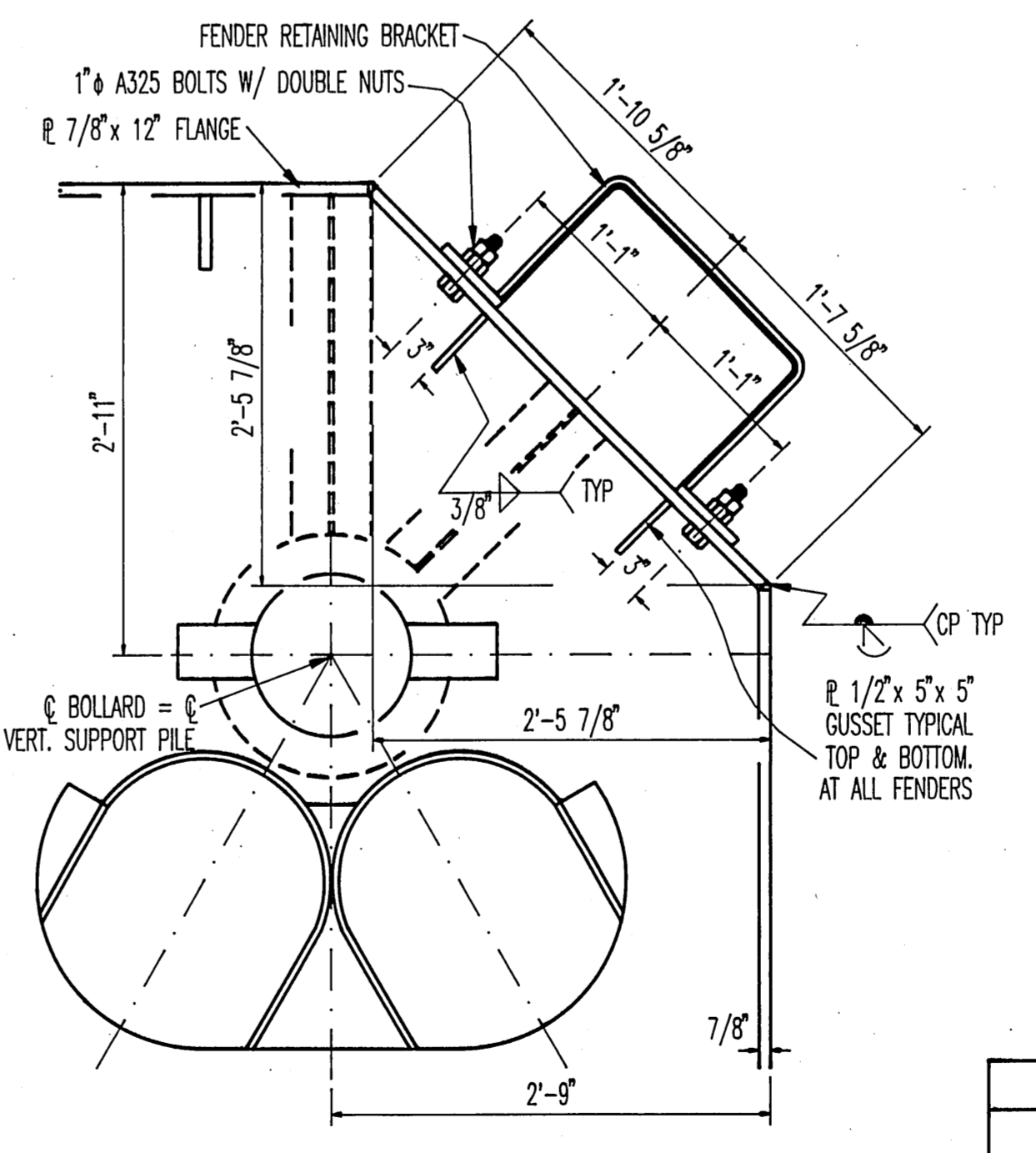
3/8" x 10" x 2'-0" SKID PLATE, TYP. COPE TO CLEAR PILE COVER PLATE.



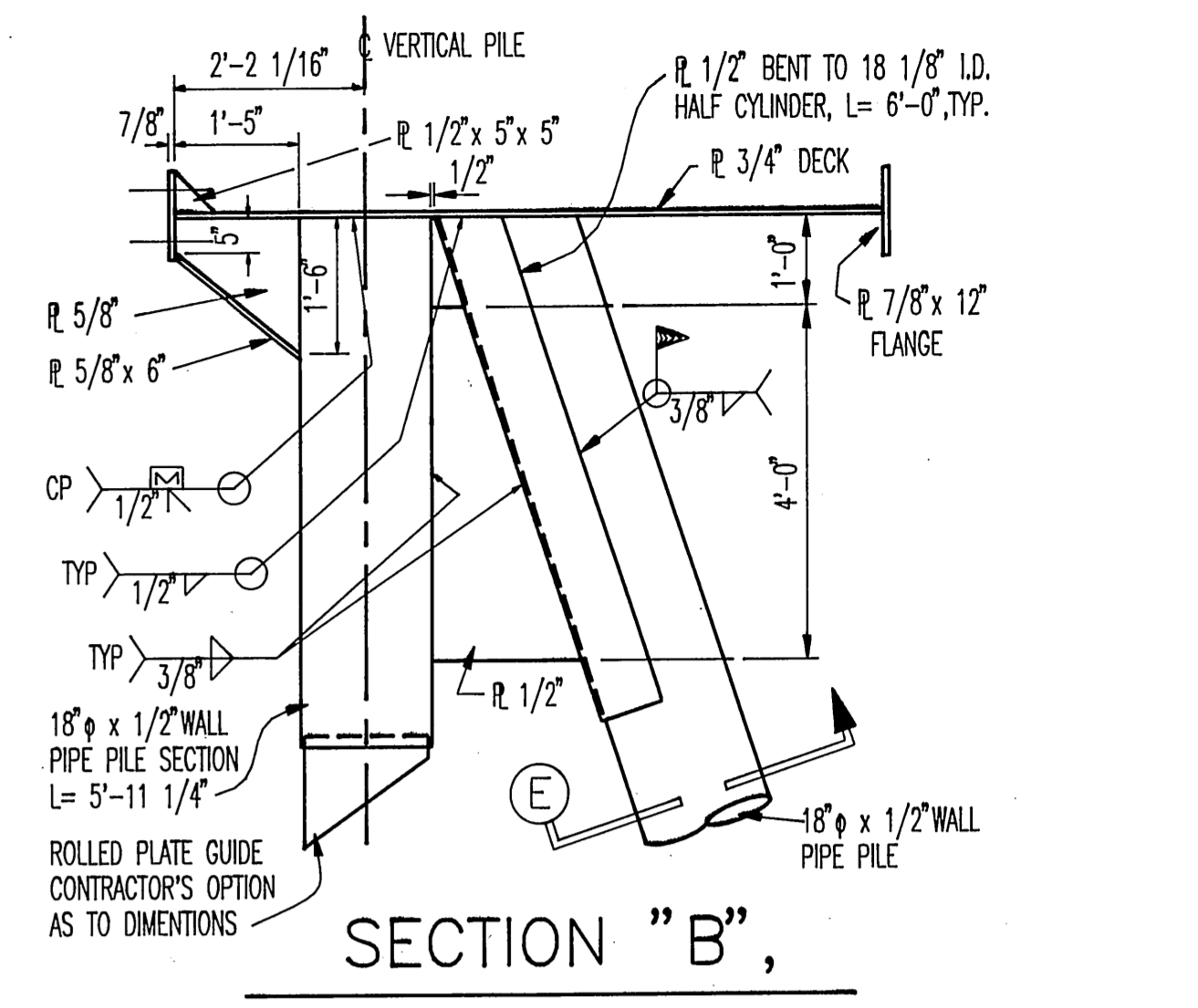
CATWALK BEARING & COVER PLATE DETAILS



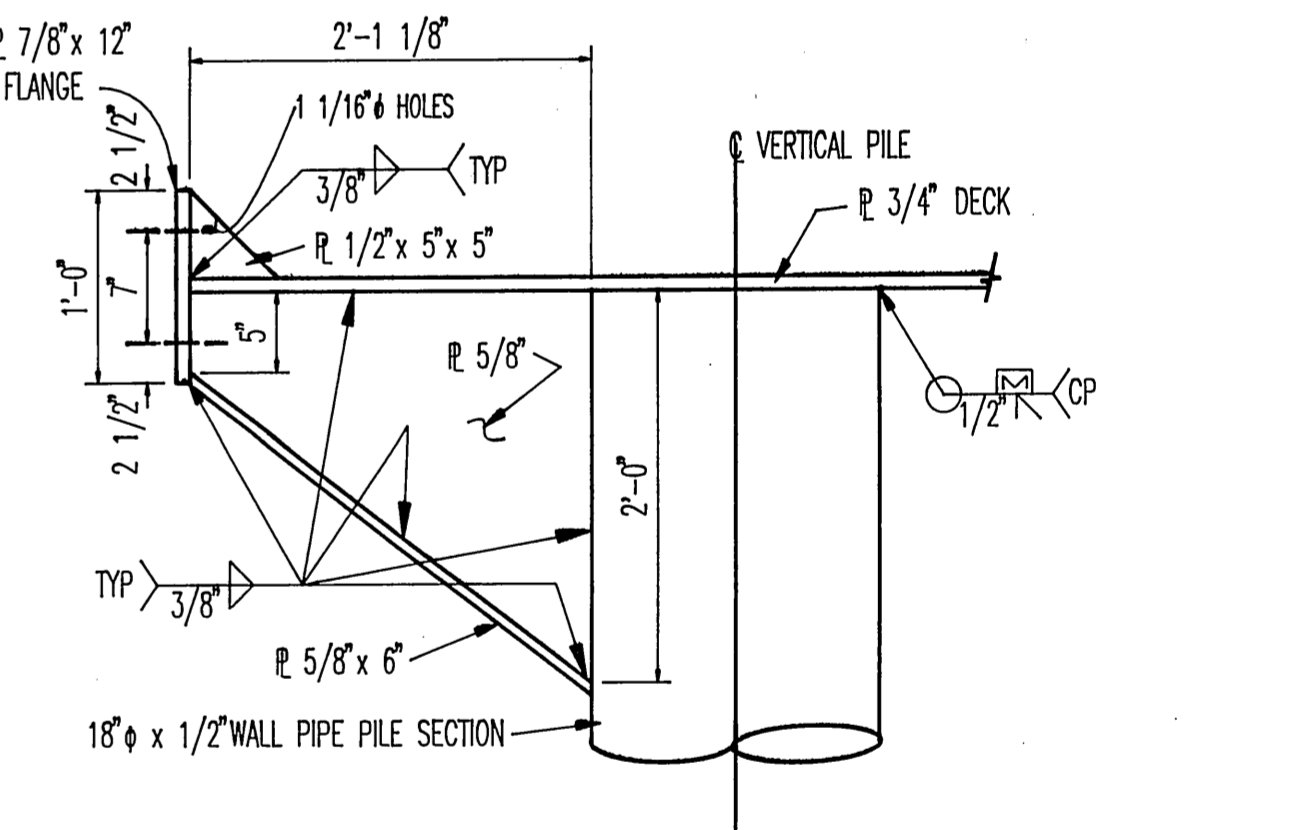
MOORING STRUCTURE CAP, PLAN



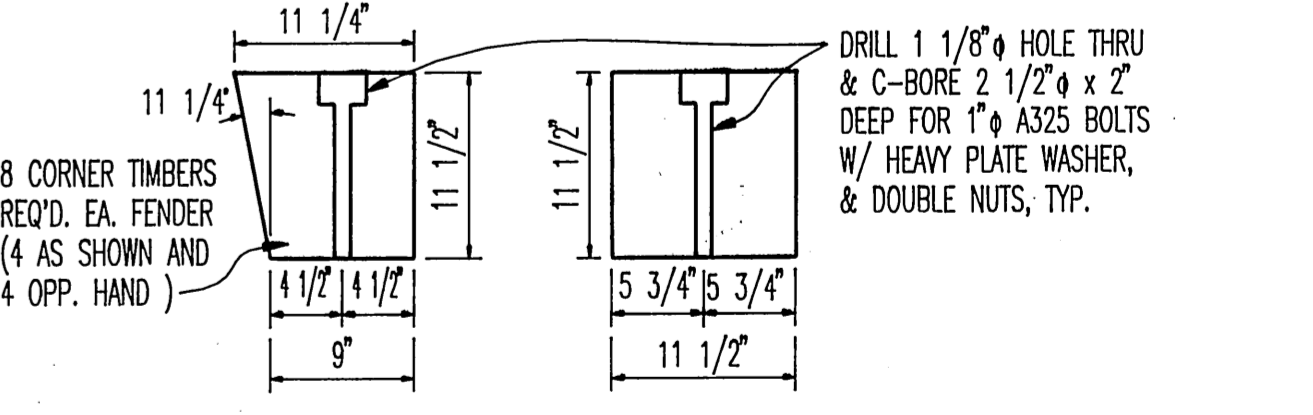
CORNER DETAIL



SECTION "B",
SECTION "D",
SECTION "E"

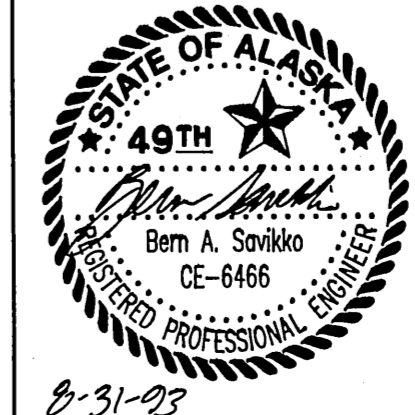


SECTION "C",

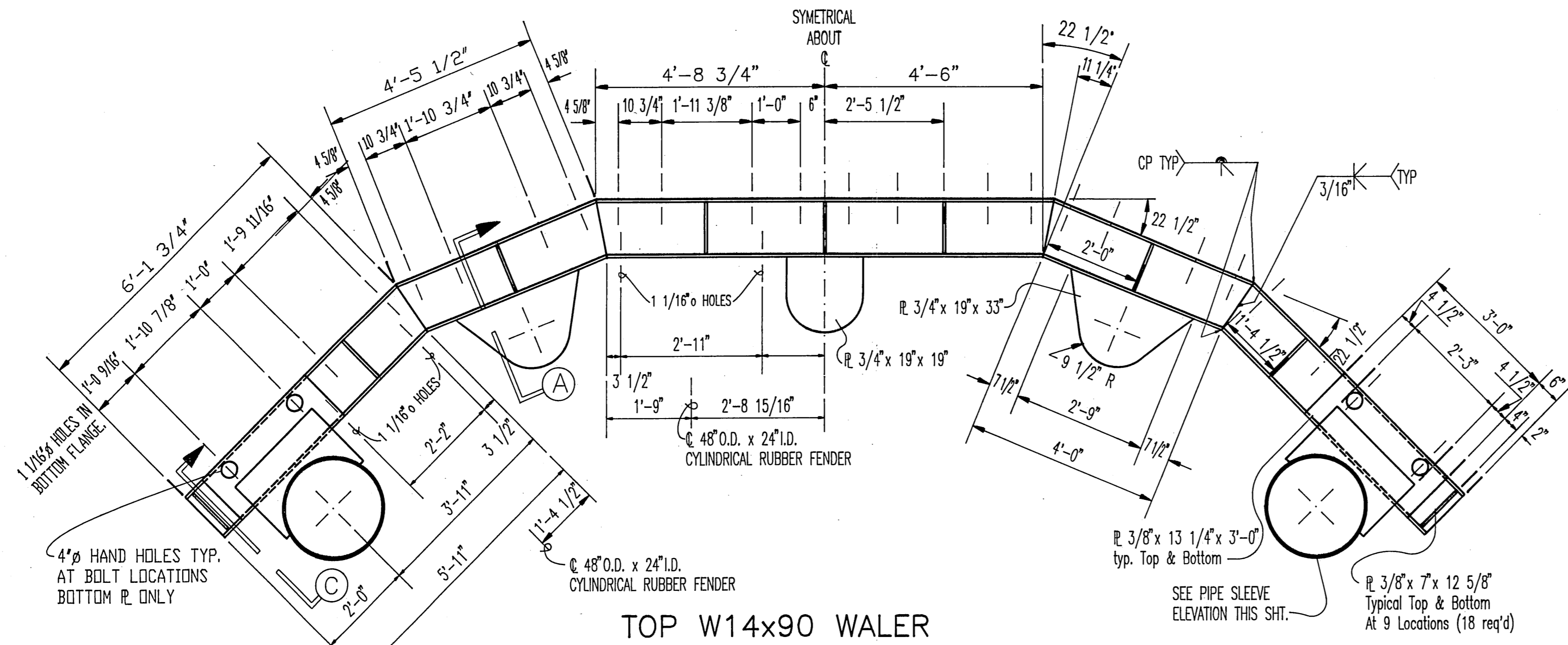


FENDER FACING DETAILS
PLAN VIEW

DO NOT SCALE THIS DRAWING - USE DIMENSIONS			
STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES			
WRANGELL		ALASKA	
SHEET A "LEAD-IN" MOORING STRUCTURE DETAILS			
DESIGNED: BAS	CHECKED: RWM	DRAWN: WN	DATE: JUNE, 1993
PROJECT NUMBER: STP-095-3(2) / 75279	SHEET 8		OF 15

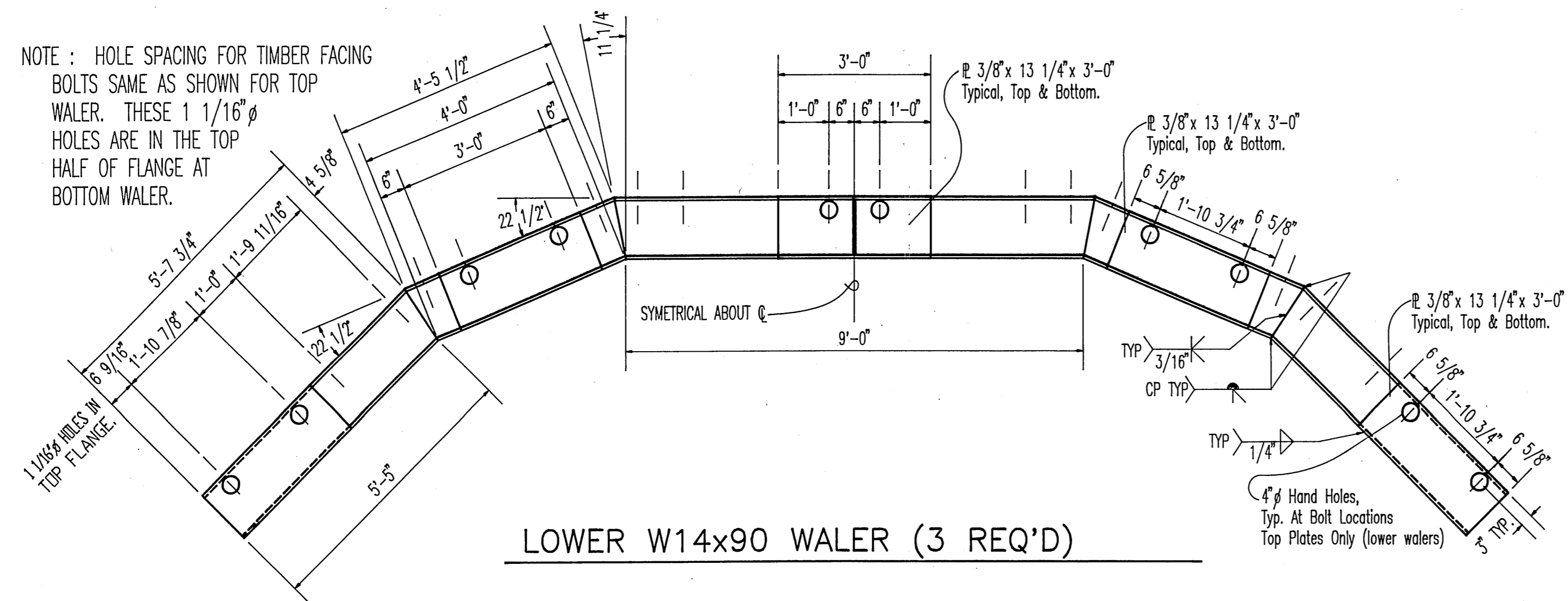


8-31-93

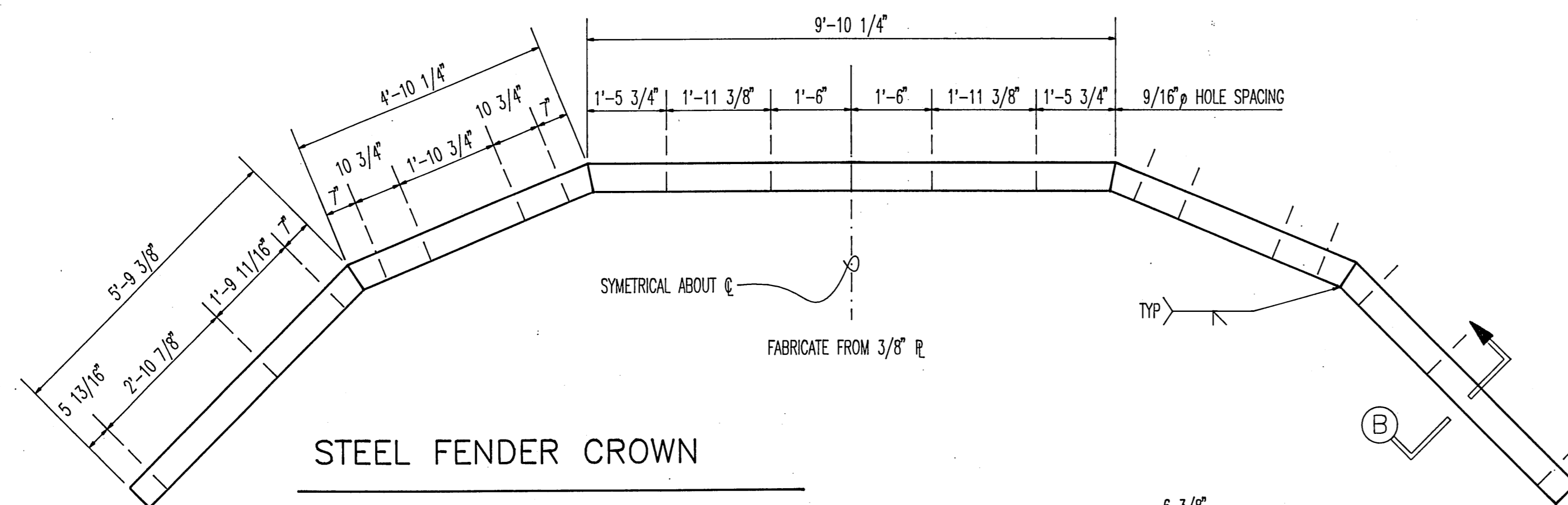


TOP W14x90 WALER

NOTE: HOLE SPACING FOR TIMBER FACING BOLTS SAME AS SHOWN FOR TOP WALER. THESE 1 1/16" ϕ HOLES ARE IN THE TOP HALF OF FLANGE AT BOTTOM WALER.

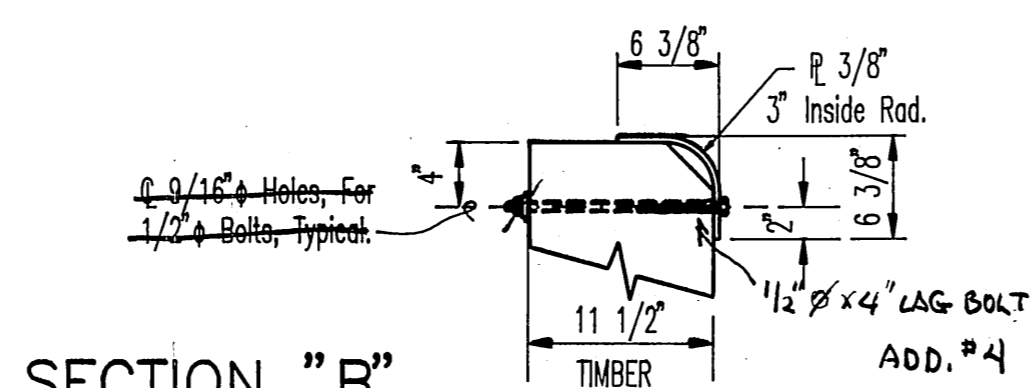


LOWER W14x90 WALER (3 REQ'D)

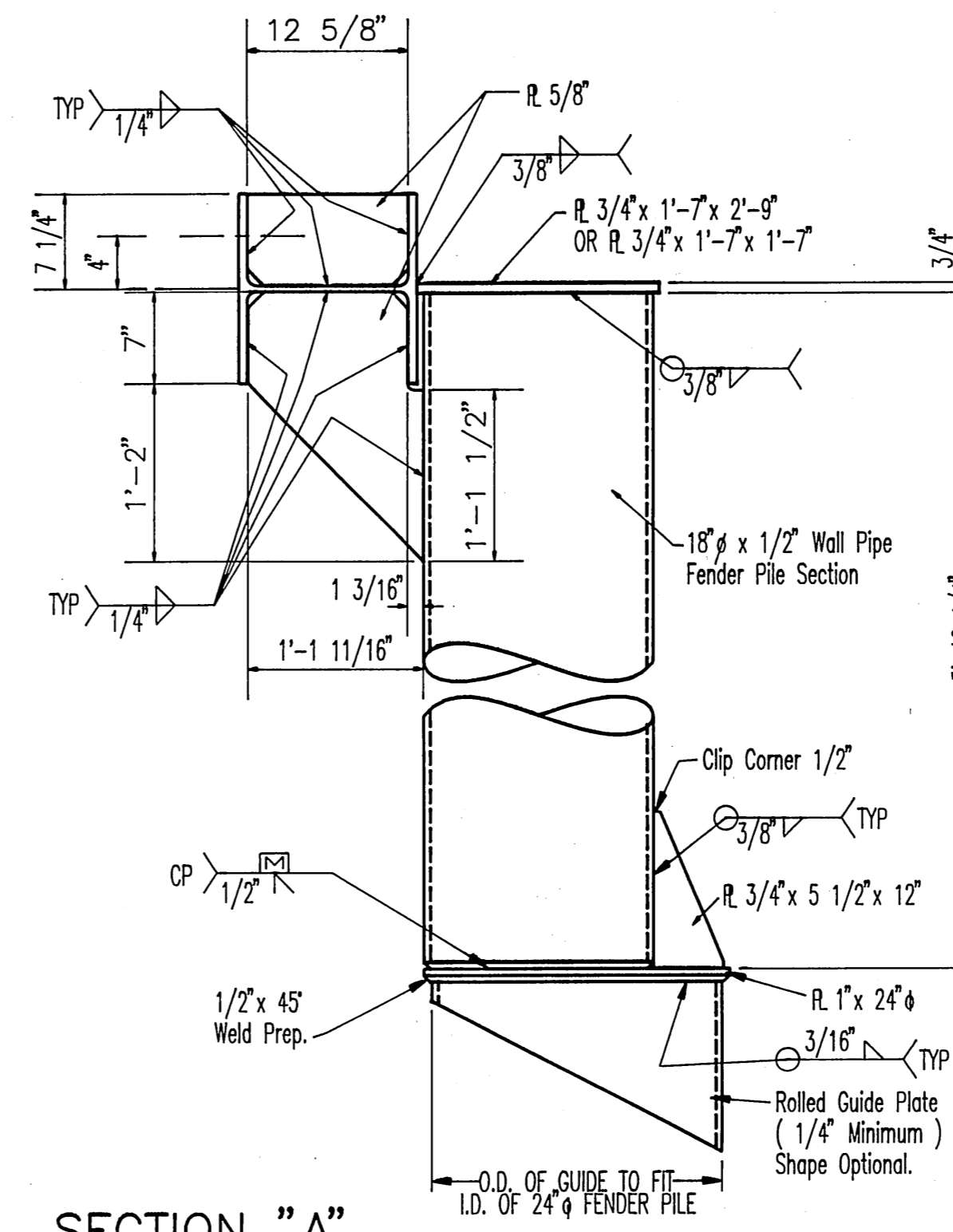


STEEL FENDER CROWN

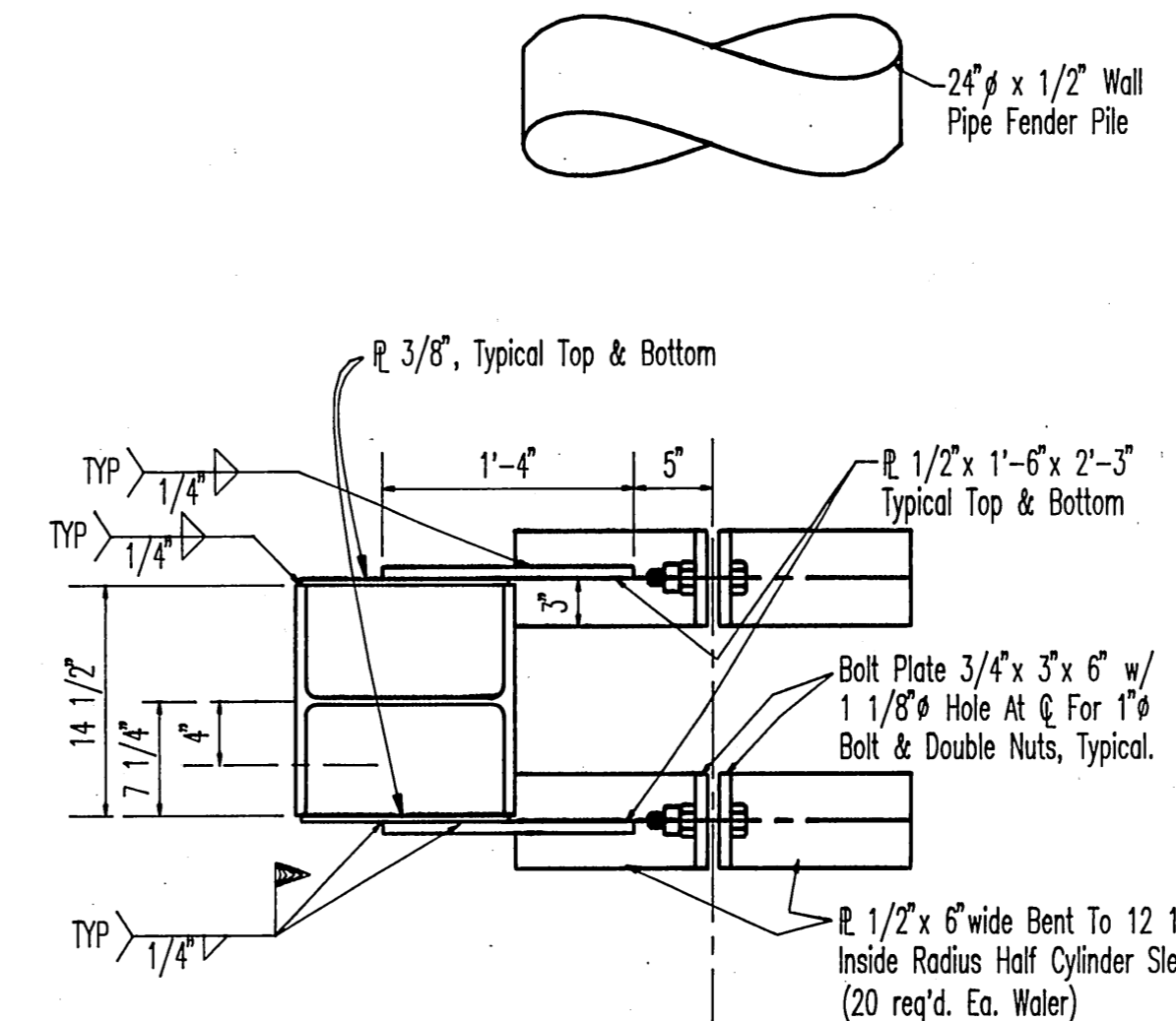
Plan Sheet 8 of 18: The detail "SECTION B" shows a 1/2" diameter bolt to fasten the fender crown to the top of the fender timbers. Change this detail to match "DETAIL 1" on sheet 5 of 18 with a 1/2" diameter x 4" long lag bolt. Also, the "BOLLARD DETAIL" shows a 12" diameter x 30" wall pipe section for the bollard. This should be a 12" diameter x 12" pipe section to match the detail on sheet 6 of 15.



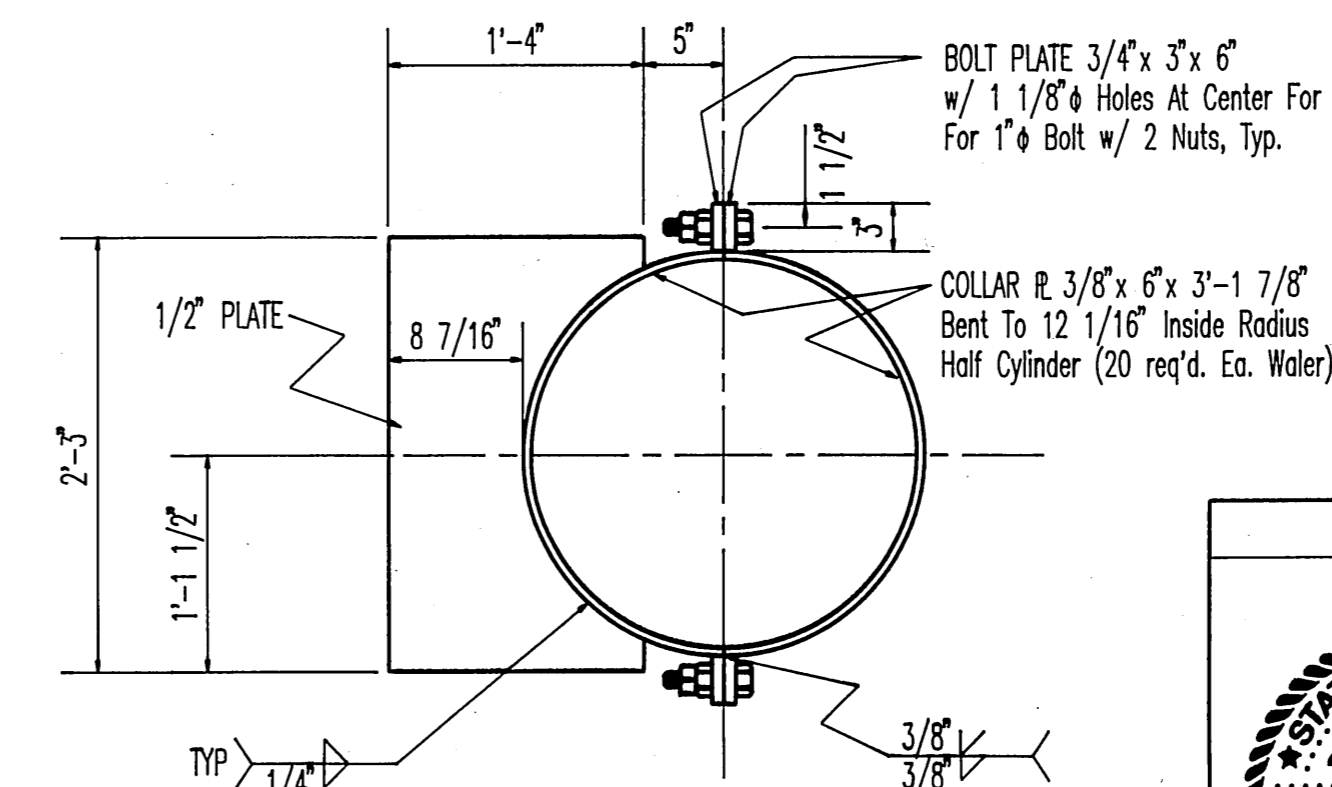
SECTION "B", SECURE CROWN TO TOP OF TIMBERS



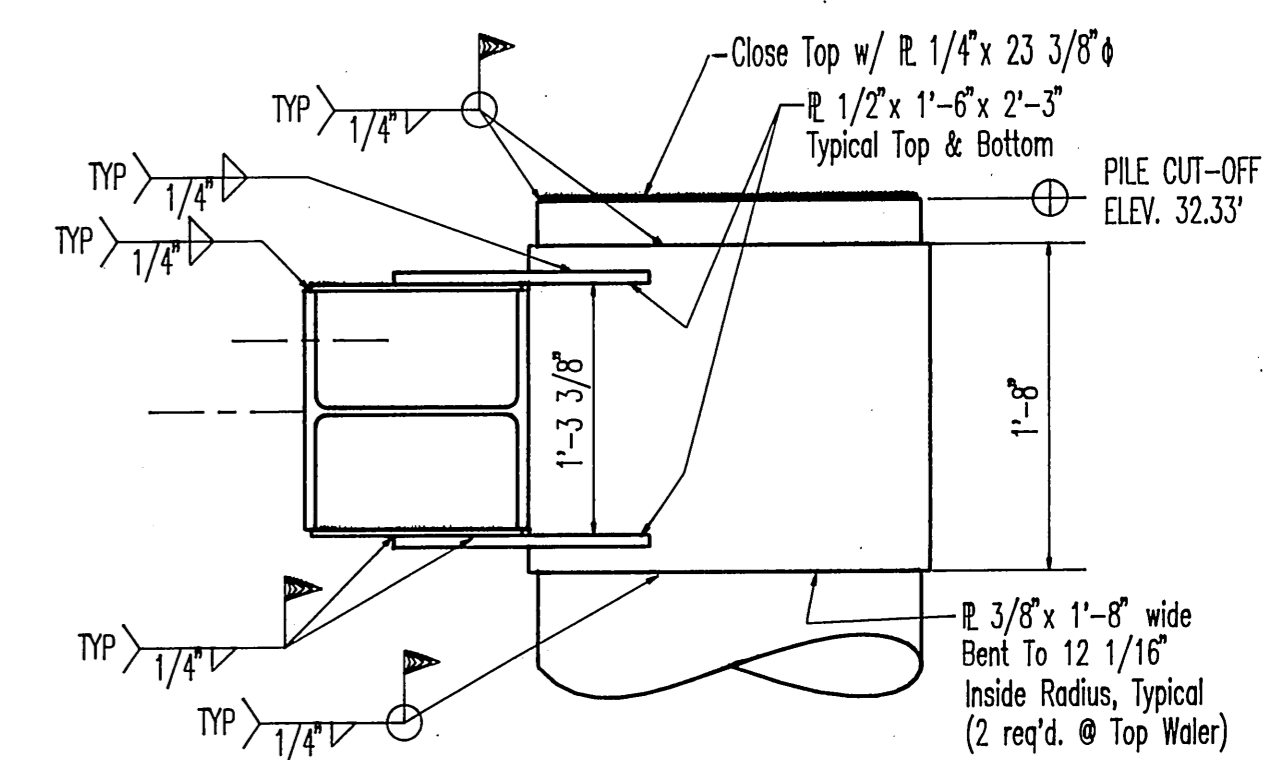
SECTION "A", TYPICAL 18" FENDER PILE CONNECTION



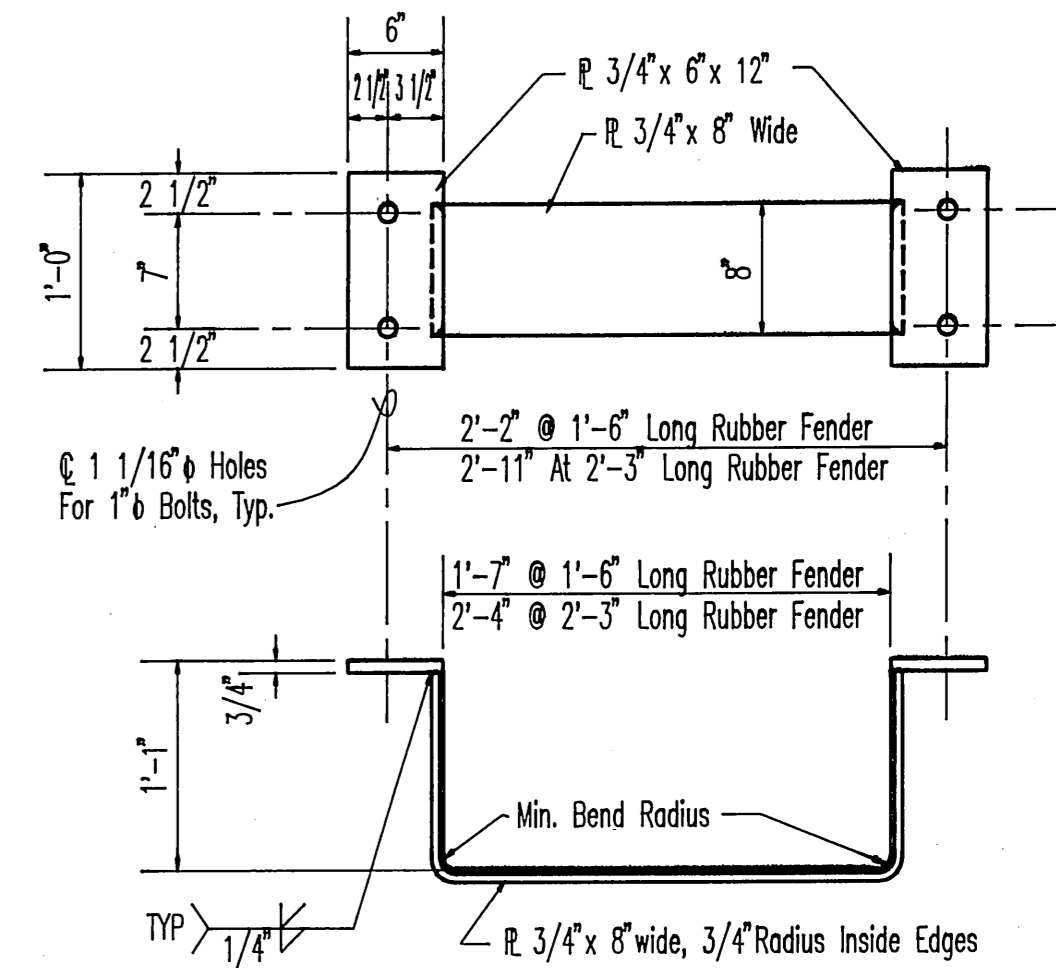
FENDER PILE COLLAR, ELEV.



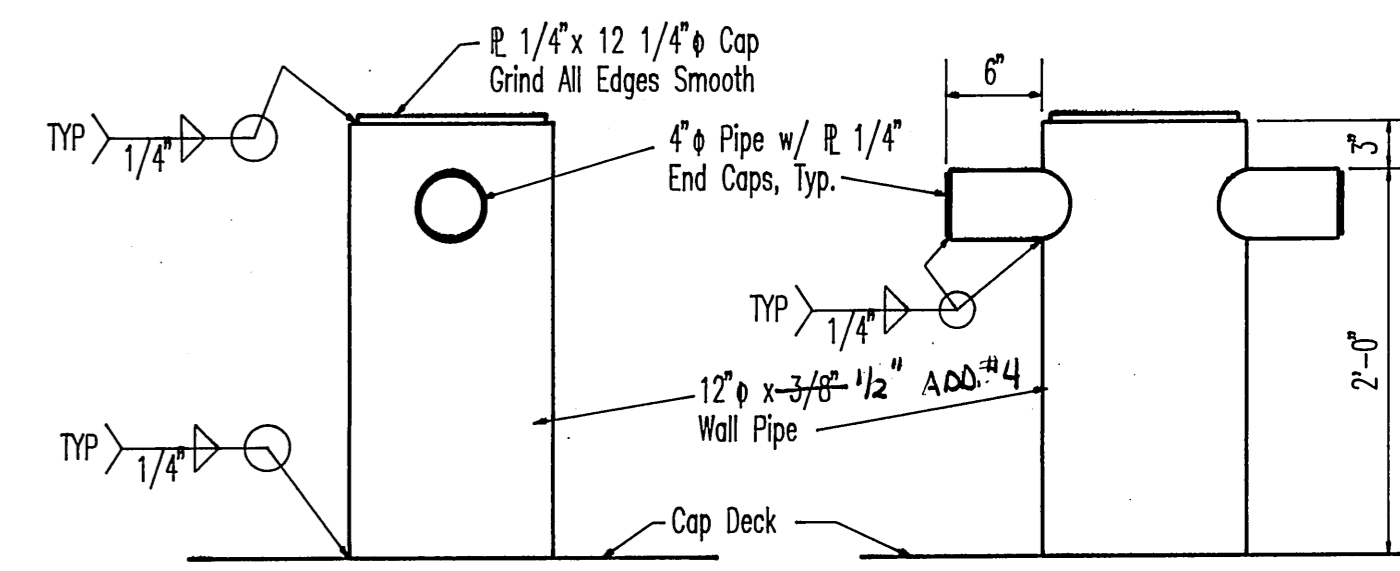
FENDER PILE COLLAR, PLAN



SECTION "C", 24" FENDER PILE CONNECTION

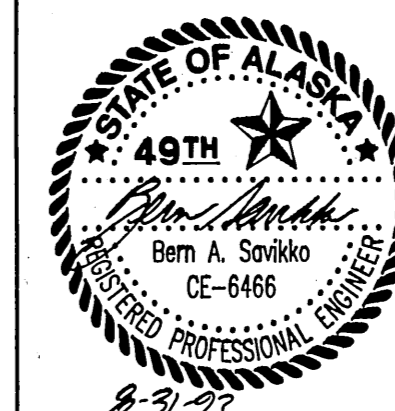


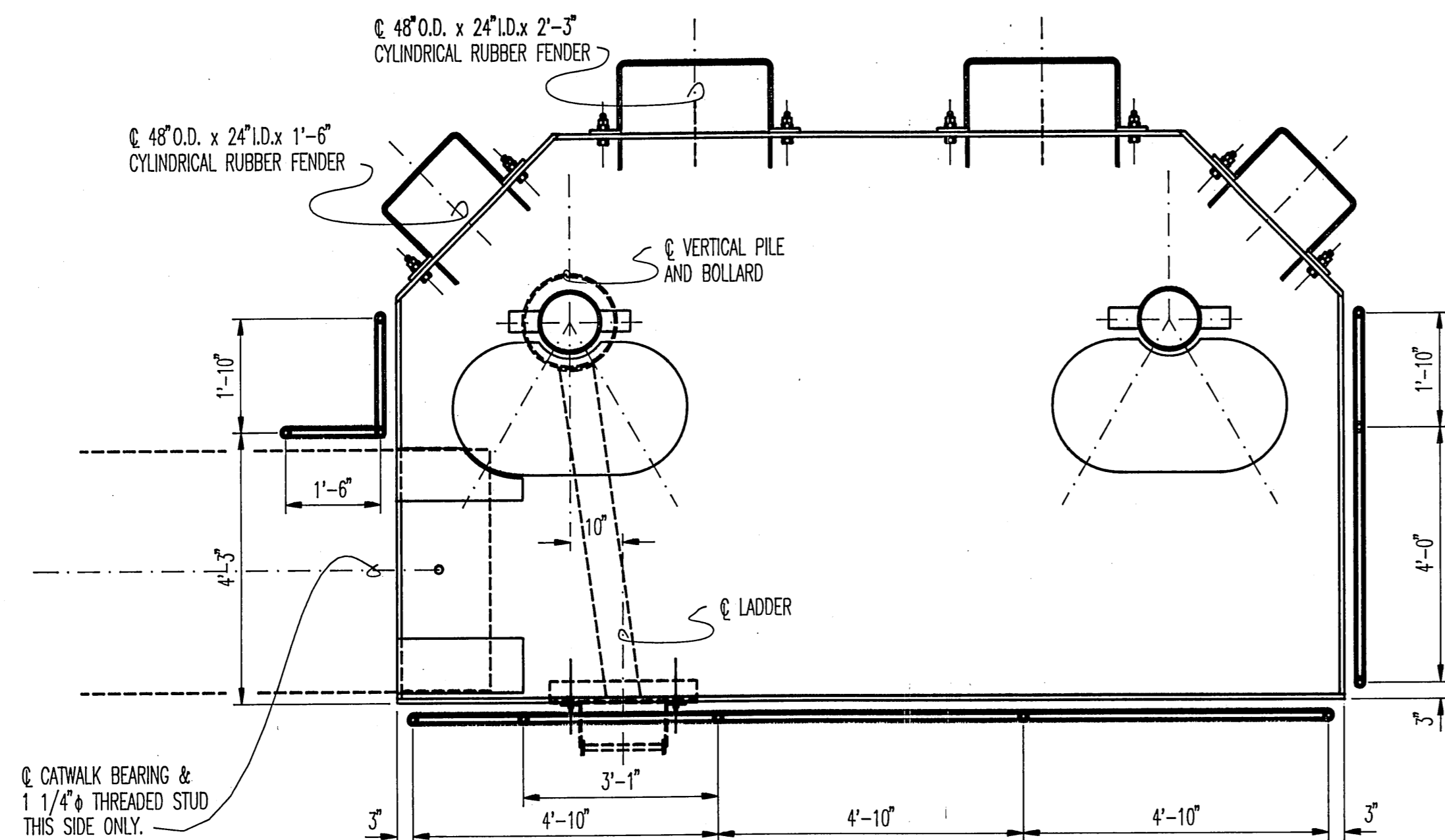
FENDER RETAINER (8 REQ'D)



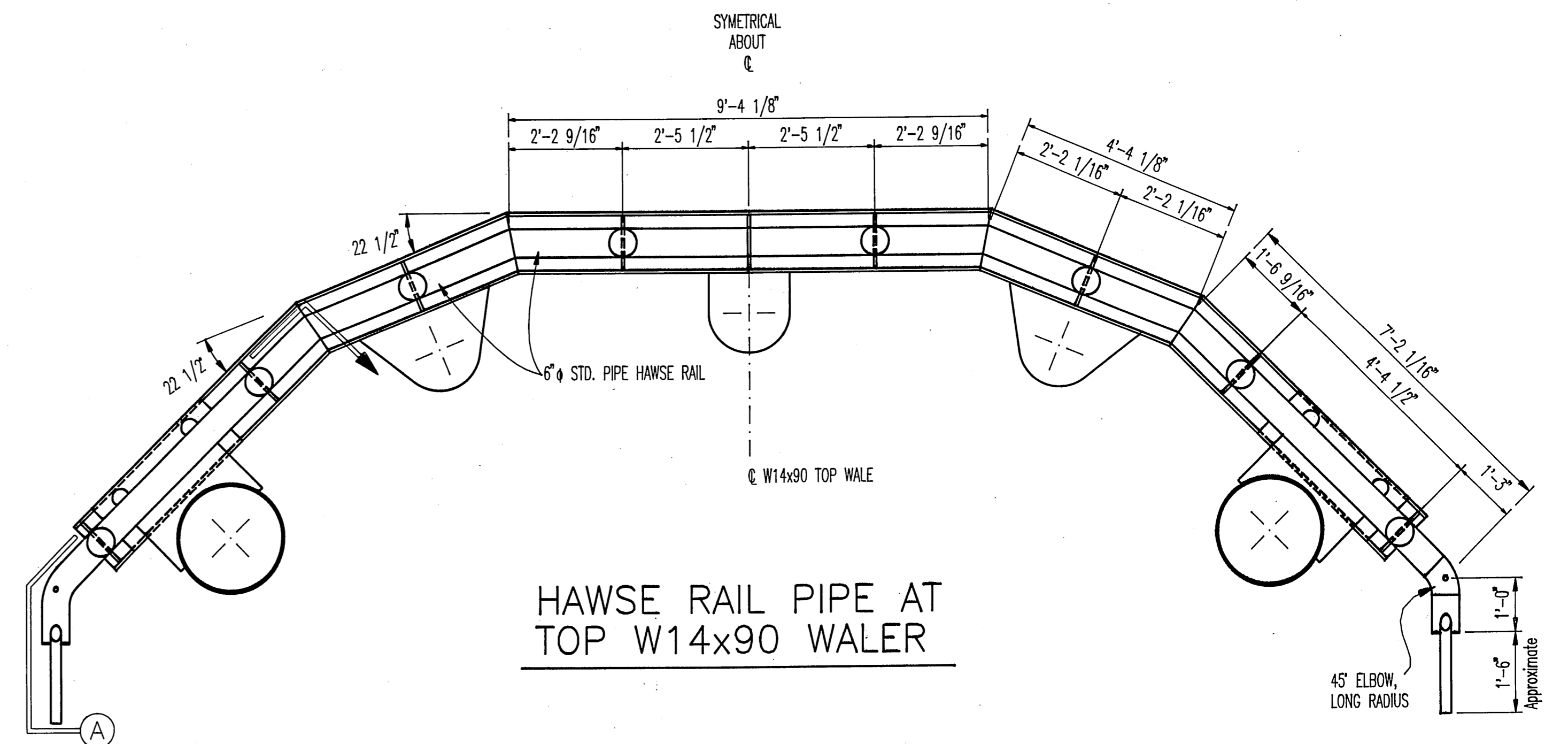
BOLLARD DETAIL

DO NOT SCALE THIS DRAWING - USE DIMENSIONS			
STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES			
WRANGELL		ALASKA	
SHEET B "LEAD-IN" MOORING STRUCTURE DETAILS			
DESIGNED: BAS	CHECKED: RWM	DRAWN: WN	DATE: JUNE, 1993
PROJECT NUMBER: STP-095-3(2) / 75279	SHEET 9 OF 15		

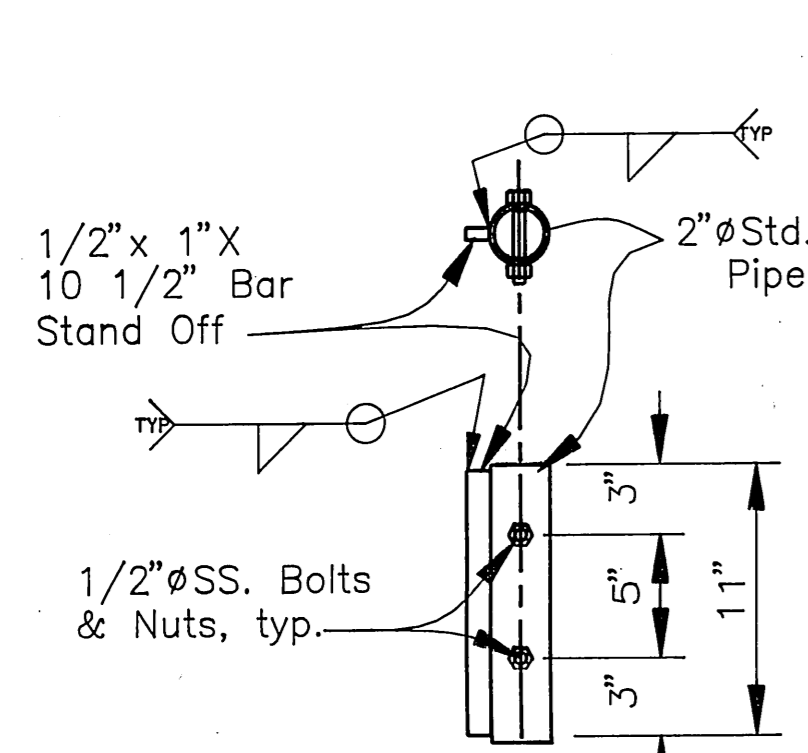




HANDRAIL LOCATION PLAN, (10 Sockets Req'd.)

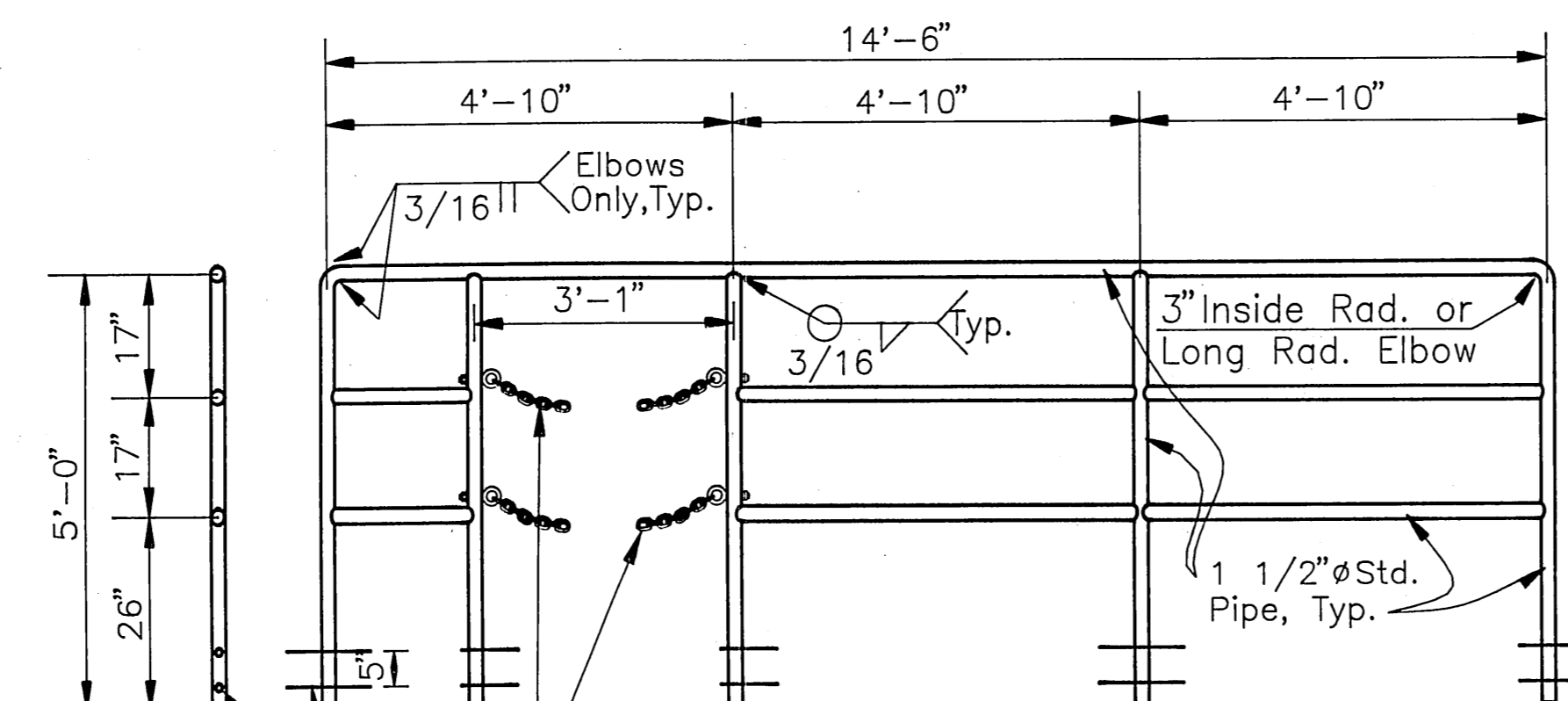


HAWSE RAIL PIPE AT TOP W14x90 WALER



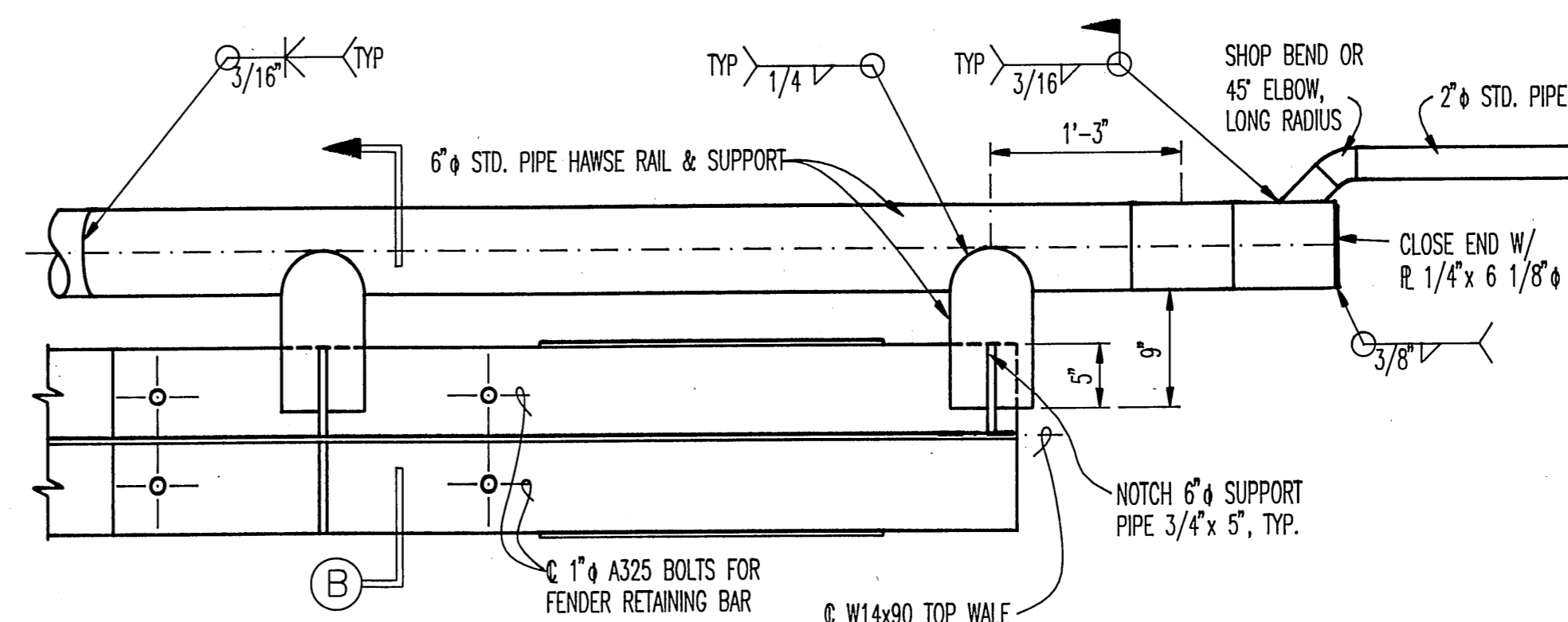
HANDRAIL SOCKET

10 SOCKETS REQ'D.

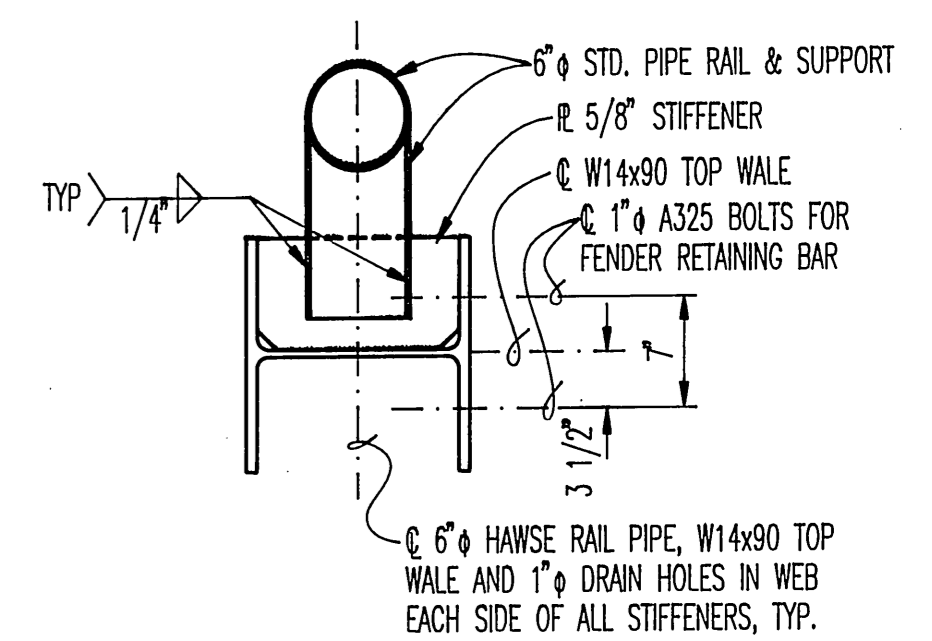


BACK HANDRAIL

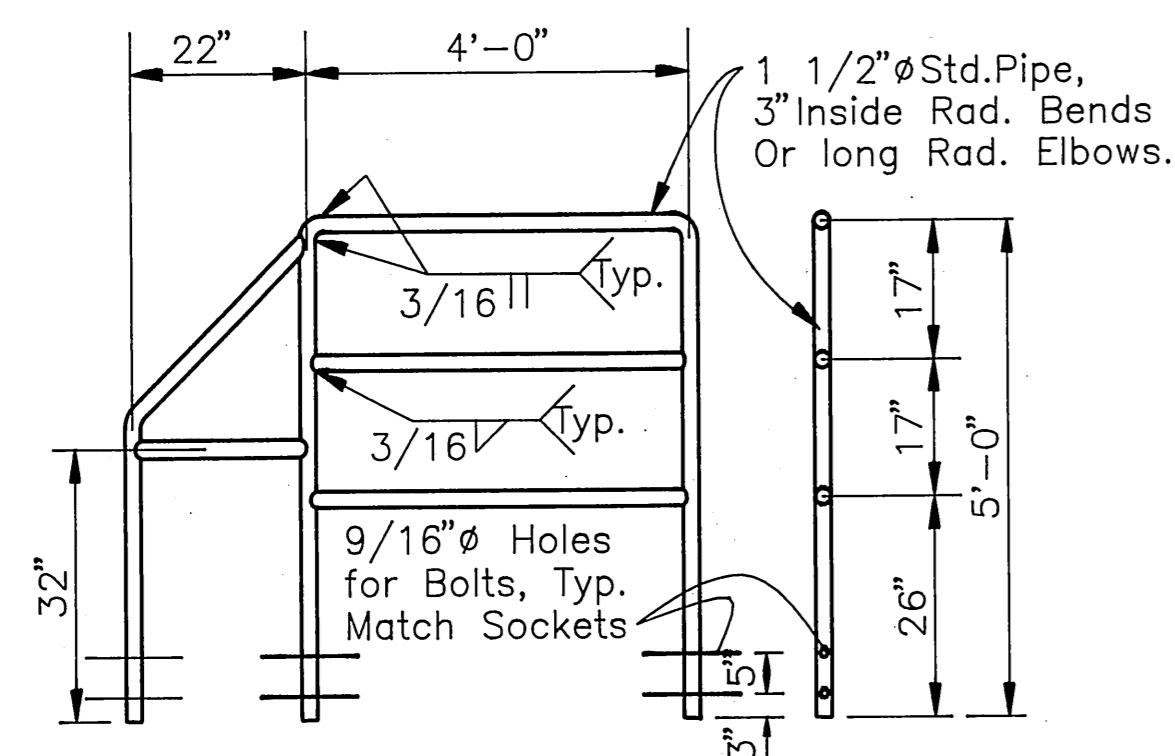
ONE RAIL REQ'D. AS SHOWN ABOVE



SECTION A

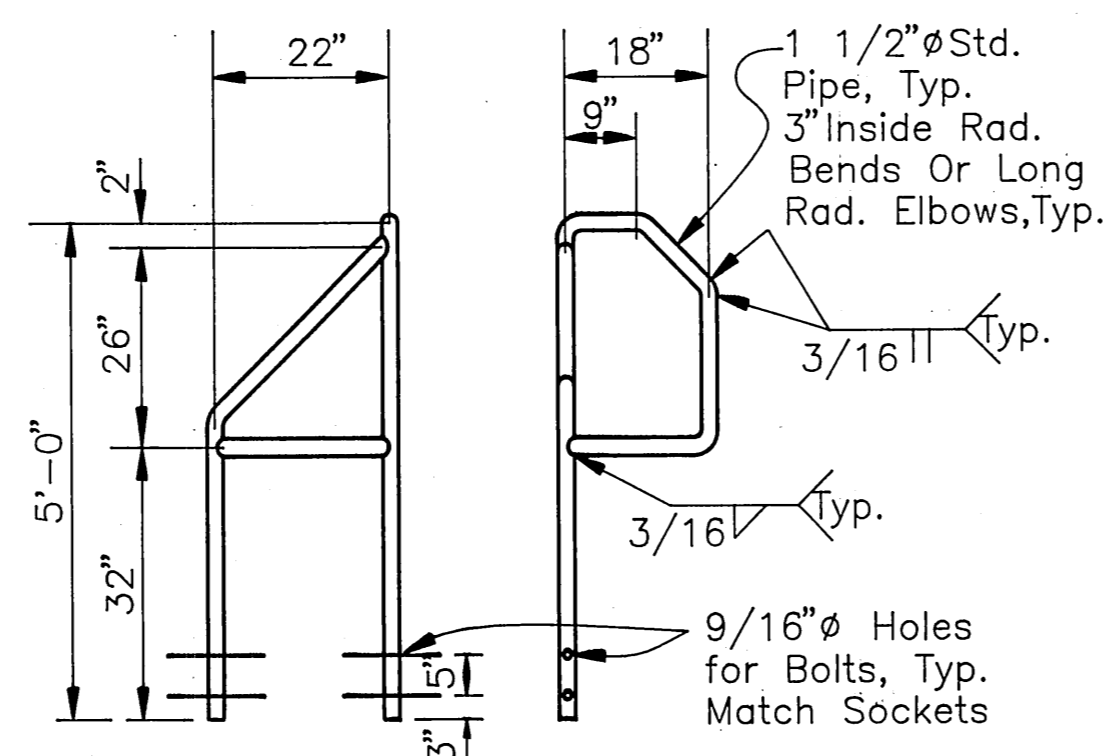


SECTION B



CLOSED SIDE HANDRAIL

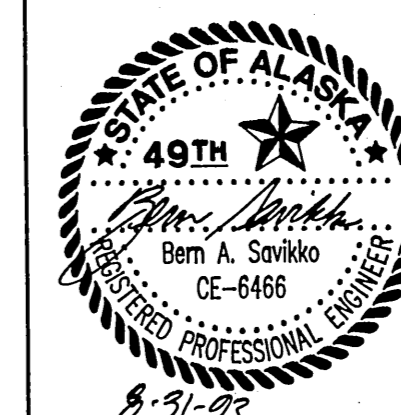
ONE RAIL REQ'D. AS SHOWN ABOVE

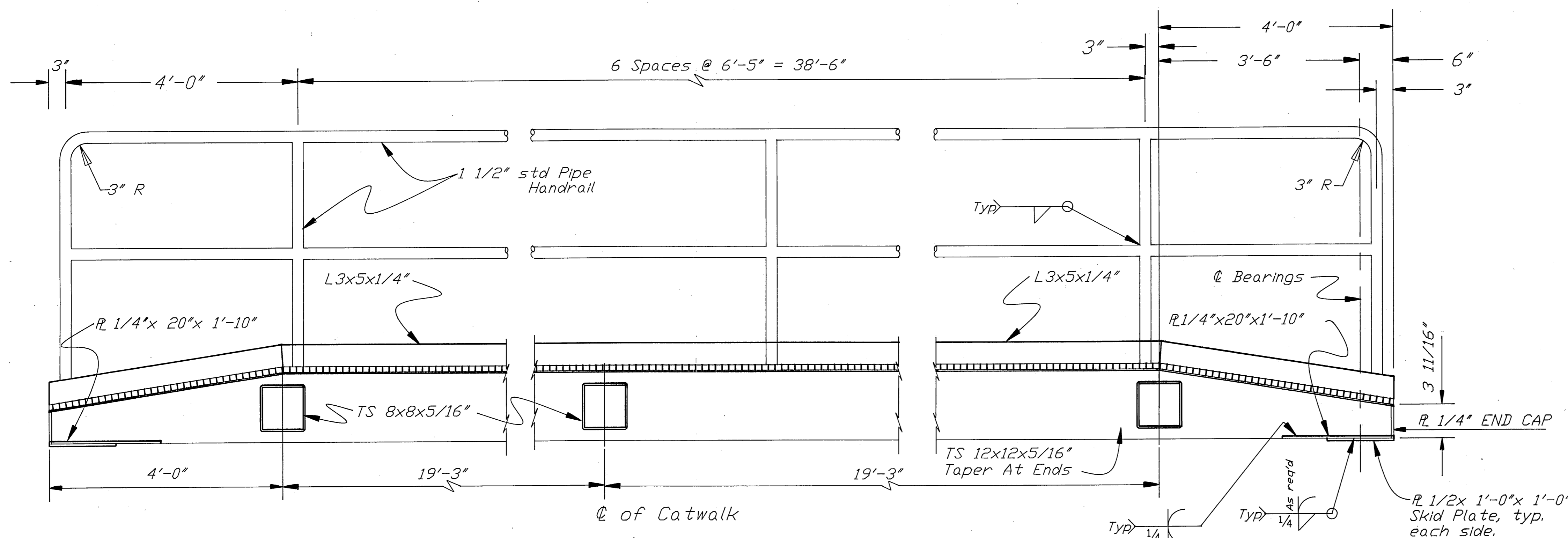


SIDE HANDRAIL AT CATWALK

ONE LEFT HAND RAIL REQ'D. AS SHOWN ABOVE

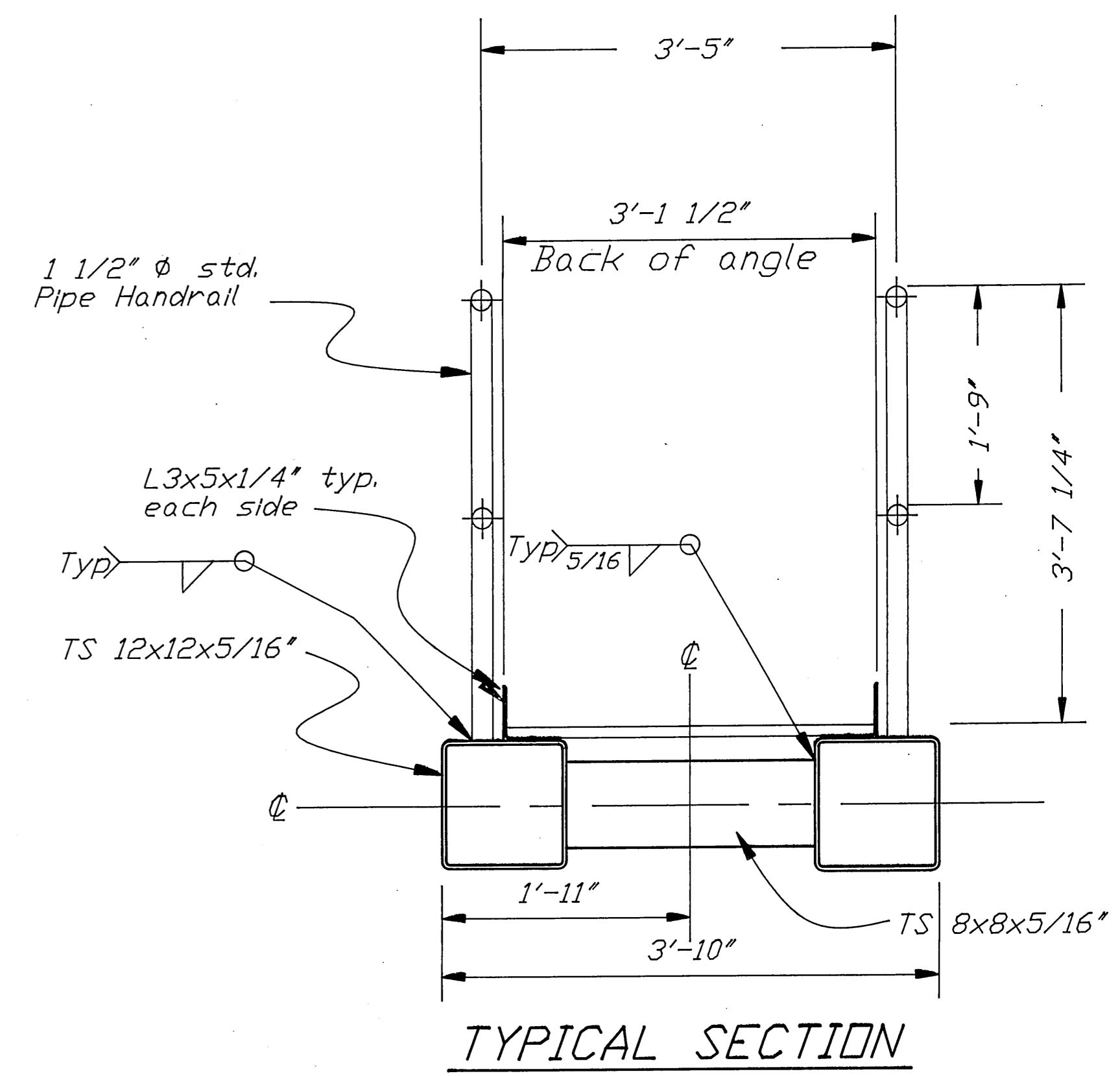
DO NOT SCALE THIS DRAWING - USE DIMENSIONS			
STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES			
WRANGELL		ALASKA	
SHEET C "LEAD-IN" MOORING STRUCTURE DETAILS			
DESIGNED: BAS	CHECKED: RWM	DRAWN: WN	DATE: JUNE, 1993
PROJECT NUMBER: STP-095-3(2) / 75279	SHEET 10 OF 15		





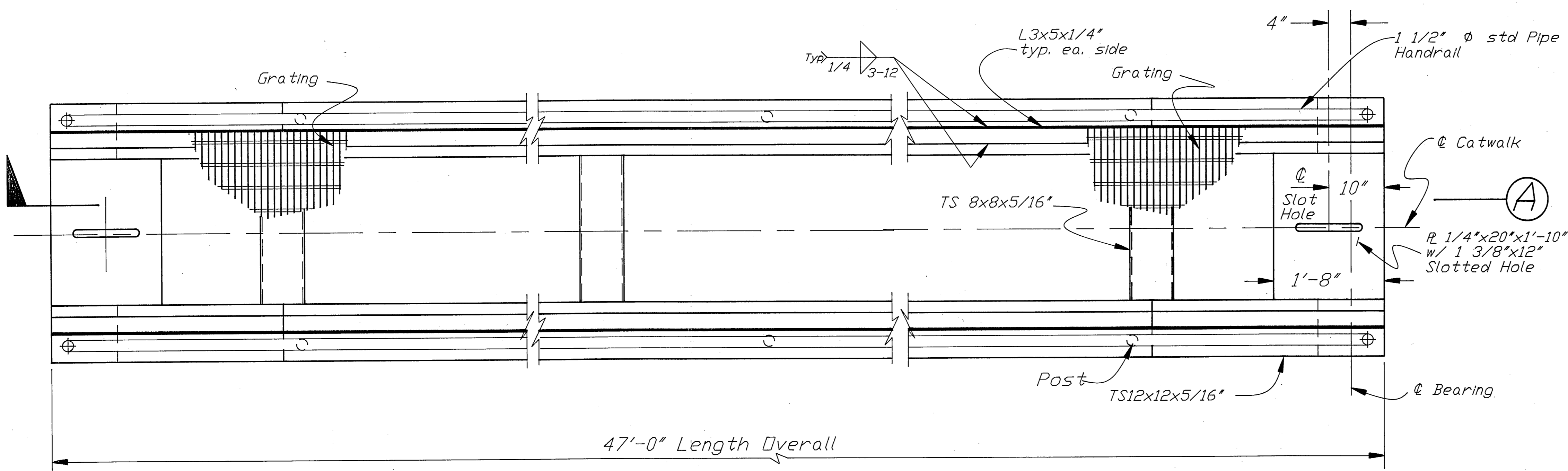
NOTE: Camber TS 12x12x5/16" 3/4" @ Midspan

SECTION A

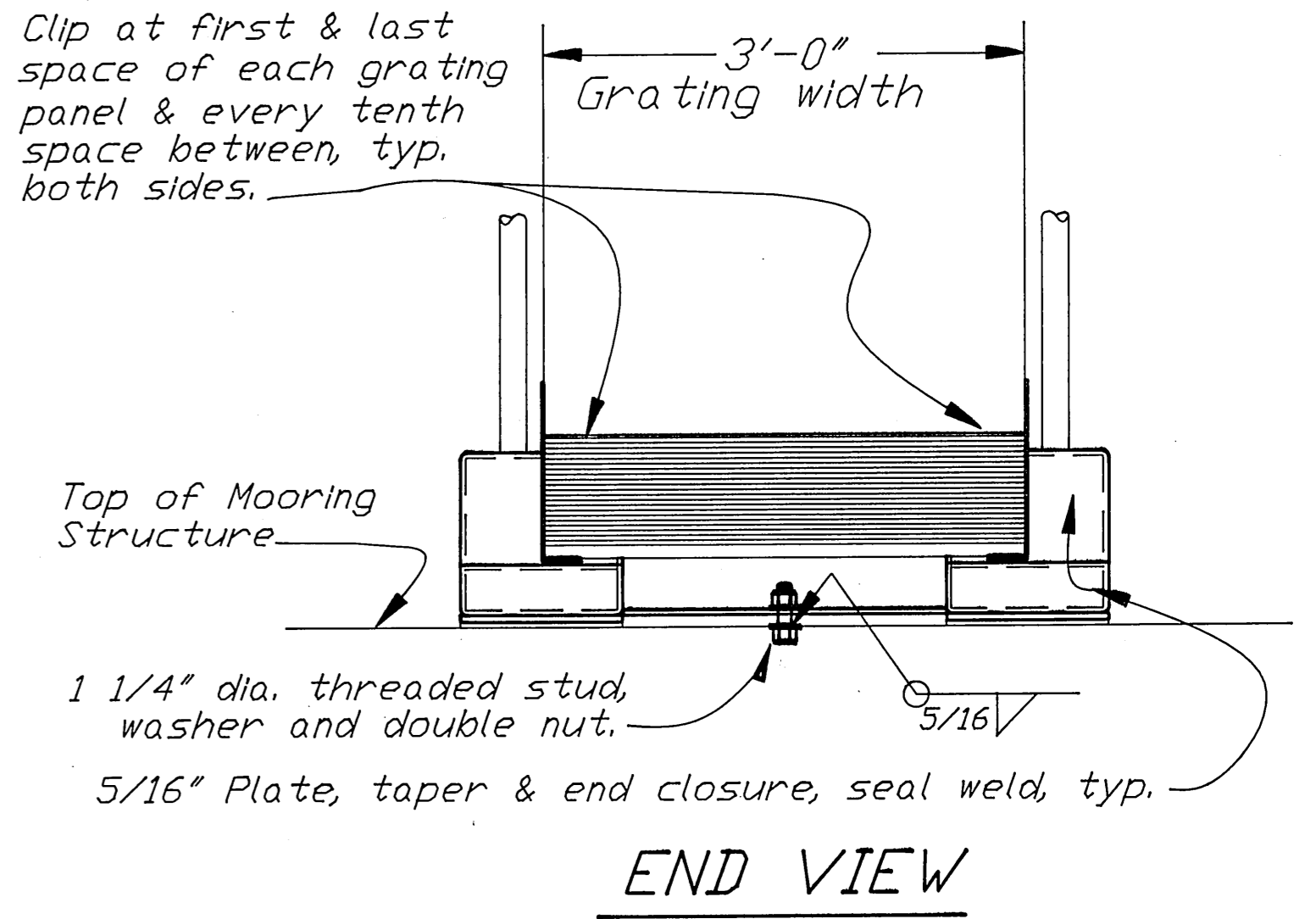


TYPICAL SECTION

Galvanized Steel
Serrated Grating
1" x 1/8" Bearing
Bars @ 1 3/16" oc,
Cross Bars @ 4" oc,
Secure Grating To L3x5
With SS. Bolt and Galv.
Clip at first & last
space of each grating
panel & every tenth
space between, typ.
both sides.



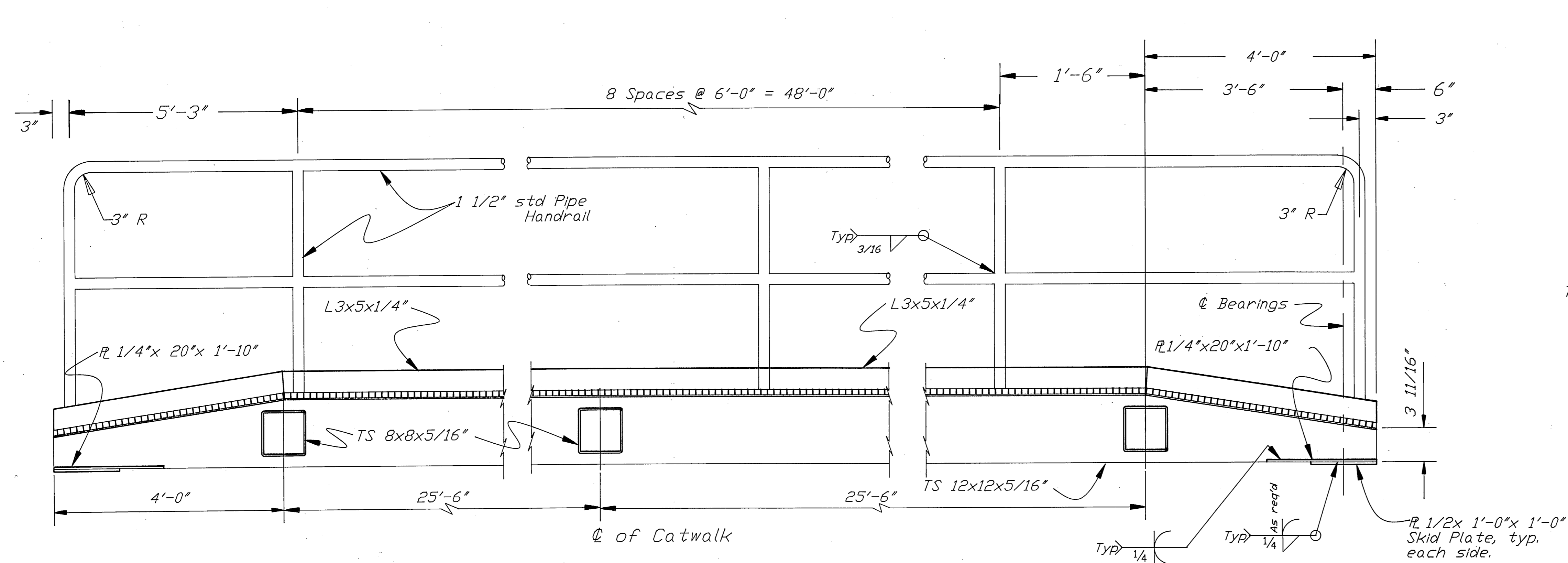
PLAN



END VIEW

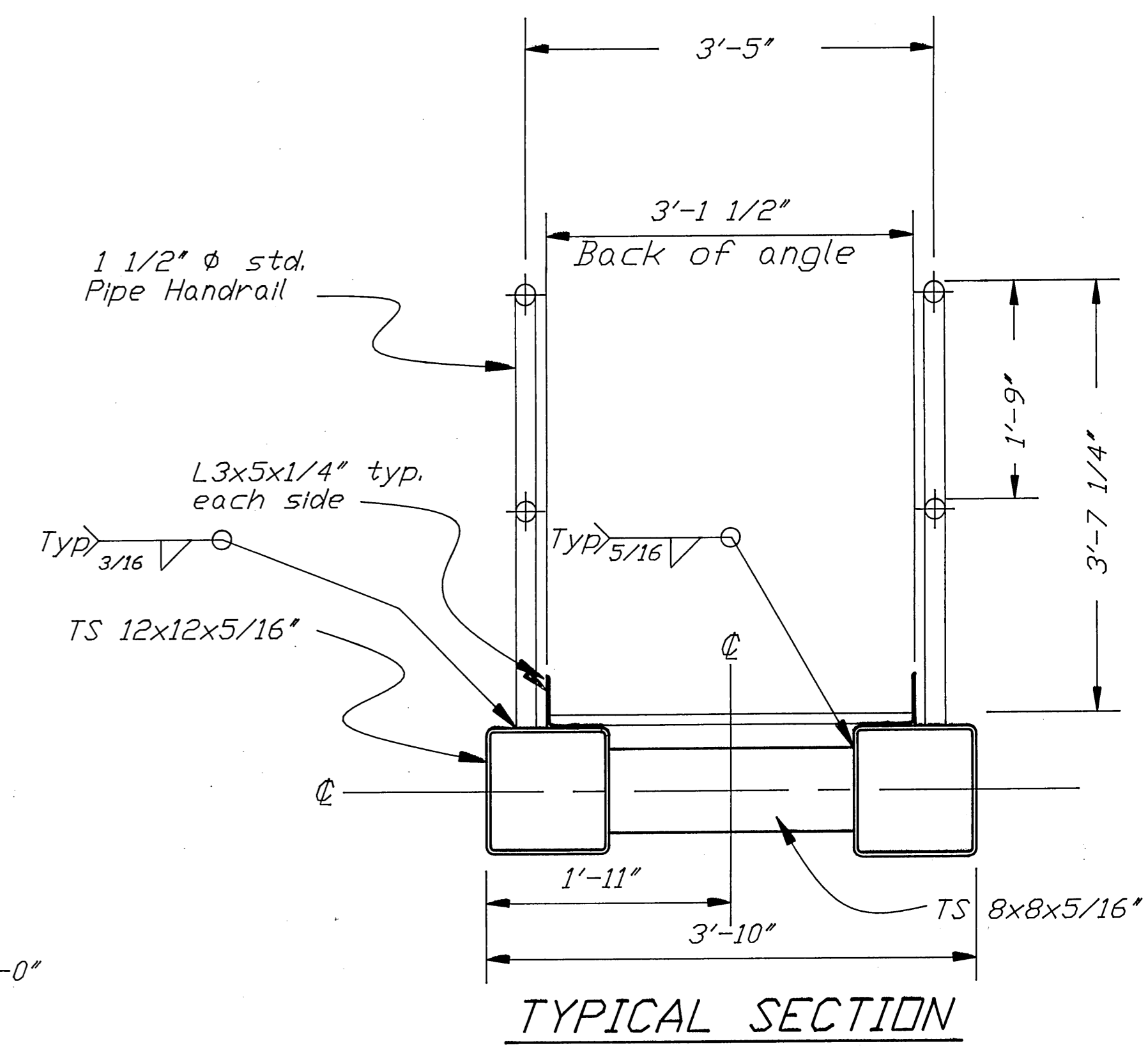
Approximate weight 47'-0" Long Catwalk = 8360 lb.

	DO NOT SCALE THIS DRAWING - USE DIMENSIONS			
	STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES			
WRANGELL		ALASKA		
47'-0" CATWALK (AT "B")				
DETAILS				
DESIGNED	BAS	CHECKED	RWM	
PROJECT NUMBER	STP-095-3(2) / 75279	DRAWN	Geoal/BN	
SHEET 11		DATE 15		

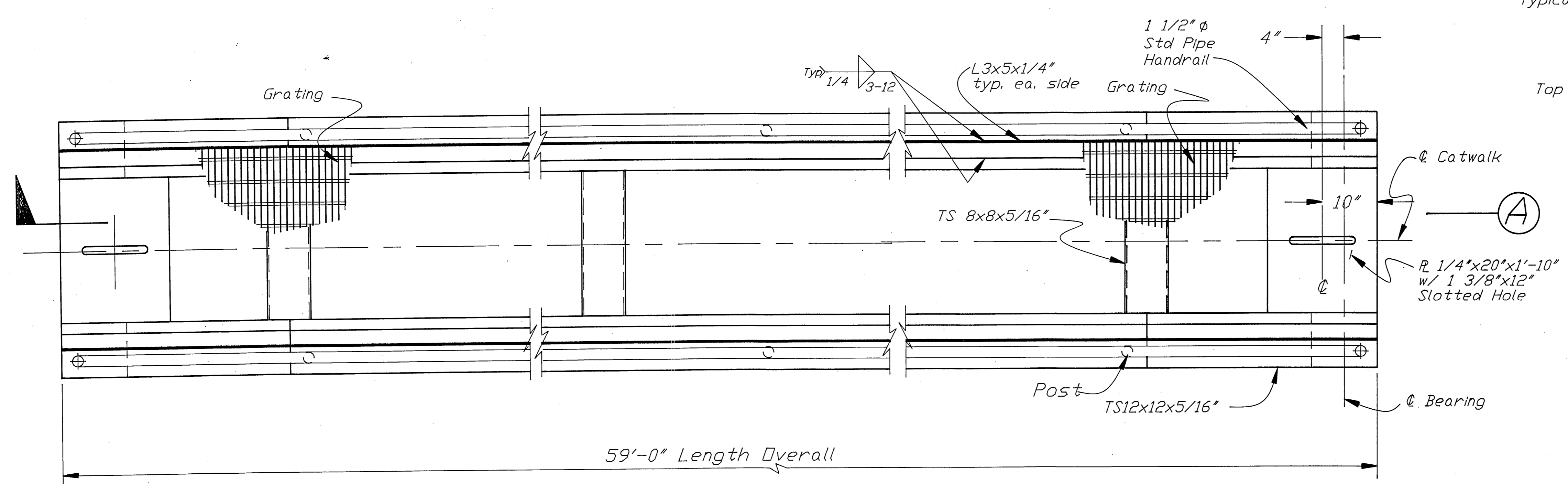


NOTE: Camber TS 12x12x5/16", 1 1/8" @ Midspan

SECTION A

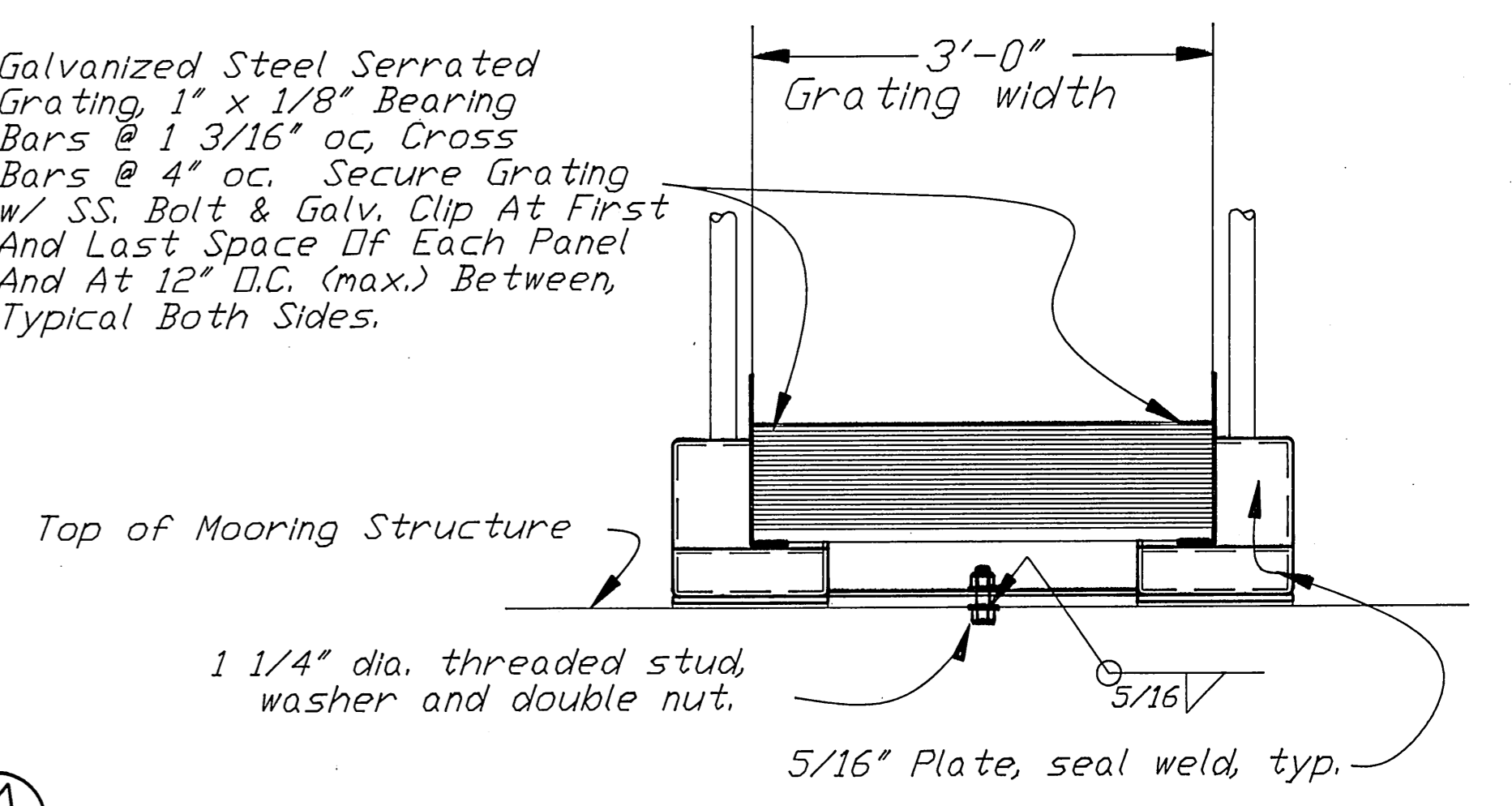


TYPICAL SECTION



PLAN

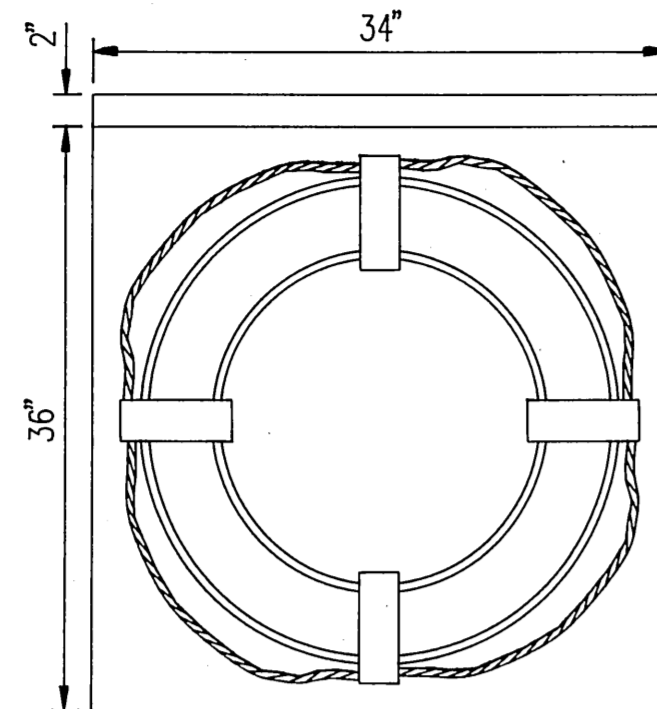
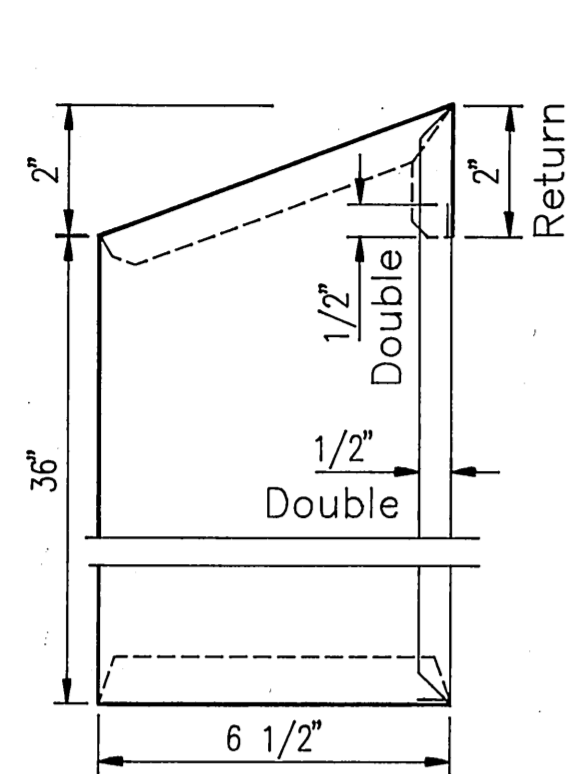
Galvanized Steel Serrated Grating, 1" x 1/8" Bearing Bars @ 1 3/16" oc, Cross Bars @ 4" oc, Secure Grating w/ SS. Bolt & Galv. Clip At First And Last Space Of Each Panel And At 12" D.C. (max.) Between, Typical Both Sides.



END VIEW

Approximate weight 59' Catwalk = 10100 lb.

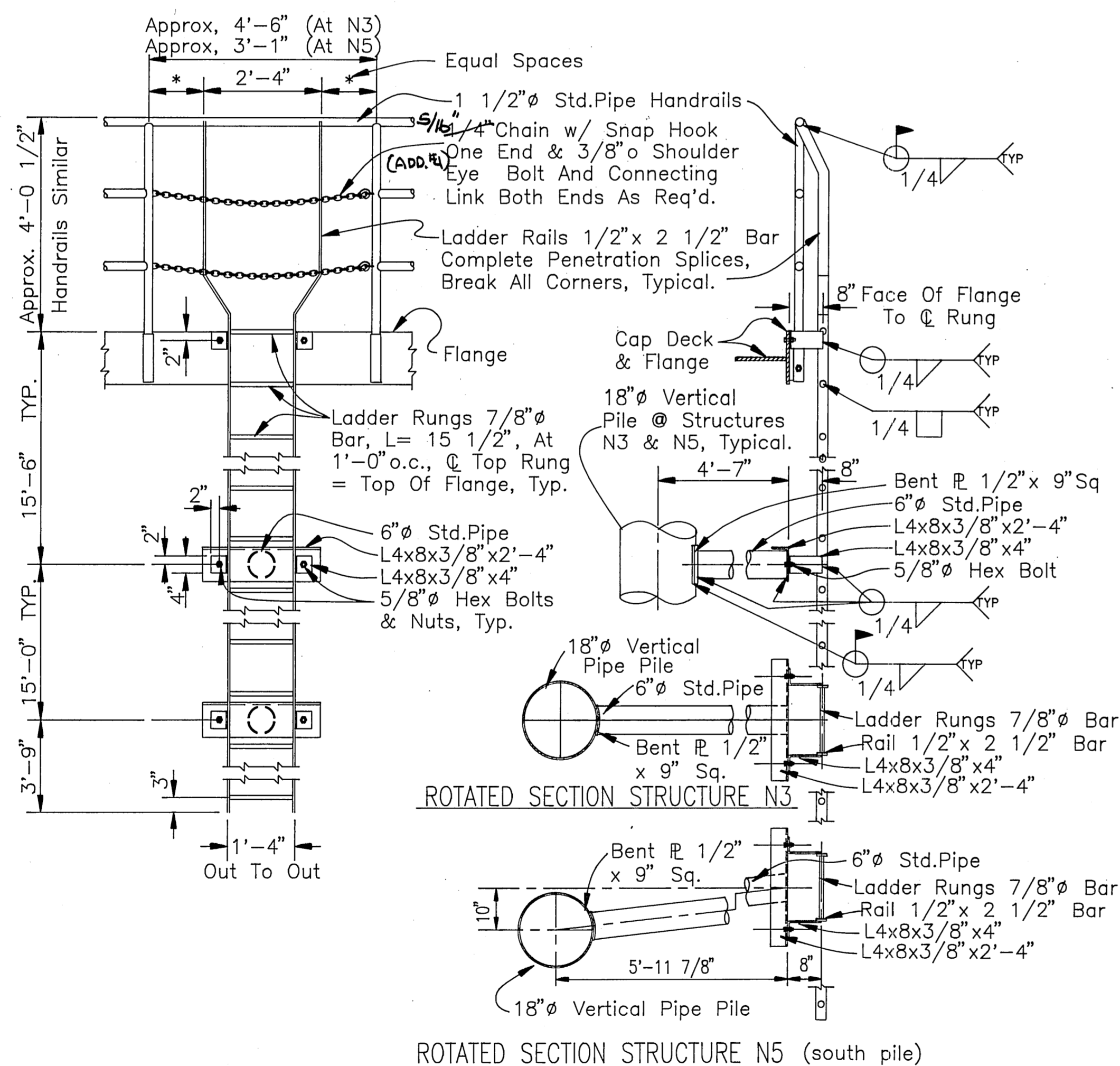
	DO NOT SCALE THIS DRAWING - USE DIMENSIONS			
	STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES			
	WRANGELL		ALASKA	
	59'-0" CATWALKS (A, C & D) DETAILS			
DESIGNED BAS	CHECKED RWM	DRAWN Geol/BN	DATE	
PROJECT NUMBER STP-095-3(2)	75279	SHEET 12	OF 15	



LIFE RING (2 Required)

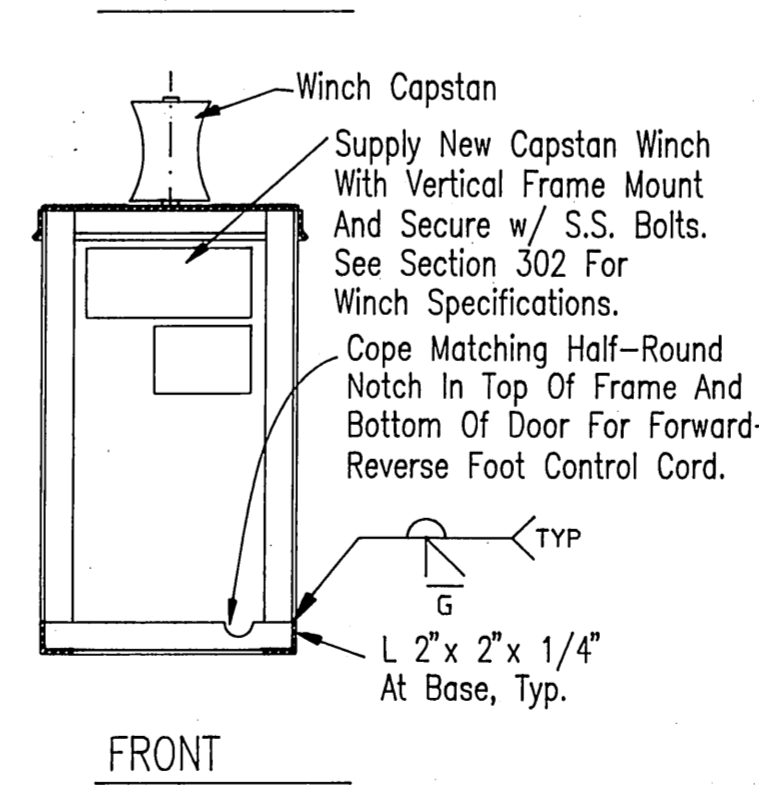
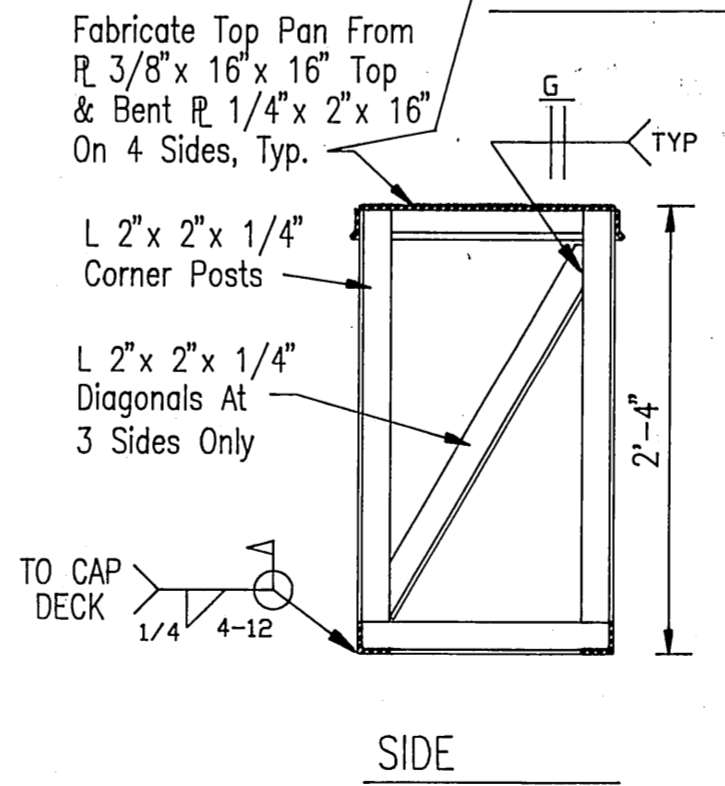
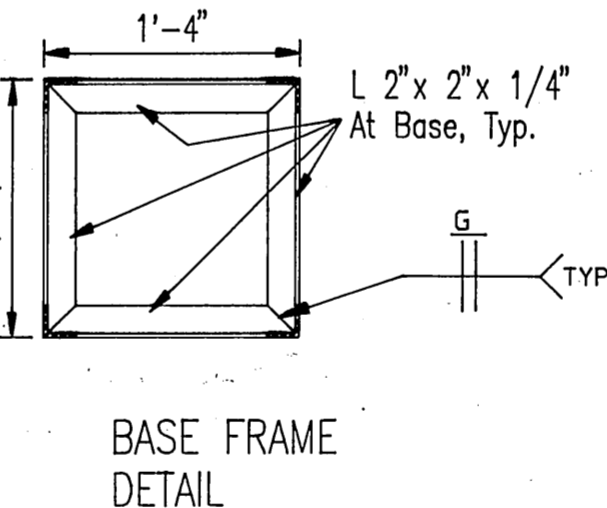
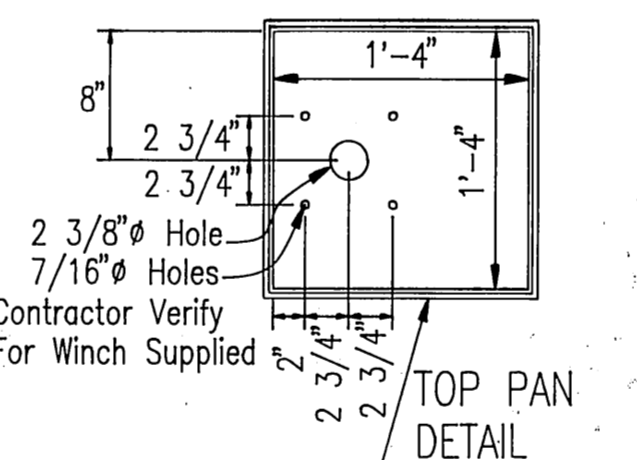
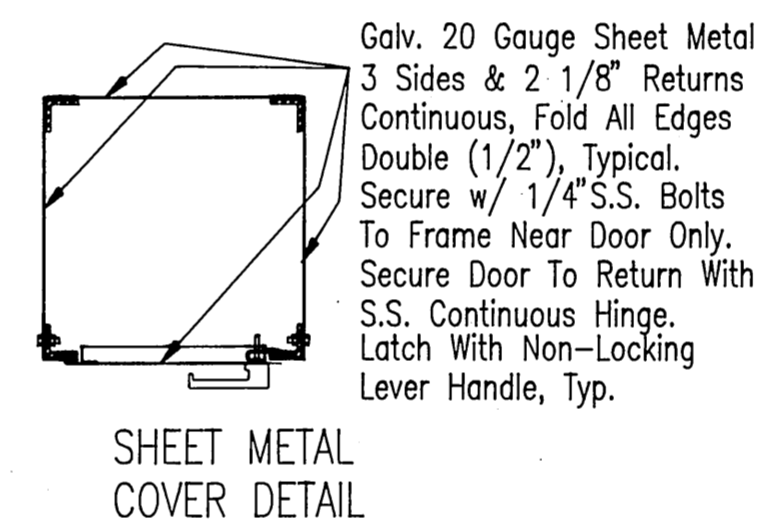
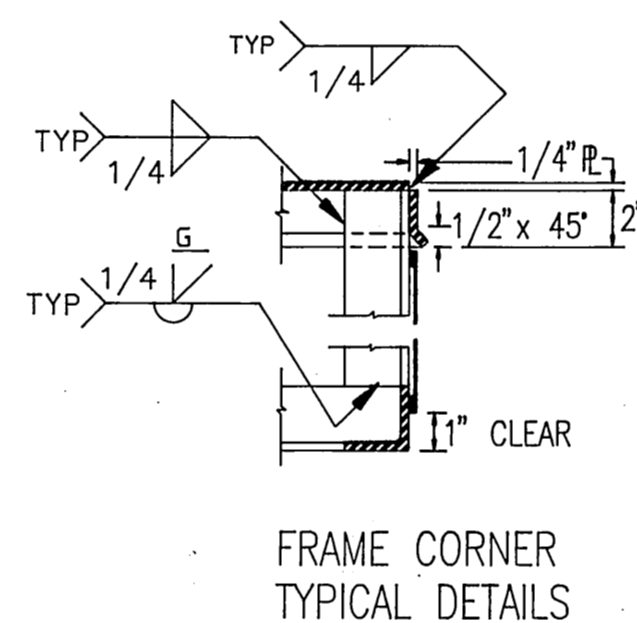
Provide Coast Guard Approved Life Ring, 30" ϕ Type 4 PFD. Orange Softex Covered Closed Cell Plastic Core w/ Rope Grab Ring and 100 feet of 1/2" ϕ (ADD.#2) Polypropylene Hand Line (fuse ends) Mount To Mooring Structure Handrail With Galvanized Clamp & Bolts Per Manufacturer's Recommendation. Life Ring & Poly Hand Line Required At Mooring Structures N3 & N5. Supply And Install Galv. Sheet Metal Life Ring Box, 20 Gauge Min. Sheet Formed To Approx. The Size & Shape Shown, Fold Exposed Edges Double. Submit Shop Dwg. & Ring Info. For Approval.

Plan Sheet 13 of 15: The detail "LIFE RING" doesn't indicate the size of polypropylene hand line. This rope shall be 1/2" diameter. The detail "SAFETY LADDER DETAILS" shows a 1/4" chain at the ladder location in the handrail break. This chain shall be 5/16" to match similar details on other sheets. Also, the fourth sentence in the note below the detail "CAPSTAN WINCH MOUNT" should be changed to read "Install Two New Mount Assemblies With Salvaged Existing Winches (MY-TE Model 350A) At Mooring Structures N2 & S5." There shall be 4 each New Capstan Winch Mounts.



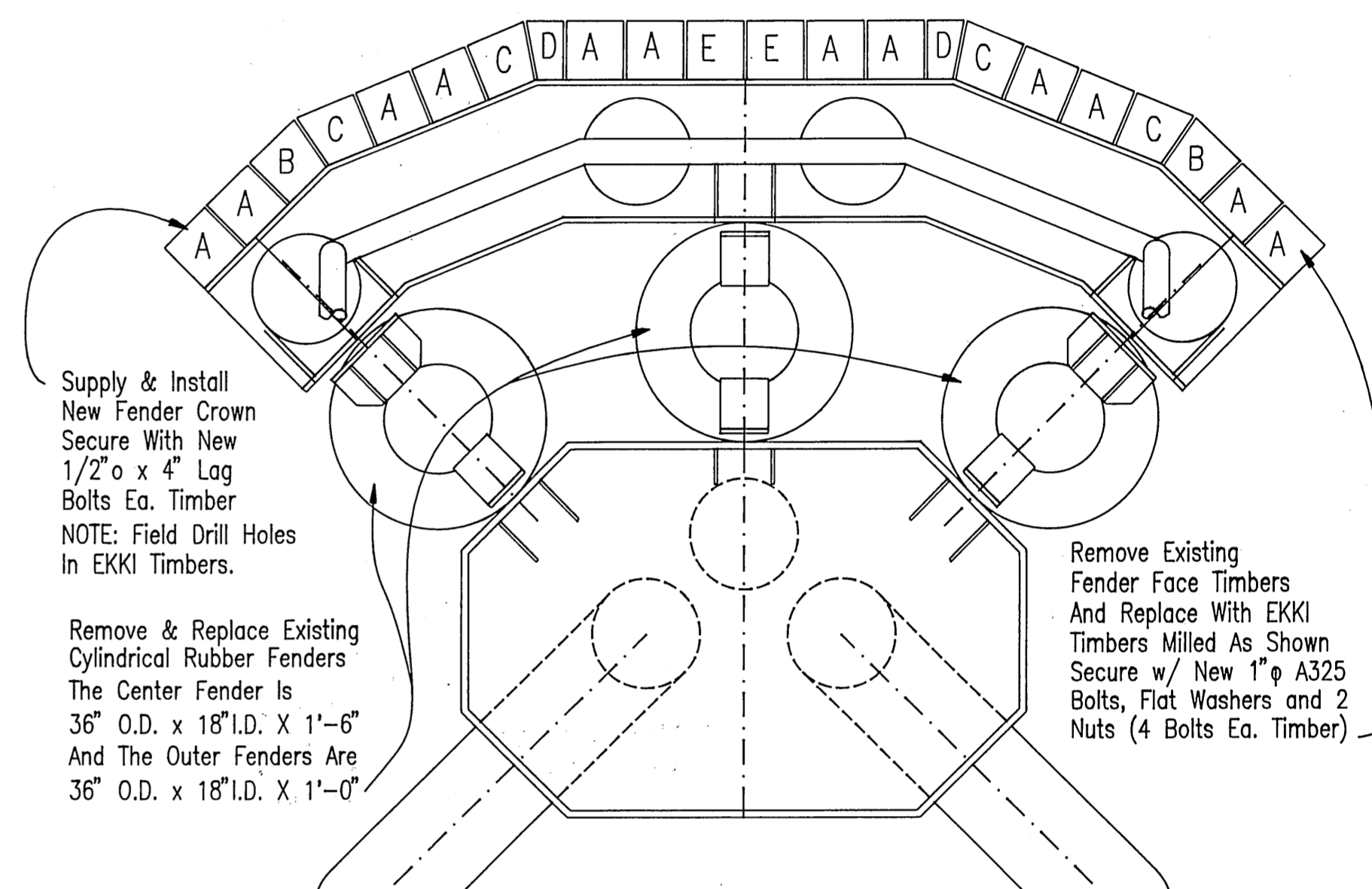
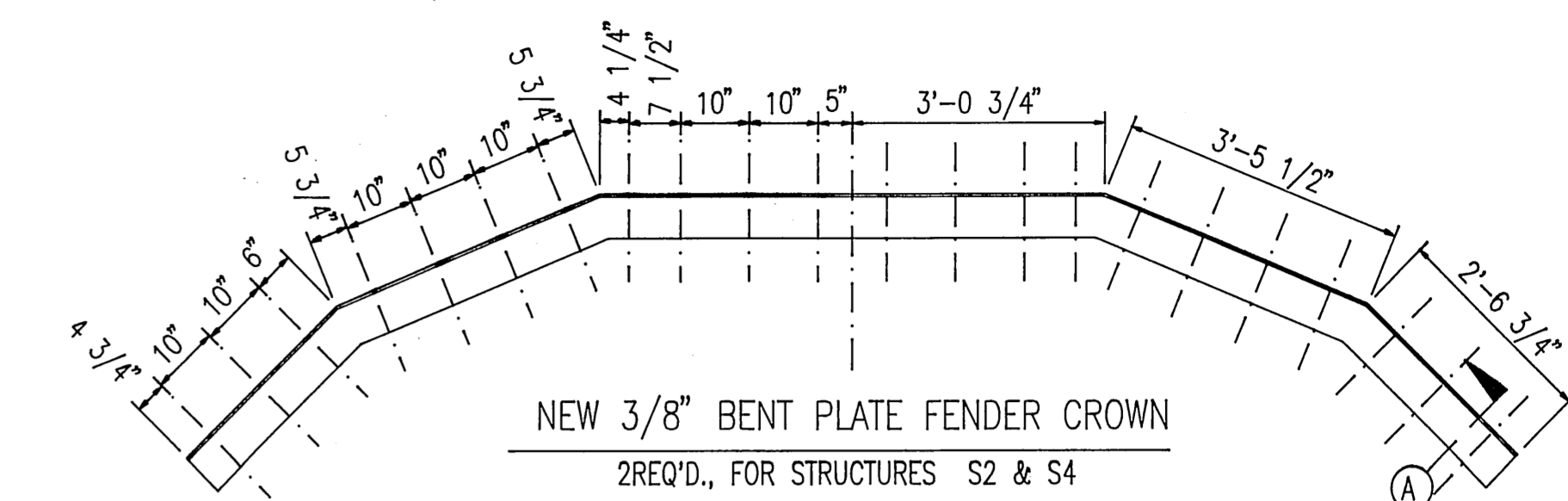
SAFETY LADDER DETAILS

SAFETY LADDER REQUIRED ON STANDARD MOORING STRUCTURE N3, & ON "LEAD-IN" MOORING STRUCTURE N5, (2 Ladders Req'd.).



CAPSTAN WINCH MOUNT

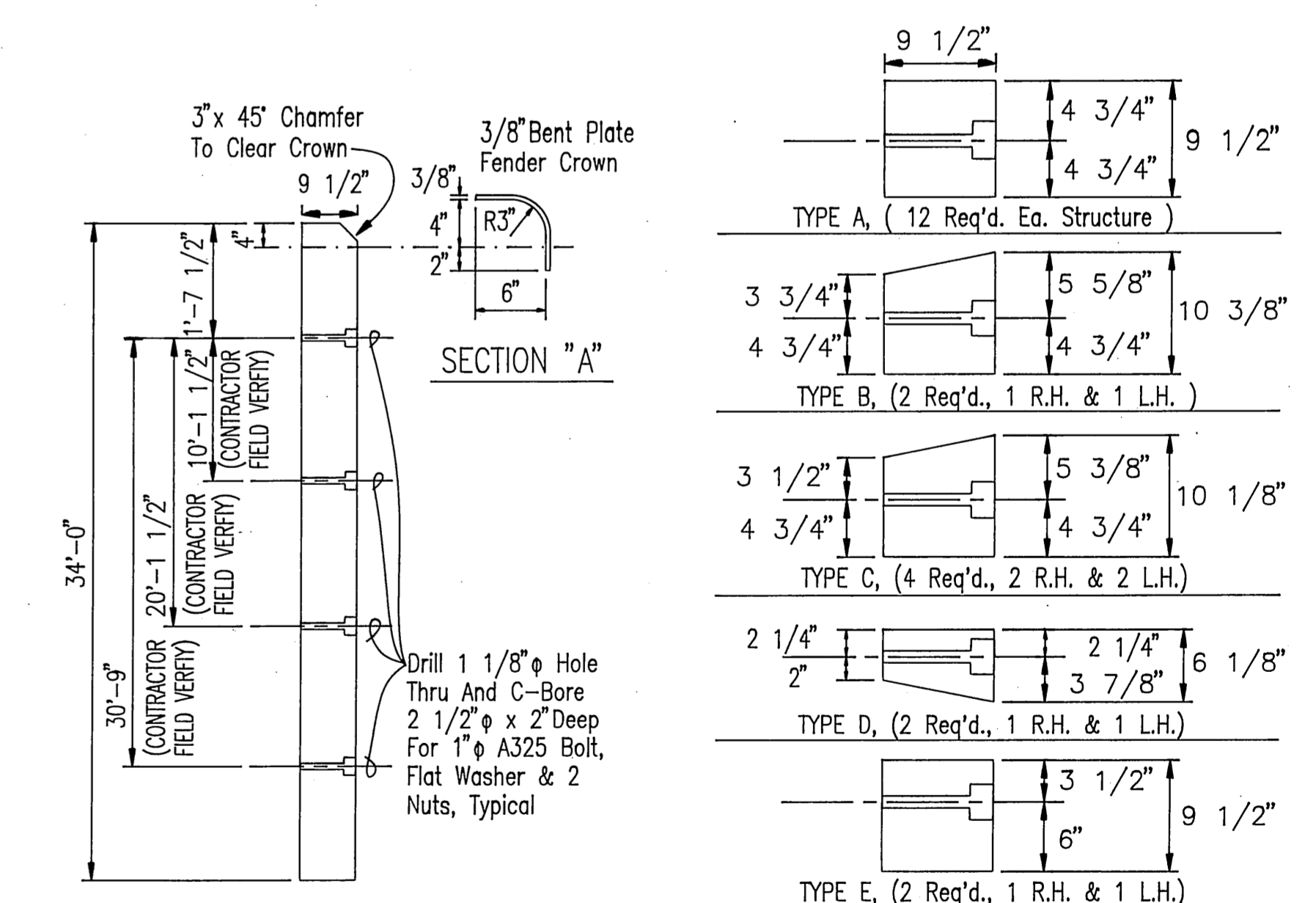
NOTE: Mount Details & Hole Spacings Are Consistant With Utility Capstan Winch Model 350A As Manufactured By MY-TE Products Of Indianapolis. Contractor Shall Verify Dimensions And Modify Mount For Actual Winch Supplied. Install New Winch & Mount Assemblies At Mooring Structures S3 & N5. Install Two NEW (ADD.#2) Mount Assemblies With Salvaged Existing Winches (MY-TE Model 350A) At Mooring Structures N2 & S5. Locate As Directed By Terminal Manager.



Supply & Install New Fender Crown Secure With New 1/2" ϕ x 4" Lag Bolts Ea. Timber
NOTE: Field Drill Holes In EKKI Timbers.

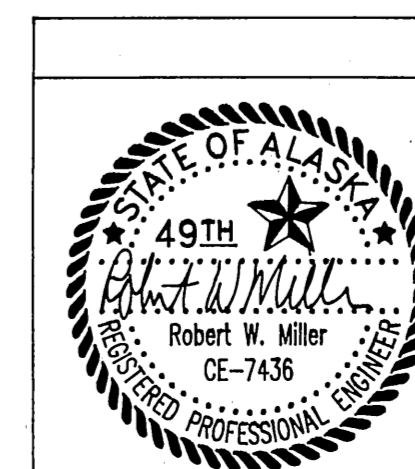
Remove & Replace Existing Cylindrical Rubber Fenders The Center Fender Is 36" O.D. x 18" I.D. x 1'-6" And The Outer Fenders Are 36" O.D. x 18" I.D. x 1'-0"

EXISTING 18" PIPE PILE "DOLPHIN" RUBBER FENDER & FENDER FACE REPLACEMENT TYPICAL AT STRUCTURES S2 & S4



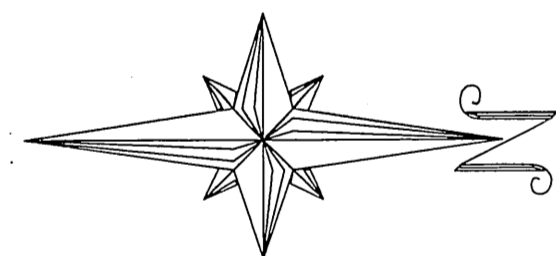
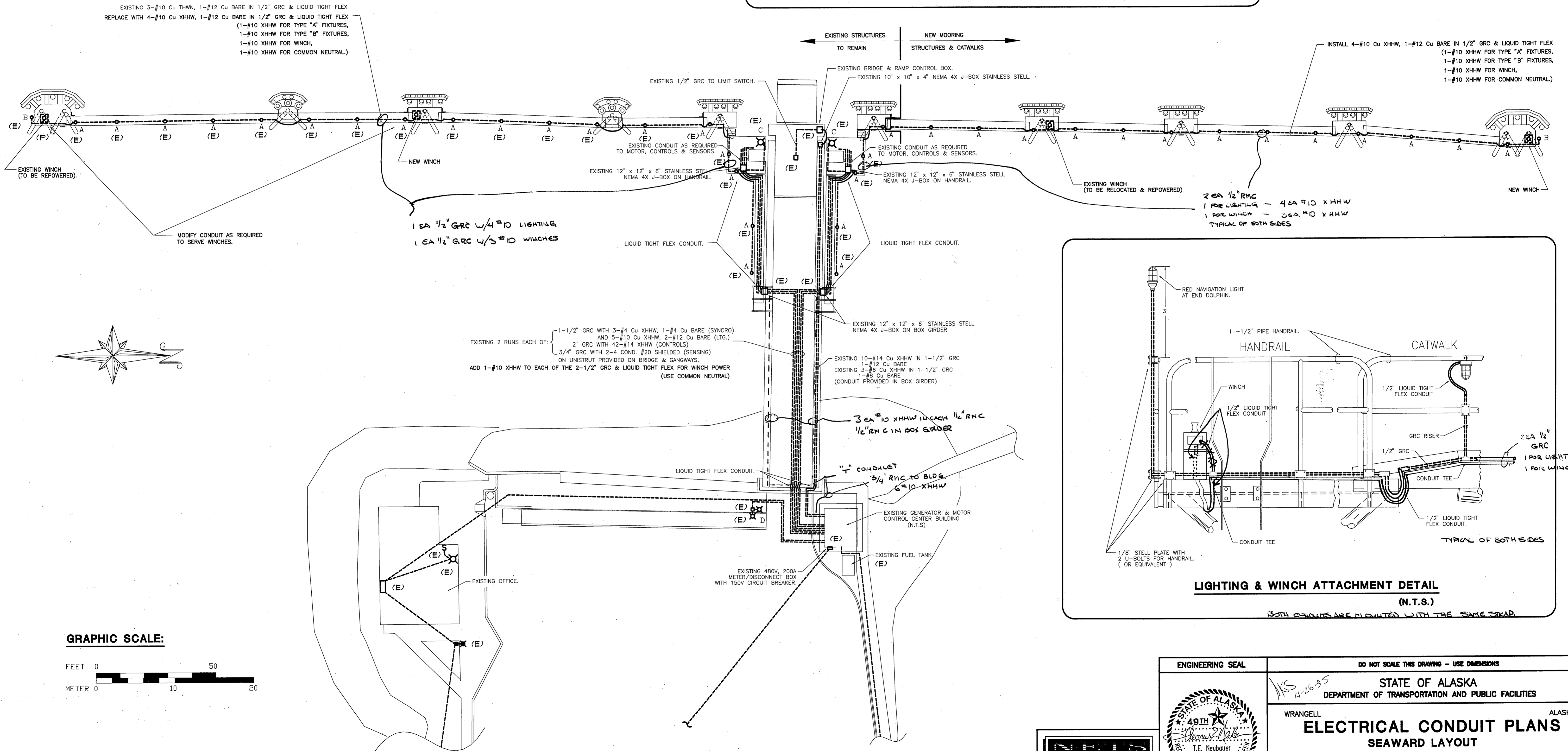
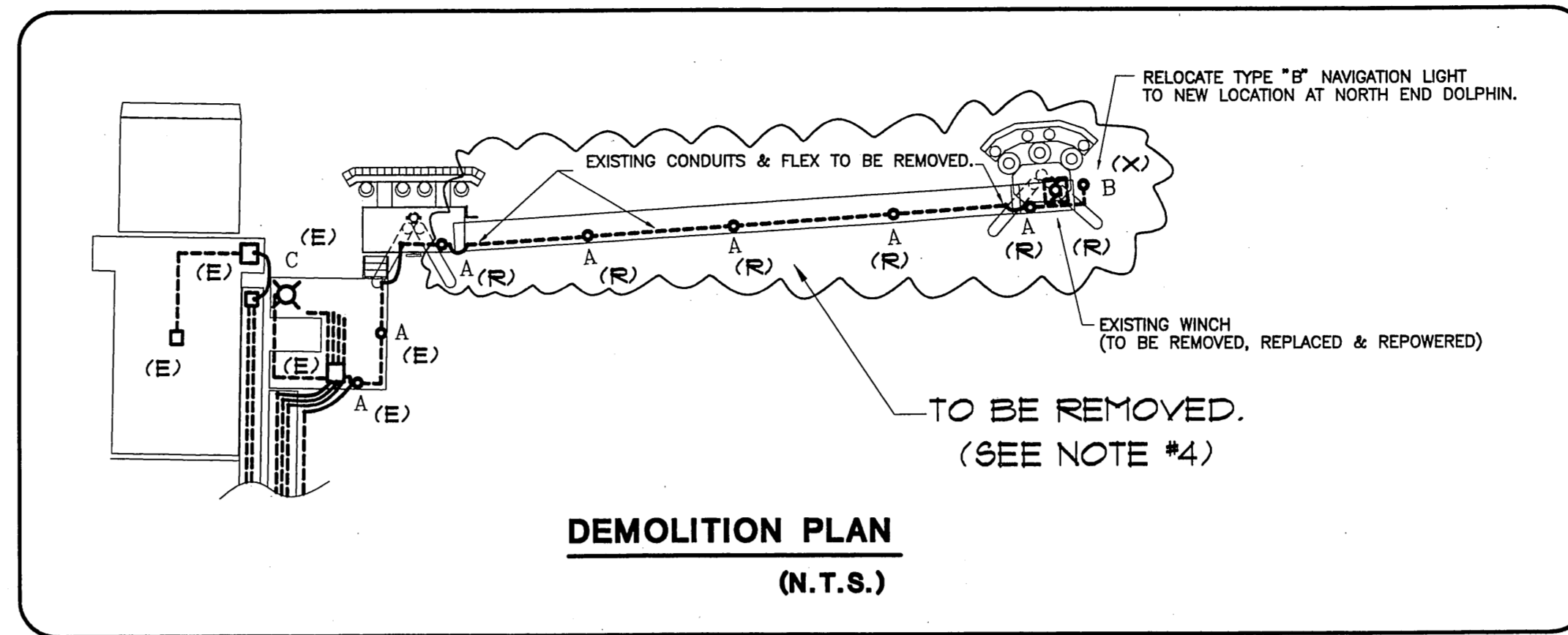
TYPICAL SIDE VIEW EKKI TIMBERS

REPLAC'MT EKKI TIMBERS FOR MOORING STRUCTURES S2 & S4

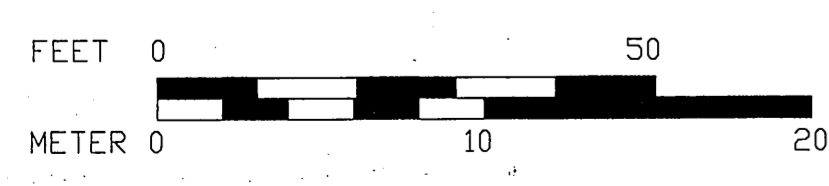


DO NOT SCALE THIS DRAWING - USE DIMENSIONS			
STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES			
WRANGELL		ALASKA	
MISCELLANEOUS DETAILS			
DESIGNED: WN	CHECKED: RWM	DRAWN: WN	DATE: AUG, 1993
PROJECT NUMBER: STP-095-3(2) / 75279		SHEET 13	OF 15

WRC-MISC.DWG



GRAPHIC SCALE:



NETS
NEUBAUER ENGINEERING & TECHNICAL SERVICES
P.O. BOX 32584, JUNEAU, AK. 99803 789-2474
NETS PROJECT No. 0100-301

ENGINEERING SEAL		DO NOT SCALE THIS DRAWING - USE DIMENSIONS	
		STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES	
		WRANCELL ALASKA ELECTRICAL CONDUIT PLANS SEAWARD LAYOUT	
DESIGNED: TEN, HAH	CHECKED: T.E.N	DRAWN: H.A.H.	DATE: AUGUST, 1993
PROJECT NUMBER: STP-095-3(2) / 75279	SHEET 14 OF 15		

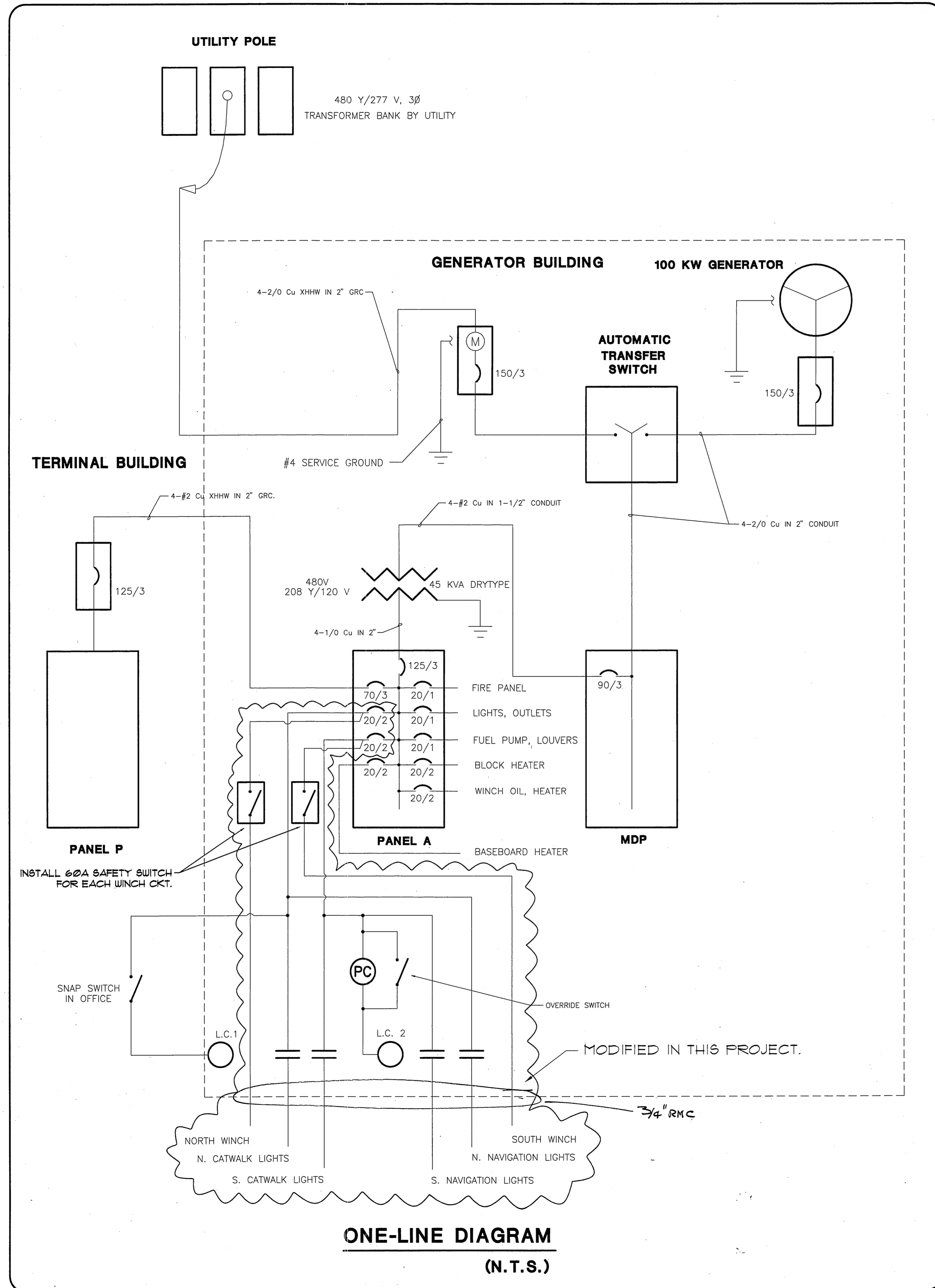
LEGEND

- LIGHT
(A, B: LIGHT TYPE)
- ⊗ WINCH
- (E) EXISTING TO REMAIN.
- (P) EXISTING TO BE REPOWERED
- (R) EXISTING TO BE REPLACED
- (X) EXISTING TO BE RELOCATED

NOTES

1. RELOCATE THE BREAKER #12 (20/2) TO THE LOCATION #11 #13 AND RELOCATE THE EXISTING BREAKER #11 (20/1) & #13 (20/1) TO THE LOCATION #12 & #14 (AT PANEL A).
 2. THE NEW CONDUCTORS (2-#10 XHHW) FOR THE NORTH AND SOUTH WINCHES WILL BE ROUTED WITH THE EXISTING LIGHTING CIRCUIT CONDUCTORS TO PANEL A.
 3. REPLACE CORD & CAP CONNECTION ON NEW WINCHES WITH PERMANENT WIRING.
 4. REMOVE ALL EXISTING WINCH POWER WIRING ALONG CATWALKS, BRIDGE AND TO GENERATOR BUILDING.
- INSTALLED NEW #10 X HHW TO ALL WINCHES.

#2 - THE SOUTH SIDE LIGHTING CONDUCTORS ARE RUN IN A SEPARATE CONDUIT FROM THE WINCH WIRING. THE NORTH SIDE IS THE SAME.



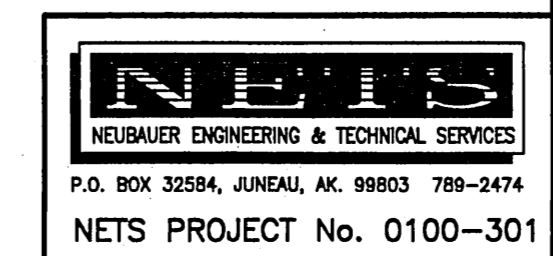
ONE-LINE DIAGRAM
(N.T.S.)

FIXTURE SCHEDULE
(OR EQUIVALENT)

- A - PAULUHN VAPOR TIGHT 723TV-1 1/2 WITH BRASS GUARD, CLEAR GLOBE AND 100W A19 EXTENDED LIFE BULB.
- B - (EXISTING, FOR INFORMATION ONLY) NAVIGATION LIGHT CLASS II DIVISION 2 VAPOR TIGHT EMERGENCY LIGHT WITH RED GLOBE AND 100W A19 EXTENDED LIFE BULB.

PANEL A

CKT #	WIRE Qty/ Size	CIRCUIT DESCRIPTION	BRKR Amp/ Pole	K V A			BRKR Amp/ Pole	CIRCUIT DESCRIPTION	WIRE Qty/ Size	CKT #
				CKT	A ϕ	B ϕ				
1	3/#2	PANEL P.	70/3	5.9	6.0		0.1	20/1	HALON FIRE PANEL	2
3				10.3	11.4		1.1	20/1	LIGHT, OUTLETS	4
5				6.2		7.7	1.5	20/1	FUEL PUMP, LOUVERS	6
7	3/#10	NORTH CATWALK & NAV. LIGHTS	20/2	1.9	2.9		1.0	20/2	BLOCK HEATER	8
9		NORTH DOCK WINCH		2.0	3.0		1.0			10
11	3/#10	SOUTH CATWALK & NAV. LIGHTS	20/2	1.9		1.9	20/1		SPARE	12
13		SOUTH DOCK WINCH		2.0	2.0		20/1		SPARE	14
15		BASEBOARD HEATER	20/2	1.0	1.0		20/1		SPARE	16
17				1.0		2.0	1.0	20/2	WINCH OIL	18
19					1.0		1.0		HEATER	20
21						0.0				22
23						0.0				24
25						0.0				26
27						0.0				28
29						0.0				30
31						0.0				32
33						0.0				34
35						0.0				36
37						0.0				38
39						0.0				40
41						0.0				42
TOTAL CONNECTED LOAD (KVA):				38.9	11.9	15.4	11.6			



ENGINEERING SEAL

DO NOT SCALE THIS DRAWING - USE DIMENSIONS

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

WRANGELL ALASKA

ELECTRICAL CONDUIT PLANS
ONE-LINE DIAGRAM, PANEL & SCHEDULE

DESIGNED: TEN, HAH CHECKED: T.E.N DRAWN: H.A.H. DATE: AUGUST, 1993

PROJECT NUMBER: STP-095-3(2) / 75279 SHEET 15 OF 15