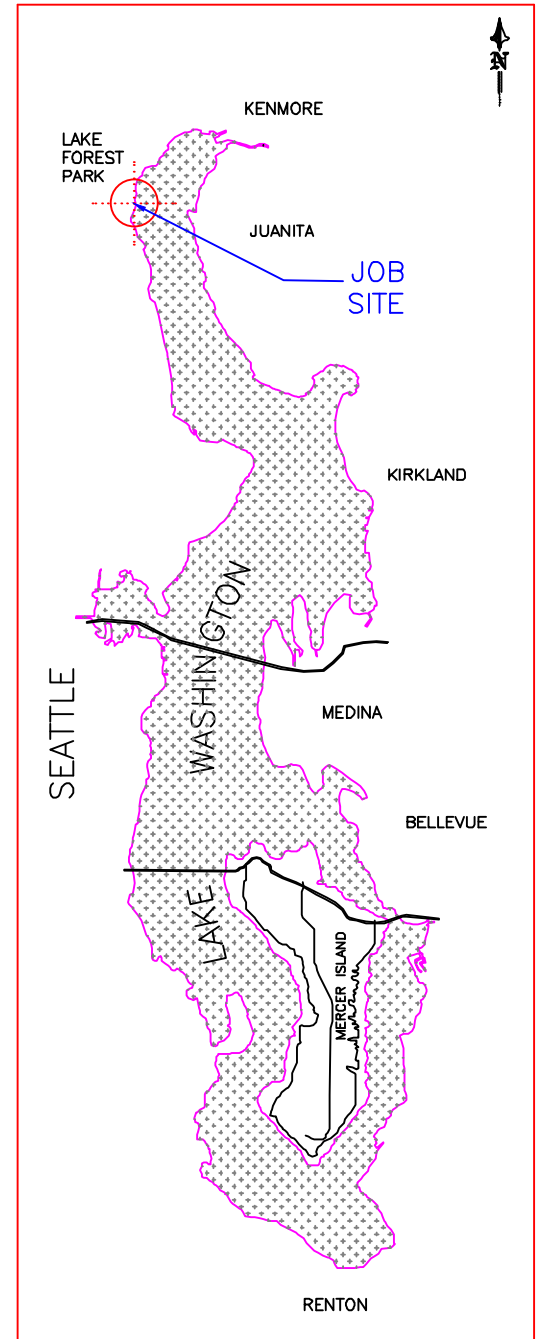


VICINITY MAP/NO SCALE



AREA MAP/NO SCALE

LEGAL DESCRIPTION

1/4 SEC: NW15 26N 04E LAT: 47.744561 (47°44'40.4196"N")
 TAXLOT #: 7738500295 LONG: -122.283629 (122°17'1.0644"W")

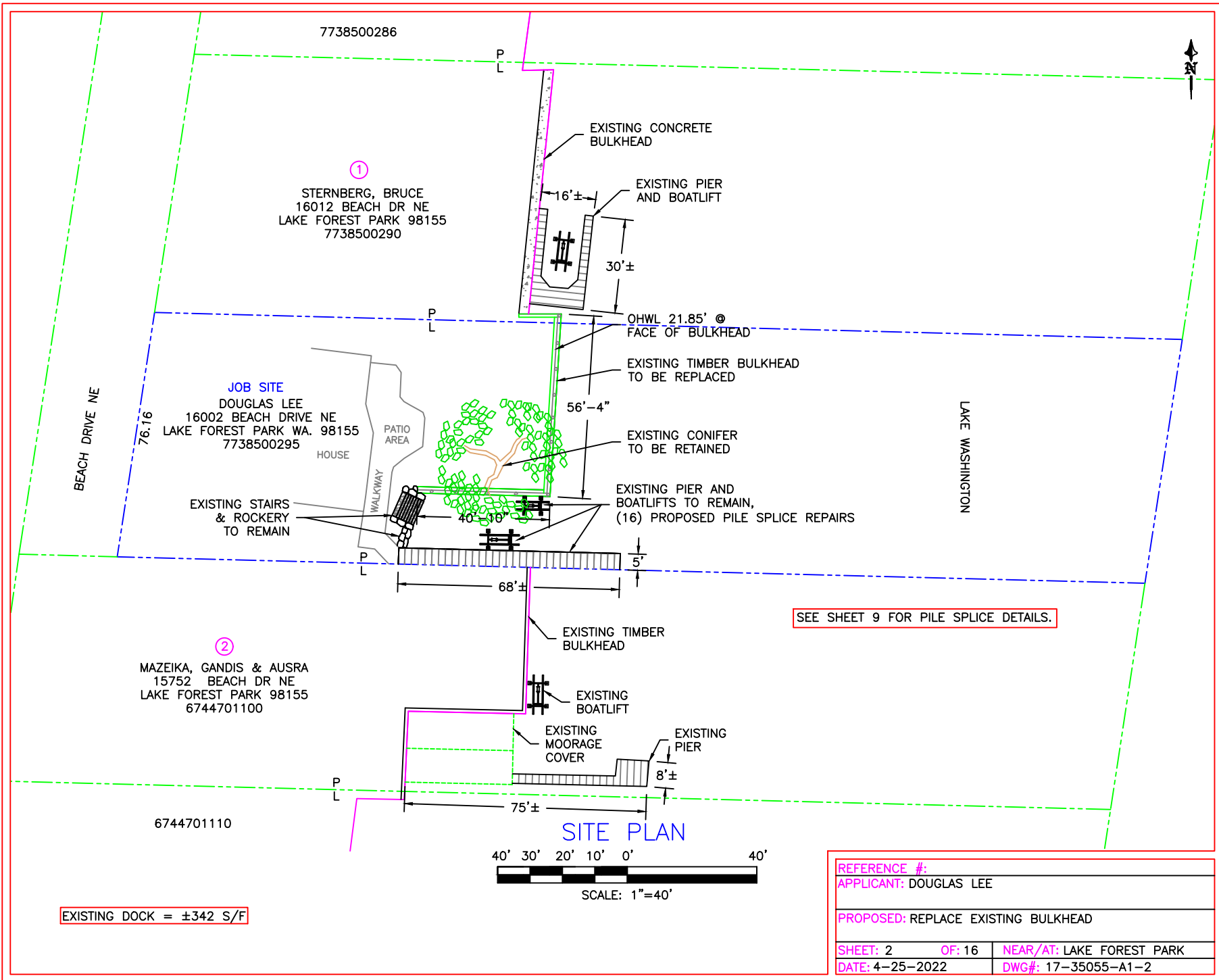
SHERIDAN BEACH ADD & 2ND CL SH LDS ADJ
 PLat Block: 3
 Plat Lot: 14

PROJECT DESIGNED BY:

Waterfront Construction Inc.

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PURPOSE: RESTORE BULKHEAD INTEGRITY	PROJECT NAME: LEE DOUGLAS	PROPOSED: REPLACE EXISTING BULKHEAD	
DATUM: COE 0.0' EST 1919	DATUM: COE 0.0' EST 1919		
ADJACENT OWNERS: ① STERNBERG, BRUCE 16012 BEACH DR NE LAKE FOREST PARK 98155 ② MAZEIKA, GANDIS & AUSRA 15752 BEACH DR NE LAKE FOREST PARK 98155	REFERENCE #:	IN: LAKE WASHINGTON	
	SITE LOCATION ADDRESS: 16002 BEACH DRIVE NE LAKE FOREST PARK WA. 98155	NEAR/AT: LAKE FOREST PARK	
	DWG#: 17-35055-A1-1	COUNTY: KING	STATE: WA
		APPL BY: DOUGLAS LEE	
		SHEET: 1 OF: 16	DATE: 4-25-2022



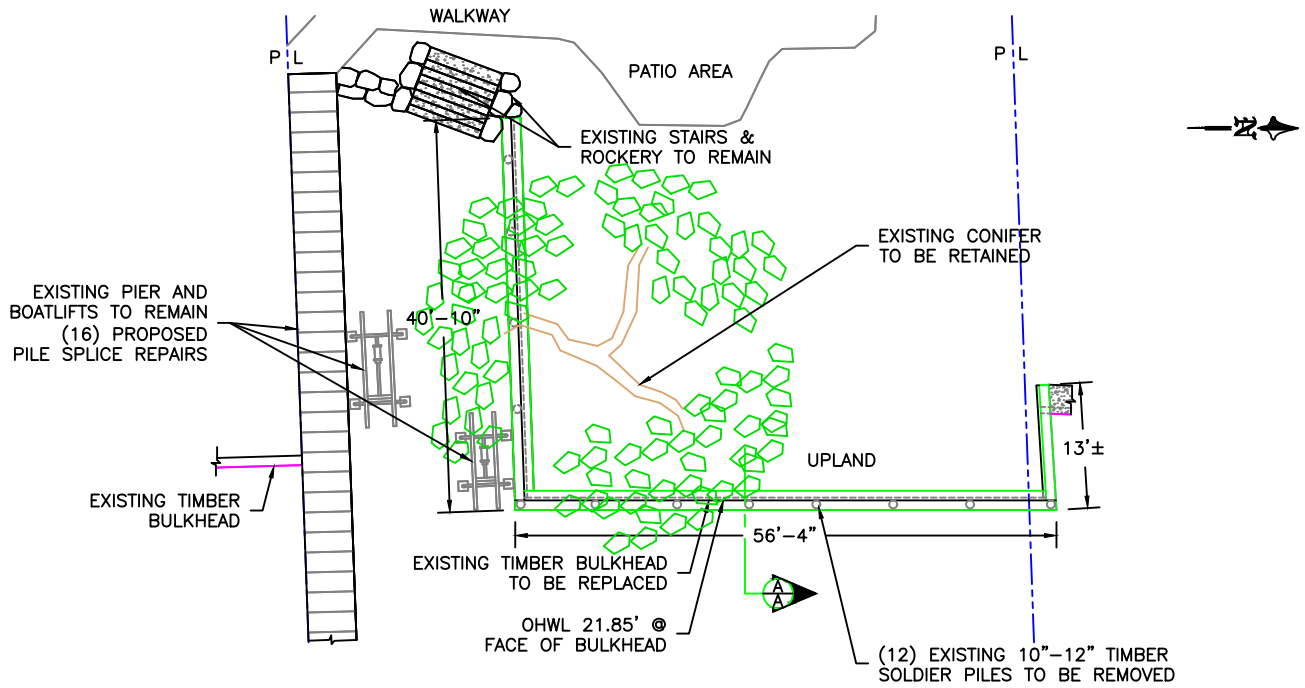
PROJECT DESIGNED BY:
Waterfront Construction Inc.
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REFERENCE #:	
APPLICANT: DOUGLAS LEE	
PROPOSED: REPLACE EXISTING BULKHEAD	
SHEET: 2	OF: 16
NEAR/AT: LAKE FOREST PARK	
DATE: 4-25-2022	DWG#: 17-35055-A1-2

PROJECT DESIGNED BY:

Waterfront Construction Inc.

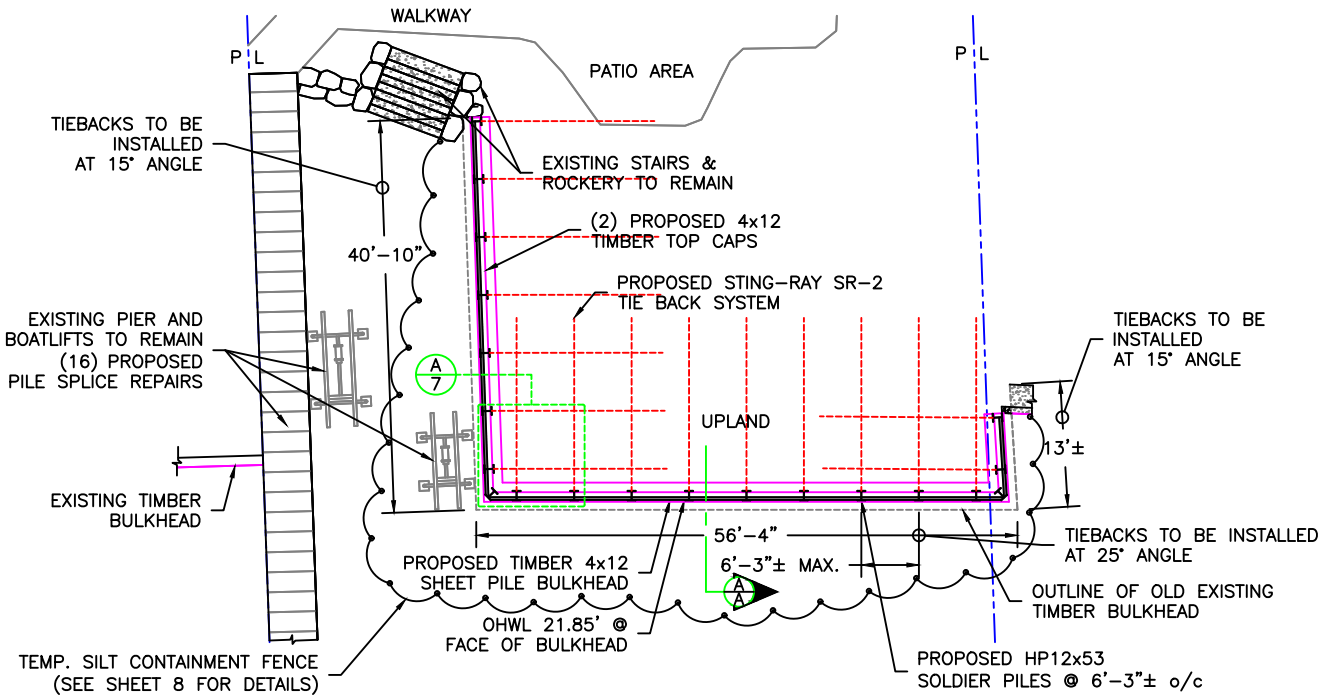
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EXISTING BULKHEAD DETAIL VIEW

SCALE: 1"=20'

EXISTING DOCK = ±342 S/F



PROPOSED BULKHEAD DETAIL VIEW

SCALE: 1"=20'

SEE SHEET 9 FOR PILE SPLICE DETAILS.

REFERENCE #:

APPLICANT: DOUGLAS LEE

PROPOSED: REPLACE EXISTING BULKHEAD

SHEET: 3

OF: 16

NEAR/AT: LAKE FOREST PARK

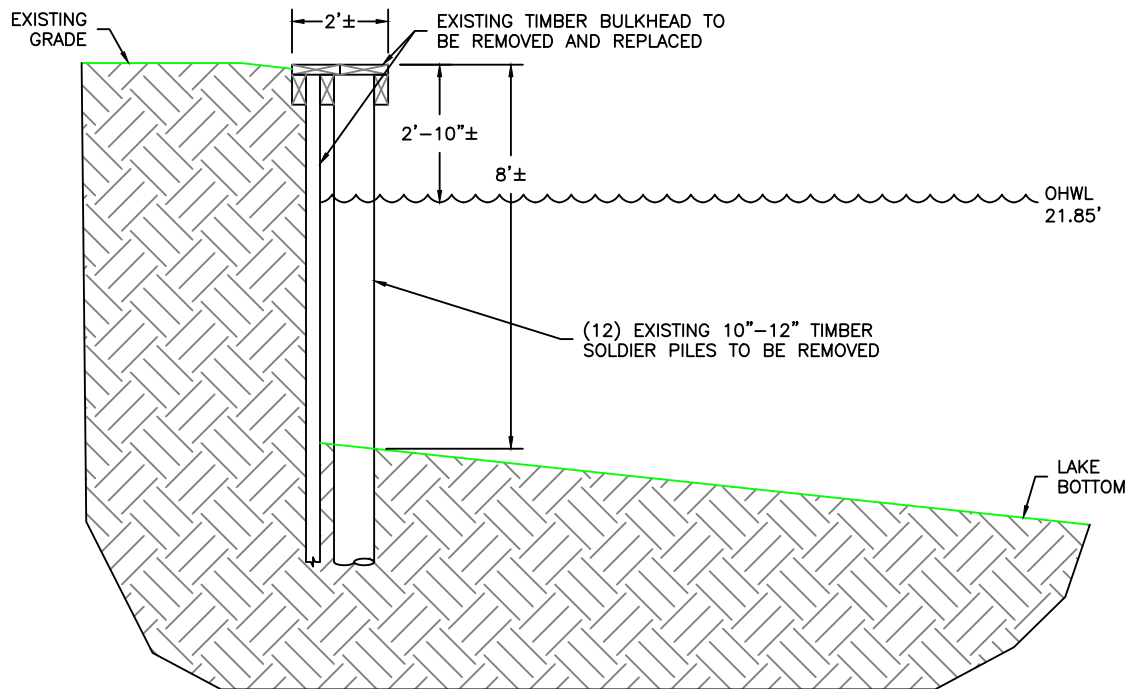
DATE: 4-25-2022

DWG #: 17-35055-A1-3

PROJECT DESIGNED BY:

Waterfront Construction Inc.

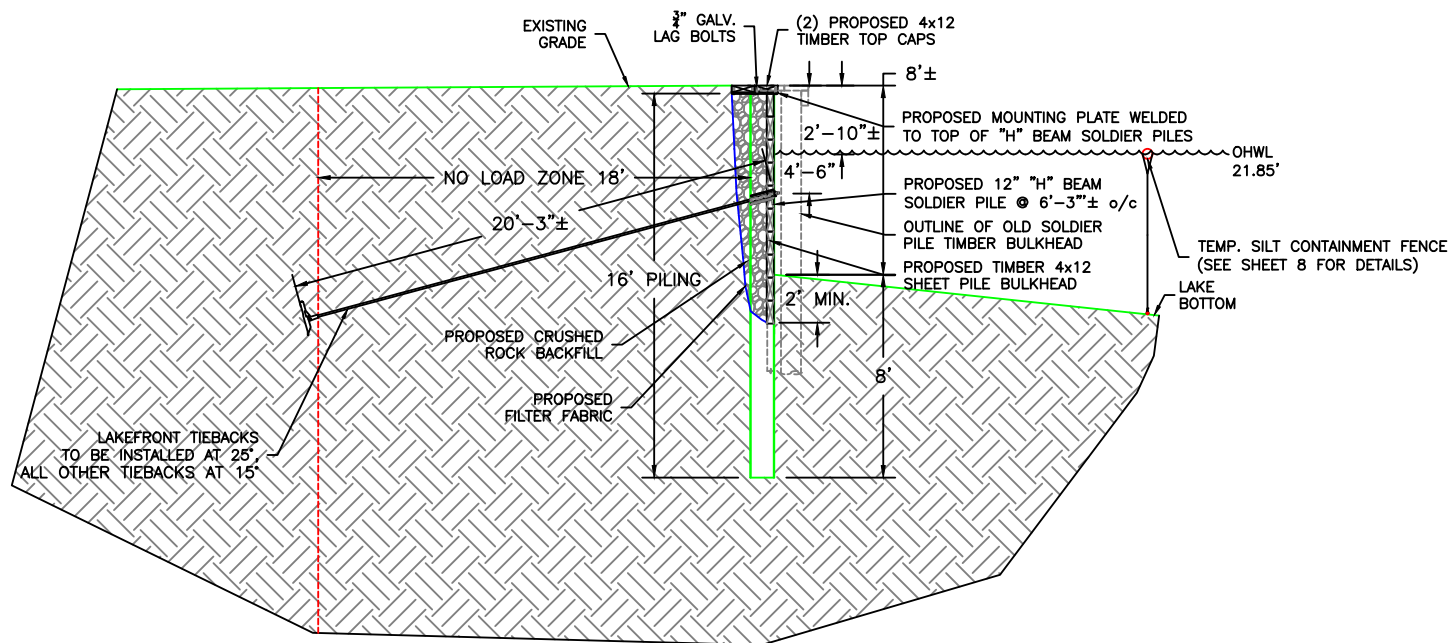
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AUTHORIZATION OF WATERFRONT CONSTRUCTION INC.



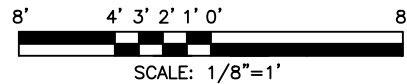
EXISTING BULKHEAD SECTION A-A



REFERENCE #:		
APPLICANT: DOUGLAS LEE		
PROPOSED: REPLACE EXISTING BULKHEAD		
SHEET: 4	OF: 16	NEAR/AT: LAKE FOREST PARK
DATE: 4-25-2022	DWG#:	17-35055-A1-4



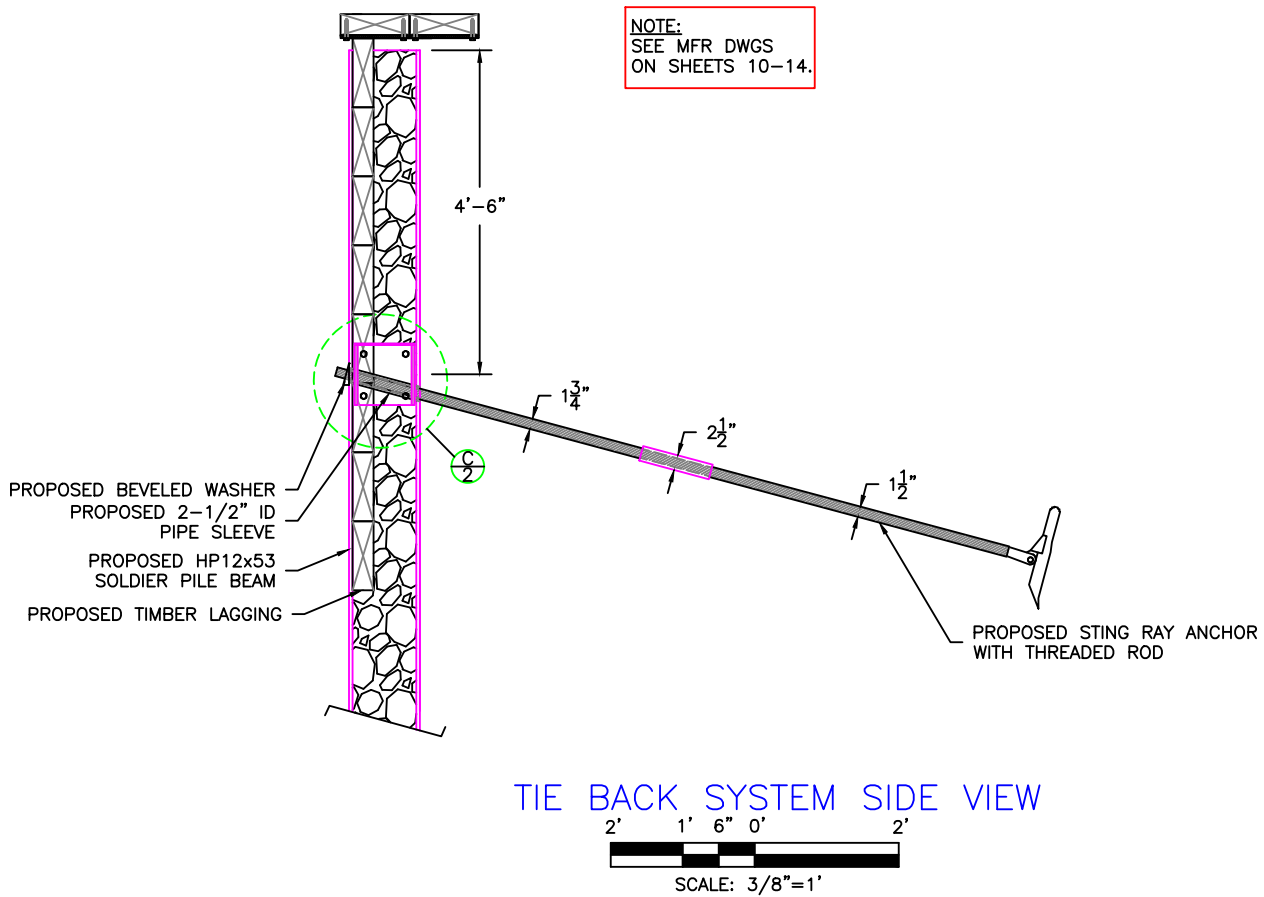
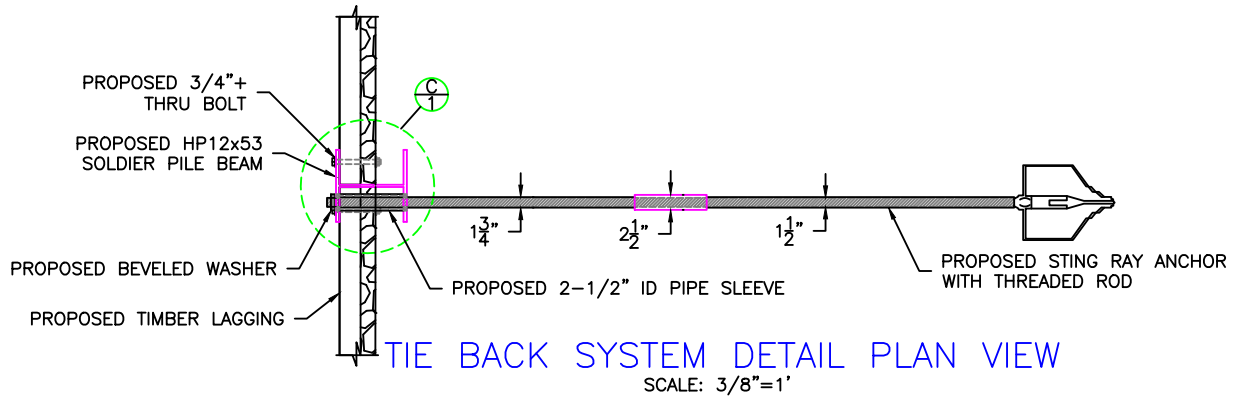
PROPOSED BULKHEAD SECTION A-A



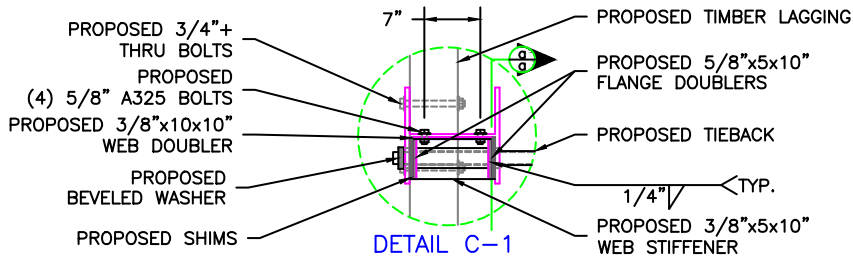
EXCAVATION	
SOIL	30± C/Y
TOTAL=	30± C/Y

FILL	
BACKFILL	30± C/Y
TOTAL=	55± C/Y

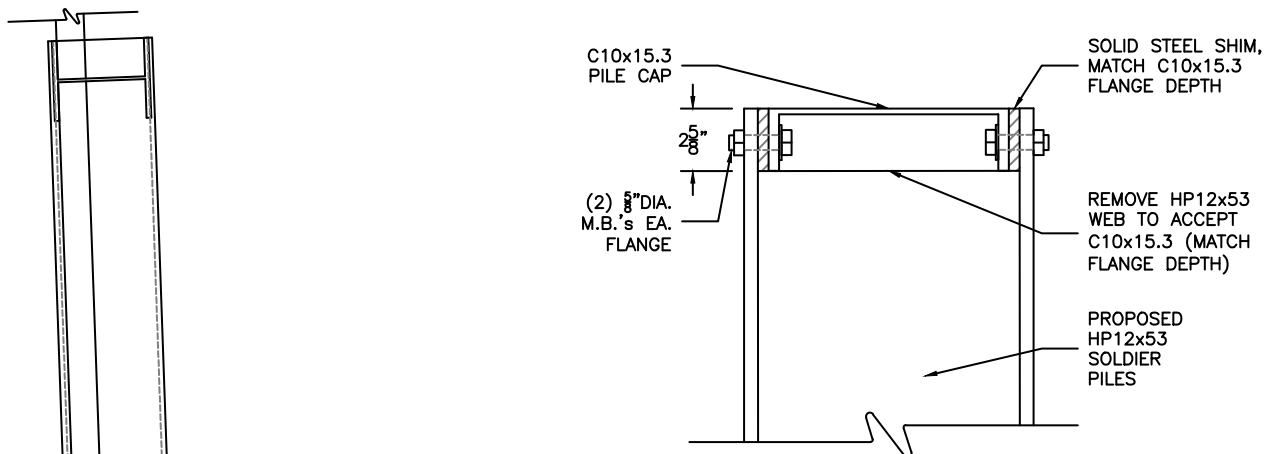
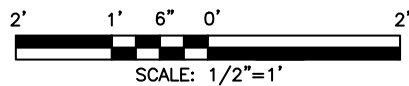
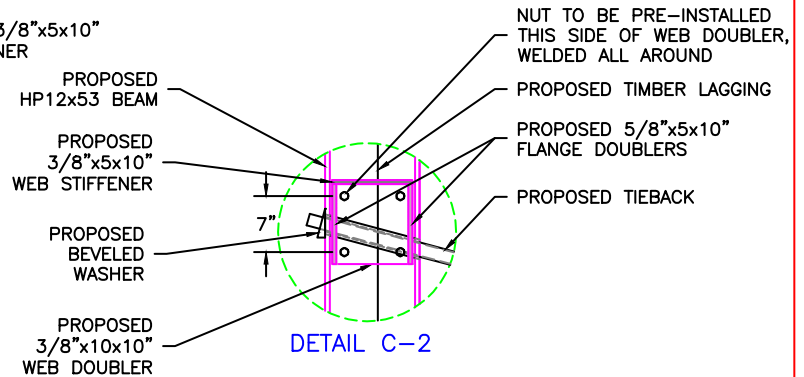
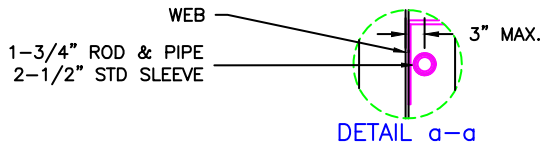
REFERENCE #:	
APPLICANT: DOUGLAS LEE	
PROPOSED: REPLACE EXISTING BULKHEAD	
SHEET: 5	OF: 16
DATE: 4-25-2022	NEAR/AT: LAKE FOREST PARK
	DWG#: 17-35055-A1-5



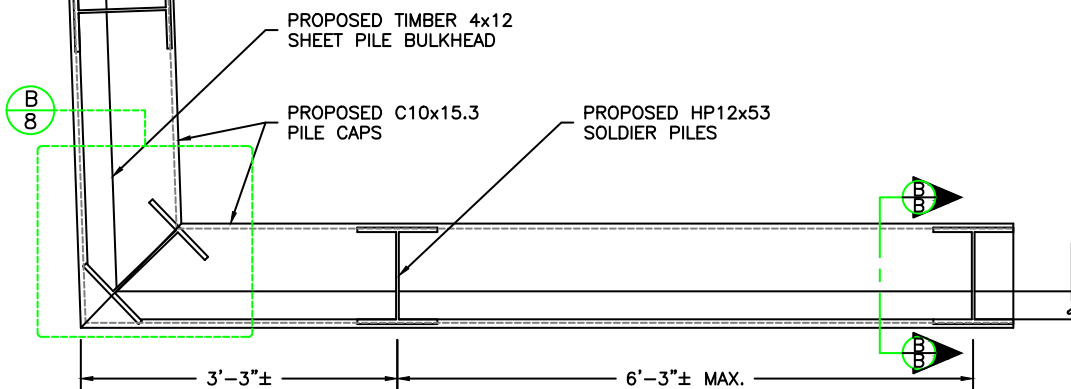
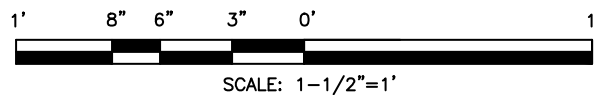
REFERENCE #:		
APPLICANT: DOUGLAS LEE		
PROPOSED: REPLACE EXISTING BULKHEAD		
SHEET: 6	OF: 16	NEAR/AT: LAKE FOREST PARK
DATE: 4-25-2022	DWG#: 17-35055-A1-6	



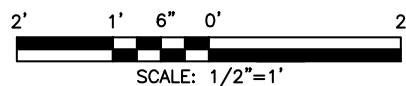
PROJECT DESIGNED BY:
Waterfront Construction Inc.
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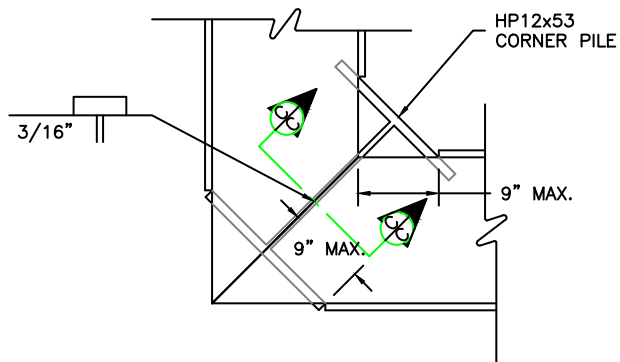
**SECTION B-B:
 PILE CAP TO CHANNEL ATTACHMENT**



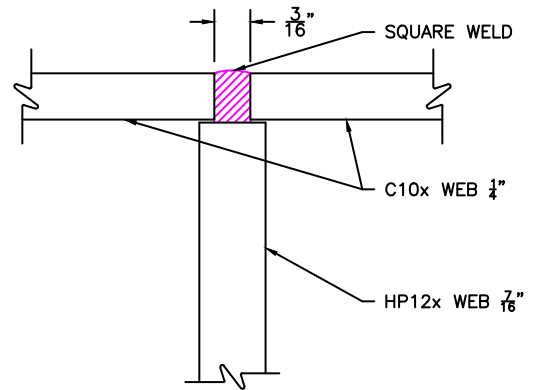
DETAIL A-7



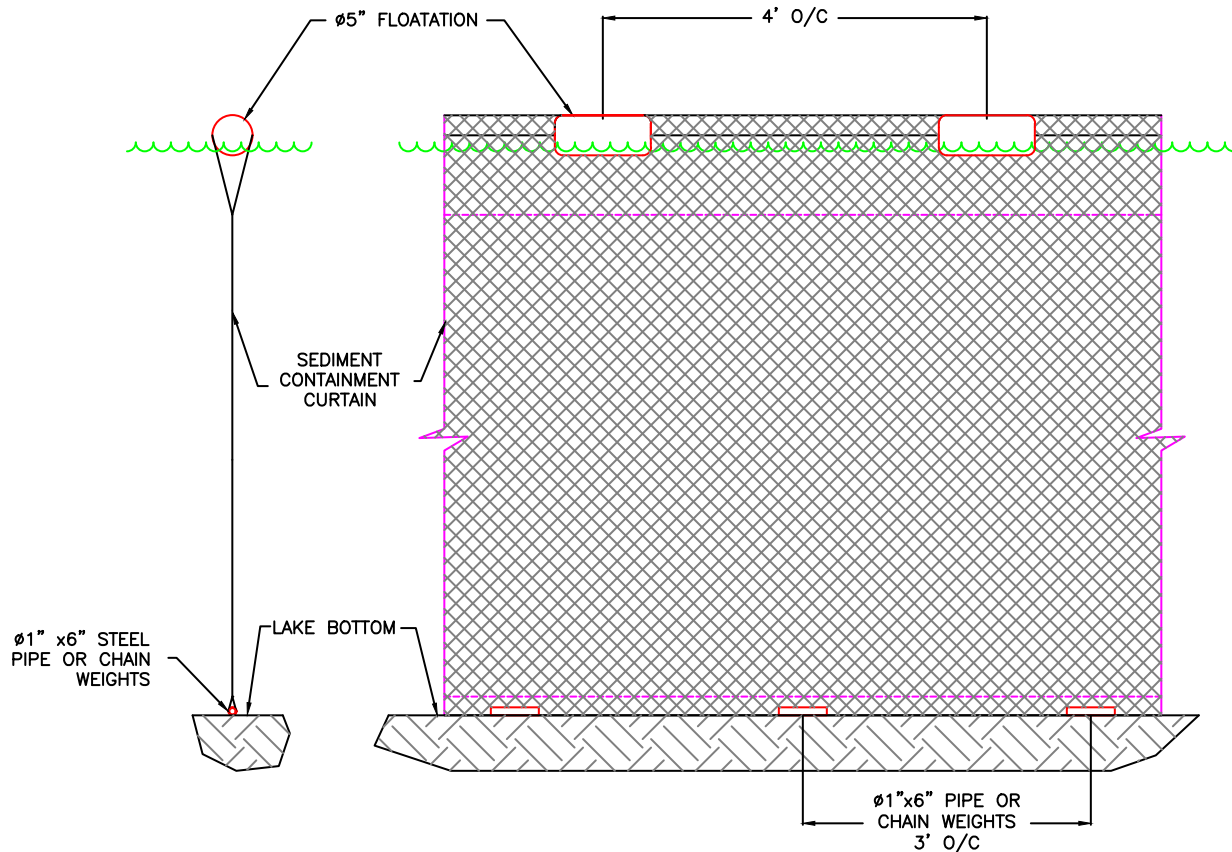
REFERENCE #:		
APPLICANT: DOUGLAS LEE		
PROPOSED: REPLACE EXISTING BULKHEAD		
SHEET: 7	OF: 16	NEAR/AT: LAKE FOREST PARK
DATE: 4-25-2022	DWG#: 17-35055-A1-7	



DETAIL B-8: CORNER WELD



SECTION C-C: CORNER WELD



TEMP. FLOATING SILT CONTAINMENT FENCE

PROJECT DESIGNED BY:

Waterfront Construction Inc.

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REFERENCE #:

APPLICANT: DOUGLAS LEE

PROPOSED: REPLACE EXISTING BULKHEAD

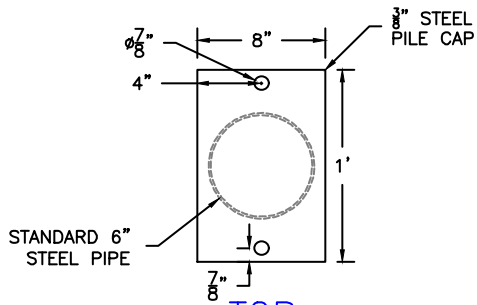
SHEET: 8

OF: 16

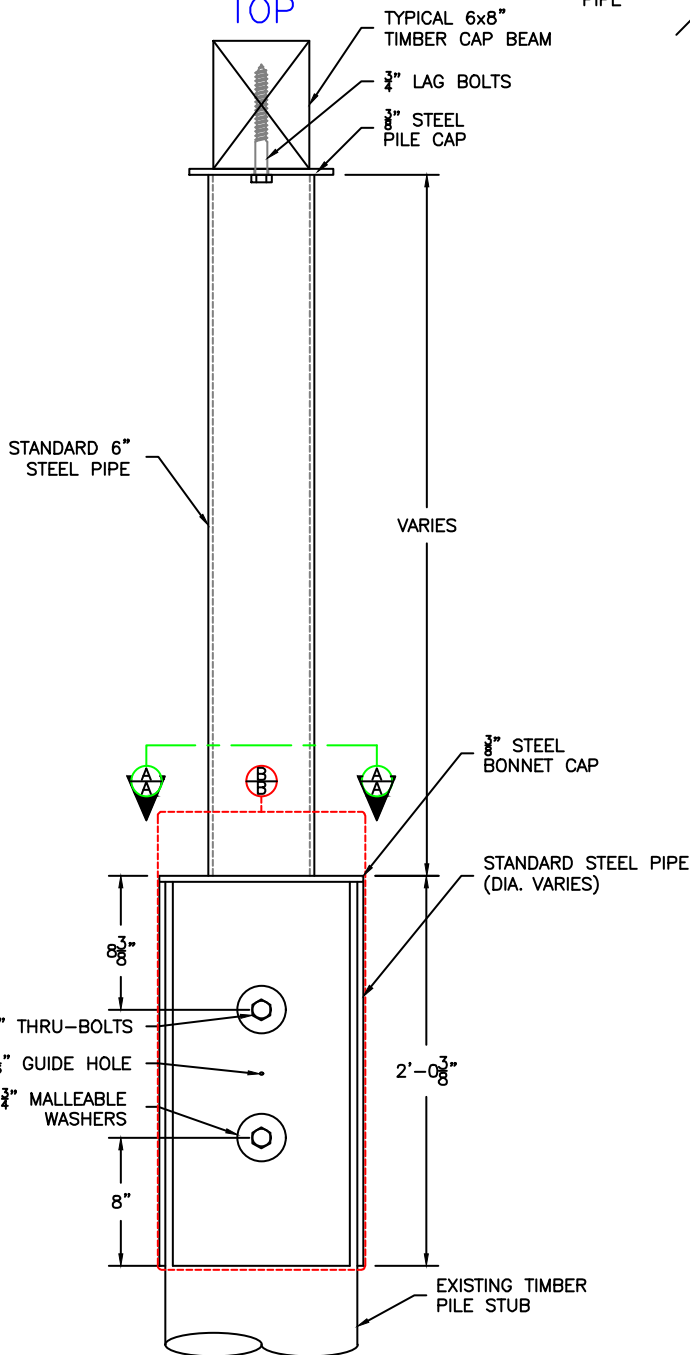
NEAR/AT: LAKE FOREST PARK

DATE: 4-25-2022

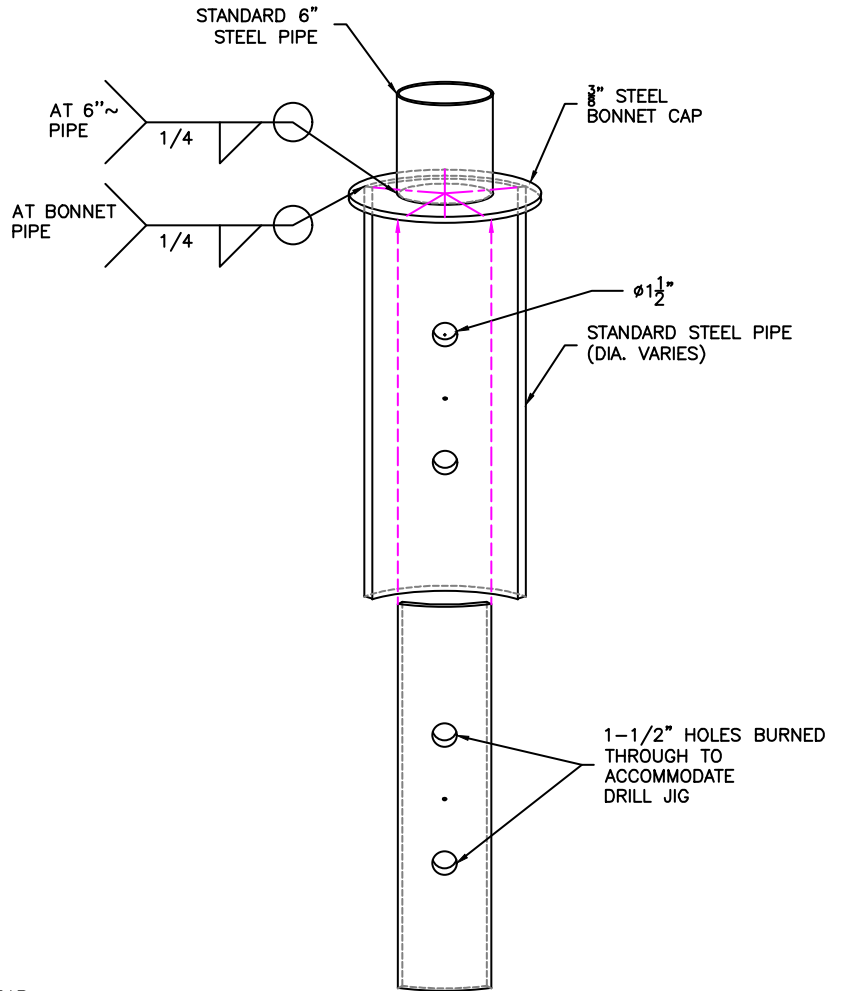
DWG#: 17-35055-A1-8



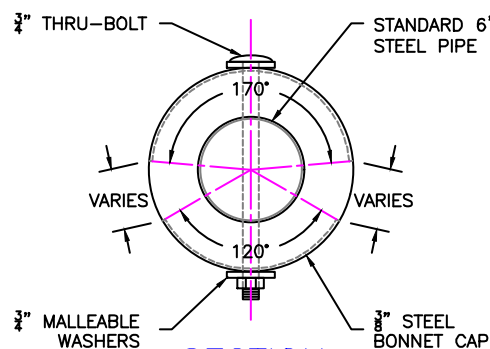
TOP



FRONT



DETAIL
B-B



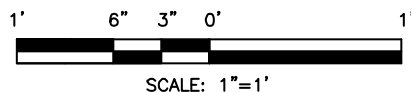
SECTION
A-A

PROJECT DESIGNED BY:

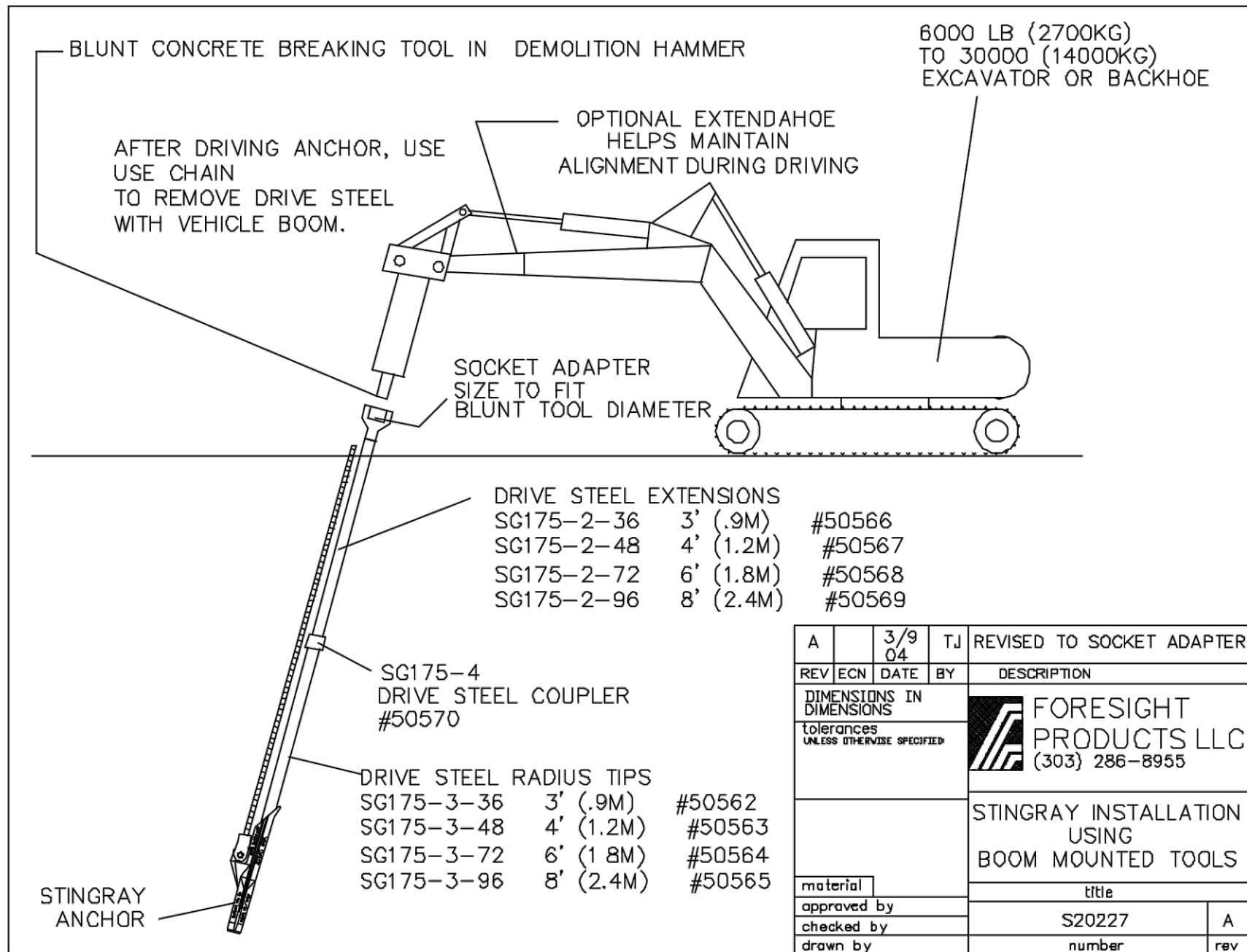
Waterfront Construction Inc.

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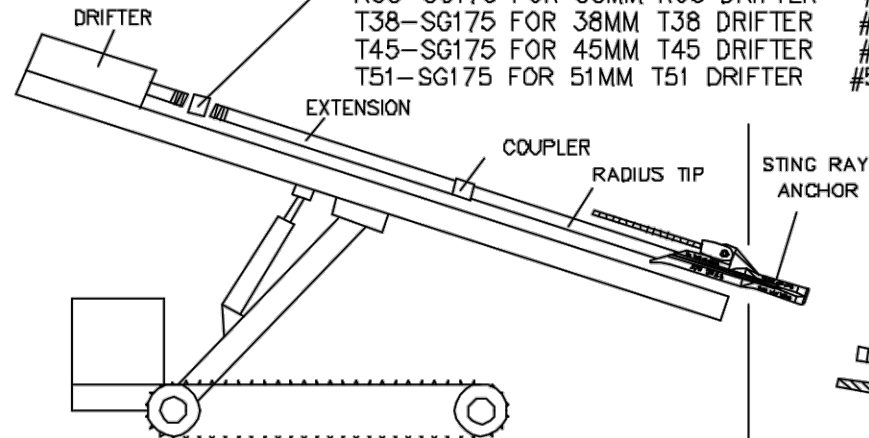
BONNET SPLICE



REFERENCE #:		
APPLICANT: DOUGLAS LEE		
PROPOSED: REPLACE EXISTING BULKHEAD		
SHEET: 9	OF: 16	NEAR/AT: LAKE FOREST PARK
DATE: 4-25-2022	DWG#: 17-35055-A1-9	



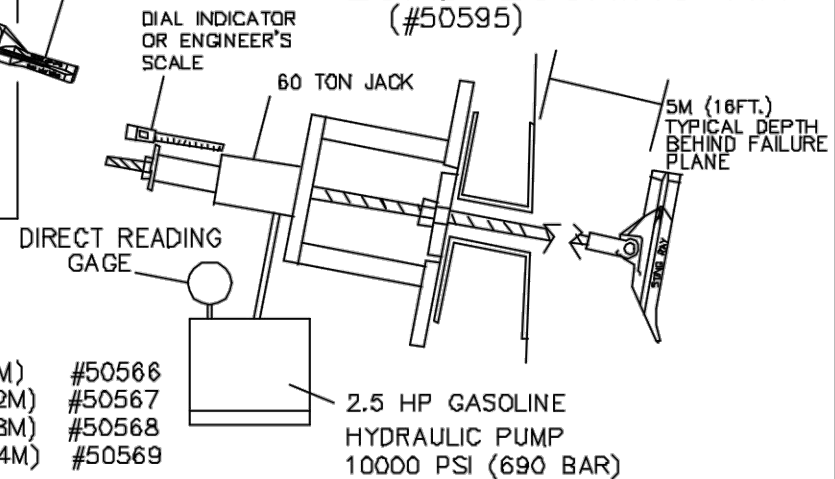
TRACK DRILL



STRIKER BAR ADAPTERS ADAPT TRACK DRILL DRIFTER TO SG175 DRIVE STEEL
 R38-SG175 FOR 38MM R38 DRIFTER #50555
 T38-SG175 FOR 38MM T38 DRIFTER #50556
 T45-SG175 FOR 45MM T45 DRIFTER #50557
 T51-SG175 FOR 51MM T51 DRIFTER #50558

STINGRAY® INSTALLATION

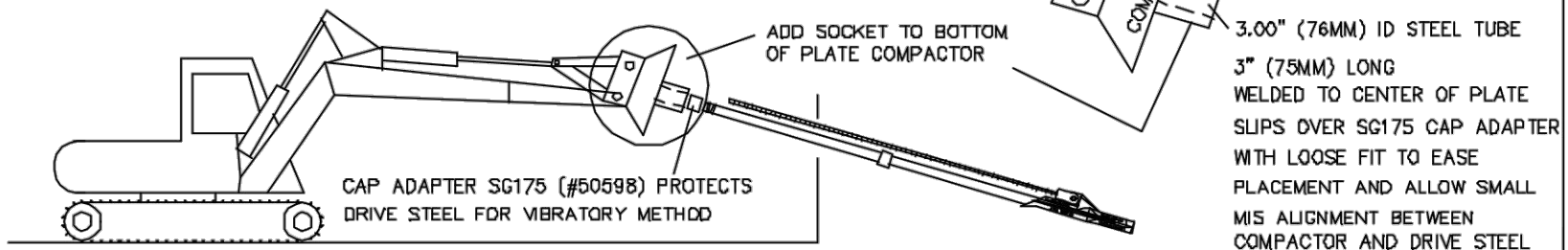
PROOF TESTING WITH SR-LLK LOAD LOCKING KIT (#50595)



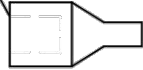
DRIVE STEEL REQUIRED FOR EITHER METHOD:
 LENGTHS OPTIONAL AT CONTRACTOR'S DISCRETION

RADIUS TIPS: (FIRST SECTION, FITS IN ANCHOR)			EXTENSIONS:		
SG175-3-36	3' (.9M)	#50562	SG175-2-36	3' (.9M)	#50566
SG175-3-48	4' (1.2M)	#50563	SG175-2-48	4' (1.2M)	#50567
SG175-3-72	6' (1.8M)	#50564	SG175-2-72	6' (1.8M)	#50568
SG175-3-96	8' (2.4M)	#50565	SG175-2-96	8' (2.4M)	#50569
COUPLER SG175-4 #50570 (JOINS TIPS AND EXTENSIONS)					

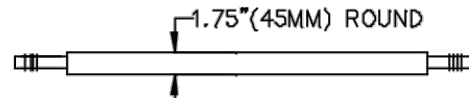
VIBRATORY PLATE COMPACTOR ON HYDRAULIC EXCAVATOR



SOCKET ADAPTER SG175 FOR BLUNT TOOLS
VARIOUS MODELS FOR TOOL SIZES 2.5" - 5"

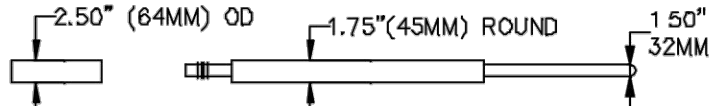


CAP ADAPTER SG175
2.5" (64MM) OD
#50598



EXTENSIONS

SG175-2-36	3' (0.9M) LENGTH	#50566
SG175-2-48	4' (1.2M) LENGTH	#50567
SG175-2-72	6' (1.8M) LENGTH	#50568
SG175-2-96	8' (2.4M) LENGTH	#50569



COUPLER
SG175-4
#50570

RADIUS TIPS

SG175-3-36	3' (0.9M) LENGTH	#50562
SG175-3-48	4' (1.2M) LENGTH	#50563
SG175-3-72	6' (1.8M) LENGTH	#50564
SG175-3-96	8' (2.4M) LENGTH	#50565

TIPS TO FIT MANTA RAY ANCHORS ALSO
AVAILABLE- CONTACT YOUR DISTRIBUTOR

NOTE 1) THIS SYSTEM SHOULD BE USED WITH BOOM MOUNTED DEMOLITION (PAVEMENT BREAKER) HAMMERS
OR VIBRATORY PLATE COMPACTORS MAXIMUM ALLOWABLE IMPACT ENERGY FOR THIS SYSTEM IS 1000 FT-LBS (1360 J)
MAXIMUM ALLOWABLE VIBRO CENTRIFUGAL FORCE IS 20000 LBS (9100 KG).

NOTE 2) THE WRENCH FLATS ON THIS SYSTEM ARE DESIGNED FOR 24" (600MM) ADJUSTABLE WRENCHES.

NOTE 3) STRIKER BAR ADAPTERS (COMBO COUPLERS) ARE AVAILABLE FOR ROCK DRILL USERS THIS ALLOWS THE USER TO
ADAPT A SHORT STRINGRAY RADIUS TIP DRIVE STEEL TO HIS DRILL STEEL SYSTEM.
AVAILABLE FOR R38, T38, T45, T51 DRILL STEEL SYSTEMS

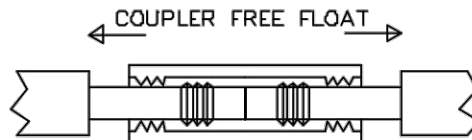
NOTE 4) ALL STINGRAY DRIVE STEEL UTILIZES
LEFT HANDED STINGER THREADS. THIS PATENTED PARTIAL THREAD FORM
REDUCES HEAT BUILD UP IN COUPLERS.

TO COUPLE:


TURN DRIVE STEEL COUNTERCLOCKWISE AS VIEWED FROM ABOVE
UNTILL DRIVE STEEL SLIDES INTO COUPLER AND COUPLER "FREE FLOATS"

TO UN COUPLE:

PULL BACKWARD ON DRIVE STEEL AND TURN CLOCWISE
AS VIEWED FROM ABOVE.



COUPLER SHOWN IN SECTION

A		4/7 2003	TJ	ADDED SOCKET ADAPTERS	
REV	ECN	DATE	BY	DESCRIPTION	
DIMENSIONS IN				 FORESIGHT PRODUCTS LLC (303) 286-8955	
tolerances UNLESS OTHERWISE SPECIFIED X.X ± X.XX ± X.XXX ± ANGLE ± 2°					
				SG175 DRIVE STEEL SYSTEM FOR STINGRAY	
material				title	
approved by				S20226	
checked by					
drawn by TEJ				number	rev

PROCEDURE

- 1) SET POWER UNIT TO PROPER SPEED
- 2) HOLD AT SPECIFIED LOAD
- 3) MEASURE DEFLECTION AT BEGINNING AND END OF REQUIRED TIME
- 4) SUBTRACT BEGINNING DEFLECTION FROM ENDING DEFLECTION
- 5) THIS DIFFERENCE IS THE ANCHOR MOVEMENT
- 6) COMPARE TO ALLOWABLE MOVEMENT

ADAPTER SETTING BAR EXTENDS ANCHOR ROD THROUGH HOLLOW JACK.

IMPORTANT NOTE: ADAPTER SETTING BAR MUST BE ORDERED SEPARATELY FROM SR-LLK LOAD LOCKING KIT TO ENSURE COMPATIBILITY WITH ANCHOR ROD THREADS.

DIAL INDICATOR MOUNTED TO FIXED, NON MOVING REFERENCE MEASURES DEFLECTION AT TOP OF ADAPTER SETTING BAR.

60 TON JACK (DOUBLE ACTING)

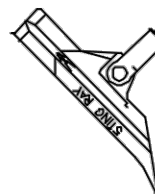
ALTERNATE METHOD: USE TAPE MEASURE OR STEEL TO MEASURE GAP BETWEEN PLATE AND TOP OF JACK

MEASURE THIS GAP

ANGLE BASE

REACTION TUBE

POWER UNIT, CONTROL VALVE, GAGE AND HOSES NOT SHOWN



#50761 SR-LLK ANCHOR LOCKER - TOWERS
KIT INCLUDES 60 TON JACK, REACTION TUBE, ANGLE BASE,
5 HP / 10000 PSI HYDRAULIC POWER UNIT, HOSES,
CONTROL VALVE, AND DIRECT READING GAGE

	1/25 2000	TJ	ORIGIN
REV	DATE	BY	DESCRIPTION



**FORESIGHT
PRODUCTS inc**
(303) 286-8955

STING RAY PROOF TEST
WITH SR-LLK FOR
TOWERS

title

S20316

number

rev

3C\FORSIGHT\SKFTCHF5\S20316

PROCEDURE

- 1) SET POWER UNIT TO PROPER SPEED
- 2) HOLD AT SPECIFIED LOAD
- 3) MEASURE DEFLECTION AT BEGINNING AND END OF REQUIRED TIME
- 4) SUBTRACT BEGINNING DEFLECTION FROM ENDING DEFLECTION
- 5) THIS DIFFERENCE IS THE ANCHOR MOVEMENT
- 6) COMPARE TO ALLOWABLE MOVEMENT
- 7) LOCK OFF AT SPECIFIED LOAD

DIAL INDICATOR MOUNTED TO A FIXED NON MOVING REFERENCE MEASURES DEFLECTION AT TOP OF ADAPTER SETTING BAR.

ADAPTER SETTING BAR EXTENDS ANCHOR ROD THROUGH HOLLOW JACK.

IMPORTANT NOTE: ADAPTER SETTING BAR MUST BE ORDERED SEPARATELY FROM SR-LLK LOAD LOCKING KIT TO ENSURE COMPATIBILITY WITH ANCHOR ROD THREADS.

#50595 SR-LLK ANCHOR LOCKER KIT INCLUDES 60 TON JACK, BASE, HYDRAULIC POWER UNIT, HOSE, CONTROL VALVE, AND DIRECT READING GAGE.

ALTERNATE METHOD FOR NON CRITICAL APPLICATIONS: USE TAPE MEASURE OR ENGINEER'S SCALE TO MEASURE MOVEMENT OF CYLINDER

MEASURE THIS GAP

60 TON JACK

LOAD LOCKER BASE ALLOWS ANCHOR TO BE LOCKED OFF UNDER APPROPRIATE LOAD

HOSE

GAGE

CONTROL VALVE

POWER UNIT

SPREADER PLATE

PART NO.: 50595

DESCRIPTION: SR-LLK FOR RET WALLS

SECTION VIEW

STING RAY

B	1/25 2000	TJ	REVISED FOR TOWERS ADDED PART NUMBERS
REV	DATE	BY	DESCRIPTION



FORESIGHT
PRODUCTS inc
(303) 286-8955

STING RAY PROOF TEST
WITH SR-LLK FOR
RETAINING WALLS

title

S20154

B

number

rev

GENERAL NOTES:

THE GENERAL CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING DIMENSIONS AND SITE CONDITIONS. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS AND UTILITIES OR UNDERGROUND OBSTRUCTIONS NOT SHOWN ON THE PLANS. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL ABANDONED UTILITIES, OR OTHER UNDERGROUND OBSTRUCTIONS THAT INTERFERE WITH THE NEW CONSTRUCTION.

THE GENERAL CONTRACTOR AND SUBCONTRACTORS ARE RESPONSIBLE FOR THE CONSTRUCTION PROCESS AND THE SAFETY OF THE WORKERS. THIS INCLUDES BUT IS NOT LIMITED TO THE CONSTRUCTION SEQUENCE, TEMPORARY HANDRAILS, AND BARRIERS. IT ALSO INCLUDES TRANSPORTING MATERIALS AND CONSTRUCTION EQUIPMENT INTO AND OUT OF THE CONSTRUCTION AREA, TEMPORARY BRACING AND SHORING, AND STABILITY OF ALL TEMPORARY CUT SLOPES.

A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF THE WORK AND SHALL BE ATTENDED BY THE OWNER, THE GENERAL CONTRACTOR, SPECIALTY SHORING SUBCONTRACTOR, AND THE GEOTECHNICAL SPECIAL INSPECTOR. THE PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED TO CLARIFY THE REQUIREMENTS FOR THE WORK TO COORDINATE THE CONSTRUCTION ACTIVITIES, AND TO IDENTIFY CONTRACTUAL RELATIONSHIPS AND RESPONSIBILITIES.

CODE:

THE INTERNATIONAL BUILDING CODE (IBC) 2015 EDITION, WITH THE STATE OF WASHINGTON AMENDMENTS.

SUBSURFACE DESIGN:

ALL SUBSURFACE DESIGN PARAMETERS USED IN THE DESIGN ARE BASED ON THE GEOTECHNICAL REPORT "SUBSURFACE EXPLORATION, GEOLOGIC HAZARD, AND GEOTECHNICAL ENGINEERING REPORT, LEE BULKHEAD, LAKE FOREST PARK" PREPARED BY ASSOCIATED EARTH SCIENCES INCORPORATED (AESI) DATED FEBRUARY 8, 2018.

INSPECTIONS:

- A. STRUCTURAL STEEL ERECTION SHALL HAVE SPECIAL INSPECTIONS PER THE 2015 IBC, CHAPTER 17.
- B. ALL PILES SHALL BE INSPECTED BY AESI.
- C. THE INSTALLATION, LOAD TESTING AND LOCK OFF OF ALL TIEBACKS SHALL BE MONITORED BY AESI. A REPRESENTATIVE SHALL BE ON SITE DURING ALL TIE BACK INSTALLATION OPERATIONS.

STRUCTURAL & MISCELLANEOUS STEEL:

ALL STEEL CHANNELS AND PLATES SHALL CONFORM TO ASTM A36 $F_y = 36,000$ PSI. ALL HP SECTIONS SHALL CONFORM TO ASTM A572 GRADE 50 $F_y = 50,000$ PSI. ALL WELDS SHALL BE 1/4" MINIMUM CONTINUOUS FILLET WELDS USING AWS CLASS E70 ELECTRODES UNLESS NOTED OTHERWISE. ALL WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED BY WABO. ALL FABRICATION & ERECTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF AISC "STEEL CONSTRUCTION MANUAL."

CORROSION PROTECTION TO BE AS RECOMMENDED BY CONTRACTOR.

STEEL BOLTS:

ALL BOLTS AND THREADED RODS SHALL BE ASTM A307 UNLESS NOTED OTHERWISE. CORROSION PROTECTION TO BE AS RECOMMENDED BY CONTRACTOR.

TIEBACK ANCHORS:

TIEBACK ANCHORS SHALL BE STING RAY SR-2 BY EARTH ANCHOR SYSTEMS. INSTALLATION SHALL BE IN ACCORDANCE WITH EARTH ANCHOR SYSTEMS RECOMMENDATIONS.

TIEBACK ANCHORS DESIGN LOAD = 19 KIPS (PER AESI)

TIEBACK ANCHOR TESTING

TIE BACK ANCHOR TESTING SHALL BE PERFORMED IN ACCORDANCE WITH "RECOMMENDATIONS FOR PRESTRESSED ROCK AND SOIL ANCHORS" FOURTH EDITION, BY THE POST-TENSIONING INSTITUTE (PTI 2004).

TIEBACK ANCHOR TEST SHALL BE IN ACCORDANCE WITH REPORT BY AESI DATED FEBRUARY 8, 2108 AS FOLLOWS:

- A. AT LEAST TWO ANCHOR TESTS SHOULD BE PERFORMED TO VERIFY THE DESIGN HOLDING CAPACITY OF THE TIE BACK ANCHORS
- B. AESI SHOULD MONITOR THE ANCHOR TEST PROGRAM
- C. ANCHOR TESTING SHALL CONSIST OF AT LEAST TWO 200-PERCENT VERIFICATION TESTS OF THE DESIGN OR ALLOWABLE LOAD IN THE SOIL PLUS PROOF-LOADING EVERY PRODUCTION ANCHOR TO 130 PERCENT OF THE DESIGN LOAD. VERIFICATION TESTS ARE USUALLY LOADED IN 25-PERCENT INCREMENTS THAT ARE HELD FOR 5 MINUTES UP TO THE FINAL LOAD OF 200-PERCENT DESIGN LOAD. THE 200-PERCENT LOAD IS COMMONLY HELD FOR AN HOUR AND CREEP MEASURED.
- D. EACH PRODUCTION ANCHOR SHALL BE PROOF-LOADED TO 130 PERCENT OF THE DESIGN LOAD. EACH ANCHOR SHALL WITHSTAND THIS LOAD FOR AT LEAST 5 MINUTES.
- E. THE ANCHOR SHALL BE LOCKED OFF AT THE DESIGN LOAD.

STRUCTURAL LUMBER & TIMBER:

ALL LUMBER SHALL BE GRADED IN ACCORDANCE WITH CURRENT WWPA STANDARD GRADING RULES FOR WESTERN LUMBER. USE THE FOLLOWING SPECIES AND MINIMUM GRADE:

TIMBER LAGGING

D.F.-L #1 $F_b=1,000$ PSI OR #2 $F_b=900$ PSI

PROJECT DESIGNED BY:

Waterfront Construction Inc.

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REFERENCE #:		
APPLICANT: DOUGLAS LEE		
PROPOSED: REPLACE EXISTING BULKHEAD		
SHEET: 15	OF: 16	NEAR/AT: LAKE FOREST PARK
DATE: 4-25-2022	DWG#: 17-35055-A1-15	

MISCELLANEOUS:

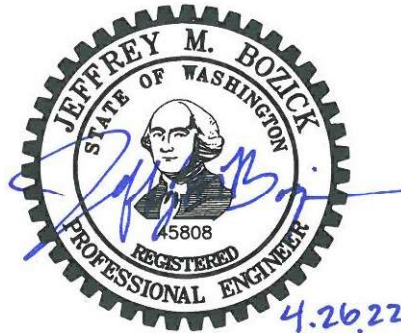
CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD. REPETITIVE FEATURES MAY BE DRAWN OR CALLED OUT ONCE, BUT SHALL BE COMPLETELY PROVIDED AS IF DRAWN IN FULL. ALL WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND INDUSTRY STANDARDS. PROVIDE TEMPORARY BRACING AS REQUIRED UNTIL ALL PERMANENT CONNECTIONS AND STIFFENINGS HAVE BEEN INSTALLED.

SAFETY:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION, TEMPORARY BRACING, SHORING, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES IN CONNECTION WITH THE WORK.

THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR THE CONDITION ON THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

THE REQUIRED AND/OR IMPLIED DUTY OF THE ENGINEER TO CONDUCT CONSTRUCTION REVIEW OF CONTRACTOR'S PERFORMANCE DOES NOT, AND IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN ON OR NEAR THE CONSTRUCTION SITE.



The engineering seal on these drawings represents the following limited scope of structural engineering design: engineering analysis and design of the typical steel driven pile, typical tieback locations with demand loads, typical connection of tieback to piles and steel pile cap connection to piles at bulkhead wall corners. Our design is based on the recommendations made in the report "Subsurface Exploration, Geologic Hazard, and Geotechnical Engineering Report, Lee Bulkhead, Lake Forest Park" prepared by Associated Earth Sciences Incorporated, dated February 8, 2018.

Our scope of work does not include analysis of the timber lagging, connection of timber lagging to piles, tieback components, existing bulkhead piles, silt containment fence, bulkhead top cap, existing stairway; corrosion protection, existing pier piles or pile splice repair. Site information, including dimensions and plan layout has been provided to us by Waterfront Construction, Inc.

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