

PORT OF TACOMA

WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT PROJECT NO. - 201107.01 CONTRACT NO. - 071421

PORT COMMISSIONERS:

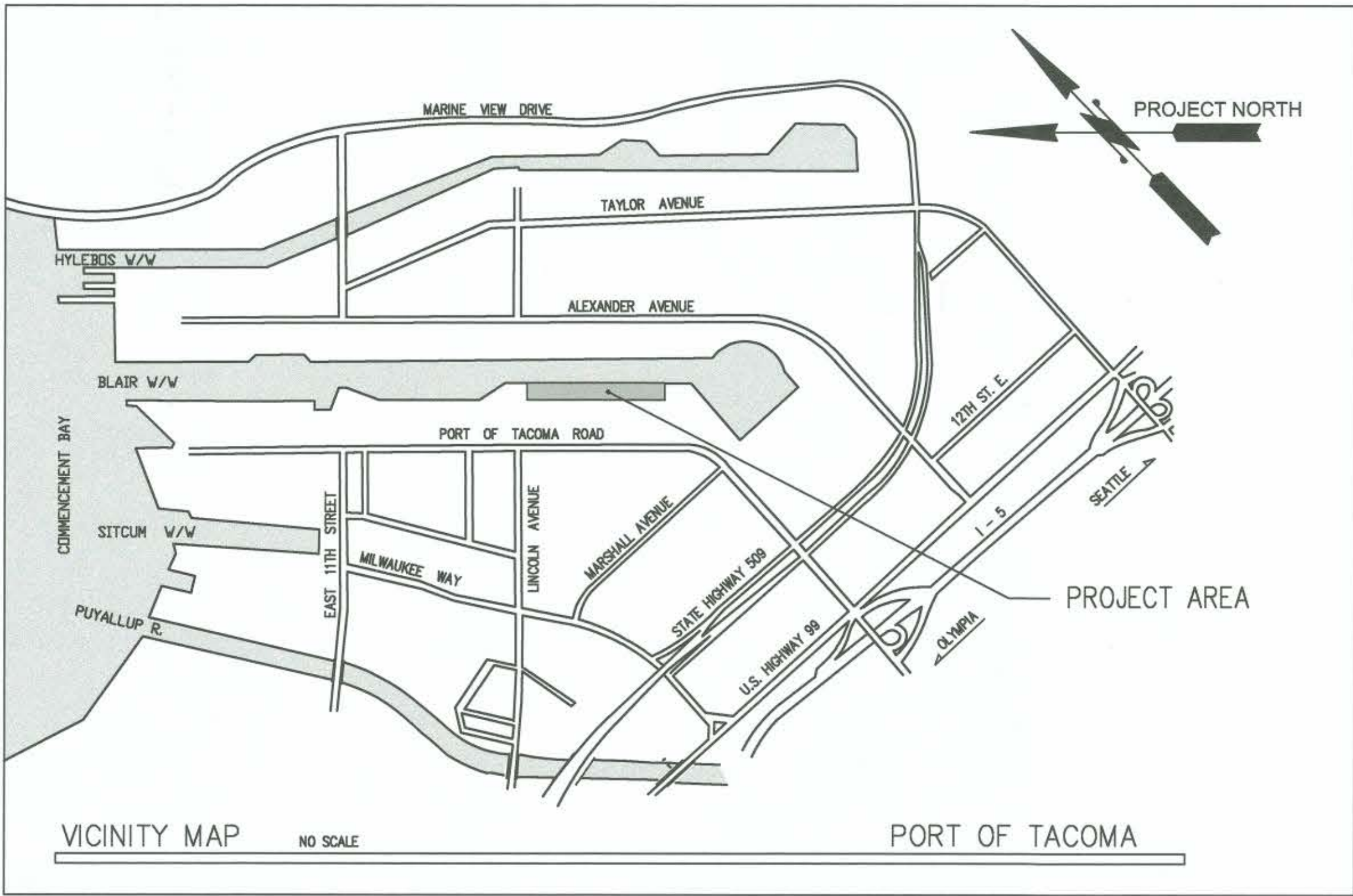
KRISTIN ANG
DEANNA KELLER
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JOHN MCCARTHY
DON MEYER

PORT STAFF:

ERIC JOHNSON
Executive Director

THAIS HOWARD, PE
Director of Engineering

ELLY BULEGA, PE
Project Manager

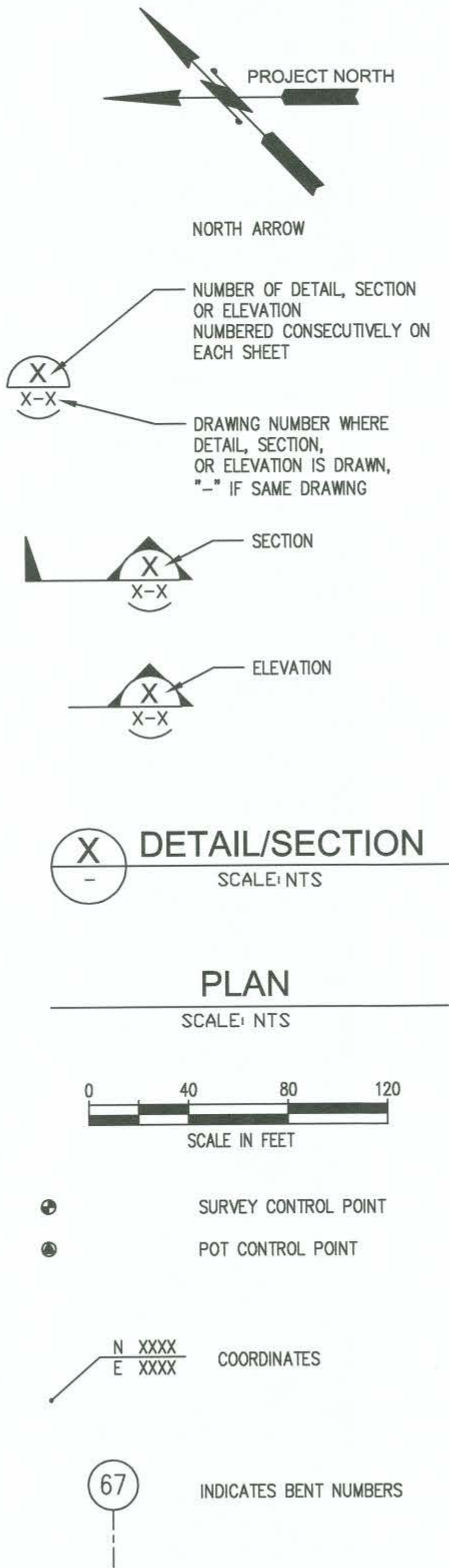


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BID SET

6649 G1.1 SH # 1 OF 22	WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT COVER SHEET	APPROVED: <i>[Signature]</i> DIRECTOR DATE: 11/17/2020	TAH CHECKED BY: TAD DATE: 11/09/2020	11/09/2020	DATE	BY: <i>[Signature]</i>	REVISION:	APPR: <i>[Signature]</i>	DATE: <i>[Signature]</i>	P.O. BOX 1807 TACOMA, WA 98401 (206)385-0162	Port of Tacoma
CONT/CONS: 071421	TOWNSHIP: 21N	RANGE: 03E	SECTION: 35	DATE: 11/17/2020	DATE	BY: <i>[Signature]</i>	REVISION:	APPR: <i>[Signature]</i>	DATE: <i>[Signature]</i>	2407 North 31st Street, Suite 100 Tacoma, Washington 98407 (253) 396-0150 Fax (253) 396-0162	Port of Tacoma
M. ID: 201107.01	DAT-HRZ: WA83-SF	VERT: MLW 19.18' @ TIDE 22 1933	PARCEL: 25	PRINTED BY: tiemoms Nov 09, 2020	DATE	BY: <i>[Signature]</i>	REVISION:	APPR: <i>[Signature]</i>	DATE: <i>[Signature]</i>		
PHASE: BID SET				PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98421		BY: <i>[Signature]</i>	REVISION:	APPR: <i>[Signature]</i>	DATE: <i>[Signature]</i>		

SYMBOLS



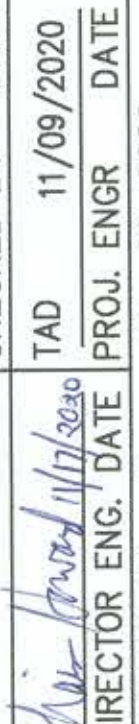



ABBREVIATIONS

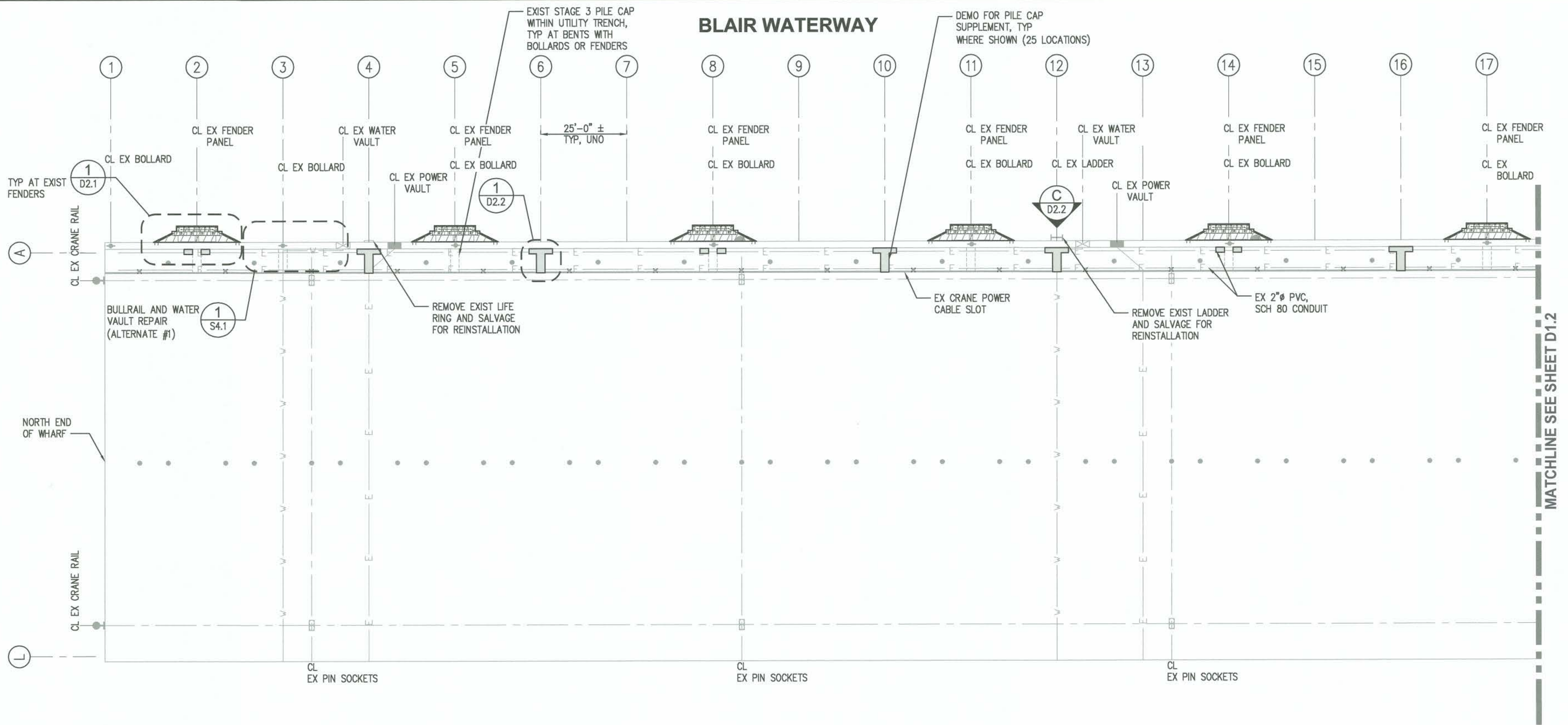
#	NUMBER	LT.	LEFT
Ø	DIAMETER	M&R	MAINTENANCE AND REPAIR
⊙	AT	MAT	MATERIAL
ACP	ASPHALTIC CONCRETE PAVEMENT	MAX	MAXIMUM
ACI	AMERICAN CONCRETE INSTITUTE	MFR	MANUFACTURER
ADDL	ADDITIONAL	MHHW	MEAN HIGHER HIGH WATER
APPROX	APPROXIMATE	MHW	MEAN HIGH WATER
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	MLLW	MEAN LOWER LOW WATER
AVG	AVERAGE	MIN	MINIMUM
AWS	AMERICAN WELDING SOCIETY	MISC	MISCELLANEOUS
BLDG	BUILDING	NDT	NONDESTRUCTIVE TESTING
BOT	BOTTOM	NIC	NOT IN CONTRACT
CL	CENTERLINE	No.	NUMBER
CC	CENTER TO CENTER	NTS	NOT TO SCALE
CDF	CONTROL DENSITY FILL	OC	ON CENTER
CIP	CAST IN PLACE	OD	OUTSIDE DIAMETER
CLR	CLEAR or CLEARANCE	OVH	OVERHEAD
CONC	CONCRETE	PL	PLATE
CONST	CONSTRUCT	POT	PORT OF TACOMA
CPT	CONE PENETROMETER TEST	POV	PRIVATELY OWNED VEHICLE
CTR	CENTER	PSI	POUNDS PER SQUARE INCH
DET	DETAIL	PVMT	PAVEMENT
DIA	DIAMETER	R	RIDGE or RADIUS
DIM	DIMENSION	REF	REFERENCE
DWG	DRAWING	REINF	REINFORCE OR REINFORCING
EA	EACH	REQ'D	REQUIRED
EG	EXISTING GRADE	SCH or SCHED	SCHEDULE
EL	ELEVATION	SHT	SHEET
ELEC	ELECTRICAL	SIM	SIMILAR
ENGR	ENGINEER	SPECS	SPECIFICATIONS
EQ	EQUAL	SQFT	SQUARE FEET
ETC	ET CETERA	STD	STANDARD
EXIST	EXISTING	SYM	SYMMETRIC or SYMBOL
FT	FOOT, FEET	TYP	TYPICAL
HT	HEIGHT	UNO	UNLESS NOTED OTHERWISE
ID	INSIDE DIAMETER	V or VERT	VERTICAL
IN	INCH	W/	WITH
INCL	INCLUDE	W/O	WITHOUT
INFO	INFORMATION	WELD	WELDING
JT	JOINT	WABO	WASHINGTON ASSOCIATION OF BUILDING ASSOCIATES
L	LENGTH	WHS	WELDED HEADED STUD
LF	LINEAL FOOT		
LIN	LINEAL or LINEAR		

GENERAL NOTES

1. ALL CONSTRUCTION SHALL CONFORM TO THESE PLANS AND SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY ALL LEVELS, DIMENSIONS, AND EXISTING CONDITIONS IN THE FIELD BEFORE PROCEEDING. CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR FIELD CHANGES PRIOR TO INSTALLATION OR FABRICATION. IN CASE OF DISCREPANCIES BETWEEN THE EXISTING CONDITIONS AND THE PLANS, THE CONTRACTOR SHALL OBTAIN DIRECTION FROM THE ENGINEER BEFORE PROCEEDING. DIMENSIONS AND CALLOUTS NOTED AS PLUS OR MINUS (±) OR (REF) INDICATE UNVERIFIED DIMENSIONS AND ARE APPROXIMATE. NOTIFY THE ENGINEER IMMEDIATELY OF CONFLICTS OR EXCESSIVE VARIATIONS FROM AS INDICATED. NOTED DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS - DO NOT SCALE THE PLANS.
3. A COPY OF THE PLANS SHALL BE ON-SITE WHENEVER CONSTRUCTION IS IN PROGRESS. THROUGHOUT THE PROGRESS OF THE WORK OF THIS CONTRACT, MAINTAIN AN ACCURATE RECORD OF ALL CHANGES IN THE CONTRACT DOCUMENTS. UPON THE COMPLETION OF THIS CONTRACT, PROVIDE ONE COMPLETE SET OF RECORD DOCUMENTS TO THE PORT OF TACOMA.
4. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS OF EXISTING STRUCTURES AND OTHER FEATURES THAT MAY IMPACT THE WORK. CONTRACTOR SHALL BRING ANY CONFLICTS TO THE ENGINEER'S ATTENTION PRIOR TO BEGINNING AFFECTED WORK.
5. ANY DAMAGE TO EXISTING UTILITIES, OTHER FACILITIES OR EQUIPMENT DUE TO THE CONTRACTOR'S NEGLIGENCE, EXCEPT FOR ITEMS DESIGNATED FOR DEMOLITION, SHALL BE PROMPTLY REPAIRED BY THE CONTRACTOR AT HIS EXPENSE. THIS INCLUDES ITEMS OUTSIDE THE WORK AREA AND WITHIN THE PORT OF TACOMA PROPERTY THAT ARE DAMAGED BY CONSTRUCTION ACTIVITIES DURING EXECUTION OF THIS CONTRACT.
6. THE CONTRACTOR SHALL KEEP ALL STREETS AND VEHICULAR TRAFFIC AREAS USED FOR THIS WORK CLEAN AT ALL TIMES, SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
7. CONTRACTOR IS RESPONSIBLE FOR ANY TRAFFIC CONTROLS REQUIRED DURING THE DURATION OF THIS PROJECT, PER CONTRACTOR'S OPERATION. ALL TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
8. MAINTAIN UTILITY SERVICE TO EXISTING BUILDINGS, BULLRAIL UTILITIES AND FIRE HYDRANTS DURING CONSTRUCTION UNLESS NOTED OTHERWISE OR APPROVED BY THE ENGINEER.
9. RECORD DRAWINGS OF EXISTING WHARF AND FENDER SYSTEMS ARE AVAILABLE FROM THE PORT.

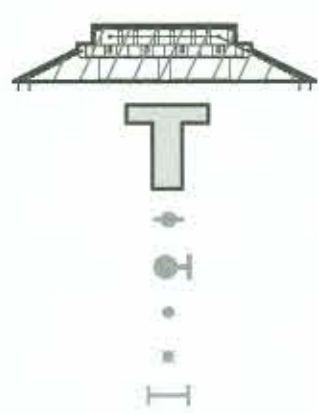
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6649 G1.2 SH #2 OF 22	WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT SYMBOLS, ABBREVIATIONS AND GENERAL NOTES				APPROVED: 		TAH 11/09/2020 CHECKED BY DATE				 2407 North 31st Street, Suite 100 Tacoma, WA 98421 (253) 386-0150 Fax (253) 386-0162			
	CONT/CONS: 071421	TOWNSHIP: 21N	RANGE: 03E	SECTION: 35	DIRECTOR ENG. DATE: 11/11/2020	TAD	11/09/2020	DATE	MARK:	REVISION:	BY:	APPR:	DATE:	
	M. ID: 20107.01	DAT-HRZ: WA83-SF	VERT: MLLW 19.18'	TIDE 22 1933	PRINTED BY: tlemmons	Nov 09, 2020	DATE							
	PHASE: BID SET	PARCEL: 25	DRAWING SCALE: AS NOTED		PORT ADDRESS: ONE SITQUM PLAZA									

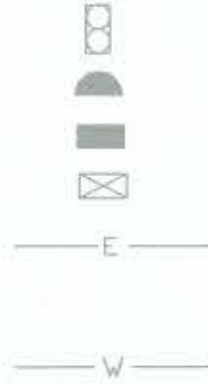


MATCHLINE SEE SHEET D1.2

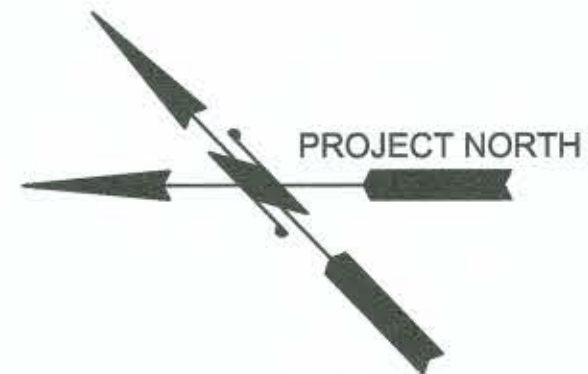
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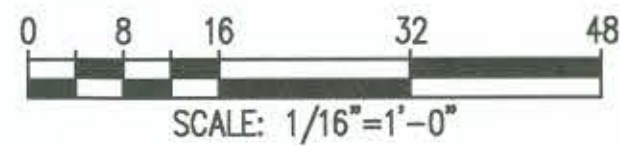
EXIST FENDER SYSTEM TO BE DEMOLISHED, SEE D2.1 (27 LOCATIONS)
DEMO FOR PILE CAP SUPPLEMENT
EXIST BOLLARD
EXIST CRANE STOP
EXIST DECK DRAIN
EXIST CABLE SLOT DRAIN
EXIST LADDER



EXIST PIN SOCKET W/2"Ø DRAIN
EXIST LIFE RING
EXIST POWER VAULT
EXIST WATER VAULT
EXIST ELECTRICAL CONDUITS. SEE REFERENCE DRAWINGS FOR MATERIAL, SIZE, AND NUMBER OF CONDUITS
EXIST WATER LINE. SEE REFERENCE DRAWINGS FOR MATERIAL AND SIZE



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



KEY PLAN

BID SET

2407 North 31st Street, Suite 100
Tacoma, Washington 98407
(253) 396-0150 Fax (253) 396-0162

2407 North 31st Street, Suite 100
Tacoma, Washington 98407
(253) 396-0150 Fax (253) 396-0162

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	TAD	11/09/2020	PROJ. ENGR	DATE
DIRECTOR	ENG.	DATE	PRINTED BY:	DATE
			PORT ADDRESS:	ONE SITCUM PLAZA
				TACOMA, WA 98421

WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT DEMOLITION PLAN - SHEET 1	TOWNSHIP: 21N	RANGE: 03E	SECTION: 35
	DAT-HRZ: WA83-SF	VERT: MLLW 19.18' @ TIDE 22 1933	
	PARCEL: 25	DRAWING SCALE: AS NOTED	

6649

D1.1

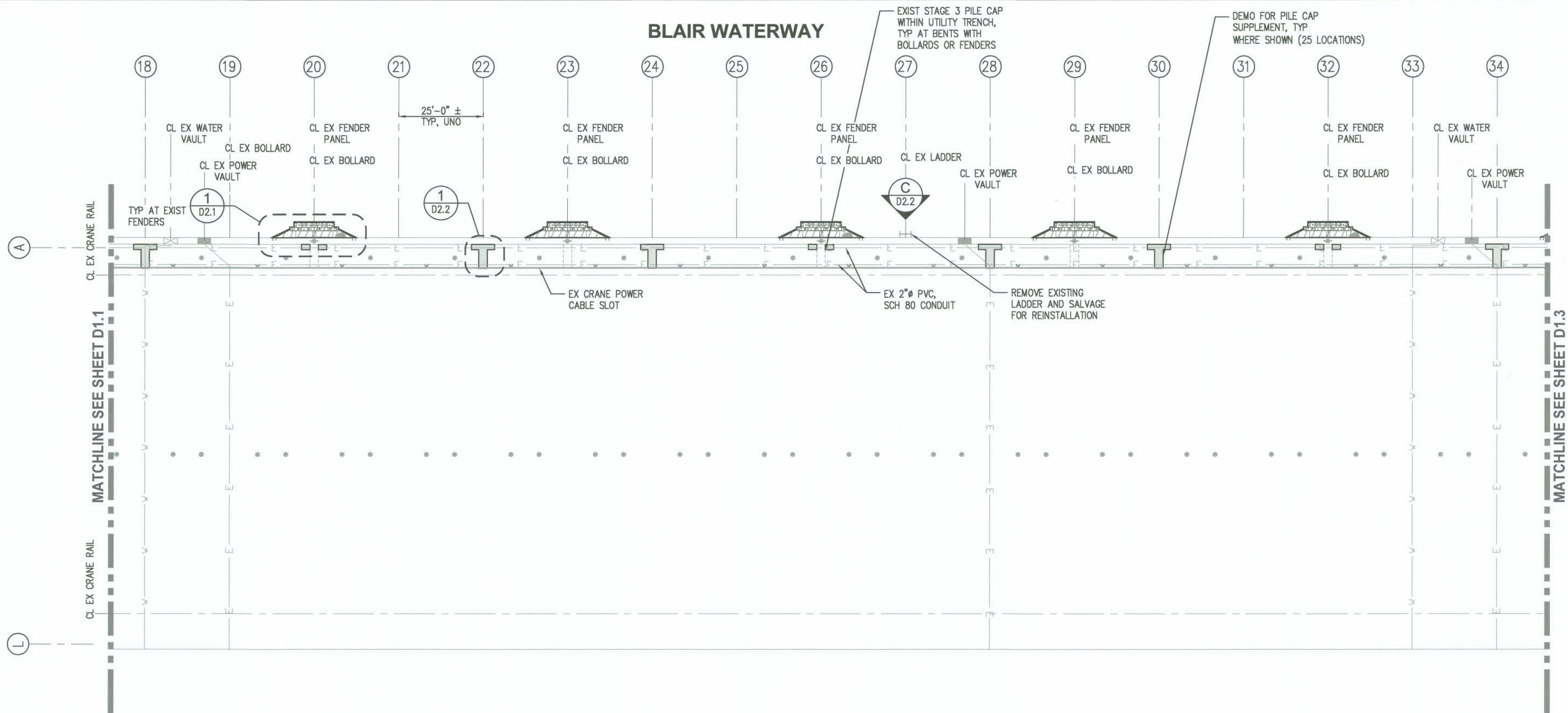
SH #4 OF 22

CONT/CONS: 071421

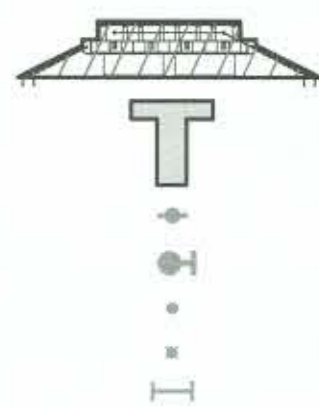
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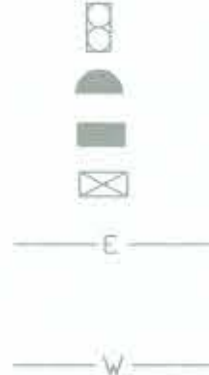
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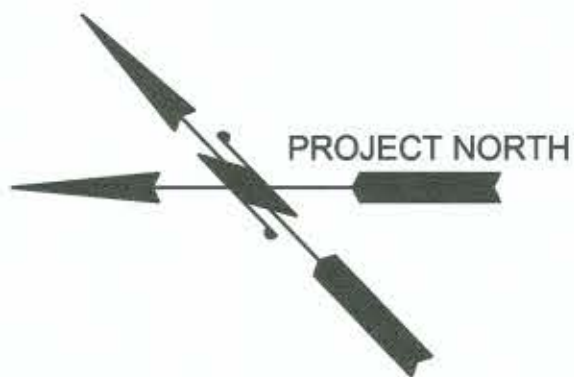
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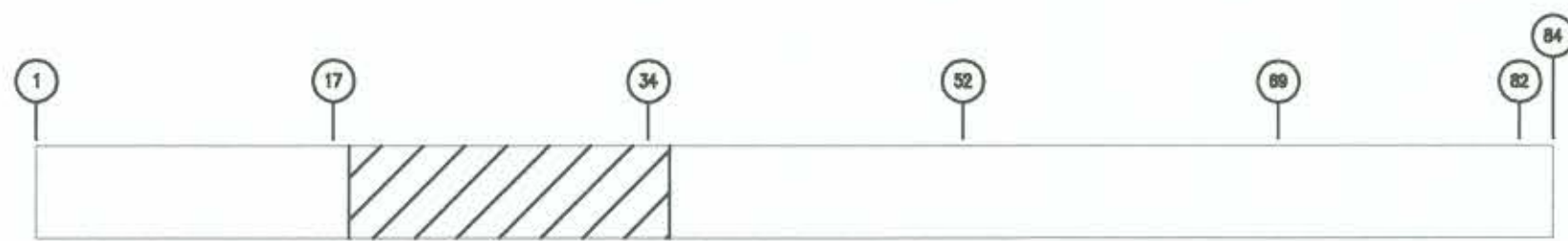
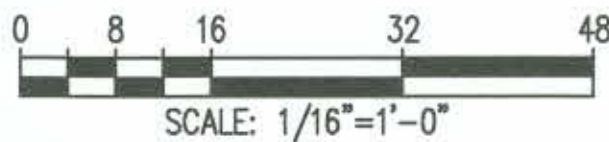
EXIST FENDER SYSTEM TO BE DEMOLISHED, SEE D2.1 (27 LOCATIONS)
DEMO FOR PILE CAP SUPPLEMENT
EXIST BOLLARD
EXIST CRANE STOP
EXIST DECK DRAIN
EXIST CABLE SLOT DRAIN
EXIST LADDER



EXIST PIN SOCKET W/2\"/>



DEMOLITION PLAN
SCALE: 1/16\"/>

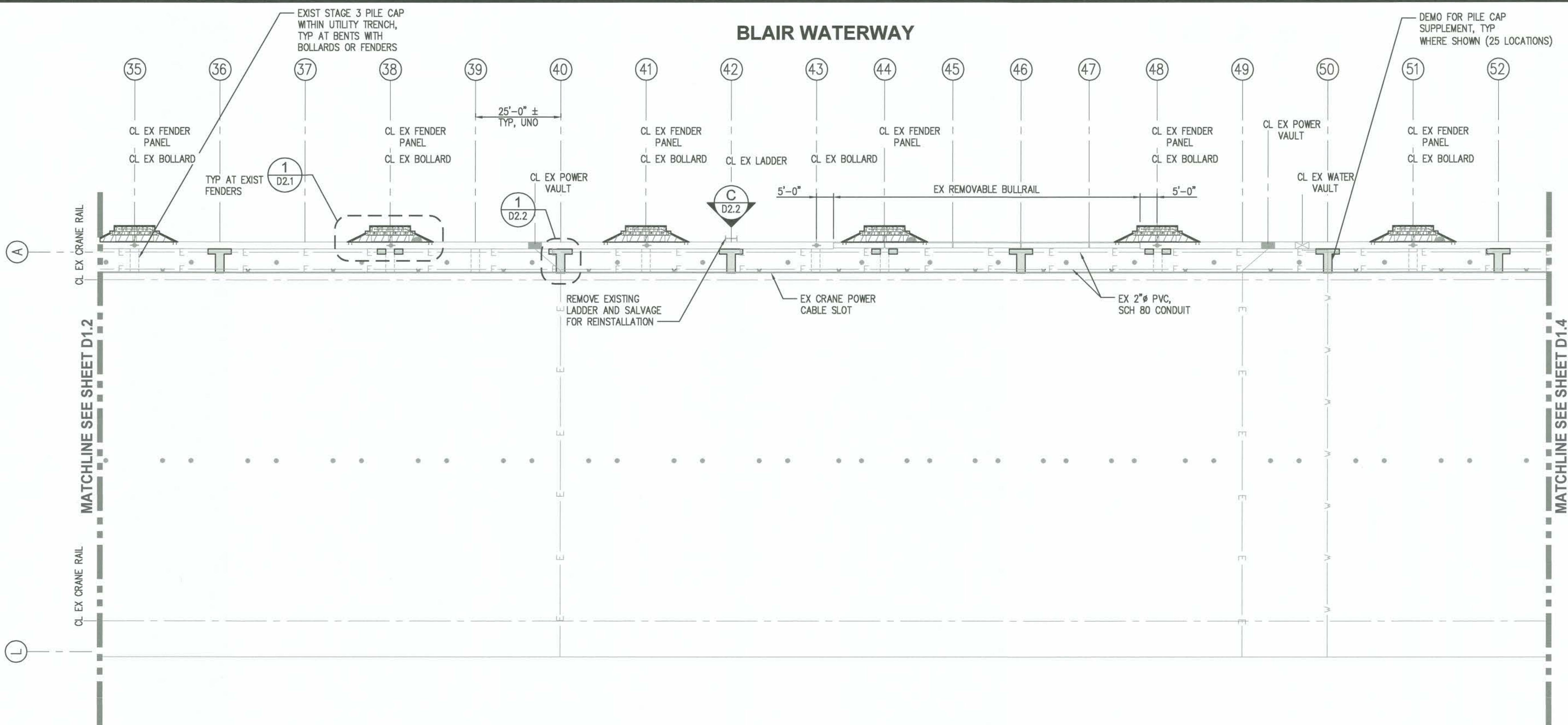


KEY PLAN

BID SET

6649 D1.2 SH #5 OF 22	WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT DEMOLITION PLAN - SHEET 2				APPROVED:	TAH: 11/09/2020 CHECKED BY: TAD DATE: 11/09/2020		 2407 North 31st Street, Suite 100 Tacoma, Washington 98407 (253) 396-0150 Fax (253) 396-0162 P.O. BOX 1837 TACOMA, WA 98401 (202)396-9441	
	TOWNSHIP: 21N RANGE: 03E SECTION: 35	DAT--HRZ: WA83-SF VERT: MLW 19.18' @ TIDE 22 1933	PRINTED BY: temons Nov 09, 2020 PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98421	MARK: REVISION: BY: DATE:					

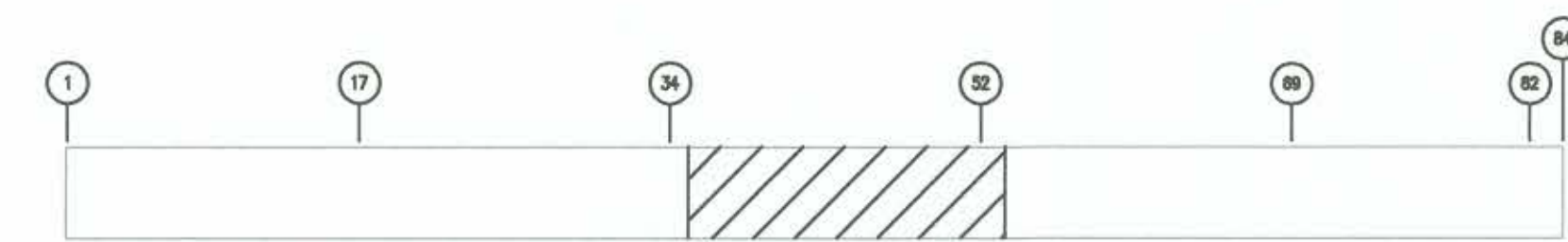
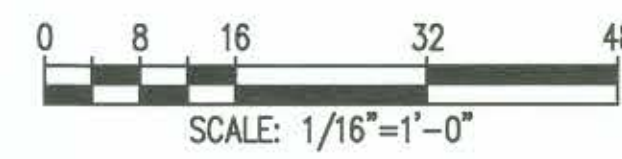
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LEGEND:

- | | | | |
|--|---|--|--|
| | EXIST FENDER SYSTEM TO BE DEMOLISHED, SEE D2.1 (27 LOCATIONS) | | EXIST PIN SOCKET W/2" Ø DRAIN |
| | DEMO FOR PILE CAP SUPPLEMENT | | EXIST LIFE RING |
| | EXIST BOLLARD | | EXIST POWER VAULT |
| | EXIST CRANE STOP | | EXIST WATER VAULT |
| | EXIST DECK DRAIN | | EXIST ELECTRICAL CONDUITS. SEE REFERENCE DRAWINGS FOR MATERIAL, SIZE, AND NUMBER OF CONDUITS |
| | EXIST CABLE SLOT DRAIN | | EXIST WATER LINE. SEE REFERENCE DRAWINGS FOR MATERIAL AND SIZE |
| | EXIST LADDER | | |

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

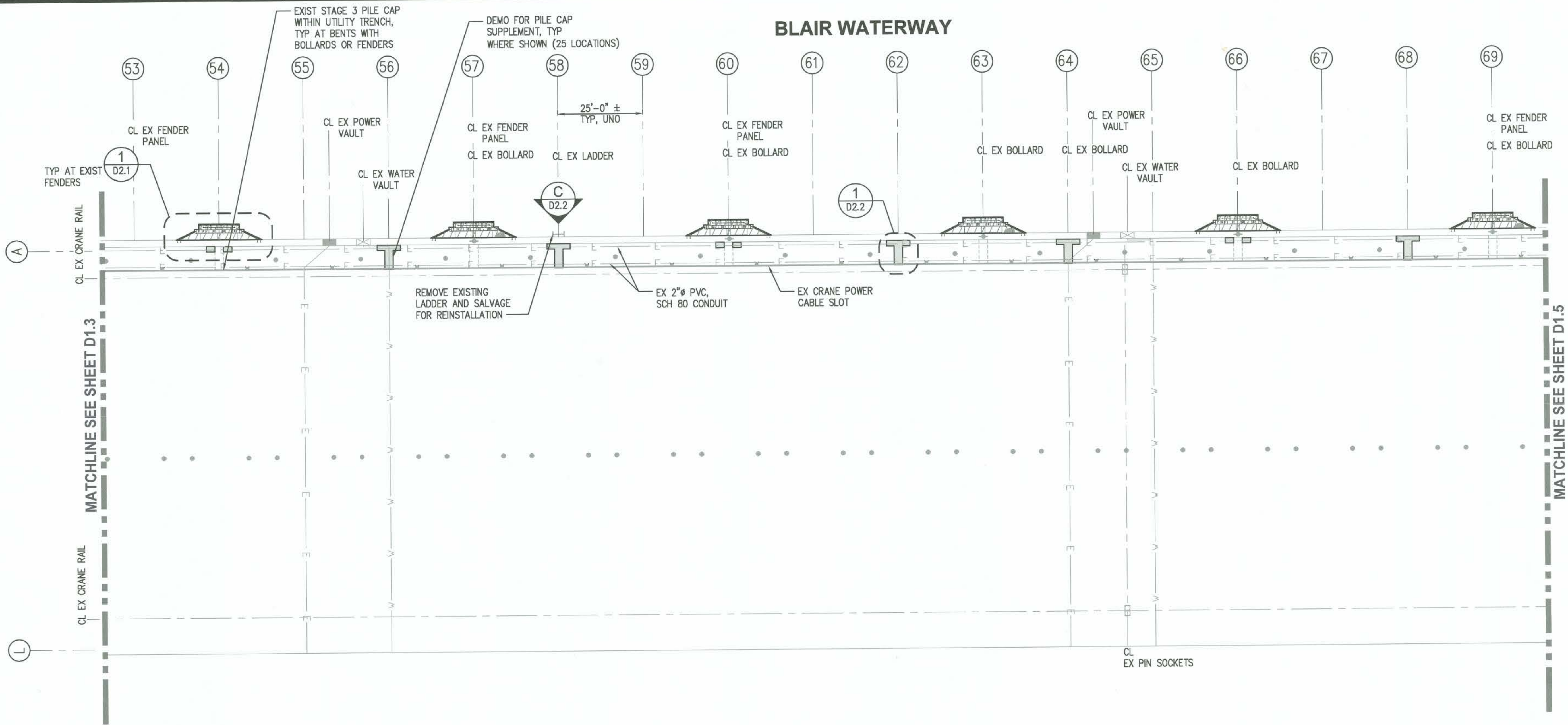


KEY PLAN

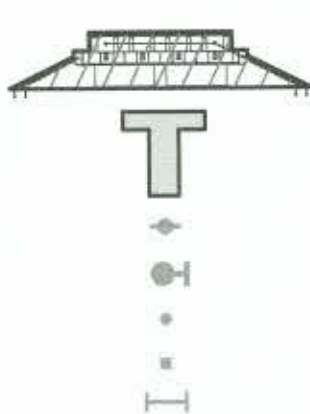
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	DATE:	APPR:
	REVISION:	BY:
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	TACOMA, WA 98421	
	TACOMA, WA 98421	
WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT DEMOLITION PLAN - SHEET 3		
APPROVED:		
TAD 11/09/2020		
DIRECTOR ENG. DATE: 11/09/2020		
PRINTED BY: timmons Nov 09, 2020		
PORT ADDRESS: ONE SITCUM PLAZA		
TACOMA, WA 98421		
TOWNSHIP: 21N		
RANGE: 03E		
SECTION: 35		
DAT-HRZ: WA83-SF		
VERT: MLLW 19.18' @ TIDE 22 1933		
PARCEL: 25		
DRAWING SCALE: AS NOTED		
66-49		
D1.3		
SH #6 OF 22		
CONT/CONS: 071421		
M. ID: 201107.01		
PHASE: BID SET		

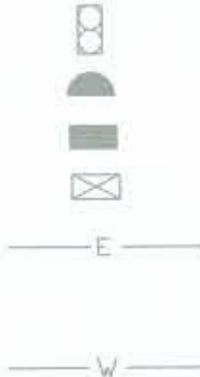
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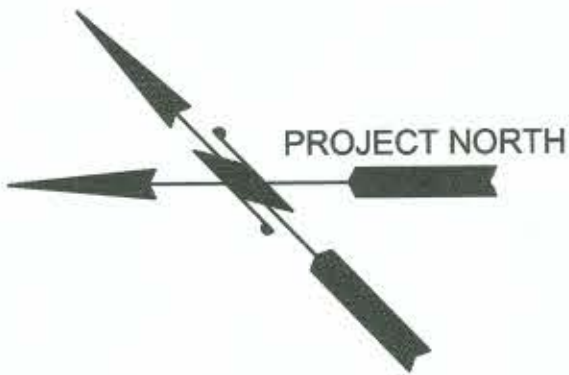
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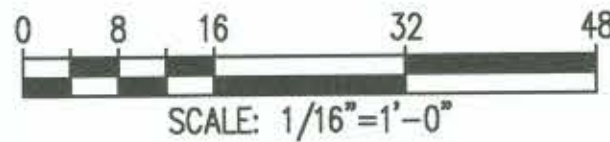
EXIST FENDER SYSTEM TO BE DEMOLISHED, SEE D2.1 (27 LOCATIONS)
DEMO FOR PILE CAP SUPPLEMENT
EXIST BOLLARD
EXIST CRANE STOP
EXIST DECK DRAIN
EXIST CABLE SLOT DRAIN
EXIST LADDER



EXIST PIN SOCKET W/2"Ø DRAIN
EXIST LIFE RING
EXIST POWER VAULT
EXIST WATER VAULT
EXIST ELECTRICAL CONDUITS. SEE REFERENCE DRAWINGS FOR MATERIAL, SIZE, AND NUMBER OF CONDUITS
EXIST WATER LINE. SEE REFERENCE DRAWINGS FOR MATERIAL AND SIZE



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

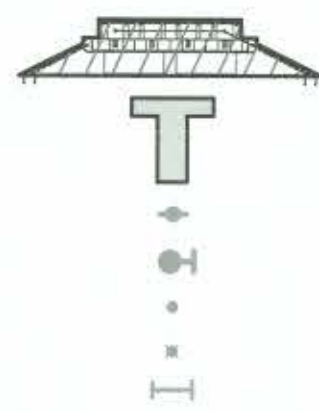


KEY PLAN

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	DATE: 11/09/2020	BY: [Signature]	DATE: 11/09/2020
kppf	MARK: [Blank]	REVISION: [Blank]	DATE: 11/09/2020
	BY: [Blank]	DATE: 11/09/2020	DATE: 11/09/2020
WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT DEMOLITION PLAN - SHEET 4		TOWNSHIP: 21N RANGE: 03E SECTION: 35 DATE-HRZ: WA83-SF VERT: MLLW 19:18' @ TIDE 22 1933 PARCEL: 25 DRAWING SCALE: AS NOTED	
6649 D1.4 SH #7 OF 22	CONT/CONS: 071421 M. ID: 201107.01 PHASE: BID SET		PRINTED BY: tiemans Nov 09, 2020 PROJECT: ONE SITUUM PLAZA TACOMA, WA 98421

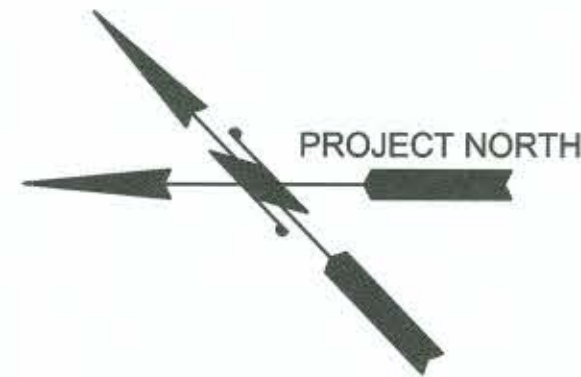
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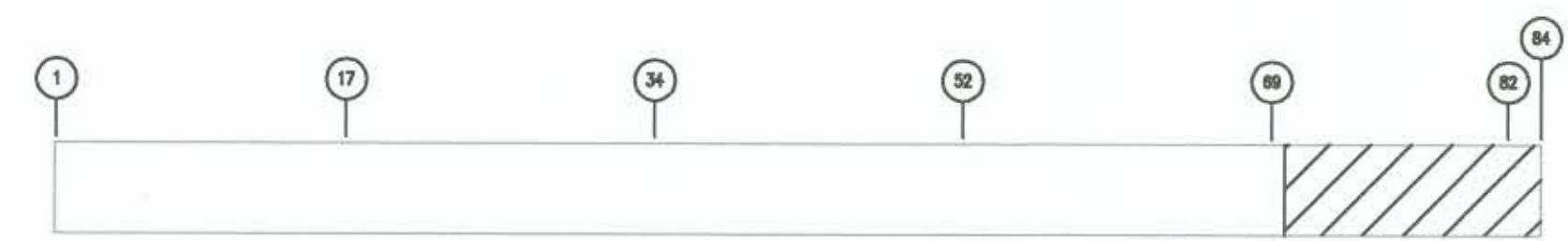
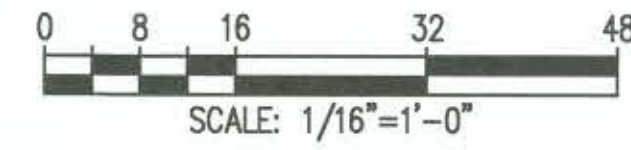
EXIST FENDER SYSTEM TO BE DEMOLISHED, SEE D2.1 (27 LOCATIONS)
DEMO FOR PILE CAP SUPPLEMENT
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EXIST WATER LINE. SEE REFERENCE DRAWINGS FOR MATERIAL AND SIZE

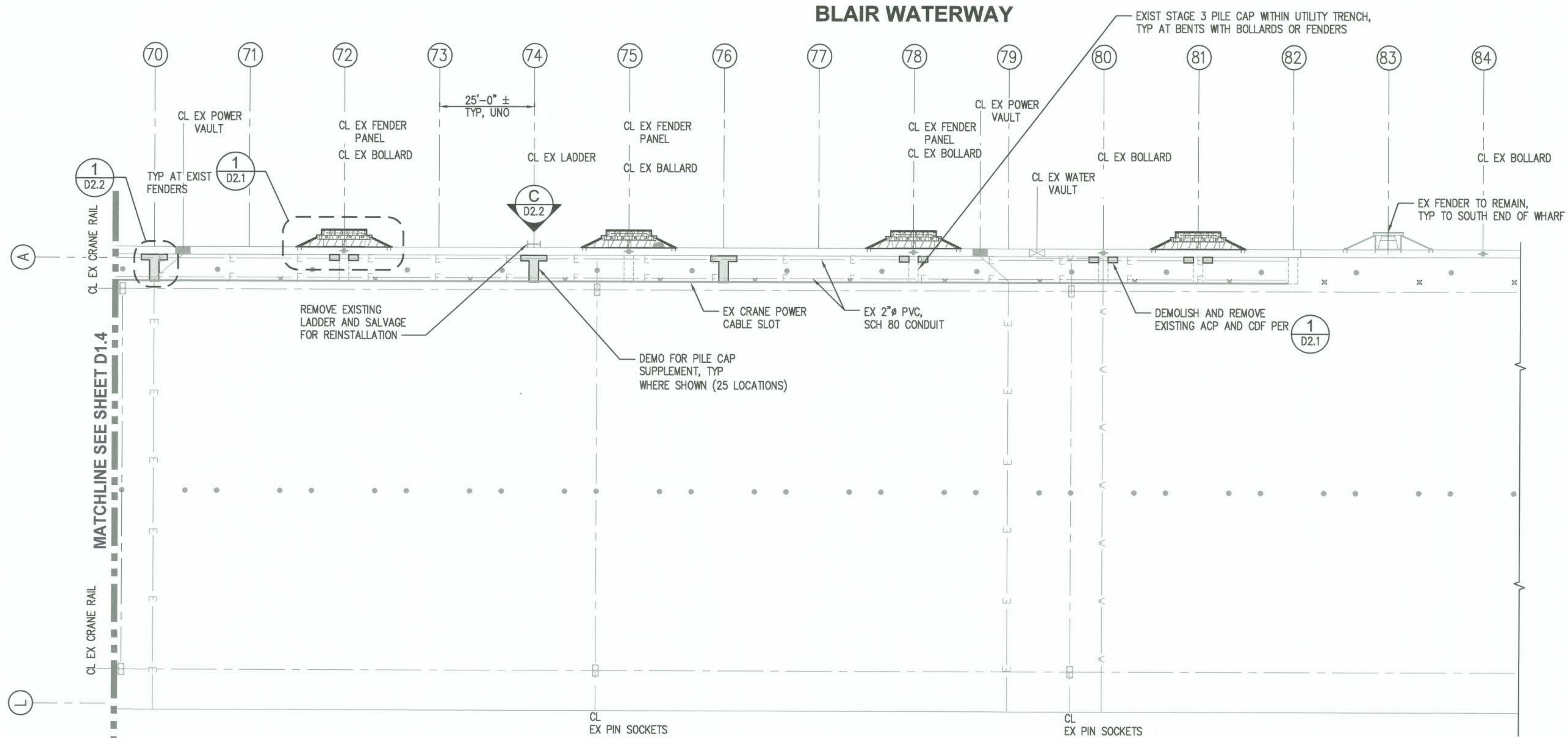


DEMOLITION PLAN
SCALE: 1/16" = 1'-0"



KEY PLAN

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	PROJ. ENGR	DATE
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	PRINTED BY:	DATE
	tiemans	Nov 09, 2020
	PORT ADDRESS: ONE STICUM PLAZA	
	TACOMA, WA 98421	

WASHINGTON UNITED TERMINAL
FENDER SYSTEM REPLACEMENT
DEMOLITION PLAN - SHEET 5

6649
D1.5
SH #8 OF 22

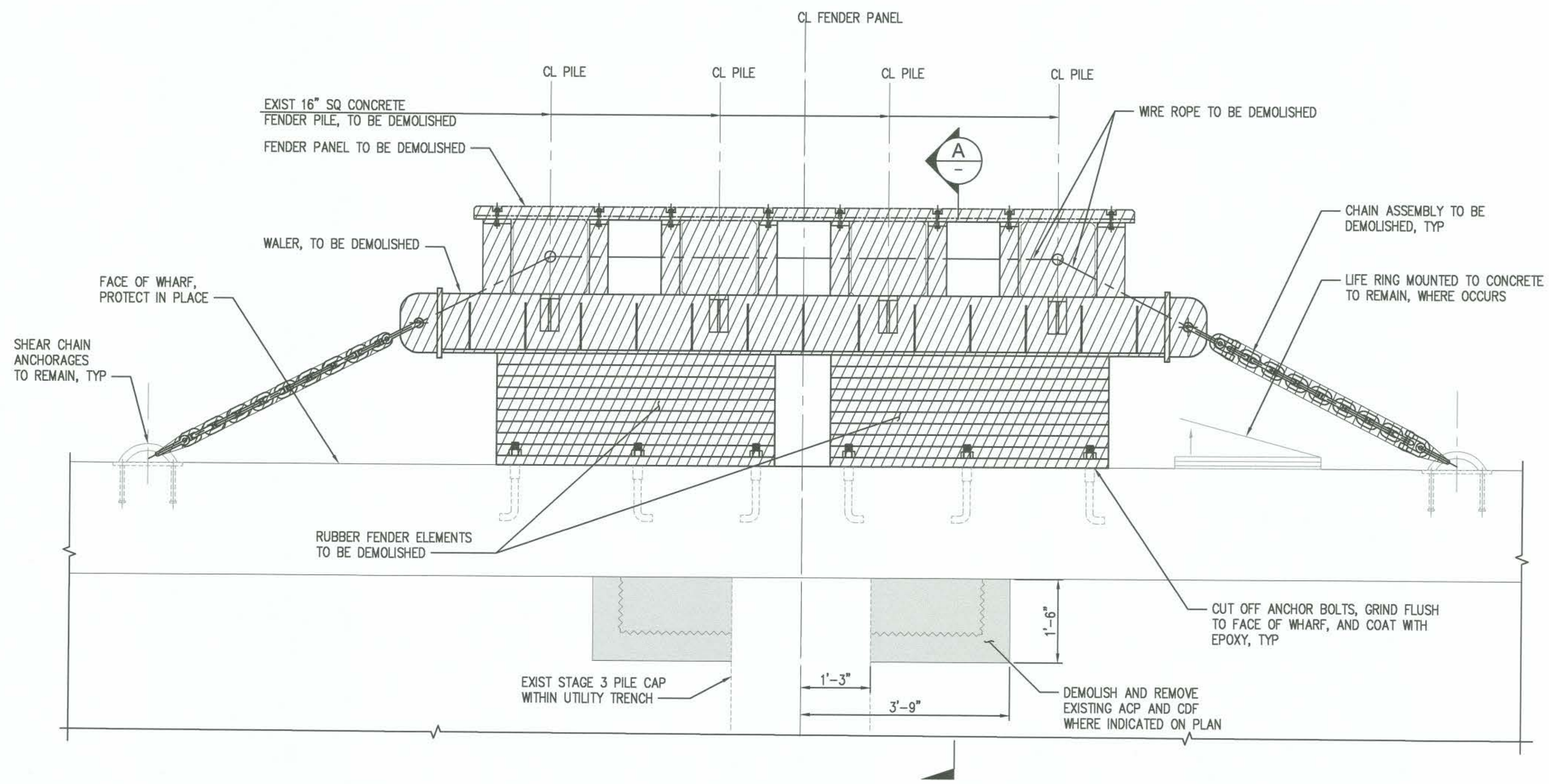
CONT/CONS: 071421
M. ID: 20107.01
PHASE: BID SET

Port of Tacoma
P.O. BOX 1007 TACOMA, WA 98407 (253) 396-0150

kpff
2407 North 31st Street, Suite 100
Tacoma, Washington 98407
(253) 396-0150 Fax (253) 396-0152

MARK: REVISION: BY: APPR: DATE:

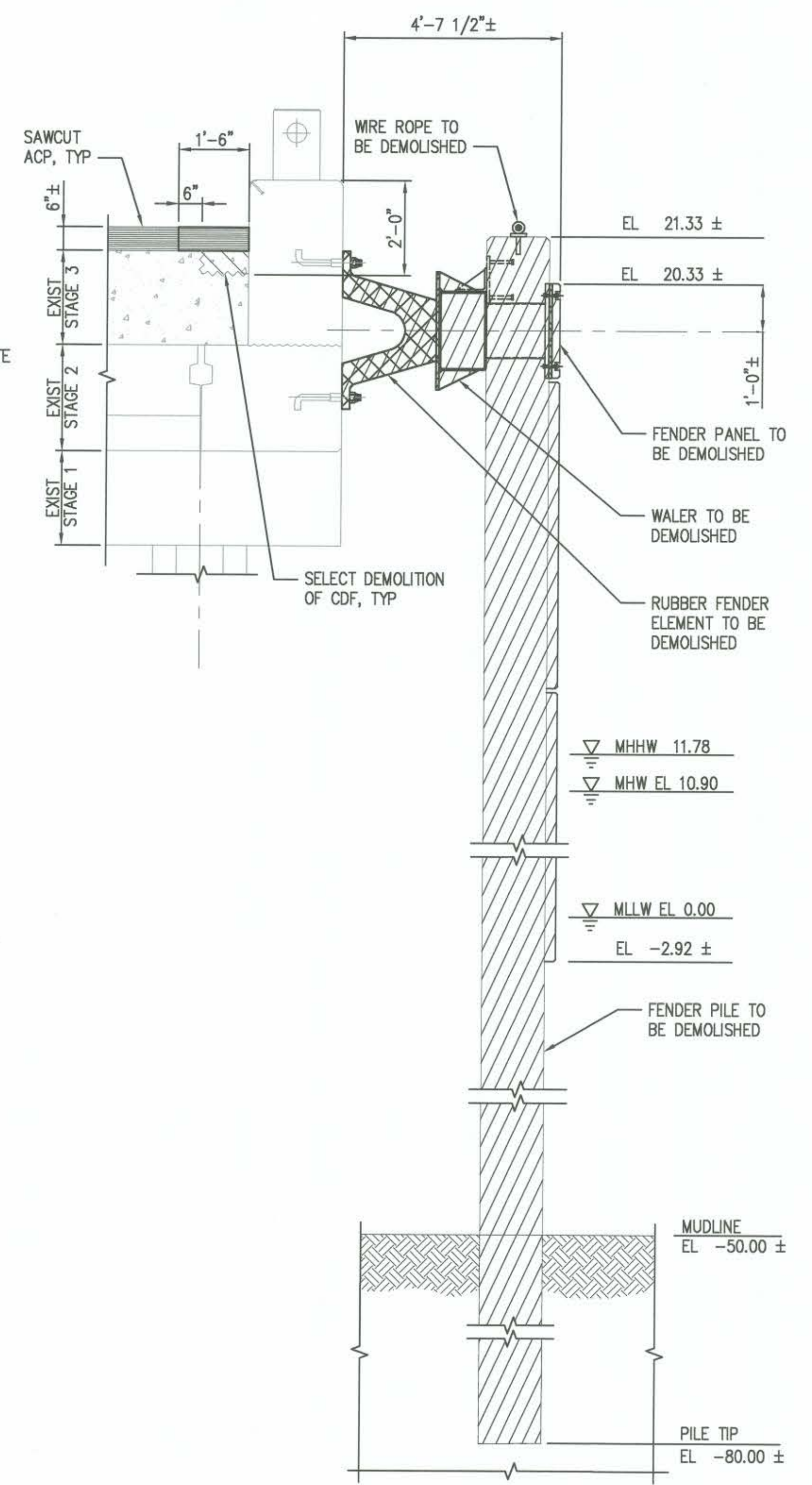
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1 PLAN - TYPICAL FENDER DEMOLITION
D1.2, D1.3, D1.4, D1.5 SCALE: 3/4" = 1'-0"

LEGEND:

- DEMOLISH AND REMOVE EXISTING STRUCTURE AND APPURTENANCES
- DEMOLISH AND REMOVE EXIST ACP
- DEMOLISH AND REMOVE EXIST CDF

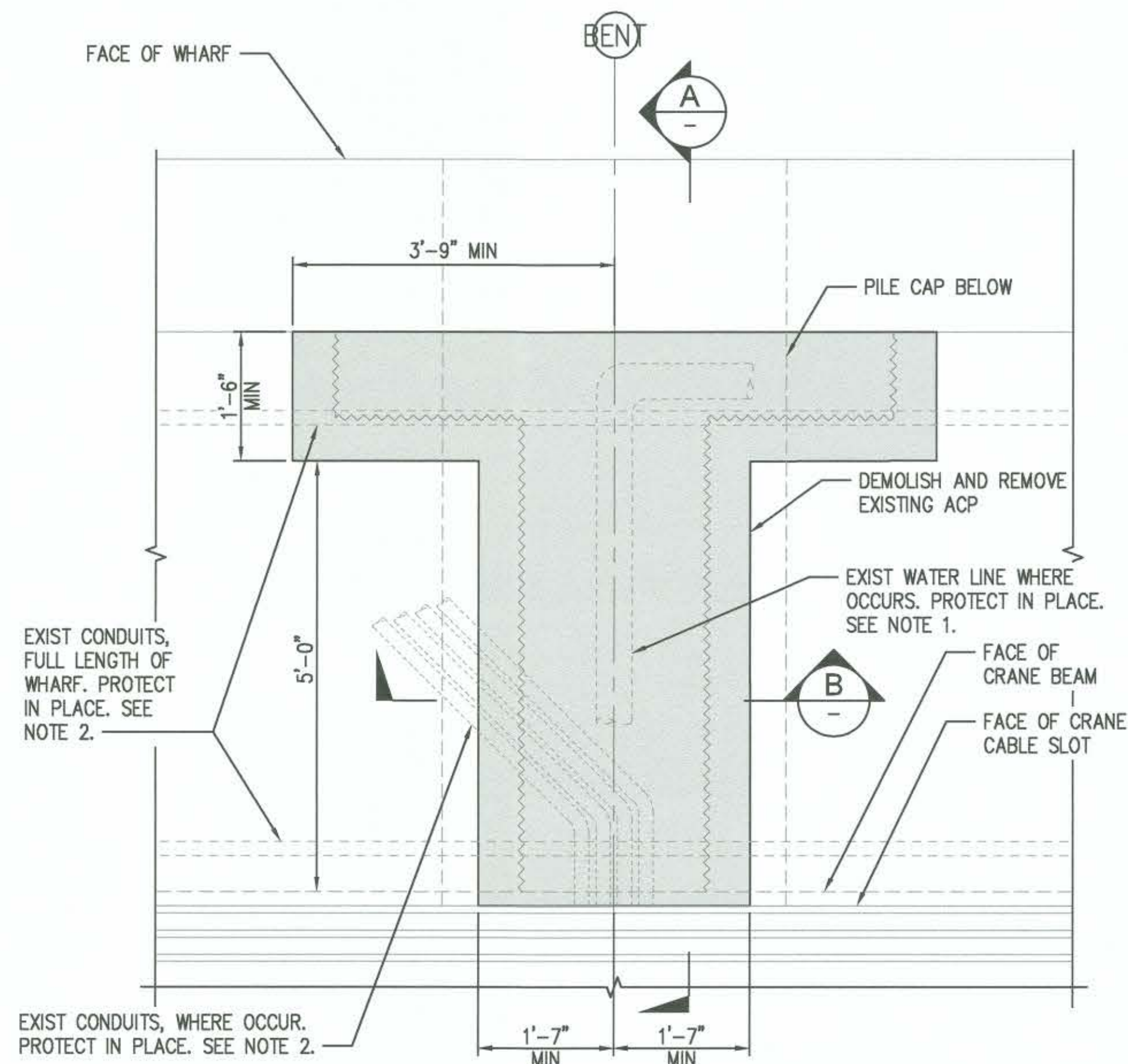


A SECTION - TYPICAL FENDER DEMOLITION
SCALE: 1/2" = 1'-0"

BID SET

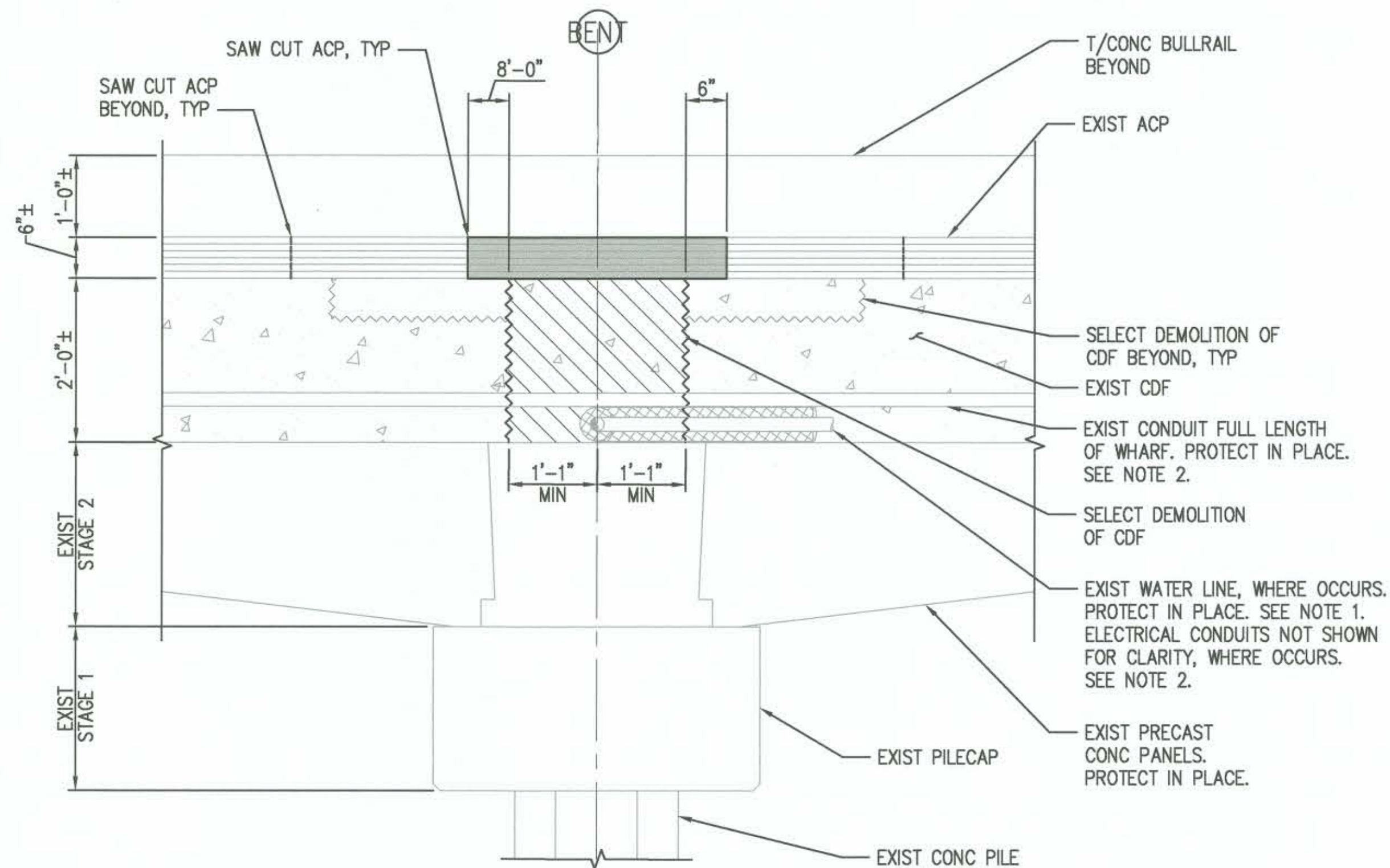
6649 D2.1 SH #9 OF 22	WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT DEMOLITION SECTIONS AND DETAILS - SHEET 1	APPROVED:	TAH	CHECKED BY	DATE
		11/09/2020			
CONT/CONS: 071421	TOWNSHIP: 21N	RANGE: 03E	SECTION: 35	DIRECTOR ENG. DATE	11/12/2020
M. ID: 201107.01	DAT-HRZ: WA83-SF	VERT: MLLW 19.18'	TIDE 22 19.33	PRINTED BY: tlemmons	Nov 09, 2020
PHASE: BID SET	PARCEL: 25	DRAWING SCALE: AS NOTED	PORT ADDRESS: ONE SITCOM PLAZA TACOMA, WA 98421		
Port of Tacoma 2407 North 31st Street, Suite 100 Tacoma, Washington 98407 (253) 396-0150 Fax (253) 396-0162		kpff		P.O. BOX 1807 TACOMA, WA 98401 (203)885-8841	
DATE:		APPR:		BY:	
REVISION:		MARK:		REVISION:	

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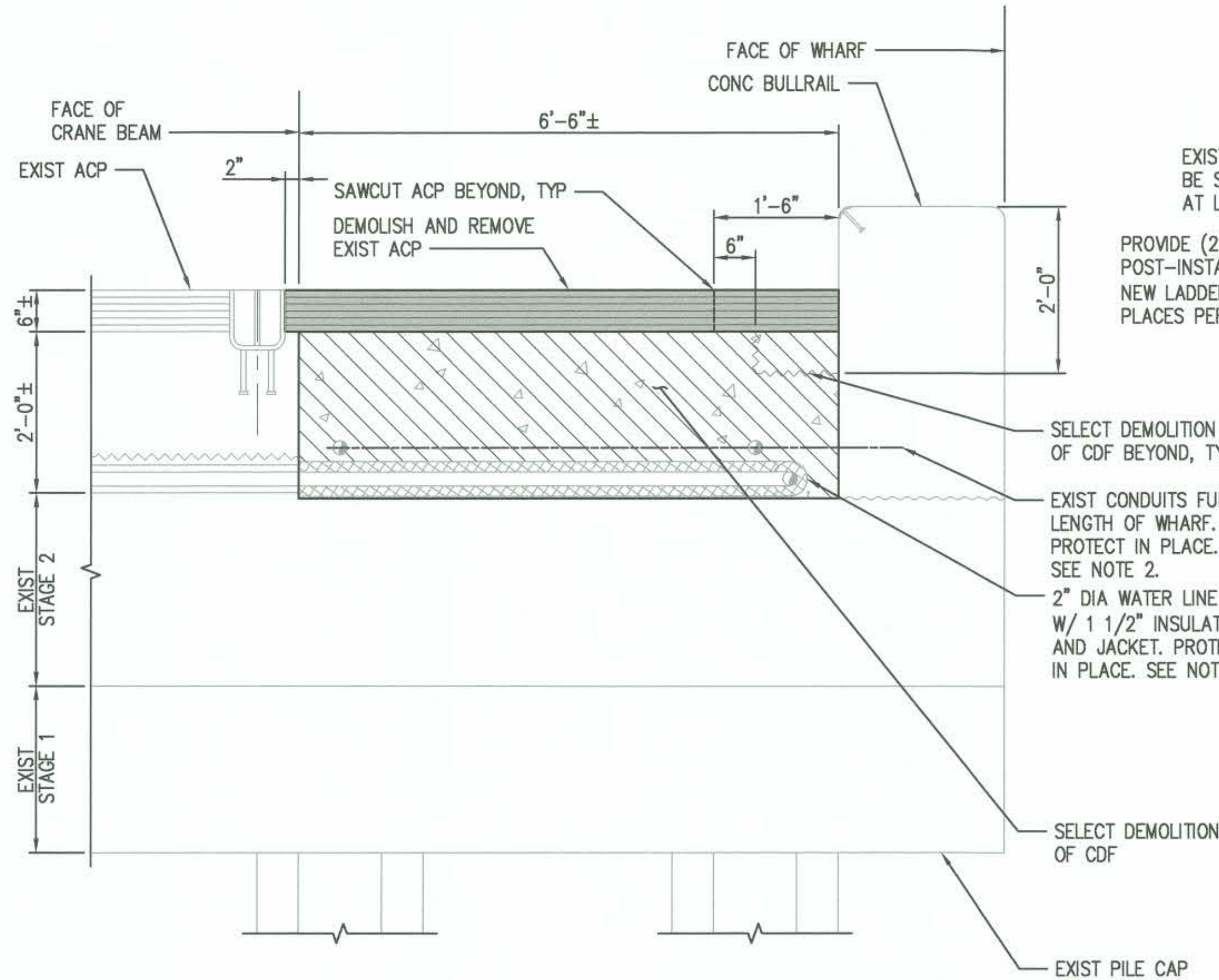
1 PLAN - DEMO AT PILE CAP SUPPLEMENT

D1.2, D1.3, D1.4, D1.5
D1.1 SCALE: 3/4" = 1'-0"



B SECTION - DEMO AT PILE CAP SUPPLEMENT

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



A SECTION - DEMO AT PILE CAP SUPPLEMENT

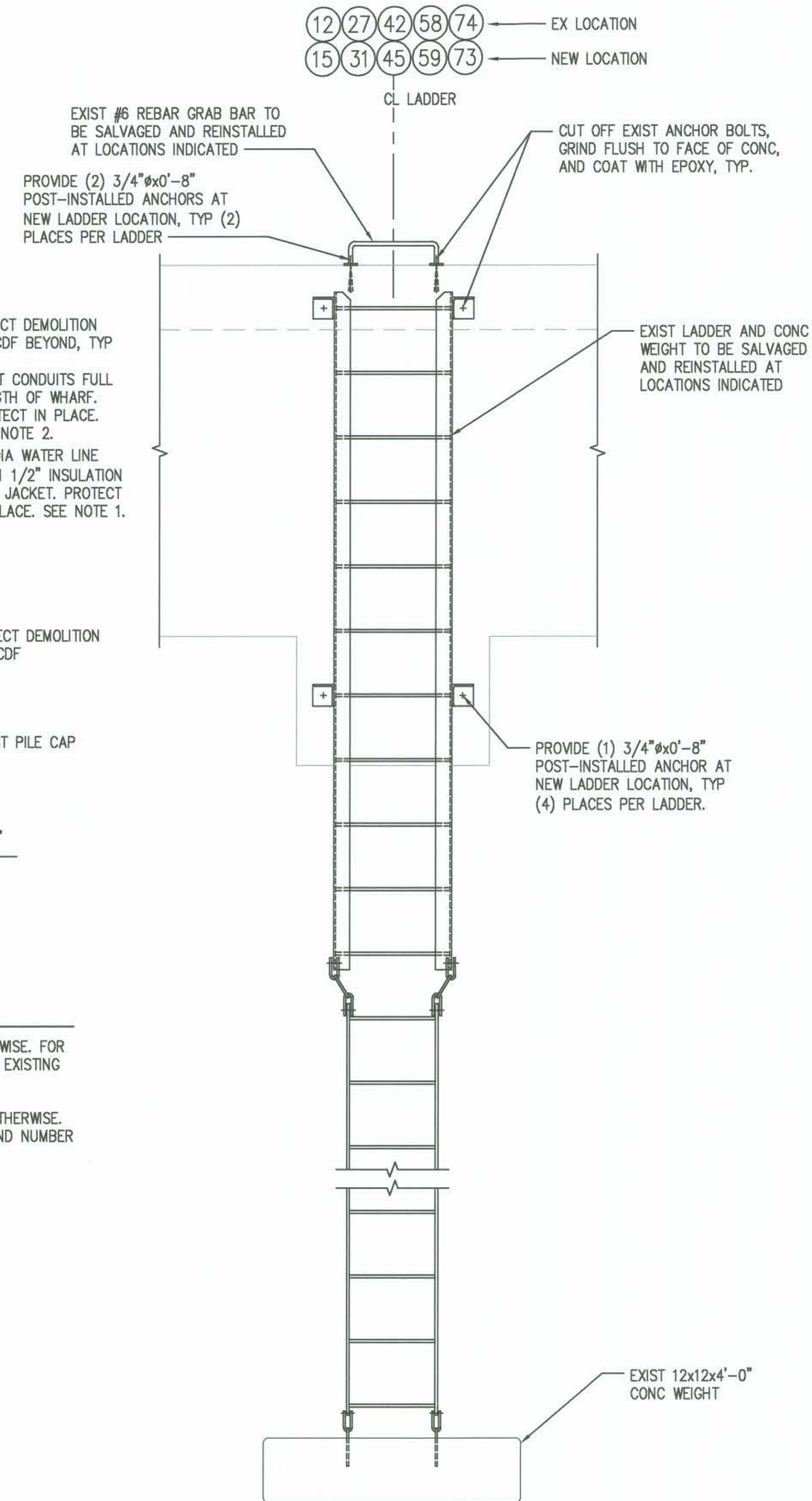
SCALE: 3/4" = 1'-0"

NOTES

1. PROTECT IN PLACE ALL EXISTING WATER LINES, UNLESS NOTED OTHERWISE. FOR ADDITIONAL INFORMATION REGARDING SIZE, MATERIAL AND LAYOUT OF EXISTING WATERLINES, SEE PLANS AND REFERENCE DRAWINGS.
2. PROTECT IN PLACE ALL EXISTING UTILITY CONDUITS, UNLESS NOTED OTHERWISE. FOR ADDITIONAL INFORMATION REGARDING SIZE, MATERIAL, LAYOUT, AND NUMBER OF EXISTING CONDUITS, SEE PLANS AND REFERENCE DRAWINGS.

LEGEND:


- ACP
- CDF
- DEMOLISH AND REMOVE EXIST ACP
- DEMOLISH AND REMOVE EXISTING CDF. PROTECT IN PLACE EXISTING UTILITIES.




C ELEVATION - SALVAGED LADDER

D1.1 - D1.5
S2.1 - S2.5 SCALE: 3/4" = 1'-0"


BID SET



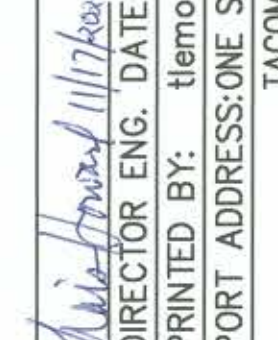
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(253) 396-0150 Fax (253) 396-0162



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(253) 396-0150 Fax (253) 396-0162



SCOTT R. BIRNEY
REGISTERED PROFESSIONAL ENGINEER
NO. 11171
EXPIRATION DATE 12/31/2024

TAH	11/09/2020	CHECKED BY	DATE
APPROVED:		TAD	11/09/2020
DIRECTOR	ENG. DATE	PROJ. ENGR	DATE
PRINTED BY:	11/17/2020	11/17/2020	11/17/2020
TACOMA, WA 98421		TACOMA, WA 98421	

WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT DEMOLITION SECTIONS AND DETAILS - SHEET 2	TOWNSHIP: 21N RANGE: 03E SECTION: 35 DATE-HRZ: WA83-SF VERT: MLW 19.18' @ TIDE 22 1933 PARCEL: 25 DRAWING SCALE: AS NOTED	CONTRACT: 071421 M. ID: 201107.01 PHASE: BID SET
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6649
D2.2
SH #10 OF 22

MARK:	REVISION:	BY:	DATE:

GENERAL

1. THESE NOTES CONTAIN GENERAL INFORMATION AND ARE NOT COMPLETE FOR CONSTRUCTION PURPOSES. CONTRACTOR SHALL VERIFY INFORMATION GIVEN HERE WITH SPECIFICATIONS AND OTHER DOCUMENTS AND BRING ANY CONFLICTS TO THE ATTENTION OF THE PORT BEFORE BEGINNING AFFECTED WORK. THE ENGINEER WILL RESOLVE ANY SUCH CONFLICT.
2. ALL DIMENSIONS AND DETAILS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO FABRICATION AND CONSTRUCTION.
3. ALL SHOP DRAWINGS FOR FENDER SYSTEM SHALL BE SUBMITTED TO AND REVIEWED BY THE ENGINEER PRIOR TO FABRICATION.
4. VERTICAL DATUM: MLLW = 0.00'

CODES AND STANDARDS

1. ALL METHODS AND MATERIALS SHALL CONFORM TO THE INTERNATIONAL BUILDING CODE, 2015 EDITION.
2. REINFORCED CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE" AND ACI 318 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE".
3. STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION SHALL CONFORM TO THE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" 2010.
4. WELDING OF STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO THE AWS D1.1, 2010.
5. WELDING OF REINFORCING STEEL SHALL CONFORM TO THE AWS D1.4, 2010.

DESIGN CRITERIA

1. VESSELS
- A. CONTAINER SHIP 1
LENGTH OVERALL (LOA): 1300 FEET
BEAM: 204 FEET
DRAFT: 48 FEET
DISPLACEMENT: 220,000 LT
- B. CONTAINER SHIP 2
LENGTH OVERALL (LOA): 902 FEET
BEAM: 131 FEET
DRAFT: 40 FEET
DISPLACEMENT: 90,000 LT
- C. RO/RO VESSEL
LENGTH OVERALL (LOA): 790 FEET
BEAM: 110 FEET
DRAFT: 38 FEET
DISPLACEMENT: 60,000 LT
2. BERTHING LOADS
- A. CONTAINER SHIP
APPROACH VELOCITY: 1.5 KNOTS (2.53 FT/S)
APPROACH ANGLE: 6 DEGREES
PERPENDICULAR VELOCITY: 0.16 KNOT (0.26 FT/S)
- B. RO/RO VESSEL
APPROACH VELOCITY: 1.36 KNOT (2.3 FT/S)
APPROACH ANGLE: 10 DEGREES
PERPENDICULAR VELOCITY: 0.24 KNOT (0.4 FT/S)
3. FENDER REQUIREMENTS
- A. MINIMUM BERTHING ENERGY = 490 KIP-FT
- B. MAXIMUM BERTHING REACTION = 320 KIPS

REINFORCED CONCRETE

1. REINFORCING STEEL
 - A. ALL REINFORCING STEEL SHALL BE DEFORMED STEEL BARS CONFORMING TO ASTM A 615 – GRADE 60, EXCEPT AS NOTED.
 - B. PROVIDE CORNER BARS AT ALL CORNERS. CORNER BARS SHALL MATCH THE NUMBER, SPACING AND DIAMETER OF ALL HORIZONTAL REINFORCEMENT AT THE CORNER, UNLESS SHOWN OTHERWISE. TERMINATED STRAIGHT BARS SHALL EXTEND FULL AVAILABLE LENGTH INTO ADJOINING MEMBERS. SPACE BARS EQUALLY BETWEEN DIMENSIONED LIMITS, UNLESS NOTED OTHERWISE.
 - C. MECHANICAL SPLICES SHALL DEVELOP AT LEAST 125 PERCENT OF THE YIELD STRENGTH OF THE BAR IN TENSION.
 - D. REINFORCING SHALL BE SUPPORTED AS SPECIFIED BY THE PROJECT SPECIFICATIONS AND THE CRSI "MANUAL OF STANDARD PRACTICE," (MSP). REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH "ACI DETAILING MANUAL," ACI SP-66.
 - E. ALL HORIZONTAL REINFORCEMENT AT DISCONTINUITIES AND CORNERS SHALL END WITH STANDARD 90° HOOKS IN ACCORDANCE WITH ACI SP-66, UNLESS SHOWN OTHERWISE.
2. CAST-IN-PLACE CONCRETE
 - A. MINIMUM 7 DAY COMPRESSIVE STRENGTH 4000 PSI
3. ALL EXPOSED CORNERS SHALL BE CHAMFERED 3/4 IN.
4. CONSTRUCTION JOINTS SHALL BE PROVIDED ONLY AS NOTED ON THE DRAWINGS AND AS SPECIFICALLY PERMITTED BY THE ENGINEER.
5. CONCRETE MIX SHALL HAVE A MAXIMUM WATER CEMENT RATIO OF 0.40 UNLESS NOTED OTHERWISE.
6. ALL CONCRETE SHALL BE AIR ENTRAINED WITH A TARGET OF 5% ± 1 1/2% UNLESS NOTED OTHERWISE IN THE SPECIFICATIONS.
7. REINFORCING BARS SHOWN AS EXISTING ARE PER PORT RECORD DRAWINGS. ACTUAL CONDITIONS MAY VARY. THE CONTRACTOR SHALL FIELD VERIFY EXISTING REINFORCING BAR SIZES AND QUANTITIES PRIOR TO ORDERING REINFORCING STEEL.

POST-INSTALLED ANCHORS AND DOWELS

1. USE OF DRILLED ADHESIVE CONCRETE ANCHORS OR DOWELS, WHERE NOT SPECIFIED IN THE DOCUMENTS, SHALL BE SUBJECT TO APPROVAL BY THE ENGINEER.
2. ADHESIVE ANCHORS AND DOWELS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATION. SPECIAL INSPECTION IS REQUIRED FOR ALL ADHESIVE ANCHORS AND DOWELS.
3. ACCEPTABLE ADHESIVES ARE HILTI HIT-RE 500 V3 OR SIMPSON SET-XP, ICBO OR ICC REPORTS SHALL BE SUBMITTED FOR ALL ADHESIVE ANCHOR AND DOWEL PRODUCTS.
4. ALL POST-INSTALLED ANCHORS SHALL BE ASTM F1554 GR. 105 THREADED ROD UNLESS NOTED OTHERWISE. ALL POST-INSTALLED DOWELS SHALL BE ASTM A615 REINFORCING BAR.
5. HOLES FOR POST-INSTALLED ANCHORS AND DOWELS SHALL BE DRILLED BY HAMMER DRILL ONLY — CORE DRILLING NOT ALLOWED
6. CONTRACTOR SHALL FIELD LOCATE EXISTING SURFACE REINFORCING USING NDT METHODS, MARK LOCATIONS OF SURFACE REINFORCING, AND OBTAIN PORT APPROVAL PRIOR TO DRILLING. EXISTING REINFORCING SHALL NOT BE CUT WITHOUT PRIOR APPROVAL FROM THE PORT.

MISCELLANEOUS STEEL

1. ALL MISCELLANEOUS STEEL SHAPES AND PLATES, EXCEPT AS NOTED BELOW, SHALL CONFORM TO ASTM A 36.
2. STEEL PLATE NOTED AS GRADE 50 SHALL CONFORM TO ASTM A572, GRADE 50.
3. ECONOMY BOLTS SHALL CONFORM TO ASTM A 307, UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS.
4. ALL ANCHOR BOLTS SHALL CONFORM TO ASTM F 1554, GRADE 36.
5. HIGH STRENGTH BOLTS FOR STEEL-TO-STEEL CONNECTIONS SHALL BE ASTM A325X.
6. ALL NUTS SHALL BE ASTM A 563, UNLESS NOTED OTHERWISE.
7. ALL WASHERS SHALL BE ASTM F 436, UNLESS NOTED OTHERWISE.
8. ALL STEEL ITEMS SHALL BE HOT-DIP GALVANIZED AND/OR COATED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS, UNLESS NOTED OTHERWISE.
9. SEE THE CONTRACT SPECIFICATIONS FOR ITEMS TO RECEIVE HIGH PERFORMANCE COATING IN ADDITION TO GALVANIZING.

WELDING

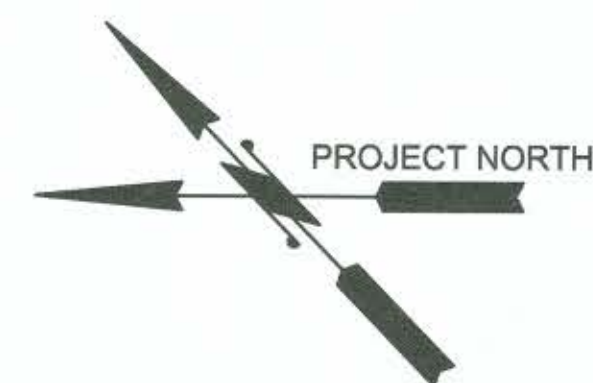
1. ALL WELDING SHALL BE PERFORMED BY WELDERS QUALIFIED FOR THE WELD AND POSITION SHOWN IN ACCORDANCE WITH AWS AND HAVING CURRENT CERTIFICATION FROM WABO.
2. ALL WELDS SHALL BE PERFORMED WITH PROCEDURES PREQUALIFIED OR QUALIFIED IN ACCORDANCE WITH AWS D1.1 AND D1.4.
3. THE WELDS SHOWN ARE FOR THE FINAL CONNECTIONS. FIELD WELD SYMBOLS ARE SHOWN WHERE FIELD WELDS ARE REQUIRED BY THE STRUCTURAL DESIGN. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING IF A WELD SHOULD BE SHOP- OR FIELD-WELDED IN ORDER TO FACILITATE THE STRUCTURAL STEEL ERECTION.
4. WELDING ELECTRODES SHALL BE 70 KSI STRENGTH AND SHALL BE "LOW-HYDROGEN" ELECTRODES.

INSPECTION

1. INSPECTION WILL BE PERFORMED BY THE PORT.

BID SET

6649 S1.1 SH #11 OF 22	WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT STRUCTURAL NOTES										APPROVED:	TA# 11/09/2020 CHECKED BY DATE TAD 11/09/2020 DIRECTOR ENG. DATE <i>Dir. Forward 11/13/20</i>			2407 North 31st Street, Suite 100 Tacoma, Washington 98407 (253) 396-0150 Fax (253) 396-0162	
	TOWNSHIP: 21N	RANGE: 03E	SECTION: 35								MARK:	REVISION:	BY:	APPR:	DATE:	
	DAT--HRZ: WA83--SF	VERT: MLW 19'18" @ TIDE 22 1933														
	PARCEL: 25	DRAWING SCALE: AS NOTED		PORT ADDRESS: ONE SITCOM PLAZA TACOMA, WA 98421												



0 8 16 32 48
SCALE: 1/16"=1'-0"


 — E —
 — W —

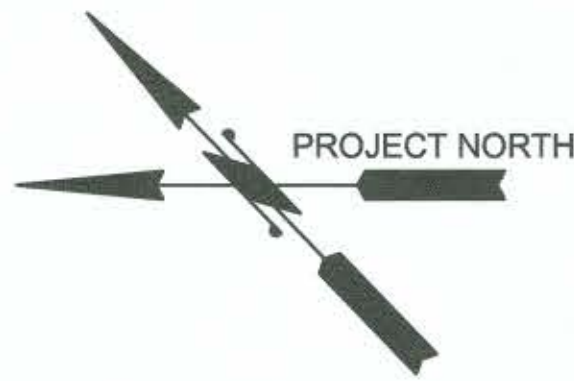
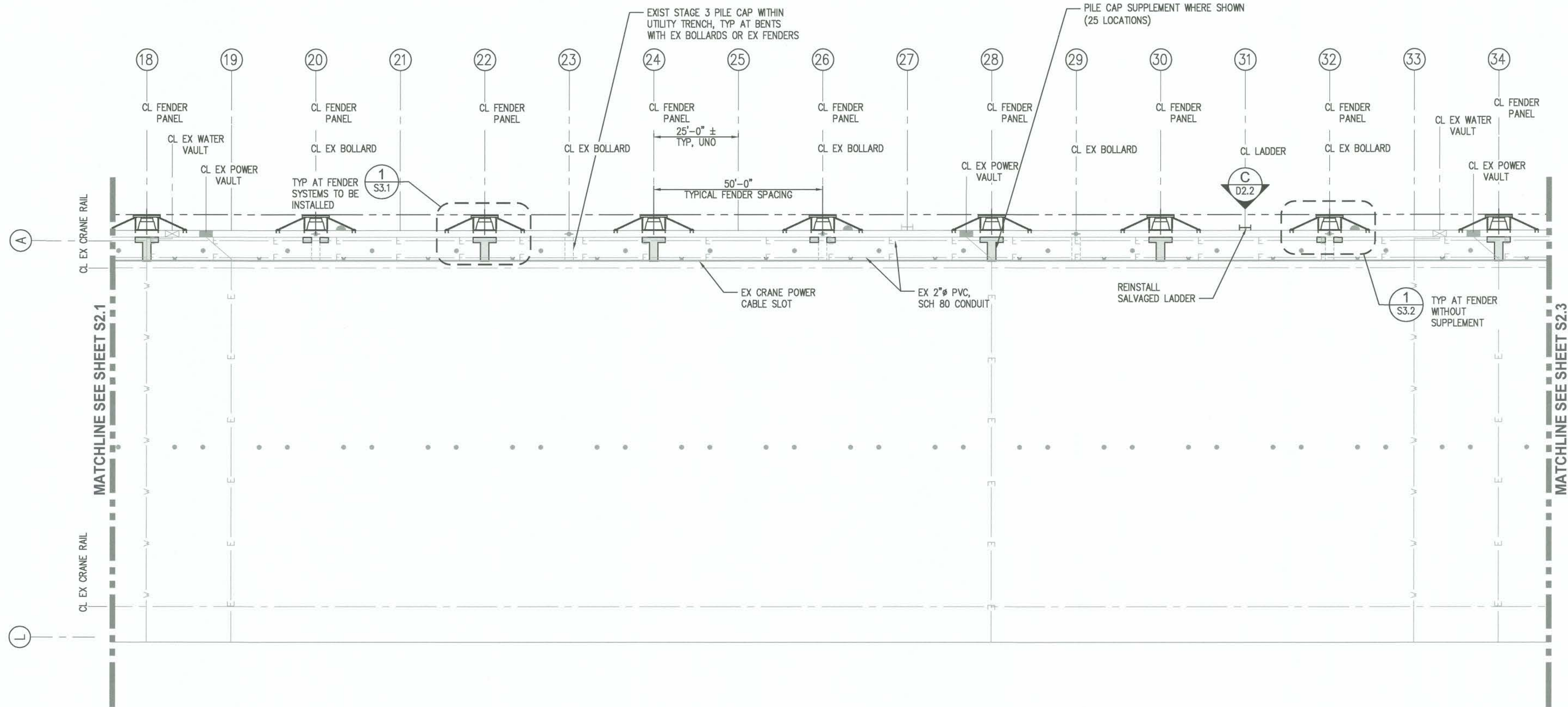
EXIST PIN SOCKET W/2"Ø DRAIN
EXIST LIFE RING
EXIST POWER VAULT
EXIST WATER VAULT
EXIST ELECTRICAL CONDUITS. SEE
REFERENCE DRAWINGS FOR MATERIAL,
SIZE, AND NUMBER OF CONDUITS
EXIST WATER LINE. SEE REFERENCE
DRAWINGS FOR MATERIAL AND SIZE



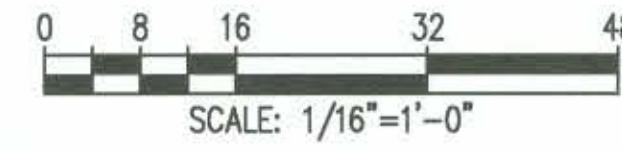
KEY PLAN

BID SET

6649	WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT FENDER PLAN - SHEET 1	APPROVED:	TAH CHECKED BY DATE	11/09/2020
S2.1		<i>Michael W. Phillips</i>	TAD DIRECTOR ENG. DATE	11/09/2020
SH #12 OF 22			PROJ. ENGR DATE	
			PRINTED BY:	tlmons Nov 09, 2020
			PORT ADDRESS:	ONE SITCUM PLAZA
				TACOMA WA 98421
				DRAWING SCALE: AS NOTED
			PARCEL:	25
			PHASE:	BID SET
			M. ID:	201107.01
			CONTRACT/CONS:	071421
			TOWNSHIP:	21N RANGE: 03E SECTION: 35
			DAT-HRZ:	WA63-SF
			VERT:	MLLW 19.18' @ TIDE 22 1933



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



LEGEND:

- | | | | |
|--|--|--|--|
| | FENDER SYSTEM TO BE INSTALLED WHERE SHOWN (41 LOCATIONS), SEE S3.1 | | EXIST PIN SOCKET W/2"Ø DRAIN |
| | PILE CAP SUPPLEMENT | | EXIST LIFE RING |
| | EXIST BOLLARD | | EXIST POWER VAULT |
| | EXIST CRANE STOP | | EXIST WATER VAULT |
| | EXIST DECK DRAIN | | EXIST ELECTRICAL CONDUITS. SEE REFERENCE DRAWINGS FOR MATERIAL, SIZE, AND NUMBER OF CONDUITS |
| | EXIST CABLE SLOT DRAIN | | EXIST WATER LINE. SEE REFERENCE DRAWINGS FOR MATERIAL AND SIZE |
| | EXIST LADDER | | |



KEY PLAN

BID SET

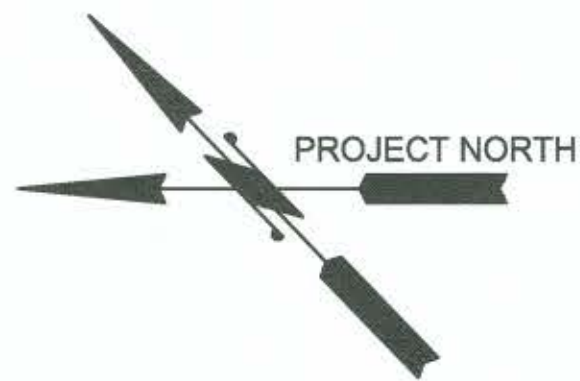
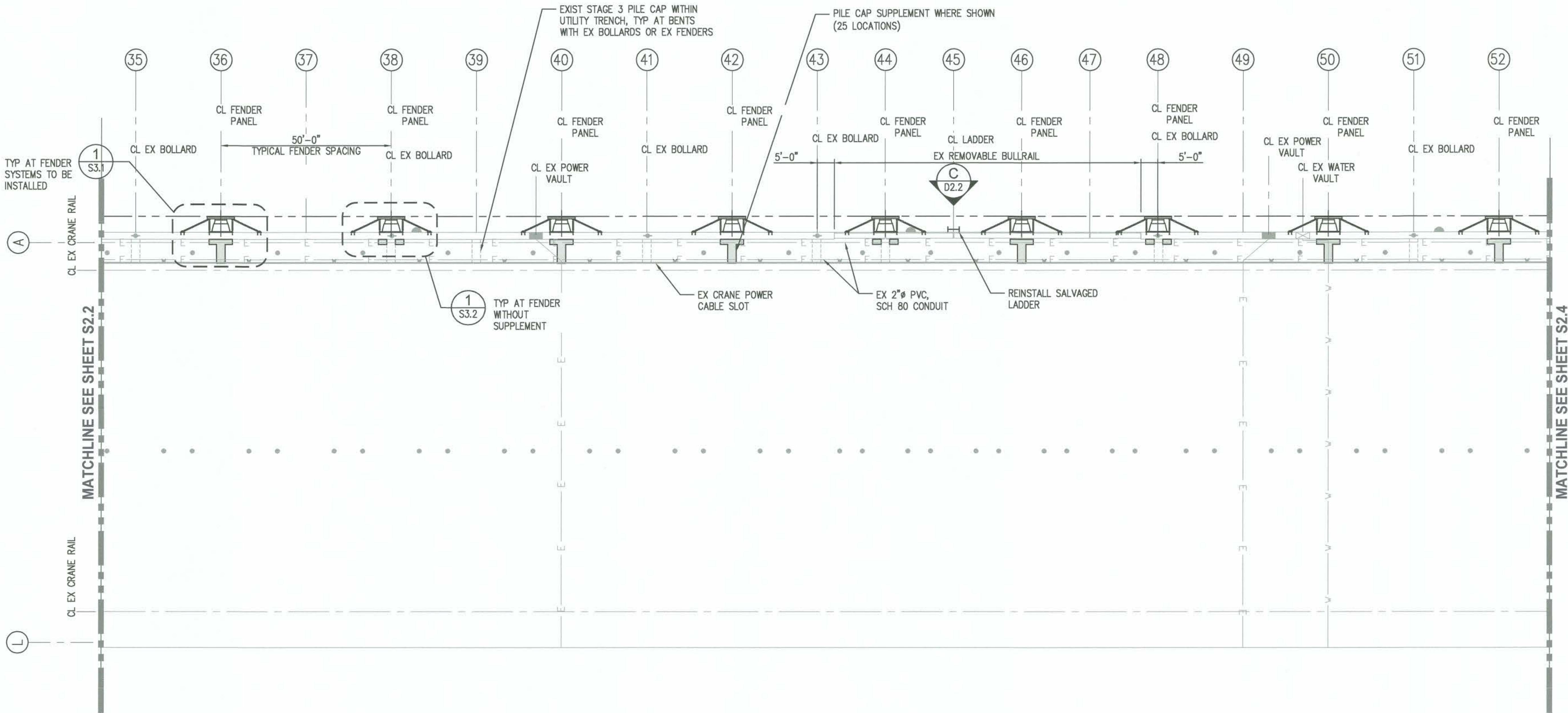
	2407 North 31st Street, Suite 100 Tacoma, Washington 98407 (253) 396-0130 FAX (253) 396-0162		PCO BOX 987 TACOMA, WA 98407 (203) 396-5641	
	kpf	Part of Tacoma	APPR: _____	DATE: _____
	MARK: _____		REVISION: _____	BY: _____
	TACOMA, WA 98421			
APPROVED: _____				
TAH 11/09/2020				
CHECKED BY DATE				
TAD 11/09/2020				
DIRECTOR ENG. DATE PROJ. ENGR DATE				
PRINTED BY: temons Nov 09, 2020				
PORT ADDRESS: ONE SITCUM PLAZA				
TACOMA, WA 98421				
DRAWING SCALE: AS NOTED				
SECTION: 35				
RANGE: 03E				
TOWNSHIP: 21N				
DAT-HRZ: WA83-SF				
VERT: MLW 19.18' @ TIDE 22 1933				
PARCEL: 25				
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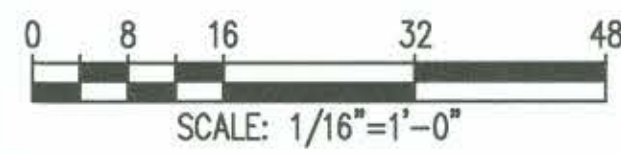
S2.2

SH #13 OF 22

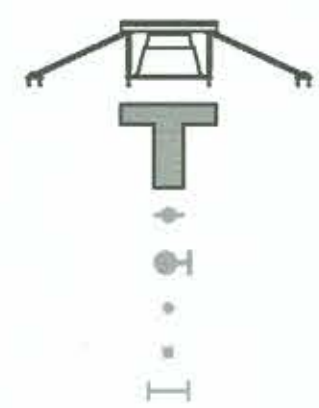
CONT/CONS: 071421
M. ID: 201107.01
PHASE: BID SET



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



LEGEND:



FENDER SYSTEM TO BE INSTALLED WHERE SHOWN (41 LOCATIONS), SEE S3.1
PILE CAP SUPPLEMENT
EXIST BOLLARD
EXIST CRANE STOP
EXIST DECK DRAIN
EXIST CABLE SLOT DRAIN
EXIST LADDER



EXIST PIN SOCKET W/2"Ø DRAIN
EXIST LIFE RING
EXIST POWER VAULT
EXIST WATER VAULT
EXIST ELECTRICAL CONDUITS. SEE REFERENCE DRAWINGS FOR MATERIAL, SIZE, AND NUMBER OF CONDUITS
EXIST WATER LINE. SEE REFERENCE DRAWINGS FOR MATERIAL AND SIZE



KEY PLAN

BID SET

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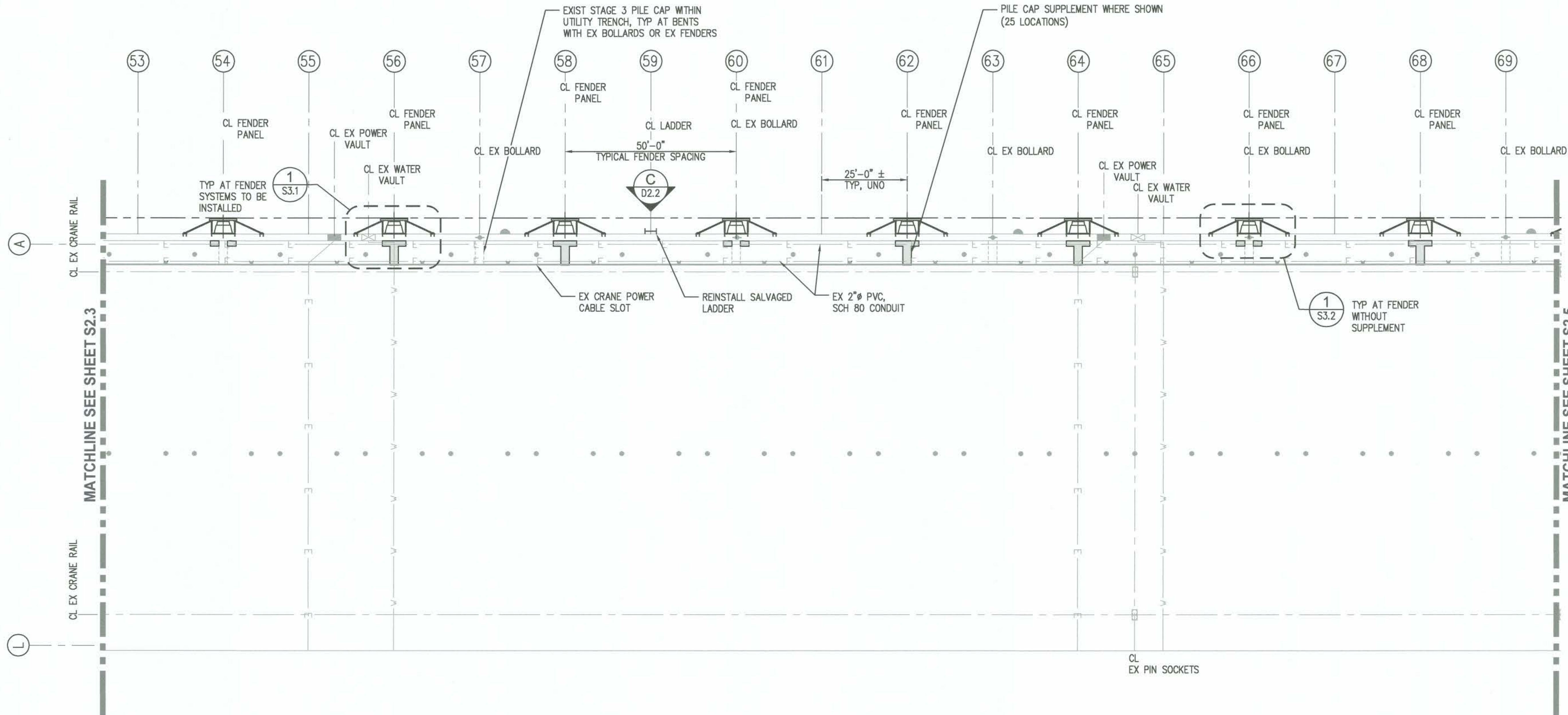
APPROVED:	TAH	11/09/2020	CHECKED BY:	DATE
	TAD	11/09/2020	PROJ. ENGR	DATE
DIRECTOR	ENG. DATE	11/09/2020	PRINTED BY:	11/09/2020
TACOMA, WA 98421		PORT ADDRESS: ONE SITCOM PLAZA		

WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT FENDER PLAN - SHEET 3	TOWNSHIP: 21N	RANGE: 03E	SECTION: 35
SH #14 OF 22	DAT-HRZ: WA83-SF	VERT: MLW 19.18' @ TIDE 22 1933	PARCEL: 25
CON/CONS: 071421	DRAWING SCALE: AS NOTED		
M. ID: 201107.01			
PHASE: BID SET			

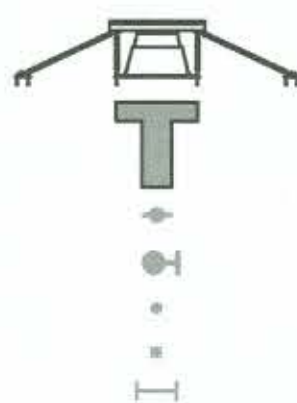
6649

S2.3

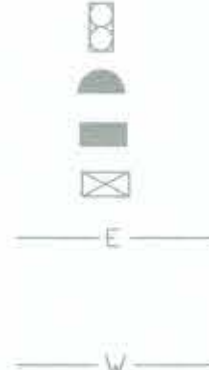
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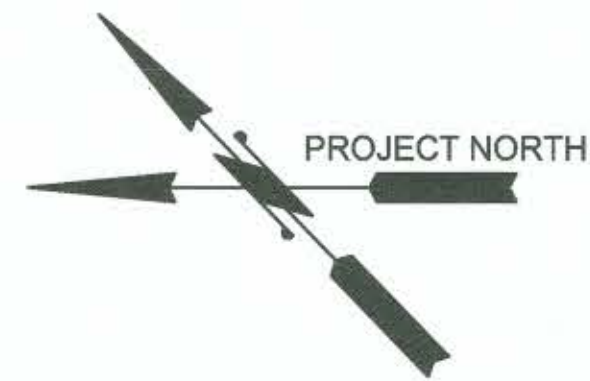
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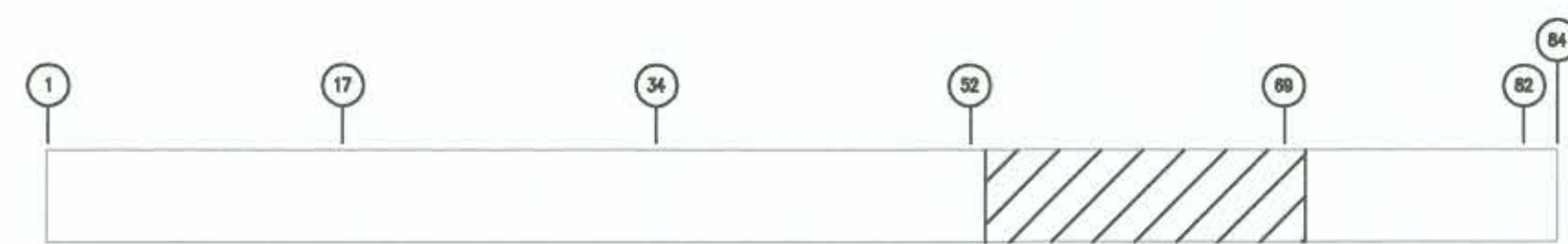
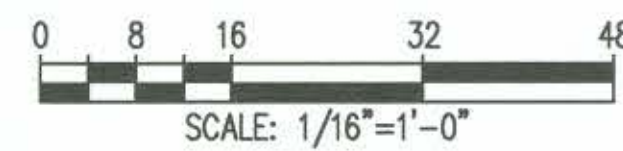
FENDER SYSTEM TO BE INSTALLED WHERE SHOWN (41 LOCATIONS), SEE S3.1
PILE CAP SUPPLEMENT
EXIST BOLLARD
EXIST CRANE STOP
EXIST DECK DRAIN
EXIST CABLE SLOT DRAIN
EXIST LADDER



EXIST PIN SOCKET W/2" DRAIN
EXIST LIFE RING
EXIST POWER VAULT
EXIST WATER VAULT
EXIST ELECTRICAL CONDUITS. SEE REFERENCE DRAWINGS FOR MATERIAL, SIZE, AND NUMBER OF CONDUITS
EXIST WATER LINE. SEE REFERENCE DRAWINGS FOR MATERIAL AND SIZE



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



KEY PLAN

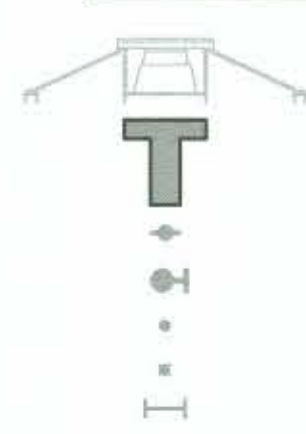
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6649	S2.4 SH #15 OF 22	WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT FENDER PLAN - SHEET 4				APPROVED:	TAH	11/09/2020
		TOWNSHIP: 21N		RANGE: 03E	SECTION: 35	CHECKED BY:	DATE	
		DAT-HRZ: WA83-SF		VERT: MLLW 19.18' @ TIDE 22 1933	TAD	11/09/2020		
		PARCEL: 25		DRAWING SCALE: AS NOTED	PROJ. ENGR	DATE		
CONT/CONS: 071421		PRINTED BY: Hemonis Nov 09, 2020		DIRECTOR ENG. DATE		BY:		
M. ID: 201107.01		PORT ADDRESS: ONE SITCOM PLAZA		TACOMA, WA 98421		REVISION:		
PHASE: BID SET						MARK:		
						APPR: DATE:		

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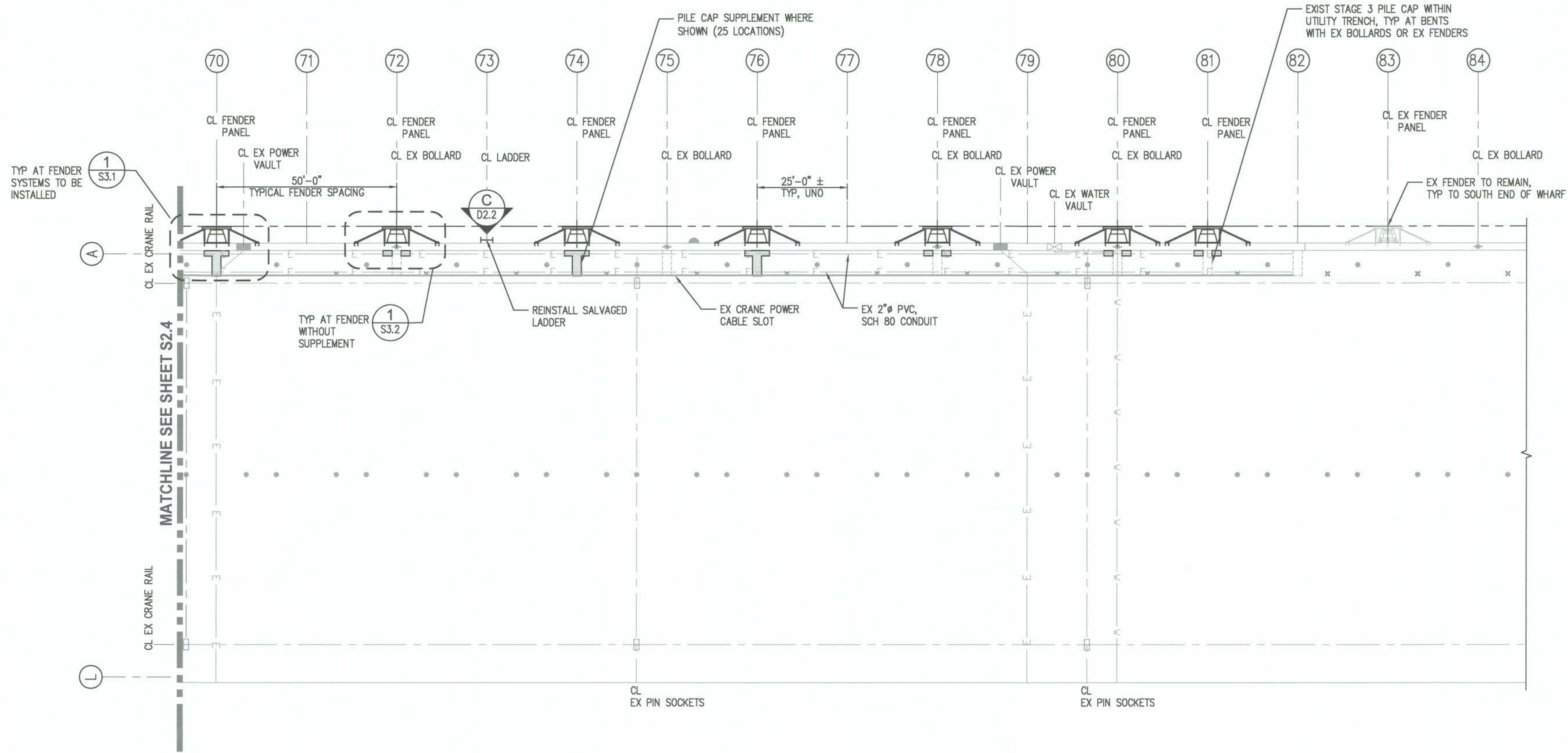
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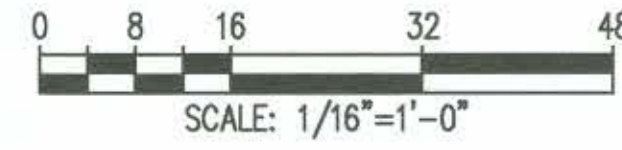
FENDER SYSTEM TO BE INSTALLED WHERE SHOWN (41 LOCATIONS), SEE S3.1
PILE CAP SUPPLEMENT
EXIST BOLLARD
EXIST CRANE STOP
EXIST DECK DRAIN
EXIST CABLE SLOT DRAIN
EXIST LADDER



EXIST PIN SOCKET W/2"Ø DRAIN
EXIST LIFE RING
EXIST POWER VAULT
EXIST WATER VAULT
EXIST ELECTRICAL CONDUITS. SEE REFERENCE DRAWINGS FOR MATERIAL, SIZE, AND NUMBER OF CONDUITS
EXIST WATER LINE. SEE REFERENCE DRAWINGS FOR MATERIAL AND SIZE



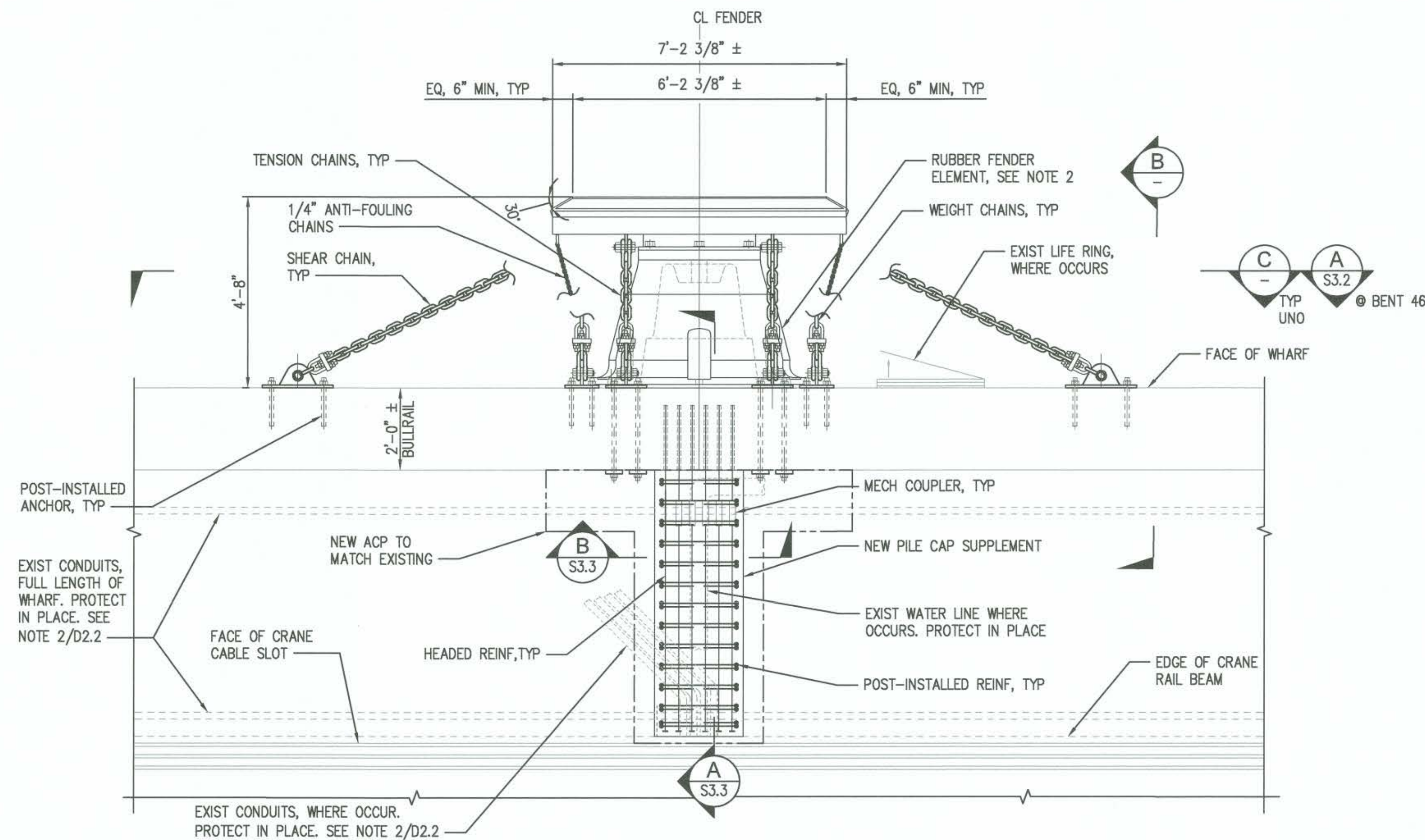
FENDER PLAN
SCALE: 1/16" = 1'-0"



KEY PLAN

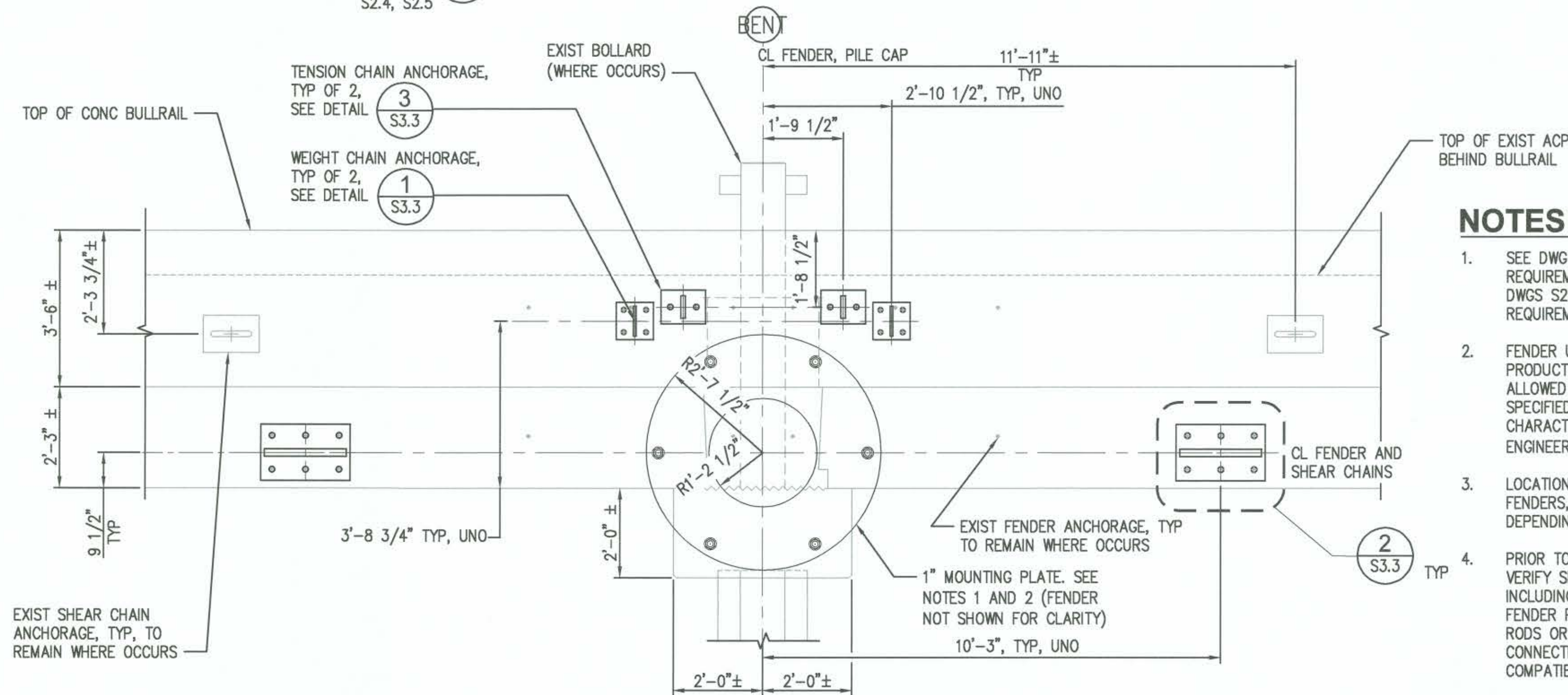
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6649 S2.5 SH #16 OF 22	WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT FENDER PLAN - SHEET 5				APPROVED:	TAH: 11/09/2020	CHECKED BY: TAD	DATE: 11/09/2020
	CONTRACT/CONS: 071421	RANGE: 03E	SECTION: 35	PRINTED BY: temons Nov 09, 2020	DIRECTOR ENG. DATE: 11/09/2020	PROJ. ENGR DATE: 11/09/2020	TACOMA, WA 98421	
M. ID: 201107.01	DAT-HRZ: WA83-SF	VERT: MLW 19.18' @ TIDE 22.1933	PORT ADDRESS: ONE SITCOM PLAZA		TACOMA, WA 98421			
PHASE: BID SET	PARCEL: 25	DRAWING SCALE: AS NOTED	THIS DRAWING IS THE PROPERTY OF THE PORT OF TACOMA AND SHALL NOT BE USED ON OTHER WORK, DISCLOSED, COPIED, IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION					
 2607 North 31st Street, Suite 100 Tacoma, Washington 98407 (253) 396-0150 Fax (253) 396-0162						MARK: REVISION: BY: DATE:		
				APPR: DATE:				



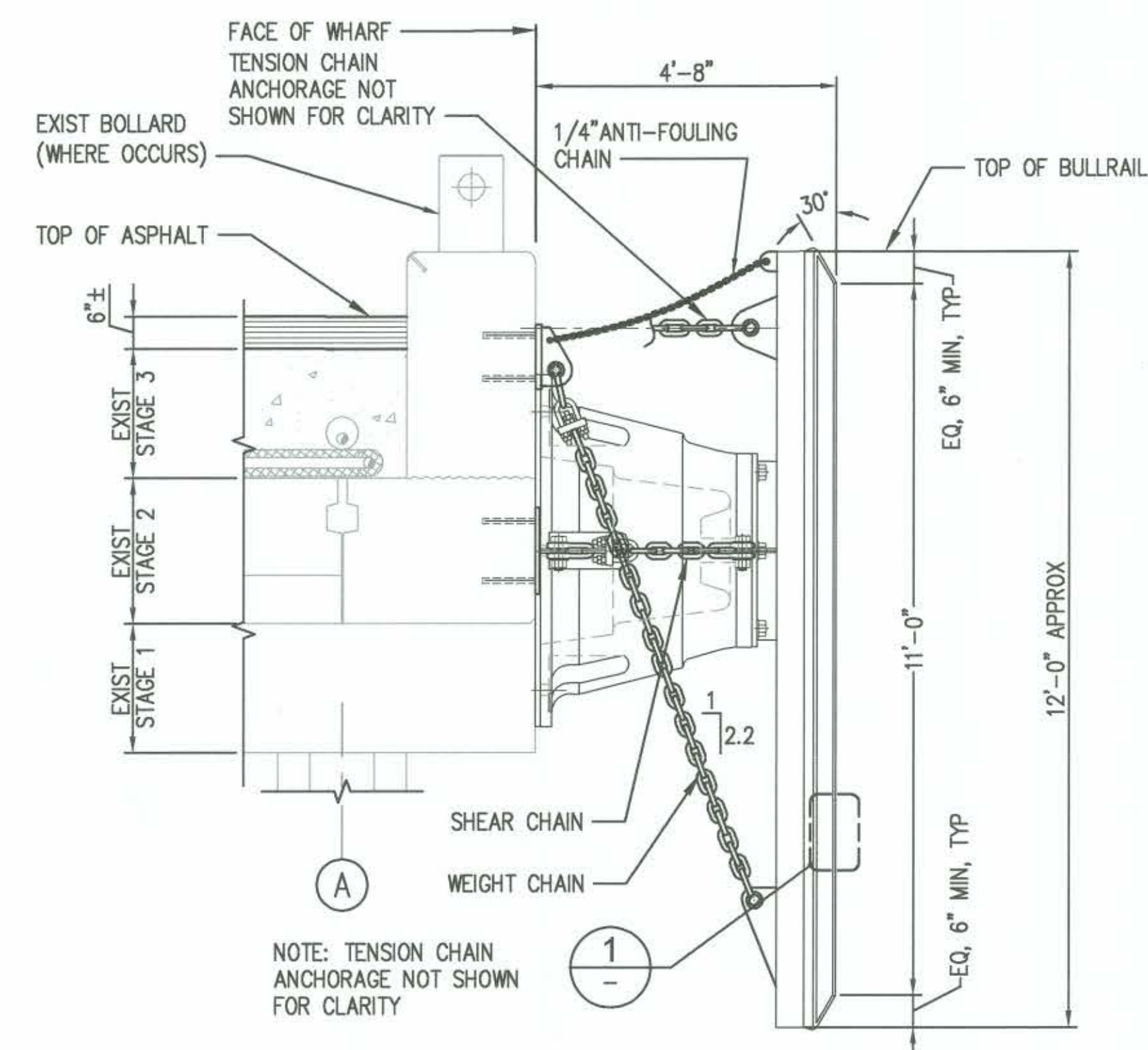
PLAN - TYPICAL FENDER AND PILE CAP SUPPLEMENT

S2.2, S2.3, S2.1 SCALE: 1/2" = 1'-0"
S2.4, S2.5



ELEVATION - TYPICAL FENDER

SCALE: $1/2'' = 1'-0''$

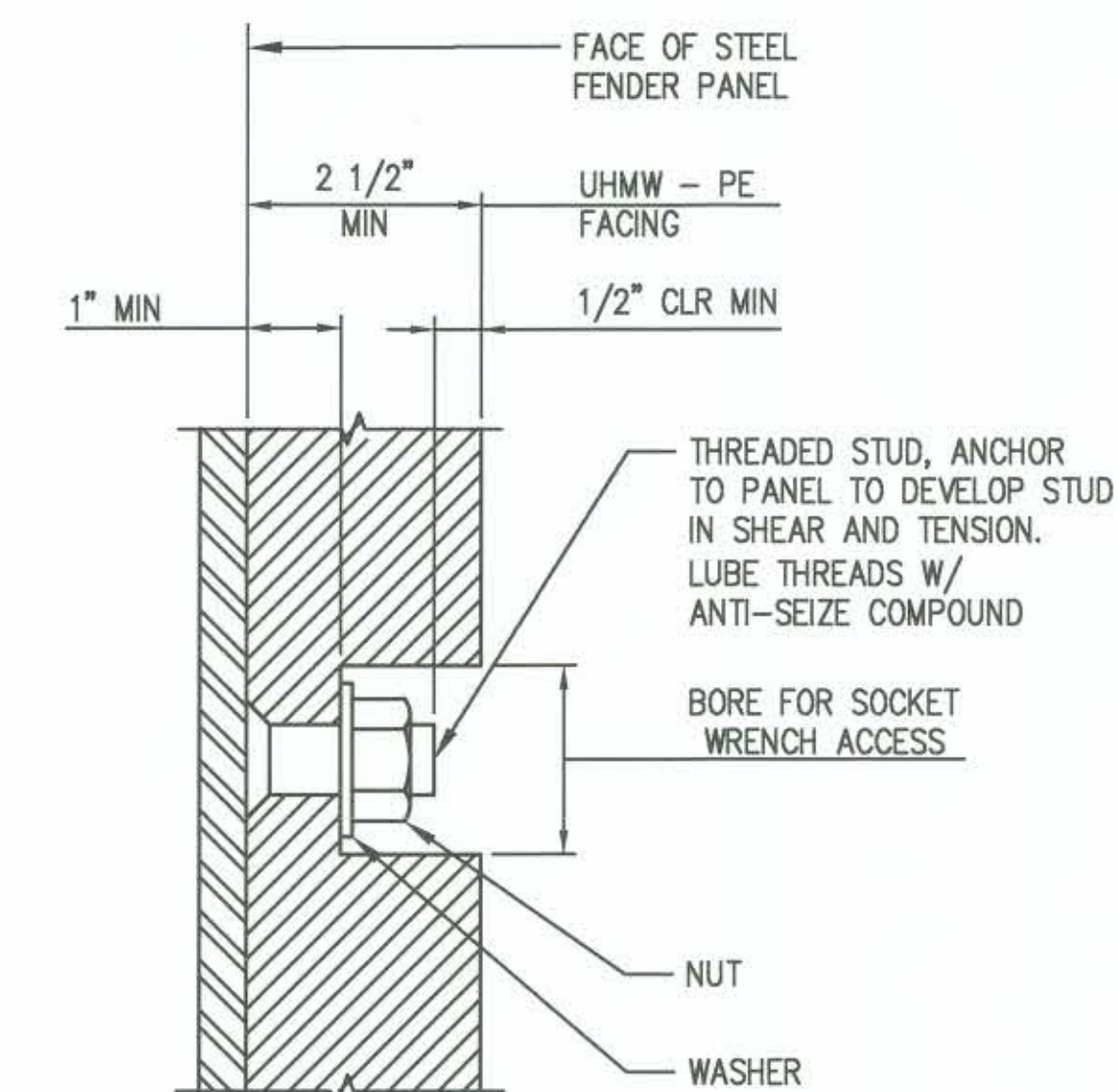


SECTION - TYPICAL FENDER

SCALE: $1/2'' = 1'-0''$

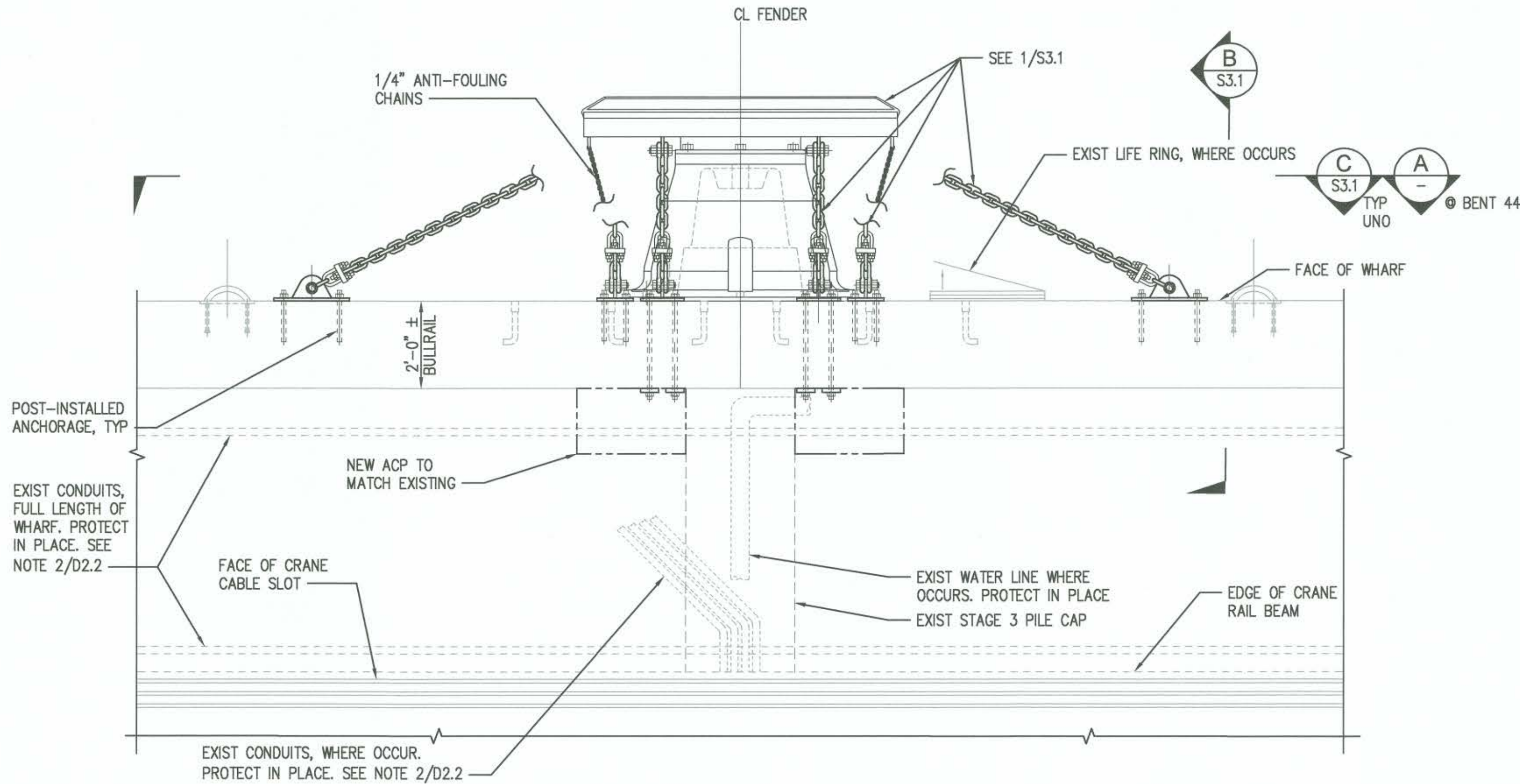
NOTES

1. SEE DWG S1.1 FOR MINIMUM ENERGY AND MAXIMUM REACTION REQUIREMENTS. FOR FENDER UNIT LOCATIONS, SEE PLAN DWGS S2.1 THRU S2.5. SEE SPECIFICATIONS FOR OTHER REQUIREMENTS.
2. FENDER UNIT SHOWN IS REPRESENTATIVE OF AN ACCEPTABLE PRODUCT. OTHER PRODUCTS THAT FIT WITHIN THE AREA ALLOWED FOR FENDER SYSTEM INSTALLATION MEETING SPECIFIED ENERGY AND REACTION PERFORMANCE CHARACTERISTICS MAY BE ACCEPTED SUBJECT TO ENGINEER'S PRIOR APPROVAL.
3. LOCATION AND NUMBER OF POST-INSTALLED ANCHORS FOR FENDERS, CHAINS, AND OTHER HARDWARE MAY VARY DEPENDING UPON FENDER UNIT SUPPLIED.
4. PRIOR TO FABRICATING ANY MATERIALS FOR FENDER SYSTEM, VERIFY SIZE, DIMENSIONS, AND LOCATIONS OF ALL ITEMS, INCLUDING RUBBER FENDER ELEMENT, UHMW-PE FACING, FENDER PANEL FRAMES, CHAINS, FENDER BOLTS, ANCHORS RODS OR BOLTS, BASE PLATES, ETC., SO THAT TIGHT CONNECTIONS CAN BE MADE AND ALL COMPONENTS ARE COMPATIBLE AND SNUG UPON COMPLETION.

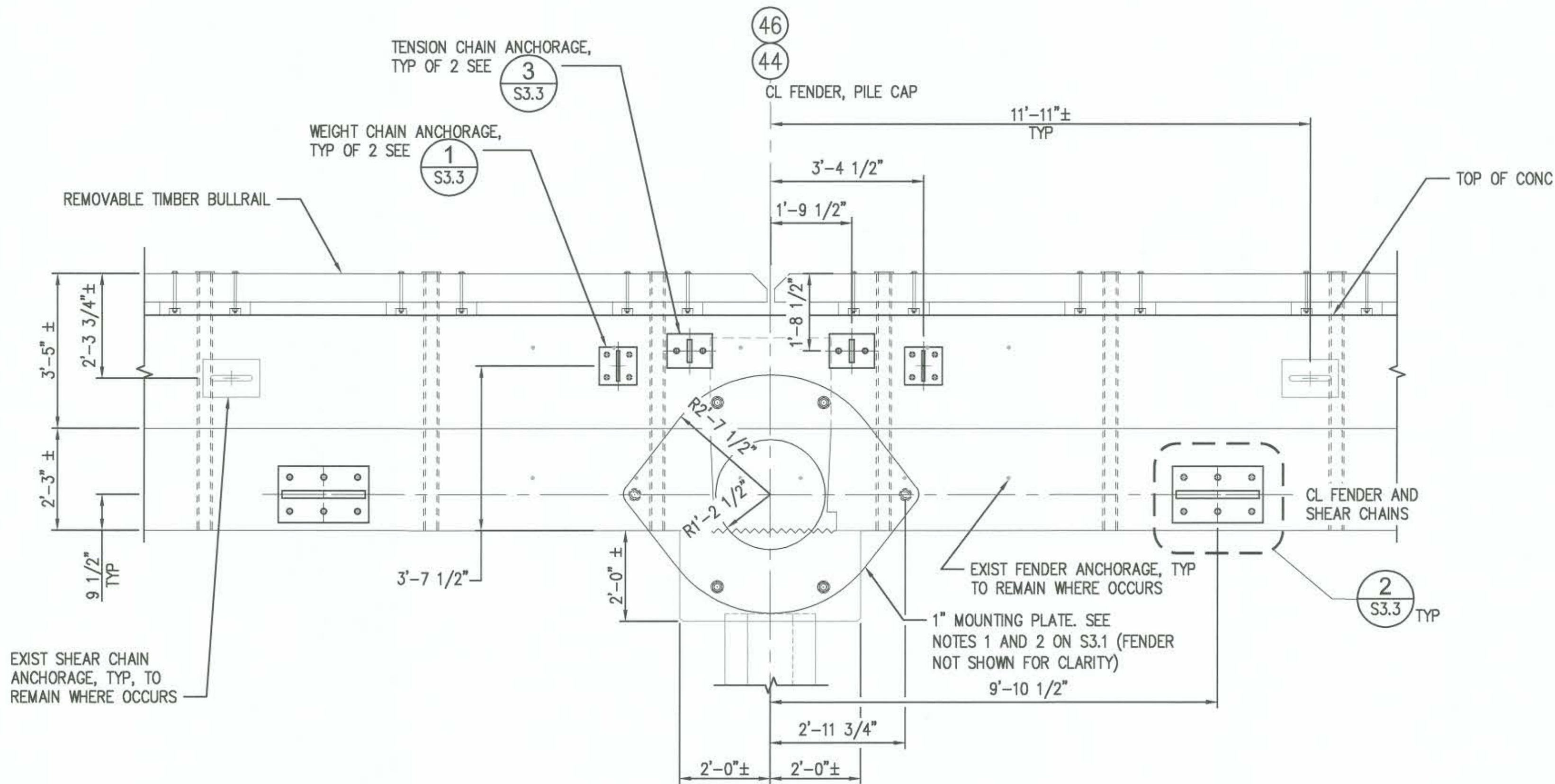


DETAIL - ATTACHMENT OF FACING

SCALE: 6" = 1'-0"



1 PLAN - TYPICAL FENDER WITHOUT PILE CAP SUPPLEMENT
S2.2, S2.3, S2.4, S2.5 SCALE: 1/2" = 1'-0"



A ELEVATION - FENDER AT BENTS 44 & 46
SCALE: 1/2" = 1'-0"

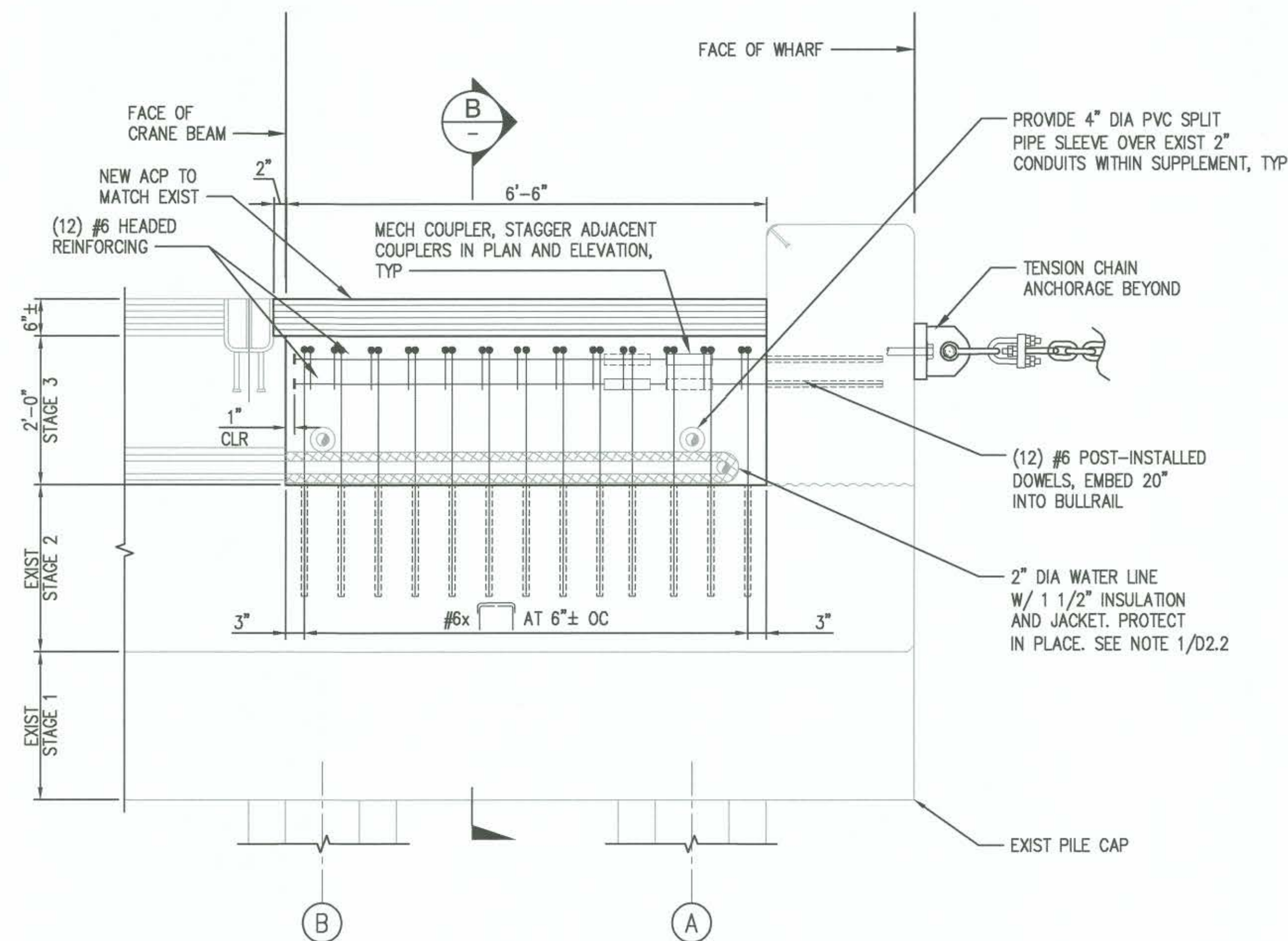
BID SET

6649 S3.2 SH #18 OF 22	WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT FENDER SYSTEM DETAILS - SHEET 2				APPROVED:	TAH: 11/09/2020
	CONT/CONS: 071421	TOWNSHIP: 21N	RANGE: 03E	SECTION: 35	CHECKED BY: TAD	DATE: 11/09/2020
M. ID: 201107.01	DAT-HRZ: WA83-SF	VERT: MLLW 19.18' @ TIDE 22 1933	PRINTED BY: Hemonis Nov 09, 2020	PROJ. ENGR: DATE	DATE: 11/09/2020	
PHASE: BID SET	PARCEL: 25	DRAWING SCALE: AS NOTED	PORT ADDRESS: ONE SITCOM PLAZA	TACOMA, WA 98421		
THIS DRAWING IS THE PROPERTY OF THE PORT OF TACOMA AND SHALL NOT BE USED ON OTHER WORK, DISCLOSED, COPIED, IN WHOLE OR IN PART, WITHOUT WRITTEN PERMISSION						

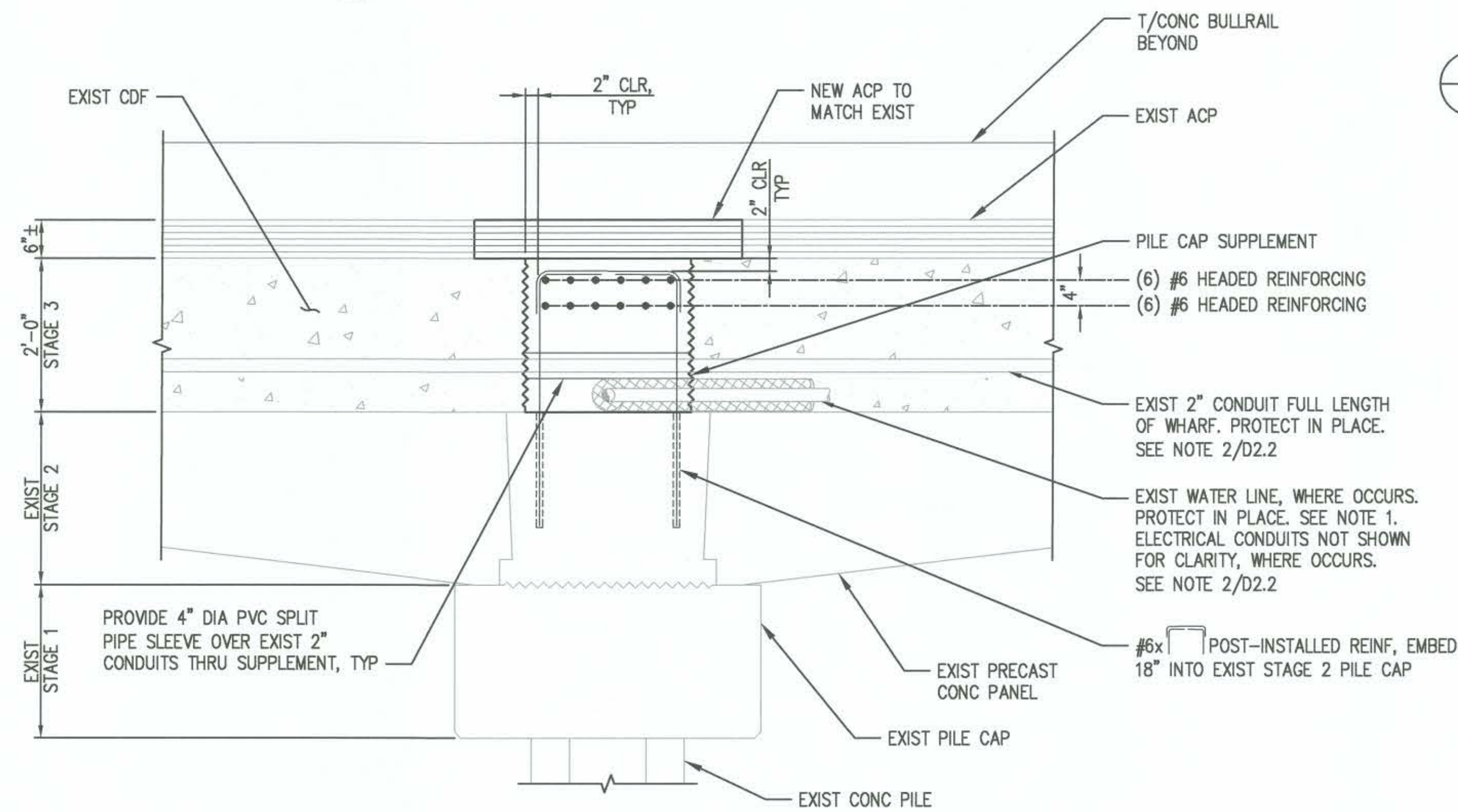
Port of Tacoma
2407 North 31st Street, Suite 100
Tacoma, WA 98403
(253) 396-0150 Fax (253) 396-0162

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2407 North 31st Street, Suite 100
Tacoma, WA 98403
(253) 396-0150 Fax (253) 396-0162

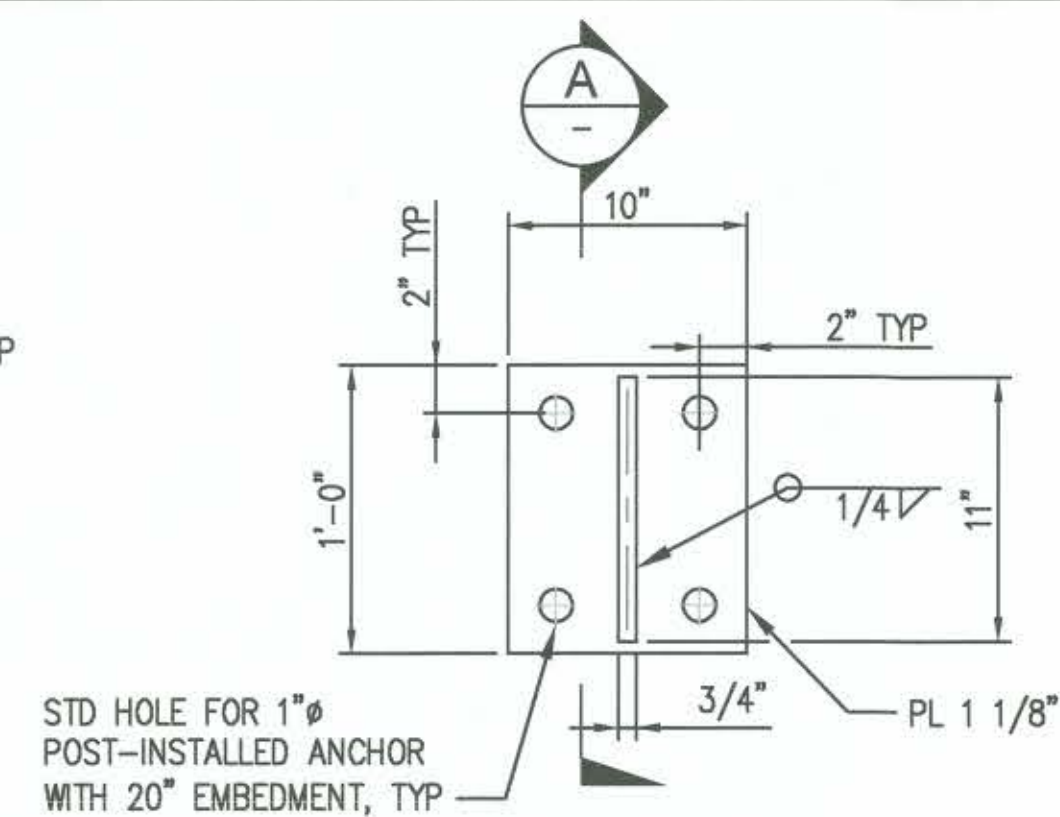
MARK:	REVISION:	BY:	DATE:



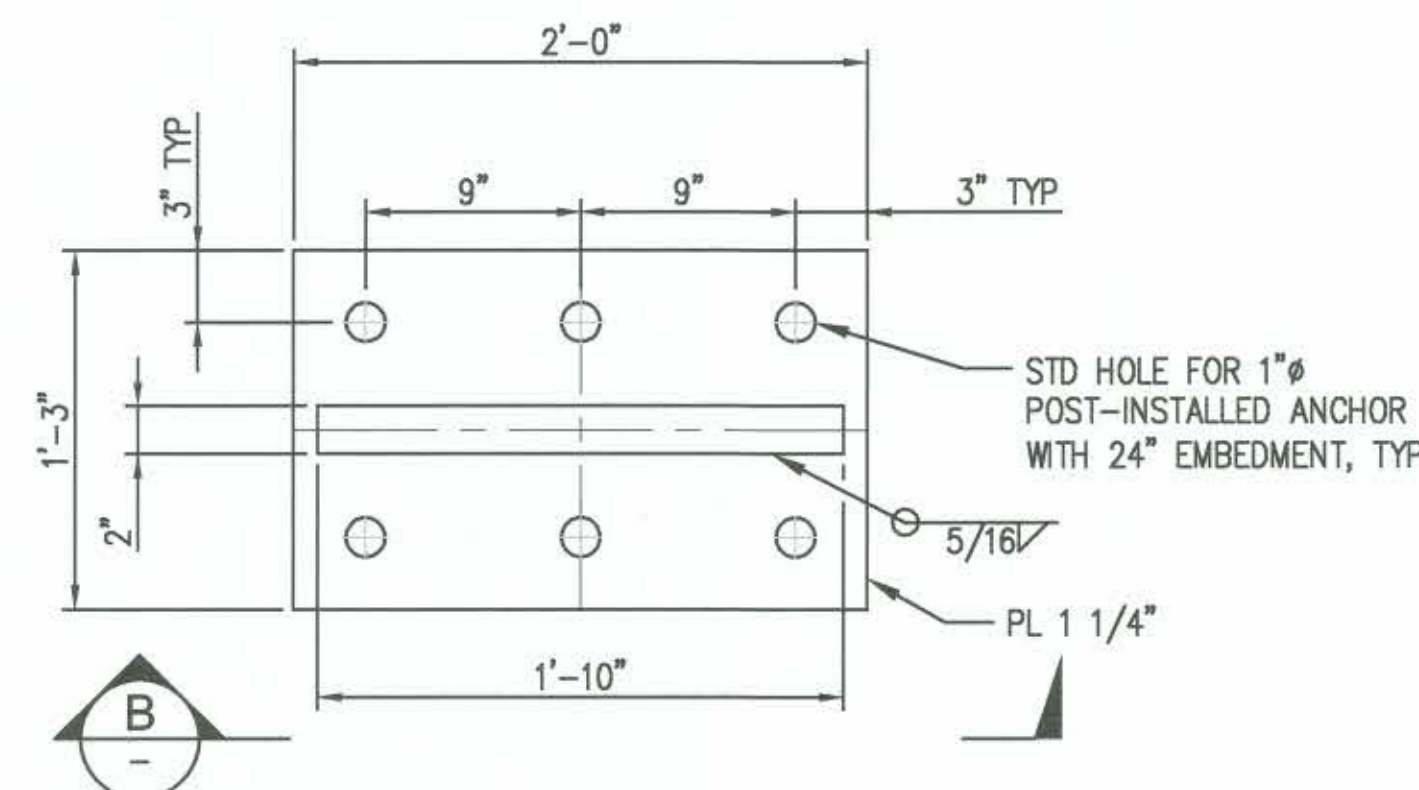
SECTION - PILE CAP SUPPLEMENT



SECTION - PILE CAP SUPPLEMENT

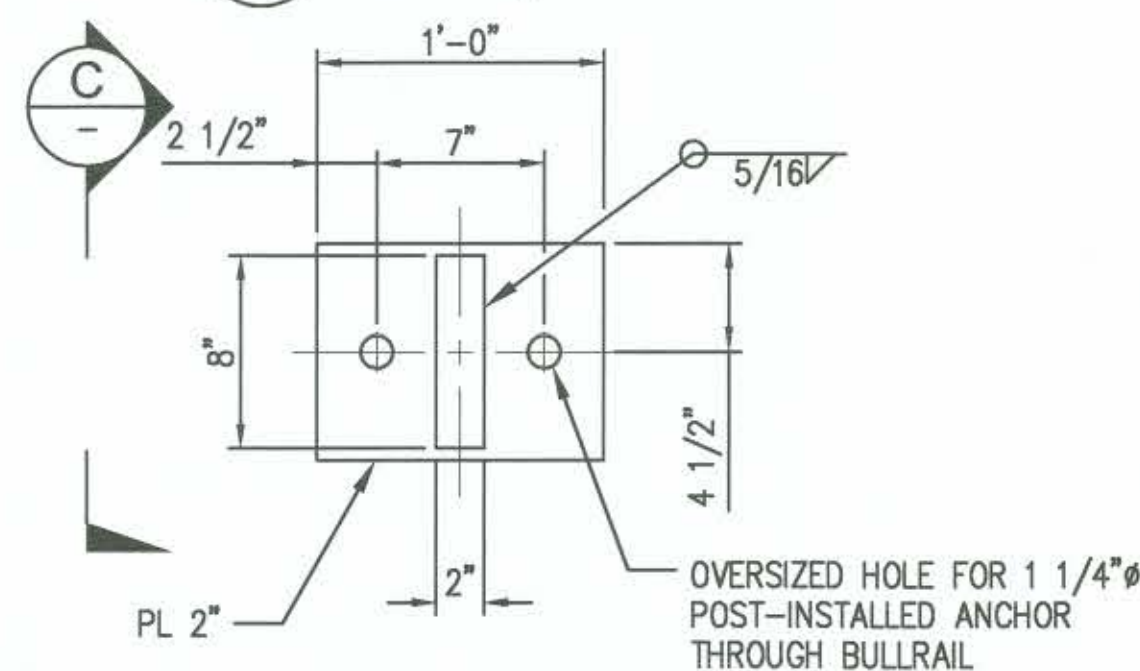


DETAIL - WEIGHT
CHAIN ANCHORAGE
S3.1, S3.2 SCALE: 1 1/2" = 1'-0"



**DETAIL - SHEAR
CHAIN ANCHORAGE**

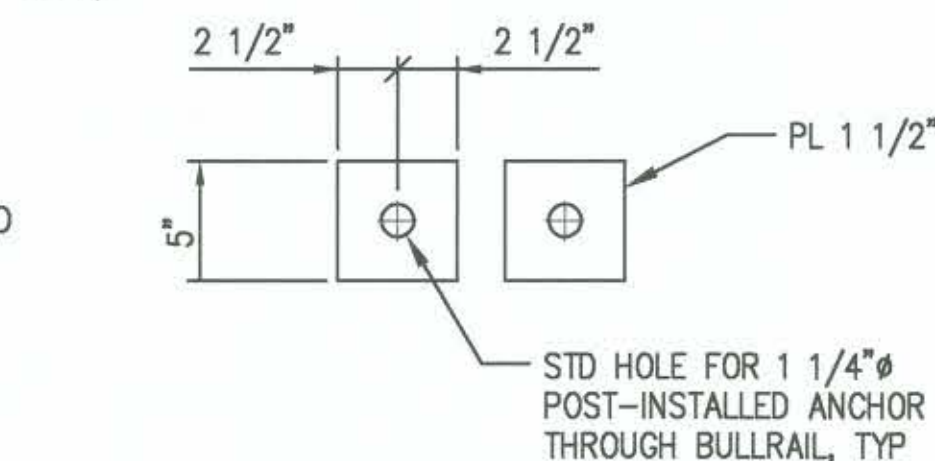
S3.1, S3.2 SCALE: $1 \frac{1}{2}" = 1'-0"$



**TENSION CHAIN ANCHORAGE -
FRONT OF BULLRAIL**

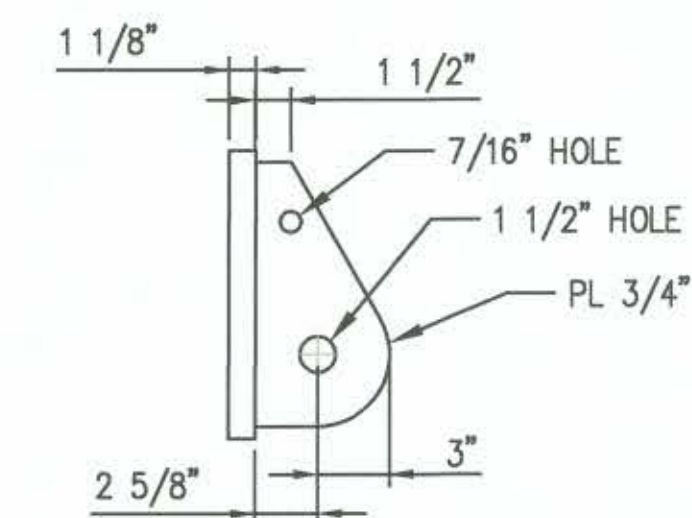
3
S3.1, SCALE: 1 1/2" = 1'-0"

S3.2, -

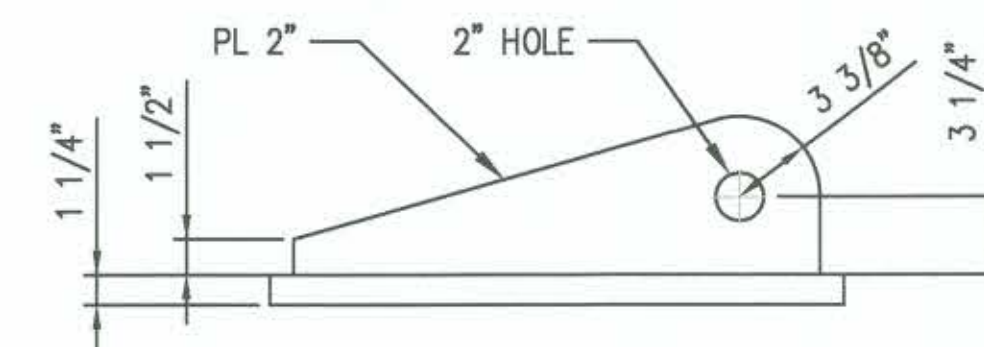


**TENSION CHAIN ANCHORAGE -
BACK OF BULLRAIL**

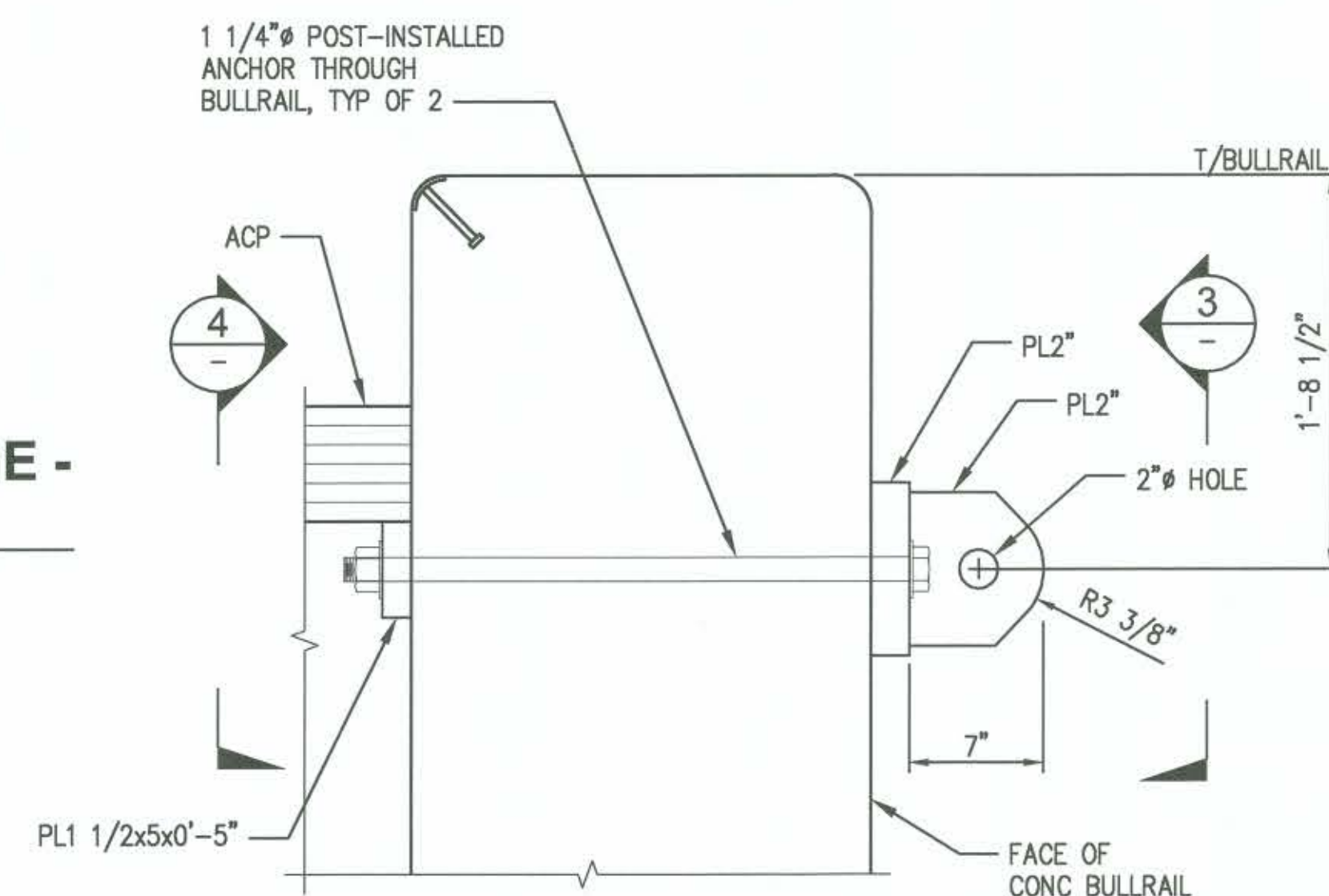
4
- SCALE: 1 1/2" = 1'-0"



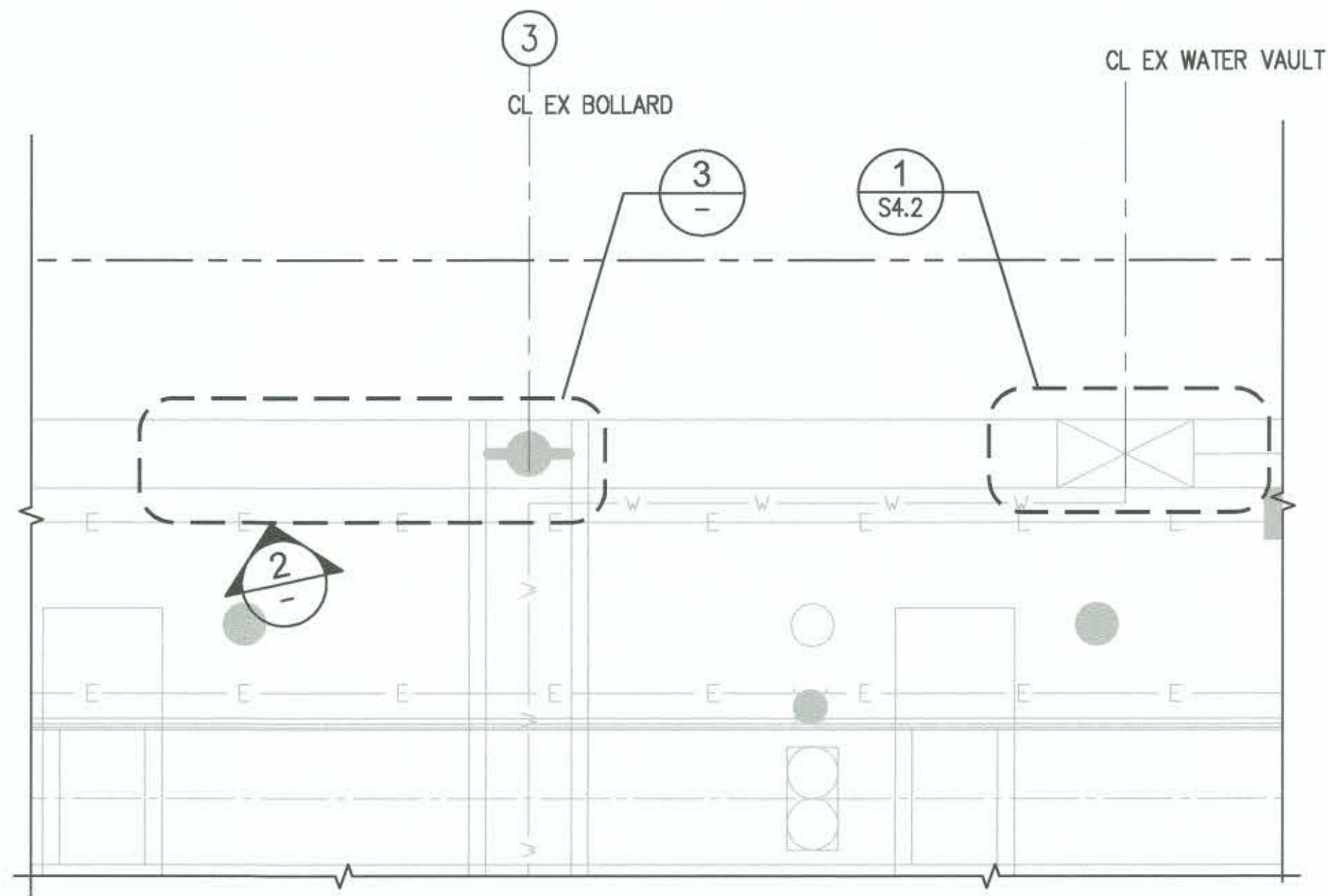
SECTION - WEIGHT CHAIN ANCHORAGE



**SECTION - SHEAR
CHAIN ANCHORAGE**



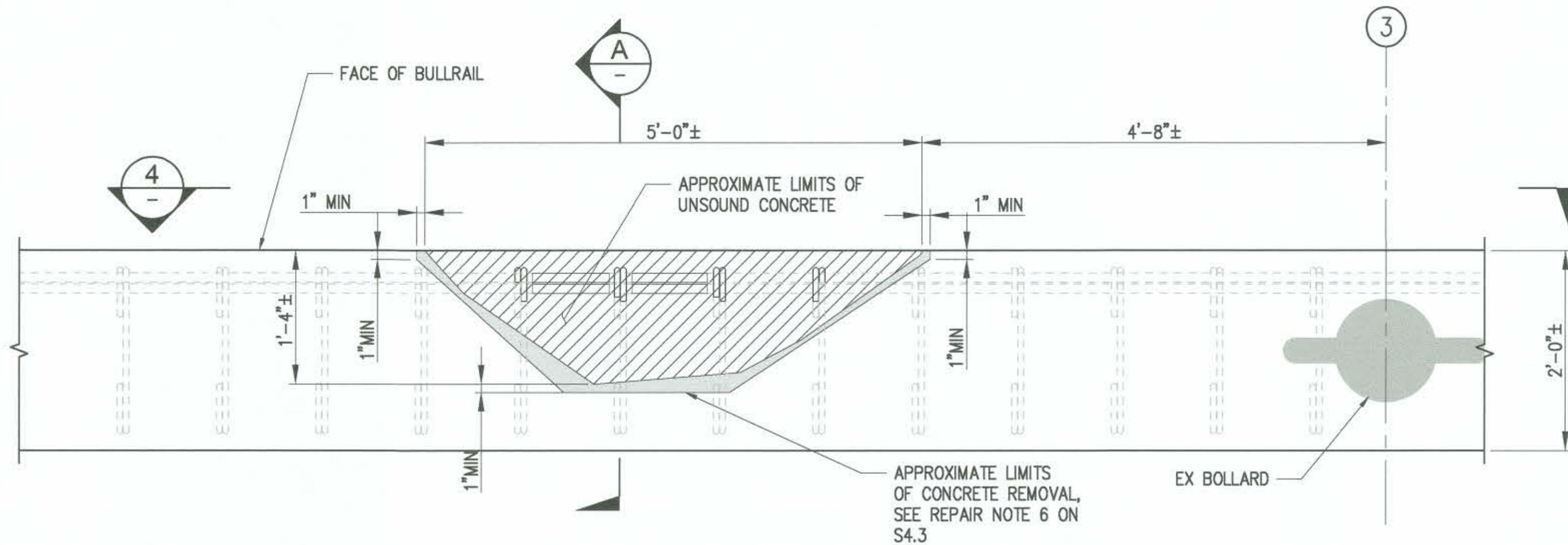
**SECTION - TENSION
CHAIN ANCHORAGE**



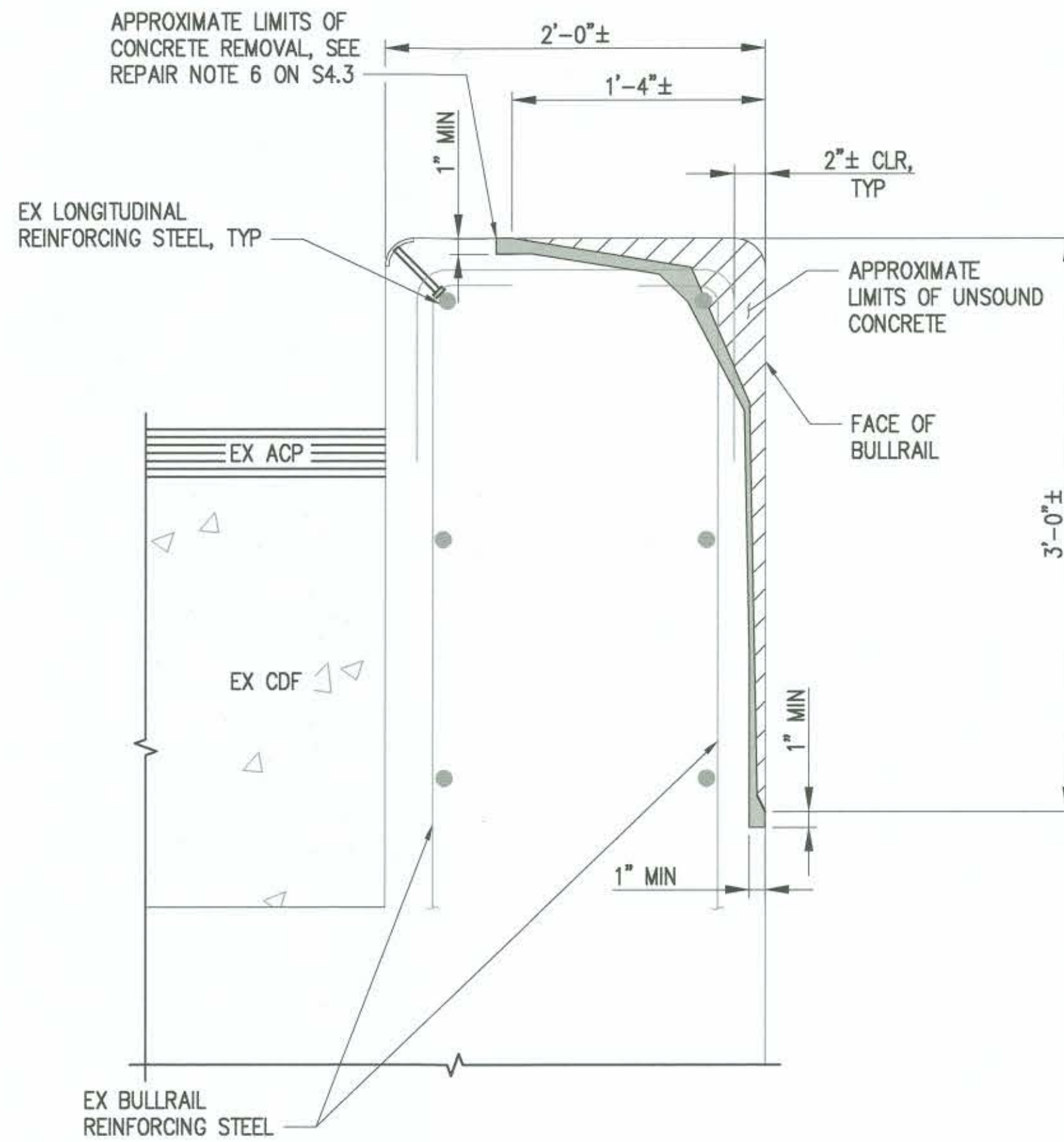
1 BULLRAIL AND WATER VAULT REPAIR PLAN
D1.1, S2.1 SCALE: 1/4" = 1'-0"



2 BULLRAIL DAMAGE REPAIR PHOTO
SCALE: NTS



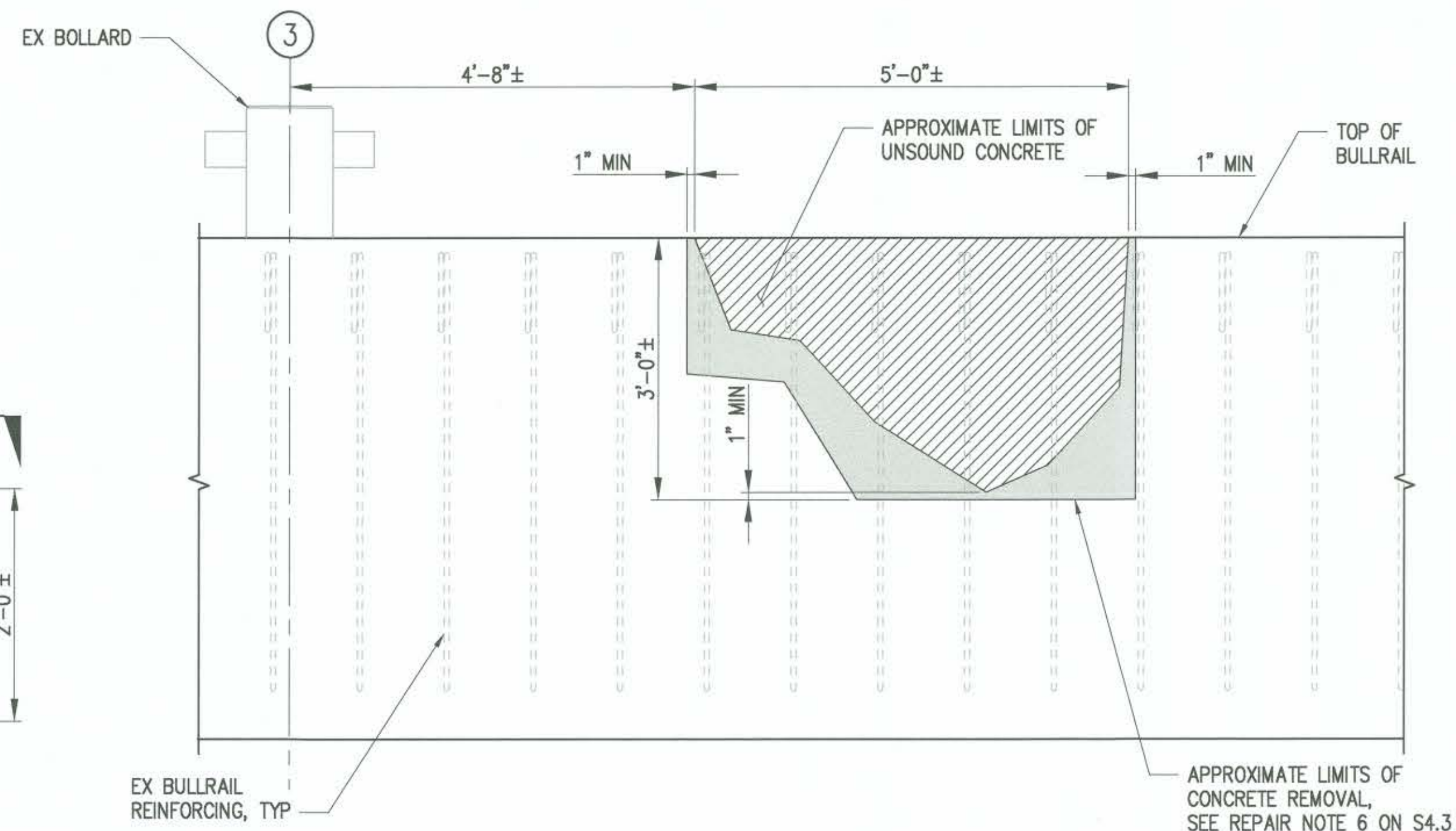
3 PLAN - BULLRAIL
SCALE: 1" = 1'-0"



SECTION - BULLRAIL
SCALE: 1 1/2" = 1'-0"

LEGEND:

- UNSOND CONCRETE TO BE REMOVED
- SOUND CONCRETE TO BE REMOVED



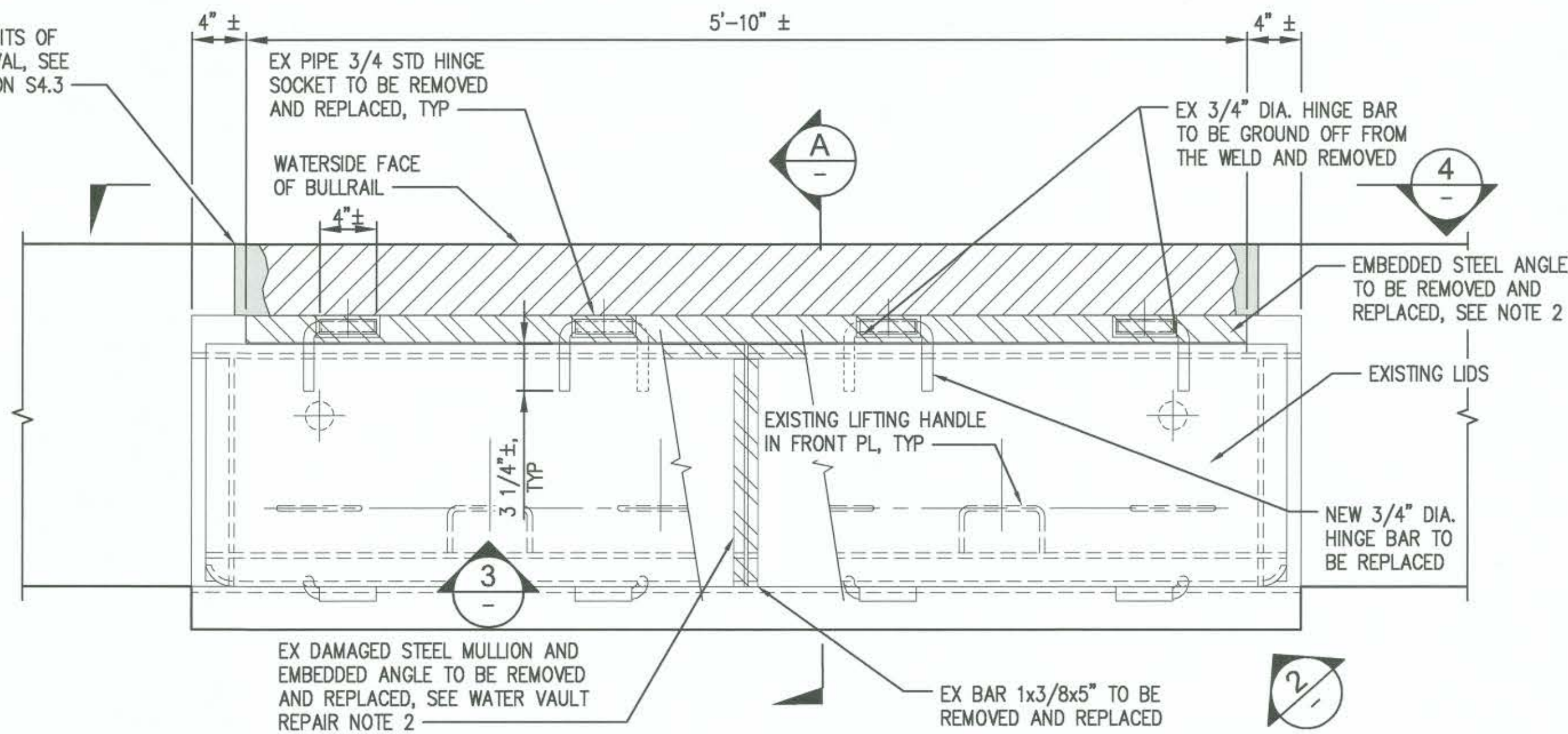
4 ELEVATION - BULLRAIL
SCALE: 3/4" = 1'-0"

NOTES

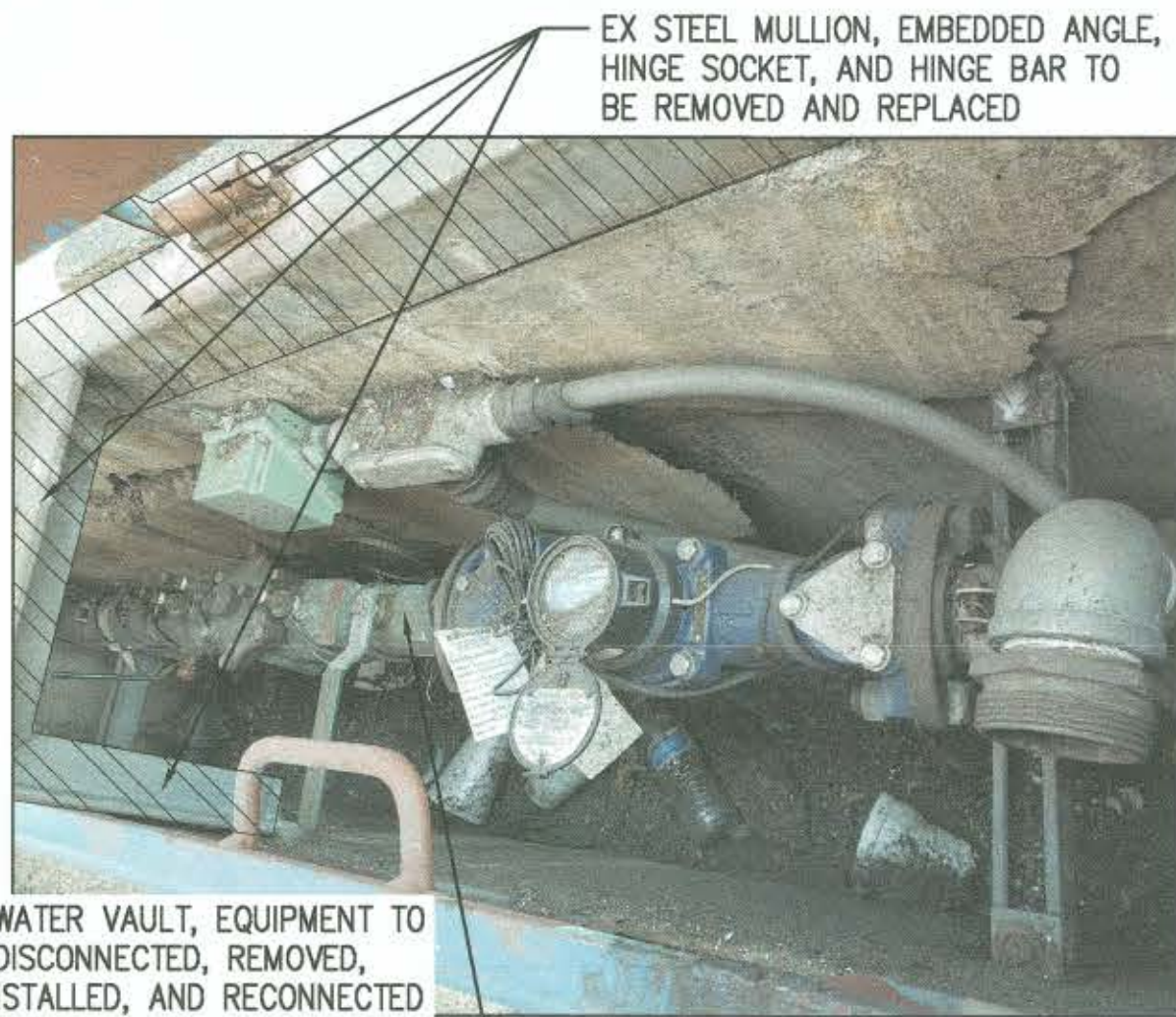
- SEE S4.3 FOR REPAIR NOTES.

6649 S4.1 SH #20 OF 22	WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT BULLRAIL REPAIR DETAILS (ALTERNATE #1)	APPROVED:  DIRECTOR	TAH: 11/09/2020 CHECKED BY: SW DATE: 11/09/2020		 2407 North 31st Street, Suite 100 Tacoma, WA 98406 (253) 396-0150 Fax (253) 396-0162 P.O. BOX 187 TACOMA, WA 98401 (202)305-9441	
CONT/CONS: 071421	TOWNSHIP: 21N	RANGE: 03E	SECTION: 35	DATE: 11/09/2020	BY: 	DATE: 
M. ID: 201107.06.649	DAT-HRZ: WA83-SF	VERT: MLW 19.18' @ TIDE 22.1933	PRINTED BY: Hemons Nov 09, 2020	REVISION: 	APPR: 	DATE: 
PHASE: BID SET	PARCEL: 25	DRAWING SCALE: AS NOTED	PORT ADDRESS: ONE SITCOM PLAZA TACOMA, WA 98421	MARK: 	BY: 	DATE: 

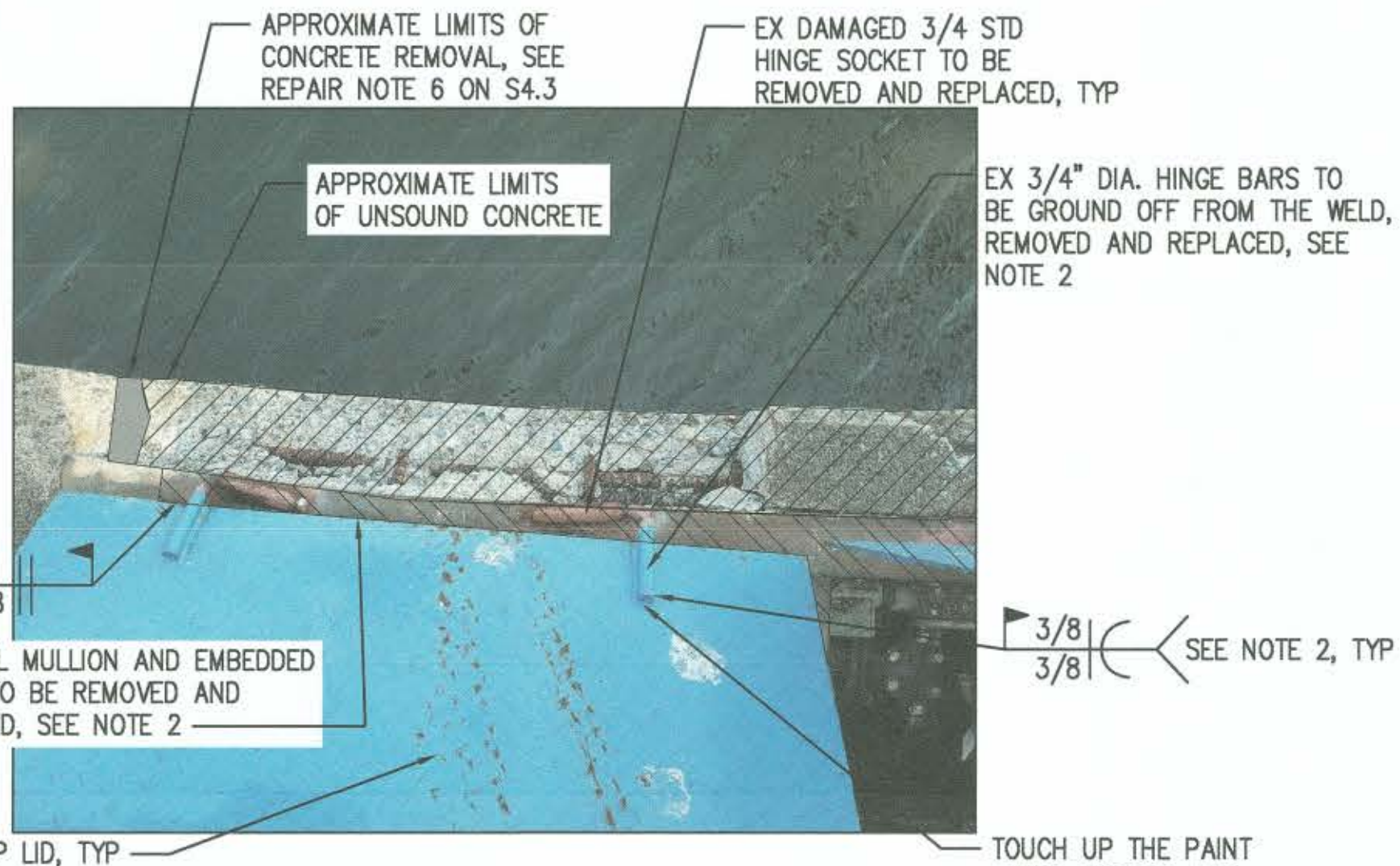
APPROXIMATE LIMITS OF CONCRETE REMOVAL, SEE REPAIR NOTE 6 ON S4.3



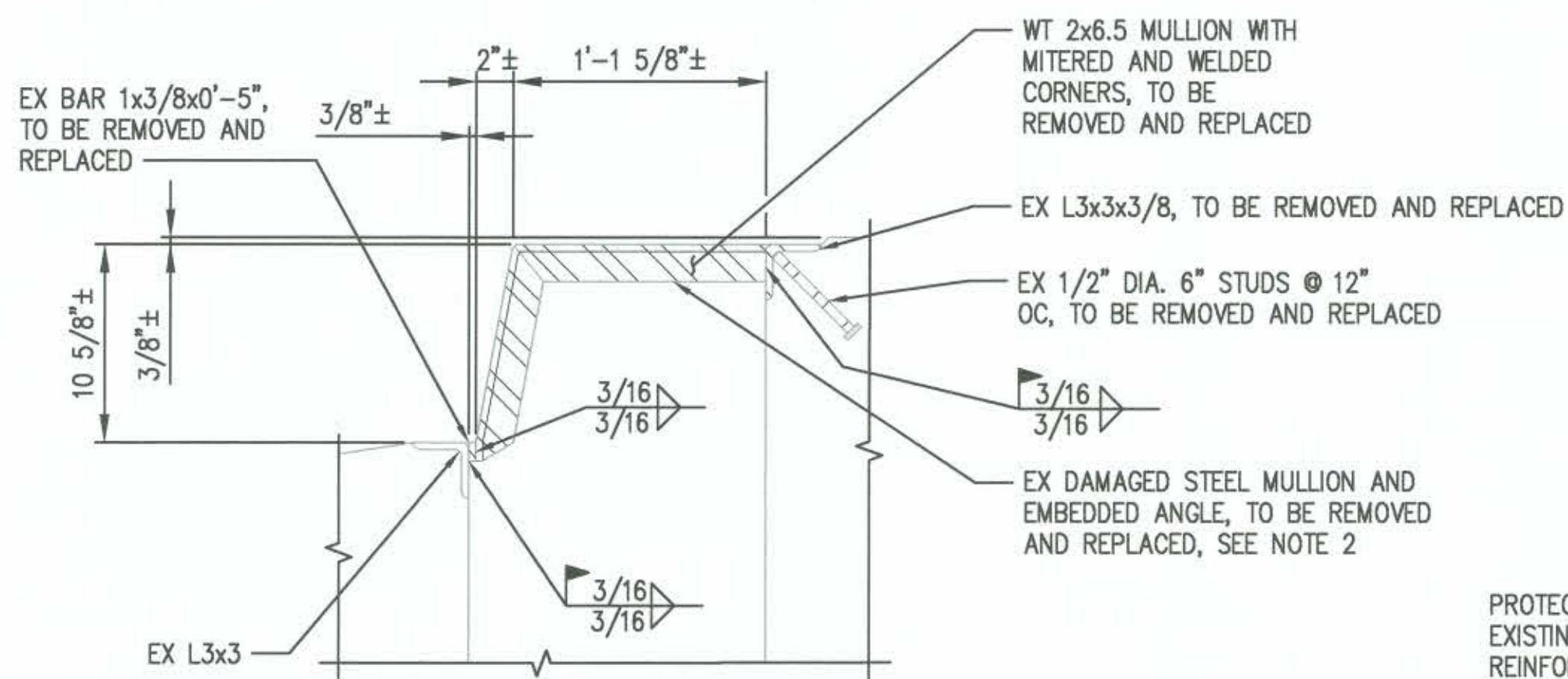
1 PLAN - WATER VAULT
SCALE: 1 1/2" = 1'-0"



2 WATER VAULT DAMAGE REPAIR PHOTO
SCALE: NTS



3 WATER VAULT DAMAGE REPAIR PHOTO
SCALE: NTS



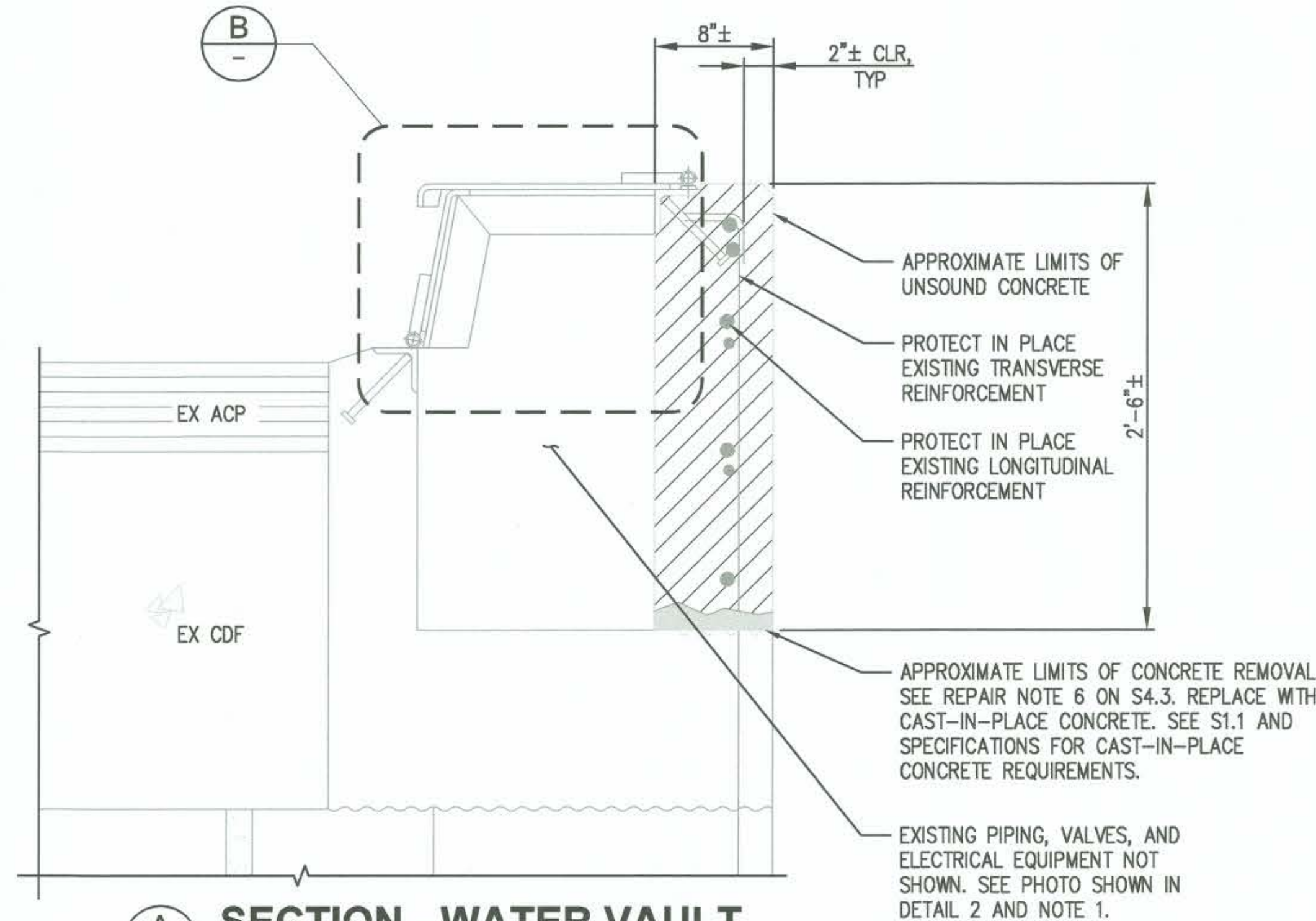
B DETAIL - WATER VAULT
SCALE: 1 1/2" = 1'-0"

LEGEND:

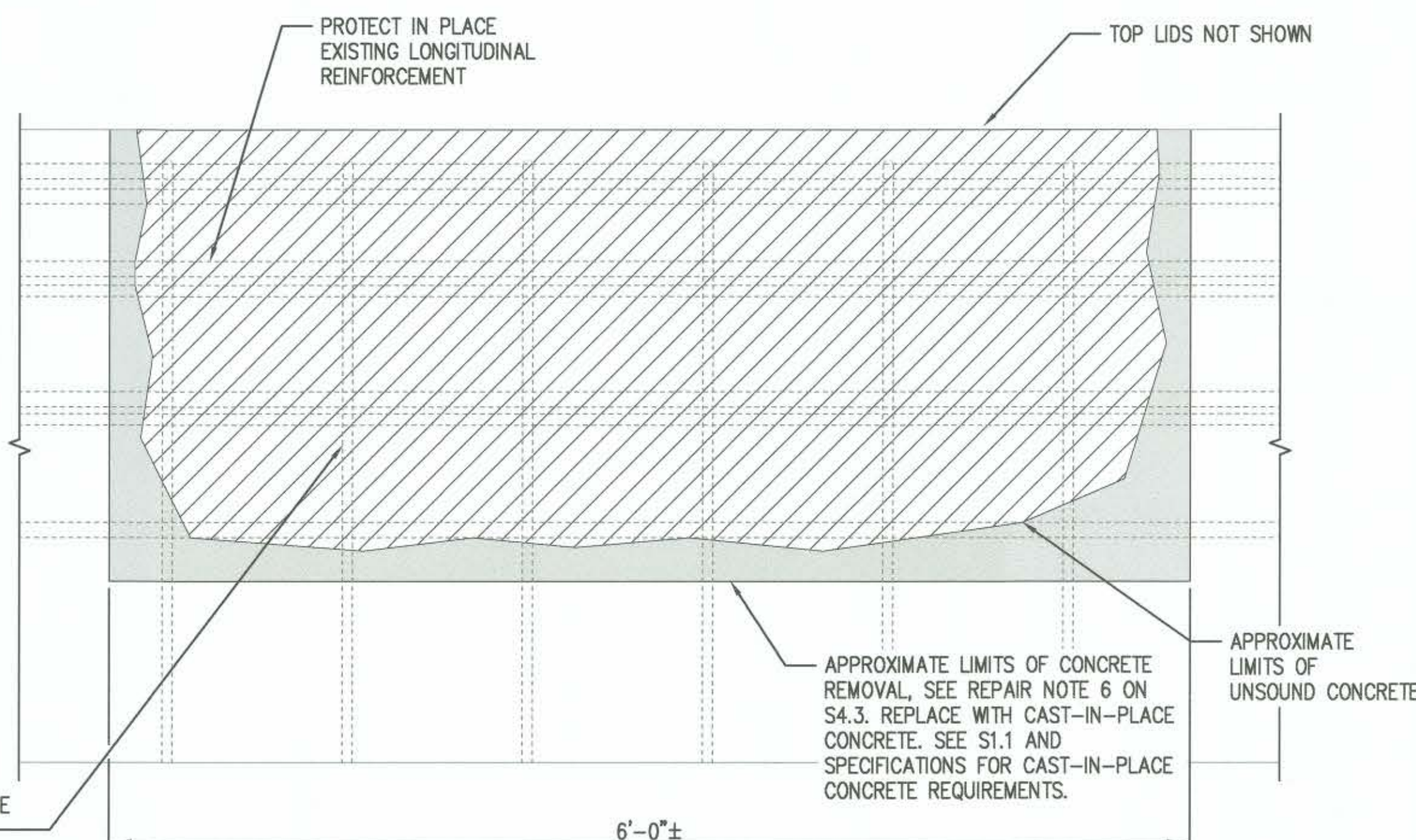
- UN SOUND CONCRETE TO BE REMOVED
- SOUND CONCRETE TO BE REMOVED
- DAMAGED STEEL TO BE REMOVED

NOTES




- PRIOR TO REMOVING EXISTING UNSOUND CONCRETE AND DAMAGED STEEL FRAMING, THE EXISTING PIPING, VALVES, AND ELECTRICAL EQUIPMENT INSIDE THE VAULT SHALL BE DISCONNECTED, REMOVED, AND SALVAGED FOR REINSTALLATION BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE SERVICE INTERRUPTION WITH PORT.
- THE DAMAGED EXISTING EMBEDDED STEEL ANGLE AND MULLION SHALL BE REMOVED AND REPLACED IN-KIND. NEW STEEL ELEMENTS SHALL BE SHOP FABRICATED AND HOT-DIP GALVANIZED. FIELD WELDS AND SURROUNDING STEEL SHALL BE GROUND SMOOTH AND REPAIRED VIA HOT-STICK GALVANIZING AFTER WELDING.
- SEE S4.3 FOR REPAIR NOTES.



A SECTION - WATER VAULT
SCALE: 1 1/2" = 1'-0"



4 ELEVATION - WATER VAULT
SCALE: 1 1/2" = 1'-0"

6649										WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT WATER VAULT REPAIR DETAILS (ALTERNATE #1)										APPROVED: <i>[Signature]</i>										TAH CHECKED BY DATE SW 11/09/2020 PROJ. ENGR DATE																														2407 North 31st Street, Suite 100 Tacoma, Washington 98407 (253) 396-0150 Fax: (253) 396-0152																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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BID SET

REPAIR NOTES

1. CONTRACTOR SHALL PROVIDE APPROPRIATE CATCHMENT DEVICE(S) DURING REPAIR WORK TO PREVENT CONCRETE CHIPS, WASH WATER AND OTHER DEBRIS FROM FALLING INTO THE WATER.
2. CONCRETE REPAIRS SHALL BE PERFORMED IN GENERAL CONFORMANCE WITH ACI FIELD GUIDE TO CONCRETE REPAIR APPLICATION PROCEDURES "SURFACE REPAIR USING FORM-AND-POUR TECHNIQUES" (ACI RAP-4), EXCEPT AS MODIFIED HEREIN.
3. LOCATE EACH DESIGNATED REPAIR ON THE STRUCTURE AND DETERMINE THE ACTUAL REPAIR PERIMETER BY HAMMER SOUNDING TO DETERMINE IF UNSEEN SUBSURFACE DELAMINATIONS EXIST IN ADDITION TO VISUAL SPALLS. FOLLOWING THE HAMMER SOUNDING, THE CONTRACTOR SHALL MARK THE OUTLINE OF THE ACTUAL REPAIR AREA, NOTIFY THE ENGINEER, AND SHALL PROVIDE ACCESS FOR THE ENGINEER'S INSPECTION PRIOR TO PROCEEDING WITH REPAIRS.
4. USING A PACHOMETER OR OTHER NON-DESTRUCTIVE TESTING (NDT) METHOD, DETERMINE THE ACTUAL CONCRETE COVER OVER THE REINFORCING IN THE ESTIMATED REPAIR AREA.
5. THE EDGES OF THE REPAIR BOUNDARY SHALL EXTEND AT LEAST 1" BEYOND THE EXTENTS OF SPALLS, DELAMINATIONS, OR OTHERWISE UNSOUND CONCRETE. THE EDGES OF THE ACTUAL REPAIR AREA SHALL BE FORMED BY STRAIGHT BOUNDARY LINES FOLLOWING THE GENERAL SHAPE INDICATED IN THE REPAIR DETAIL.
6. EDGES OF THE REPAIR AREA BOUNDARY SHALL BE SAWCUT PERPENDICULAR TO THE CONCRETE SURFACE TO A MINIMUM DEPTH 1" OR 1/4" ABOVE THE SHALLOWEST REINFORCEMENT DEPTH, WHICHEVER IS LESS. USE CARE TO PREVENT DAMAGE TO REINFORCING STEEL. DAMAGE TO REINFORCING STEEL SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE PORT.
7. CHIP AND REMOVE SPALLED, DELAMINATED, LOOSE OR OTHERWISE UNSOUND CONCRETE TO SOUND SUBSTRATE WITHIN REPAIR AREA. DO NOT FEATHER THE EDGES OF THE REPAIRS.
8. PERFORM INITIAL CONCRETE REMOVAL WITH EITHER 15-LB OR 30-LB JACKHAMMERS. JACKHAMMERS LARGER THAN 30-LBS MAY CAUSE DAMAGE TO REINFORCEMENT, REINFORCEMENT BOND TO SURROUNDING CONCRETE, AND REMAINING CONCRETE, AND SHALL NOT BE USED WITHIN 1" OF EXISTING REINFORCING STEEL. USE 15-LB OR SMALLER JACKHAMMERS FOR FINAL REMOVAL AND DETAILING AROUND THE REINFORCING STEEL.
9. REMOVE ADDITIONAL CONCRETE TO PROVIDE 1" MIN CLEAR AROUND REINFORCING BARS AT LOCATIONS WHERE HALF OR MORE OF A BAR'S DIAMETER IS EXPOSED.
10. CHECK SURFACES TO ENSURE THAT THEY ARE FREE FROM LOOSE AGGREGATE OR ADDITIONAL DELAMINATIONS.
11. PREPARE REPAIR CAVITY BY REMOVING ALL CONCRETE FROM WITHIN THE REPAIR AREA BOUNDARY TO THE DEPTH OF THE SAWCUTS.
12. AT ALL INTERFACES BETWEEN EXISTING AND NEW CONCRETE, ROUGHEN EXISTING EXPOSED CONCRETE SURFACES TO A 1/4" MINIMUM AMPLITUDE BY LIGHT SCABBLING OR ABRASIVE BLASTING.
13. PREPARE EXPOSED CONCRETE, AND REINFORCEMENT FOR PLACING REPAIR MATERIAL. DO NOT CUT, BEND, OR OTHERWISE DAMAGE EXISTING REINFORCING. ALL EXPOSED CONCRETE AND REINFORCING SHALL BE CLEANED OF ALL SCALE, RUST, DIRT, OIL, OR ANY OTHER DELETERIOUS MATERIAL USING MECHANICAL ABRASION.
14. PROVIDE NOTIFICATION TO PORT AND PROVIDE ACCESS TO ENGINEER FOR INSPECTION OF REPAIR AREAS PRIOR TO PLACING REPAIR MATERIALS.
15. ERECT FORMWORK AROUND REPAIR AREA. FORMWORK AND FALSEWORK MAY BE HUNG FROM BULLRAIL.
16. CHAMFER ALL CAST-IN-PLACE EXPOSED CORNERS TO MATCH EXISTING CHAMFER SIZES.
17. COMPLETED REPAIR SHALL PROVIDE FOR MINIMUM 1 1/2" OF COVER OVER REINFORCING STEEL.
18. ENSURE FORMWORK IS RIGID AND WATER TIGHT TO PREVENT LOSS OF MATERIAL. PROPERLY SEAL FACES OF FORMS TO ENSURE SURFACES ABSORB NO WATER FROM REPAIR MATERIAL.
19. PROVIDE DRAINAGE OUTLETS IN FORMWORK FOR PRESOAKING. PROVIDE SUITABLE ACCESS POINTS TO POUR OR PUMP MIXED REPAIR MORTAR INTO PLACE.
20. USE SUITABLE FORM-RELEASE AGENT TO FACILITATE REMOVAL OF FORMS FROM CAST MATERIAL.
21. IN CONDITIONS WHERE FORMWORK CANNOT BE FILLED WITH WATER, SPRAY SUBSTRATE WITH CLEAN WATER TO ACHIEVE SATURATED SURFACE-DRY (SSD) CONDITION IMMEDIATELY BEFORE PLACING REPAIR MORTAR OR CAST-IN-PLACE CONCRETE.
22. APPLY BONDING AGENT TO THE EXISTING CONCRETE SURFACE AND EXISTING REINFORCING STEEL. ACCEPTABLE PRODUCT: EUCLID CHEMICAL DURALPREP A.C. BONDING AGENT.
23. IMMEDIATELY AFTER MIXING, PUMP OR POUR REPAIR MORTAR OR CAST-IN-PLACE CONCRETE INTO FORMED AREA.
24. REPAIR MORTAR FOR BULLRAIL REPAIR SHALL BE A ONE-COMPONENT, LOW DUST, SHRINKAGE-COMPENSATED, SELF-CONSOLIDATING MORTAR CONSISTING OF CEMENT, GRADED AGGREGATE, SHRINKAGE-COMPENSATING AGENTS, AN INTEGRAL CORROSION INHIBITOR, AND ADDITIVES. ACCEPTABLE PRODUCT: MASTEREMACO S 440CI (FORMERLY LA40 PMAC REPAIR MORTAR) BY BASF, OR AN APPROVED EQUAL HAVING SIMILAR PERFORMANCE REQUIREMENTS. ALTERNATE PRODUCTS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO USE. CAST-IN-PLACE CONCRETE SHALL CONFORM TO REQUIREMENTS OF S1.1 AND THE SPECIFICATIONS.
25. PLACE REPAIR MORTAR AND CURE PER MANUFACTURER'S INSTRUCTIONS. ENSURE THAT SUBSTRATE SURFACE AND AMBIENT AIR TEMPERATURE ARE MINIMUM OF 40 DEGREES F AND RISING AT APPLICATION TIME AND REMAIN ABOVE 40 DEGREES F FOR AT LEAST 24 HOURS AFTER APPLICATION. ENSURE THAT FROST OR FROZEN SURFACES ARE THAWED AND DRY. CAST-IN-PLACE CONCRETE SHALL BE PLACED AND CURED IN ACCORDANCE WITH THE REQUIREMENTS OF THE SPECIFICATIONS.
26. FORMWORK SHALL BE LEFT IN PLACE FOR THE PRESCRIBED CURING PERIOD. AFTER STRIPPING OF FORMWORK, ANY SPACES NOT FILLED SHALL BE TRIMMED, CLEANED, AND DRY-PACKED. TWO COATS OF A MEMBRANE CURING COMPOUND SHALL BE APPLIED IMMEDIATELY AFTER REMOVAL OF FORMWORK.

BID SET

6649 S4.3 SH #22OF 22	WASHINGTON UNITED TERMINAL FENDER SYSTEM REPLACEMENT REPAIR NOTES (ALTERNATE #1)				APPROVED: <i>[Signature]</i> 11/09/2020		TACOMA, WA 98421	
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