AGENDA

WARRENTON URBAN RENEWAL AGENCY

September 1, 2022 – 3:00 P.M.
Warrenton City Commission Chambers – 225 South Main Avenue
Warrenton, OR 97146

Public Meetings will also be audio and video live streamed. Go to https://www.ci.warrenton.or.us/administration/page/live-stream-public-meetings for connection instructions.

1. CALL TO ORDER

2. ROLL CALL

3. BUSINESS

    A. Consideration of Request to Advertise for Bids - Warrenton Work Pier Rehabilitation Project

4. ADJOURN

Warrenton City Hall is accessible to the disabled. An interpreter for the hearing impaired may be requested under the terms of ORS 192.630 by contacting Dawne Shaw, City Recorder, at 503-861-0823 at least 48 hours in advance of the meeting so appropriate assistance can be provided.

AGENDA MEMORANDUM

TO: Warrenton Urban Renewal Agency
FROM: Jane Sweet, Harbormaster
DATE: September 1, 2022
SUBJ: Warrenton Commercial Work Pier Rehab Improvements Project

SUMMARY

The City of Warrenton Marinas has contracted PBS engineering to evaluate and prepare the bid documents to repair the existing commercial work pier in the Warrenton Marina. PBS engineering has recently completed these bid documents.

The City of Warrenton Marinas is seeking approval to advertise the request for bids for the Warrenton Commercial Work Pier Rehab Improvement project. This project is being funded by Warrenton Urban Renewal and The City of Warrenton Marinas with approximately $931, 000 coming from Urban Renewal and the remainder coming from Warrenton Marinas Capital Improvements

RECOMMENDATION/SUGGESTED MOTION

Staff recommends the following motions;

"I move to approve advertising the request for bids for the Warrenton Commercial Work Pier Rehab Improvements Project."

ALTERNATIVE

1) Other action as deemed appropriate by Urban Renewal
2) None recommended

FISCAL IMPACT

This project has been approved by the Urban Renewal Agency and City Commission and is included in the City of Warrenton 2022-2023 adopted budget.

Approved by City Manager: M. Workman, by dBaer

All supporting documentation, i.e., maps, exhibits, etc., must be attached to this memorandum.

BID SCHEDULE
WORK PIER REHABLITATION

Bid Item No.	Description	Quantity	Unit	Unit Price	Bid Amount
1	Mobilization, surveying, cleanup, and demobilization	1	LS		
2	Access and temporary support system	1	LS		
3	Temporary work platforms, containment and BMP's	1	LS		
4	Top of deck spall repair (1" deep to full slab depth) at WT8/E, WT1/C, WT1/E, WP21, 29	37	SF		
5	Top of deck crack repair (1/16" or larger) at WT,WP1-31,ET4	720	LF		
6	Remove and replace concrete over metal deck at WT8,WT10, WT	3225	SF		
7	Pile cap strengthening at @ WT1-9, WP1, WP3-31, ET0.5-7	47	EA		
8	Timber railing (middle and/or lower railing at guardrails) at WTC & WTE, ETB	390	BF		
9	Remove and replace pile cap at WT10	2	EA		
10	Remove and replace timber bullrail at WT8, WTA, WT10	1210	BF		
11	Remove and replace timber edge beam at WTA	1	EA		
12	Re-plumb and connect displaced pile (WT10/C)	1	EA		
13	Re-plumb and connect displaced pile (WP13/A)	1	EA		
14	Repair, re-plumb, and connect displaced pile (WP31/D)	1	EA		
15	Re-align and connect existing steel fender pile at WT10	6	EA		
16	Deck joint seal at WTE, WTG & WT8	60	LF		
17	Reconnect displaced bullrail at ET0.5/B	1	EA		
18	Re-attach middle railing at guardrail at WP28/F	1	EA		
19	Remove and reconnect bullrail/guardrail for deck replacement at WT	1100	LF		
20	Joist strengthening at WP1-WP3; WT8-WPE;WP4-WP5;	12	EA		

	WPC-WPD				
21	Remove and replace fender piles at WP14, 18, 25, 30, 31,ET5 & ET6.5	7	EA		
22	Remove and replace timber brace at WT5/C, WT10/E & 10/G	3	EA		

Total Bid Amount

Abbreviations:

LF = Linear Feet
BF = Board Feet
SF = Square Feet
WT = West Trestle
EA = Each
ET = East Trestle
WP = Work Pier

Warrenton Work Pier Rehabilitation

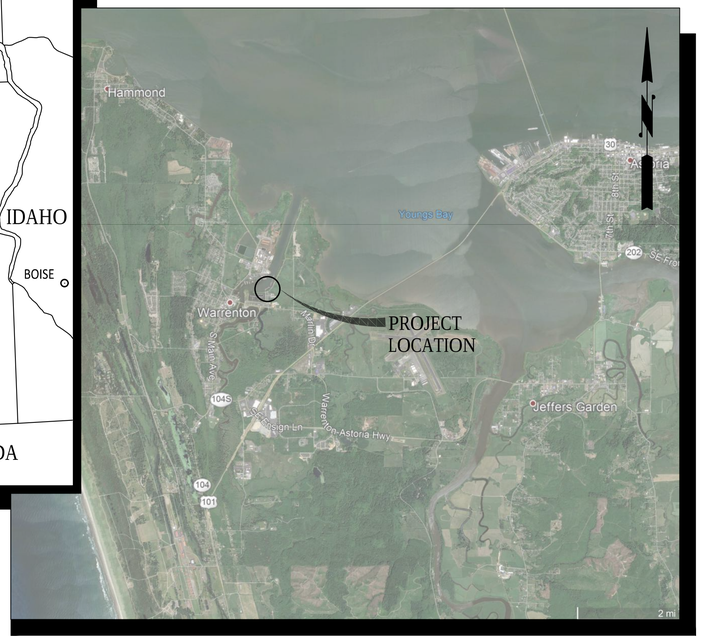
Cost Estimate (All Phases)

Item No.	Pier Section	Item Description	Location	Phase	Unit	Qty	Unit Cost	Total Cost
1	ALL	Mobilization, surveying, cleanup, and demobilization (10%)		ALL	LS	1	$91,400	$91,400
2	ALL	Access and Temporary Support System		ALL	LS	1	$130,000	$130,000
3	ALL	Temporary work platforms, containment and BMP's		ALL	LS	1	$60,000	$60,000
4	WT & WP	Top of deck spall repair (1" deep to full slab depth) @WT8/E, WT1/C, WT1/E, WP21, 29	WT8/E, WT1/C, WT1/E, WP21, 29	1	SF	37	$230	$8,510
5	WT, WP, ET	Top of deck crack repair (1/16" or larger) @WT,WP1-31,ET4	WT,WP1-31,ET4	1	LF	720	$80	$57,600
6	WT	Remove and replace concrete over metal deck @ WT8,WT10, WT	WT8,WT10, WT	1, 2	SF	3225	$63	$204,600
7	WP	Pile cap strengthening @ WT1-9, WP1, WP3-31, ET0.5-7	WP1, WP3, WP4, WT1-WT7,WT8 & 9, ET0.5-ET7,WP5-WP31	1,2,3	EA	47	$5,083	$238,900
8	WT, ET	Timber railing (middle and/or lower railing at guardrails) @ WTC & WTE, ETB	WTC & WTE, ETB	1	BF	390	$12	$4,680
9	WT	Remove and replace pile cap @ WT10	WT10	1	EA	2	$15,000	$30,000
10	WT	Remove and replace timber bullrail @ WT8, WTA, WT10	WT8, WTA, WT10	1	BF	1210	$18	$21,780
11	WT	Remove and replace timber edge beam @ WTA	WTA	1	EA	1	$10,500	$10,500
12	WT	Re-plumb and connect displaced pile (WT10/C)	WT10/C	1	EA	1	$1,750	$1,750
13	WP	Re-plumb and connect displaced pile (WP13/A)	WP13/A	1	EA	1	$3,500	$3,500
14	WP	Repair, re-plumb, and connect displaced pile (WP31/D)	WP31/D	1	EA	1	$8,000	$8,000
15	WT	Re-align and connect existing steel fender piles @ WT10	WT10	1	EA	6	$2,350	$14,100
16	WT	Deck joint seal at WTE, WTG & WT8	At WTE, WTG & WT8	1	LF	60	$70	$4,200
17	ET	Reconnect displaced bullrail at ET0.5/B	ETB	1	EA	1	$2,300	$2,300
18	WP	Re-attach middle railing at guardrail @ WP28/F	WP28/F	1	EA	1	$30	$30
19	WT	Remove and reconnect bullrail/guardrail for deck replacement @ WT	WT	2	LF	1100	$12	$13,200
20	WP	Joist strengthening at WP1-WP3; WT8-WPE;WP4-WP5; WPC-WPD	WP1-WP3; WT8-WPE;WP4-WP5; WPC-WPD	3	EA	12	$1,200	$14,400
21	WP, ET	Remove and replace fender piles @ WP14, 18, 25, 30, 31,ET5 & ET6.5	WP14, 18, 25, 30, 31,ET5 & ET6.5	3	EA	7	$12,000	$84,000
22	West Trestle	Remove and replace timber brace @ WT5/C, WT 10/E & 10/G	WT5/C, 10/E & 10/G	3	EA	3	$600	$1,800
Construction Subtotal								$1,005,251
30% Construction Contingency								$301,575
Total Construction Estimate								$1,306,826
Soft cost - permit, bidding, CM, etc. (10% construction estimate)								$130,683
Total Estimate								$1,437,508

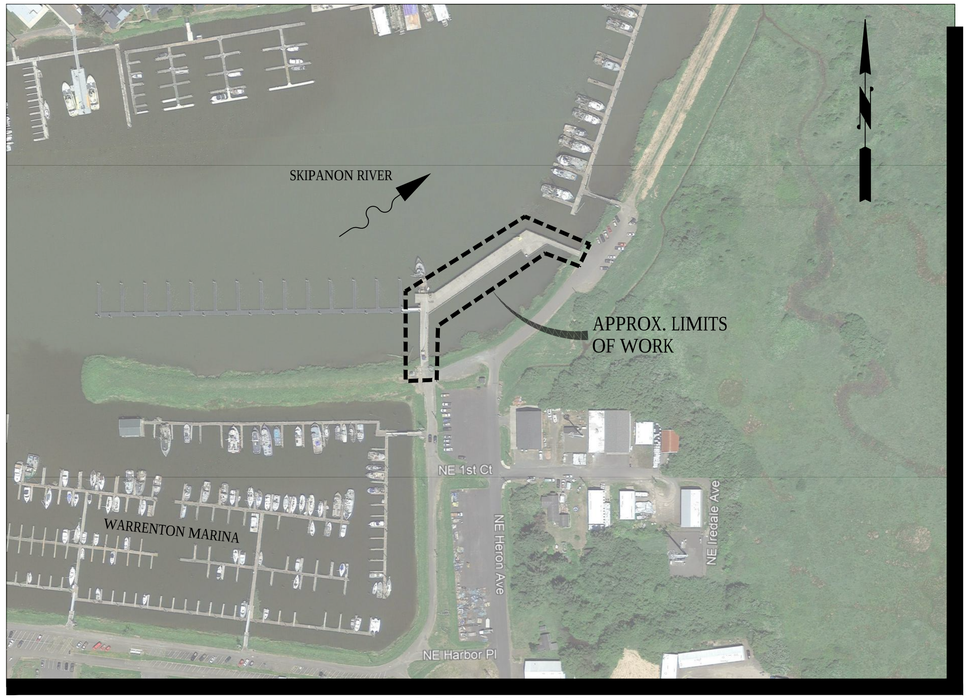
CITY OF WARRENTON

WORK PIER REHABILITATION

OREGON KEY MAP



VICINITY MAP



LOCATION MAP
(WARRENTON, OREGON)

TIDAL DATA

Station: 9439040, Astoria, OR	MLLW (feet)	NAVD88 (feet)
HMT	12.37	12.58
BASE FLOOD	11.79	12.00
MHHW	8.61	8.82
MHW	7.94	8.15
MTL	4.55	4.76
MSL	4.51	4.72
DTL	4.31	4.52
MLW	1.17	1.38
MLLW	0.00	0.21
NAVD88	-0.21	0.00
MIN	-3.85	-3.64

HMT	Highest Measured Tide (1/27/1983)
BASE FLOOD	100-Year Flood
MHHW	Mean Higher-High Water
MHW	Mean High Water
MTL	Mean Tide Level
MSL	Mean Sea Level
DTL	Mean Diumal Tide Level
MLW	Mean Low Water
MLLW	Mean Lower-Low Water
NAVD88	North American Vertical Datum of 1988
MIN	Lowest Observed Water Level (1/28/1979)

SHEET INDEX

SHEET INDEX (CONT.)

MARK	REVISION DESCRIPTION	BY	APP.	DATE

BergerABAM
700 NE Multnomah Street, Suite 500
Portland, Oregon 97232-4120
(503) 872-4100 FAX: (503) 872-4101

CITY OF WARRENTON
225 S. MAIN ST.
P.O. BOX 250
WARRENTON, OR 97146
503-861-2233
FAX: 503-861-2351

REGISTERED PROFESSIONAL ENGINEER 48114PE OREGON JAN. 23, 2004 HOWARD A. WELLS, III
RENEWS: 6/30/20

DRAWN BY JTH
DESIGN BY BDB
CHECK BY TSM
PROJ MGR HAW

CITY OF WARRENTON
WORK PIER REHABILITATION

COVER SHEET

DRAWING NO. G-01
PROJECT NO. A18.0171
DATE: 4/24/19
SHEET NO. 1 OF 21

ABBREVIATIONS:

&	AND
@	AT
APPROX	APPROXIMATE
AR	ANCHOR RODS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BF	BOARD FEET
BLKG	BLOCKING
BLW	BELOW
BOT	BOTTOM
BTWN	BETWEEN
CIP	CAST IN PLACE
CL, ℄	CENTER LINE
CLR	CLEAR
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
DEMO	DEMOLISH
DIA OR Ø	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
E	EAST
EA	EACH
EF	EACH FACE
EL	ELEVATION
ELEC	ELECTRIC
EMBED	EMBEDMENT
EQ	EQUAL
EW	EACH WAY
EXST	EXISTING
FS	FAR SIDE
FT	FOOT, FEET
FV	FIELD VERIFY
GA	GAGE
GALV	GALVANIZED
GVW	GROSS VEHICLE WEIGHT
HPC	HIGH PERFORMANCE CEMENTITIOUS
HS	HIGH STRENGTH
HT	HEIGHT
IN	INCH
INFO	INFORMATION
KSI	KIPS PER SQUARE INCH
LBS	POUNDS
LF	LINEAR FEET
LLV	LONG LEG VERTICAL
MAX	MAXIMUM
MFT	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MET	METAL
#	NUMBER
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
PCF	POUNDS PER CUBIC FOOT
PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PT	PRESSURE TREATED
QTY	QUANTITY
REF	REFERENCE
REINF	REINFORCE, REINFORCEMENT
REQD	REQUIRED
REV	REVISION
S	SOUTH
SF	SQUARE FOOT
SIM	SIMILAR
SPA	SPACE, SPACING
SPEC	SPECIFICATION
SQ	SQUARE
T&B	TOP AND BOTTOM
THRU	THROUGH
TOC	TOP OF CONCRETE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
W	WEST
W/	WITH
W/O	WITHOUT

LEGEND:

NORTH ARROW

X / X-X — SECTION, DETAIL, OR ELEVATION CALLOUT

DRAWING WHERE SECTION, DETAIL OR ELEVATION IS FIRST SHOWN OR CALLED FROM

X / X-X — SECTION OR ELEVATION CUT

X / X-X TITLE SCALE: X" = X'-XX" — PLAN, SECTION, DETAIL, OR ELEVATION

X / X-X — PHOTO - INDICATES APPROXIMATE PERSPECTIVE

EXISTING PLUMB PILE

EXISTING BATTERED PILE (1:12) UNO

XX1 — BENT NUMBER

XXA — ROW LETTER

P — EXISTING POWER/ ELECTRICAL CONDUIT

W — EXISTING WATER LINE

SPOT ELEVATION

EXISTING 3x8 PILE BRACING ATTACHED AT TOP OF PILE

EXST / D-1 — SPAN DIRECTION OF EXISTING 3" UNREINFORCED CONCRETE OVER 1 1/2" DEEP METAL DECK W/ 4 1/2" FLUTE SPACING

EXST / D-2 — SPAN DIRECTION OF EXISTING 3 3/4" CONCRETE WITH #4 REBAR AT 12" OC, EACH WAY, OVER 3/4" DEEP METAL DECK W/ 3" FLUTE SPACING

D-3 — SPAN DIRECTION OF NEW 3" CONC W/ #4 AT 12" OC EA WAY AT MID DEPTH OF CONC, OVER 1 1/2" DEEP METAL DECK

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CITY OF WARRENTON
WORK PIER REHABILITATION

DRAWING LEGEND AND ABBREVIATIONS

DRAWING NO. **S-01**
PROJECT NO. A18.0171
DATE: 4/24/19
SHEET NO. 2 OF 21

Last Saved by: Tony.pritchett on: Apr 27, 2018 11:44 AM File: Q:\Portland\2018\A18.0171\00\CADD\Dwgs\02_S01.dwg

CODES AND STANDARDS:

1. REINFORCED CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301) AND "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318).
2. STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION THEREOF SHALL CONFORM TO THE "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (AISC 303) AND "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS" (AISC 360).
3. WELDING OF STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO "STRUCTURAL WELDING CODE - STEEL" (AWS D1.1).
4. CONCRETE REPAIR SHALL CONFORM TO REQUIREMENTS OF "GUIDE TO CONCRETE REPAIR" (ACI 546R).
5. TIMBER CONSTRUCTION SHALL CONFORM TO "NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION" (NDS).

GENERAL:

1. THE IMPLEMENTATION OF A BEST MANAGEMENT PRACTICES PLAN (BMP) DURING CONSTRUCTION IS REQUIRED. THE CONTRACTOR SHALL PREVENT/MINIMIZE ENVIRONMENTAL IMPACTS DURING ALL CONSTRUCTION WORK.
2. THESE NOTES CONTAIN GENERAL INFORMATION AND ARE NOT COMPLETE FOR CONSTRUCTION PURPOSES. VERIFY INFORMATION GIVEN HERE WITH THE SPECIFICATIONS AND OTHER DRAWINGS, AND BRING ANY CONFLICTS TO THE ATTENTION OF THE CITY BEFORE BEGINNING AFFECTED WORK. THE CITY WILL RESOLVE ANY CONFLICTS.
3. FIELD VERIFY ALL FEATURES, DIMENSIONS, AND ELEVATIONS PRIOR TO FABRICATION OF ASSEMBLIES OR CONSTRUCTION. THE CONDITIONS SHOWN ON THESE DRAWINGS ARE BASED ON AVAILABLE EXISTING DATA. NOTIFY THE CITY OF ANY DISCREPANCIES BEFORE BEGINNING THE AFFECTED WORK.
4. DIMENSIONS, ELEVATIONS, AND DETAILS OF EXISTING STRUCTURES ARE INCLUDED ON THESE DRAWINGS FOR REFERENCE ONLY AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. VERIFY DIMENSIONS AND DETAILS, AND NOTIFY THE CITY OF ANY MISALIGNMENT, DISCREPANCIES, DIMENSIONS THAT NEED MODIFICATION, OR OMISSIONS BEFORE THE SHOP DRAWING SUBMITTALS.
5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR FIELD VERIFICATION AND DETERMINATION OF STRUCTURAL CAPACITY OF THE EXISTING STRUCTURES FOR THE ANTICIPATED LOADS DURING CONSTRUCTION.
6. PROVIDE WATER-TIGHT CONTAINMENT SYSTEM FOR ALL UNDER DECK REPAIRS. INSTALL TEMPORARY WORK PLATFORMS IF NEEDED, AND CONTAINMENT SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS.
7. THE FOLLOWING REPORT IS INCLUDED FOR REFERENCE ONLY. THE INFORMATION CONTAINED IN THIS REPORT IS INFORMATIONAL AND IS NOT PART OF THE CONTRACT DOCUMENTS.
   A. WARRENTON MARINA WORK PIER, CONDITION SURVEY AND LOAD RATING REPORT, JULY 2017.

DEMOLITION:

1. THE CONTRACTOR SHALL CONTAIN THE DEMOLITION WITHIN THE LIMITS DESIGNATED, TO PREVENT DAMAGE TO EXISTING STRUCTURES, UTILITIES, OR FACILITIES, AND KEEP ALL DEBRIS FROM FALLING INTO THE WATER.
2. PRIOR TO GENERAL DEMOLITION, THE CONTRACTOR SHALL SAWCUT WHERE NOTED, OR OTHERWISE PROVIDE A SMOOTH CLEAN BREAK BETWEEN ITEMS THAT ARE TO BE DEMOLISHED AND ITEMS THAT ARE TO REMAIN.
3. ALL DEMOLITION MATERIAL, EXCEPT AS NOTED, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR. THE REMOVAL, HANDLING, AND DISPOSAL OF ALL DEMOLITION MATERIALS, INCLUDING CREOSOTE-TREATED TIMBERS, SHALL BE IN STRICT ACCORDANCE WITH ALL STATE AND FEDERAL REQUIREMENTS. PROPER DISPOSAL OF ALL DEMOLITION AND CONSTRUCTION MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE ITSELF WITH THE MATERIALS TO BE DISPOSED OF AND ALL GOVERNING AGENCIES AND PERMIT REQUIREMENTS.

REINFORCED CONCRETE:

1. REINFORCED CONCRETE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 5,000 PSI
2. REINFORCING STEEL
   A. ALL REINFORCING STEEL SHALL BE DEFORMED STEEL BARS CONFORMING TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE. WELDED REINFORCING BARS SHALL CONFORM TO ASTM A706.
   B. SHOW SPLICE LOCATIONS FOR REINFORCING STEEL ON THE SHOP DRAWINGS. SPLICES SHALL CONFORM TO THE FOLLOWING TABLE, UNLESS OTHERWISE NOTED.

SCHEDULE OF LAP SPLICE LENGTHS (f'c=5000 PSI)					
BAR SIZE	4	5	6	7	8
TOP BARS	2'-6"	3'-0"	3'-9"	5'-3"	6'-0"
BOTTOM BARS	2'-0"	2'-6"	3'-0"	4'-0"	4'-9"

NOTES:
1. VALUES ARE BASED ON CLASS "B" SPLICES (MAX OF 50% BAR SPLICED AT ONE LOCATION).
2. TOP BARS ARE DEFINED AS ANY HORIZONTAL BAR PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR.

   C. DETAIL ALL REINFORCING STEEL IN ACCORDANCE WITH ACI 315.
3. PROVIDE 1 1/2-INCHES OF CONCRETE COVER UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
4. CONCRETE FORMING: SEE SPECIFICATIONS. FILL ALL VOIDS LEFT BY CONES AND OTHER FORMWORK HARDWARE AFTER FORMS ARE REMOVED. FOR CHAIRS, SUPPORTS, AND SPACERS TO SUPPORT REINFORCING STEEL, USE ALL-PLASTIC OR EPOXY-COATED WITH PRE-MOLDED PLASTIC TIPS. PROVIDE CHAIRS, SUPPORTS, AND SPACERS AT INTERVALS LESS THAN 4 FEET ON CENTER UNLESS OTHERWISE ALLOWED BY THE CITY.
5. CONCRETE FINISHING: TERMINOLOGY IS AS DEFINED IN ACI 301.
   SLAB OR TOP SURFACE = LIGHT BROOM FINISH W/ 1/16" STRIA
   FORMED SURFACES = SMOOTH FORM FINISH
   SURFACES RECEIVING GROUT = SCRATCH FINISH
6. CONCRETE CURING: MOIST CURE CONCRETE SURFACES OR USE AN APPROVED CURING MEMBRANE IN ACCORDANCE WITH ACI 301 UNLESS A LONGER TIME IS REQUIRED IN THE SPECIFICATIONS.
7. CONCRETE DEFECTS: REPAIR FORMED SURFACES BY REMOVING MINOR HONEYCOMBS, PITS GREATER THAN 1/2-SQUARE-INCH IN AREA OR GREATER THAN 1/4-INCH IN DEPTH, AND ALL OTHER DEFECTS AS DIRECTED BY THE CITY OR AS DESCRIBED IN THE SPECIFICATIONS OR REFERENCE DOCUMENTS. PROVIDE EDGES PERPENDICULAR TO THE SURFACE, PATCH WITH GROUT AS SPECIFIED, AND PROVIDE A SMOOTH FORM FINISH. CONCRETE WITH EXTENSIVE HONEYCOMBING OR OTHER DEFECTS WHICH AFFECT SERVICEABILITY AND/OR STRUCTURAL STRENGTH OF THE CONCRETE ELEMENT, AS DETERMINED BY THE CITY, SHALL BE REJECTED AND REPLACED AT NO ADDITIONAL COST TO THE CITY.

STRUCTURAL AND MISCELLANEOUS STEEL:

1. MISCELLANEOUS STEEL SHAPES, PLATES, AND BARS: ASTM A572, Fy = 50 KSI, TYPICAL
2. ANGLES: ASTM A36, UNO
3. BOLTS: ASTM A307 TYPICAL, UNO
4. NUTS: HEAVY HEX, ASTM A563, GRADE SUITABLE FOR THE TYPE OF BOLT.
5. WASHERS: ASTM F844, WIDE SERIES, MAXIMUM THICKNESS FOR ASTM A307 BOLTS.
6. HOT-DIP GALVANIZE ALL STEEL MATERIALS, FABRICATIONS, AND ASSEMBLIES IN ACCORDANCE WITH ASTM A123 OR ASTM A153 AS APPLICABLE, UNO. GALVANIZE ITEMS AFTER FABRICATION AS FAR AS PRACTICABLE. RESTORE GALVANIZING DAMAGED BY WELDING, HANDLING, OR OTHER CAUSES IN ACCORDANCE WITH THE SPECIFICATIONS. GALVANIZED ITEMS SHALL BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.

METAL DECK:

1. STEEL FLOOR DECK SHALL BE COMPOSITE METAL DECK WITH FLUTES AT 6" ON CENTER AND CONFORM TO ASTM A653-SS DESIGNATION, GRADE 50 MINIMUM OR ASTM A611, GRADE C. ACCEPTABLE METAL DECK AS FOLLOWS.
   A. ASC BH-36 Hi FORM.
   B. VERCO PLB FORM LOCK.
   C. NEW MILLENIUM BUILDING SYSTEM, TYPE 1.5CD.
2. THE MINIMUM DECK SIZE AND GAUGE ARE BASED ON A 3-SPAN, UNSHORED CONDITION. THE MINIMUM DECK PROPERTIES ARE 1 1/2" DEEP, 16 GAGE FLOOR DECK MIN. I(IN^4/FT)=0.355, S(IN^3/FT)=0.390
3. STEEL DECK COATING IN ACCORDANCE WITH ASTM A653 G60. PROVIDE FACTORY PRIMER TO UNDERSIDE OF DECK.
4. STEEL FLOOR DECK ATTACHMENT SHALL BE (2) 5/16 DIA x 3" LONG GALVANIZED SCREWS @ 6" OC AT ALL TRANSVERSE, PERIMETER AND LONGITUDINAL TIMBER SUPPORTS AND BLOCKING.

TIMBER:

1. ALL SAWN LUMBER SHALL BE PRESSURE TREATED AND CONFORM TO WEST COAST LUMBER INSPECTION BUREAU OR WESTERN WOOD PRODUCTS ASSOCIATION GRADING RULES. LUMBER SHALL BE OF BEAMS 5" x 5" AND GREATER, DOUGLAS FIR LARCH NO.1 (F_b = 1350 PSI)
2. TIMBER BOLTS AND TIMBER LAG SCREWS SHALL CONFORM TO ANSI/ASME STANDARD B18.2.1-1981. ALL TIMBER BOLTS AND TIMBER LAG SCREWS SHALL BE DOME HEAD AND INSTALLED WITH MALLEABLE IRON WASHERS. ALL TIMBER BOLTS SHALL BE A307 AND HAVE CUT THREADS.
3. ALL FASTENERS, NAILS, LAG SCREWS AND BOLTS SHALL BE HOT-DIP GALVANIZED.
4. HOLES FOR BOLTS SHALL BE DRILLED WITH A BIT OF THE SAME NOMINAL DIAMETER AS THE BOLT +1/16". LEAD HOLES FOR LAG SCREWS SHALL BE BORED IN ACCORDANCE WITH ANSI/AWC NDS-2012, SECTION 11.1.4.
5. WHEN FIELD CUTTING, DRILLING OR FABRICATION IS NECESSARY, IT SHALL BE DONE AWAY FROM THE WATER TO THE DEGREE PRACTICAL AND ALL WASTE, INCLUDING SAWDUST, SHALL BE COLLECTED AND DISPOSED OF APPROPRIATELY.
6. TREAT ALL HOLES, CUTS OR INJURIES IN EXISTING TIMBERS WITH A COPPER NAPHTHENATE BASED SOLUTION. THE FOLLOWING GUIDELINES SHALL BE FOLLOWED IN FIELD TREATMENT OF TIMBERS:
   A. FOLLOW THE PROCEDURES OUTLINED IN AWPA STANDARD M4, STANDARD FOR THE CARE OF PRESERVATIVE-TREATED WOOD PRODUCTS.
   B. WHEN FIELD TREATING EXISTING TIMBERS BY BRUSHING, SPRAYING, DIPPING OR SOAKING DO SO IN SUCH A MANNER THAT THE PRESERVATIVE DOES NOT DRIP OR SPILL INTO THE ENVIRONMENT.
   C. WHENEVER POSSIBLE, APPLY FIELD TREATMENTS PRIOR TO ASSEMBLING THE STRUCTURE OVER THE BODY OF WATER.
   D. CONDUCT THE APPLICATION OF THE PRESERVATIVE SO THAT ANY OVERSPRAY OR DRIPPAGE OF PRESERVATIVE CAN BE RECOVERED OR RETAINED.
   E. SPECIFIERS AND INSTALLERS SHALL FOLLOW THE DIRECTIONS FOR USE ON THE COPPER NAPHTHENATE BASED END CUT SOLUTION LABEL AND MATERIAL SAFETY DATA SHEETS (MSDS) FOR THE PRODUCT.

SPALLED AND DELAMINATED CONCRETE REPAIRS:

1. SAWCUT A 1/2-INCH DEEP VERTICAL SHOULDER AROUND THE PERIMETER OF DELAMINATED OR SPALLED AREAS, UNLESS NOTED OTHERWISE. DO NOT CHIP OUT TO CREATE A SHOULDER. PREVENT OR COLLECT FUGITIVE DUST FROM SAW CUTTING AND DRILLING.
2. REMOVE DETERIORATED MATERIAL TO A DEPTH OF SOUND CONCRETE. USE A MAXIMUM 15-POUND IMPACT HAMMER FOR THE WORK.
3. CLEAN AND PREPARE THE SURFACE OF CONCRETE IN ACCORDANCE WITH THE SPECIFICATIONS.
4. APPLY HIGH PERFORMANCE CEMENTITIOUS REPAIR MATERIAL TO MATCH THE ORIGINAL PROFILE UNLESS OTHERWISE NOTED. USE HIGH PERFORMANCE CEMENTITIOUS REPAIR MATERIAL FOR ALL CONCRETE REPAIR WORK IN ACCORDANCE WITH THE SPECIFICATIONS.

CONCRETE CRACK REPAIRS:

1. CLEAN AND PREPARE THE SURFACE OF CONCRETE IN ACCORDANCE WITH THE SPECIFICATIONS.
2. EPOXY INJECT CRACKS IN ACCORDANCE WITH THE SPECIFICATIONS.

CONSTRUCTION LOADS:

1. SEE DRAWING S-04 FOR EQUIPMENT AND LOAD RESTRICTIONS.
2. DO NOT OPERATE EQUIPMENT OR USE AS STAGING AREAS ANYWHERE IDENTIFIED AS A LOAD RESTRICTED AREA.

DECK JOINT SEAL:

1. HOT POURED JOINT SEALANT
   A. USED FOR JOINT WIDTHS 1/2" OR LESS
   B. SHALL BE CRAFCO ROADSAVER 221 OR APPROVED EQUAL
2. TWO-COMPONENT, ELASTOMERIC JOINT SEALANT
   A. USED FOR JOINT WIDTHS 1/2" UP TO 2 1/2"
   B. SHALL BE SIKAFLEX-2C NS EZ MIX OR APPROVED EQUAL

KEY NOTES AND ESTIMATED REPAIR QUANTITIES:

KEY NOTE	LOCATION	REPAIR DESCRIPTION	DETAIL	QTY	UNIT
1	WEST & EAST TRESTLE & WORK PIER	TOP DECK EPOXY INJECT CRACK 1/16" TO 1/4" WIDE	3 / S-16	720	LF
2	EAST & WEST TRESTLE	INSTALL MID AND/OR LOWER TIMBER RAILING	1 / S-17 & 2 / S-17	390	BF
3	WEST TRESTLE & WORK PIER	TOP DECK SPALL REPAIR 1" DEEP TO FULL SLAB DEPTH	1 / S-16	37	SF
4	WEST TRESTLE	INSTALL DECK JOINT SEAL	4 / S-16	60	LF
5	WEST TRESTLE	RE-PLUMB & CONNECT DISPLACED PILE AT WT10/C	1 / S-18	1	EA
6	WEST TRESTLE	REMOVE & REPLACE CONCRETE OVER METAL DECK	3 / S-17 & 5 / S-17	185	SF
7	WEST TRESTLE	REMOVE & REPLACE PILE CAP WT10	1 / S-18	2	EA
8	WEST TRESTLE	RE-ALIGN & CONNECT EXISTING STEEL FENDER PILES	5 / S-17	6	EA
9	WEST TRESTLE	REMOVE & REPLACE TIMBER BULLRAIL	5 / S-19 & 6 / S-19	1210	BF
10	WEST TRESTLE	REMOVE & REPLACE EDGE BEAM	1 / S-19	1	EA
11	WORK PIER	INSTALL PILE CAP STRENGTHENING AT WP1	2 / S-19	1	EA
12	WORK PIER	RE-PLUMB & CONNECT DISPLACED PILE AT WP13/A	1 / S-20	1	EA
13	WORK PIER	REPAIR, RE-PLUMB & CONNECT DISPLACED PILE AT WP31/D	2 / S-20	1	EA
14	WORK PIER	RE-ATTACH GUARDRAIL MIDDLE RAILING TO POST W/(3) 16d NAILS	-	1	EA
15	EAST TRESTLE	RE-CONNECT DISPLACED BULLRAIL AT ET0.5/B	5 / S-20	1	EA

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REGISTERED PROFESSIONAL ENGINEER 48114PE OREGON JAN. 23, 2007 HOWARD A. WELLS, III
RENEWS: 6/30/20

DRAWN BY	JTH
DESIGN BY	BDB
CHECK BY	TSM
PROJ MGR	HAW

CITY OF WARRENTON
WORK PIER REHABILITATION
STRUCTURAL NOTES

DRAWING NO.	S-02
PROJECT NO.	A18.0171
DATE:	4/24/19
SHEET NO.	3 OF 21

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TABLE 2

REQUIRED STRUCTURAL SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
FABRICATORS					
FABRICATORS	1704.2.5			X	SPECIAL INSPECTION IS REQUIRED FOR STRUCTURAL LOAD-BEARING MEMBERS AND ASSEMBLIES FABRICATED ON THE PREMISES OF A FABRICATOR'S SHOP.
	1704.2.5.1				THE SPECIAL INSPECTOR SHALL VERIFY THAT THE FABRICATOR MAINTAINS DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES AND SHALL REVIEW FOR COMPLETENESS AND ADEQUACY RELATIVE TO THE CODE REQUIREMENT.
	1704.2.5.2				SPECIAL INSPECTIONS REQUIRED BY SECTION 1705 ARE NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED UPON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY A NATIONALLY RECOGNIZED ACCREDITING AUTHORITY. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
CONCRETE					
REINFORCING STEEL	1705.3 1910.4 1901.3.2	ACI 318: 3.5 ACI 318: 7.1-7.7		X	TOLERANCES AND REINFORCING PLACEMENT PER ACI 7.5; SPACING LIMITS FOR REINFORCING ACI 7.6 PROTECTION OF REINFORCEMENT PER ACI 7.7
VERIFYING USE OF REQUIRED MIX DESIGN(S)	TABLE 1705.3 1904 1904.2 1910.2 1910.3	ACI 318: CHAPTER 4 ACI 318: 5.2-5.4		X	
CONCRETE PLACEMENT	TABLE 1705.3	ACI 318: 1.3.2.D ACI 318: 5.9 - 5.10	X		
STEEL					
FABRICATION OF STRUCTURAL ELEMENTS	1704.2.5.2	AISC 360 N2		X	REFER TO INSPECTION OF FABRICATOR REQUIREMENTS APPROVAL BASED ON NATIONALLY RECOGNIZED ACCREDITING AUTHORITY
MATERIAL VERIFICATION OF STRUCTURAL STEEL	1705.2.1 2203.1 TABLE 1705.2	ASTM A6 ASTM STANDARDS SPECIFIED IN CONSTRUCTION DOCUMENTS AISC 360 N3.2 AISC 360 A3.1 AISC 360 M5.5		X	CERTIFIED MILL TEST REPORTS
INSTALLATION OF COMPOSITE SLAB DECKING	1705.1.1	ICC EVALUATION REPORT ASCE 9 CHAPTER 3		X	SPECIAL INSPECTIONS APPLY TO DECKING TYPE, DEPTH, GAGE, AND FASTENING

TABLE 5

REQUIRED TESTING FOR SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
CONCRETE					
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	TABLE 1705.3	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	X		FABRICATE SPECIMENS AT TIME FRESH CONCRETE IS PLACED ONCE EACH DAY FOR A GIVEN CLASS OF CONCRETE, OR LESS THAN ONCE FOR EACH 150 YDS OF CONCRETE, OR LESS THAN ONCE FOR EACH 5,000 FT2 OF SURFACE AREA FOR SLABS/WALLS. ONCE EACH SHIFT FROM IN-PLACE WORK OR FROM TEST PANEL AND MINIMUM ONE SPECIMEN FOR EACH 50 CUBIC YARDS. "PRECONSTRUCTION TESTS AS REQUIRED PER THE BUILDING OFFICIAL."
CONCRETE STRENGTH	TABLE 1705.3	ASTM C39	X		
CONCRETE SLUMP	TABLE 1705.3	ASTM C143	X		
CONCRETE AIR CONTENT		ASTM C231	X		
CONCRETE TEMPERATURE		ASTM C1064	X		

TABLE 9

STRUCTURAL OBSERVATION

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
PRIOR TO FIRST CONCRETE POUR				X	

STRUCTURAL OBSERVATIONS:

1. STRUCTURAL OBSERVATION WILL CONFORM TO SECTION 1704 OF THE 2012 IBC. SEE TABLE 9 FOR REQUIRED STRUCTURAL OBSERVATION.
2. STRUCTURAL OBSERVATION WILL BE PERFORMED BY THE ENGINEER OF RECORD. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE ENGINEER OF RECORD IN ADVANCE OF THE STAGES LISTED IN TABLE 9.
3. THE STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR ANY REQUIRED SPECIAL INSPECTIONS.

SPECIAL INSPECTION PROGRAM NOTES:

1. SPECIAL INSPECTIONS SHALL CONFORM TO CHAPTER 17 OF THE 2012 INTERNATIONAL BUILDING CODE.
2. SPECIAL INSPECTIONS AND ASSOCIATED TESTING SHALL BE PERFORMED BY AN APPROVED ACCREDITED INDEPENDENT AGENCY MEETING THE REQUIREMENTS OF ASTM E329 (MATERIALS), ASTM D3740 (SOILS), ASTM C1077 (CONCRETE), ASTM A880 (STEEL), AND ASTM E543 (NON-DESTRUCTIVE). THE INSPECTION AND TESTING AGENCY SHALL FURNISH TO THE ENGINEER OF RECORD A COPY OF THEIR SCOPE OF ACCREDITATION. SPECIAL INSPECTORS SHALL BE CERTIFIED BY THE BUILDING OFFICIAL. WELDING INSPECTORS SHALL BE QUALIFIED PER SECTION 6.1.4.1.1 OF AWS D1.1. THE OWNER SHALL SECURE AND PAY FOR SERVICES OF THE INSPECTION AND TESTING AGENCY TO PERFORM ALL SPECIAL INSPECTIONS AND TESTS.
3. THE SPECIAL INSPECTOR SHALL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION NOTED IN THE INSPECTION REPORTS, AND IF NOT CORRECTED, BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD AND THE OWNER.
4. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS FOR EACH INSPECTION TO THE ENGINEER OF RECORD, CONTRACTOR, AND OWNER. THE SPECIAL INSPECTION AGENCY SHALL SUBMIT A FINAL REPORT INDICATING THE WORK REQUIRING SPECIAL INSPECTION WAS INSPECTED AND IS IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THAT ALL DISCREPANCIES NOTED IN THE INSPECTION REPORTS HAVE BEEN CORRECTED.
5. THE CONTRACTOR SHALL PROVIDE SUFFICIENT ADVANCED NOTIFICATION OF CONSTRUCTION ACTIVITIES TO THE SPECIAL INSPECTOR TO ALLOW FOR INSPECTION OF WORK.
6. MAINTAIN ACCESS TO WORK REQUIRING INSPECTION UNTIL IT HAS BEEN INSPECTED AND INDICATED TO BE IN CONFORMANCE.
7. DEFINITIONS:
   A. CONTINUOUS INSPECTION: THE INSPECTOR IS OBSERVING THE WORK REQUIRING INSPECTION AT ALL TIMES.
   B. PERIODIC INSPECTION: THE INSPECTOR IS ON SITE AS REQUIRED TO CONFIRM THAT THE WORK REQUIRING INSPECTION IS IN CONFORMANCE.
8. IBC SPECIAL INSPECTION TABLES 1, 3, 4, 6, 7 AND 8 ARE NOT REQUIRED FOR THIS PROJECT.

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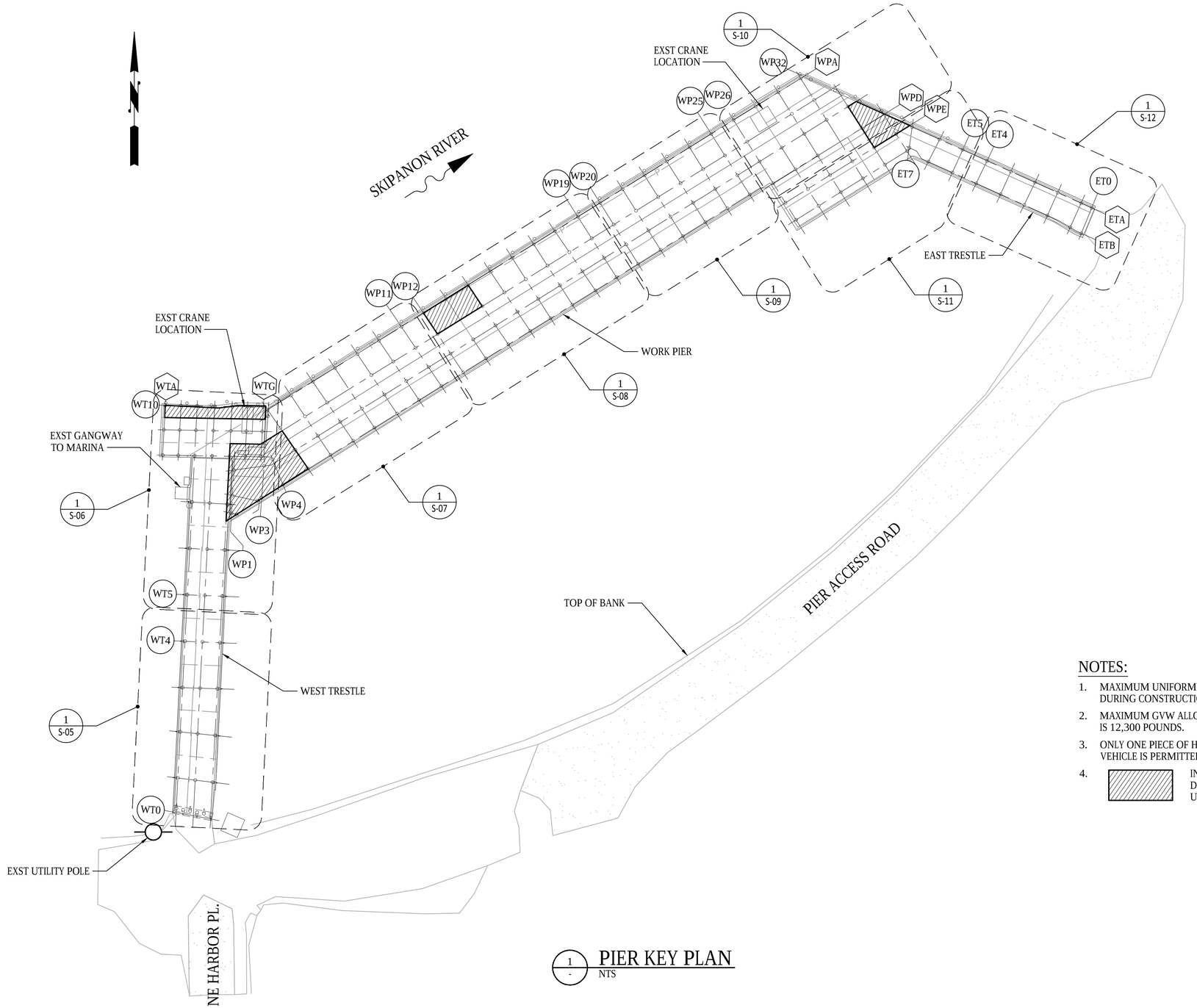
REGISTERED PROFESSIONAL ENGINEER 48114PE OREGON MARK 23, 2005 HOWARD A. WELLS III
RENEWS: 6/30/20

DRAWN BY JTH
DESIGN BY BDB
CHECK BY TSM
PROJ MGR HAW

CITY OF WARRENTON
WORK PIER REHABILITATION

SPECIAL INSPECTION AND STRUCTURAL OBSERVATION

DRAWING NO. **S-03**
PROJECT NO. A18.0171
DATE: 4/24/19
SHEET NO. 4 OF 21



1 - PIER KEY PLAN
NTS

NOTES:

1. MAXIMUM UNIFORM CONSTRUCTION LOAD ALLOWED ON PIER DURING CONSTRUCTION IS 100 PSF.
2. MAXIMUM GVW ALLOWED ON THE PIER DURING CONSTRUCTION IS 12,300 POUNDS.
3. ONLY ONE PIECE OF HEAVY EQUIPMENT OR CONSTRUCTION VEHICLE IS PERMITTED ON THE PIER AT A TIME.
4. INDICATES LOAD RESTRICTED AREA. DO NOT OPERATE EQUIPMENT OR USE AS STAGING AREA.

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REGISTERED PROFESSIONAL ENGINEER 48114PE OREGON JAN. 23, 2007 HOWARD A. WELLS, III
RENEWS: 6/30/20

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DESIGN BY BDB
CHECK BY TSM
PROJ MGR HAW

CITY OF WARRENTON
WORK PIER REHABILITATION
PIER KEY PLAN

DRAWING NO. **S-04**
PROJECT NO. A18.0171
DATE: 4/24/19
SHEET NO. 5 OF 21

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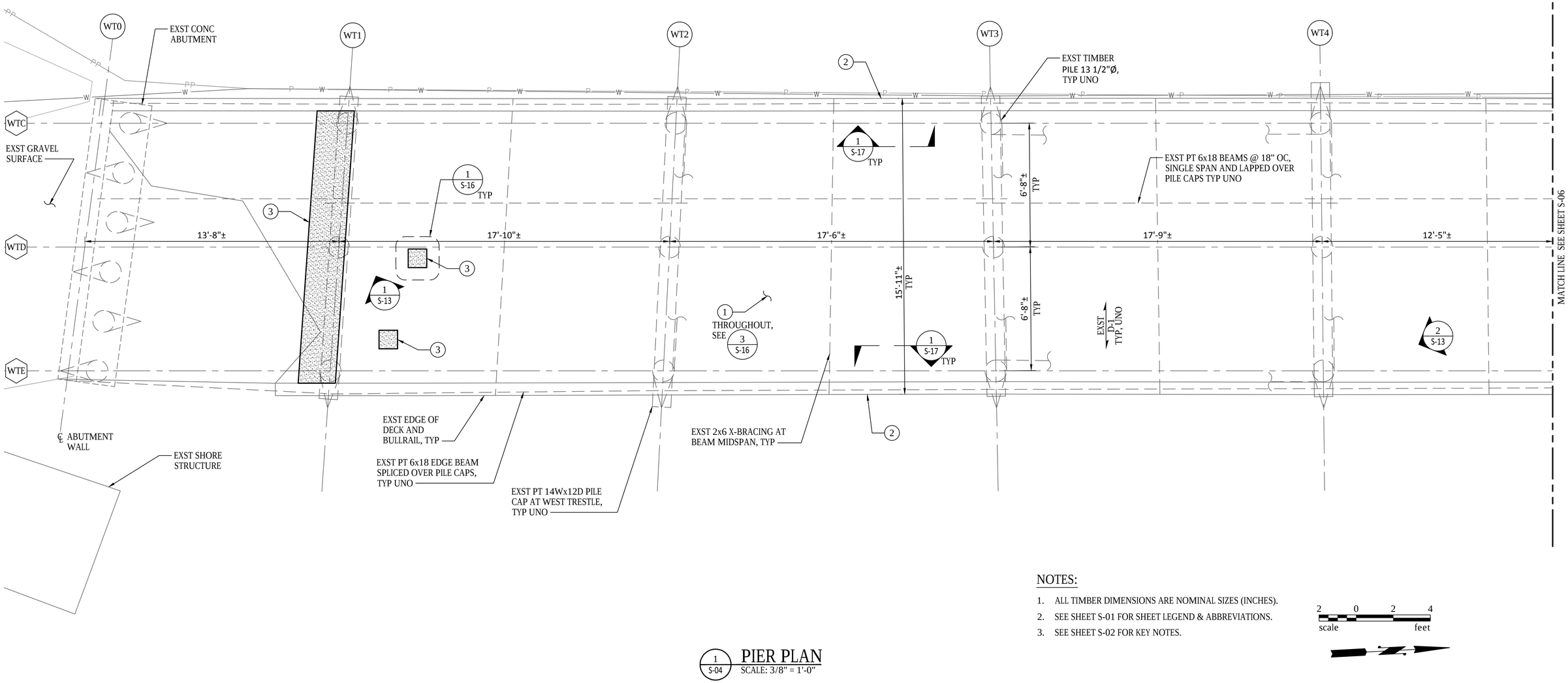

1 S-04 **PIER PLAN**
SCALE: 3/8" = 1'-0"

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S-01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S-02 FOR KEY NOTES.

2 0 2 4
scale feet

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RENEWS: 6/30/20

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CHECK BY	TSM
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CITY OF WARRENTON
WORK PIER REHABILITATION

PIER PLAN - SHEET 1

DRAWING NO.	S-05
PROJECT NO.	A18.0171
DATE:	4/24/19
SHEET NO.	6 OF 21

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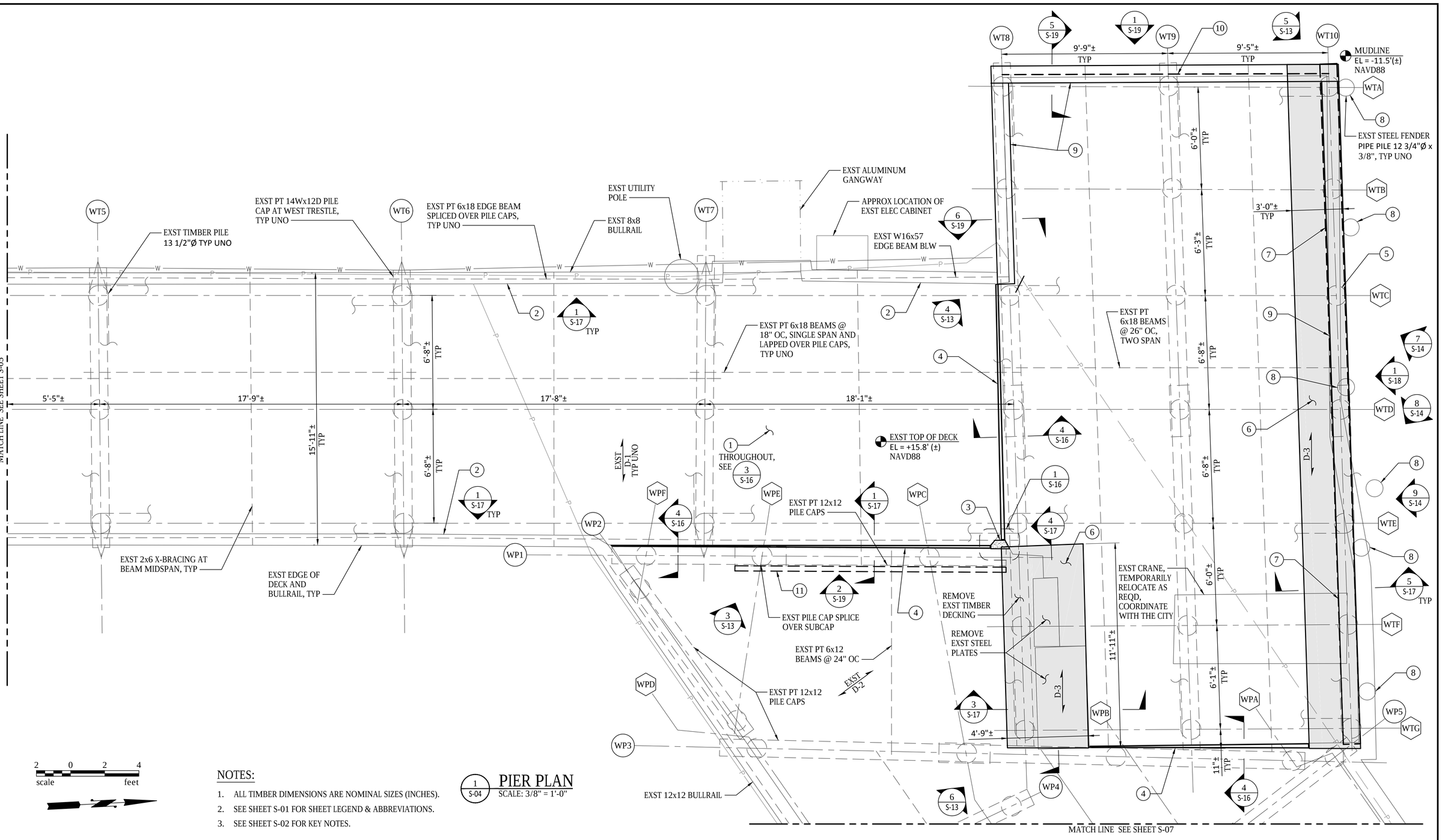

2 0 2 4
scale feet

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S-01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S-02 FOR KEY NOTES.

1 S-04 PIER PLAN
SCALE: 3/8" = 1'-0"

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RENEWS: 6/30/20

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DESIGN BY BDB
CHECK BY TSM
PROJ MGR HAW

CITY OF WARRENTON
WORK PIER REHABILITATION

PIER PLAN - SHEET 2

DRAWING NO. S-06
PROJECT NO. A18.0171
DATE: 4/24/19
SHEET NO. 7 OF 21

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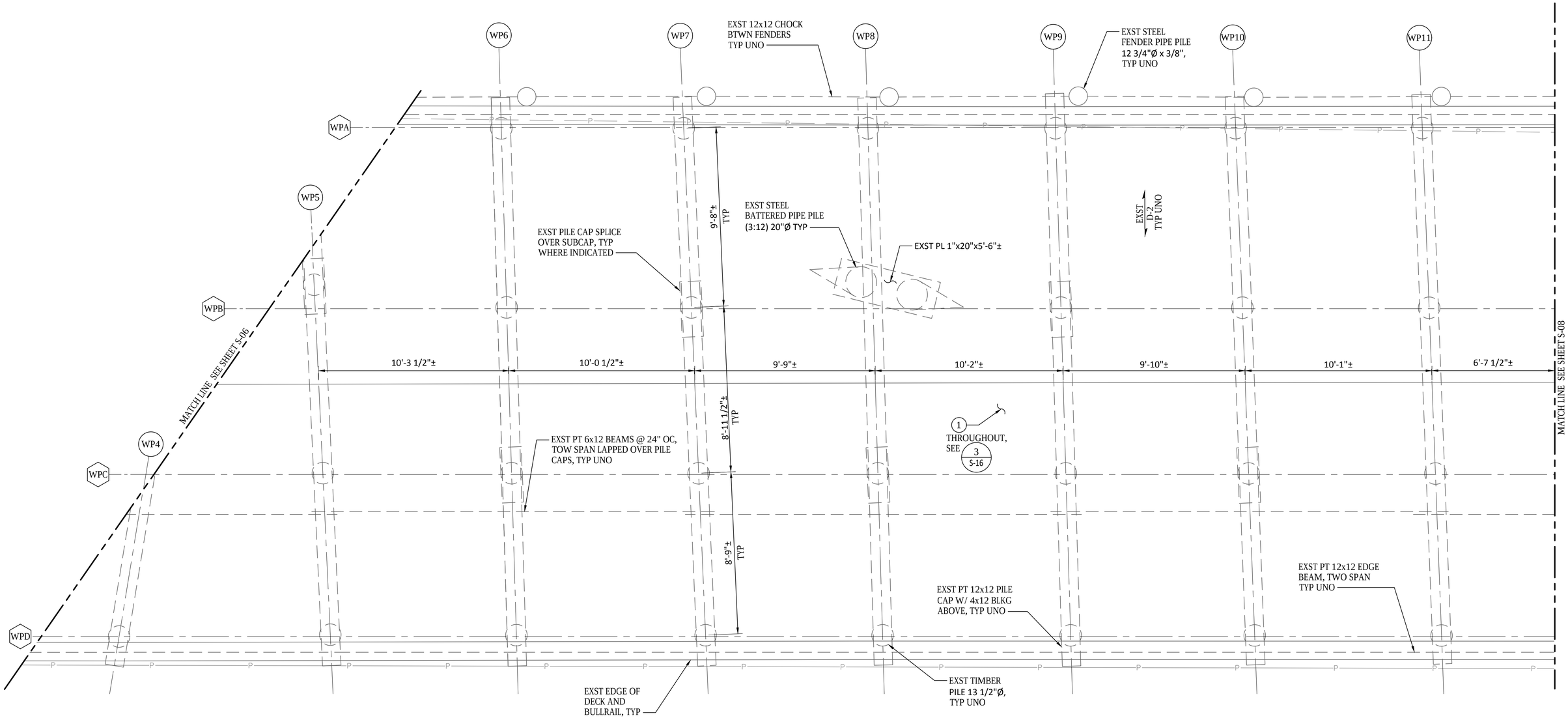

1 S-04 **PIER PLAN**
SCALE: 3/8" = 1'-0"

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S-01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S-02 FOR KEY NOTES.

2 0 2 4
scale feet

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RENEWS: 6/30/20

DRAWN BY	JTH
DESIGN BY	BDB
CHECK BY	TSM
PROJ MGR	HAW

CITY OF WARRENTON
WORK PIER REHABILITATION
PIER PLAN - SHEET 3

DRAWING NO.	S-07
PROJECT NO.	A18.0171
DATE:	4/24/19
SHEET NO.	8 OF 21

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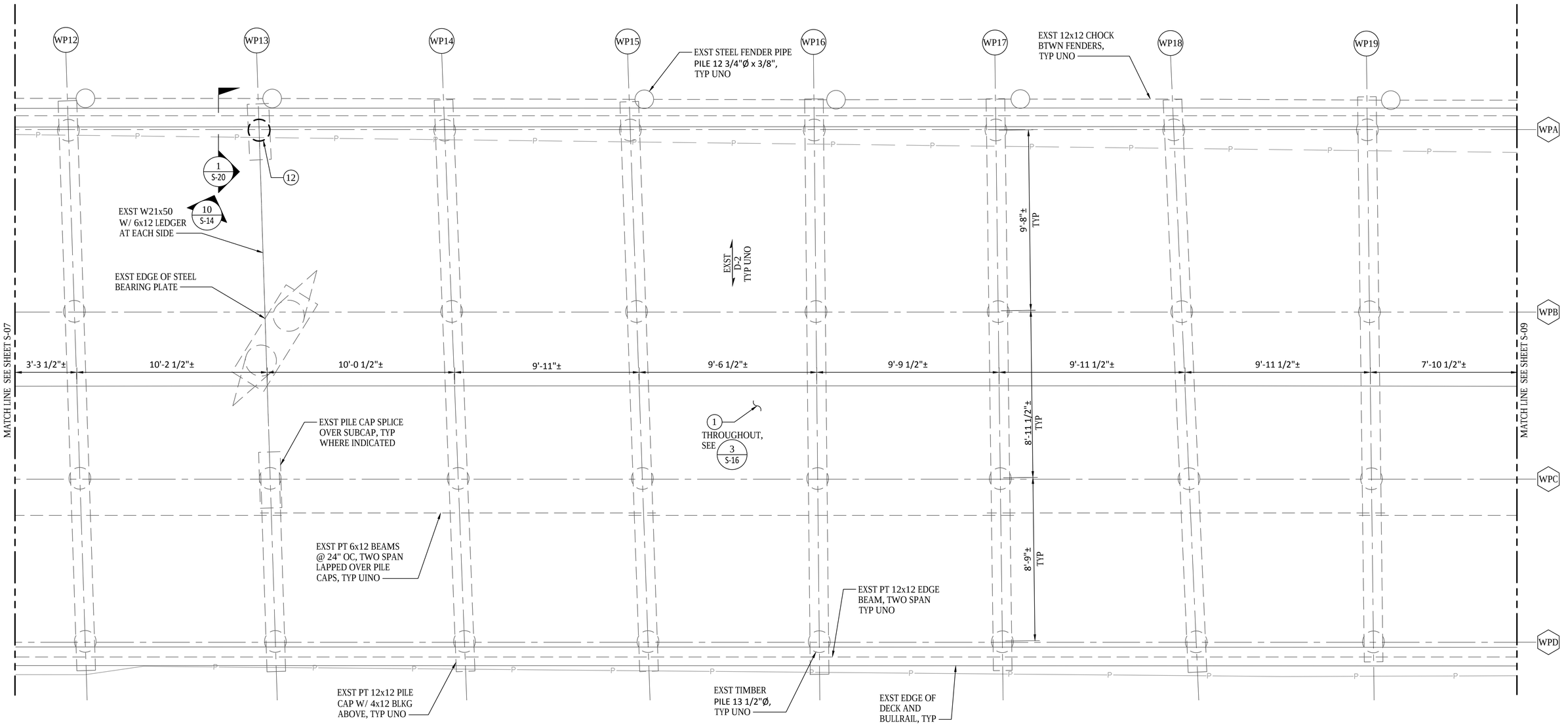

1 S-04 **PIER PLAN**
SCALE: 3/8" = 1'-0"

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S-01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S-02 FOR KEY NOTES.

2 0 2 4
scale feet

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WORK PIER REHABILITATION
PIER PLAN - SHEET 4

DRAWING NO.	S-08
PROJECT NO.	A18.0171
DATE:	4/24/19
SHEET NO.	9 OF 21

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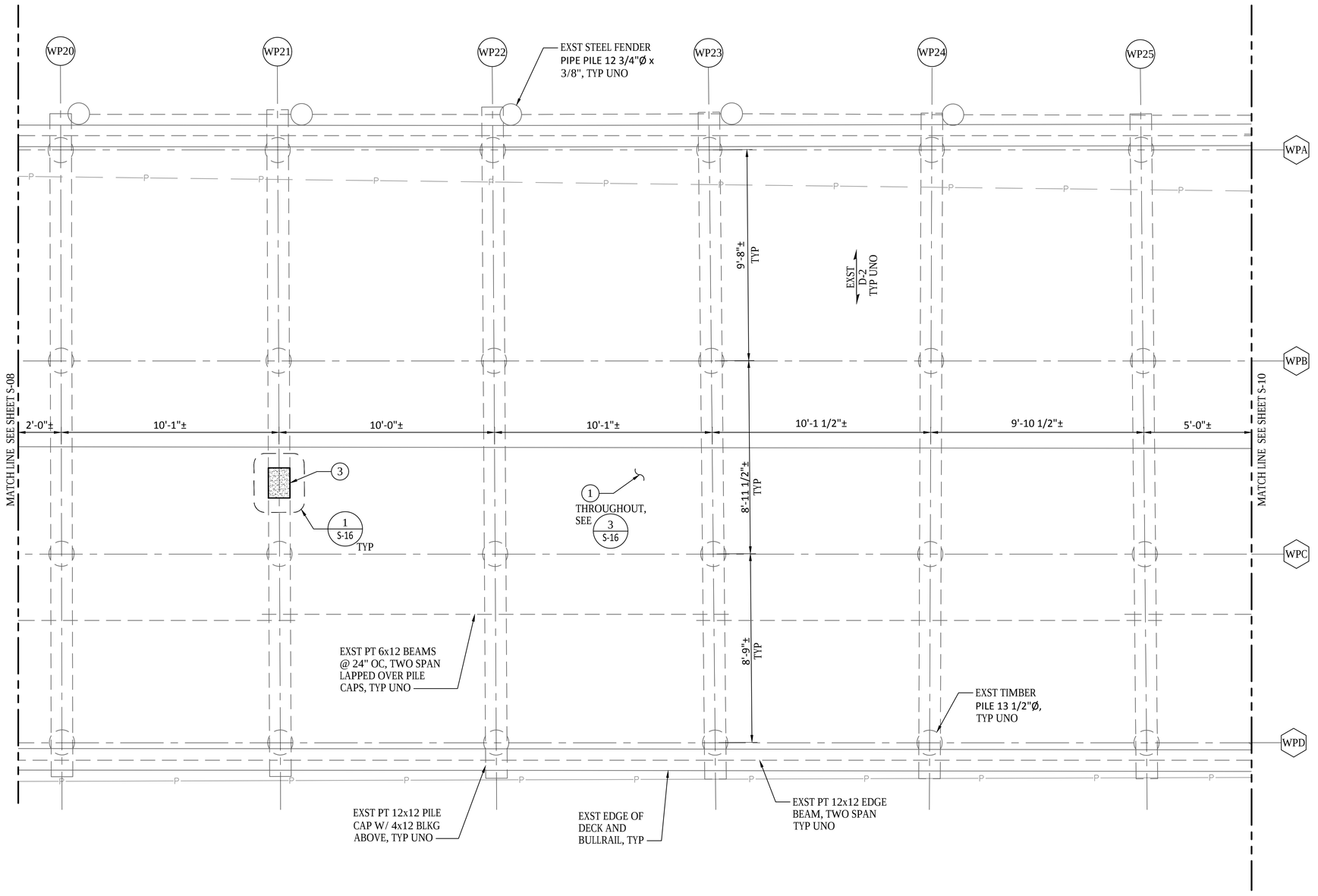

1 S-04 **PIER PLAN**
SCALE: 3/8" = 1'-0"

2 0 2 4
scale feet

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S-01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S-02 FOR KEY NOTES.

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RENEWS: 6/30/20

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DESIGN BY BDB
CHECK BY TSM
PROJ MGR HAW

CITY OF WARRENTON
WORK PIER REHABILITATION
PIER PLAN - SHEET 5

DRAWING NO. S-09
PROJECT NO. A18.0171
DATE: 4/24/19
SHEET NO. 10 OF 21

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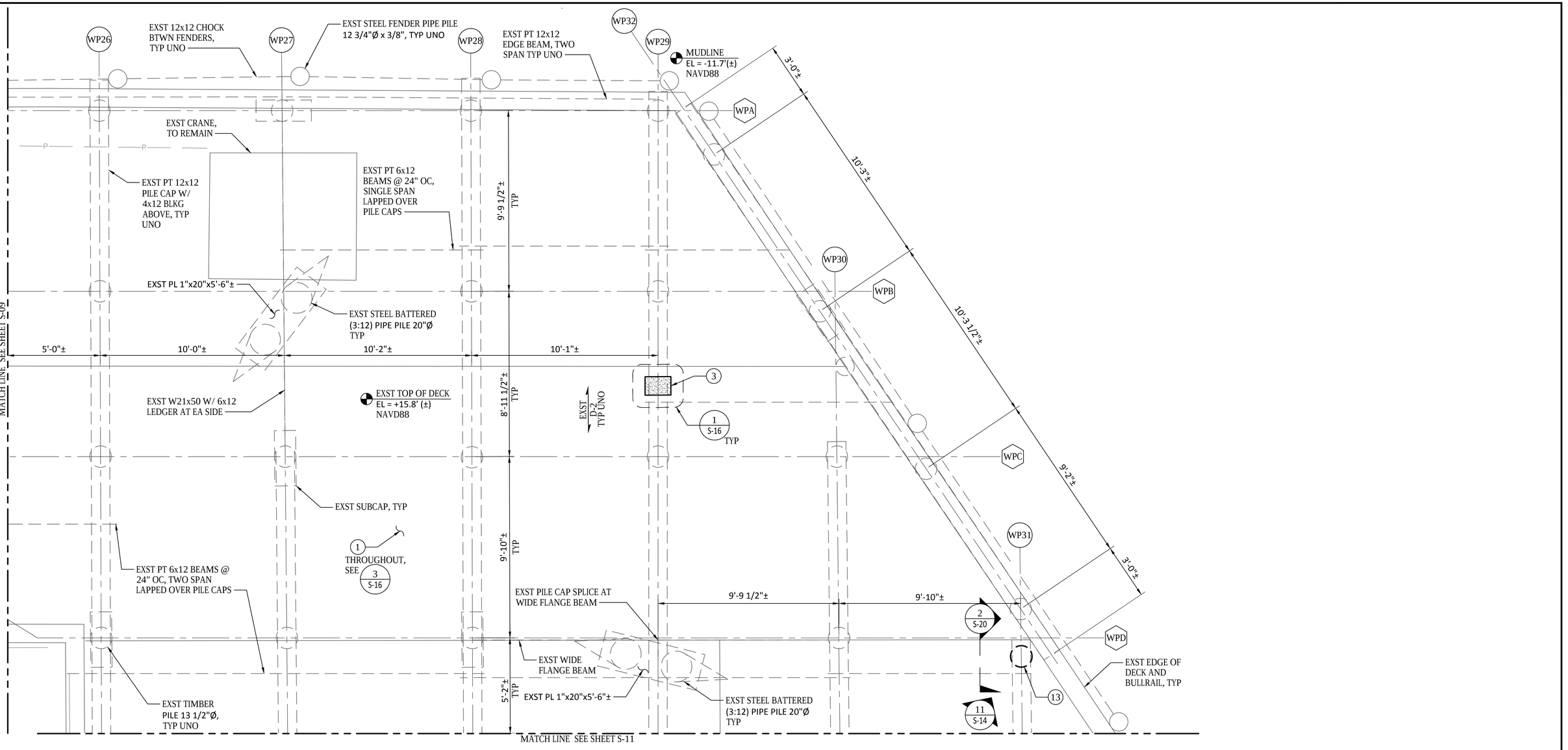

1 S-04 PIER PLAN
SCALE: 3/8" = 1'-0"

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S-01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S-02 FOR KEY NOTES.

2 0 2 4
scale feet

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RENEWS: 6/30/20

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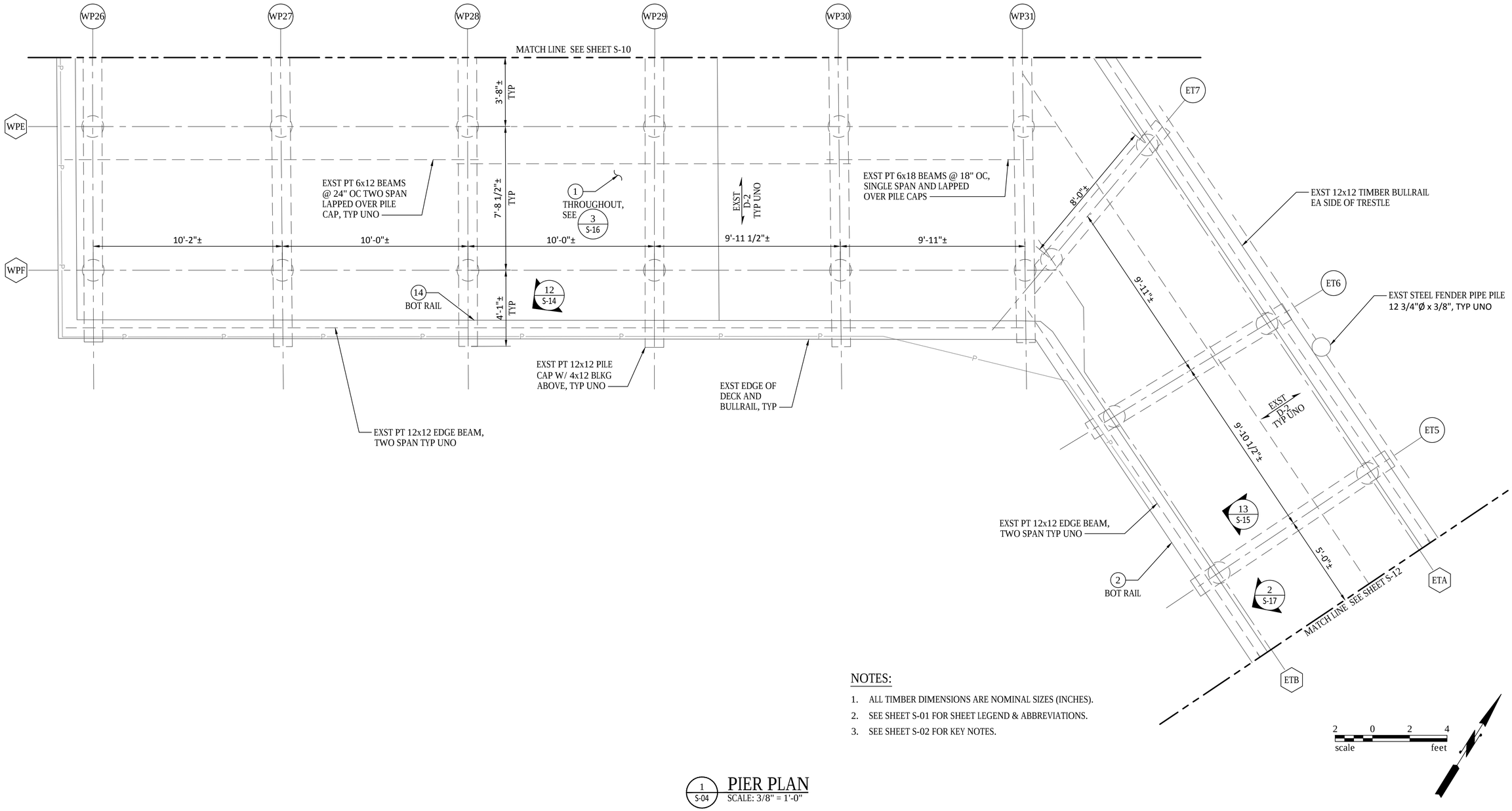
PROJ MGR	HAW

CITY OF WARRENTON
WORK PIER REHABILITATION
PIER PLAN - SHEET 6

DRAWING NO.	S-10
PROJECT NO.	A18.0171
DATE:	4/24/19
SHEET NO.	11 OF 21



NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S-01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S-02 FOR KEY NOTES.

1 S-04 PIER PLAN
SCALE: 3/8" = 1'-0"

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RENEWS: 6/30/20

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CITY OF WARRENTON
WORK PIER REHABILITATION

PIER PLAN - SHEET 7

DRAWING NO. **S-11**
PROJECT NO. A18.0171
DATE: 4/24/19
SHEET NO. 12 OF 21

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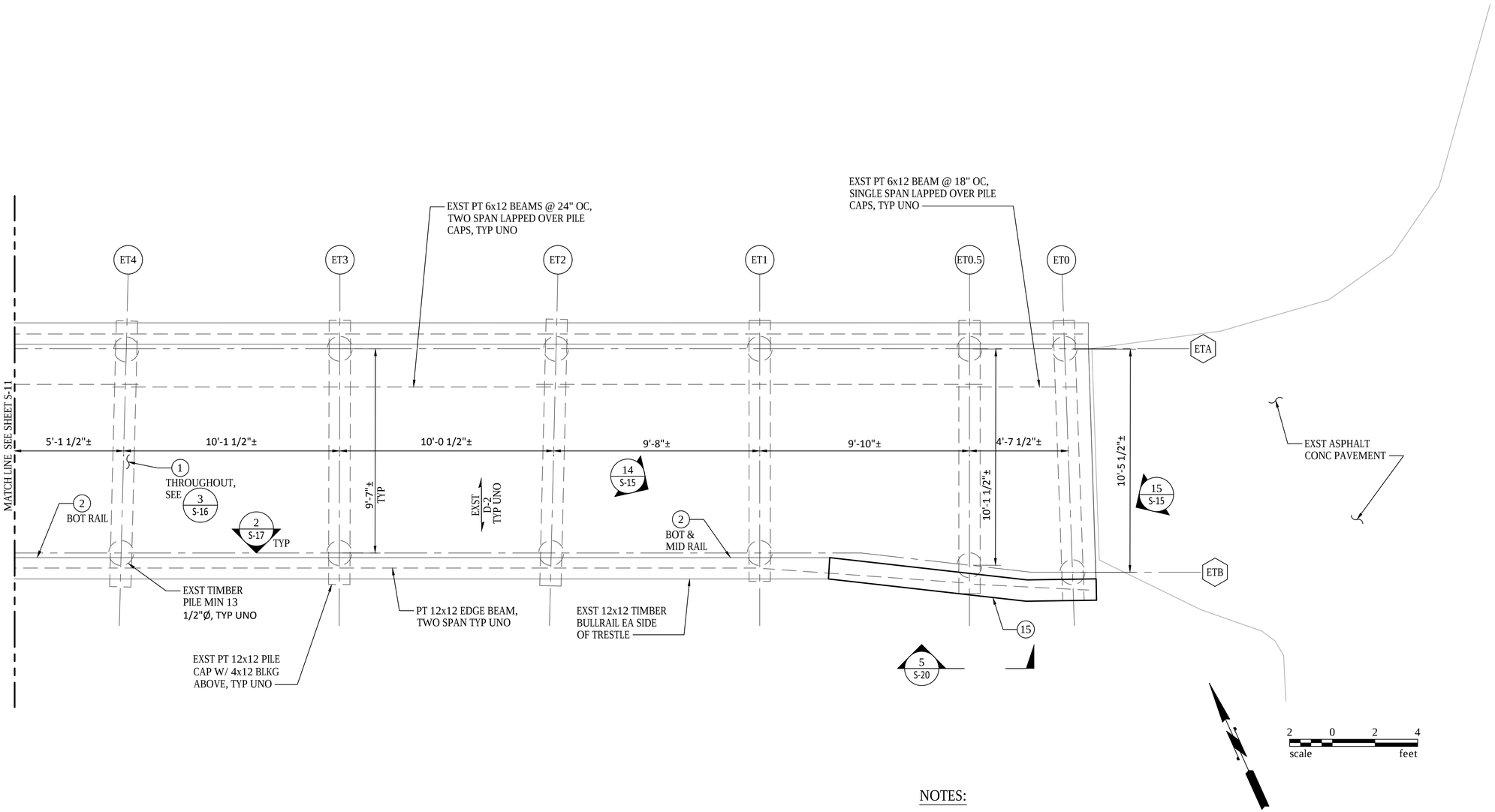

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S-01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S-02 FOR KEY NOTES.

1 S-04 PIER PLAN
SCALE: 3/8" = 1'-0"

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FAX: 503-861-2351

REGISTERED PROFESSIONAL ENGINEER 48114PE OREGON JAN. 23, 2004 HOWARD A. WELLS, III
RENEWS: 6/30/20

DRAWN BY	JTH
DESIGN BY	BDB
CHECK BY	TSM
PROJ MGR	HAW

CITY OF WARRENTON
WORK PIER REHABILITATION

PIER PLAN - SHEET 8

DRAWING NO.	S-12
PROJECT NO.	A18.0171
DATE:	4/24/19
SHEET NO.	13 OF 21

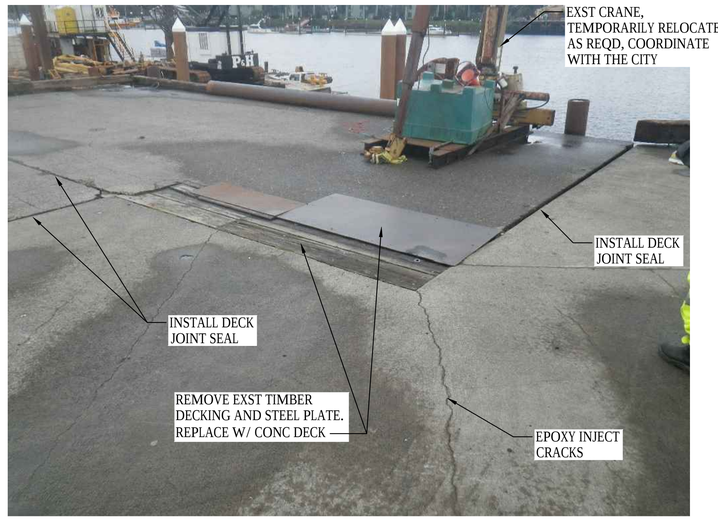
1 S-05 PHOTO - WEST TRESTLE DECK AT WT1
SCALE: NTS

2 S-05 PHOTO - WEST TRESTLE RAILING
SCALE: NTS

3 S-06 PHOTO - WORK PIER PILE CAP WP1
SCALE: NTS

4 S-06 PHOTO - WEST TRESTLE BULLRAIL
SCALE: NTS

5 S-06 PHOTO - WEST TRESTLE PILE CAP WT10
SCALE: NTS



6 S-06 PHOTO - WEST TRESTLE AND WORK PIER DECK JOINT
SCALE: NTS

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REGISTERED PROFESSIONAL ENGINEER
48114PE
OREGON
JAN. 29, 2007
HOWARD A. WELLS III
RENEWS: 6/30/20

DRAWN BY JTH
DESIGN BY BDB
CHECK BY TSM
PROJ MGR HAW

CITY OF WARRENTON
WORK PIER REHABILITATION
DETAILS - SHEET 1

DRAWING NO. **S-13**
PROJECT NO. A18.0171
DATE: 4/24/19
SHEET NO. 14 OF 21

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7 S-06 PHOTO - NORTH EDGE OF WEST TRESTLE
SCALE: NTS

8 S-06 PHOTO - NORTH EDGE OF WEST TRESTLE
SCALE: NTS

9 S-06 PHOTO - NORTH EDGE OF WEST TRESTLE
SCALE: NTS

10 S-08 PHOTO - WORK PIER DISPLACED PILE AT WP13/A
SCALE: NTS

11 S-10 PHOTO - DISPLACED PILE AT WP31/D
SCALE: NTS

12 S-11 PHOTO - WORK PIER RAILING AT WP28/F
SCALE: NTS

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RENEWS: 6/30/20

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CITY OF WARRENTON
WORK PIER REHABILITATION

DETAILS - SHEET 2

DRAWING NO.	S-14
PROJECT NO.	A18.0171
DATE:	4/24/19
SHEET NO.	15 OF 21

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13 / S-11 PHOTO - EAST TRESTLE RAILING
SCALE: NTS

14 / S-12 PHOTO - EAST TRESTLE RAILING
SCALE: NTS

15 / S-12 PHOTO - DISPLACED BULLRAIL AT ET0.5/B
SCALE: NTS

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RENEWS: 6/30/20

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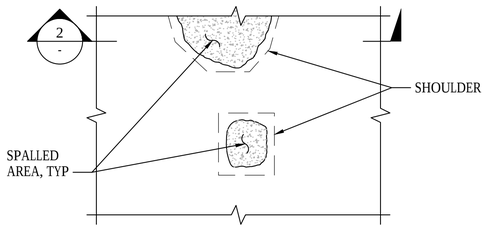
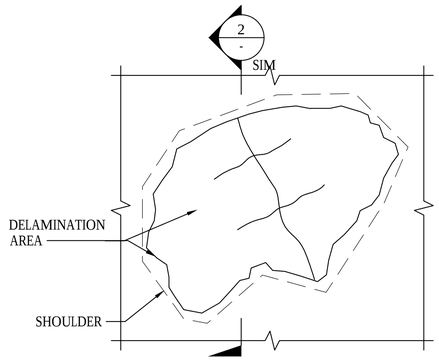
CITY OF WARRENTON
WORK PIER REHABILITATION

DETAILS - SHEET 3

DRAWING NO. **S-15**
PROJECT NO. A18.0171
DATE: 4/24/19
SHEET NO. 16 OF 21



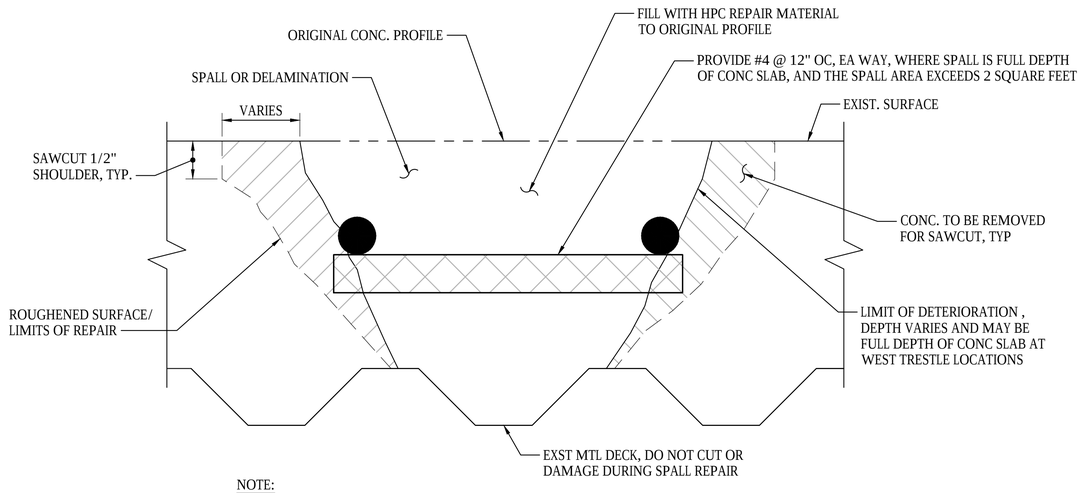
SPALLS



DELAMINATION W/ CRACKS

REPAIR PROCEDURE NOTES:

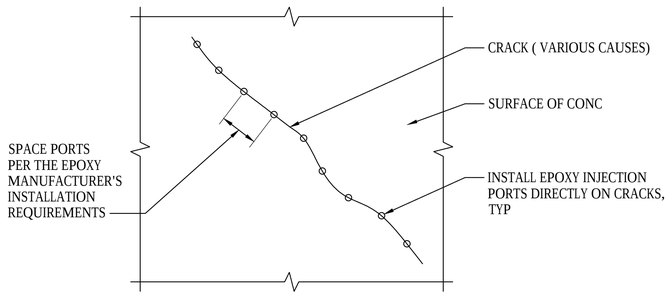
1. REPAIR SPALLS WHERE NOTED ON THE PLAN SHEETS. REPAIR SPALLS IN ROUGHLY SQUARE SHAPE OR WITH STRAIGHT LINE EDGES.
2. SOUND CRACKED AREAS WITH A HAMMER TO IDENTIFY SURFACE DELAMINATIONS. OWNER'S REPRESENTATIVE TO VERIFY.
3. SAWCUT PERIMETER OF REPAIR AREA TO INCLUDE SPALLED AREA AND DELAMINATED ZONES. SAWCUT SHALL BE 1/2" DEEP AND THE FINAL SAWCUT PERIMETER SHALL EXTEND 1 INCH BEYOND DISTRESSED CONCRETE PERIMETER. USE CARE WHEN SAWCUTTING TO PREVENT DAMAGE TO REINFORCING BARS. REINFORCING BARS DAMAGED DURING REPAIR SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. THE CONTRACTOR SHALL NOTIFY THE OWNER IF REINFORCING IS DAMAGED SO THAT A REPAIR PROCEDURE CAN BE PROVIDED TO THE CONTRACTOR. SAWCUT PERIMETER SHALL BE PERPENDICULAR TO CONCRETE FACE.
4. REMOVE CONCRETE TO A SOUND SUBSTRATE .
5. IF EXPOSED REINFORCING BARS ARE ENCOUNTERED DURING SPALL REPAIRS, IT SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE. IN THE EVENT EXPOSED REINFORCING BARS ARE ENCOUNTERED, THE OWNER'S REPRESENTATIVE WILL PROVIDE THE CONTRACTOR AN ALTERNATIVE SPALL REPAIR PROCEDURE TO ADDRESS THE EXPOSED REINFORCING BARS..
6. ROUGHEN EXPOSED CONCRETE SURFACE TO A 1/4" AMPLITUDE.
7. CLEAN ALL CONCRETE SURFACES USING DRY OIL-FREE COMPRESSED AIR. PRIOR TO PLACING REPAIR MATERIAL, PRE-WET CONCRETE SURFACES PER SPECIFICATIONS.
8. PLACE REPAIR MATERIAL PER SPECIFICATIONS.
9. AFTER CURING, SOUND REPAIR AREAS WITH A HAMMER TO VERIFY ADEQUATE BOND IN ACCORDANCE WITH THE SPECIFICATIONS. REMOVE, PREPARE SURFACE, AND REINSTALL ANY REPAIR MATERIAL THAT IS NOT BONDED.



NOTE:
1. SIM CONDITION OCCURS AT DELAMINATION.

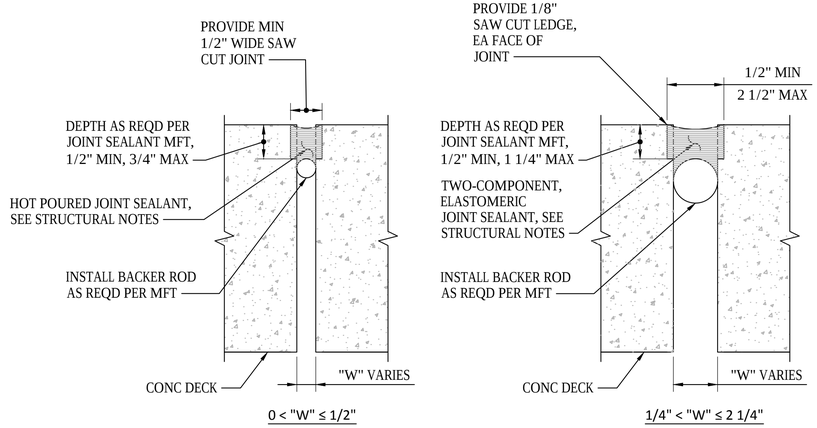
2 - SECTION - TYPICAL SPALL AND DELAMINATION REPAIR
SCALE: NTS

1 S-05 DETAIL - TYPICAL CONCRETE SPALL REPAIR
SCALE: NTS



NOTES:
1. PROVIDE ENTRY PORTS ALONG CRACK PER THE EPOXY MANUFACTURER'S INSTALLATION REQUIREMENTS.
2. APPLY EPOXY CRACK SURFACE SEALER OVER CRACK AFTER ENTRY PORTS HAVE BEEN INSTALLED. DO NOT PROCEED WITH EPOXY INJECTION UNTIL SURFACE SEAL HAS CURED.
3. DO NOT CAP PORTS OR CHANGE INJECTION PORTS UNTIL EPOXY IS OBSERVED TO LEAK FROM ADJACENT PORT.
4. PERFORM EPOXY INJECTION IN ONE CONTINUOUS PROCESS.
5. REMOVE INJECTION PORTS AND SURFACE SEAL AFTER EPOXY CRACK INJECTION HAS CURED.

3 S-05 DETAIL - TYPICAL CONCRETE CRACK INJECTION REPAIR
SCALE: NTS



4 S-06 SECTION - TYPICAL DECK JOINT SEAL
SCALE: NTS

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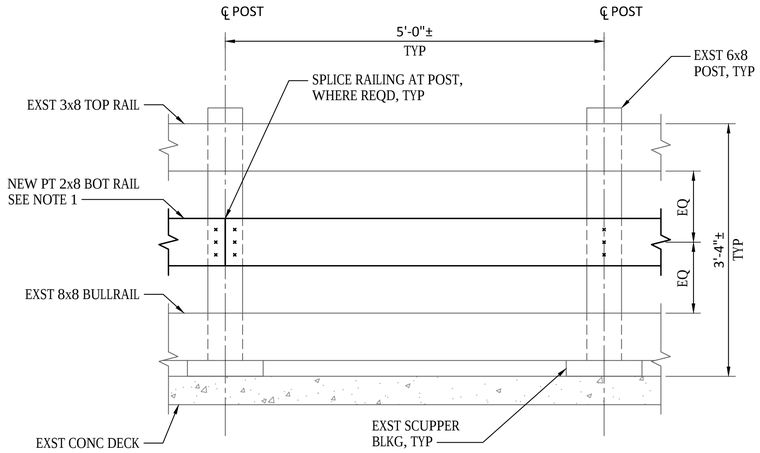
REGISTERED PROFESSIONAL ENGINEER 48114PE OREGON JAN. 29, 2007 HOWARD A. WELLS, III
RENEWS: 6/30/20

DRAWN BY JTH
DESIGN BY BDB
CHECK BY TSM
PROJ MGR HAW

CITY OF WARRENTON
WORK PIER REHABILITATION
DETAILS - SHEET 4

DRAWING NO. **S-16**
PROJECT NO. A18.0171
DATE: 4/24/19
SHEET NO. 17 OF 21

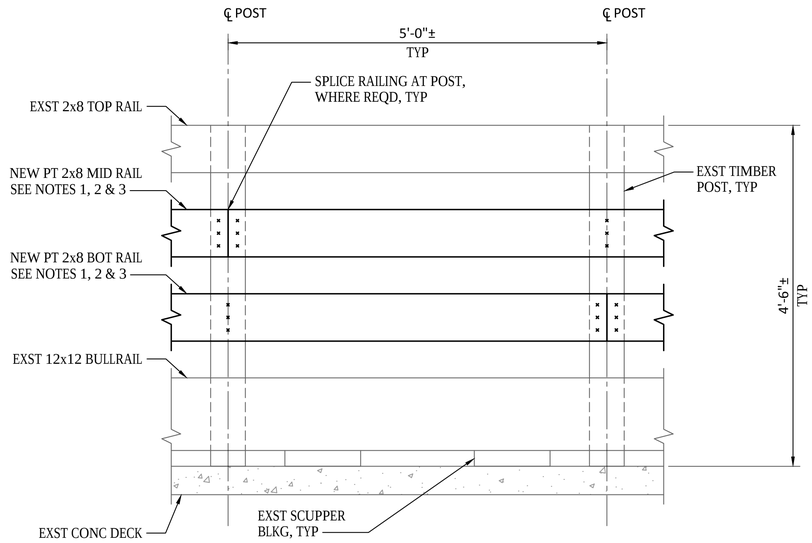


NOTES:

1. ATTACH NEW BOTTOM RAIL W/ (3) 16d NAILS AT EA POST.

1 / S-05 ELEVATION - WEST TRESTLE RAILING

SCALE: 1" = 1'-0"

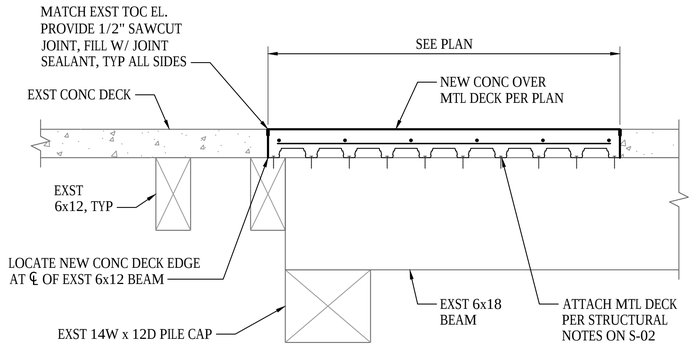


NOTES:

1. INSTALL NEW MID AND/OR BOTTOM RAIL ONLY WHERE RAIL IS MISSING. SEE PLAN FOR LOCATIONS.
2. ATTACH NEW MID AND/OR BOTTOM RAIL W/ (3) 16d NAILS AT EA POST.
3. ALIGN NEW MID AND/OR BOTTOM RAILS W/ EXST ADJACENT RAILS.

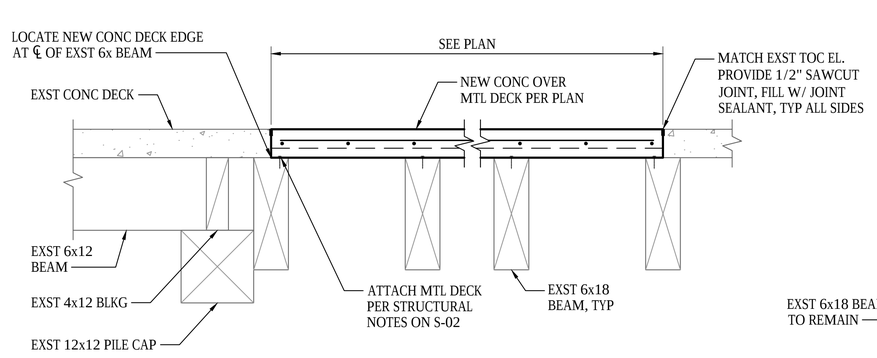
2 / S-11 ELEVATION - EAST TRESTLE RAILING

SCALE: 1" = 1'-0"



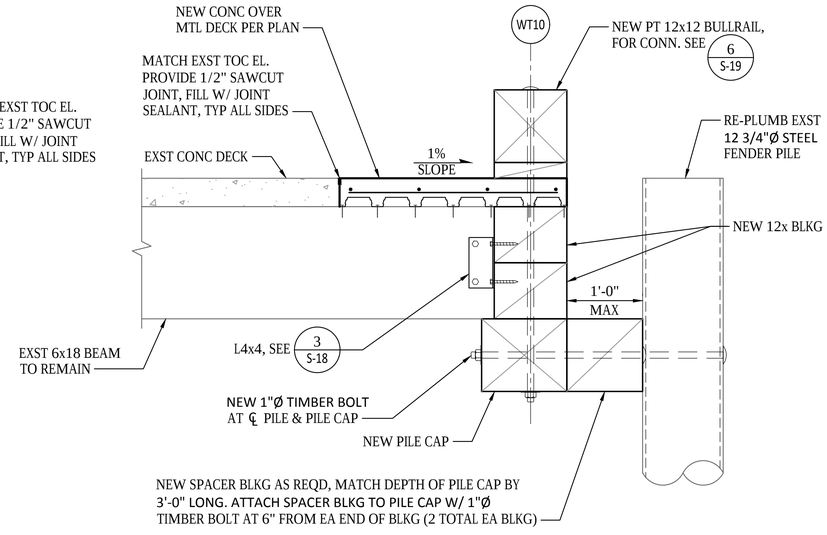
3 / S-06 SECTION - CONCRETE DECK

SCALE: 1" = 1'-0"



4 / S-06 SECTION - CONCRETE DECK

SCALE: 1" = 1'-0"



5 / S-06 SECTION - FENDER PILE CONNECTION

SCALE: 1" = 1'-0"

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RENEWS: 6/30/20

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DESIGN BY	BDB
CHECK BY	TSM
PROJ MGR	HAW

CITY OF WARRENTON
WORK PIER REHABILITATION

DETAILS - SHEET 5

DRAWING NO.	S-17
PROJECT NO.	A18.0171
DATE:	4/24/19
SHEET NO.	18 OF 21

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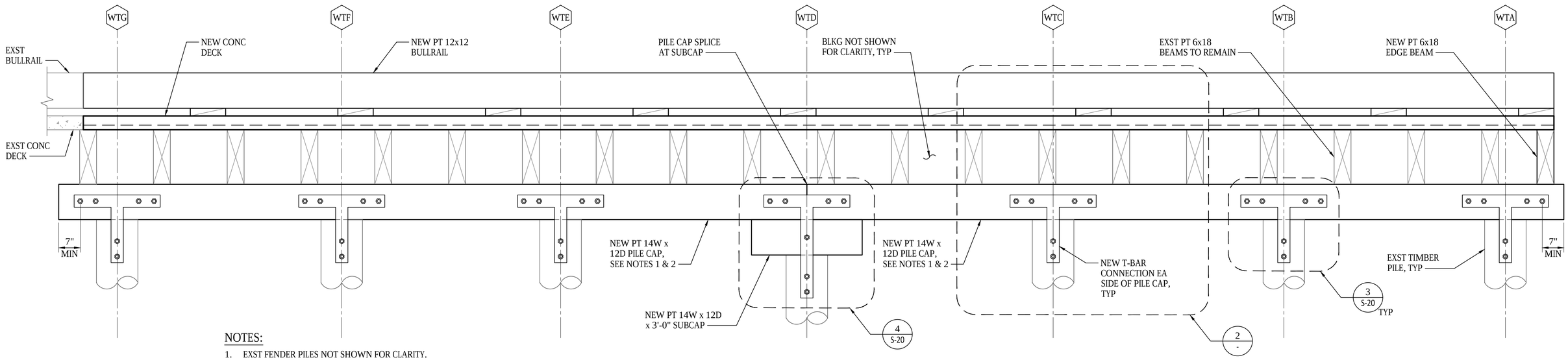
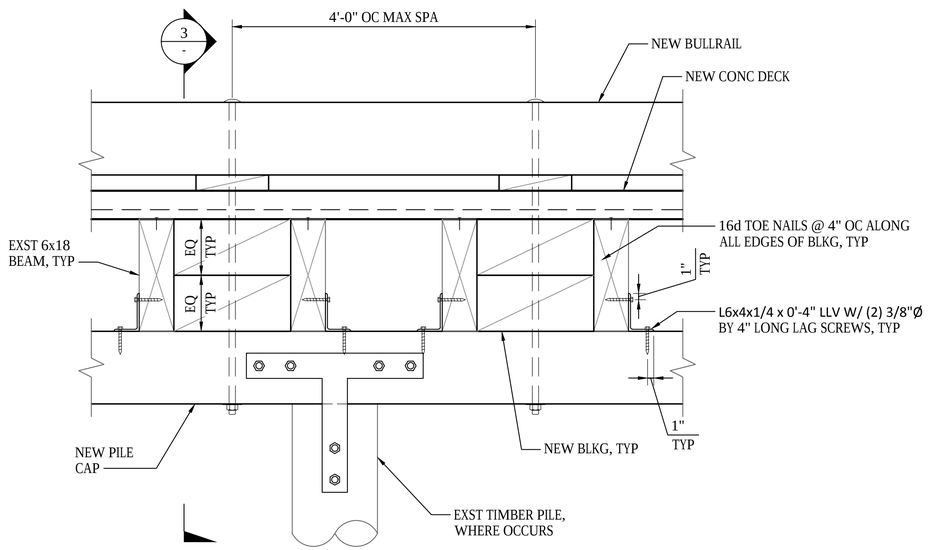


NOTES:

1. EXST FENDER PILES NOT SHOWN FOR CLARITY.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE TEMPORARY SHORING FOR THE PILE CAP REPLACEMENT.

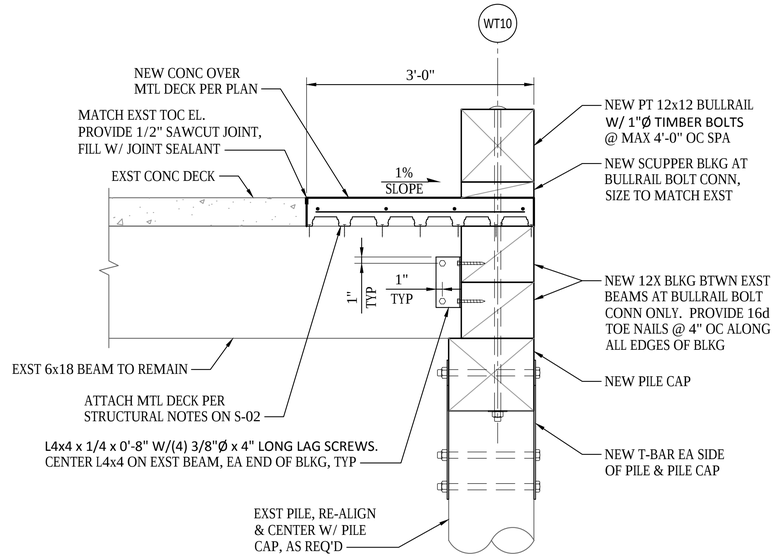
1/S-06 ELEVATION - WEST TRESTLE PILE CAP REPLACEMENT AT WT10

SCALE: 3/4" 1'-0"



2/- DETAIL - EXISTING BEAM TO NEW PILE CAP CONNECTION

SCALE: 1" 1'-0"



3/- SECTION - WORK PIER PILE CAP REPLACEMENT AT WT10

SCALE: 1" 1'-0"

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DESIGN BY	BDB
CHECK BY	TSM
PROJ MGR	HAW

CITY OF WARRENTON
WORK PIER REHABILITATION
DETAILS - SHEET 6

DRAWING NO.	S-18
PROJECT NO.	A18.0171
DATE:	4/24/19
SHEET NO.	19 OF 21

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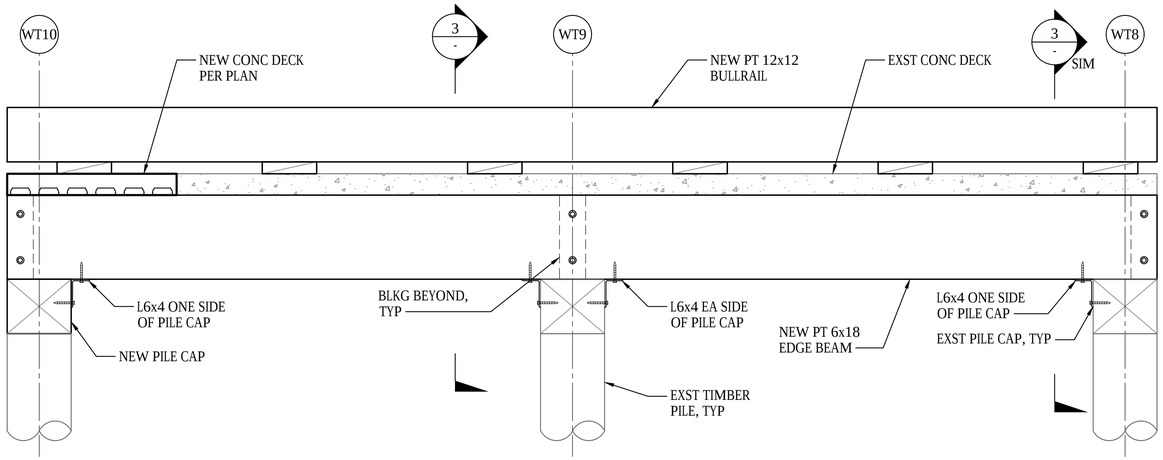
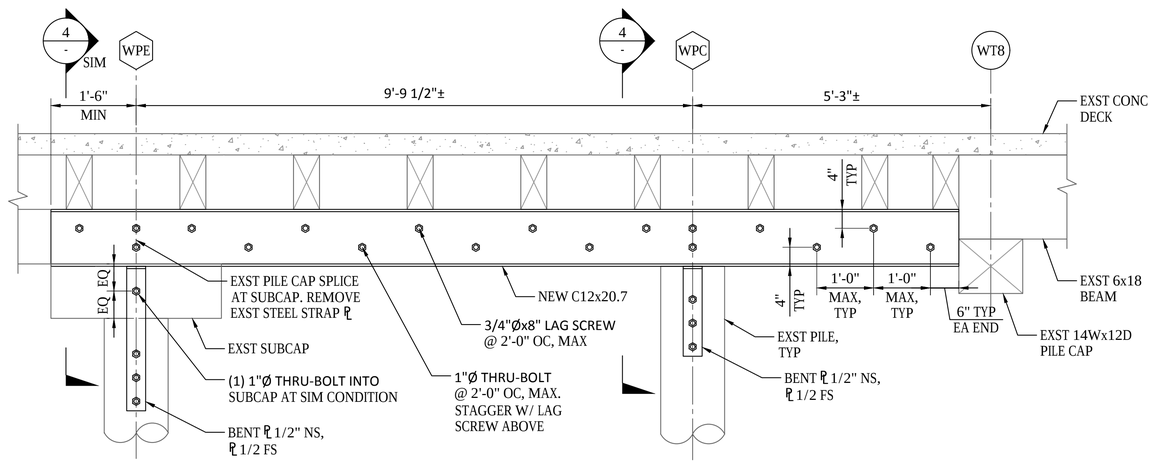


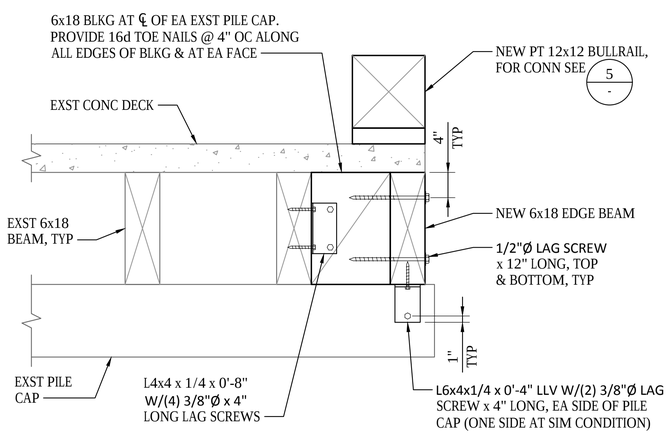
1 S-06 ELEVATION - WEST TRESTLE EDGE BEAM REPLACEMENT AT WTA

SCALE: 3/4" 1'-0"



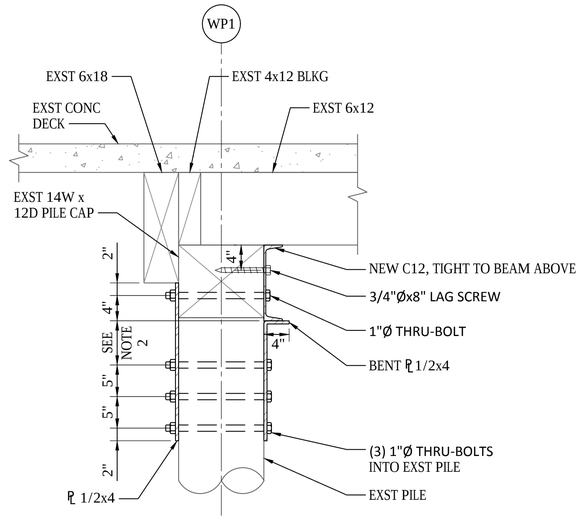
2 S-06 ELEVATION - PILE CAP STRENGTHENING AT WP1

SCALE: 3/4" 1'-0"



3 - SECTION - NEW EDGE BEAM

SCALE: 1" 1'-0"

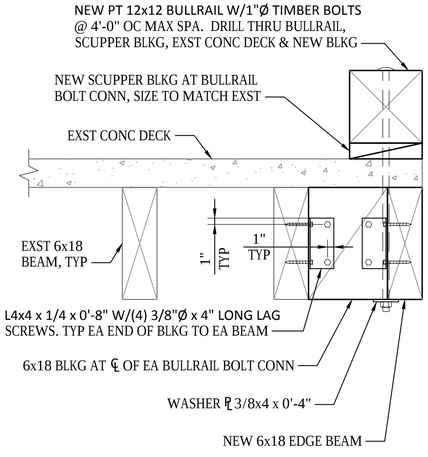


NOTES:

1. SIM CONDITION OCCURS AT GRID WPE W/ EXST SUBCAP.
2. PROVIDE 7" TO TOP OF BENT ℄ AT GRID WPC. AT SIM CONDITION AT WPE, PROVIDE ADDITIONAL 1"Ø THRU-BOLT AT ℄ OR EXST SUBCAP.

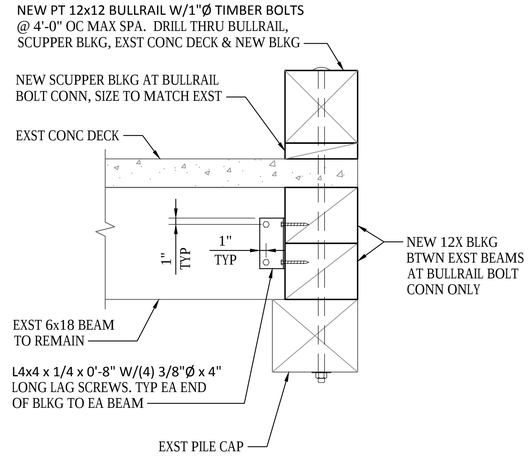
4 - SECTION - PILE CAP STRENGTHENING

SCALE: 1" 1'-0"



5 S-06 SECTION - WEST TRESTLE NEW BULLRAIL CONNECTION

SCALE: 1" 1'-0"



6 S-06 SECTION - WEST TRESTLE NEW BULLRAIL CONNECTION

SCALE: 1" 1'-0"

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RENEWS: 6/30/20

DRAWN BY JTH
DESIGN BY BDB
CHECK BY TSM
PROJ MGR HAW

CITY OF WARRENTON
WORK PIER REHABILITATION

DETAILS - SHEET 7

DRAWING NO. S-19
PROJECT NO. A18.0171
DATE: 4/24/19
SHEET NO. 20 OF 21

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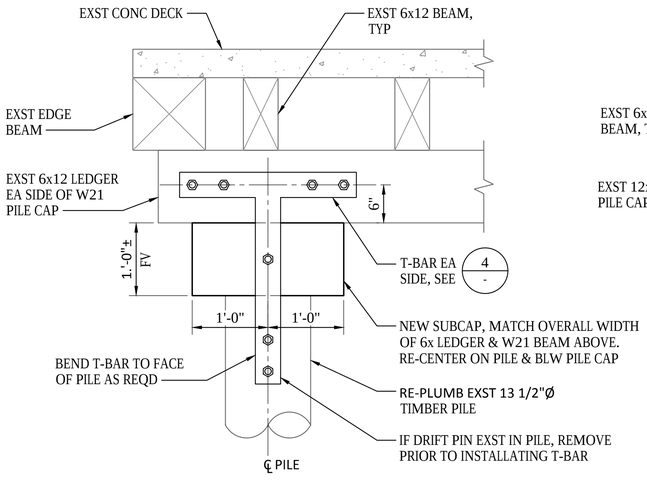
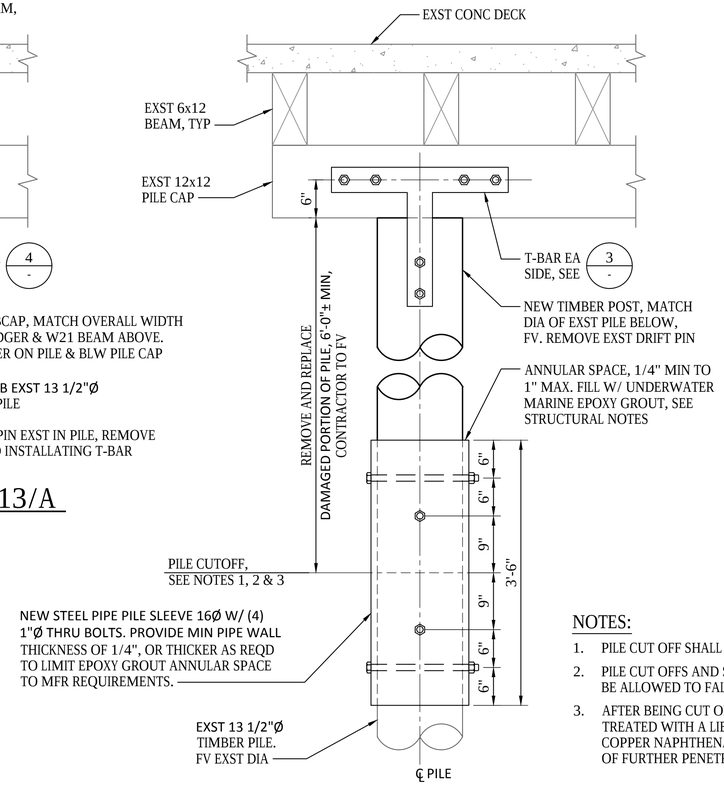
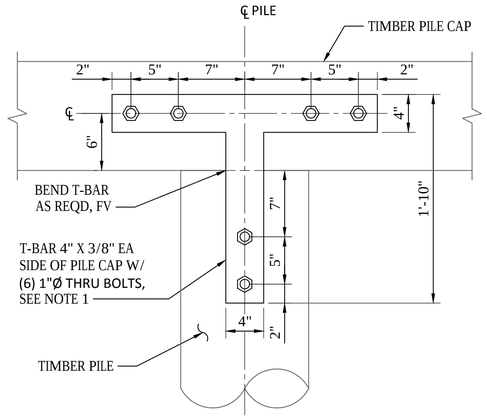


1 / S-08 PILE CONNECTION AT WP13/A
SCALE: 1" 1'-0"



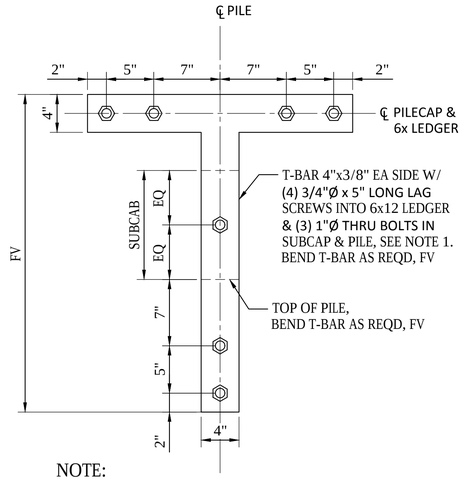
NOTES:
1. PILE CUT OFF SHALL BE LEVEL AND TRUE.
2. PILE CUT OFFS AND SAW TAILINGS SHALL NOT BE ALLOWED TO FALL INTO THE WATER.
3. AFTER BEING CUT OFF, THE PILE TOP SHALL BE TREATED WITH A LIBERAL APPLICATION OF COPPER NAPHTHENATE UNTIL VISIBLE EVIDENCE OF FURTHER PENETRATION HAS CEASED.

2 / S-10 PILE REPAIR AT WP31/D
SCALE: 1" 1'-0"



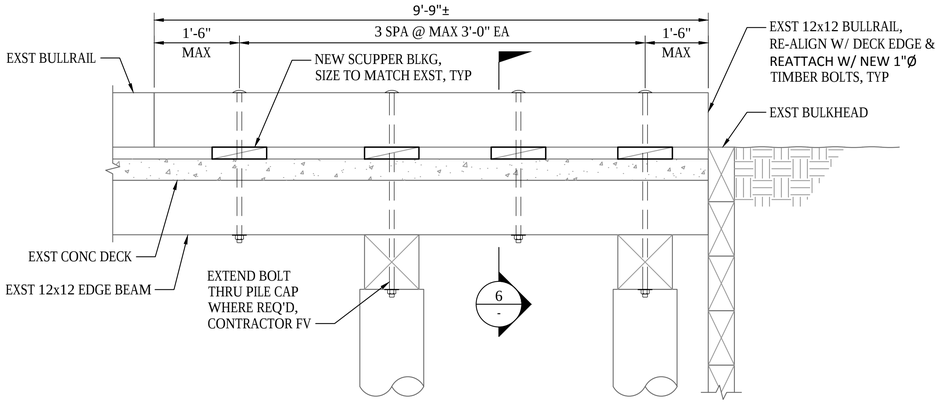
NOTE:
1. MAY OFFSET T-BAR UP TO 1" FROM PILE IN ORDER TO AVOID EXST DRIFT PIN

3 / - T-BAR DETAIL
SCALE: 1 1/2" 1'-0"

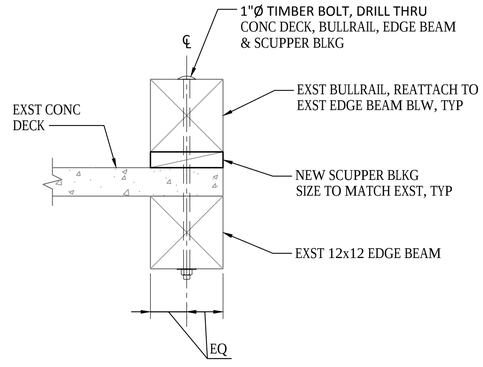


NOTE:
1. MAY OFFSET T-BAR UP TO 1" FROM PILE IN ORDER TO AVOID EXST DRIFT PIN

4 / - T-BAR W/SUBCAP DETAIL
SCALE: 1 1/2" 1'-0"



5 / S-12 ELEVATION - EAST TRESTLE EXST BULLRAIL CONNECTION
SCALE: 3/4" 1'-0"



6 / - SECTION - EAST TRESTLE BULLRAIL CONNECTION
SCALE: 1" 1'-0"

MARK	REVISION DESCRIPTION	BY	APP.	DATE

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REGISTERED PROFESSIONAL ENGINEER 48114PE OREGON JAN. 23, 2007 HOWARD A. WELLS III
RENEWS: 6/30/20

DRAWN BY JTH
DESIGN BY BDB
CHECK BY TSM
PROJ MGR HAW

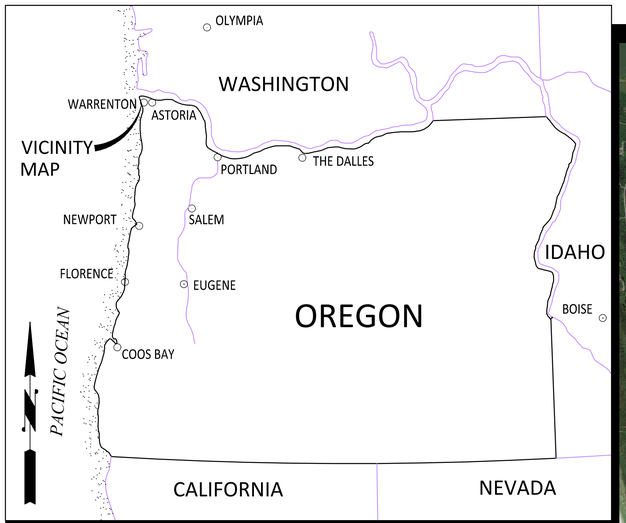
CITY OF WARRENTON
WORK PIER REHABILITATION
DETAILS - SHEET 8

DRAWING NO. S-20
PROJECT NO. A18.0171
DATE: 4/24/19
SHEET NO. 21 OF 21

Last Saved by: Tony.pritchett on: Apr 27, 2018 11:47 AM File: Q:\Portland\2018\A18.0171\00\CADD\Dwgs\02_S20.dwg

CITY OF WARRENTON

WORK PIER REHABILITATION - PHASES II & III



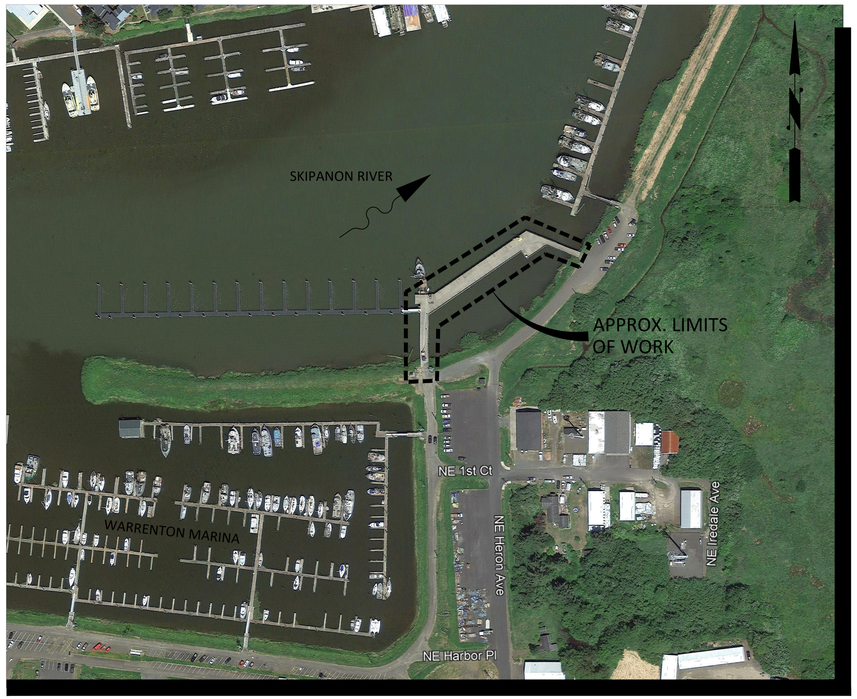
OREGON KEY MAP

TIDAL DATA

Station: 9439040, Astoria, OR	MLLW (feet)	NAVD88 (feet)
HMT	12.37	12.58
BASE FLOOD	11.79	12.00
MHHW	8.61	8.82
MHW	7.94	8.15
MTL	4.55	4.76
MSL	4.51	4.72
DTL	4.31	4.52
MLW	1.17	1.38
MLLW	0.00	0.21
NAVD88	-0.21	0.00
MIN	-3.85	-3.64

HMT	Highest Measured Tide (1/27/1983)
BASE FLOOD	100-Year Flood
MHHW	Mean Higher-High Water
MHW	Mean High Water
MTL	Mean Tide Level
MSL	Mean Sea Level
DTL	Mean Diumal Tide Level
MLW	Mean Low Water
MLLW	Mean Lower-Low Water
NAVD88	North American Vertical Datum of 1988
MIN	Lowest Observed Water Level (1/28/1979)

VICINITY MAP



LOCATION MAP

(WARRENTON, OREGON)

SHEET INDEX

DRAWING	SHEET	SHEET TITLE
G01	1	COVER SHEET
S01	2	DRAWING LEGEND AND ABBREVIATIONS
S02	3	STRUCTURAL NOTES
S03	4	SPECIAL INSPECTION AND STRUCTURAL OBSERVATIONS
S04	5	PIER KEY PLAN
S05	6	PIER PLAN - SHEET 1
S06	7	PIER PLAN - SHEET 2
S07	8	PIER PLAN - SHEET 3
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S09	10	PIER PLAN - SHEET 5
S10	11	PIER PLAN - SHEET 6
S11	12	PIER PLAN - SHEET 7
S12	13	PIER PLAN - SHEET 8
S13	14	PIER PLAN - SHEET 9

SHEET INDEX (CONT.)

DRAWING	SHEET	SHEET TITLE
S14	15	REHABILITATION DETAILS - SHEET 1
S15	16	REHABILITATION DETAILS - SHEET 2
S16	17	REHABILITATION DETAILS - SHEET 3
S17	18	REHABILITATION DETAILS - SHEET 4
S18	19	REHABILITATION DETAILS - SHEET 5

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COVER SHEET FOR:
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A SITE LOCATED IN THE CITY OF WARRENTON, OREGON

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OREGON
JAN. 23, 2001
HOWARD A. WELLS
RENEWS: 06/30/24

DESIGNED: JMC
CHECKED: KL
AUGUST 31, 2022
74202.000

SHEET ID
G01
SHEET 1 OF 19

No.	Revision	Date	By	App'd

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ABBREVIATIONS:

&	AND
@	AT
APPROX	APPROXIMATE
AR	ANCHOR RODS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BF	BOARD FEET
BLKG	BLOCKING
BLW	BELOW
BOT	BOTTOM
BTWN	BETWEEN
CIP	CAST IN PLACE
CL, ℄	CENTER LINE
CLR	CLEAR
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
DEMO	DEMOLISH
DIA OR Ø	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
E	EAST
EA	EACH
EF	EACH FACE
EL	ELEVATION
ELEC	ELECTRIC
EMBED	EMBEDMENT
EQ	EQUAL
EW	EACH WAY
EXST	EXISTING
FS	FAR SIDE
FT	FOOT, FEET
FV	FIELD VERIFY
GA	GAGE
GALV	GALVANIZED
GVW	GROSS VEHICLE WEIGHT
HPC	HIGH PERFORMANCE CEMENTITIOUS
HS	HIGH STRENGTH
HT	HEIGHT
IN	INCH
INFO	INFORMATION
KSI	KIPS PER SQUARE INCH
LBS	POUNDS
LF	LINEAR FEET
LLV	LONG LEG VERTICAL
MAX	MAXIMUM
MFT	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MET	METAL
#	NUMBER
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
PCF	POUNDS PER CUBIC FOOT
PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PT	PRESSURE TREATED
QTY	QUANTITY
REF	REFERENCE
REINF	REINFORCE, REINFORCEMENT
REQD	REQUIRED
REV	REVISION
S	SOUTH
SF	SQUARE FOOT
SIM	SIMILAR
SPA	SPACE, SPACING
SPEC	SPECIFICATION
SQ	SQUARE
T&B	TOP AND BOTTOM
THRU	THROUGH
TOC	TOP OF CONCRETE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
W	WEST
W/	WITH
W/O	WITHOUT

LEGEND:

NORTH ARROW

X / XXX — SECTION, DETAIL, OR ELEVATION CALLOUT

DRAWING WHERE SECTION, DETAIL OR ELEVATION IS FIRST SHOWN OR CALLED FROM

X / XXX — SECTION OR ELEVATION CUT

X / XXX **TITLE** SCALE: X" = X'-XX" — PLAN, SECTION, DETAIL, OR ELEVATION

X / XXX — PHOTO - INDICATES APPROXIMATE PERSPECTIVE

EXISTING PLUMB PILE

EXISTING BATTERED PILE (1:12) UNO

XX1 — BENT NUMBER

XXA — ROW LETTER

P — EXISTING POWER/ ELECTRICAL CONDUIT

W — EXISTING WATER LINE

SPOT ELEVATION

EXISTING 3x8 PILE BRACING ATTACHED AT TOP OF PILE

EXST / D-1 — SPAN DIRECTION OF EXISTING 3" UNREINFORCED CONCRETE OVER 1 1/2" DEEP METAL DECK W/ 4 1/2" FLUTE SPACING. TO BE REPLACED WITH D-3

EXST / D-2 — SPAN DIRECTION OF EXISTING 3 3/4" CONCRETE WITH #4 REBAR AT 12" OC, EACH WAY, OVER 3/4" DEEP METAL DECK W/ 3" FLUTE SPACING

D-3 — SPAN DIRECTION OF NEW 3" CONC W/ #4 AT 12" OC EA WAY AT MID DEPTH OF CONC, OVER 1 1/2" DEEP METAL DECK

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DRAWING LEGEND AND ABBREVIATIONS FOR:

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DESIGNED: JMC

CHECKED: KL

AUGUST 31, 2022
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S01

SHEET 2 OF 19

CODES AND STANDARDS:

1. REINFORCED CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301) AND "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318).
2. STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION THEREOF SHALL CONFORM TO THE "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (AISC 303) AND "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS" (AISC 360).
3. WELDING OF STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO "STRUCTURAL WELDING CODE - STEEL" (AWS D1.1).
4. CONCRETE REPAIR SHALL CONFORM TO REQUIREMENTS OF "GUIDE TO CONCRETE REPAIR" (ACI 546R).
5. TIMBER CONSTRUCTION SHALL CONFORM TO "NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION" (NDS).

GENERAL:

1. THE IMPLEMENTATION OF A BEST MANAGEMENT PRACTICES PLAN (BMP) DURING CONSTRUCTION IS REQUIRED. THE CONTRACTOR SHALL PREVENT/MINIMIZE ENVIRONMENTAL IMPACTS DURING ALL CONSTRUCTION WORK.
2. THESE NOTES CONTAIN GENERAL INFORMATION AND ARE NOT COMPLETE FOR CONSTRUCTION PURPOSES. VERIFY INFORMATION GIVEN HERE WITH THE SPECIFICATIONS AND OTHER DRAWINGS, AND BRING ANY CONFLICTS TO THE ATTENTION OF THE CITY BEFORE BEGINNING AFFECTED WORK. THE CITY WILL RESOLVE ANY CONFLICTS.
3. FIELD VERIFY ALL FEATURES, DIMENSIONS, AND ELEVATIONS PRIOR TO FABRICATION OF ASSEMBLIES OR CONSTRUCTION. THE CONDITIONS SHOWN ON THESE DRAWINGS ARE BASED ON AVAILABLE EXISTING DATA. NOTIFY THE CITY OF ANY DISCREPANCIES BEFORE BEGINNING THE AFFECTED WORK.
4. DIMENSIONS, ELEVATIONS, AND DETAILS OF EXISTING STRUCTURES ARE INCLUDED ON THESE DRAWINGS FOR REFERENCE ONLY AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. VERIFY DIMENSIONS AND DETAILS, AND NOTIFY THE CITY OF ANY MISALIGNMENT, DISCREPANCIES, DIMENSIONS THAT NEED MODIFICATION, OR OMISSIONS BEFORE THE SHOP DRAWING SUBMITTALS.
5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR FIELD VERIFICATION AND DETERMINATION OF STRUCTURAL CAPACITY OF THE EXISTING STRUCTURES FOR THE ANTICIPATED LOADS DURING CONSTRUCTION.
6. PROVIDE WATER-TIGHT CONTAINMENT SYSTEM FOR ALL UNDER DECK REPAIRS. INSTALL TEMPORARY WORK PLATFORMS IF NEEDED, AND CONTAINMENT SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS.
7. THE FOLLOWING REPORT IS INCLUDED FOR REFERENCE ONLY. THE INFORMATION CONTAINED IN THIS REPORT IS INFORMATIONAL AND IS NOT PART OF THE CONTRACT DOCUMENTS.
   A. WARRENTON MARINA WORK PIER, CONDITION SURVEY AND LOAD RATING REPORT, JULY 2017.

DEMOLITION:

1. THE CONTRACTOR SHALL CONTAIN THE DEMOLITION WITHIN THE LIMITS DESIGNATED, TO PREVENT DAMAGE TO EXISTING STRUCTURES, UTILITIES, OR FACILITIES, AND KEEP ALL DEBRIS FROM FALLING INTO THE WATER.
2. PRIOR TO GENERAL DEMOLITION, THE CONTRACTOR SHALL SAWCUT WHERE NOTED, OR OTHERWISE PROVIDE A SMOOTH CLEAN BREAK BETWEEN ITEMS THAT ARE TO BE DEMOLISHED AND ITEMS THAT ARE TO REMAIN.
3. ALL DEMOLITION MATERIAL, EXCEPT AS NOTED, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR. THE REMOVAL, HANDLING, AND DISPOSAL OF ALL DEMOLITION MATERIALS, INCLUDING CREOSOTE-TREATED TIMBERS, SHALL BE IN STRICT ACCORDANCE WITH ALL STATE AND FEDERAL REQUIREMENTS. PROPER DISPOSAL OF ALL DEMOLITION AND CONSTRUCTION MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE ITSELF WITH THE MATERIALS TO BE DISPOSED OF AND ALL GOVERNING AGENCIES AND PERMIT REQUIREMENTS.

REINFORCED CONCRETE:

1. REINFORCED CONCRETE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 5,000 PSI
2. REINFORCING STEEL
   A. ALL REINFORCING STEEL SHALL BE DEFORMED STEEL BARS CONFORMING TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE. WELDED REINFORCING BARS SHALL CONFORM TO ASTM A706.
   B. SHOW SPLICE LOCATIONS FOR REINFORCING STEEL ON THE SHOP DRAWINGS. SPLICES SHALL CONFORM TO THE FOLLOWING TABLE, UNLESS OTHERWISE NOTED.

SCHEDULE OF LAP SPLICE LENGTHS (f'c=5000 PSI)					
BAR SIZE	4	5	6	7	8
TOP BARS	2'-6"	3'-0"	3'-9"	5'-3"	6'-0"
BOTTOM BARS	2'-0"	2'-6"	3'-0"	4'-0"	4'-9"

NOTES:
1. VALUES ARE BASED ON CLASS "B" SPLICES (MAX OF 50% BAR SPLICED AT ONE LOCATION).
2. TOP BARS ARE DEFINED AS ANY HORIZONTAL BAR PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR.

   C. DETAIL ALL REINFORCING STEEL IN ACCORDANCE WITH ACI 315.
3. PROVIDE 1 1/2-INCHES OF CONCRETE COVER UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
4. CONCRETE FORMING: SEE SPECIFICATIONS. FILL ALL VOIDS LEFT BY CONES AND OTHER FORMWORK HARDWARE AFTER FORMS ARE REMOVED. FOR CHAIRS, SUPPORTS, AND SPACERS TO SUPPORT REINFORCING STEEL, USE ALL-PLASTIC OR EPOXY-COATED WITH PRE-MOLDED PLASTIC TIPS. PROVIDE CHAIRS, SUPPORTS, AND SPACERS AT INTERVALS LESS THAN 4 FEET ON CENTER UNLESS OTHERWISE ALLOWED BY THE CITY.
5. CONCRETE FINISHING: TERMINOLOGY IS AS DEFINED IN ACI 301.
   SLAB OR TOP SURFACE = LIGHT BROOM FINISH W/ 1/16" STRIA
   FORMED SURFACES = SMOOTH FORM FINISH
   SURFACES RECEIVING GROUT = SCRATCH FINISH
6. CONCRETE CURING: MOIST CURE CONCRETE SURFACES OR USE AN APPROVED CURING MEMBRANE IN ACCORDANCE WITH ACI 301 UNLESS A LONGER TIME IS REQUIRED IN THE SPECIFICATIONS.
7. CONCRETE DEFECTS: REPAIR FORMED SURFACES BY REMOVING MINOR HONEYCOMBS, PITS GREATER THAN 1/2-SQUARE-INCH IN AREA OR GREATER THAN 1/4-INCH IN DEPTH, AND ALL OTHER DEFECTS AS DIRECTED BY THE CITY OR AS DESCRIBED IN THE SPECIFICATIONS OR REFERENCE DOCUMENTS. PROVIDE EDGES PERPENDICULAR TO THE SURFACE, PATCH WITH GROUT AS SPECIFIED, AND PROVIDE A SMOOTH FORM FINISH. CONCRETE WITH EXTENSIVE HONEYCOMBING OR OTHER DEFECTS WHICH AFFECT SERVICEABILITY AND/OR STRUCTURAL STRENGTH OF THE CONCRETE ELEMENT, AS DETERMINED BY THE CITY, SHALL BE REJECTED AND REPLACED AT NO ADDITIONAL COST TO THE CITY.

STRUCTURAL AND MISCELLANEOUS STEEL:

1. MISCELLANEOUS STEEL SHAPES, PLATES, AND BARS: ASTM A572, Fy = 50 KSI, TYPICAL
2. ANGLES: ASTM A36, UNO
3. BOLTS: ASTM A307 TYPICAL, UNO
4. NUTS: HEAVY HEX, ASTM A563, GRADE SUITABLE FOR THE TYPE OF BOLT.
5. WASHERS: ASTM F844, WIDE SERIES, MAXIMUM THICKNESS FOR ASTM A307 BOLTS.
6. HOT-DIP GALVANIZE ALL STEEL MATERIALS, FABRICATIONS, AND ASSEMBLIES IN ACCORDANCE WITH ASTM A123 OR ASTM A153 AS APPLICABLE, UNO. GALVANIZE ITEMS AFTER FABRICATION AS FAR AS PRACTICABLE. RESTORE GALVANIZING DAMAGED BY WELDING, HANDLING, OR OTHER CAUSES IN ACCORDANCE WITH THE SPECIFICATIONS. GALVANIZED ITEMS SHALL BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
7. STEEL FENDER PILE: ASTM A252, GRADE 3, FY = 50 KSI.

METAL DECK:

1. STEEL FLOOR DECK SHALL BE COMPOSITE METAL DECK WITH FLUTES AT 6" ON CENTER AND CONFORM TO ASTM A653-SS DESIGNATION, GRADE 50 MINIMUM OR ASTM A611, GRADE C. ACCEPTABLE METAL DECK AS FOLLOWS.
   A. ASC BH-36 Hi FORM.
   B. VERCO PLB FORM LOCK.
   C. NEW MILLENIUM BUILDING SYSTEM, TYPE 1.5CD.
2. THE MINIMUM DECK SIZE AND GAUGE ARE BASED ON A 3-SPAN, UNSHORED CONDITION. THE MINIMUM DECK PROPERTIES ARE 1 1/2" DEEP, 16 GAGE FLOOR DECK MIN. I(IN^4/FT)=0.355, S(IN^3/FT)=0.390
3. STEEL DECK COATING IN ACCORDANCE WITH ASTM A653 G60. PROVIDE FACTORY PRIMER TO UNDERSIDE OF DECK.
4. STEEL FLOOR DECK ATTACHMENT SHALL BE (2) 5/16 DIA x 3" LONG GALVANIZED SCREWS @ 6" OC AT ALL TRANSVERSE, PERIMETER AND LONGITUDINAL TIMBER SUPPORTS AND BLOCKING.

TIMBER:

1. ALL SAWN LUMBER SHALL BE PRESSURE TREATED AND CONFORM TO WEST COAST LUMBER INSPECTION BUREAU OR WESTERN WOOD PRODUCTS ASSOCIATION GRADING RULES. LUMBER SHALL BE OF BEAMS 5" x 5" AND GREATER, DOUGLAS FIR LARCH NO.1 (F_b = 1350 PSI)
2. TIMBER BOLTS AND TIMBER LAG SCREWS SHALL CONFORM TO ANSI/ASME STANDARD B18.2.1-1981. ALL TIMBER BOLTS AND TIMBER LAG SCREWS SHALL BE DOME HEAD AND INSTALLED WITH MALLEABLE IRON WASHERS. ALL TIMBER BOLTS SHALL BE A307 AND HAVE CUT THREADS.
3. ALL FASTENERS, NAILS, LAG SCREWS AND BOLTS SHALL BE HOT-DIP GALVANIZED.
4. HOLES FOR BOLTS SHALL BE DRILLED WITH A BIT OF THE SAME NOMINAL DIAMETER AS THE BOLT +1/16". LEAD HOLES FOR LAG SCREWS SHALL BE BORED IN ACCORDANCE WITH ANSI/AWC NDS-2012, SECTION 11.1.4.
5. WHEN FIELD CUTTING, DRILLING OR FABRICATION IS NECESSARY, IT SHALL BE DONE AWAY FROM THE WATER TO THE DEGREE PRACTICAL AND ALL WASTE, INCLUDING SAWDUST, SHALL BE COLLECTED AND DISPOSED OF APPROPRIATELY.
6. TREAT ALL HOLES, CUTS OR INJURIES IN EXISTING TIMBERS WITH A COPPER NAPHTHENATE BASED SOLUTION. THE FOLLOWING GUIDELINES SHALL BE FOLLOWED IN FIELD TREATMENT OF TIMBERS:
   A. FOLLOW THE PROCEDURES OUTLINED IN AWPA STANDARD M4, STANDARD FOR THE CARE OF PRESERVATIVE-TREATED WOOD PRODUCTS.
   B. WHEN FIELD TREATING EXISTING TIMBERS BY BRUSHING, SPRAYING, DIPPING OR SOAKING DO SO IN SUCH A MANNER THAT THE PRESERVATIVE DOES NOT DRIP OR SPILL INTO THE ENVIRONMENT.
   C. WHENEVER POSSIBLE, APPLY FIELD TREATMENTS PRIOR TO ASSEMBLING THE STRUCTURE OVER THE BODY OF WATER.
   D. CONDUCT THE APPLICATION OF THE PRESERVATIVE SO THAT ANY OVERSPRAY OR DRIPPAGE OF PRESERVATIVE CAN BE RECOVERED OR RETAINED.
   E. SPECIFIERS AND INSTALLERS SHALL FOLLOW THE DIRECTIONS FOR USE ON THE COPPER NAPHTHENATE BASED END CUT SOLUTION LABEL AND MATERIAL SAFETY DATA SHEETS (MSDS) FOR THE PRODUCT.

CONSTRUCTION LOADS:

1. SEE DRAWING S-04 FOR EQUIPMENT AND LOAD RESTRICTIONS.
2. DO NOT OPERATE EQUIPMENT OR USE AS STAGING AREAS ANYWHERE IDENTIFIED AS A LOAD RESTRICTED AREA.

DECK JOINT SEAL:

1. HOT POURED JOINT SEALANT
   A. USED FOR JOINT WIDTHS 1/2" OR LESS
   B. SHALL BE CRAFCO ROADSAVER 221 OR APPROVED EQUAL
2. TWO-COMPONENT, ELASTOMERIC JOINT SEALANT
   A. USED FOR JOINT WIDTHS 1/2" UP TO 2 1/2"
   B. SHALL BE SIKAFLEX-2C NS EZ MIX OR APPROVED EQUAL

KEY NOTES AND ESTIMATED REPAIR QUANTITIES:

KEY NOTE	LOCATION	REPAIR DESCRIPTION	DETAIL	QTY	UNIT
1	WEST TRESTLE	REMOVE & REPLACE CONCRETE OVER METAL DECK	A,B,C / S14	3040	SF
2	WORK PIER	STRENGTHENING PILE CAP WP3	A / S15	1	EA
3	WORK PIER	STRENGTHENING PILE CAP WP4	B / S15	1	EA
4	WEST TRESTLE	STRENGTHENING WEST TRESTLE PILE CAP	A, B / S16	9	EA
5	WORK PIER	STRENGTHENING TYPICAL WORK PIER PILE CAP	C / S16	27	EA
6	EAST TRESTLE	STRENGTHENING TYPICAL EAST TRESTLE PILE CAP	D / S16	8	EA
7	WORK PIER	STRENGTHENING JOIST - SINGLE SPAN	A / S17	8	EA
8	WORK PIER	STRENGTHENING JOIST - 2-SPAN	B / S17	4	EA
9	WORK PIER - EAST TRESTLE	REMOVE & REPLACE FENDER PILE	B / S18	7	EA
10	WEST TRESTLE	REPLACE BRACE	A / S18	3	EA

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SHEET ID
S02

SHEET 3 OF 19

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TABLE 2

REQUIRED STRUCTURAL SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
FABRICATORS					
FABRICATORS	1704.2.5			X	SPECIAL INSPECTION IS REQUIRED FOR STRUCTURAL LOAD-BEARING MEMBERS AND ASSEMBLIES FABRICATED ON THE PREMISES OF A FABRICATOR'S SHOP.
	1704.2.5.1				THE SPECIAL INSPECTOR SHALL VERIFY THAT THE FABRICATOR MAINTAINS DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES AND SHALL REVIEW FOR COMPLETENESS AND ADEQUACY RELATIVE TO THE CODE REQUIREMENT.
	1704.2.5.2				SPECIAL INSPECTIONS REQUIRED BY SECTION 1705 ARE NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED UPON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY A NATIONALLY RECOGNIZED ACCREDITING AUTHORITY. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
CONCRETE					
REINFORCING STEEL	1705.3 1910.4 1901.3.2	ACI 318: 3.5 ACI 318: 7.1-7.7		X	TOLERANCES AND REINFORCING PLACEMENT PER ACI 7.5; SPACING LIMITS FOR REINFORCING ACI 7.6 PROTECTION OF REINFORCEMENT PER ACI 7.7
VERIFYING USE OF REQUIRED MIX DESIGN(S)	TABLE 1705.3 1904 1904.2 1910.2 1910.3	ACI 318: CHAPTER 4 ACI 318: 5.2-5.4		X	
CONCRETE PLACEMENT	TABLE 1705.3	ACI 318: 1.3.2.D ACI 318: 5.9 - 5.10	X		
STEEL					
FABRICATION OF STRUCTURAL ELEMENTS	1704.2.5.2	AISC 360 N2		X	REFER TO INSPECTION OF FABRICATOR REQUIREMENTS APPROVAL BASED ON NATIONALLY RECOGNIZED ACCREDITING AUTHORITY
MATERIAL VERIFICATION OF STRUCTURAL STEEL	1705.2.1 2203.1 TABLE 1705.2	ASTM A6 ASTM STANDARDS SPECIFIED IN CONSTRUCTION DOCUMENTS AISC 360 N3.2 AISC 360 A3.1 AISC 360 M5.5		X	CERTIFIED MILL TEST REPORTS
INSTALLATION OF COMPOSITE SLAB DECKING	1705.1.1	ICC EVALUATION REPORT ASCE 9 CHAPTER 3		X	SPECIAL INSPECTIONS APPLY TO DECKING TYPE, DEPTH, GAGE, AND FASTENING

TABLE 5

REQUIRED TESTING FOR SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
CONCRETE					
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	TABLE 1705.3	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	X		FABRICATE SPECIMENS AT TIME FRESH CONCRETE IS PLACED ONCE EACH DAY FOR A GIVEN CLASS OF CONCRETE, OR LESS THAN ONCE FOR EACH 150 YDS OF CONCRETE, OR LESS THAN ONCE FOR EACH 5,000 FT2 OF SURFACE AREA FOR SLABS/WALLS. ONCE EACH SHIFT FROM IN-PLACE WORK OR FROM TEST PANEL AND MINIMUM ONE SPECIMEN FOR EACH 50 CUBIC YARDS. "PRECONSTRUCTION TESTS AS REQUIRED PER THE BUILDING OFFICIAL."
CONCRETE STRENGTH	TABLE 1705.3	ASTM C39	X		
CONCRETE SLUMP	TABLE 1705.3	ASTM C143	X		
CONCRETE AIR CONTENT		ASTM C231	X		
CONCRETE TEMPERATURE		ASTM C1064	X		

TABLE 9

STRUCTURAL OBSERVATION

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
PRIOR TO FIRST CONCRETE POUR				X	

STRUCTURAL OBSERVATIONS:

1. STRUCTURAL OBSERVATION WILL CONFORM TO SECTION 1704 OF THE 2021 IBC.
   SEE TABLE 9 FOR REQUIRED STRUCTURAL OBSERVATION.
2. STRUCTURAL OBSERVATION WILL BE PERFORMED BY THE ENGINEER OF RECORD. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE ENGINEER OF RECORD IN ADVANCE OF THE STAGES LISTED IN TABLE 9.
3. THE STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR ANY REQUIRED SPECIAL INSPECTIONS.

SPECIAL INSPECTION PROGRAM NOTES:

1. SPECIAL INSPECTIONS SHALL CONFORM TO CHAPTER 17 OF THE 2021 INTERNATIONAL BUILDING CODE.
2. SPECIAL INSPECTIONS AND ASSOCIATED TESTING SHALL BE PERFORMED BY AN APPROVED ACCREDITED INDEPENDENT AGENCY MEETING THE REQUIREMENTS OF ASTM E329 (MATERIALS), ASTM D3740 (SOILS), ASTM C1077 (CONCRETE), ASTM A880 (STEEL), AND ASTM E543 (NON-DESTRUCTIVE). THE INSPECTION AND TESTING AGENCY SHALL FURNISH TO THE ENGINEER OF RECORD A COPY OF THEIR SCOPE OF ACCREDITATION. SPECIAL INSPECTORS SHALL BE CERTIFIED BY THE BUILDING OFFICIAL. WELDING INSPECTORS SHALL BE QUALIFIED PER SECTION 6.1.4.1.1 OF AWS D1.1. THE OWNER SHALL SECURE AND PAY FOR SERVICES OF THE INSPECTION AND TESTING AGENCY TO PERFORM ALL SPECIAL INSPECTIONS AND TESTS.
3. THE SPECIAL INSPECTOR SHALL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION NOTED IN THE INSPECTION REPORTS, AND IF NOT CORRECTED, BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD AND THE OWNER.
4. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS FOR EACH INSPECTION TO THE ENGINEER OF RECORD, CONTRACTOR, AND OWNER. THE SPECIAL INSPECTION AGENCY SHALL SUBMIT A FINAL REPORT INDICATING THE WORK REQUIRING SPECIAL INSPECTION WAS INSPECTED AND IS IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THAT ALL DISCREPANCIES NOTED IN THE INSPECTION REPORTS HAVE BEEN CORRECTED.
5. THE CONTRACTOR SHALL PROVIDE MINIMUM 48 HOURS ADVANCED NOTIFICATION OF CONSTRUCTION ACTIVITIES TO THE SPECIAL INSPECTOR TO ALLOW FOR INSPECTION OF WORK.
6. MAINTAIN ACCESS TO WORK REQUIRING INSPECTION UNTIL IT HAS BEEN INSPECTED AND INDICATED TO BE IN CONFORMANCE.
7. DEFINITIONS:
   A. CONTINUOUS INSPECTION: THE INSPECTOR IS OBSERVING THE WORK REQUIRING INSPECTION AT ALL TIMES.
   B. PERIODIC INSPECTION: THE INSPECTOR IS ON SITE AS REQUIRED TO CONFIRM THAT THE WORK REQUIRING INSPECTION IS IN CONFORMANCE.
8. IBC SPECIAL INSPECTION TABLES 1, 3, 4, 6, 7 AND 8 ARE NOT REQUIRED FOR THIS PROJECT.

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SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATIONS FOR:

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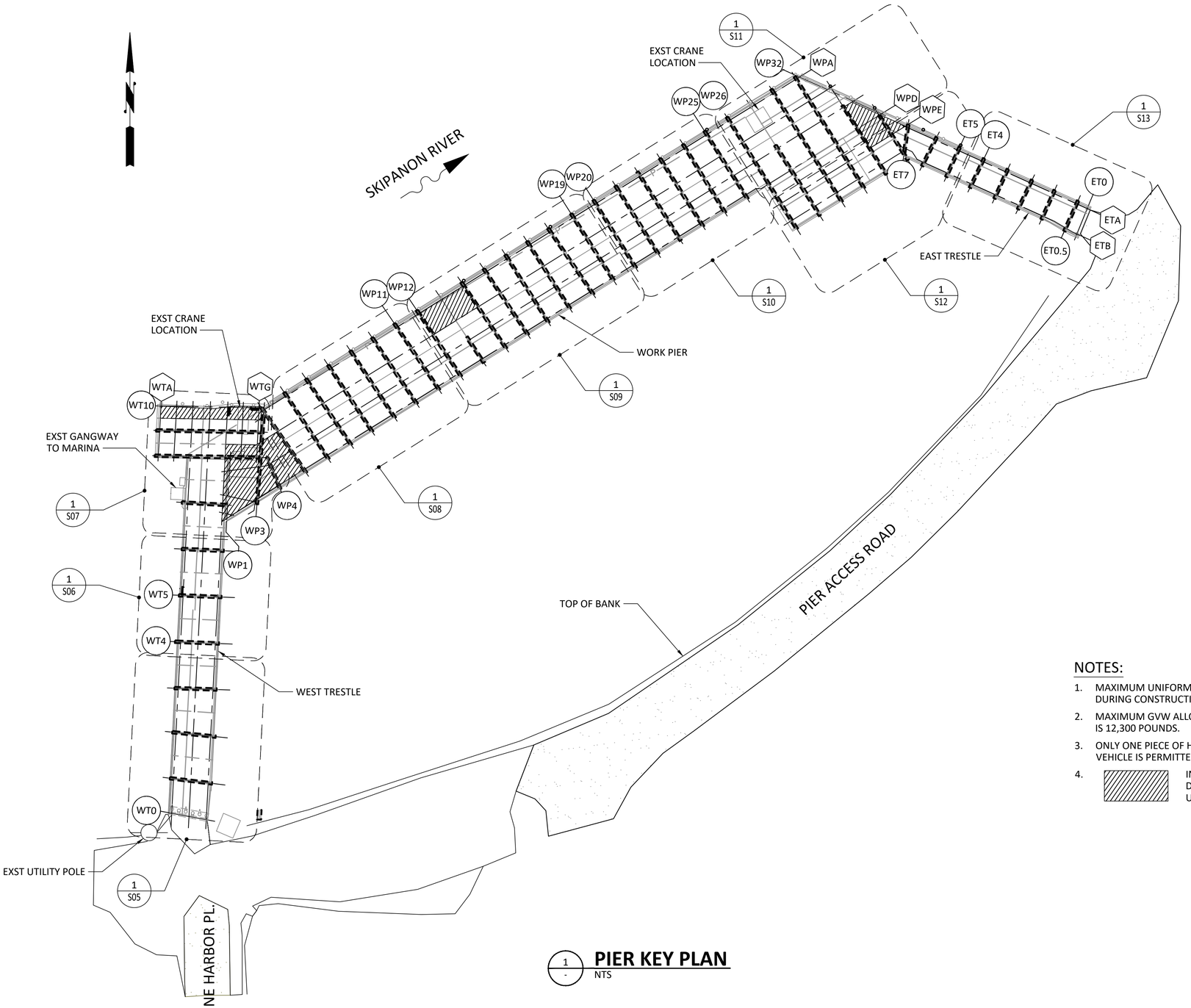

1 - **PIER KEY PLAN**
NTS

NOTES:

1. MAXIMUM UNIFORM CONSTRUCTION LOAD ALLOWED ON PIER DURING CONSTRUCTION IS 100 PSF.
2. MAXIMUM GVW ALLOWED ON THE PIER DURING CONSTRUCTION IS 12,300 POUNDS.
3. ONLY ONE PIECE OF HEAVY EQUIPMENT OR CONSTRUCTION VEHICLE IS PERMITTED ON THE PIER AT A TIME.
4. INDICATES LOAD RESTRICTED AREA. DO NOT OPERATE EQUIPMENT OR USE AS STAGING AREA.

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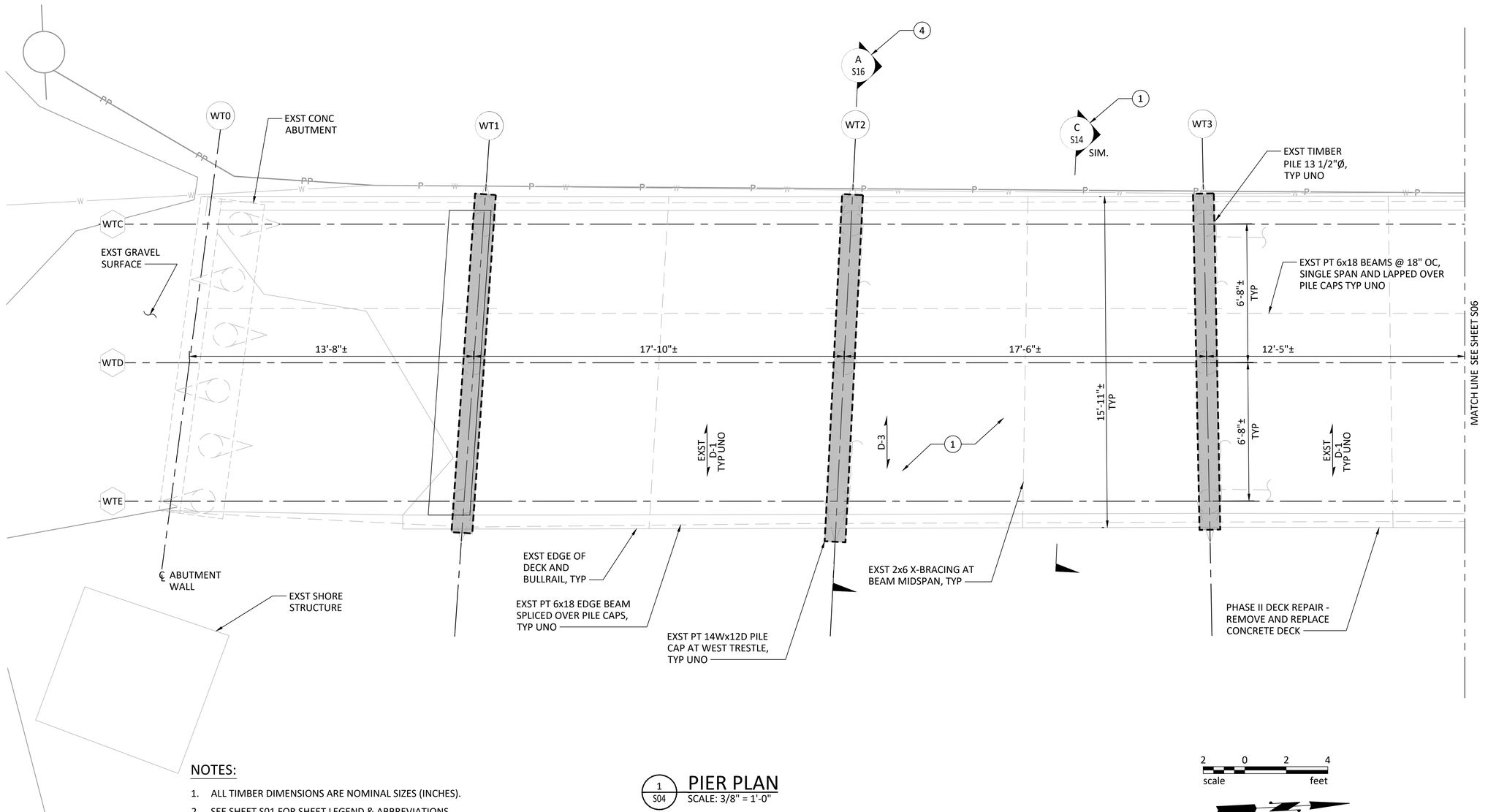

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

PHASE I PILE CAP & DECK REPAIR (DESIGN BY OTHERS)

PHASE II AND III PILE CAP REPAIR

1 / S04 PIER PLAN
SCALE: 3/8" = 1'-0"

2 0 2 4
scale feet

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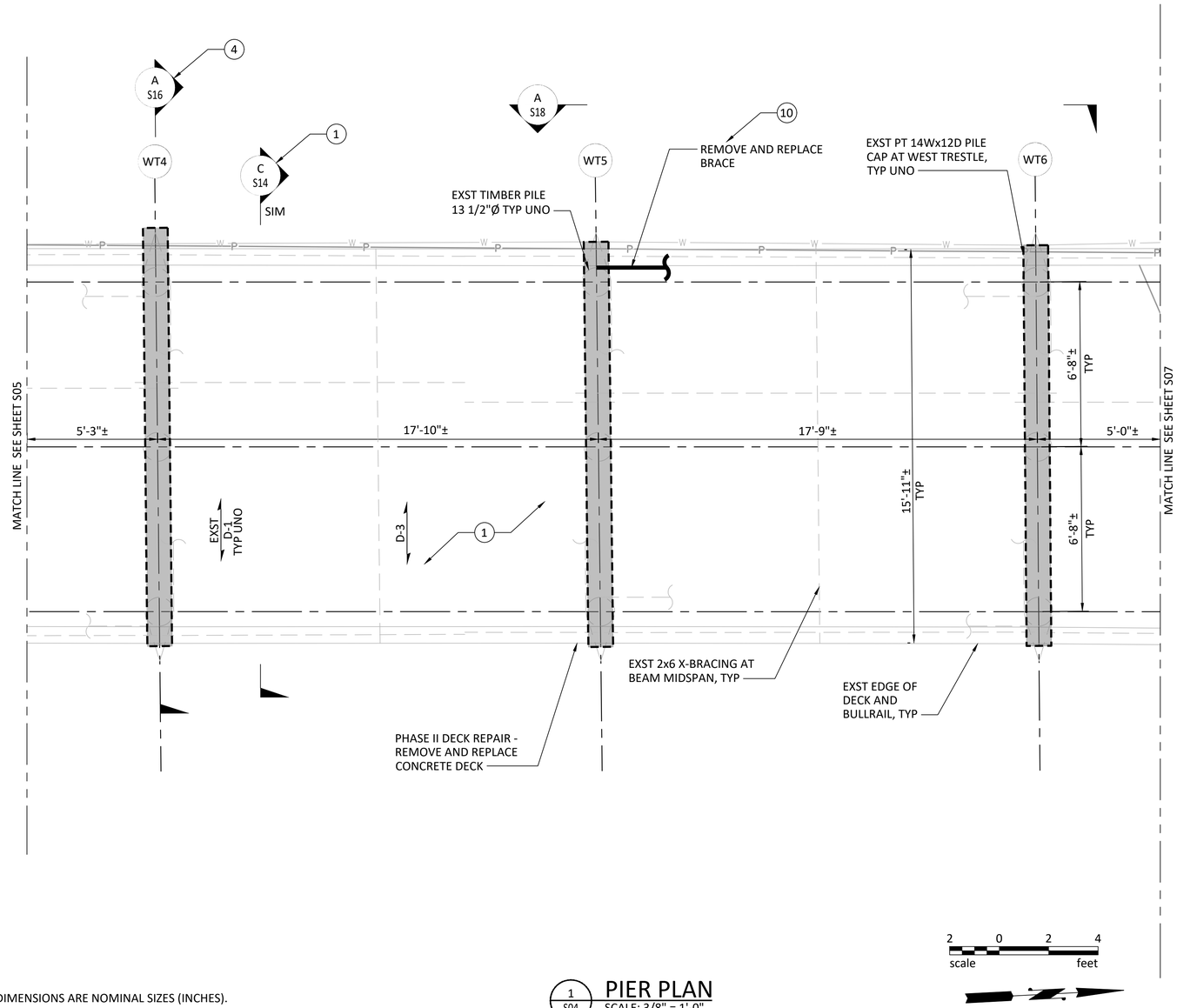

1 / S04 PIER PLAN
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NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

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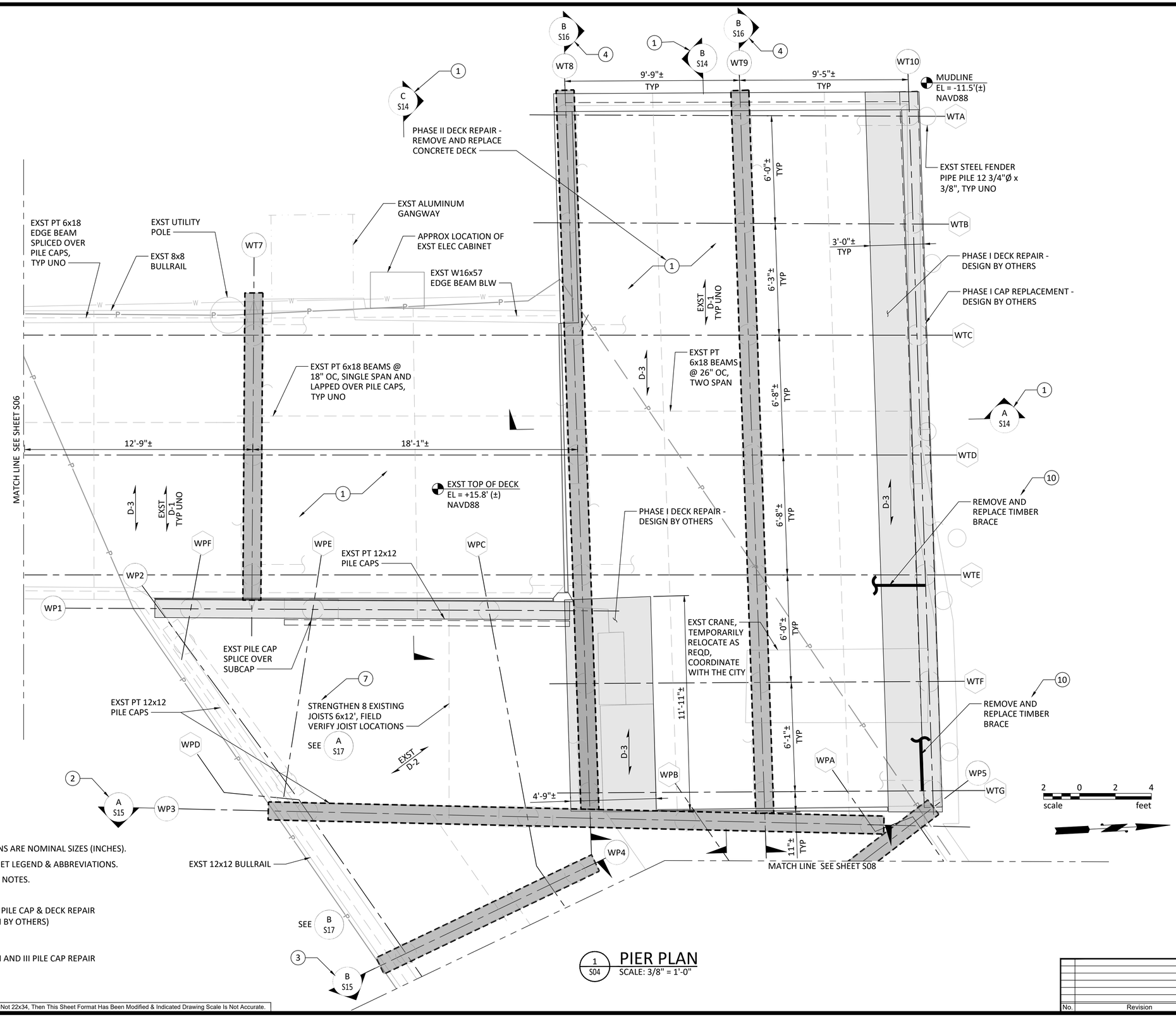

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

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PHASE II AND III PILE CAP REPAIR

1 S04 PIER PLAN
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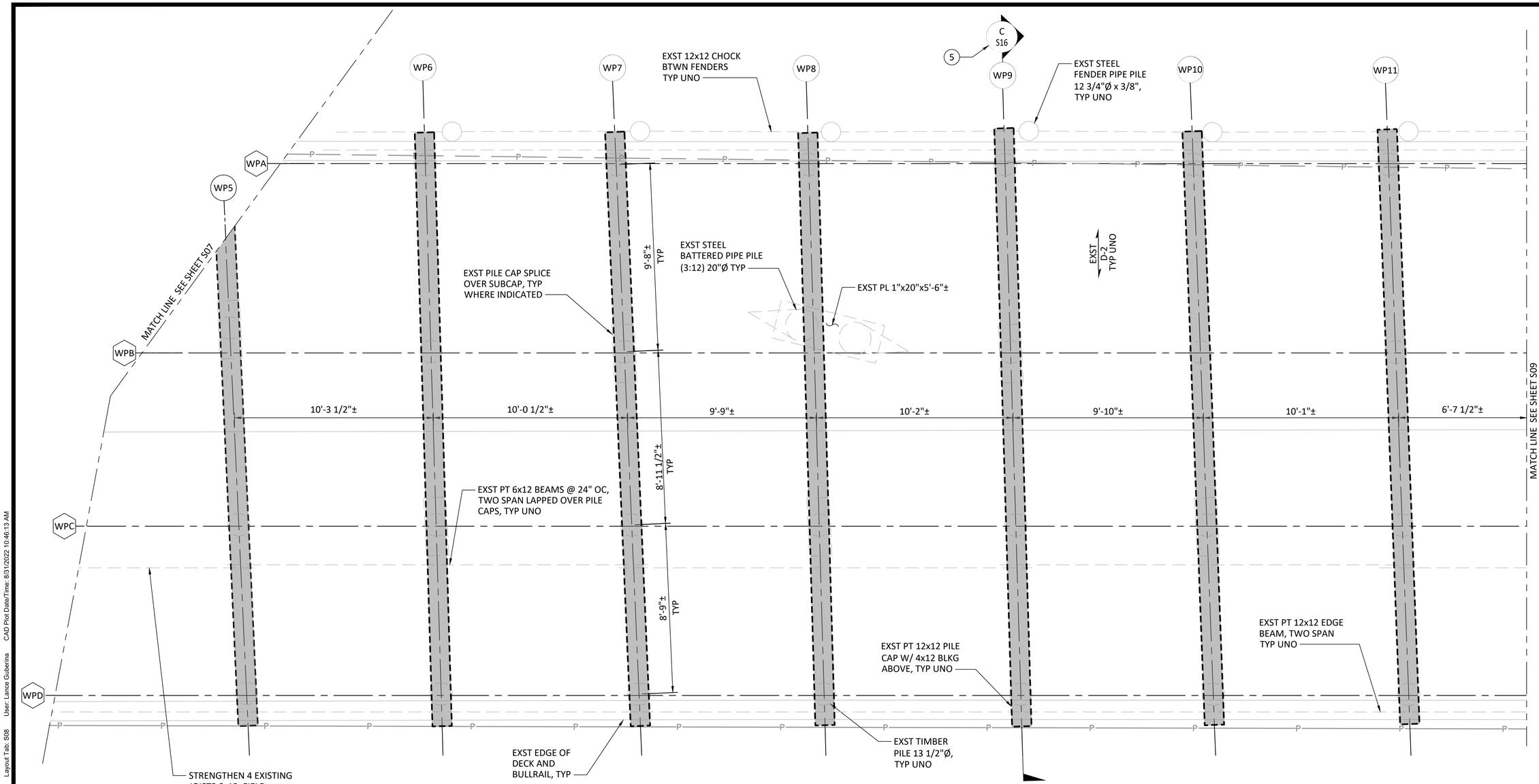

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

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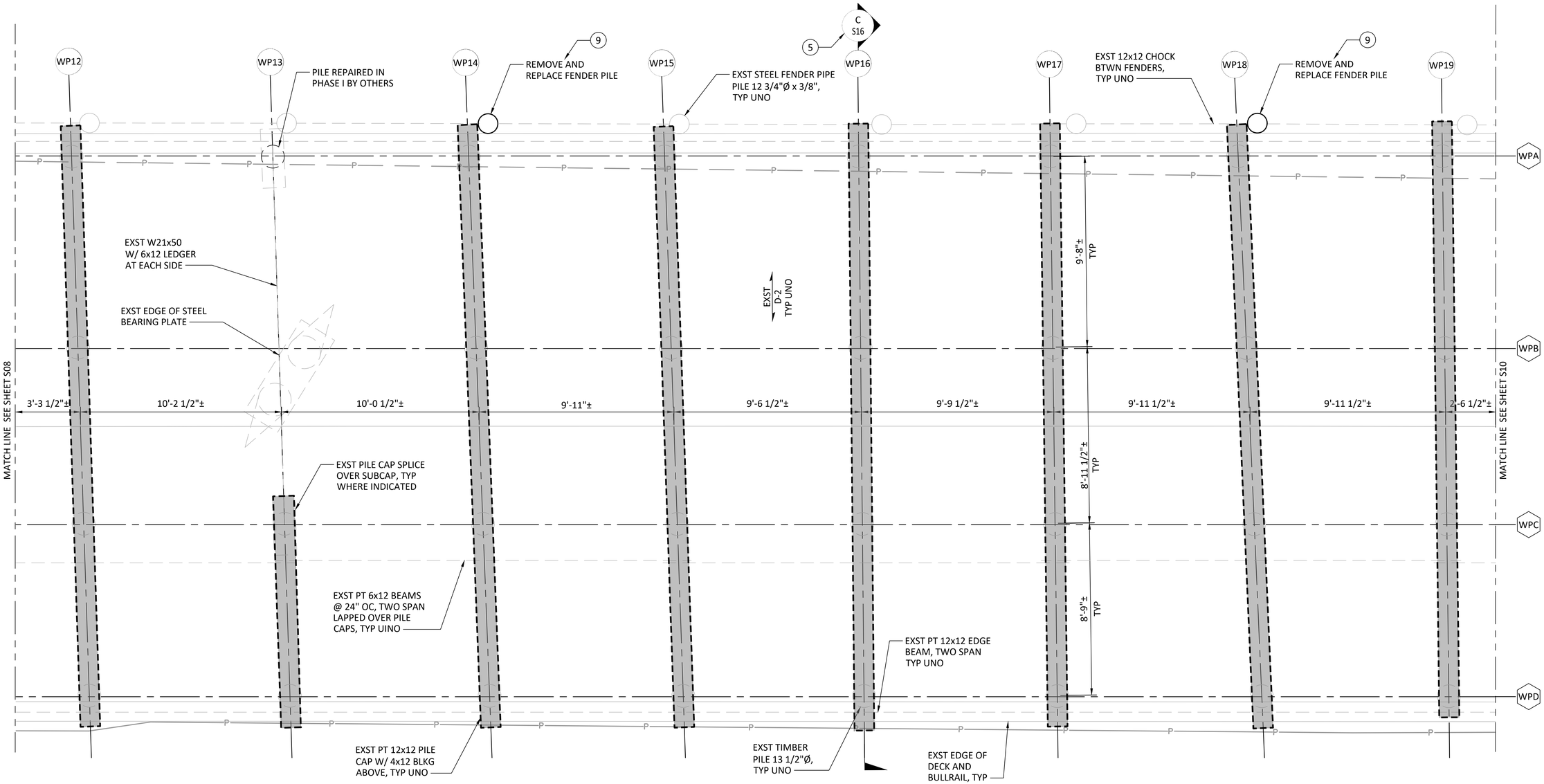

NOTES:

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2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

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1/S04 **PIER PLAN**
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scale feet

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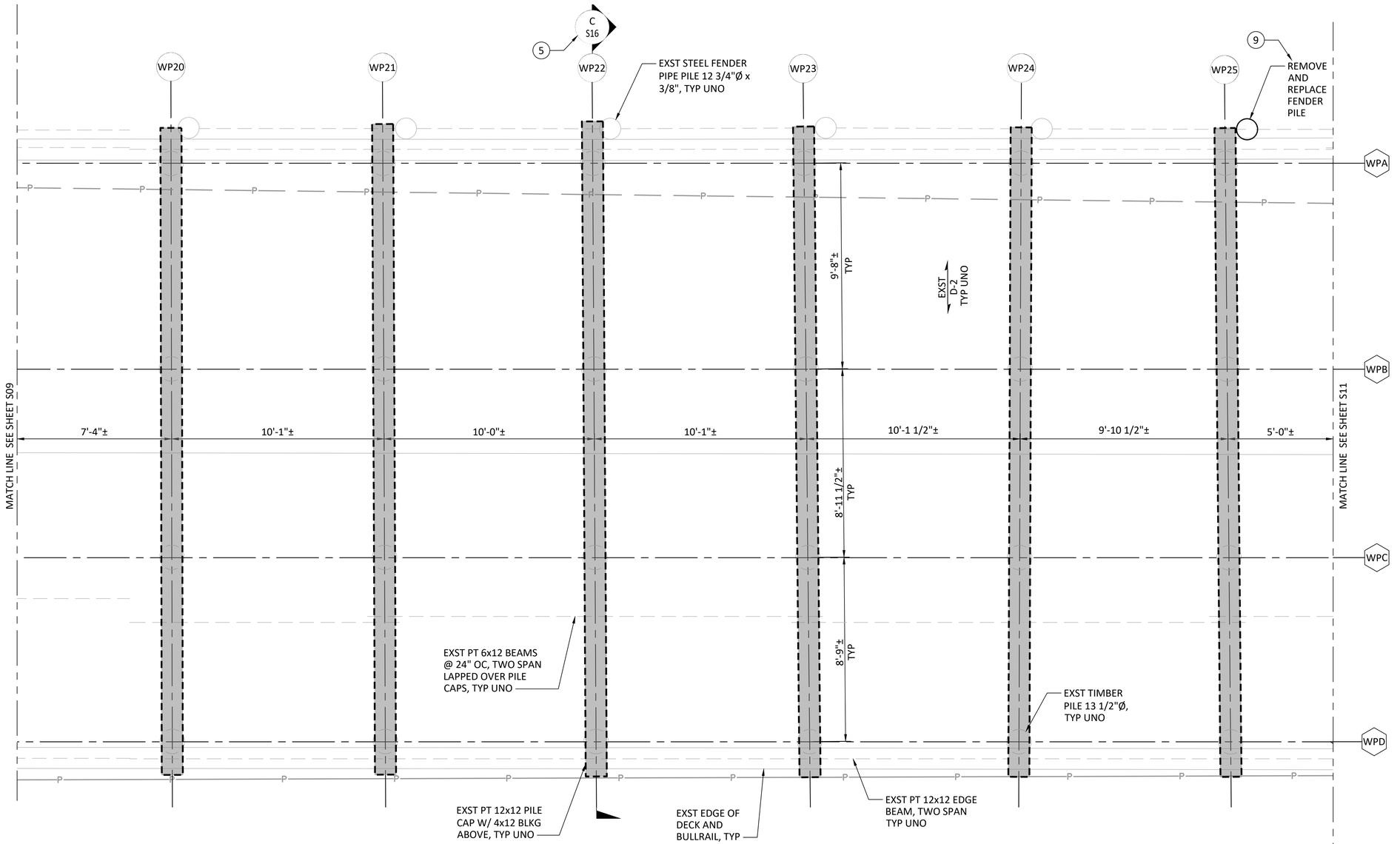

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

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PHASE II AND III PILE CAP REPAIR

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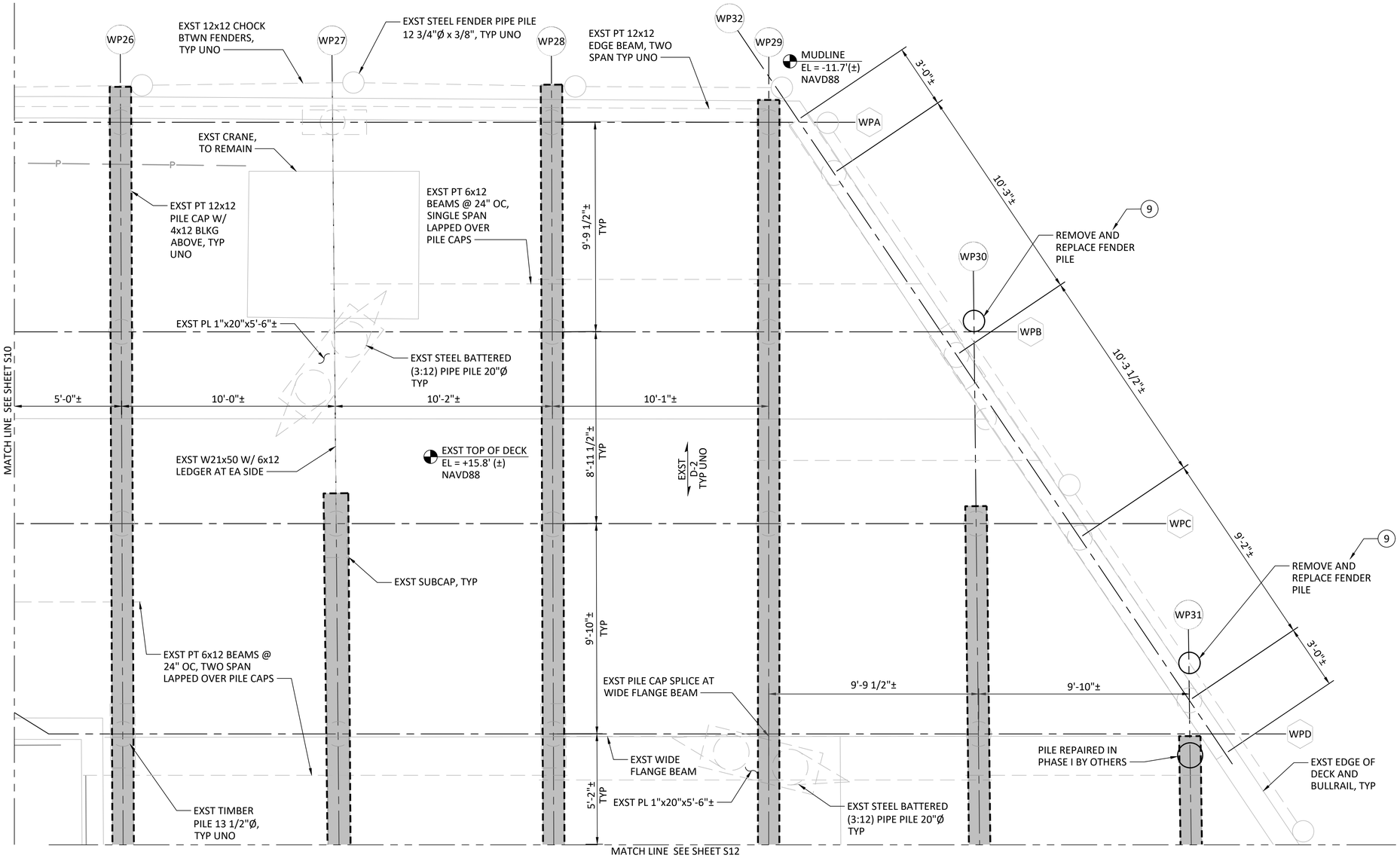

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

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PHASE II AND III PILE CAP REPAIR

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2 0 2 4
scale feet

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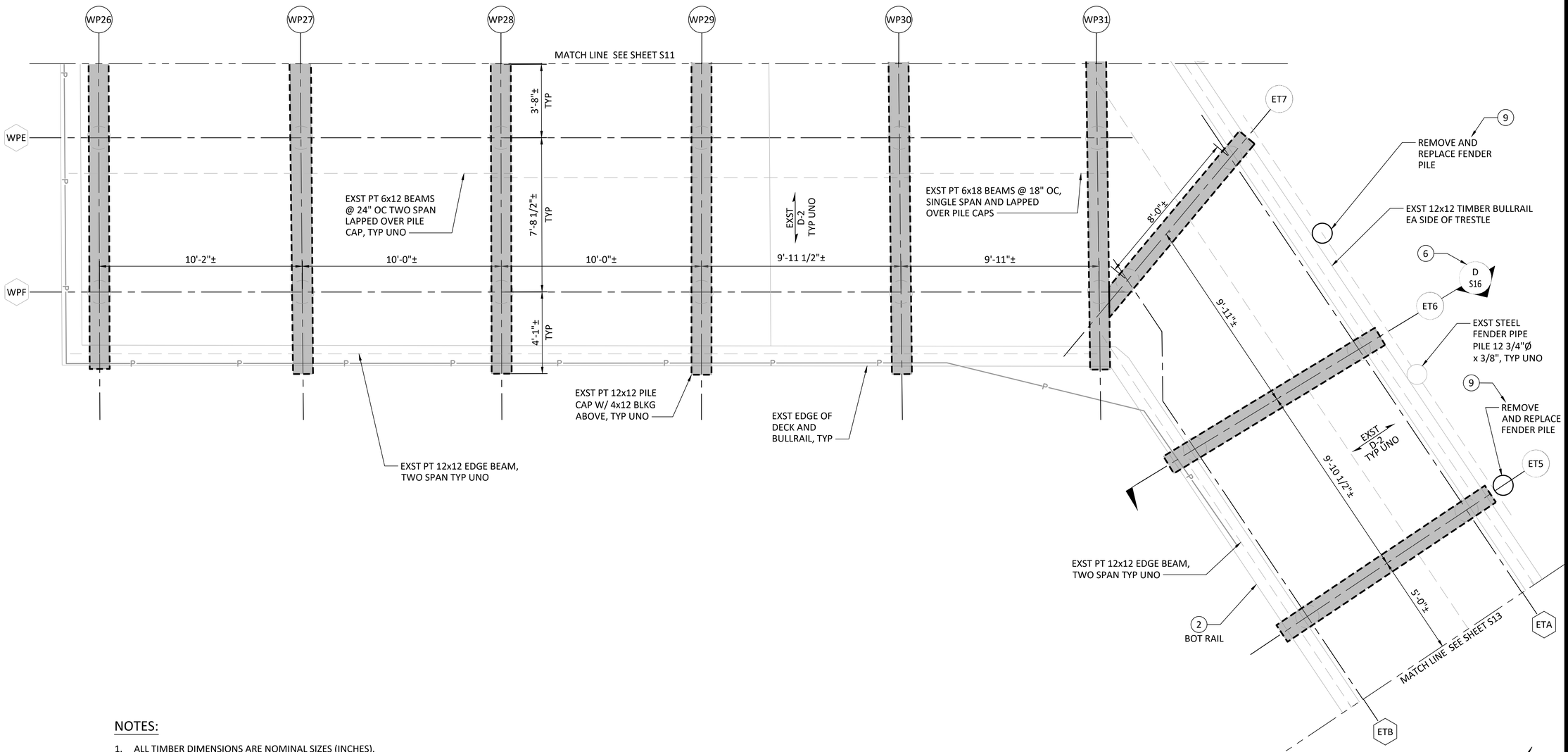

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

PHASE I PILE CAP & DECK REPAIR (DESIGN BY OTHERS)

PHASE II AND III PILE CAP REPAIR

1/S04 PIER PLAN
SCALE: 3/8" = 1'-0"

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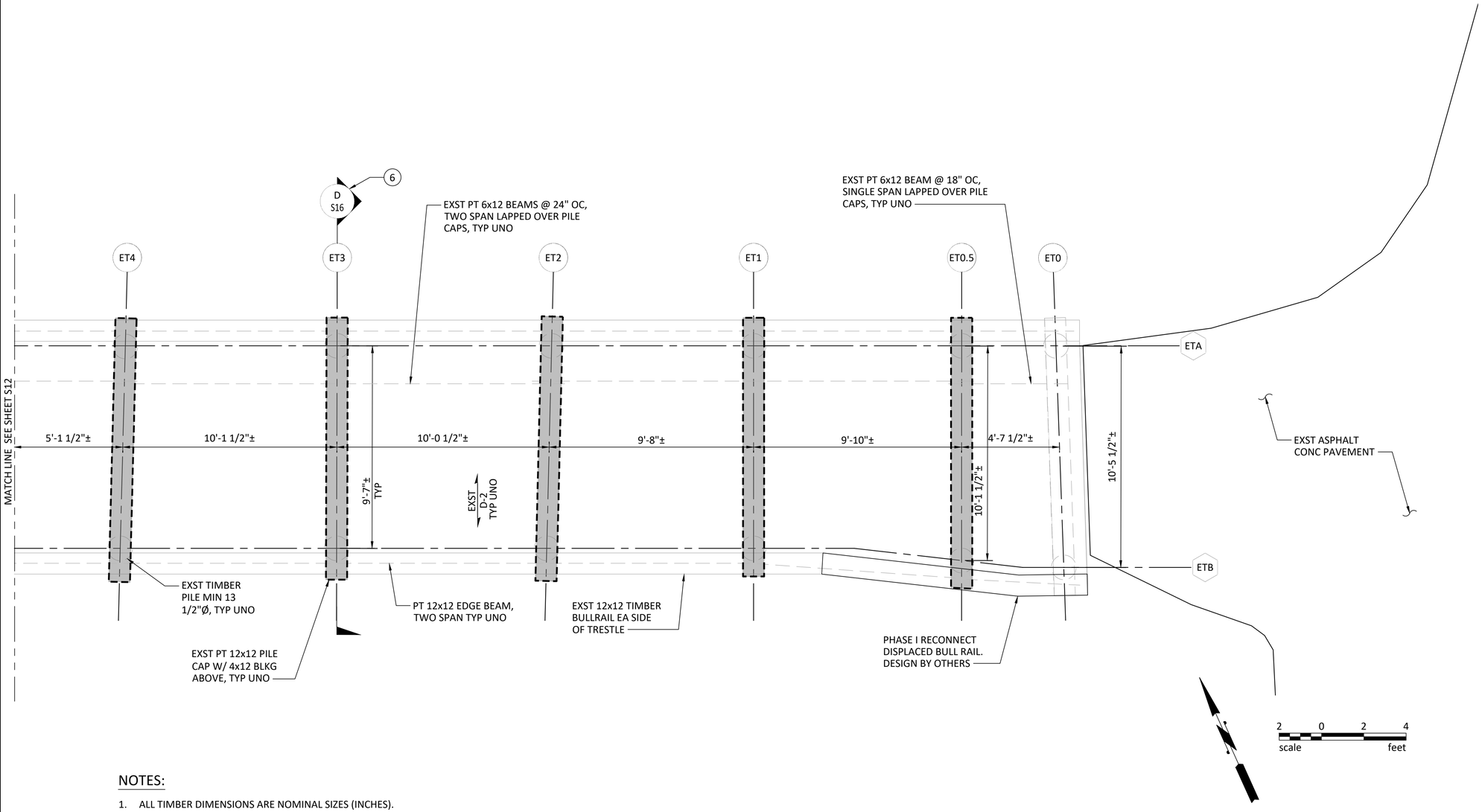

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

PHASE I PILE CAP & DECK REPAIR
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PHASE II AND III PILE CAP REPAIR

1 / S04 PIER PLAN
SCALE: 3/8" = 1'-0"

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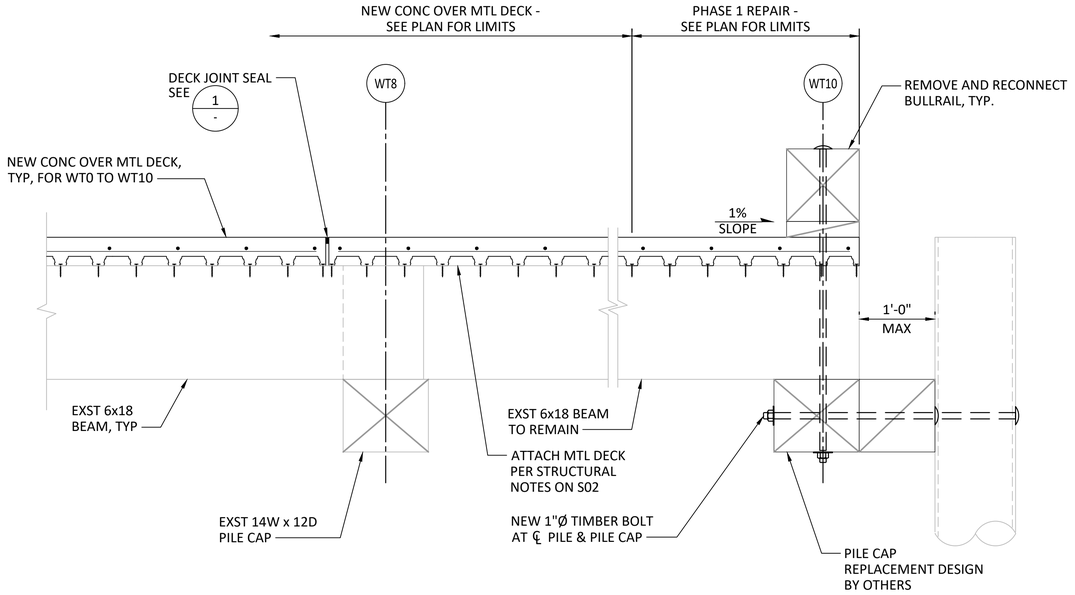
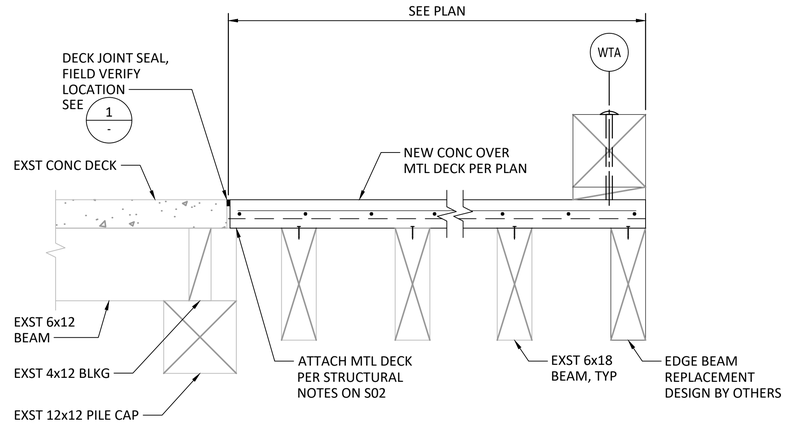
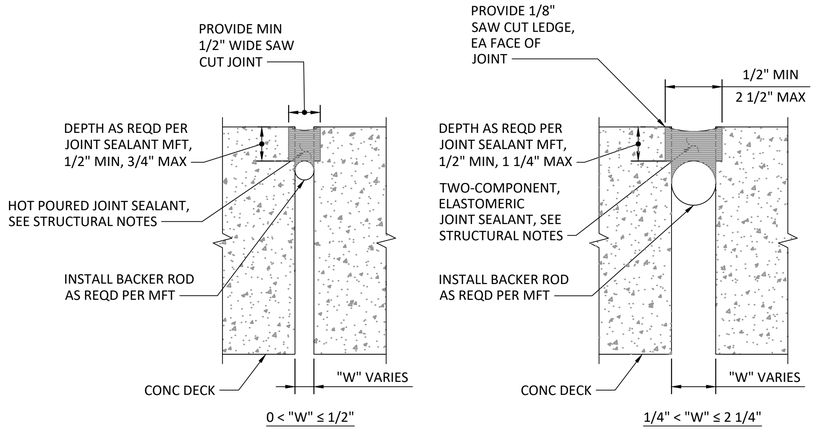


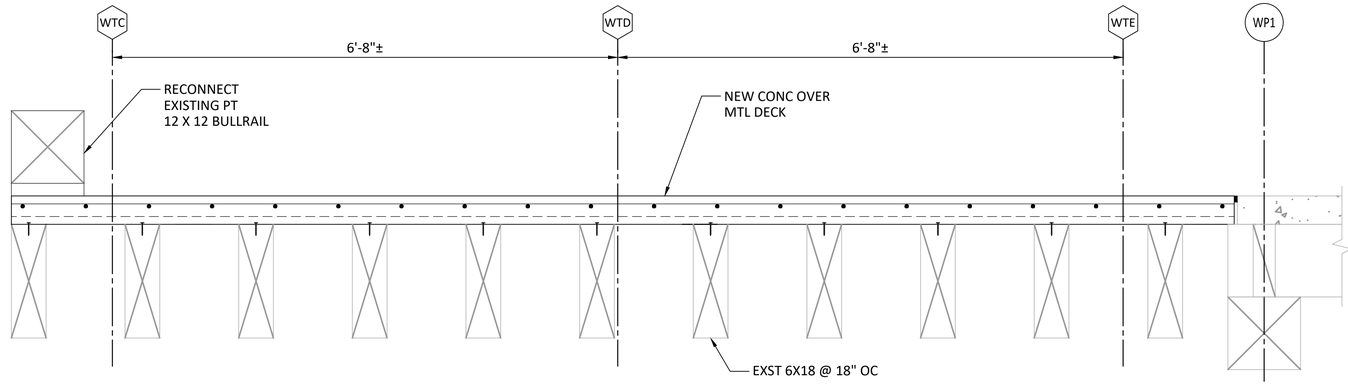
A S07 SECTION - NEW CONCRETE DECK (D-3)
SCALE: 1" = 1'-0"



B S07 SECTION - CONCRETE DECK (D-3)
SCALE: 1" = 1'-0"



1 - DETAIL - TYPICAL DECK JOINT SEAL
SCALE: NTS



C S07 SECTION - CONCRETE DECK (D-3)
SCALE: 1" = 1'-0"

PBS Engineering and Environmental Inc.
4412 SW Corbett Avenue
Portland, OR 97239
503.248.1939
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REHABILITATION DETAILS - SHEET 1 FOR:
WORK PIER REHABILITATION-PHASES II & III
A SITE LOCATED IN THE CITY OF WARRENTON, OREGON

Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
48114PE
OREGON
JAN. 23, 2001
HOWARD A. WELLS
RENEWS: 06/30/24

DESIGNED: JMC
CHECKED: KL
AUGUST 31, 2022
74202.000

SHEET ID
S14
SHEET 15 OF 19

No.	Revision	Date	By	App'd

Full Size Sheet Format Is 22x34; If Printed Size Is Not 22x34, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

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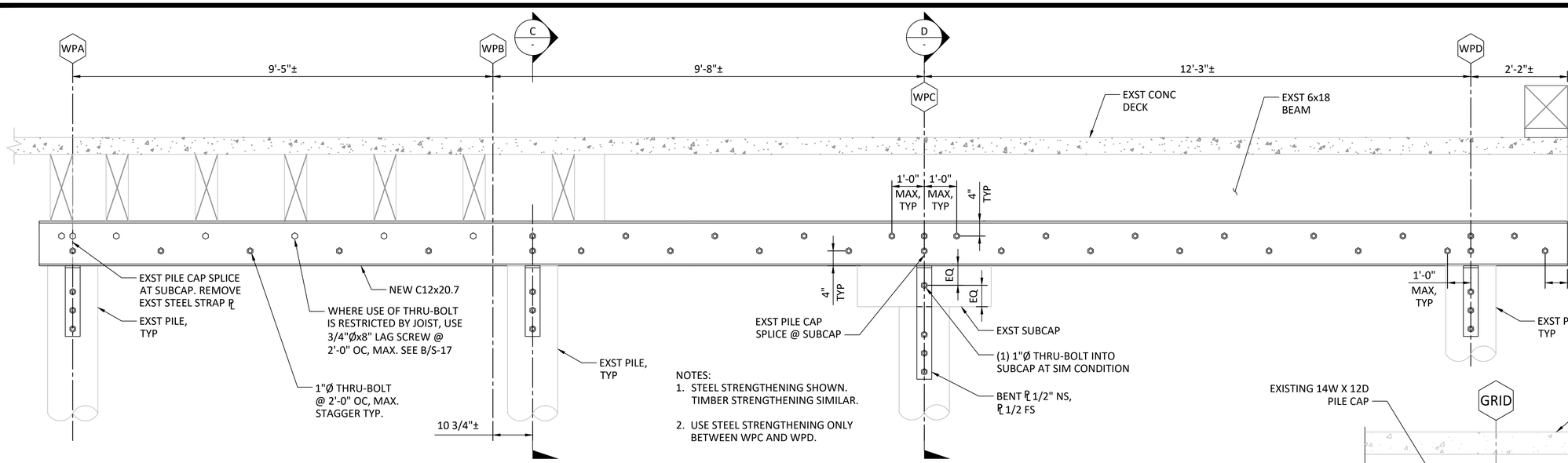
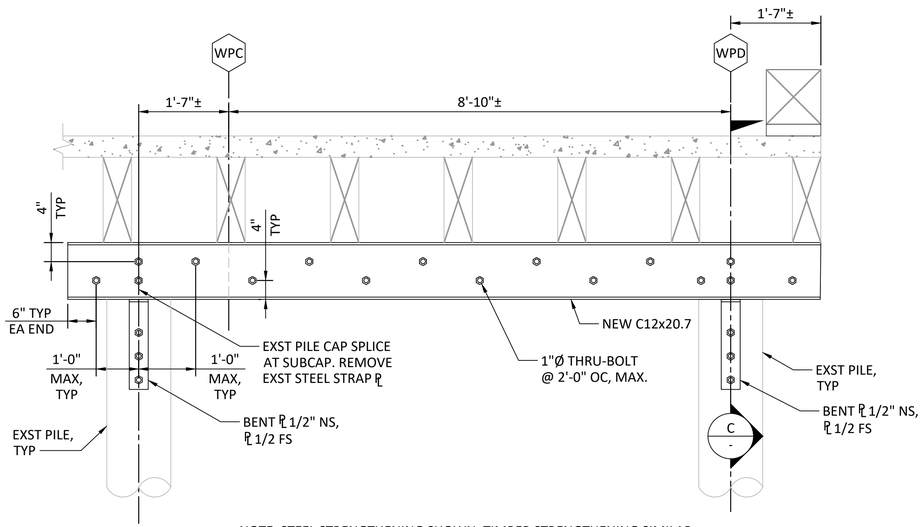


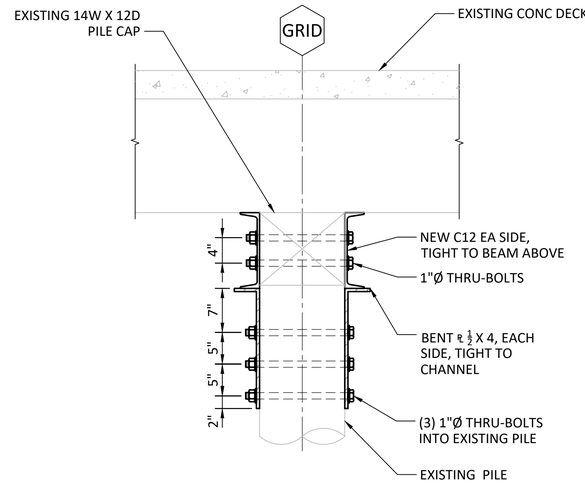
NOTES:
1. STEEL STRENGTHENING SHOWN. TIMBER STRENGTHENING SIMILAR.
2. USE STEEL STRENGTHENING ONLY BETWEEN WPC AND WPD.

A / S07 ELEVATION - PILE CAP STRENGTHENING AT WP3
SCALE: 3/4"=1'-0"

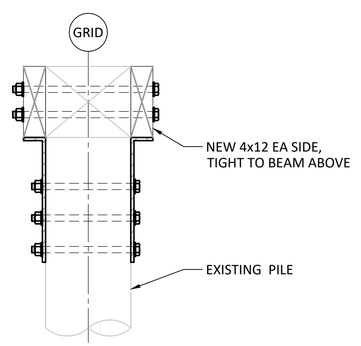


NOTE: STEEL STRENGTHENING SHOWN. TIMBER STRENGTHENING SIMILAR.

B / S07 ELEVATION - PILE CAP STRENGTHENING AT WP4
SCALE: 3/4"=1'-0"

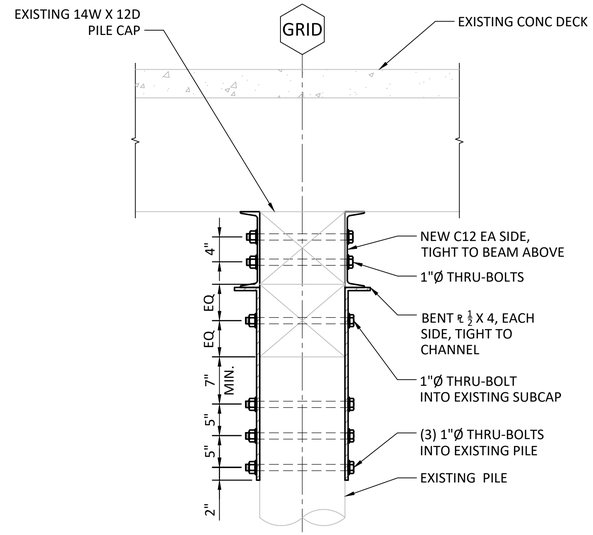


C / - SECTION - C12 PILE CAP STRENGTHENING
SCALE: 1"=1'-0"

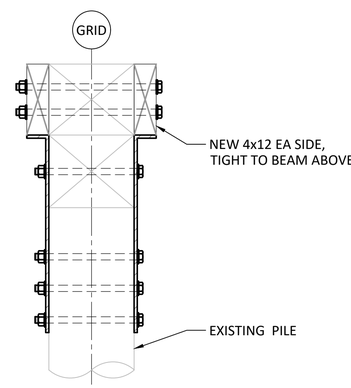


NOTE: DECK NOT SHOWN FOR CLARITY

C / - SECTION (ALT) - 4x12 PILE CAP STRENGTHENING
SCALE: 1"=1'-0"



D / - SECTION - C12 PILE CAP STRENGTHENING
SCALE: 1"=1'-0"



NOTE: DECK NOT SHOWN FOR CLARITY

D / - SECTION (ALT) - 4x12 PILE CAP STRENGTHENING
SCALE: 1"=1'-0"

No.	Revision	Date	By	App'd

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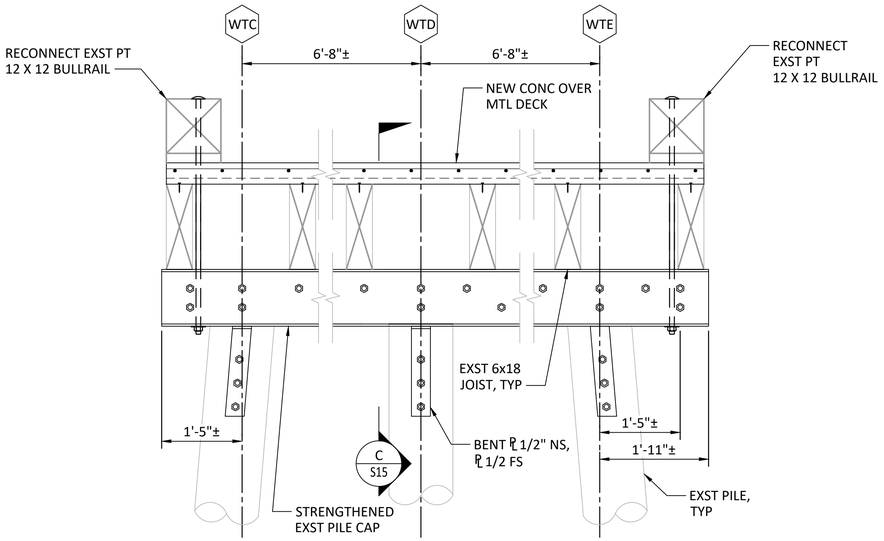
REHABILITATION DETAILS - SHEET 2 FOR:
WORK PIER REHABILITATION-PHASES II & III
A SITE LOCATED IN THE CITY OF WARRENTON, OREGON

Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
48114PE
OREGON
JAN. 23, 2001
HOWARD A. WELLS
RENEWS: 06/30/24

DESIGNED: JMC
CHECKED: KL
AUGUST 31, 2022
74202.000

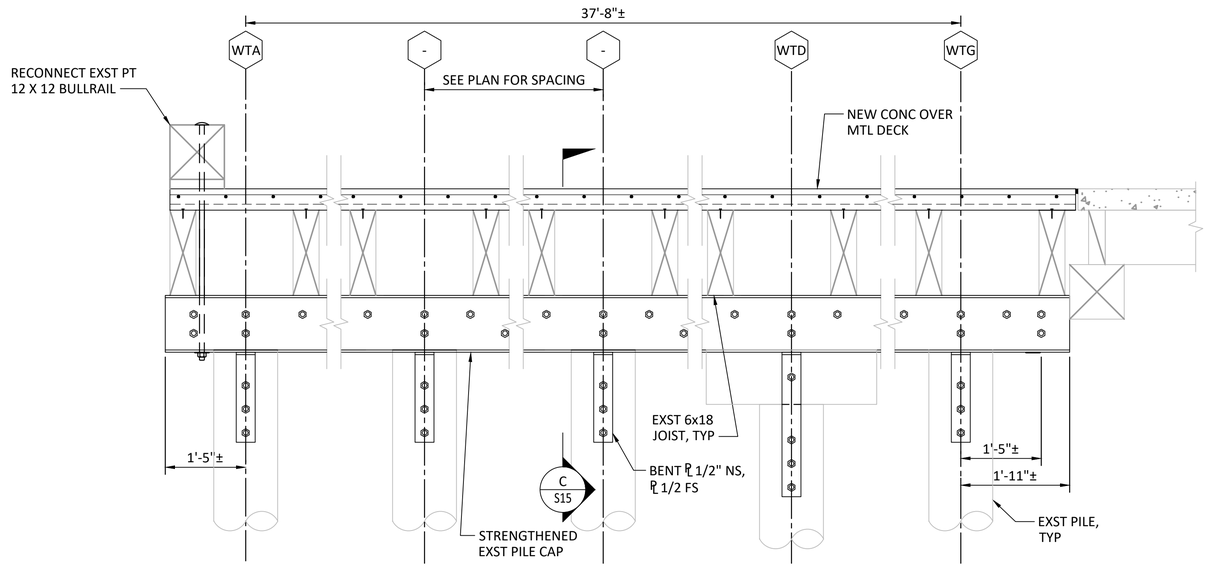
SHEET ID
S15
SHEET 16 OF 19



NOTE: FOR INFO. NOT SHOWN, SEE SHEET S-15

A S05 SECTION - WEST TRESTLE TYPICAL PILE CAP STRENGTHENING

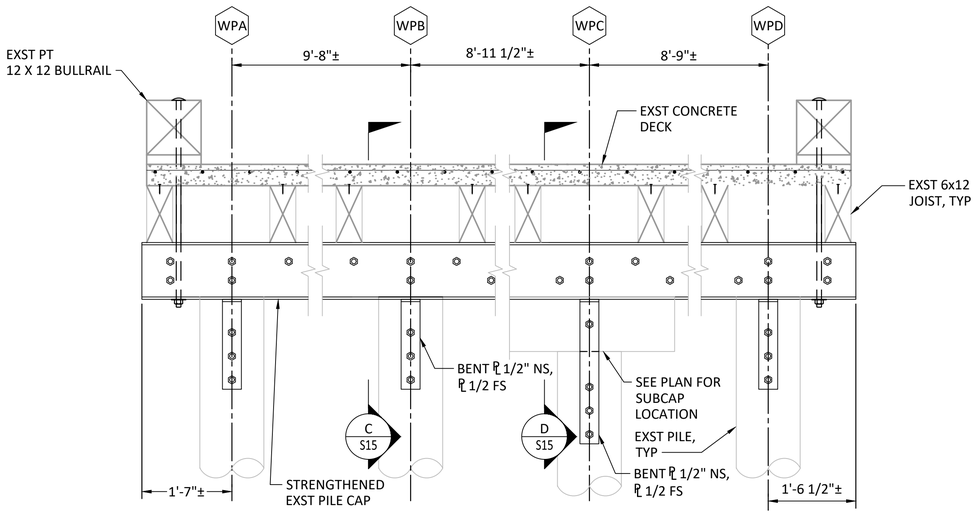
SCALE: 3/4"=1'-0"



NOTE: FOR INFO. NOT SHOWN, SEE SHEET S-15

B S07 SECTION - WEST TRESTLE PILE CAP STRENGTHENING

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

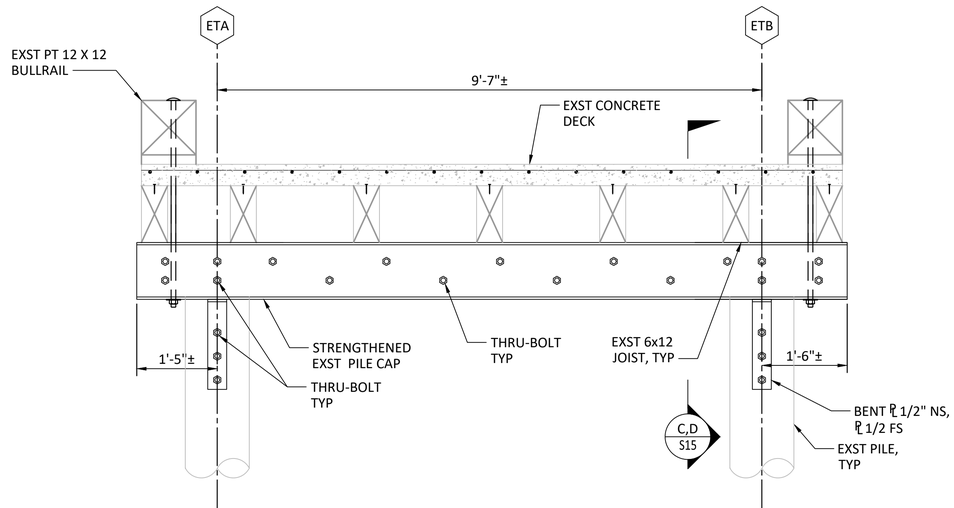


NOTES:
1. TYPICAL CAP SHOWN, WP26-WP31 SIMILAR
2. FOR INFO. NOT SHOWN, SEE SHEET S-15

C S08 SECTION - WORK PIER PILE CAP STRENGTHENING

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

S09
S10



NOTE: FOR INFO. NOT SHOWN, SEE SHEET S-15

D S12 SECTION - EAST TRESTLE TYPICAL PILE CAP STRENGTHENING

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

S13

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PBS

REHABILITATION DETAILS - SHEET 3 FOR:

WORK PIER REHABILITATION-PHASES II & III

A SITE LOCATED IN THE CITY OF WARRENTON, OREGON

811 Know what's below. Call before you dig.

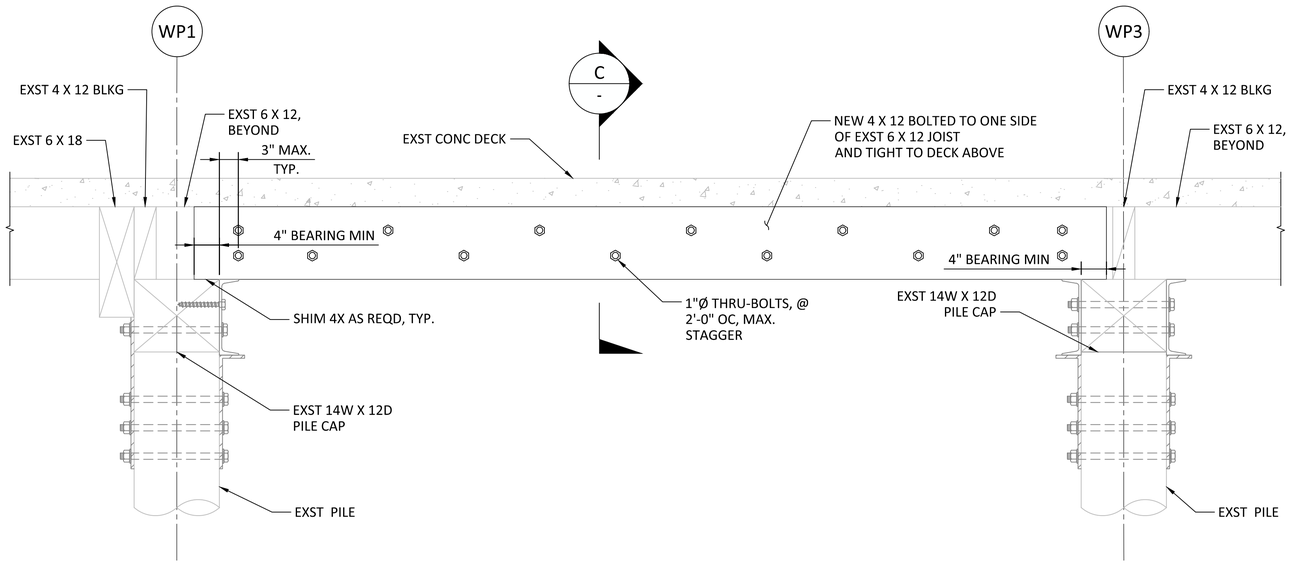
REGISTERED PROFESSIONAL ENGINEER
48114PE
OREGON
JAN. 23, 2001
HOWARD A. WELLS
RENEWS: 06/30/24

DESIGNED: JMC
CHECKED: KL
AUGUST 31, 2022
74202.000

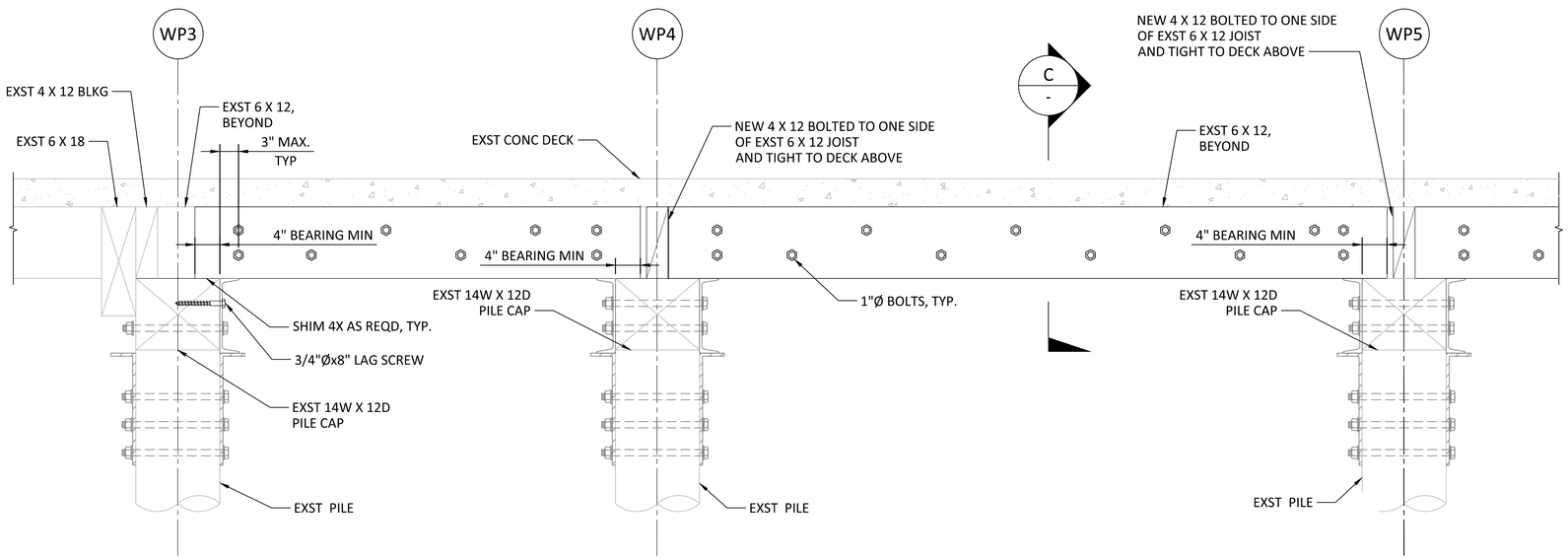
SHEET ID
S16

SHEET 17 OF 19

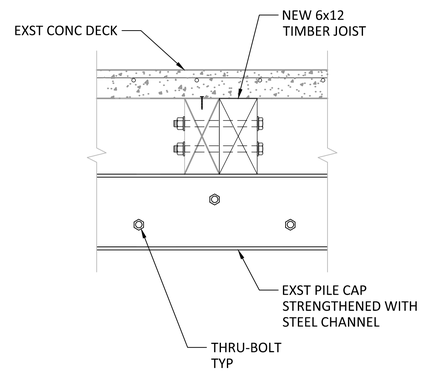
Filename: L:\Projects\74000\74202\74202-000\Structural\CAD\Working\Sheets\74202.000-S16.dwg Layout Tab: S16 User: Lance Guberina CAD Plot Date/Time: 8/31/2022 10:47:18 AM



A / S07 SECTION - JOIST STRENGTHENING
SCALE: 1"=1'-0"



B / S07 SECTION - JOIST STRENGTHENING
SCALE: 1"=1'-0"



C / - SECTION - JOIST STRENGTHENING
SCALE: 1"=1'-0"

No.	Revision	Date	By	App'd

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Portland, OR 97239
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REHABILITATION DETAILS - SHEET 4 FOR:
WORK PIER REHABILITATION-PHASES II & III
A SITE LOCATED IN THE CITY OF WARRENTON, OREGON

811 Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
48114PE
OREGON
JAN. 23, 2001
HOWARD A. WELLS
RENEWS: 06/30/24

DESIGNED: JMC
CHECKED: KL
AUGUST 31, 2022
74202.000

SHEET ID
S17
SHEET 18 OF 19

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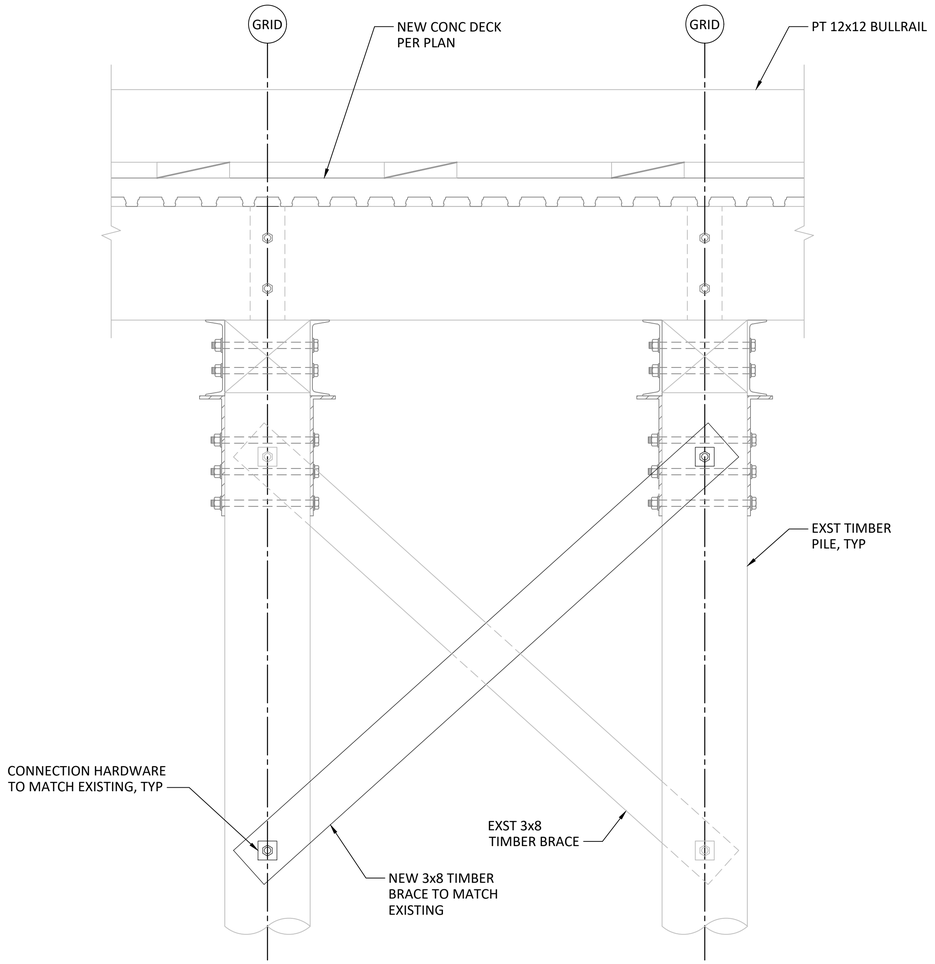
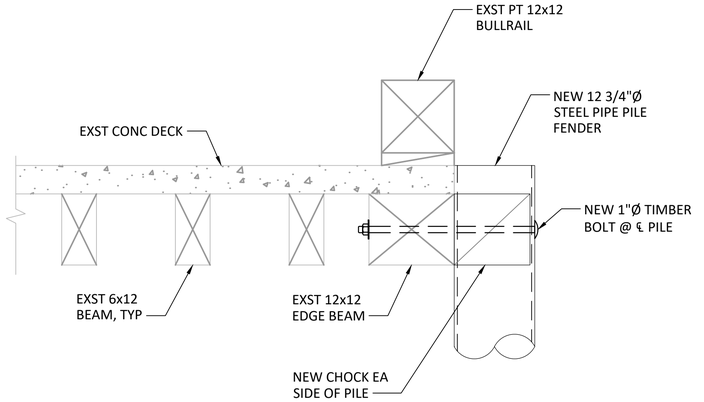
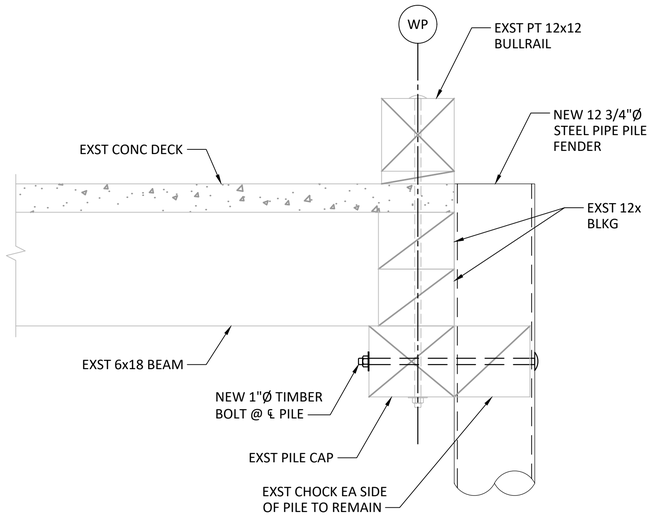


A
-
ELEVATION - REMOVE AND REPLACE BRACING
SCALE: 1" = 1'-0"



B
-
DETAIL - FENDER PILE REPLACEMENT @ WP 14, 18, 25, ET 5, ET 6.5
SCALE: 1" = 1'-0"



C
-
DETAIL - FENDER PILE REPLACEMENT @ WP 30 AND 31
SCALE: 1" = 1'-0"

PBS Engineering and Environmental Inc.
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Portland, OR 97239
503.248.1939
pbsusa.com

PBS

REHABILITATION DETAILS - SHEET 5 FOR:

WORK PIER REHABILITATION-PHASES II & III

A SITE LOCATED IN THE CITY OF WARRENTON, OREGON

811 Know what's below. Call before you dig.

REGISTERED PROFESSIONAL ENGINEER
48114PE
OREGON
JAN. 23, 2001
HOWARD A. WELLS
RENEWS: 06/30/24

DESIGNED: JMC
CHECKED: KL
AUGUST 31, 2022
74202.000

SHEET ID
S18

SHEET 19 OF 19

No.	Revision	Date	By	App'd

Full Size Sheet Format Is 22x34; If Printed Size Is Not 22x34, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

Filename: L:\Projects\74000\74202\74202-000\Structural\CADWorking\Sheets\74202.000-S18.dwg Layout Tab: S18 User: Lance Guberina CAD Plot Date/Time: 8/31/2022 10:47:33 AM

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, PORTLAND DISTRICT
P.O. BOX 2946
PORTLAND, OR 97208-2946

May 27, 2022

Regulatory Branch
Corps No. NWP-2022-176

Ms. Jane Sweet
City of Warrenton
P.O. Box 250
Warrenton, Oregon 97146
jsweet@ci.warrenton.or.us

Dear Ms. Sweet:

The U.S. Army Corps of Engineers (Corps) received your request for Department of the Army authorization to conduct structure repairs at the Warrenton Marina Work Pier. The project is proposed within the Skipanon River, River Mile 1, located at Warrenton Marina Work Pier North of NE Heron Avenue, Clatsop County, Oregon at Latitude/Longitude: 46.167394°, -123.915117°. This letter verifies your project as depicted on the enclosed drawings (Enclosure 1) is authorized by Nationwide Permit (NWP) No. 3, Maintenance (Federal Register, December 27, 2021, Vol. 86, No. 245).

The permittee would replace structural components on the Warrenton Marina Work Pier within the Skipanon River waterward of the Mean High Water. The permittee would replace seven 12-inch timber piles with seven 12-inch hollow steel piles on the east trestle. The permittee would reconnect 2 existing timber piles and 6 steel fender piles that have become dislodged from the work pier. The permittee would also conduct pile cap strengthening to achieve the desired load rating by reinforcing the existing timber pile caps with either steel members or timber members fastened to each face of the existing pile caps. In addition, one pile cap will be replaced. Joists that are found to be damaged would be strengthened in the same manner by reinforcing with additional timber joists or additional bracing. Three joists would be fully replaced. Some additional bracing would also be installed in areas where the existing bracing has deteriorated or been damaged. Pile removal and installation would be completed using a vibratory hammer.

The permittee would replace approximately 3,200 square feet of concrete decking on the west trestle. The work would include minor repairs to existing concrete decking such as sealing cracks and installing deck joint seals. The project would require the use of a floating crane barge and possibly a work boat for handling materials and other equipment.

In order for this authorization to be valid, you must ensure the work is performed in accordance with the enclosed Nationwide Permit 3 Terms and Conditions (Enclosure 2); the Oregon Department of Land Conservation and Development (DLCD) Coastal Zone Management Conditions (Enclosure 3); and the following special conditions:

a. This Corps permit does not authorize you to take an endangered species in particular those species identified in Enclosure 4. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit, or a biological opinion under ESA Section 7, with "incidental take" provisions with which you must comply). The National Marine Fisheries Service (NMFS) SLOPES IV In-water Over-water Structures programmatic biological opinion dated April 5, 2012 (NMFS Reference Number 2011/05585), contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with the "incidental take" that is also specified in the opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the applicable mandatory terms and conditions associated with the incidental take statement. Failure to comply with the applicable terms and conditions associated with incidental take of this opinion, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with your Corps permit. The NMFS is the appropriate authority to determine compliance with the terms and conditions of its opinion and with the ESA.

b. Permittee shall fully implement all applicable Proposed Design Criteria (PDC) of the SLOPES IV In-water Over-water Structures programmatic biological opinion. A detailed list of the PDCs are enclosed (Enclosure 4). The applicable PDCs for the project include numbers: 5, 6, 7, 11, 17, 18, 23, 24, 25, and 27.

c. Permittee shall complete and submit an Action Completion Form, which is provided in Enclosure 4, within 60 days of completing all work below ordinary high water. Submit the form by email to cenwp.notify@usace.army.mil and include the Corps project number and county in the email subject line.

d. All in-water work shall be performed during the in-water work period of July 1 through September 15 to minimize impacts to aquatic species. Exceptions to this time period requires specific approval from the Corps and the National Marine Fisheries Service.

We have reviewed your project pursuant to the requirements of the Endangered Species Act, the Magnuson-Stevens Fishery Conservation and Management Act and the National Historic Preservation Act. *T*he requirements of the Endangered Species Act were met through a programmatic biological opinion as listed in the special

condition above. The complete text of the biological opinion is available for your review on our website (https://www.nwp.usace.army.mil/environment/). We have determined the project complies with the requirements of these laws provided you comply with all of the permit general and special conditions.

The project appears to comply with the DLCD Coastal Zone Management Act concurrence for this NWP. No further coordination with DLCD is required provided the work is performed in accordance with all of the enclosed conditions.

Please note, Portland District NWP Regional General Condition 3, *Cultural Resources and Human Burials-Inadvertent Discovery Plan*, describes procedures should an inadvertent discovery occur. You must ensure that you comply with this condition during the construction of your project.

The Skipanon River is a water of the U.S. If you believe this is inaccurate, you may request a preliminary or approved jurisdictional determination (JD). If one is requested, please be aware that we may require the submittal of additional information to complete the JD and work authorized in this letter may not occur until the JD has been completed.

The verification of this NWP is valid until March 14, 2026, unless the NWP is modified, reissued, or revoked prior to that date. If the authorized work has not been completed by that date and you have commenced or are under contract to commence this activity before March 14, 2026, you will have until March 14, 2027, to complete the activity under the enclosed terms and conditions of this NWP. If the work cannot be completed by March 14, 2027, you will need to obtain a new NWP verification or authorization by another type of Department of the Army permit.

Our verification of this NWP is based on the project description and construction methods provided in your permit application. If you propose changes to the project, you must submit revised plans to this office and receive our approval of the revisions prior to performing the work. Failure to comply with all terms and conditions of this NWP verification invalidates this authorization and could result in a violation of Section 10 of the Rivers and Harbors Act. You must also obtain all local, state, and other federal permits that apply to this project.

Upon completing the authorized work, you must fill out and return the enclosed *Compliance Certification* form (Enclosure 5). We would like to hear about your experience working with the Portland District, Regulatory Branch. Please complete a customer service survey form available on our website (https://regulatory.ops.usace.army.mil/customer-service-survey/).

If you have any questions regarding this NWP verification, please contact Mr. Brad Johnson by telephone at (503) 808-4383 or by email at brad.a.johnson2@usace.army.mil.

FOR THE COMMANDER, MICHAEL D. HELTON, PMP, COLONEL, CORPS OF ENGINEERS, DISTRICT COMMANDER:

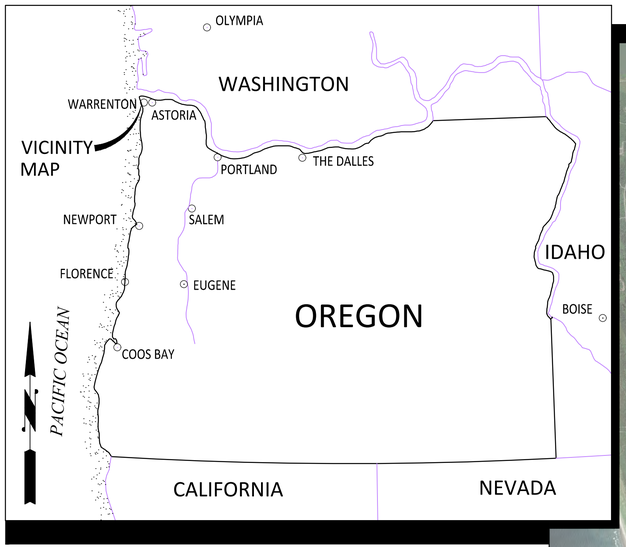
For: William D. Abadie
Chief, Regulatory Branch

Enclosures

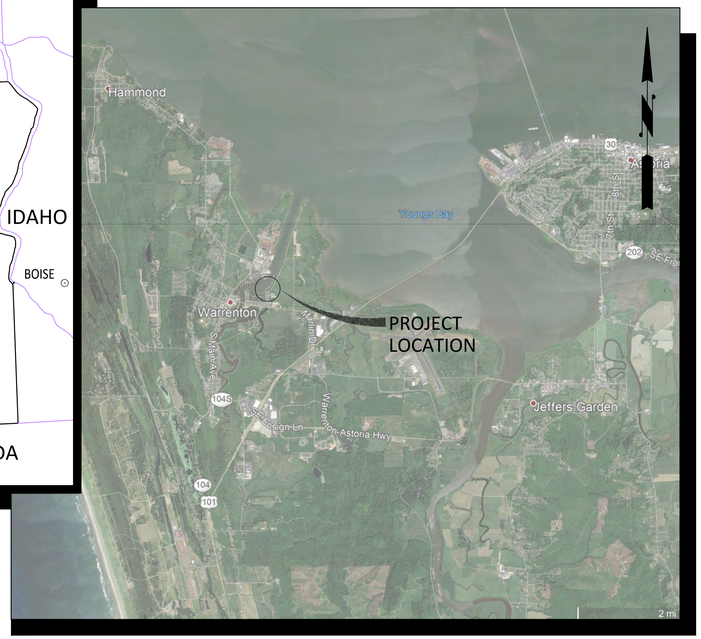
cc:
Oregon Department of State Lands (Dan Cary, dan.cary@dsl.oregon.gov)
Oregon Department of Land Conservation and Development (coast.permits@dlcd.oregon.gov)
Oregon Department of Environmental Quality (401applications@deq.oregon.gov)
Corps, Waterways Maintenance Section (Casey O'Donnell, casey.p.odonnell@usace.army.mil)

CITY OF WARRENTON

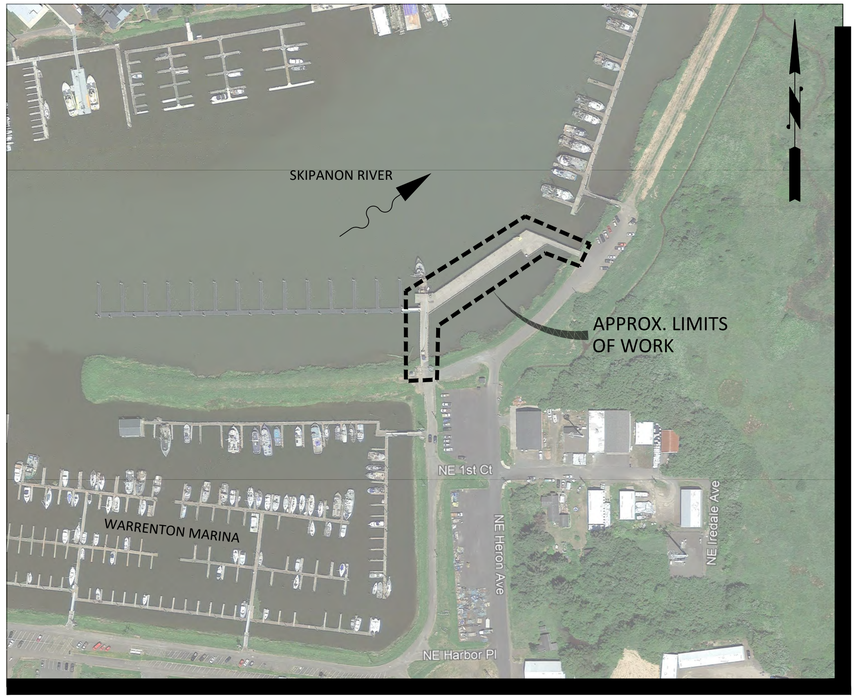
WORK PIER REHABILITATION - PHASES II & III



OREGON KEY MAP



VICINITY MAP



LOCATION MAP

(WARRENTON, OREGON)

TIDAL DATA

Station: 9439040, Astoria, OR	MLLW (feet)	NAVD88 (feet)
HMT	12.37	12.58
BASE FLOOD	11.79	12.00
MHHW	8.61	8.82
MHW	7.94	8.15
MTL	4.55	4.76
MSL	4.51	4.72
DTL	4.31	4.52
MLW	1.17	1.38
MLLW	0.00	0.21
NAVD88	-0.21	0.00
MIN	-3.85	-3.64

HMT	Highest Measured Tide (1/27/1983)
BASE FLOOD	100-Year Flood
MHHW	Mean Higher-High Water
MHW	Mean High Water
MTL	Mean Tide Level
MSL	Mean Sea Level
DTL	Mean Diumal Tide Level
MLW	Mean Low Water
MLLW	Mean Lower-Low Water
NAVD88	North American Vertical Datum of 1988
MIN	Lowest Observed Water Level (1/28/1979)

SHEET INDEX

SHEET INDEX (CONT.)

PBS Engineering and Environmental Inc.
4412 SW Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

COVER SHEET FOR:
WORK PIER REHABILITATION-PHASES II & III
A SITE LOCATED IN THE CITY OF WARRENTON, WASHINGTON

Know what's below. Call before you dig.

RICHARD A. WELLS — STATE OF WASHINGTON — 44034 — REGISTERED PROFESSIONAL ENGINEER — PRELIMINARY

DESIGNED: JMC
CHECKED: KL
DECEMBER 2021
74202.000

SHEET ID
G01

SHEET 1 OF 19

No.	Revision	Date	By	App'd

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ABBREVIATIONS:

&	AND
@	AT
APPROX	APPROXIMATE
AR	ANCHOR RODS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BF	BOARD FEET
BLKG	BLOCKING
BLW	BELOW
BOT	BOTTOM
BTWN	BETWEEN
CIP	CAST IN PLACE
CL, ℄	CENTER LINE
CLR	CLEAR
CONC	CONCRETE
CONN	CONNECTION
CONT	CONTINUOUS
DEMO	DEMOLISH
DIA OR Ø	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
E	EAST
EA	EACH
EF	EACH FACE
EL	ELEVATION
ELEC	ELECTRIC
EMBED	EMBEDMENT
EQ	EQUAL
EW	EACH WAY
EXST	EXISTING
FS	FAR SIDE
FT	FOOT, FEET
FV	FIELD VERIFY
GA	GAGE
GALV	GALVANIZED
GVW	GROSS VEHICLE WEIGHT
HPC	HIGH PERFORMANCE CEMENTITIOUS
HS	HIGH STRENGTH
HT	HEIGHT
IN	INCH
INFO	INFORMATION
KSI	KIPS PER SQUARE INCH
LBS	POUNDS
LF	LINEAR FEET
LLV	LONG LEG VERTICAL
MAX	MAXIMUM
MFT	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MET	METAL
#	NUMBER
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOM	NOMINAL
NS	NEAR SIDE
NTS	NOT TO SCALE
OC	ON CENTER
OPP	OPPOSITE
PCF	POUNDS PER CUBIC FOOT
PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PT	PRESSURE TREATED
QTY	QUANTITY
REF	REFERENCE
REINF	REINFORCE, REINFORCEMENT
REQD	REQUIRED
REV	REVISION
S	SOUTH
SF	SQUARE FOOT
SIM	SIMILAR
SPA	SPACE, SPACING
SPEC	SPECIFICATION
SQ	SQUARE
T&B	TOP AND BOTTOM
THRU	THROUGH
TOC	TOP OF CONCRETE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
W	WEST
W/	WITH
W/O	WITHOUT

LEGEND:

NORTH ARROW

X / XXX — SECTION, DETAIL, OR ELEVATION CALLOUT

DRAWING WHERE SECTION, DETAIL OR ELEVATION IS FIRST SHOWN OR CALLED FROM

X / XXX — SECTION OR ELEVATION CUT

X / XXX **TITLE** SCALE: X" = X'-XX" — PLAN, SECTION, DETAIL, OR ELEVATION

X / XXX — PHOTO - INDICATES APPROXIMATE PERSPECTIVE

EXISTING PLUMB PILE

EXISTING BATTERED PILE (1:12) UNO

XX1 — BENT NUMBER

XXA — ROW LETTER

P — EXISTING POWER/ ELECTRICAL CONDUIT

W — EXISTING WATER LINE

SPOT ELEVATION

EXISTING 3x8 PILE BRACING ATTACHED AT TOP OF PILE

EXST / D-1 — SPAN DIRECTION OF EXISTING 3" UNREINFORCED CONCRETE OVER 1 1/2" DEEP METAL DECK W/ 4 1/2" FLUTE SPACING. TO BE REPLACED WITH D-3

EXST / D-2 — SPAN DIRECTION OF EXISTING 3 3/4" CONCRETE WITH #4 REBAR AT 12" OC, EACH WAY, OVER 3/4" DEEP METAL DECK W/ 3" FLUTE SPACING

D-3 — SPAN DIRECTION OF NEW 3" CONC W/ #4 AT 12" OC EA WAY AT MID DEPTH OF CONC, OVER 1 1/2" DEEP METAL DECK

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DRAWING LEGEND AND ABBREVIATIONS FOR:

WORK PIER REHABILITATION-PHASES II & III

A SITE LOCATED IN THE CITY OF WARRENTON, WASHINGTON

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SHEET ID
S01

SHEET 2 OF 19

Filename: L:\Projects\74000\74202\74202-000\Structural\CAD\Working\Sheets\74202.000-S01.dwg Layout Tab: S01 User: Lance Guberina CAD Plot Date/Time: 12/29/2021 9:44:55 AM

CODES AND STANDARDS:

1. REINFORCED CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS" (ACI 301) AND "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" (ACI 318).
2. STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION THEREOF SHALL CONFORM TO THE "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (AISC 303) AND "SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS" (AISC 360).
3. WELDING OF STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO "STRUCTURAL WELDING CODE - STEEL" (AWS D1.1).
4. CONCRETE REPAIR SHALL CONFORM TO REQUIREMENTS OF "GUIDE TO CONCRETE REPAIR" (ACI 546R).
5. TIMBER CONSTRUCTION SHALL CONFORM TO "NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION" (NDS).

GENERAL:

1. THE IMPLEMENTATION OF A BEST MANAGEMENT PRACTICES PLAN (BMP) DURING CONSTRUCTION IS REQUIRED. THE CONTRACTOR SHALL PREVENT/MINIMIZE ENVIRONMENTAL IMPACTS DURING ALL CONSTRUCTION WORK.
2. THESE NOTES CONTAIN GENERAL INFORMATION AND ARE NOT COMPLETE FOR CONSTRUCTION PURPOSES. VERIFY INFORMATION GIVEN HERE WITH THE SPECIFICATIONS AND OTHER DRAWINGS, AND BRING ANY CONFLICTS TO THE ATTENTION OF THE CITY BEFORE BEGINNING AFFECTED WORK. THE CITY WILL RESOLVE ANY CONFLICTS.
3. FIELD VERIFY ALL FEATURES, DIMENSIONS, AND ELEVATIONS PRIOR TO FABRICATION OF ASSEMBLIES OR CONSTRUCTION. THE CONDITIONS SHOWN ON THESE DRAWINGS ARE BASED ON AVAILABLE EXISTING DATA. NOTIFY THE CITY OF ANY DISCREPANCIES BEFORE BEGINNING THE AFFECTED WORK.
4. DIMENSIONS, ELEVATIONS, AND DETAILS OF EXISTING STRUCTURES ARE INCLUDED ON THESE DRAWINGS FOR REFERENCE ONLY AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS. VERIFY DIMENSIONS AND DETAILS, AND NOTIFY THE CITY OF ANY MISALIGNMENT, DISCREPANCIES, DIMENSIONS THAT NEED MODIFICATION, OR OMISSIONS BEFORE THE SHOP DRAWING SUBMITTALS.
5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR FIELD VERIFICATION AND DETERMINATION OF STRUCTURAL CAPACITY OF THE EXISTING STRUCTURES FOR THE ANTICIPATED LOADS DURING CONSTRUCTION.
6. PROVIDE WATER-TIGHT CONTAINMENT SYSTEM FOR ALL UNDER DECK REPAIRS. INSTALL TEMPORARY WORK PLATFORMS IF NEEDED, AND CONTAINMENT SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS.
7. THE FOLLOWING REPORT IS INCLUDED FOR REFERENCE ONLY. THE INFORMATION CONTAINED IN THIS REPORT IS INFORMATIONAL AND IS NOT PART OF THE CONTRACT DOCUMENTS.
   A. WARRENTON MARINA WORK PIER, CONDITION SURVEY AND LOAD RATING REPORT, JULY 2017.

DEMOLITION:

1. THE CONTRACTOR SHALL CONTAIN THE DEMOLITION WITHIN THE LIMITS DESIGNATED, TO PREVENT DAMAGE TO EXISTING STRUCTURES, UTILITIES, OR FACILITIES, AND KEEP ALL DEBRIS FROM FALLING INTO THE WATER.
2. PRIOR TO GENERAL DEMOLITION, THE CONTRACTOR SHALL SAWCUT WHERE NOTED, OR OTHERWISE PROVIDE A SMOOTH CLEAN BREAK BETWEEN ITEMS THAT ARE TO BE DEMOLISHED AND ITEMS THAT ARE TO REMAIN.
3. ALL DEMOLITION MATERIAL, EXCEPT AS NOTED, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE COMPLETELY REMOVED AND DISPOSED OF BY THE CONTRACTOR. THE REMOVAL, HANDLING, AND DISPOSAL OF ALL DEMOLITION MATERIALS, INCLUDING CREOSOTE-TREATED TIMBERS, SHALL BE IN STRICT ACCORDANCE WITH ALL STATE AND FEDERAL REQUIREMENTS. PROPER DISPOSAL OF ALL DEMOLITION AND CONSTRUCTION MATERIALS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE ITSELF WITH THE MATERIALS TO BE DISPOSED OF AND ALL GOVERNING AGENCIES AND PERMIT REQUIREMENTS.

REINFORCED CONCRETE:

1. REINFORCED CONCRETE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 5,000 PSI
2. REINFORCING STEEL
   A. ALL REINFORCING STEEL SHALL BE DEFORMED STEEL BARS CONFORMING TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE. WELDED REINFORCING BARS SHALL CONFORM TO ASTM A706.
   B. SHOW SPLICE LOCATIONS FOR REINFORCING STEEL ON THE SHOP DRAWINGS. SPLICES SHALL CONFORM TO THE FOLLOWING TABLE, UNLESS OTHERWISE NOTED.

SCHEDULE OF LAP SPLICE LENGTHS (f'c=5000 PSI)					
BAR SIZE	4	5	6	7	8
TOP BARS	2'-6"	3'-0"	3'-9"	5'-3"	6'-0"
BOTTOM BARS	2'-0"	2'-6"	3'-0"	4'-0"	4'-9"

NOTES:
1. VALUES ARE BASED ON CLASS "B" SPLICES (MAX OF 50% BAR SPLICED AT ONE LOCATION).
2. TOP BARS ARE DEFINED AS ANY HORIZONTAL BAR PLACED SUCH THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR.

   C. DETAIL ALL REINFORCING STEEL IN ACCORDANCE WITH ACI 315.
3. PROVIDE 1 1/2-INCHES OF CONCRETE COVER UNLESS OTHERWISE SHOWN ON THE DRAWINGS.
4. CONCRETE FORMING: SEE SPECIFICATIONS. FILL ALL VOIDS LEFT BY CONES AND OTHER FORMWORK HARDWARE AFTER FORMS ARE REMOVED. FOR CHAIRS, SUPPORTS, AND SPACERS TO SUPPORT REINFORCING STEEL, USE ALL-PLASTIC OR EPOXY-COATED WITH PRE-MOLDED PLASTIC TIPS. PROVIDE CHAIRS, SUPPORTS, AND SPACERS AT INTERVALS LESS THAN 4 FEET ON CENTER UNLESS OTHERWISE ALLOWED BY THE CITY.
5. CONCRETE FINISHING: TERMINOLOGY IS AS DEFINED IN ACI 301. SLAB OR TOP SURFACE = LIGHT BROOM FINISH W/ 1/16" STRIA FORMED SURFACES = SMOOTH FORM FINISH SURFACES RECEIVING GROUT = SCRATCH FINISH
6. CONCRETE CURING: MOIST CURE CONCRETE SURFACES OR USE AN APPROVED CURING MEMBRANE IN ACCORDANCE WITH ACI 301 UNLESS A LONGER TIME IS REQUIRED IN THE SPECIFICATIONS.
7. CONCRETE DEFECTS: REPAIR FORMED SURFACES BY REMOVING MINOR HONEYCOMBS, PITS GREATER THAN 1/2-SQUARE-INCH IN AREA OR GREATER THAN 1/4-INCH IN DEPTH, AND ALL OTHER DEFECTS AS DIRECTED BY THE CITY OR AS DESCRIBED IN THE SPECIFICATIONS OR REFERENCE DOCUMENTS. PROVIDE EDGES PERPENDICULAR TO THE SURFACE, PATCH WITH GROUT AS SPECIFIED, AND PROVIDE A SMOOTH FORM FINISH. CONCRETE WITH EXTENSIVE HONEYCOMBING OR OTHER DEFECTS WHICH AFFECT SERVICEABILITY AND/OR STRUCTURAL STRENGTH OF THE CONCRETE ELEMENT, AS DETERMINED BY THE CITY, SHALL BE REJECTED AND REPLACED AT NO ADDITIONAL COST TO THE CITY.

STRUCTURAL AND MISCELLANEOUS STEEL:

1. MISCELLANEOUS STEEL SHAPES, PLATES, AND BARS: ASTM A572, Fy = 50 KSI, TYPICAL
2. ANGLES: ASTM A36, UNO
3. BOLTS: ASTM A307 TYPICAL, UNO
4. NUTS: HEAVY HEX, ASTM A563, GRADE SUITABLE FOR THE TYPE OF BOLT.
5. WASHERS: ASTM F844, WIDE SERIES, MAXIMUM THICKNESS FOR ASTM A307 BOLTS.
6. HOT-DIP GALVANIZE ALL STEEL MATERIALS, FABRICATIONS, AND ASSEMBLIES IN ACCORDANCE WITH ASTM A123 OR ASTM A153 AS APPLICABLE, UNO. GALVANIZE ITEMS AFTER FABRICATION AS FAR AS PRACTICABLE. RESTORE GALVANIZING DAMAGED BY WELDING, HANDLING, OR OTHER CAUSES IN ACCORDANCE WITH THE SPECIFICATIONS. GALVANIZED ITEMS SHALL BE COATED IN ACCORDANCE WITH THE SPECIFICATIONS.
7. STEEL FENDER PILE: ASTM A252, GRADE 3, FY = 50 KSI.

METAL DECK:

1. STEEL FLOOR DECK SHALL BE COMPOSITE METAL DECK WITH FLUTES AT 6" ON CENTER AND CONFORM TO ASTM A653-SS DESIGNATION, GRADE 50 MINIMUM OR ASTM A611, GRADE C. ACCEPTABLE METAL DECK AS FOLLOWS.
   A. ASC BH-36 Hi FORM.
   B. VERCO PLB FORM LOCK.
   C. NEW MILLENIUM BUILDING SYSTEM, TYPE 1.5CD.
2. THE MINIMUM DECK SIZE AND GAUGE ARE BASED ON A 3-SPAN, UNSHORED CONDITION. THE MINIMUM DECK PROPERTIES ARE 1 1/2" DEEP, 16 GAGE FLOOR DECK MIN. I(IN^4/FT)=0.355, S(IN^3/FT)=0.390
3. STEEL DECK COATING IN ACCORDANCE WITH ASTM A653 G60. PROVIDE FACTORY PRIMER TO UNDERSIDE OF DECK.
4. STEEL FLOOR DECK ATTACHMENT SHALL BE (2) 5/16 DIA x 3" LONG GALVANIZED SCREWS @ 6" OC AT ALL TRANSVERSE, PERIMETER AND LONGITUDINAL TIMBER SUPPORTS AND BLOCKING.

TIMBER:

1. ALL SAWN LUMBER SHALL BE CONFORM TO WEST COAST LUMBER INSPECTION BUREAU OR WESTERN WOOD PRODUCTS ASSOCIATION GRADING RULES. LUMBER SHALL BE OF BEAMS 5" x 5" AND GREATER, DOUGLAS FIR LARCH NO.1 (F_b = 1350 PSI)
2. TIMBER BOLTS AND TIMBER LAG SCREWS SHALL CONFORM TO ANSI/ASME STANDARD B18.2.1-1981. ALL TIMBER BOLTS AND TIMBER LAG SCREWS SHALL BE DOME HEAD AND INSTALLED WITH MALLEABLE IRON WASHERS. ALL TIMBER BOLTS SHALL BE A307 AND HAVE CUT THREADS.
3. ALL FASTENERS, NAILS, LAG SCREWS AND BOLTS SHALL BE HOT-DIP GALVANIZED.
4. HOLES FOR BOLTS SHALL BE DRILLED WITH A BIT OF THE SAME NOMINAL DIAMETER AS THE BOLT +1/16". LEAD HOLES FOR LAG SCREWS SHALL BE BORED IN ACCORDANCE WITH ANSI/AWC NDS-2012, SECTION 11.1.4.
5. WHEN FIELD CUTTING, DRILLING OR FABRICATION IS NECESSARY, IT SHALL BE DONE AWAY FROM THE WATER TO THE DEGREE PRACTICAL AND ALL WASTE, INCLUDING SAWDUST, SHALL BE COLLECTED AND DISPOSED OF APPROPRIATELY.

CONSTRUCTION LOADS:

1. SEE DRAWING S-04 FOR EQUIPMENT AND LOAD RESTRICTIONS.
2. DO NOT OPERATE EQUIPMENT OR USE AS STAGING AREAS ANYWHERE IDENTIFIED AS A LOAD RESTRICTED AREA.

DECK JOINT SEAL:

1. HOT POURED JOINT SEALANT
   A. USED FOR JOINT WIDTHS 1/2" OR LESS
   B. SHALL BE CRAFCO ROADSAVER 221 OR APPROVED EQUAL
2. TWO-COMPONENT, ELASTOMERIC JOINT SEALANT
   A. USED FOR JOINT WIDTHS 1/2" UP TO 2 1/2"
   B. SHALL BE SIKAFLEX-2C NS EZ MIX OR APPROVED EQUAL

KEY NOTES AND ESTIMATED REPAIR QUANTITIES:

KEY NOTE	LOCATION	REPAIR DESCRIPTION	DETAIL	QTY	UNIT
1	WEST TRESTLE	REMOVE & REPLACE CONCRETE OVER METAL DECK	A,B,C / S14	3040	SF
2	WORK PIER	STRENGTHENING PILE CAP WP3 PILES	A / S15	1	EA
3	WORK PIER	STRENGTHENING PILE CAP WP4	B / S15	1	EA
4	WEST TRESTLE	STRENGTHENING WEST TRESTLE PILE CAP	A, B / S16	9	EA
5	WORK PIER	STRENGTHENING TYPICAL WORK PIER PILE CAP	C / S16	27	EA
6	EAST TRESTLE	STRENGTHENING TYPICAL EAST TRESTLE PILE CAP	D / S16	8	EA
7	WORK PIER	STRENGTHENING JOIST - SINGLE SPAN	A / S17	8	EA
8	WORK PIER	STRENGTHENING JOIST - 2-SPAN	B / S17	4	EA
9	WORK PIER - EAST TRESTLE	REMOVE & REPLACE FENDER PILE	B / S18	7	EA
10	WEST TRESTLE	REPLACE BRACE	A / S18	3	EA

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STRUCTURAL NOTES FOR:
WORK PIER REHABILITATION-PHASES II & III
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TABLE 2

REQUIRED STRUCTURAL SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
FABRICATORS					
FABRICATORS	1704.2.5			X	SPECIAL INSPECTION IS REQUIRED FOR STRUCTURAL LOAD-BEARING MEMBERS AND ASSEMBLIES FABRICATED ON THE PREMISES OF A FABRICATOR'S SHOP.
	1704.2.5.1				THE SPECIAL INSPECTOR SHALL VERIFY THAT THE FABRICATOR MAINTAINS DETAILED FABRICATION AND QUALITY CONTROL PROCEDURES AND SHALL REVIEW FOR COMPLETENESS AND ADEQUACY RELATIVE TO THE CODE REQUIREMENT.
	1704.2.5.2				SPECIAL INSPECTIONS REQUIRED BY SECTION 1705 ARE NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. APPROVAL SHALL BE BASED UPON REVIEW OF THE FABRICATOR'S WRITTEN PROCEDURAL AND QUALITY CONTROL MANUALS AND PERIODIC AUDITING OF FABRICATION PRACTICES BY A NATIONALLY RECOGNIZED ACCREDITING AUTHORITY. AT COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
CONCRETE					
REINFORCING STEEL	1705.3 1910.4 1901.3.2	ACI 318: 3.5 ACI 318: 7.1-7.7		X	TOLERANCES AND REINFORCING PLACEMENT PER ACI 7.5; SPACING LIMITS FOR REINFORCING ACI 7.6 PROTECTION OF REINFORCEMENT PER ACI 7.7
VERIFYING USE OF REQUIRED MIX DESIGN(S)	TABLE 1705.3 1904 1904.2 1910.2 1910.3	ACI 318: CHAPTER 4 ACI 318: 5.2-5.4		X	
CONCRETE PLACEMENT	TABLE 1705.3	ACI 318: 1.3.2.D ACI 318: 5.9 - 5.10	X		
STEEL					
FABRICATION OF STRUCTURAL ELEMENTS	1704.2.5.2	AISC 360 N2		X	REFER TO INSPECTION OF FABRICATOR REQUIREMENTS APPROVAL BASED ON NATIONALLY RECOGNIZED ACCREDITING AUTHORITY
MATERIAL VERIFICATION OF STRUCTURAL STEEL	1705.2.1 2203.1 TABLE 1705.2	ASTM A6 ASTM STANDARDS SPECIFIED IN CONSTRUCTION DOCUMENTS AISC 360 N3.2 AISC 360 A3.1 AISC 360 M5.5		X	CERTIFIED MILL TEST REPORTS
INSTALLATION OF COMPOSITE SLAB DECKING	1705.1.1	ICC EVALUATION REPORT ASCE 9 CHAPTER 3		X	SPECIAL INSPECTIONS APPLY TO DECKING TYPE, DEPTH, GAGE, AND FASTENING

TABLE 5

REQUIRED TESTING FOR SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
CONCRETE					
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE	TABLE 1705.3	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	X		FABRICATE SPECIMENS AT TIME FRESH CONCRETE IS PLACED ONCE EACH DAY FOR A GIVEN CLASS OF CONCRETE, OR LESS THAN ONCE FOR EACH 150 YDS OF CONCRETE, OR LESS THAN ONCE FOR EACH 5,000 FT2 OF SURFACE AREA FOR SLABS/WALLS. ONCE EACH SHIFT FROM IN-PLACE WORK OR FROM TEST PANEL AND MINIMUM ONE SPECIMEN FOR EACH 50 CUBIC YARDS. "PRECONSTRUCTION TESTS AS REQUIRED PER THE BUILDING OFFICIAL."
CONCRETE STRENGTH	TABLE 1705.3	ASTM C39	X		
CONCRETE SLUMP	TABLE 1705.3	ASTM C143	X		
CONCRETE AIR CONTENT		ASTM C231	X		
CONCRETE TEMPERATURE		ASTM C1064	X		

TABLE 9

STRUCTURAL OBSERVATION

SYSTEM OR MATERIAL	INSPECTION				REMARKS
	IBC CODE REFERENCE	CODE OR STANDARD REFERENCE	FREQUENCY		
			CONTINUOUS	PERIODIC	
PRIOR TO FIRST CONCRETE POUR				X	

STRUCTURAL OBSERVATIONS:

1. STRUCTURAL OBSERVATION WILL CONFORM TO SECTION 1704 OF THE 2012 IBC.
   SEE TABLE 9 FOR REQUIRED STRUCTURAL OBSERVATION.
2. STRUCTURAL OBSERVATION WILL BE PERFORMED BY THE ENGINEER OF RECORD. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE ENGINEER OF RECORD IN ADVANCE OF THE STAGES LISTED IN TABLE 9.
3. THE STRUCTURAL OBSERVATION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR ANY REQUIRED SPECIAL INSPECTIONS.

SPECIAL INSPECTION PROGRAM NOTES:

1. SPECIAL INSPECTIONS SHALL CONFORM TO CHAPTER 17 OF THE 2012 INTERNATIONAL BUILDING CODE.
2. SPECIAL INSPECTIONS AND ASSOCIATED TESTING SHALL BE PERFORMED BY AN APPROVED ACCREDITED INDEPENDENT AGENCY MEETING THE REQUIREMENTS OF ASTM E329 (MATERIALS), ASTM D3740 (SOILS), ASTM C1077 (CONCRETE), ASTM A880 (STEEL), AND ASTM E543 (NON-DESTRUCTIVE). THE INSPECTION AND TESTING AGENCY SHALL FURNISH TO THE ENGINEER OF RECORD A COPY OF THEIR SCOPE OF ACCREDITATION. SPECIAL INSPECTORS SHALL BE CERTIFIED BY THE BUILDING OFFICIAL. WELDING INSPECTORS SHALL BE QUALIFIED PER SECTION 6.1.4.1.1 OF AWS D1.1. THE OWNER SHALL SECURE AND PAY FOR SERVICES OF THE INSPECTION AND TESTING AGENCY TO PERFORM ALL SPECIAL INSPECTIONS AND TESTS.
3. THE SPECIAL INSPECTOR SHALL OBSERVE THE INDICATED WORK FOR COMPLIANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION NOTED IN THE INSPECTION REPORTS, AND IF NOT CORRECTED, BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD AND THE OWNER.
4. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS FOR EACH INSPECTION TO THE ENGINEER OF RECORD, CONTRACTOR, AND OWNER. THE SPECIAL INSPECTION AGENCY SHALL SUBMIT A FINAL REPORT INDICATING THE WORK REQUIRING SPECIAL INSPECTION WAS INSPECTED AND IS IN CONFORMANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS AND THAT ALL DISCREPANCIES NOTED IN THE INSPECTION REPORTS HAVE BEEN CORRECTED.
5. THE CONTRACTOR SHALL PROVIDE SUFFICIENT ADVANCED NOTIFICATION OF CONSTRUCTION ACTIVITIES TO THE SPECIAL INSPECTOR TO ALLOW FOR INSPECTION OF WORK.
6. MAINTAIN ACCESS TO WORK REQUIRING INSPECTION UNTIL IT HAS BEEN INSPECTED AND INDICATED TO BE IN CONFORMANCE.
7. DEFINITIONS:
   A. CONTINUOUS INSPECTION: THE INSPECTOR IS OBSERVING THE WORK REQUIRING INSPECTION AT ALL TIMES.
   B. PERIODIC INSPECTION: THE INSPECTOR IS ON SITE AS REQUIRED TO CONFIRM THAT THE WORK REQUIRING INSPECTION IS IN CONFORMANCE.
8. IBC SPECIAL INSPECTION TABLES 1, 3, 4, 6, 7 AND 8 ARE NOT REQUIRED FOR THIS PROJECT.

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SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATIONS FOR:
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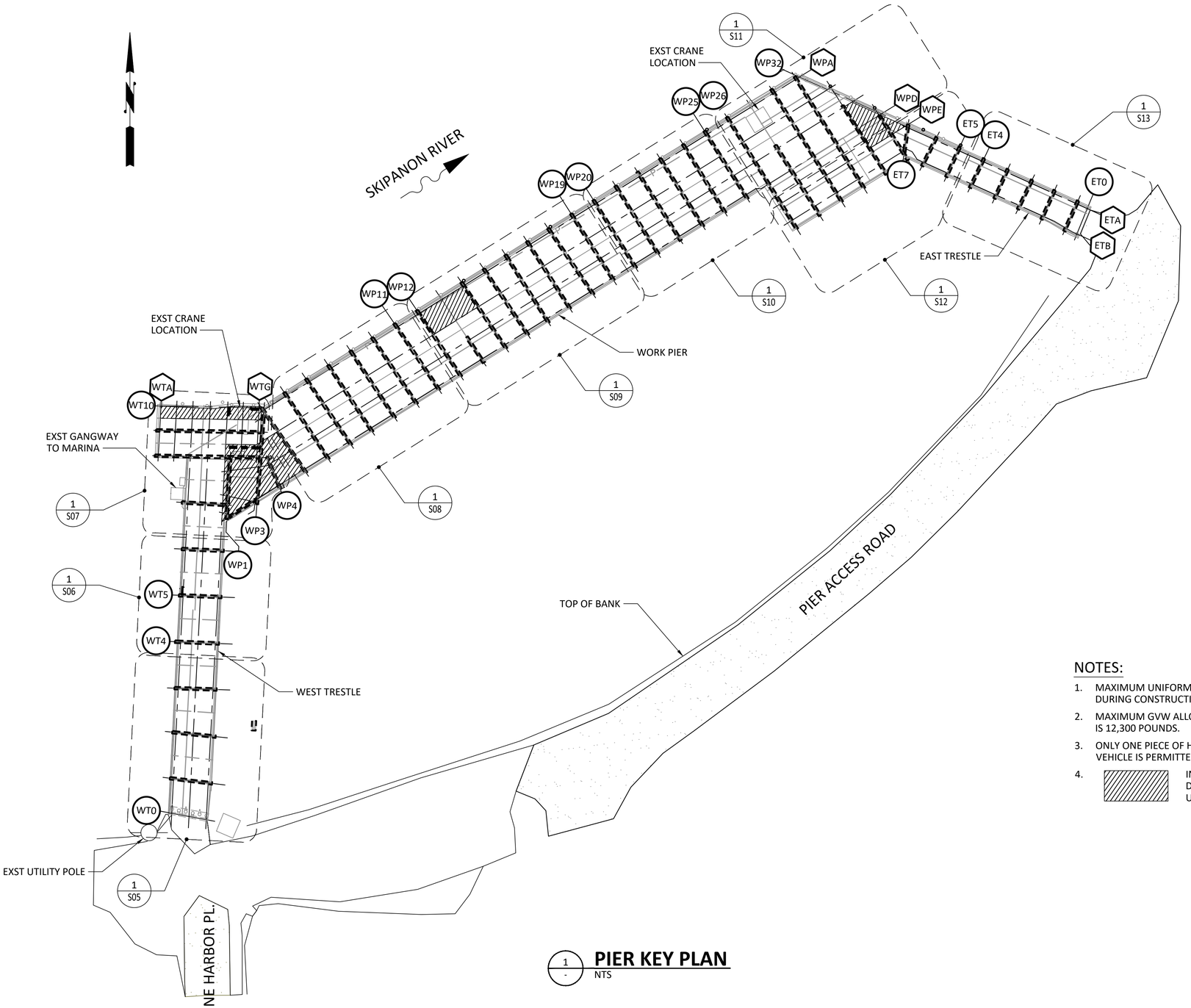

1 - **PIER KEY PLAN**
NTS

NOTES:

1. MAXIMUM UNIFORM CONSTRUCTION LOAD ALLOWED ON PIER DURING CONSTRUCTION IS 100 PSF.
2. MAXIMUM GVW ALLOWED ON THE PIER DURING CONSTRUCTION IS 12,300 POUNDS.
3. ONLY ONE PIECE OF HEAVY EQUIPMENT OR CONSTRUCTION VEHICLE IS PERMITTED ON THE PIER AT A TIME.
4. INDICATES LOAD RESTRICTED AREA. DO NOT OPERATE EQUIPMENT OR USE AS STAGING AREA.

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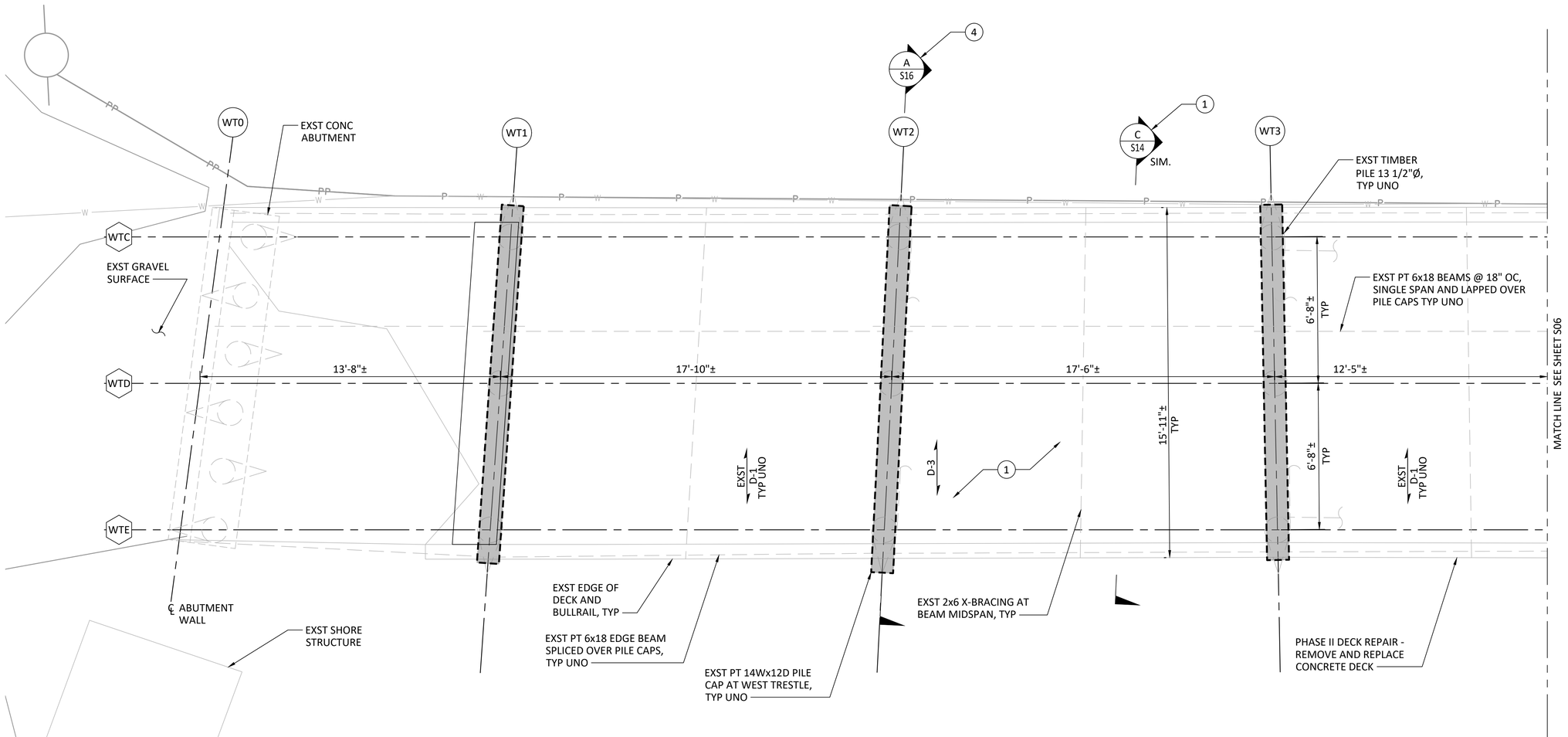

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

PHASE I PILE CAP & DECK REPAIR (DESIGN BY OTHERS)

PHASE II AND III PILE CAP REPAIR

1 / S04 **PIER PLAN**
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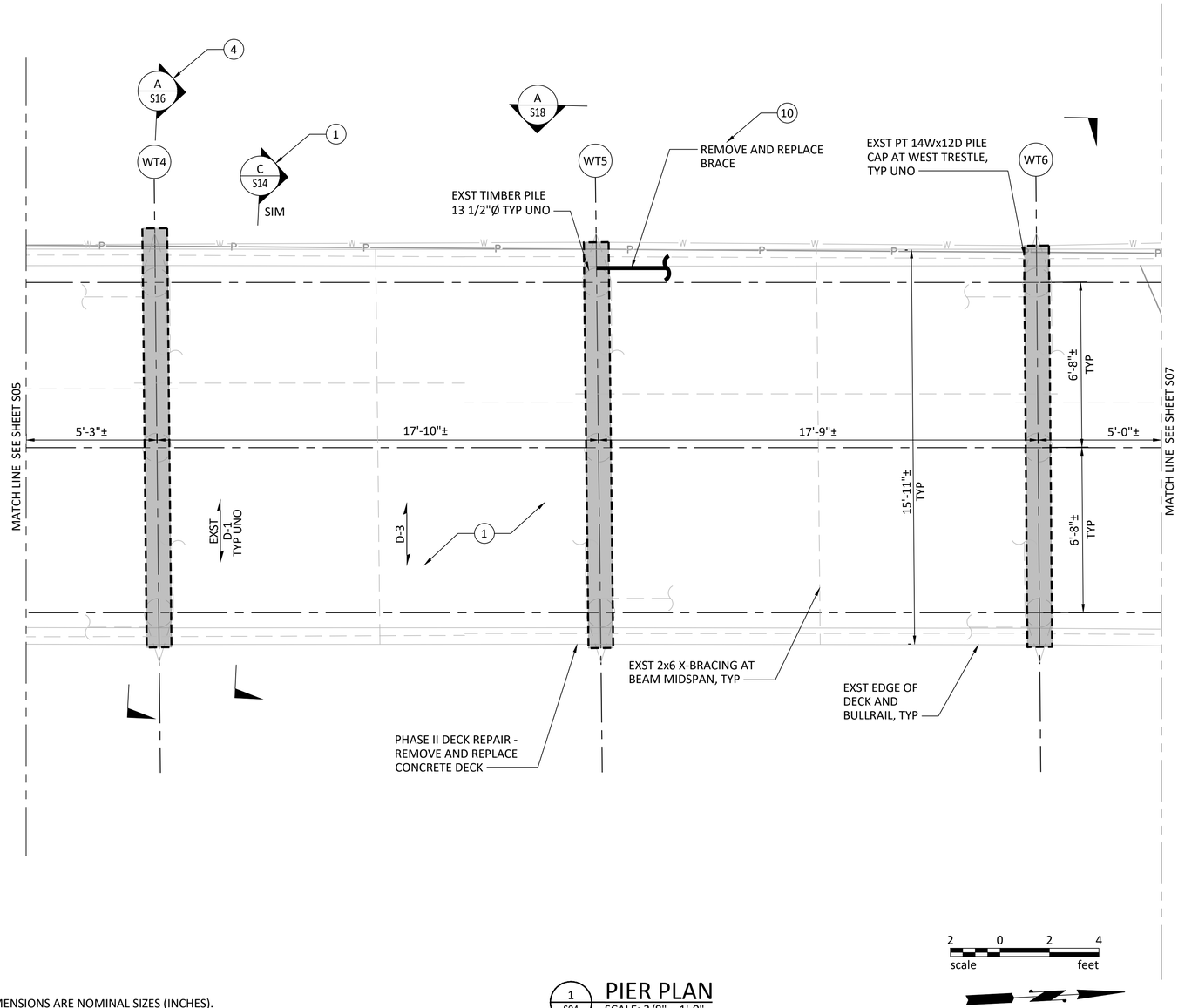

1/S04 PIER PLAN
SCALE: 3/8" = 1'-0"

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

PHASE I PILE CAP & DECK REPAIR (DESIGN BY OTHERS)

PHASE II AND III PILE CAP REPAIR

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PIER PLAN - SHEET 2 FOR:

WORK PIER REHABILITATION-PHASES II & III

A SITE LOCATED IN THE CITY OF WARRENTON, WASHINGTON

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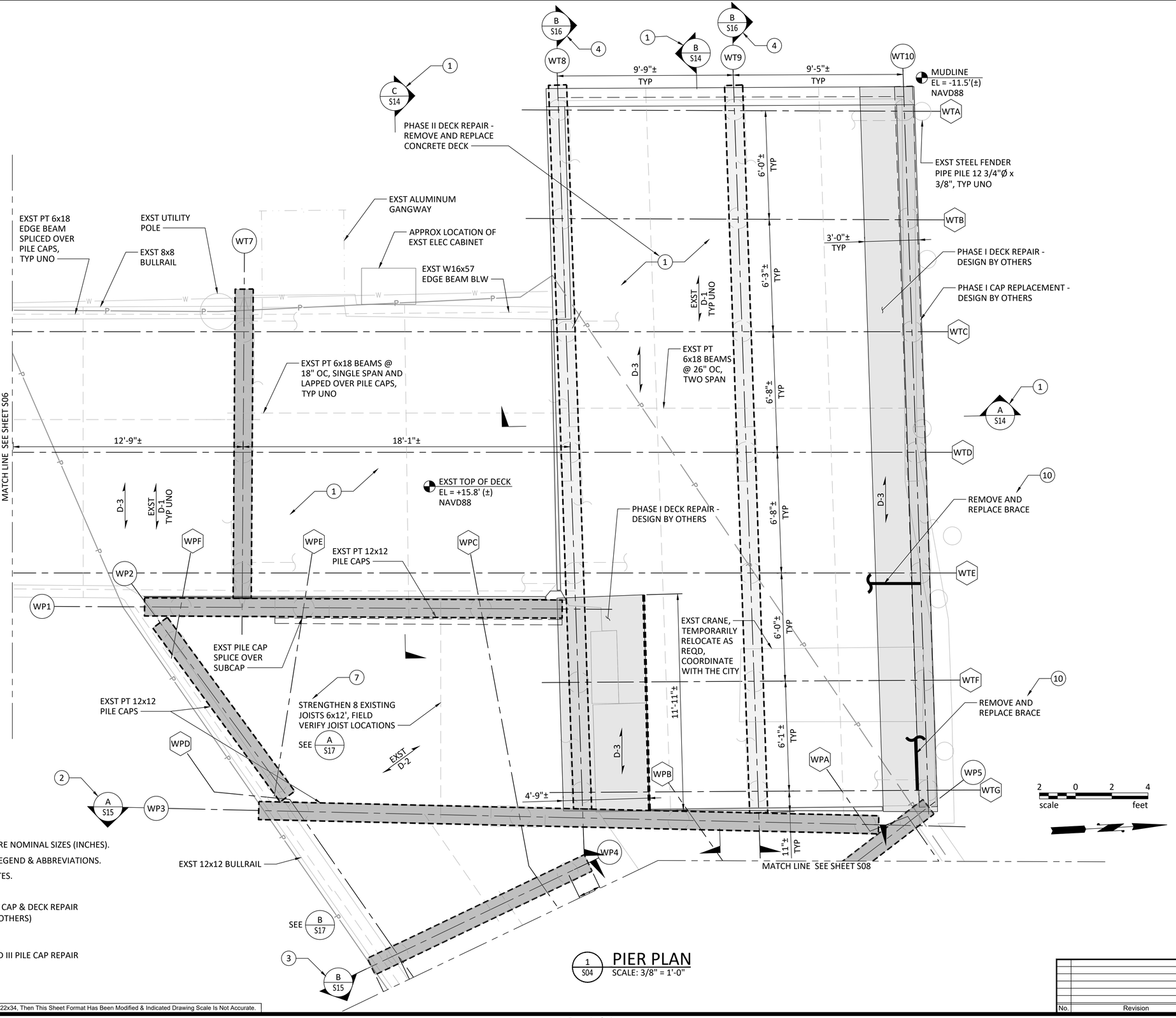
S06

SHEET 7 OF 19

Filename: L:\Projects\74000\74202\74202.000\Structural\CAD\Working\Sheets\74202.000-S06.dwg Layout Tab: S06 User: Lance Guberina CAD Plot Date/Time: 12/29/2021 9:45:43 AM



NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

PHASE I PILE CAP & DECK REPAIR (DESIGN BY OTHERS)

PHASE II AND III PILE CAP REPAIR

1 S04 PIER PLAN
SCALE: 3/8" = 1'-0"

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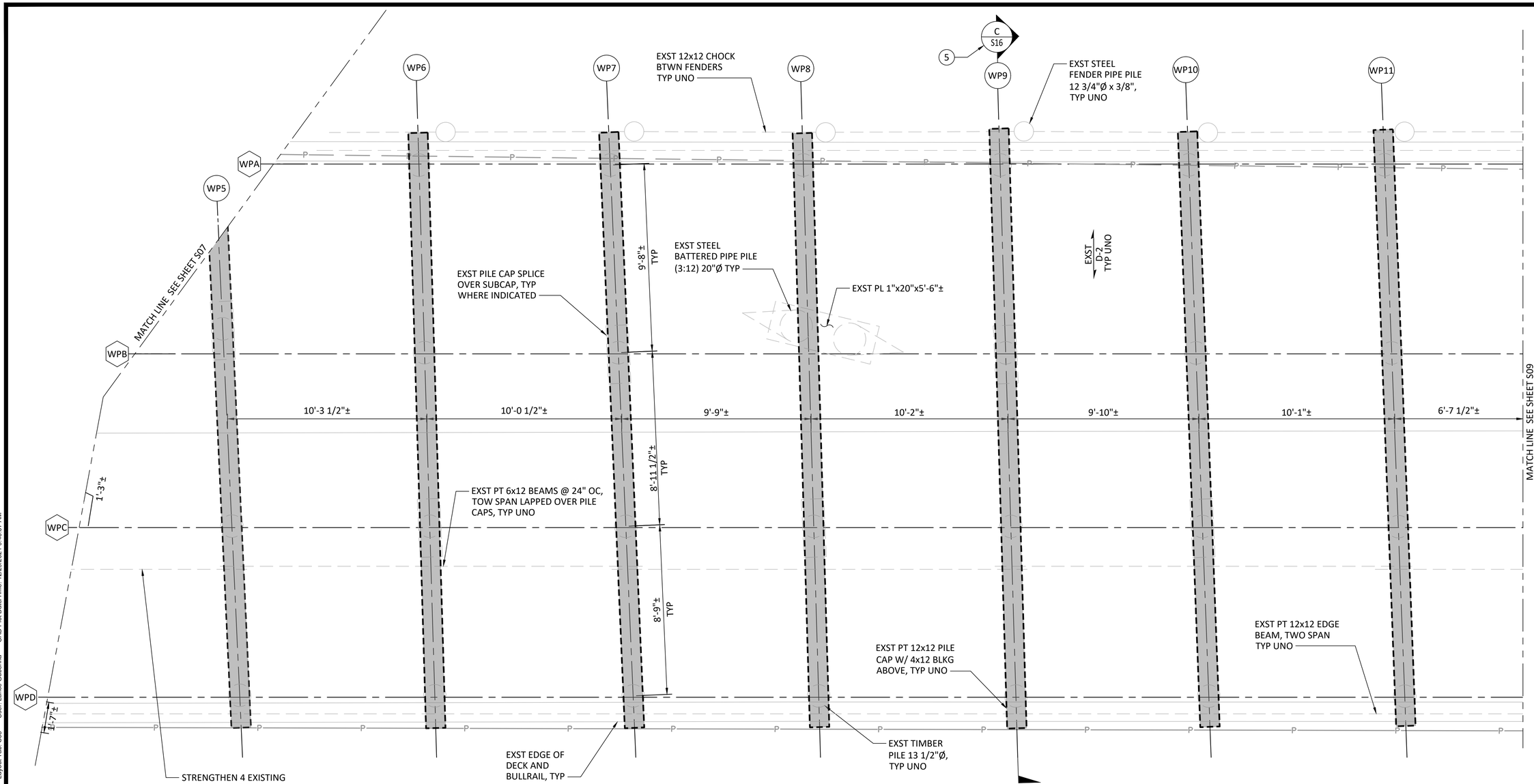
S07

SHEET 8 OF 19

Filename: L:\Projects\74000\74202\74202-000\Structural\CAD\Working\Sheets\74202.000-S07.dwg Layout Tab: S07 User: Lance Guberina CAD Plot Date/Time: 12/29/2021 9:45:56 AM



NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

PHASE I PILE CAP & DECK REPAIR
(DESIGN BY OTHERS)

PHASE II AND III PILE CAP REPAIR

1 / S04 PIER PLAN
SCALE: 3/8" = 1'-0"

2 0 2 4
scale feet

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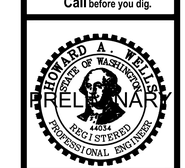

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SHEET ID
S08

SHEET 9 OF 19

Filename: L:\Projects\74000\74202\74202-000\Structural\CAD\Working\Sheets\74202.000-S08.dwg Layout Tab: S08 User: Lance Guberina CAD Plot Date/Time: 12/29/2021 9:46:07 AM

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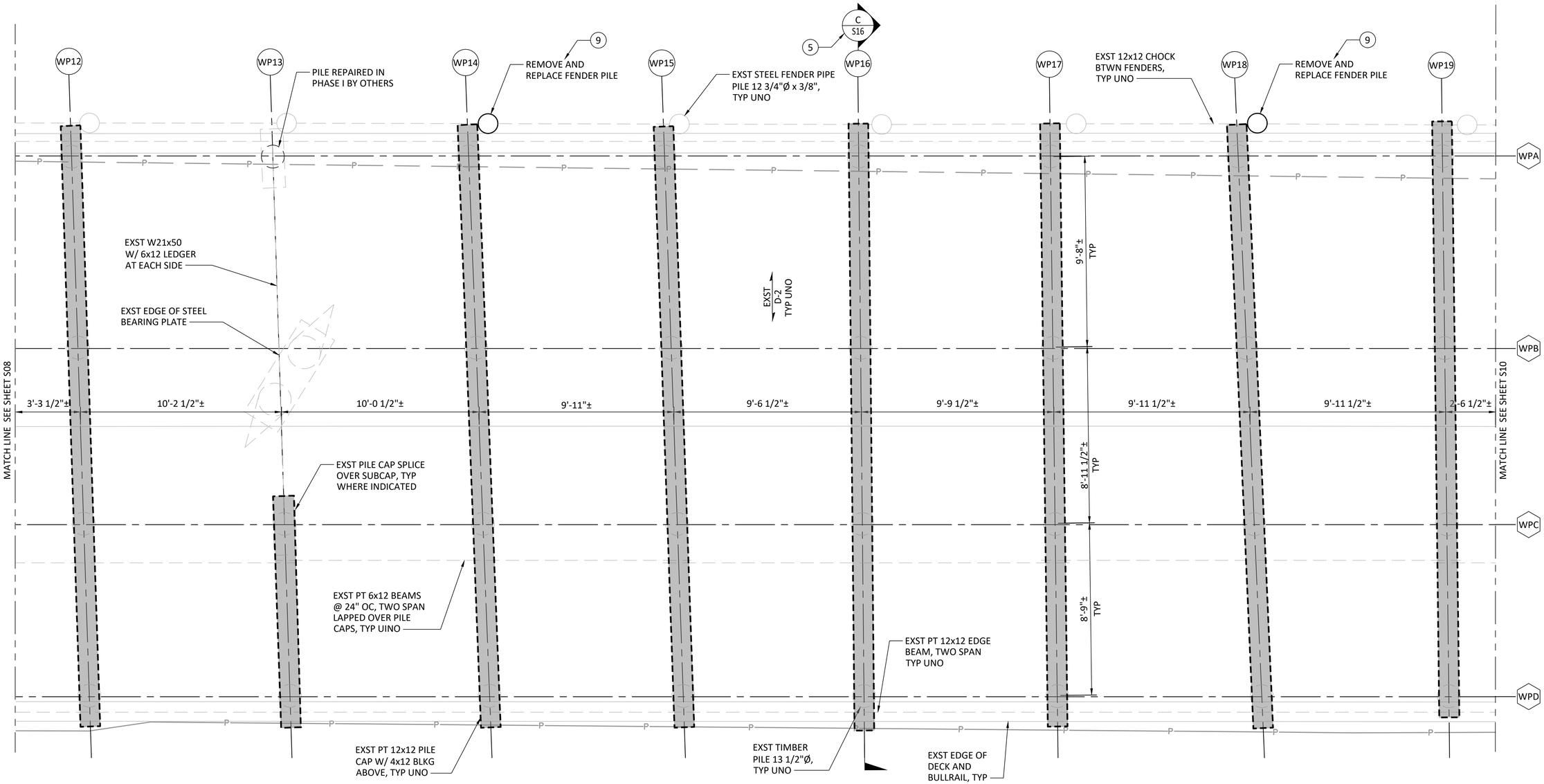

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

PHASE I PILE CAP & DECK REPAIR (DESIGN BY OTHERS)

PHASE II AND III PILE CAP REPAIR

1 / S04 PIER PLAN
SCALE: 3/8" = 1'-0"

2 0 2 4
scale feet

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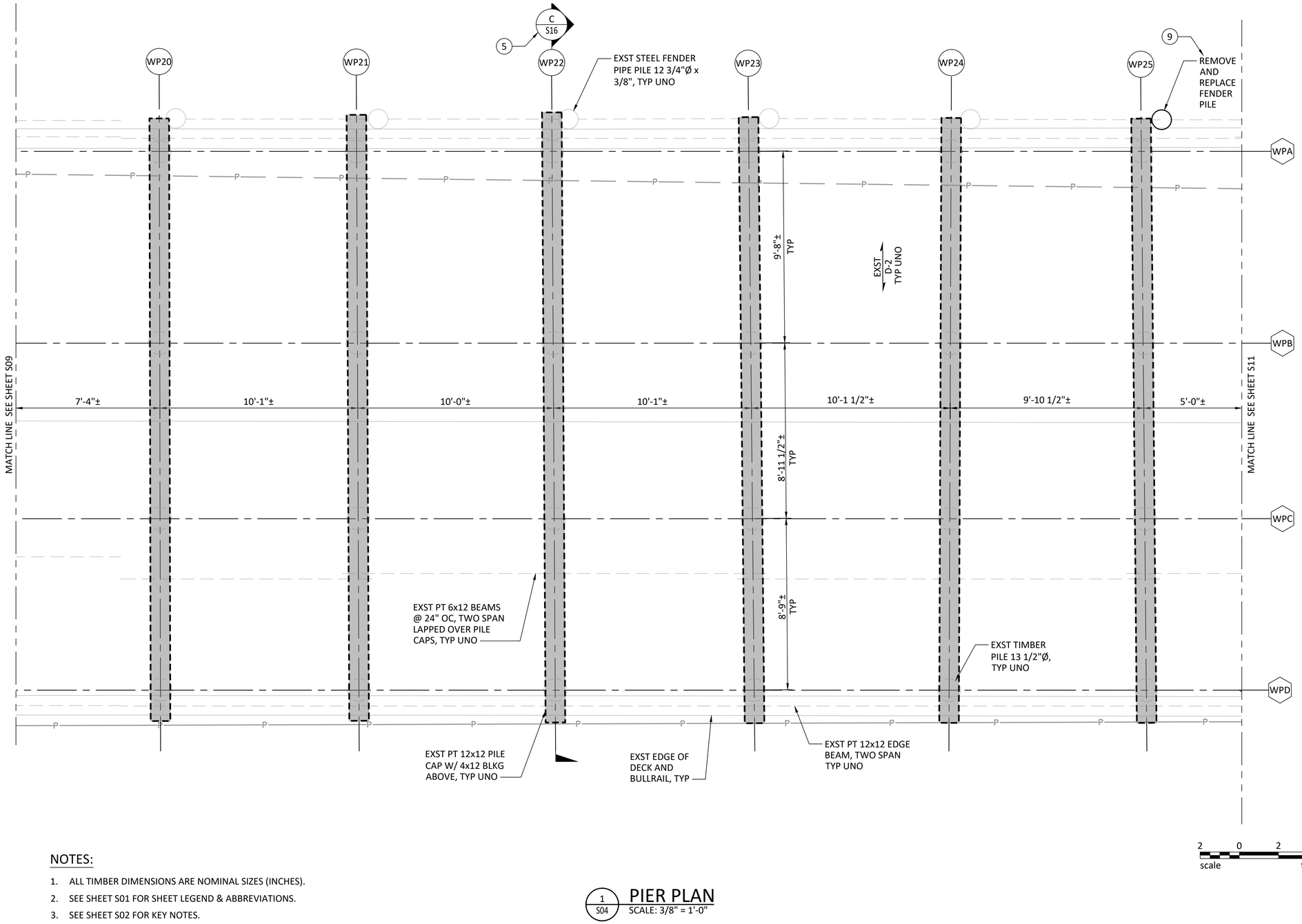
S09

SHEET 10 OF 19

Filename: L:\Projects\74000\74202\74202-000\Structural\CAD\Working\Sheets\74202.000-S09.dwg Layout Tab: S09 User: Lance Guberina CAD Plot Date/Time: 12/29/2021 9:46:20 AM



NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

PHASE I PILE CAP & DECK REPAIR (DESIGN BY OTHERS)

PHASE II AND III PILE CAP REPAIR

1/S04 PIER PLAN
SCALE: 3/8" = 1'-0"

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S10
SHEET 11 OF 19

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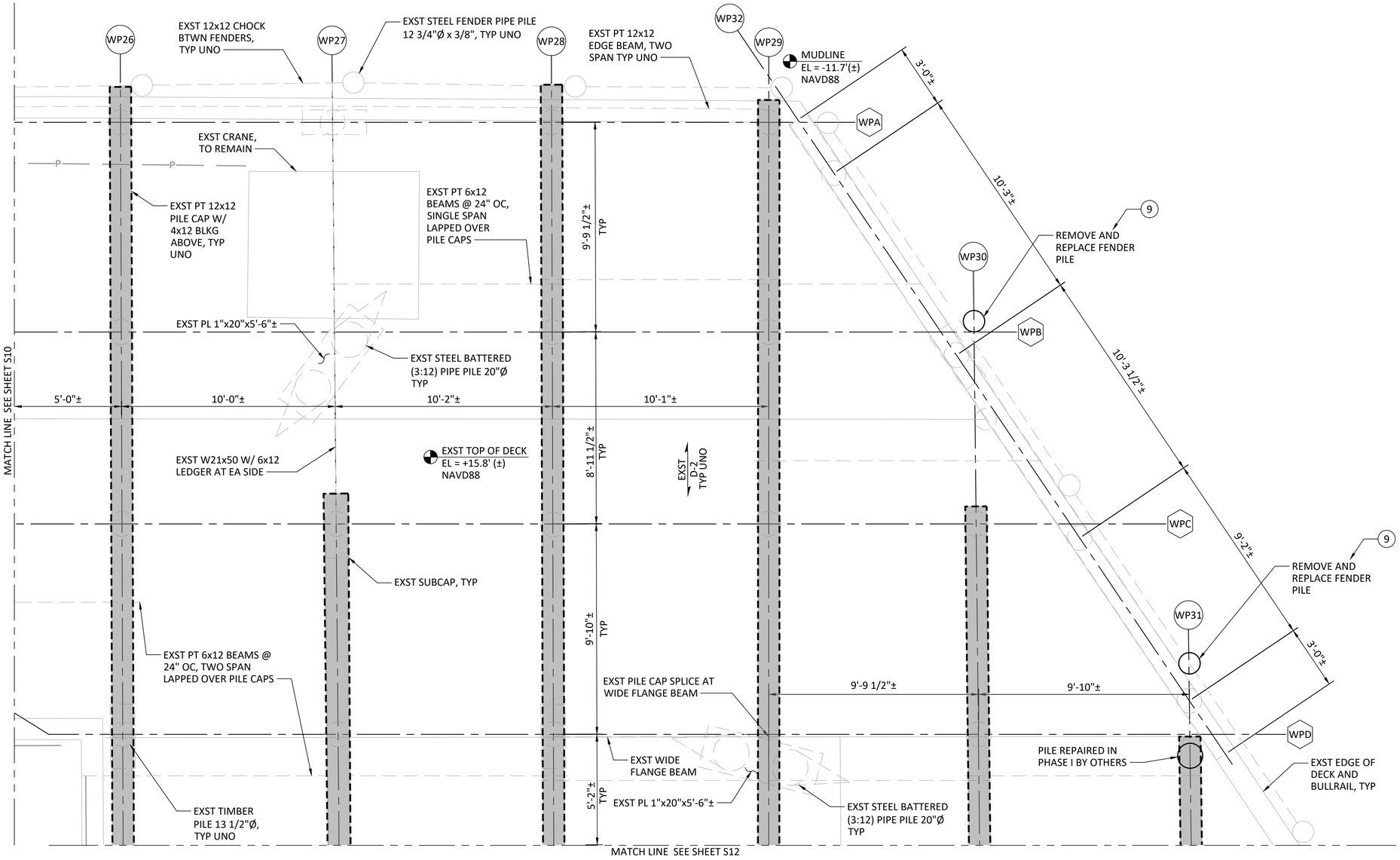

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

PHASE I PILE CAP & DECK REPAIR (DESIGN BY OTHERS)

PHASE II AND III PILE CAP REPAIR

1/S04 PIER PLAN
SCALE: 3/8" = 1'-0"

2 0 2 4
scale feet

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SHEET 12 OF 19

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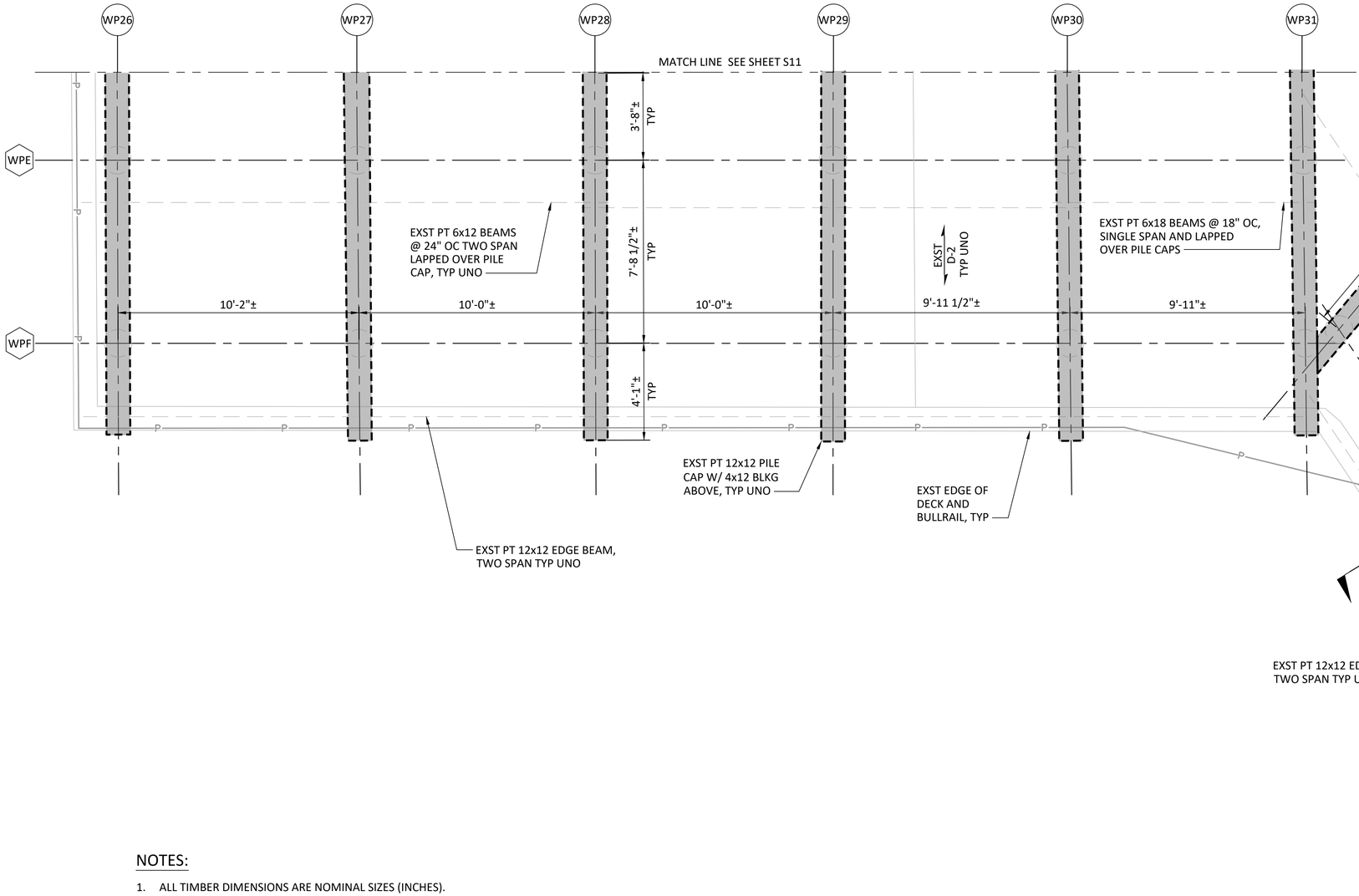

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

PHASE I PILE CAP & DECK REPAIR (DESIGN BY OTHERS)

PHASE II AND III PILE CAP REPAIR

1/S04 PIER PLAN
SCALE: 3/8" = 1'-0"

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S12

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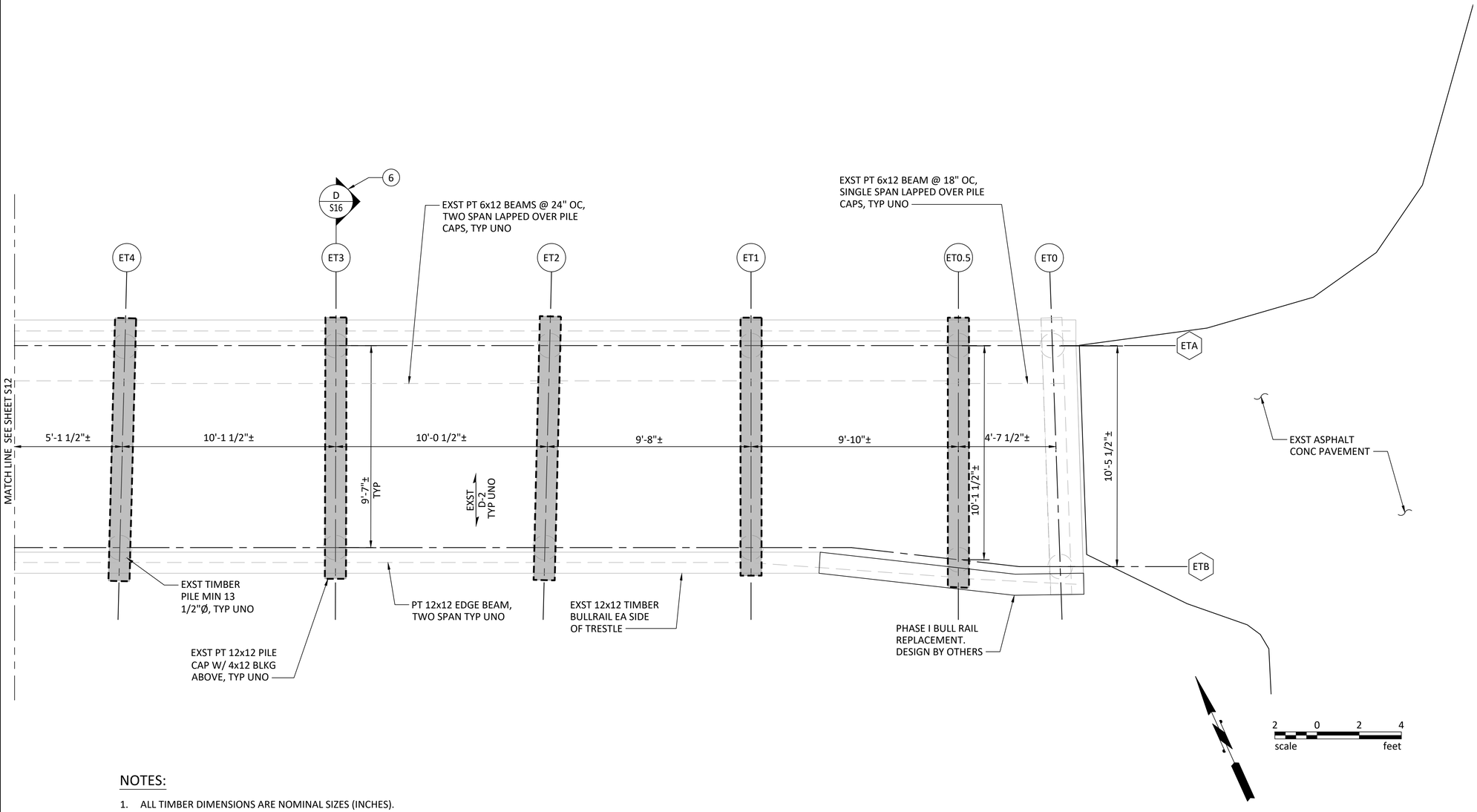

NOTES:

1. ALL TIMBER DIMENSIONS ARE NOMINAL SIZES (INCHES).
2. SEE SHEET S01 FOR SHEET LEGEND & ABBREVIATIONS.
3. SEE SHEET S02 FOR KEY NOTES.

PHASE I PILE CAP & DECK REPAIR (DESIGN BY OTHERS)

PHASE II AND III PILE CAP REPAIR

1 / S04 PIER PLAN
SCALE: 3/8" = 1'-0"

Full Size Sheet Format Is 22x34; If Printed Size Is Not 22x34, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

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S13

SHEET 14 OF 19

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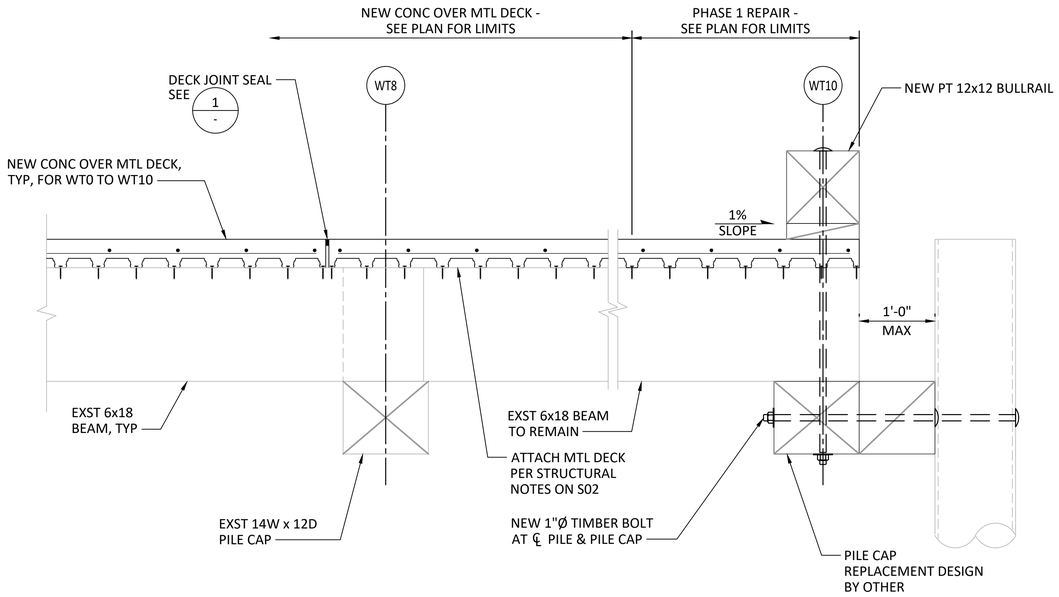
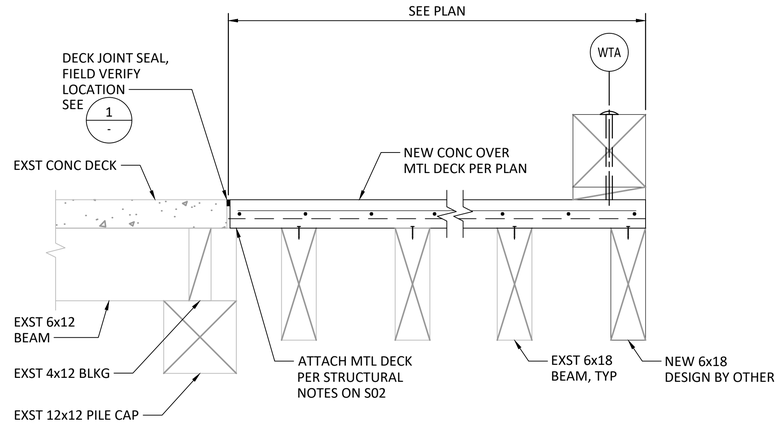
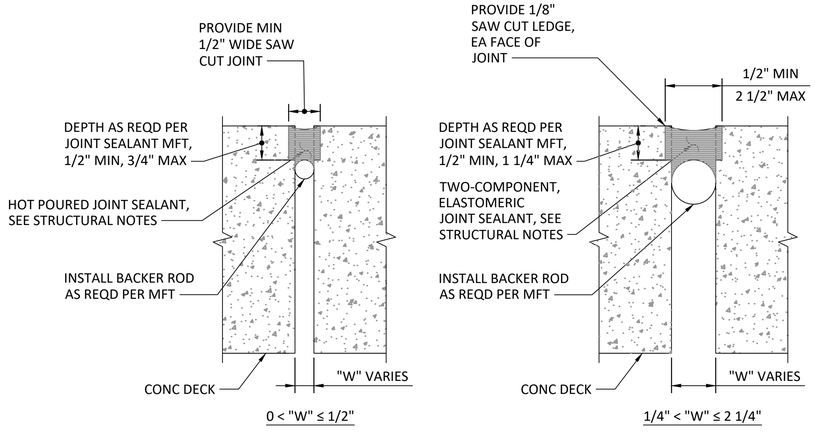


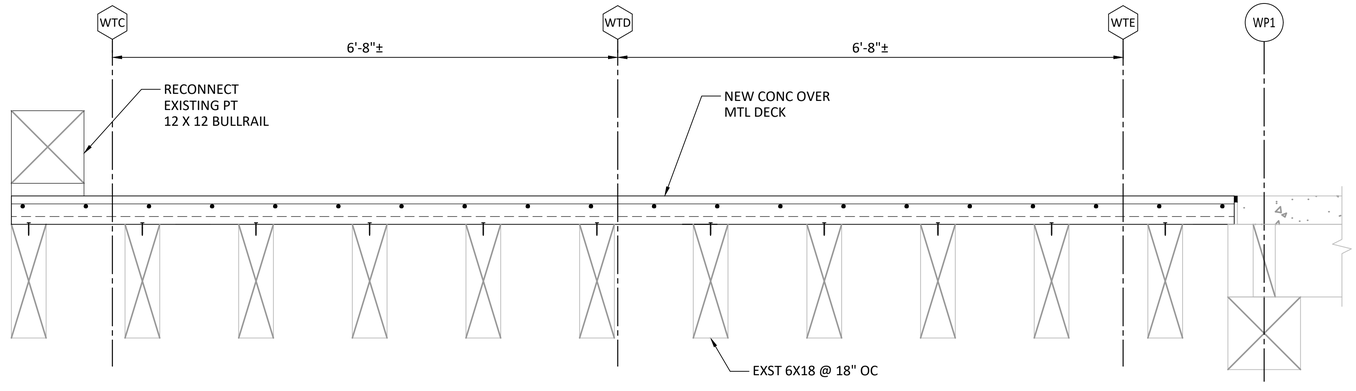
A S07 SECTION - NEW CONCRETE DECK (D-3)
SCALE: 1" = 1'-0"



B S07 SECTION - CONCRETE DECK (D-3)
SCALE: 1" = 1'-0"



1 - DETAIL - TYPICAL DECK JOINT SEAL
SCALE: NTS



C S07 SECTION - CONCRETE DECK (D-3)
SCALE: 1" = 1'-0"

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SHEET	15 OF 19

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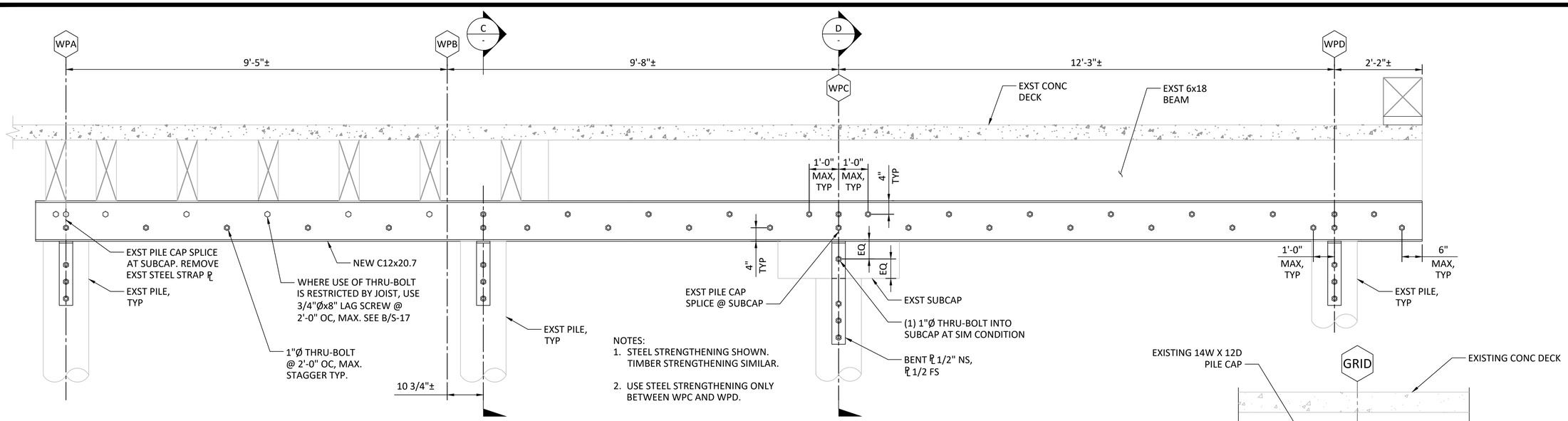
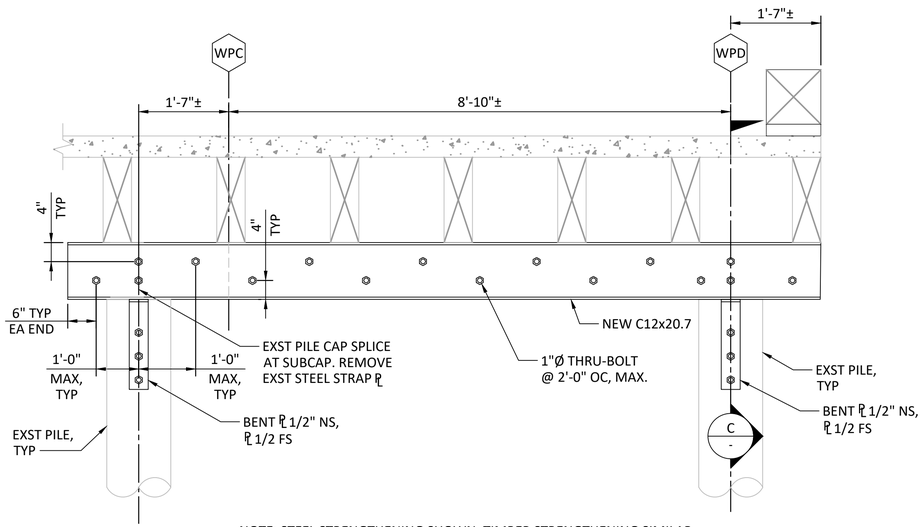


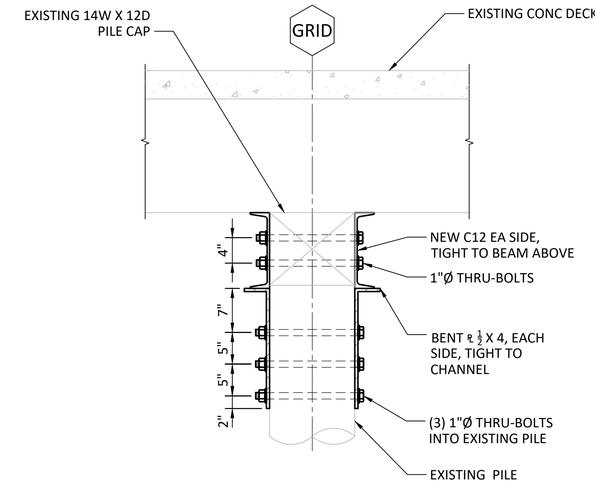
NOTES:
1. STEEL STRENGTHENING SHOWN. TIMBER STRENGTHENING SIMILAR.
2. USE STEEL STRENGTHENING ONLY BETWEEN WPC AND WPD.

A / S07 ELEVATION - PILE CAP STRENGTHENING AT WP3
SCALE: 3/4"=1'-0"

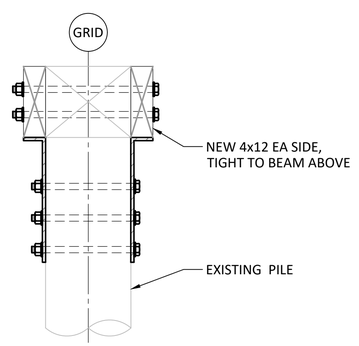


NOTE: STEEL STRENGTHENING SHOWN. TIMBER STRENGTHENING SIMILAR.

B / S07 ELEVATION - PILE CAP STRENGTHENING AT WP4
SCALE: 3/4"=1'-0"

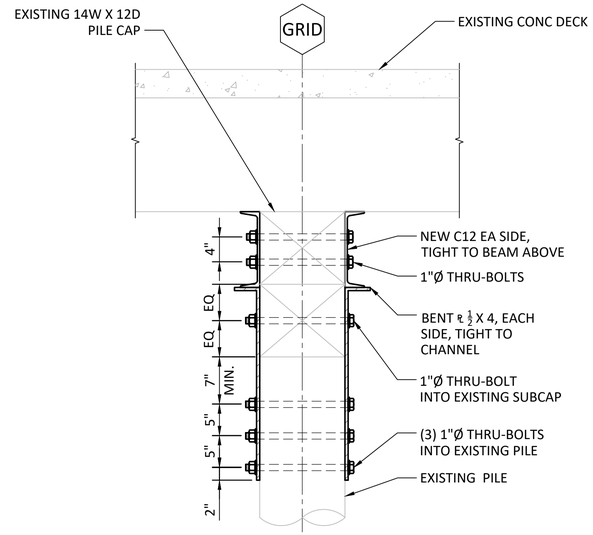


C / - SECTION - C12 PILE CAP STRENGTHENING
SCALE: 1"=1'-0"

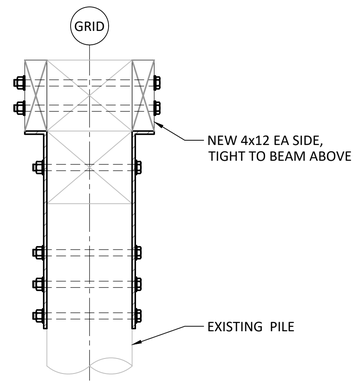


NOTE: DECK NOT SHOWN FOR CLARITY

C / - SECTION (ALT) - 4x12 PILE CAP STRENGTHENING
SCALE: 1"=1'-0"



D / - SECTION - C12 PILE CAP STRENGTHENING
SCALE: 1"=1'-0"



NOTE: DECK NOT SHOWN FOR CLARITY

D / - SECTION (ALT) - 4x12 PILE CAP STRENGTHENING
SCALE: 1"=1'-0"

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REHABILITATION DETAILS - SHEET 2 FOR:

WORK PIER REHABILITATION-PHASES II & III

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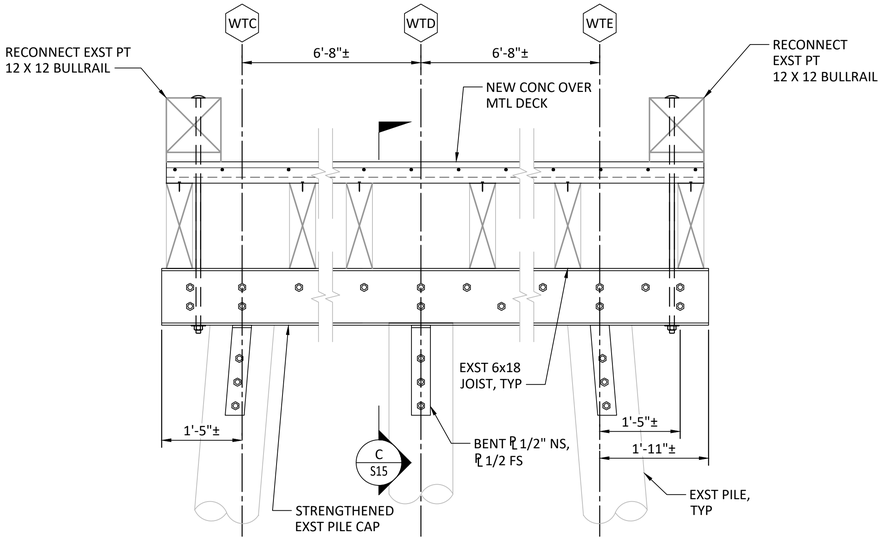
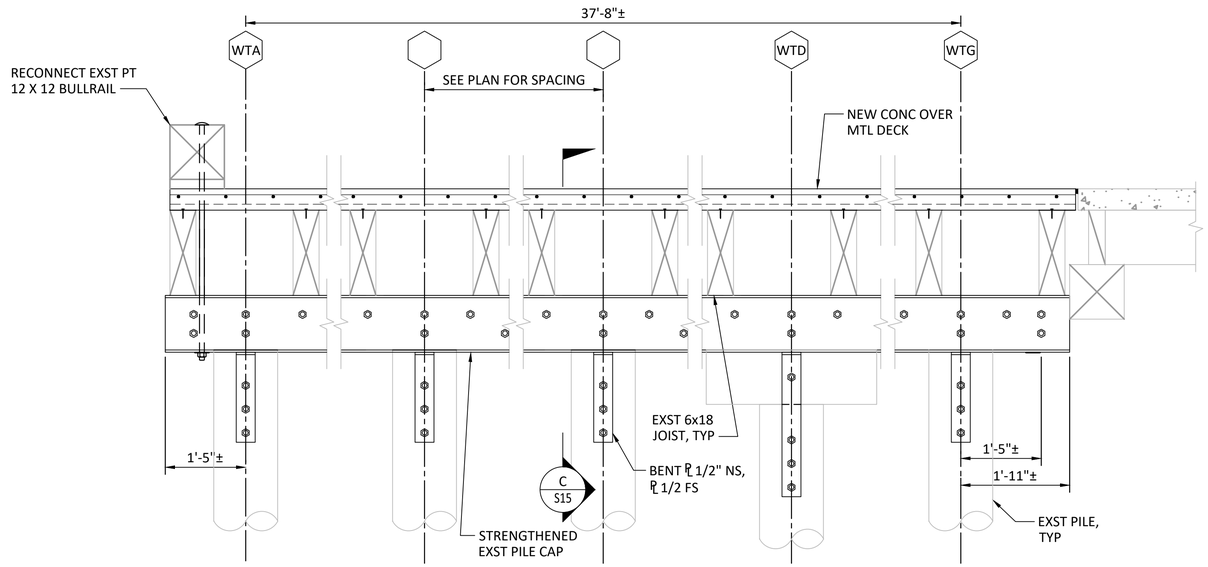


NOTE: FOR INFO. NOT SHOWN, SEE SHEET S-15

A S05 SECTION - WEST TRESTLE TYPICAL PILE CAP STRENGTHENING

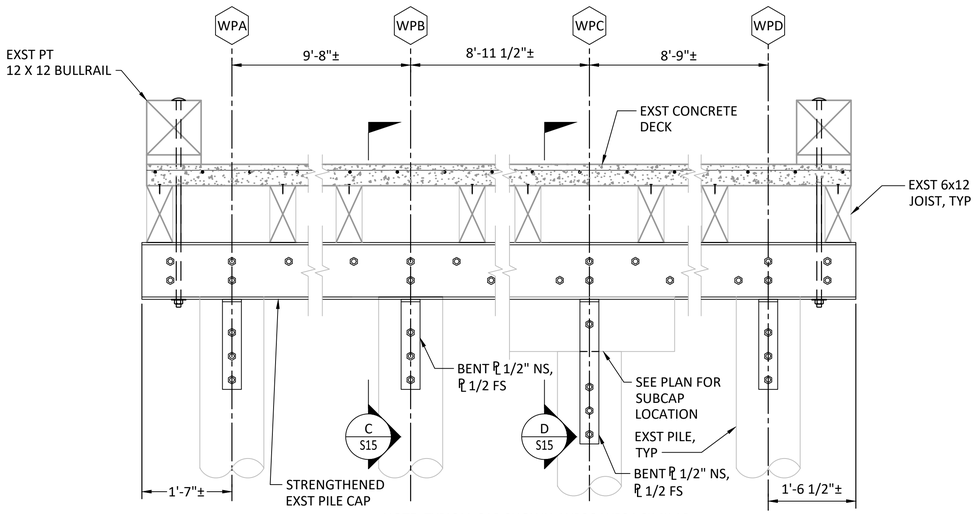
SCALE: 3/4"=1'-0"



NOTE: FOR INFO. NOT SHOWN, SEE SHEET S-15

B S07 SECTION - WEST TRESTLE PILE CAP STRENGTHENING

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

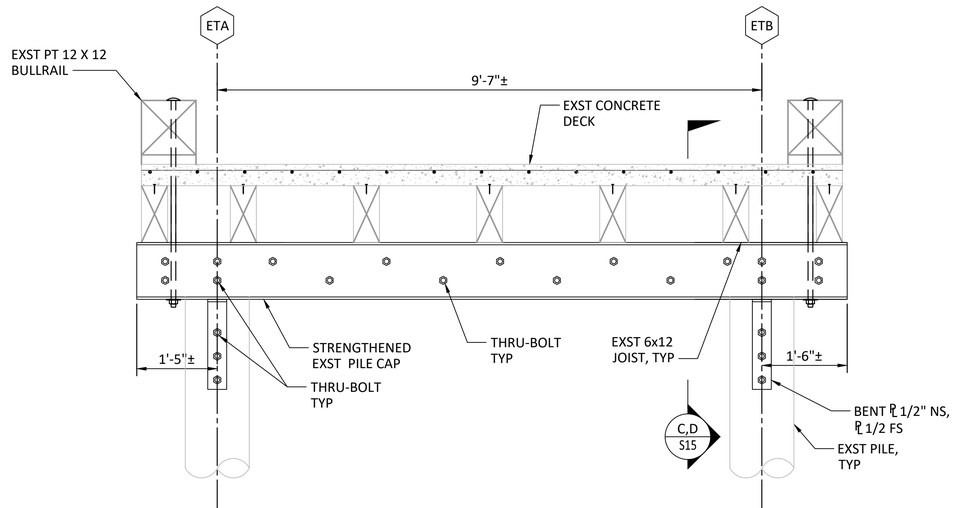


NOTE: TYPICAL CAP SHOWN, WP26-WP31 SIMILAR

C S08 SECTION - WORK PIER PILE CAP STRENGTHENING

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

S09
S10



NOTE: FOR INFO. NOT SHOWN, SEE SHEET S-15

D S12 SECTION - EAST TRESTLE TYPICAL PILE CAP STRENGTHENING

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

S13

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REHABILITATION DETAILS - SHEET 3 FOR:

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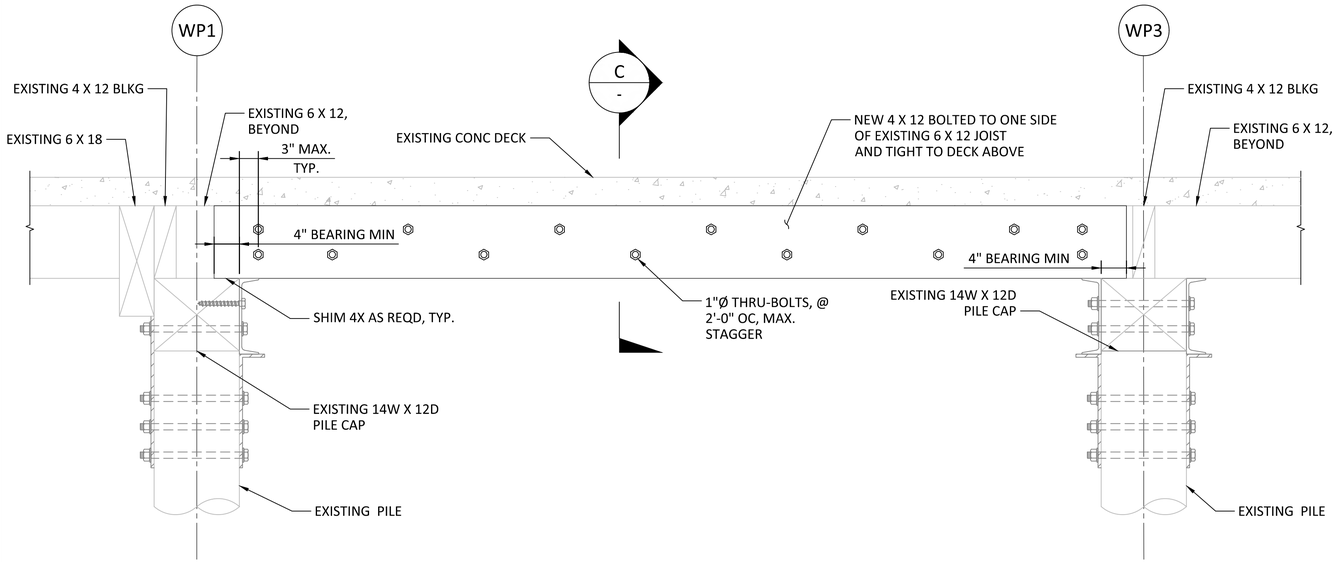
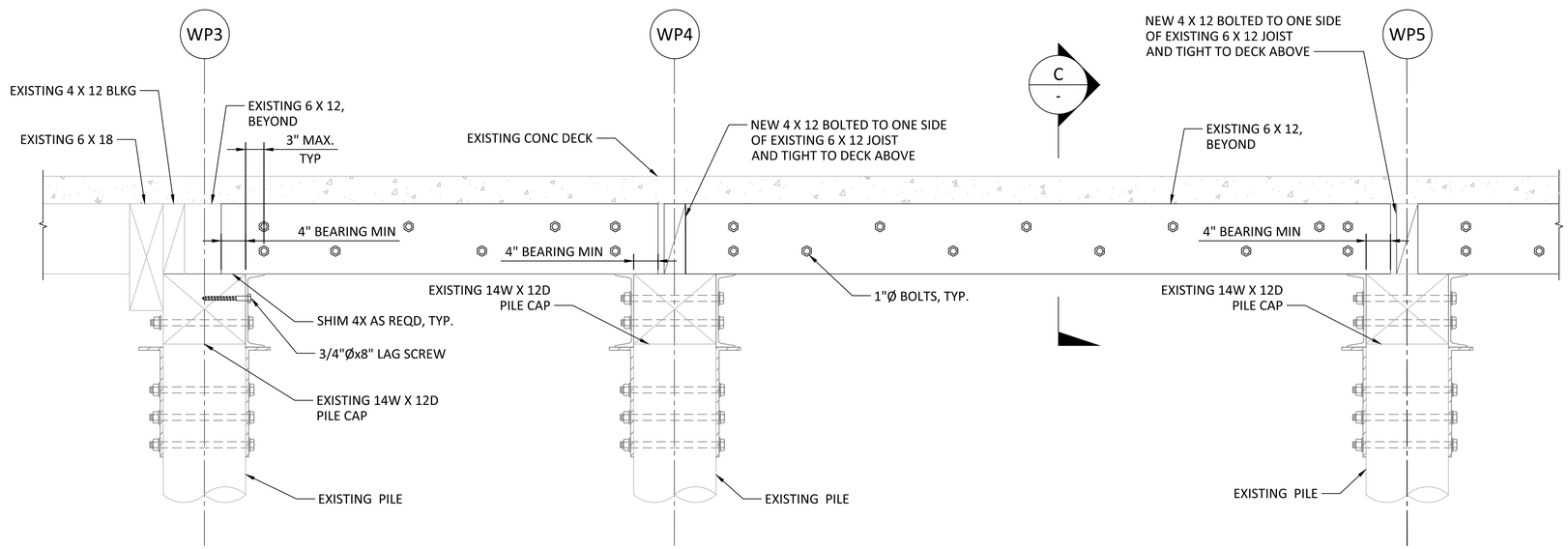
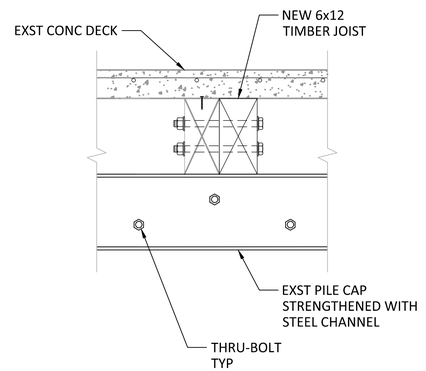


A S07 SECTION - JOIST STRENGTHENING
SCALE: 1"=1'-0"



B S07 SECTION - JOIST STRENGTHENING
SCALE: 1"=1'-0"



C - SECTION - JOIST STRENGTHENING
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No.	Revision	Date	By	App'd

Full Size Sheet Format Is 22x34; If Printed Size Is Not 22x34, Then This Sheet Format Has Been Modified & Indicated Drawing Scale Is Not Accurate.

PBS Engineering and Environmental Inc.
4412 SW Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

REHABILITATION DETAILS - SHEET 4 FOR:
WORK PIER REHABILITATION-PHASES II & III
A SITE LOCATED IN THE CITY OF WARRENTON, WASHINGTON

Know what's below. Call before you dig.

BROWARD A. WELLS
STATE OF WASHINGTON
14024
REGISTERED PROFESSIONAL ENGINEER
PRELIMINARY

DESIGNED: JMC
CHECKED: KL
DECEMBER 2021
74202.000
SHEET ID
S17
SHEET 18 OF 19

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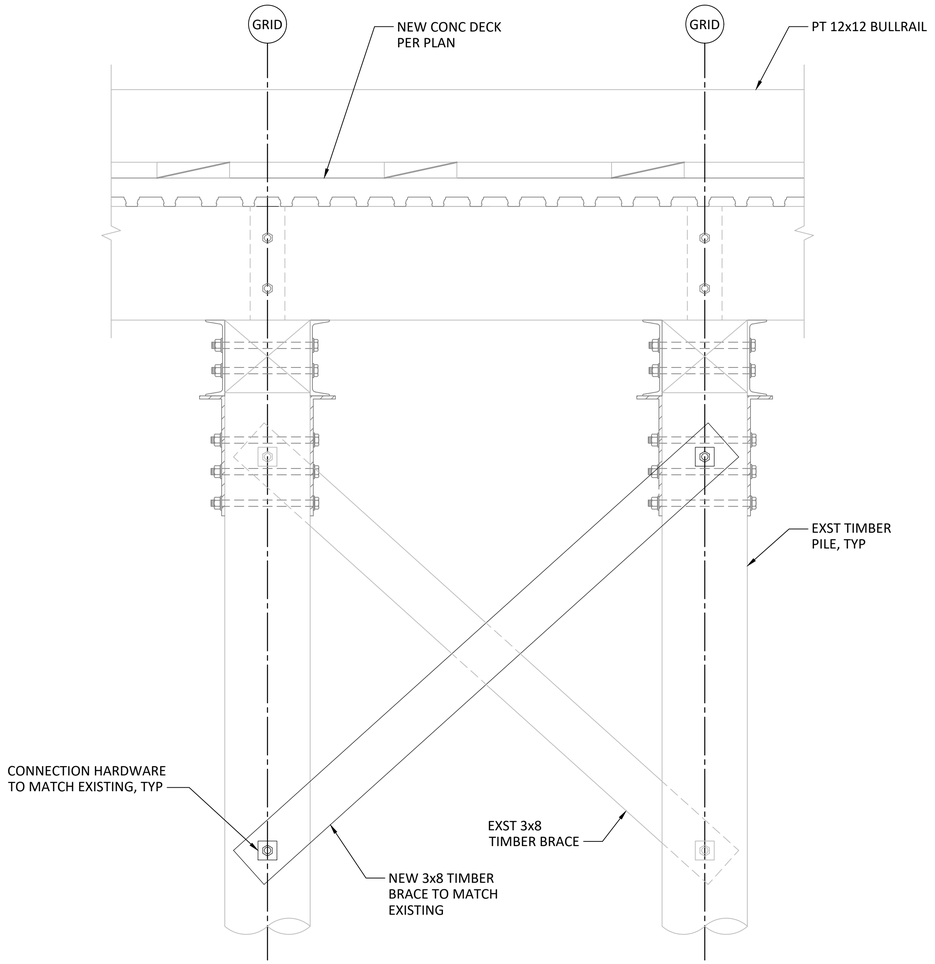

A
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ELEVATION - REMOVE AND REPLACE BRACING
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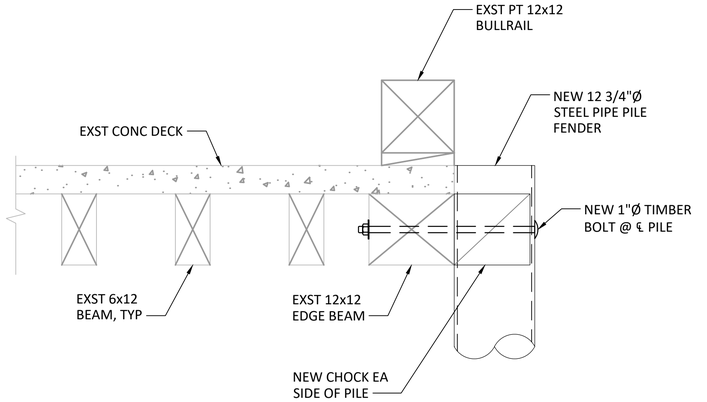

B
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DETAIL - FENDER PILE REAPLCEMENT @ WP 14, 18, 25, ET 5, ET 6.5
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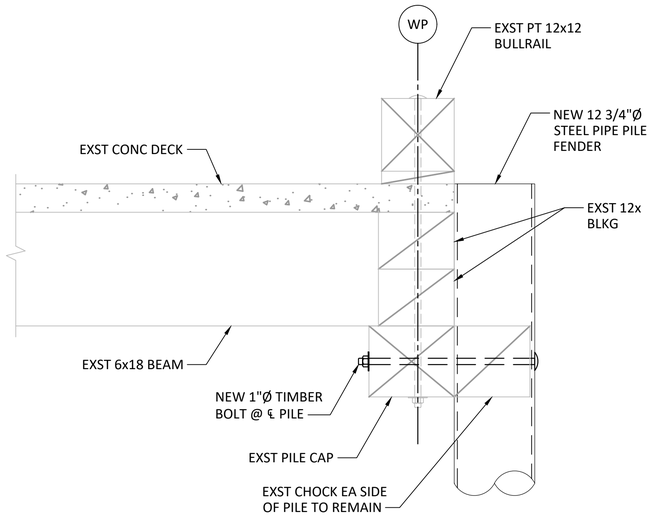

C
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DETAIL - FENDER PILE REAPLCEMENT @ WP 30 AND 31
SCALE: 1" = 1'-0"

PBS Engineering and Environmental Inc.
4412 SW Corbett Avenue
Portland, OR 97239
503.248.1939
pbsusa.com

REHABILITATION DETAILS - SHEET 5 FOR:
WORK PIER REHABILITATION-PHASES II & III
A SITE LOCATED IN THE CITY OF WARRENTON, WASHINGTON

Know what's below. Call before you dig.

RICHARD A. WEITZ
STATE OF WASHINGTON
PRELIMINARY
14034
REGISTERED
PROFESSIONAL ENGINEER

DESIGNED: JMC
CHECKED: KL
DECEMBER 2021
74202.000
SHEET ID
S18
SHEET 19 OF 19

No.	Revision	Date	By	App'd

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US Army Corps of Engineers ®
Portland District

Nationwide Permit 3
Terms and Conditions

Effective Date: February 25, 2022

A. Description of Activities Authorized by Nationwide Permit 3
B. Nationwide Permit General Conditions
C. District Engineer's Decision
D. Further Information
E. Portland District Regional General Conditions

In addition to any special conditions that may be required on a case-by-case basis by the District Engineer, the following terms and conditions must be met, as applicable, for a Nationwide Permit authorization to be valid in Oregon.

A. Description of Activities Authorized by Nationwide Permit (NWP) 3

3. *Maintenance*. (a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This NWP also authorizes the removal of previously authorized structures or fills. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project. This NWP also authorizes the removal of accumulated sediment and debris within, and in the immediate vicinity of, the structure or fill. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

(b) This NWP also authorizes the removal of accumulated sediments and debris outside the immediate vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.). The removal of sediment is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend farther than 200 feet in any direction from the structure. This 200 foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or

restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer under separate authorization.

(c) This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges of dredged or fill material, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After conducting the maintenance activity, temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

(d) This NWP does not authorize maintenance dredging for the primary purpose of navigation. This NWP does not authorize beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

Notification: For activities authorized by paragraph (b) of this NWP, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 32). The pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals. (Authorities: Sections 10 and 404)

Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act Section 404(f) exemption for maintenance.

B. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. *Navigation*. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his or her authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. *Aquatic Life Movements*. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

3. *Spawning Areas*. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. *Migratory Bird Breeding Areas*. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. *Shellfish Beds*. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. *Suitable Material*. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. *Water Supply Intakes*. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. *Adverse Effects from Impoundments*. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. *Management of Water Flows*. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. *Fills Within 100-Year Floodplains*. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. *Equipment*. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. *Soil Erosion and Sediment Controls*. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

13. *Removal of Temporary Structures and Fills*. Temporary structures must be removed, to the maximum extent practicable, after their use has been discontinued. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. *Proper Maintenance*. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. *Single and Complete Project*. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. *Wild and Scenic Rivers*. (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for

such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

(b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a "study river" for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. Permittees shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

(c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

17. *Tribal Rights*. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. *Endangered Species*. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify designated critical habitat or critical habitat proposed for such designation. No activity is authorized under any NWP which "may affect" a listed species or critical habitat, unless ESA Section 7 consultation addressing the consequences of the proposed activity on listed species or critical habitat has been completed. See 50 CFR 402.02 for the definition of "effects of the action" for the purposes of ESA Section 7 consultation, as well as 50 CFR 402.17, which provides further explanation under ESA Section 7 regarding "activities that are reasonably certain to occur" and "consequences caused by the proposed action."

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA (see 33 CFR 330.4(f)(1)). If pre-construction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA Section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under Section 7 of the ESA.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species (or species proposed for listing) or designated critical

habitat (or critical habitat proposed such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat or critical habitat proposed for such designation, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation), the pre-construction notification must include the name(s) of the endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or that utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. For activities where the non-Federal applicant has identified listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have “no effect” on listed species (or species proposed for listing or designated critical habitat (or critical habitat proposed for such designation), or until ESA Section 7 consultation or conference has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation or conference with the FWS or NMFS the district engineer may add species-specific permit conditions to the NWPs.

(e) Authorization of an activity by an NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take" means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) If the non-federal permittee has a valid ESA Section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA Section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA Section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA Section 7

consultation conducted for the ESA Section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA Section 7 consultation for the ESA Section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA Section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA Section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA Section 7 consultation is required.

(g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

19. *Migratory Birds and Bald and Golden Eagles*. The permittee is responsible for ensuring that an action authorized by an NWP complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to determine what measures, if any, are necessary or appropriate to reduce adverse effects to migratory birds or eagles, including whether "incidental take" permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

20. *Historic Properties*. (a) No activity is authorized under any NWP which may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)(1)). If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under Section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with Section 106.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of,

or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts commensurate with potential impacts, which may include background research, consultation, oral history interviews, sample field investigation, and/or field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of Section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect.

(d) Where the non-Federal applicant has identified historic properties on which the proposed NWP activity might have the potential to cause effects and has so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA Section 106 consultation has been completed. For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. If NHPA Section 106 consultation is required, the district engineer will notify the non-Federal applicant that he or she cannot begin the activity until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that Section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties

of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. *Discovery of Previously Unknown Remains and Artifacts*. Permittees that discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by an NWP, they must immediately notify the district engineer of what they have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. *Designated Critical Resource Waters*. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, 52, 57 and 58 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed by permittees in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after she or he determines that the impacts to the critical resource waters will be no more than minimal.

23. *Mitigation*. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless

the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

(d) Compensatory mitigation at a minimum one-for-one ratio will be required for all losses of stream bed that exceed 3/100-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. This compensatory mitigation requirement may be satisfied through the restoration or enhancement of riparian areas next to streams in accordance with paragraph (e) of this general condition. For losses of stream bed of 3/100-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to-replace resources (see 33 CFR 332.3(e)(3)).

(e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. If restoring riparian areas involves planting vegetation, only native species should be planted. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

(2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f).)

(3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

(4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)). If permittee-responsible mitigation is the proposed option, and the proposed compensatory mitigation site is located on land in which another federal agency holds an easement, the district engineer will coordinate with that federal agency to determine if proposed compensatory mitigation project is compatible with the terms of the easement.

(5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan needs to address only the baseline conditions at the impact site and the number of credits to be provided (see 33 CFR 332.4(c)(1)(ii)).

(6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

(g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2-acre of waters of the United States, even if compensatory mitigation is

provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

(h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

24. *Safety of Impoundment Structures*. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state or federal, dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. *Water Quality*. (a) Where the certifying authority (state, authorized tribe, or EPA, as appropriate) has not previously certified compliance of an NWP with CWA Section 401, a CWA Section 401 water quality certification for the proposed discharge must be obtained or waived (see 33 CFR 330.4(c)). If the permittee cannot comply with all of the conditions of a water quality certification previously issued by certifying authority for the issuance of the NWP, then the permittee must obtain a water quality certification or waiver for the proposed discharge in order for the activity to be authorized by an NWP.

(b) If the NWP activity requires pre-construction notification and the certifying authority has not previously certified compliance of an NWP with CWA Section 401, the proposed discharge is not authorized by an NWP until water quality certification is obtained or waived. If the certifying authority issues a water quality certification for the proposed discharge, the permittee must submit a copy of the certification to the district engineer. The discharge is not authorized by an NWP until the district engineer has notified the permittee that the water quality certification requirement has been satisfied by the issuance of a water quality certification or a waiver.

(c) The district engineer or certifying authority may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. *Coastal Zone Management*. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). If the permittee cannot comply with all of the conditions of a coastal zone management consistency concurrence previously issued by the state, then the permittee must obtain an individual coastal zone management consistency concurrence or presumption of concurrence in order for the activity to be authorized by an NWP. The district engineer or a state may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. *Regional and Case-By-Case Conditions*. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its CWA Section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. *Use of Multiple Nationwide Permits*. The use of more than one NWP for a single and complete project is authorized, subject to the following restrictions:

(a) If only one of the NWPs used to authorize the single and complete project has a specified acreage limit, the acreage loss of waters of the United States cannot exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1⁄3-acre.

(b) If one or more of the NWPs used to authorize the single and complete project has specified acreage limits, the acreage loss of waters of the United States authorized by those NWPs cannot exceed their respective specified acreage limits. For example, if a commercial development is constructed under NWP 39, and the single and complete project includes the filling of an upland ditch authorized by NWP 46, the maximum acreage loss of waters of the United States for the commercial development under NWP 39 cannot exceed 1/2-acre, and the total acreage loss of waters of United States due to the NWP 39 and 46 activities cannot exceed 1 acre.

29. *Transfer of Nationwide Permit Verifications*. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification

must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

_____
(Transferee)

_____
(Date)

30. *Compliance Certification*. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the activity and mitigation.

The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

31. *Activities Affecting Structures or Works Built by the United States*. If an NWP activity also requires review by, or permission from, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a “USACE project”), the prospective permittee must submit a pre-construction notification. See paragraph (b)(10) of general condition 32. An activity that requires Section 408 permission and/or review is not authorized by an NWP until the appropriate Corps office issues the Section

408 permission or completes its review to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

32. *Pre-Construction Notification*. (a) *Timing*. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) *Contents of Pre-Construction Notification*: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed activity;

(3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

(4) (i) A description of the proposed activity; the activity's purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures.

(ii) For linear projects where one or more single and complete crossings require pre-construction notification, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters (including those single and complete crossings authorized by an NWP but do not require PCNs). This information will be used by the district engineer to evaluate the cumulative adverse environmental effects of the proposed linear project, and does not change those non-PCN NWP activities into NWP PCNs.

(iii) Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial and intermittent streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45-day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(6) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed and a PCN is required, the prospective permittee must submit

a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(7) For non-federal permittees, if any listed species (or species proposed for listing) or designated critical habitat (or critical habitat proposed for such designation) might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat (or critical habitat proposed for such designation), the PCN must include the name(s) of those endangered or threatened species (or species proposed for listing) that might be affected by the proposed activity or utilize the designated critical habitat (or critical habitat proposed for such designation) that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

(8) For non-federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act;

(9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the “study river” (see general condition 16); and

(10) For an NWP activity that requires permission from, or review by, the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for Section 408 permission from, or review by, the Corps office having jurisdiction over that USACE project.

(c) *Form of Pre-Construction Notification*: The nationwide permit pre-construction notification form (Form ENG 6082) should be used for NWP PCNs. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

(d) *Agency Coordination*: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity’s compliance with the

terms and conditions of the NWPs and the need for mitigation to reduce the activity's adverse environmental effects so that they are no more than minimal.

(2) Agency coordination is required for: (i) all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States; (ii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iii) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

(3) When agency coordination is required, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or e-mail that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure that the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(5) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

C. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or

cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the single and complete crossings of waters of the United States that require PCNs to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings of waters of the United States authorized by an NWP. If an applicant requests a waiver of an applicable limit, as provided for in NWPs 13, 36, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects.

2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by an NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands or 3/100-acre of stream bed, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters. The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for

compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure that the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) that the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

D. Further Information

1. District engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

E. Portland District Regional Conditions

1. *Notification:* For permittees that received written NWP approval, upon starting the authorized activities, you shall notify the U.S. Army Corps of Engineers, Portland District, Regulatory Branch that the work has started. Notification shall be provided by e-mail to cenwp.notify@usace.army.mil and the email subject line shall include: Corps project number and the project location by county.

2. *Aquatic Resources of Special Concern*: Pre-construction notification to the District Engineer is required for all activities proposed in waters of the U.S. within, or directly affecting, an aquatic resource of special concern. Aquatic resources of special concern are resources that are difficult to replace, unique, and/or have high ecological function. For the purpose of this regional condition, aquatic resources of special concern are native eel grass (Zostera marina) beds, mature forested wetlands, bogs, fens, vernal pools, alkali wetlands, wetlands in dunal systems along the Oregon coast, estuarine wetlands, Willamette Valley wet prairie wetlands, marine gardens, marine reserves, kelp beds, and rocky substrate in tidal waters.

In addition to the content requirements of NWP General Condition (GC) 32, the pre-construction notification must include a statement explaining why the effects of the proposed activity are no more than minimal. Written approval from the District Engineer must be obtained prior to commencing work.

Note: If the District Engineer determines that the adverse effects of the proposed activity are more than minimal, then the District Engineer will notify the applicant that either:

a. the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit;

b. the activity is authorized under the NWP subject to submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or

c. the activity is authorized under the NWP with specific modifications or conditions.

3. *Cultural Resources and Human Burials-Inadvertent Discovery Plan*: In addition to the requirements in NWP GCs 20 and 21, the permittee shall immediately notify the District Engineer if, at any time during the course of the work authorized, human burials, cultural items, or historic properties, as defined by the National Historic Preservation Act and Native American Graves Protection and Repatriation Act, are discovered. The permittee shall implement the following procedures as outlined on the Inadvertent Discovery Plan posted on the Portland District Regulatory website at *https://www.nwp.usace.army.mil/Missions/Regulatory/Nationwide.aspx*

Notify the Portland District Engineer as soon as possible following discovery but in no case later than 24 hours. Notification shall be sent electronically

(cenwp.notify@usace.army.mil) and shall identify the Corps project number and clearly specify the purpose is to report a cultural resource discovery. The permittee shall also notify the Corps representative (by email and telephone) identified in the verification letter.

4. *Essential Fish Habitat:* Activities which may adversely affect essential fish habitat, as defined under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), are not authorized by NWP until essential fish habitat requirements have been met by the applicant and the Corps. Non-federal permittees must submit a pre-construction notification to the District Engineer if essential fish habitat may be affected by, or is in the vicinity of, a proposed activity and shall not begin work until notified by the District Engineer that the requirements of the essential fish habitat provisions of the MSA have been satisfied and the activity is authorized. The notification must identify the type(s) of essential fish habitat (e.g., Pacific coast salmon, Pacific coast groundfish, and/or Coastal-pelagic species) managed by a Fishery Management Plan that may be affected. Information about essential fish habitat is available at NOAA's website: *http://www.westcoast.fisheries.noaa.gov*

5. *Bank Stabilization:* Permittee shall include the use of bioengineering techniques and natural materials in the project design to the maximum extent practicable and shall minimize the use of rock. Bioengineering bank stabilization techniques are those that increase the strength and structure of soils with a combination of biological and mechanical elements (e.g., vegetation, root wads and woody debris, rock structures). Riparian plantings shall be included in all project designs unless the permittee can demonstrate that such plantings are not practicable.

6. *Work Area Isolation and Dewatering:* Appropriate best management practices shall be implemented to prevent erosion and to prevent sediments from entering waters of the U.S.

a. All in-water work shall be isolated from the active channel or conducted during low seasonal stream flows to the maximum extent practicable.

b. Cofferdams shall be constructed of non-erosive material, such as concrete jersey barriers, sand and gravel bag dams, or water bladders. Constructing a cofferdam by pushing material from the streambed or sloughing material from the streambanks is not authorized.

c. Sand and gravel bag dams shall be lined with a plastic liner or geotextile fabric to reduce permeability and prevent sediments and/or construction materials from entering waters of the U.S.

d. Upstream and downstream flows shall be maintained by routing flows around the construction site.

e. When dewatering is necessary for construction, a sediment basin, or other

applicable method, shall be used to settle sediments prior to releasing the water back into the waterbody. Settled water shall be returned to the waterbody in such a manner as to avoid erosion. Sediment basins shall be placed in uplands.

f. Fish and other aquatic species must be salvaged (i.e., safely captured and relocated away from the project or development site) prior to dewatering. Contact ODFW for additional information regarding fish salvage.

7. *Dredging:* For NWP-authorized activities that involve removal of sediment from waters of the U.S., the permittee shall ensure that any necessary sediment characterization regarding size, composition, and potential contaminants is conducted and reviewed prior to dredging. Sediment characterization must be conducted per the Sediment Evaluation Framework for the Pacific Northwest (available at: *http://www.nwp.usace.army.mil/Missions/Environmental-Stewardship/DMM.aspx*).

Note: The return water from a contained disposal area is defined as a discharge of dredged material by 33 CFR part 323.2(d) and requires separate authorization from the District Engineer (*e.g.*, by NWP 16).

8. *Mechanized Equipment:* In addition to the requirements in NWP GC 11, permittee shall implement the following practices to prevent or minimize impacts to the aquatic environment from mechanized equipment:

a. Operate equipment from the top of a streambank and conduct work outside of the active stream channel, unless specifically authorized by the District Engineer.

b. Spill prevention and containment materials shall be maintained and be readily accessible at vehicle staging areas. The amount of spill response materials (such as straw matting/bales, geotextiles, booms, diapers, and other absorbent materials, shovels, brooms, and containment bags) maintained on-site must be appropriate for the size of the authorized activity.

Note: See Regional Condition 10 regarding timeframes for temporary fills.

9. *Erosion Control:* During construction and until the site is stabilized, the permittee shall ensure all practicable measures are implemented and maintained to prevent erosion and runoff. Temporary stockpiles of excavated or dredged material shall be stabilized to prevent erosion. Once soils or slopes have been stabilized, permittee shall completely remove and properly dispose of or re-use all non-biodegradable components of installed control measures.

10. *Temporary Fills and Impacts:* To ensure no more than minimal adverse environmental effects from temporary fills and impacts to waters of the U.S:

a. Temporary fills and/or impacts to waters of the U.S. shall not exceed six months unless otherwise approved by the District Engineer.

b. No more than one-half (½) acre of waters of the U.S. may be temporarily filled or impacted unless otherwise approved by the District Engineer (temporary fills and impacts do not affect specified limits for loss of waters associated with specific nationwide permits).

c. Native soils and/or sediments removed from waters of the U.S. for project construction shall be stockpiled and used for site restoration to the maximum extent practicable.

d. Site restoration of temporarily filled or impacted areas shall include returning the area to pre-project ground surface contours. The permittee shall appropriately revegetate temporarily filled or impacted areas with native, noninvasive herbs, shrubs, and/or tree species sufficient in number, spacing, and diversity to replace affected aquatic functions.

Note: The Corps will determine compensatory mitigation requirements for temporary fills and impacts on a case-by-case basis depending on the duration and nature of the temporary fill or impact and the type of aquatic resource affected.

11. *Contractor Notification of Permit Requirements:* The permittee must provide a copy of the Nationwide Permit verification letter, conditions, and permit drawings to all contractors and any other parties performing the authorized work, prior to the commencement of any work in waters of the U.S.

12. *Inspection of the Project Site:* The permittee shall allow representatives of the District Engineer to inspect the authorized activity to confirm compliance with nationwide permit terms and conditions. A request for access to the site will normally be made sufficiently in advance to allow a property owner or representative the option to be on site during the inspection.

Oregon Department of Land Conservation And Development
Standard Oregon Coastal Management Program Coastal Zone Conditions for the 2021 U.S. Army Corps of Engineers Nationwide Permits

The federal Coastal Zone Management Act provides that federal actions affecting any use or resource of the coastal zone[1], including projects permitted by the U.S. Army Corps of Engineers (USACE), must be consistent with the enforceable policies of a State's federally approved coastal management program. Oregon's approved program, the Oregon Coastal Management Program (OCMP), is a "networked" program that integrates authorities of local governments and other state agencies. The coastal zone conditions contained in this document reflect the networked nature or the OCMP, and reference the specific applicable enforceable policies.

In addition to all USACE national and regional permit conditions, permitted projects in Oregon's coastal zone must comply with the following coastal zone conditions.

If an applicant chooses not to follow one or more of the coastal zone conditions, the Department of Land Conservation and Development (DLCD) will object to the permit issuance pursuant to 15 CFR § 930.63(e). In that instance, the permittee may appeal the state's objection by requesting that the Secretary of Commerce override the objection pursuant to 15 CFR 930, subpart H, within 30 days of receipt of the letter informing the applicant of the OCMP's objection. In order to grant an override request, the Secretary must find that the activity is consistent with the objectives or purposes of the Coastal Zone Management Act, or is necessary in the interest of national security, and that either of these findings outweigh the adverse coastal zone effects of the proposed project. Acopy of the request and supporting information must be sent to the OCMP and the USACE. The Secretary may collect fees from the permittee for administering and processing the override request.

CZ Condition 1. Consistency with Local Comprehensive Plans

(1) Permitted projects must be consistent with or not subject to the applicable local comprehensive plan and implementing land use regulations, including the applicable estuary management plan, or the statewide land use planning goals where applicable. Permittee must obtain required permits or other authorizations from the applicable local government before initiating work under any USACE permit. Permittees are encouraged to provide USACE and the OCMP with verification of the local jurisdiction's approval in the form of a completed block eleven (11) of the Joint Permit

[1] Oregon's coastal zone generally includes the area lying between the Oregon/Washington border on the north, to the Oregon/California border on the south, seaward to the extent of the state's jurisdiction as recognized by federal law, and inland to the crest of the Coast Range Mountains, excepting:

(a) The Umpqua River basin, where the coastal zone extends to Scottsburg;

(b) The Rogue River basin, where the coastal zone extends to Agness; and

(c) The Columbia River basin, where the coastal zone extends to the downstream end of Puget Island.

Application. All appeals of the local jurisdiction's decision(s) must be resolved before any regulated work may begin.

(2) All conditions placed on an authorization or permit by the local government are incorporated by reference into the OCMP coastal zone conditions.

[Enforceable Policy: ORS chapter 197, Comprehensive Land Use Planning Coordination]

CZ Condition 2. Consistency with Removal-Fill Law

(1) Permitted projects must be consistent with or not subject to the state requirements governing removal-fill in waters of the state. Permittee must obtain required permits or other authorizations from the Oregon Department of State Lands (DSL) before any regulated work maybegin.

(2) Projects requiring a DSL Removal-Fill permit must compensate for reasonably expected adverse impacts by complying to the full extent with DSL's compensatory mitigation requirements.

(3) Where DSL finds a project not subject to the Removal-Fill Law, permittee must submit toDSL any changes in project design or implementation that may reasonably be expected to require application of the Removal-Fill Law.

(4) All conditions placed on a Removal-Fill permit by DSL are incorporated by reference into theOCMP coastal zone conditions.

[Enforceable Policy: ORS chapter 196, Removal of Material; Filling]

CZ Condition 3. Leases of State Lands

(1) Permitted projects must be consistent with or not subject to state requirements governinguse of state lands. Permittee must obtain any required lease, license, or other authorization forthe use of state lands or waters from the Oregon Department of State Lands (DSL) before anyregulated work may begin.

(2) All conditions placed on a lease, license, or authorization by DSL are incorporated byreference into the OCMP coastal zone conditions.

[Enforceable Policy: ORS chapter 274, Submersible and Submerged Lands]

CZ Condition 4. Department of Environmental Quality

(1) Permitted projects must be consistent with or not subject to the state requirements governing water quality. Permittee must obtain certification, if required, from the Oregon Department of Environmental Quality (DEQ) through its 401 Water Quality Certification processbefore any regulated work may begin.

(2) All conditions placed on a license, permit, or authorization by DEQ are incorporated byreference into the OCMP coastal zone conditions.

[Enforceable Policy: ORS chapter 468B, Water Quality]

CZ Condition 5. Fish and Aquatic Life Passage

(1) Where applicable, all authorized projects shall be in conformance with ODFW standards forfish passage (http://www.dfw.state.or.us/fish/passage/). Decisions to abrogate ODFW fish passage standards shall be accompanied by written approval from ODFW.

(2) No work shall be authorized that does not provide for adequate passage of "aquatic life."Aquatic life shall be interpreted to include amphibians, reptiles, and mammals whose natural habitat includes waters of this state and which are generally present in or around, or pass through the project site.

(3) This condition is effective only where ODFW regulations apply.

[Enforceable Policy: ORS chapter 509, Additional Fishery Requirements]

CZ Condition 6. Ocean Shore

(1) Permitted projects must be consistent with or not subject to state requirements governing use of the ocean shore. Permittee must obtain, if required, an ocean shore permit from the Oregon Parks and Recreation Department (OPRD) before any regulated work may begin.

(2) All conditions placed on an Ocean Shore permit by OPRD are incorporated by referenceinto the OCMP coastal zone conditions.

[Enforceable Policy: ORS chapter 390, Ocean Shores]

CZ Condition 7. Fish Screening

(1) Where applicable, all authorized projects shall be in conformance with ODFW standards for fish screening and bypass devices. Decisions to abrogate ODFW fish passage standards shall be accompanied by written approval from ODFW.
(2) This condition is effective only where ODFW regulations apply.

[Enforceable Policy: ORS chapter 498, Fish Screening]

Endangered Species Act - Section 7 Formal Programmatic Opinion, Letter Of Concurrence

and

Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation

Revisions to Standard Local Operating Procedures for Endangered Species to Administer Actions Authorized or Carried Out by the U.S. Army Corps of Engineers in Oregon (SLOPES IV In-water Over-water Structures)

NMFS Consultation Number: 2011/05585

Federal Action Agency: Army Corps of Engineers
Portland District, Operations and Regulatory Branches

Date Issued: April 5, 2012

Affected Species and Determinations

ESA-Listed Species	ESA Status	Is the action likely to adversely affect this species or it critical habitat?	Is this Action likely to jeopardize this species?	Is this Action likely to destroy or adversely modify critical habitat for this species?
Lower Columbia River Chinook salmon	T	Yes	No	No
Upper Willamette River Chinook salmon	T	Yes	No	No
Upper Columbia River spring-run Chinook salmon	E	Yes	No	No
Snake River spring/summer run Chinook salmon	T	Yes	No	No
Snake River fall-run Chinook salmon	T	Yes	No	No
Columbia River chum salmon	T	Yes	No	No
Lower Columbia River coho salmon	T	Yes	No	N/A
Oregon Coast coho salmon	T	Yes	No	No
Southern Oregon/Northern California coasts coho salmon	T	Yes	No	No
Snake River sockeye salmon	E	Yes	No	No
Lower Columbia River steelhead	T	Yes	No	No
Upper Willamette River steelhead	T	Yes	No	No
Middle Columbia River steelhead	T	Yes	No	No
Upper Columbia River steelhead	T	Yes	No	No
Snake River Basin steelhead	T	Yes	No	No
Southern green sturgeon	T	Yes	No	No
Eulachon	T	Yes	No	No
Steller sea lion	T	No	No	N/A

Fishery Management Plan that Describes EFH in the Action Area	Would the action adversely Affect EFH?	Are EFH conservation Recommendation provided?
Coastal Pelagic Species	Yes	Yes
Pacific Coast Groundfish	Yes	Yes
Pacific Coast Salmon	Yes	Yes

1.3.1.1 Administrative

6. **Salvage Notice.** If a sick, injured or dead specimen of a threatened or endangered species is found during construction and within the action area, the finder must notify NMFS' Office of Law Enforcement at 503-231-6240 or 206-526-6133. The finder must take care in handling dead specimens to preserve biological material in the best possible condition for later analysis of cause of death. The finder also has the responsibility for carrying out instructions provided by the Office of Law Enforcement to ensure that evidence intrinsic to the specimen is not disturbed unnecessarily.

1.3.1.2 General Construction

11. **Pollution and erosion control.** Any action that will require earthwork and may increase soil erosion and cause runoff with visible sediment into surface water, or that will require the use of materials that are hazardous or toxic to aquatic life (such as motor fuel, oil, or drilling fluid), must have a pollution and erosion control plan that is developed and carried out by the applicant, and commensurate with the scale of the action.
    a. The plan must include practices to minimize erosion and sedimentation associated with all aspects of the project (*e.g.*, staging areas, stockpiles, grading); to prevent construction debris from dropping or otherwise entering any stream or waterbody; and to prevent and control hazardous material spills.
    b. During construction, erosion controls and streams must be monitored and maintained daily during the rainy season and weekly during the dry season as necessary to ensure controls are properly functioning.
    c. If monitoring shows that the erosion controls are ineffective at preventing visible sediment discharge, the project must stop to evaluate erosion control measures. Repairs, replacements or the installation of additional erosion control measures must be completed before the project resumes.
    d. Proper maintenance includes removal of sediment and debris from erosion controls like silt fences or hay bales once it has reached on-third of the exposed height of the control.

12. **Stormwater management.** Any action that will expand, recondition, reconstruct, or replace pavement, replace a stream crossing, otherwise increase the contributing impervious surface within the project area, or create a new stormwater conveyance or discharge facility, must have a stormwater management plan that is developed and carried out by the applicant, commensurate with the scale of the action, and approved by NMFS. The stormwater plan submitted for approval must include all of the information called for by the "Checklist for Submission of a Stormwater Plan" (ODEQ 2008, or most recent version), or an explanation of why any missing information is not applicable to a specific project.

13. **Site restoration.** Any action that results in significant disturbance of riparian vegetation, soils, streambanks, or stream channel must have a site restoration plan that is developed and carried out by the permittee (or Corps), that is commensurate with the scale of the action. The goal of the plan is to ensure that riparian vegetation, soils, streambanks, and stream channel are cleaned up and restored after the action is complete. No single criterion is sufficient to measure restoration success, but the intent is that the following features should be present in the upland parts of the project area, within reasonable limits of natural and management variation:
    a. Human and livestock disturbance, if any, are confined to small areas necessary for access or other special management situations.

b. Areas with signs of significant past erosion are completely stabilized and healed, bare soil spaces are small and well-dispersed.
c. Soil movement, such as active rills and soil deposition around plants or in small basins, is absent or slight and local.
d. Native woody and herbaceous vegetation, and germination microsites, are present and well distributed across the site.
e. Plants are native species and have normal, vigorous growth form, and a high probability of remaining vigorous, healthy and dominant over undesired competing vegetation.
f. Vegetation structure is resulting in rooting throughout the available soil profile.
g. Plant litter is well distributed and effective in protecting the soil with little or no litter accumulated against vegetation as a result of active sheet erosion ("litter dams").
h. A continuous corridor of shrubs and trees appropriate to the site are present to provide shade and other habitat functions for the entire streambank.
i. Streambanks are stable, well vegetated, and protected at margins by roots that extend below baseflow elevation, or by coarse-grained alluvial debris.

14. **Compensatory mitigation.** Any action that will permanently displace riparian or aquatic habitats or otherwise prevent development of properly functioning condition of natural habitat processes will require compensatory mitigation to fully offset those impacts.
    a. Examples of actions requiring compensatory mitigation include construction of a new or enlarged boat ramp or float, the addition of scour protection to a boat ramp, or construction of new impervious surfaces without adequate stormwater treatment.
    b. For displaced riparian and aquatic habitat, the primary habitat functions of concern are related to the physical and biological features essential to the long-term conservation of listed species. Those are water quality, water quantity, channel substrate, floodplain connectivity, forage, natural cover, space, and free passage. Examples of acceptable mitigation for riparian losses includes planting trees or other woody vegetation in the riparian area, removal of existing overwater structures or restoration of shallow-water, off-channel, or beach habitat by adding features such as submerged or overhanging large wood, aquatic vegetation, large rocks and boulders, side channels and undercut banks.
    c. For new impervious surfaces with inadequate stormwater treatment, the primary habitat functions of concern are water quality and water quantity. Examples of acceptable mitigation for inadequate stormwater management includes providing adequate stormwater treatment at an alternate site where it did not exist before or retrofitting an existing but substandard stormwater facility to provide capacity necessary to infiltrate and retain the proper volume of stormwater.
    d. As part of NMFS's review under clause 3 above, NMFS will determine if the proposed compensatory mitigation fully offsets permanent displacement of riparian or aquatic habitats and/or impacts that prevent development of properly functioning processes.

15. **Preconstruction activity.** Before alteration of the action area, flag the boundaries of clearing limits associated with site access and construction to minimize soil and vegetation disturbance, and ensure that all temporary erosion controls are in place and functional.

16. **Site preparation.** During site preparation, conserve native materials for restoration, including large wood, vegetation, topsoil and channel materials (gravel, cobble and boulders) displaced by construction. Whenever practical, leave native materials where they are found and in areas to be cleared, clip vegetation at ground level to retain root mass and encourage reestablishment of native vegetation. Building and related structures may not be constructed inside the riparian management area.

17. **Heavy equipment.** Heavy equipment will be selected and operated as necessary to minimize adverse effects on the environment (*e.g.*, minimally-sized, low pressure tires, minimal hard turn paths for tracked vehicles, temporary mats or plates within wet areas or sensitive soils); and all vehicles and other heavy equipment will be used as follows:
    a. Stored, fueled and maintained in a vehicle staging area placed 150 feet or more from any waterbody, or in an isolated hard zone such as a paved parking lot.
    b. Inspected daily for fluid leaks before leaving the vehicle staging area for operation within 50 feet of any waterbody.Steam-cleaned before operation below ordinary high water, and as often as necessary during operation to remain free of all external oil, grease, mud, seeds, organisms and other visible contaminants.
    c. Generators, cranes and any other stationary equipment operated within 150 feet of any waterbody will be maintained and protected as necessary to prevent leaks and spills from entering the water.

18. **In-water work period.** All work within the active channel will be completed in accordance with the Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife resources (ODFW 2000, or the most recent version), except as follows:
    a. All in-water work in the Willamette River mainstem between Willamette Falls and the confluence with the Columbia River must be completed between July 1 and October 31.
    b. All in-water work in the Columbia River mainstem below Bonneville Dam, except pile driving, must be completed between November 1 and December 31.
    c. Pile driving in the Columbia River mainstem below Bonneville Dam must be completed between October 1 and November 31.
    d. Hydraulic and topographic measurements and encased geotechnical drilling may be completed at any time, if a fish biologist determines that no adult fish are congregating for spawning and no redds are occupied by eggs or pre-emergent alevins within 300 feet of the work site.

19. **Actions that require work area isolation.** Any action that involves excavation (other than access management), backfilling, embankment construction, or similar work below ordinary high water where adult or juvenile fish are reasonably certain to be present, or 300 feet or less upstream from spawning habitats, must be effectively isolated from the active stream.

20. **Fish capture and removal.** Whenever work isolation is required and ESA-listed fish are likely to be present, the applicant must attempt to capture and remove the fish as follows:
    a. A fishery biologist experienced with work area isolation and competent to ensure the safe capture, handling and release of all fish will supervise this part of the action, and complete the fish salvage form from Appendix C that will be submitted with the action completion report.
    b. Any fish trapped within the isolated work area must be captured and released using a trap, seine, electrofishing, or other methods as prudent to minimize the risk of injury, then released at a safe release site.
    c. If electrofishing is used to capture fish, that work must consistent with NMFS' electrofishing guidelines (NMFS 2000).

21. **Piling installation.** Pilings may be concrete, steel round pile 24 inches in diameter or smaller, steel H-pile designated as HP24 or smaller, or wood that has not been treated with preservatives or pesticides. Any proposal to use wood pilings treated with preservatives or pesticides is not covered by this consultation and will require individual consultation.
    a. When practical, use a vibratory hammer for piling installation. For pile driving in the Columbia River in the month of October, only a vibratory hammer may be used.

b. Jetting may be used for piling installation in areas with coarse, uncontaminated sediments.

22. **Pile driving with an impact hammer.** When using an impact hammer to drive or proof steel piles, one of the following sound attenuation methods must be used:
    a. Completely isolate the pile from flowing water by dewatering the area around the pile.
    b. If water velocity is 1.6 feet per second or less, surround the piling being driven by a confined or unconfined bubble curtain (see NMFS and USFWS 2006, Wursig *et al*. 2000, and Longmuir and Lively 2001) that will distribute small air bubbles around 100% of the piling perimeter for the full depth of the water column.
    c. If water velocity is greater than 1.6 feet per second, surround the piling being driven by a confined bubble curtain (*e.g.*, a bubble ring surrounded by a fabric or non-metallic sleeve) that will distribute air bubbles around 100% of the piling perimeter for the full depth of the water column.

23. **Pile driving where Steller sea lions may be present.** If the action area is between Bonneville Dam and the mouth of the Columbia River, or outside of the Columbia River but within 10-miles of a Steller sea lion haul-out[1], the following conditions apply:
    a. A biologist qualified in marine mammal identification will be on site during all pile driving and will notify the operator to cease operations if a Steller sea lion enters the 1,200 foot radius of the pile.
    b. Pile driving may not begin if Steller sea lions are within 1,200 feet of the pile being driven.
    c. Pile driving must cease if Steller sea lions approach to within 1,200 feet of the pile being driven.

24. **Pile removal.** Use the following steps to minimize creosote release, sediment disturbance and sediment resuspension:
    a. Install a floating surface boom to capture floating surface debris.
    b. Keep all equipment (*e.g.*, bucket, steel cable, vibratory hammer) out of the water, grip piles above the waterline, and complete all work during low water and low current conditions.
    c. Dislodge the piling with a vibratory hammer, when possible; never intentionally break a pile by twisting or bending.
    d. Slowly lift the pile from the sediment and through the water column.
    e. Place the pile in a containment basin on a barge deck, pier, or shoreline without attempting to clean or remove any adhering sediment – a containment basin for the removed piles and any adhering sediment may be constructed of durable plastic sheeting with sidewalls supported by hay bales or another support structure to contain all sediment and return flow which may otherwise be directed back to the waterway.
    f. Fill the holes left by each piling with clean, native sediments immediately upon removal.
    g. Dispose of all removed piles, floating surface debris, any sediment spilled on work surfaces, and all containment supplies at a permitted upland disposal site.

25. **Broken or intractable piling.** When a pile breaks or is intractable during removal, continue removal as follows:
    a. Make every attempt short of excavation to remove each piling, if a pile in uncontaminated sediment is intractable, breaks above the surface, or breaks below the surface, cut the pile or stump off at least 3 feet below the surface of the sediment.
    b. If dredging is likely where broken piles are buried, use a global positioning system (GPS) device to note the location of all broken piles for future use in site debris characterization.

[1] Haul outs are located at 3 Arches Rock, Orford Reed, Rogue Reef, Sea Lion Caves, Cape Arago State Park, Oregon Islands National Wildlife Refuge and South Jetty Columbia River.

26. **Pesticide-treated wood installation.** Use of lumber, pilings, or other wood products treated or preserved with pesticidal compounds may not be used below ordinary high water, or as part of an in-water or overwater structure[2].

27. **Pesticide-treated wood removal.** When it is necessary to remove pesticide-treated wood, the following conditions apply.

    a. Ensure that, to the extent possible, no wood debris falls into the water. If wood debris does fall into the water, remove it immediately.
    b. After removal, place wood debris in an appropriate dry storage site until it can be removed from the project area.
    c. Do not leave wood construction debris in the water or stacked on the streambank at or below the ordinary high water.
    d. Evaluate wood construction debris removed during a project, including pesticide-treated wood pilings, to ensure proper disposal of debris.

1.3.1.3 Types of Actions In-water or Over-water Structures

28. **Boat ramps.** All boat ramps must consist of pre-cast concrete slabs below ordinary high water, and may be cast-in-place above ordinary high water if completed in the dry. Rock may be used to prevent scouring, down-cutting, or failure at the boat ramp, provided that the rock is no larger than necessary and does not extend further than 4-feet from the edge of the ramp in any direction.

29. **Educational signs.** To educate the public about pollution from boating activities and its prevention, the Corps shall install (Corps project) or require the following information or its equivalent to be posted on a permanent sign that will be maintained at each permitted facility that is used by the public (*e.g.,* a public boat ramp or marina):
    a. A description of the ESA-listed species which are or may be present in the project area.
    b. Notice that adults and juveniles of these species are protected by the ESA and other laws so that they can successfully migrate, spawn, rear, and complete other behaviors necessary for their recovery.
    c. Therefore, all users of the facility are encouraged or required to: (i) Follow procedures and rules governing use of sewage pump-out facilities; (ii) minimize the fuel and oil released into surface waters during fueling, and from bilges and gas tanks; (iii) avoid cleaning boat hulls in the water to prevent the release of cleaner, paint and solvent; (iv) practice sound fish cleaning and waste management, including proper disposal of fish waste; and (v) dispose of all solid and liquid waste produced while boating in a proper facility away from surface waters.

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[2] For alternatives sources of structural lumber and pilings designed for industrial and marine applications, but not based on pesticide-treated wood, including silica-based wood preservation, improved recycled plastic technology, and environmentally safe wood sealer and stains, see, *e.g.*, Resco Plastics (Coos Bay, Oregon; ph. 541.269.5485) and American Plastic Lumber (Shingle Springs, California; ph. 530.677.7700) for lumber from recycled plastic; Plastic Pilings, Inc. (Rialto, California; ph. 909.874.4080) for structural and non-structural lumber from recycled plastic; Timbersil (Placentia, California; ph. 714.223.1804) for outdoor lumber treated with silica; Kebony (ph. 888.914.9995) for outdoor lumber impregnated with a resin from furfuryl alcohol, a byproduct of sugar production; and Timber Pro Coatings (Portland, Oregon; ph. 503.232.1705) for a silica-based internal wood stabilizer, and a low-VOC wood sealer/stain. The use of trade, firm, or corporation names in this Opinion is for the information and convenience of the action agencies, and does not constitute an official endorsement or approval by the U.S. Department of Commerce or NMFS of any product or service to the exclusion of others that may be suitable.

30. Flotation material. All synthetic flotation material must be permanently encapsulated to prevent breakup into small pieces and dispersal in water.

31. New or replacement floats. Any new or replacement float must be placed at least 50 feet from the shoreline (100-feet from the shoreline in the Columbia River) as measured at ordinary low water or mean lower low water and may not be placed in an estuarine area with submerged aquatic vegetation. Any float wider than 6-feet must also include (a) an open area of grating that is at least 50% of the total surface area,; or (b) be placed where current velocity is at least 0.7 feet per second year-round. Floats may not exceed 10' in width or 40' in length or a total of 400 square feet.

32. Piscivorous birds. All float pilings, mooring buoys, and navigational aids must be fitted with devices to prevent perching by piscivorous birds.

33. Relocation of existing structures in a marina. Any existing structure that is relocated in a marina must remain within the existing overall footprint, but no closer than 50 feet of the shoreline (100 feet in the Columbia River) as measured at ordinary low water or mean lower low water.

34. Repair or replacement of wall and roof components for a covered moorage or boat house. Any replacement for a roof, wall, or garage door of a covered moorage or boat house must be made of translucent materials or incorporate skylights to allow light penetration.

Dredging

35. Dredging to Maintain Vessel Access. When dredging to maintain access to previously authorized docks, wharfs, mooring structures, and boat ramps, the following conditions apply:

a. All dredged materials and subsequent leave surface must be suitable and approved for in-water disposal using newly acquired or historical data based on criteria in the Sediment Evaluation Framework ((USACE *et al.* 2009).
b. All dredged sediment and debris must be side cast or returned to the channel within the ordinary high-water line downstream from the dredging site where it will be recruited by the next annual high flow and continue to provide aquatic habitat functions.
c. The dredging must not alter the character, scope, size, or location of the project area or previously authorized dredge prism.

36. Dredging to Maintain Functionality. When discharging or excavating to maintain the functionality of a channel, culvert, intake, or outfall, the following conditions apply:

a. Either the discharge or excavation may not exceed 25 cubic yards, or include any water intake or point of diversion that does not have a fish screen that is installed, operated and maintained according to NMFS fish screen criteria and meet NMFS fish passage criteria.
b. All dredged materials and subsequent leave surface must be suitable and approved for in-water disposal using newly acquired or historical data based on criteria in the Sediment Evaluation Framework.
c. All dredged sediment and debris must be side cast or returned within the annual high flow channel downstream from the dredging site where it will continue to provide aquatic habitat functions.
d. The dredging must not alter the character, scope, size, or location of the project area.

SLOPES IV PROGRAMMATIC –IN-WATER OVER-WATER STRUCTURES ACTION COMPLETION FORM

Within 60 days of completing all work below ordinary high water (OHW) as part of an action completed under the SLOPES IV In-water Over-water Structures programmatic opinion, the permittee must submit a completed action completion form with the following information to the U.S. Army Corps of Engineers, Regulatory Branch at: cenwp.notify@usace.army.mil

Corps Permit #:

Corps Contact: _____

Action Title _____

_____

Start and End Dates for the completion of in-water work: ***Start***: _____ ***End***: _____

Any Dates work ceased due to high flows: _____ _____

_____ _____

_____ _____

_____ _____

Include With This Form:

1. Photos of habitat conditions before, during, and after action completion
2. Evidence of compliance with fish screen criteria for any pump used
3. A summary of the results of pollution and erosion control inspections, including any erosion control failure, contaminant release, and correction effort
4. Number, type, and diameter of any pilings removed or broken during removal
5. A description of any riparian area cleared within 150 feet of OHW
6. Linear feet of bank alteration
7. A description of site restoration
8. A completed Salvage Reporting Form from Appendix D for any action that requires fish salvage
9. As-Built drawings for any action involving riprap revetment, stormwater management facility, or bridge rehabilitation or replacement.

SLOPES IV PROGRAMMATIC – IN-WATER OVER-WATER STRUCTURES SALVAGE REPORTING FORM

If Applicable: Within 10 days of completing a capture and release as part of an action completed under the SLOPES IV In-water Over-water Structures programmatic opinion, submit a completed Salvage Reporting Form, or its equivalent, with the following information to the Corps at cenwp.notify@usace.army.mil.

Corps Permit #:

Corps Contact: _____

Action Title _____

Date of Fish Salvage Operation: _____

Supervisory Fish Biologist (name, address & telephone number): _____

_____

_____

Include With This Form: _____

1. A description of methods used to isolate the work area, remove fish, minimize adverse effects on fish, and evaluate their effectiveness.
2. A description of the stream conditions before and following placement and removal of barriers.
3. A description of the number of fish handled, condition at release, number injured, and number killed by species.

SLOPES IV PROGRAMMATIC –IN-WATER OVER-WATER STRUCTURES RESTORATION/ COMPENSATORY MITIGATION REPORTING FORM

By December 31 of any year in which the Corps approves that the site restoration or compensatory mitigation is complete, submit a completed Site Restoration/Compensatory Mitigation Reporting Form, or its equivalent, with the following information to the Corps at cenwp.notify@usace.army.mil.

Corps Permit #: _____

Corps Contact: _____

Action Title _____

Type of Activity: _____

_____

Include With This Form:

1. Photos of habitat conditions before, during, and after action completion
2. Start and end date for the work
3. A summary of the results of mitigation or restoration work completed

US Army Corps of Engineers ®
Portland District

Compliance Certification

1. **Permit Number:** NWP-2022-176
2. **Permittee Name:** City of Warrenton
3. **County Location:** Clatsop County

Upon completing the activity authorized by the permit, please complete the sections below, sign and date this certification, and return it to the U.S. Army Corps of Engineers, Portland District, Regulatory Branch. The certification can be submitted by email at cenwp.notify@usace.army.mil or by regular mail at the following address:

U.S. Army Corps of Engineers
CENWP-OD-GL
P.O. Box 2946
Portland, OR 97208-2946

4. **Corps-required Compensatory Mitigation (see permit special conditions):**
   a. Mitigation Bank / In-lieu Fee Credit Transaction Documents:
      ☐ Not Applicable ☐ Submitted ☐ Enclosed

   b. Permittee-responsible mitigation (e.g., construction and plantings) has been constructed (not including future monitoring). As-built report:
      ☐ Not Applicable ☐ Submitted ☐ Enclosed

5. **Endangered Species Act – Standard Local Operating Procedures (SLOPES)** (see permit special conditions):
   a. SLOPES Action Completion Report:
      ☐ Not Applicable ☐ Submitted ☐ Enclosed

   b. SLOPES Fish Salvage Report:
      ☐ Not Applicable ☐ Submitted ☐ Enclosed

   c. SLOPES Site Restoration / Compensatory Mitigation Report:
      ☐ Not Applicable ☐ Submitted ☐ Enclosed

I hereby certify the work authorized by the above-referenced permit has been completed in accordance with all of the permit terms and conditions.

Signature of Permittee **Date**

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, PORTLAND DISTRICT
P.O. BOX 2946
PORTLAND, OR 97208-2946

July 27, 2022

Regulatory Branch
Corps No. NWP-2022-176

Ms. Jane Sweet
City of Warrenton
P.O. Box 250
Warrenton, Oregon 97146
jsweet@ci.warrenton.or.us

Dear Ms. Sweet:

The U.S. Army Corps of Engineers (Corps) evaluated your request to change the in-water work period for a project in the Skipanon River through November 30, 2022. The project is located within the Skipanon River, River Mile 1, located at Warrenton Marina Work Pier North of NE Heron Avenue, Clatsop County, Oregon at Latitude/Longitude: 46.167394°, -123.915117°.

In a letter dated May 27, 2022, the Corps verified the discharge of fill material to (brief project description) which was authorized by Nationwide Permit (NWP) No. *3, Maintenance.* Portland District Regional Condition No. 4 (see Enclosure 2 of the original NWP verification letter) required the (you/permittee name) to complete the work during the preferred in-water work window. The work window for the Skipanon River is July 01 through September 15.

NWPs may only be used to authorize work where the individual and cumulative impacts are minor. The Corps has evaluated your request to modify this condition and find the project complies with this standard with the addition of the following supplemental special conditions:

a. <u>In-water Work Windows</u>: All in-water work including fills or structures shall occur between (standard window) October 01 through November 30. Exceptions to these time periods require case-specific approval from the Corps.

All other terms and conditions of the original NWP verification letter remain in full force and effect. This letter must be attached to the original NWP verification letter.

If you have any questions regarding this modification, please contact me by telephone at (503) 808-4383 or email at brad.a.johnson2@usace.army.mil.

Sincerely,

Brad Johnson
Project Manager, Regulatory Branch

cc:

Oregon Department of State Lands (Dan Cary, dan.cary@dsl.oregon.gov)

SECTION 012200 – UNIT PRICES

PART 1 - GENERAL

1.1 INCIDENTAL WORK

A. Consider work not listed, but necessary to complete the work, as incidental. Each bid item has incidental work associated with it. Some of the incidentals are identified. However, the list is not complete. This does not relieve the Contractor from the responsibility for completing the incidental work. Incidental work includes, but is not limited to, project meetings and seminars, compacting, grading, hauling, mixing, placing, shaping, and watering, as specified.

1.2 BID ITEMS

A. Payment constitutes total compensation for furnishing materials; for preparation of these materials; and for labor, equipment, tools and incidentals necessary to complete the work as specified and shown on the drawings. Measurement will not include unauthorized work performed beyond the design limits. Replace material removed without authorization at no added cost to the City. The method of measurement and the basis of payment for bid items will be as follows.

PART 2 - BID ITEMS

1 MOBILIZATION, SURVEYING, CLEANUP, AND DEMOBILIZATION – L.S.

A. Payment will be made at the contract lump sum price for mobilization and demobilization of personnel, equipment, supplies, offices and other facilities necessary for the work; surveying; and cleanup. The price includes premium on bonds and insurance and other costs which are incurred before beginning the work. The amounts allowed for this bid item in progress payments will be as follows:
   1. When 5 percent of the total original contract amount is earned from other bid items, 40 percent of the amount bid for mobilization, or 5 percent of the total original contract amount, whichever is the least, less normal retainage, will be paid.
   2. When 10 percent of the total original contract amount is earned from other bid items, 70 percent of the amount bid for mobilization, or 10 percent of the total original contract amount, whichever is the least, less normal retainage, will be paid.
   3. When 90 percent of the total original contract amount is earned from other bid items, 90 percent of the amount bid for mobilization, less normal retainage, will be paid.
   4. Upon completion of the work, payment of any remaining amount bid for mobilization will be paid.

2 TEMPORARY SUPPORT SYSTEM – L.S.

A. Payment will be made at the contract lump sum for temporary support system as required to perform the work as specified in Section 015000. The price includes but is not limited to the design, installation, maintenance, and removal of temporary support systems.

3 TEMPORARY WORK ACCESS PLATFORMS, CONTAINMENT SYSTEM, AND BMP'S – L.S.

A. Payment will be made at the contract lump sum for temporary work access platforms and containment systems as required to perform the work as specified in Section 015000. The price includes but is not limited to the design, installation, maintenance, and removal of temporary work access platforms, containment systems, and other required best management practices.

4 TOP OF DECK SPALL REPAIR – S.F.

A. Pay quantity will be the number of square feet of deck spalls repaired at Berth 411. Quantity will be measured in the field after sawcut and removal of unsound concrete.

B. Payment will be made at the contract unit price per square foot for work completed as indicated on the drawings and as specified in Section 033100.

5 TOP OF DECK CRACK REPAIR – L.F.

A. Pay quantity will be the number of linear feet of top of deck crack repair accepted.

B. Payment will be made at the contract unit price per linear foot for work completed as indicated on the drawings and as specified in Section 033100.

6 REMOVE AND REPLACE CONCRETE DECK – S.F.

A. Pay quantity will be the number of square feet of concrete deck removed, replaced, and accepted.

B. Payment will be made at the contract unit price per square foot for work as indicated on the drawings and as specified in Sections 031100, 032000, 033000, and 053100. The price includes sawcut, removal and disposal of existing concrete deck, providing and installing metal deck, deck reinforcement, and providing, forming. placing and finishing new concrete deck.

7 PILE CAP STRENGTHENING

A. Pay quantity will be for each pile cap strengthening completed and accepted.

B. Payment will be made at the contract unit price per each for work as indicated on the drawings and as specified in Section 055000.

8 TIMBER RAILING – B.F.

A. Pay quantity will be the number of board feet of timber railing installed and accepted.

B. Payment will be made at the contract unit price per board foot for work as indicated on the drawings and as specified in Section 061000. The price includes mid and lower timber rails, bolts and other timber fasteners as required to attach the rails.

9 REMOVE AND REPLACE PILE CAP – E.A.

A. Pay quantity will be for each pile cap removed, replaced, and accepted.

B. Payment will be made at the contract unit price per board foot for work as indicated on the drawings and as specified in Sections 061000 and 055000. The price includes removal and disposal of existing pile cap as well as providing and installing new pile cap with associated miscellaneous metal brackets and hardware.

10 REMOVE AND REPLACE TIMBER BULLRAIL – B.F.

A. Pay quantity will be the number of board feet of timber bullrail removed, replaced, and accepted.

B. Payment will be made at the contract unit price per board foot for work as indicated on the drawings and as specified in Sections 061000 and 055000.. The price includes removal and disposal of existing timber bullrail as well as providing and installing new timber bullrail, timber blocking, and associated miscellaneous metal brackets and hardware.

11 REMOVE AND REPLACE TIMBER EDGE BEAM – E.A.

A. Pay quantity will be per each timber edge beam removed, replaced, and accepted.

B. Payment will be made at the contract unit price per board foot for work as indicated on the drawings and as specified in Sections 061000 and 055000. The price includes removal and disposal of existing timber edge beam as well as providing and installing new timber edge beam, timber blocking, and associated miscellaneous metal brackets and hardware.

12 RE-PLUMB AND CONNECT DISPLACED PILE (WT10/C) – E.A.

A. Pay quantity will be per each pile re-plumbed, connected, and accepted.

B. Payment will be made at the contract unit price per each for work as indicated on the drawings and as specified in Sections 061000. The price includes re-plumbing timber piles and drift pins.

13 RE-PLUMB AND CONNECT DISPLACED PILE (WP13/A) – E.A.

C. Pay quantity will be per each pile re-plumbed, connected, and accepted.

D. Payment will be made at the contract unit price per each for work as indicated on the drawings and as specified in Sections 061000 and 055000. The price includes re-plimbing timber piles, new timber sub caps, drift pins, and associated miscellaneous metal brackets and hardware.

14 REPAIR, RE-PLUMB, AND CONNECT DISPLACED PILE (WP31/D) – E.A.

A. Pay quantity will be per each pile repaired, re-plumbed, connected, and accepted.

B. Payment will be made at the contract unit price per each for work as indicated on the drawings and as specified in Sections 061000 and 055000. The price includes re-plumbing timber piles, replacement pile sections, pipe sleeve connectors, drift pins, and associated miscellaneous metal brackets and hardware.

15 RE-ALIGN AND CONNECT EXISTING STEEL FENDER PILE – E.A.

E. Pay quantity will be per each pile re-aligned, connected, and accepted.

A. Payment will be made at the contract unit price per each for work as indicated on the drawings and as specified. The price includes, but is not limited to re-aligning steel piles, new timber spacer blocks, and associated miscellaneous metal brackets and hardware.

16 DECK JOINT SEAL – L.F.

A. Pay quantity will be the number of linear feet of deck joint seal installed and accepted.

B. Payment will be made at the contract unit price per linear foot for work as indicated on the drawings and as specified in Section 321373. The price includes preparation of joint surfaces, supplying and installing backer rod material, and providing and installing hot-poured joint material.

17 RE-CONNECT DISPLACED BULLRAIL – E.A.

A. Pay quantity will be per each displaced bullrail connection made and accepted

B. Payment will be made at the contract unit price per each for work as indicated on the drawings and as specified. The price includes labor and hardware required to reposition and re-connect the existing bullrail at locations indicated.

18 RE-ATTACH MIDDLE RAILING AT GUARDRAIL – E.A.

C. Pay quantity will per each railing connection made and accepted

D. Payment will be made at the contract unit price per each for work as indicated on the drawings and as specified. The price includes labor and hardware required to re-connect the existing guardrail railing at locations indicated.

2.2

END OF SECTION 012200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary support, containment, and access structures.

1.3 GENERAL

A. Contractor shall comply with all applicable requirements of the Occupational Safety and Health Administration (OSHA), and Oregon OSHA, including, but not limited to, applicable portions of 29 CFR 1926.

PART 2 - PRODUCTS

2.1 Provide products and materials in accordance with the requirements of the working drawings and specifications for the temporary work platforms, containment systems, and temporary support systems.

PART 3 - EXECUTION

3.1 TEMPORARY WORK ACCESS PLATFORMS AND CONTAINMENT SYSTEM

A. Provide a temporary contractor designed work access platform and water tight containment system that ensures dust, debris, and fluid material spills from over-water work do not enter the water.

3.2 TEMPORARY SUPPORT SYSTEM

A. Provide a temporary contractor designed structural system to support the pier superstructure while removing and replacing pile caps and other pier components.

3.3 SUBMITTALS

A. Submit for City's review a minimum of 14 calendar days before the preconstruction conference the temporary work platform, containment system, and support system working drawings and calculations. Design temporary work platforms to support all equipment, material, tools, and personnel necessary to perform work over the water. Temporary work platforms and support systems shall be designed in a manner that does not overstress the existing pier's structural members. The plans, specifications, and calculations shall be signed and sealed by a Professional Engineer licensed in the State of Oregon. Over-water work shall not begin until the submittals have been accepted by the City.
   1. Plans: Plans shall include drawings and any equipment specifications. Plans shall include manufacturer's specifications for containment materials and equipment used to accomplish containment.
   2. Structural Design Calculations: Include dead load, live load, and wind load when designing containment structures and work platforms. Dead load is the self-weight of the containment and work platforms. Dead load of support system shall include portions of existing pier that are being supported. Live load is all personnel, equipment, and materials, including collected debris.

B. Temporary work platforms, containment systems, and temporary support systems will be accepted for use when constructed according to these specified requirements and the City determines the performance of the temporary work platform is safe and efficient before use.

END OF SECTION 015000

SECTION 024113 – SITE DEMOLITION

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section describes demolition of items specified herein and shown on the drawings.

1.2 DEFINITIONS

A. Demolish: Completely remove and legally dispose of off City property.

1.3 WORK ITEMS

A. The work includes but is not limited to, demolition and removal of the following:
   1. Slabs:
      a. Concrete deck slabs.
      b. Metal decking.
   2. Timber components:
      a. Timber pile caps, bullrails, beams, etc.
   3. Debris shall include but is not limited to:
      a. Concrete, steel, timber, etc.
   4. Materials or structures called out by word description on the drawings or in the specifications shall be included as work items.
   5. Material dumped within the work areas during the time of the contract.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 GENERAL

A. Do not begin demolition and removal activities until approved by the City.

B. Demolish and remove all work items within area in the manner specified.

C. All demolition debris and other materials shall be contained in such a manner that it does not enter the waterway.

3.2 ENVIRONMENTAL CONSIDERATIONS

A. Nuisance Dust Control:
   1. Demolition debris that contains dust or other material that could become airborne or create a nuisance shall either be removed from the work site daily, or shall be covered and secured with tarps or sheeting until removed from the site.
   2. Apply a water mist, or other means approved by the City, on debris to control or mitigate airborne dust or airborne nuisances, unless the material will become friable (i.e., crumble easily) or will dissolve in water. Friable material and material that may dissolve in water shall be securely covered with tarps or sheeting.
   3. Demolition debris that becomes friable when wetted or will dissolve in water shall be stored only on impervious surfaces, field-installed ground sheeting, or other barriers.

B. Demolition Debris:
   1. Unless specifically approved by the City, no demolition debris shall be disposed of on City property.
   2. Minimize the volume of accumulated demolition debris.
   3. Metal and other material salvage or recycling operations shall be performed in a defined area within the work site.
   4. Temporary storage and piling of demolition debris within 50 feet of the property line is not permitted unless storage piles are covered and secured with tarps or sheeting. The City may waive this requirement if the material does not contain dust or other materials that could become airborne or contaminate stormwater.

3.3 CONCRETE DECK REMOVAL

A. Remove concrete deck to the limits shown on the drawings. Replace concrete deck removed beyond the limits without City's approval as directed and at no added cost to the City.

B. Cut concrete by methods approved by the City.

3.4 TIMBER ELEMENT REMOVALSITE RESTORATION

A. Remove timber elements to the limits shown on the drawings or the nearest joint of segmented items. Replace timber elements removed beyond the limits without City's approval as directed and at no added cost to the City.

B. When removing portions of timber elements that are not segmented, provide sawcuts that are square and level.

C. Dress cut ends of piles as required to provide repairs that are plumb and bear fully upon the remaining pile.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from the work site and dispose of them off City property in accordance with local, state, and federal laws and regulations.
   1. Do not allow demolished materials to accumulate on-site.
   2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Do not burn demolished materials.

3.6 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by demolition operations. Return adjacent areas to condition existing before demolition operations began.

END OF SECTION 024113

SECTION 031100 – CONCRETE FORMWORK

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section describes concrete formwork.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 032000, Concrete Reinforcing

B. Section 033000, Cast-In-Place Concrete

1.3 REFERENCES

A. ACI: American Concrete Institute:
   1. ACI 301: Specifications for Structural Concrete.
   2. ACI 347: Guide to Formwork for Concrete.

PART 2 - PRODUCTS

2.1 MATERIAL

A. Forms shall be of an approved material suitable for intended use.

B. Form oil shall be an approved non-staining type.

PART 3 - EXECUTION

3.1 GENERAL

A. Perform formwork design, engineering, construction, and removal.

3.2 FORM CONSTRUCTION

A. Forms shall conform to the lines, dimensions and shapes of concrete shown providing for openings, recesses, keys, slots, beam pockets, and projections as required.

B. Make forms clean and free of foreign material before placing concrete.

C. Form all concrete surfaces, unless otherwise approved.

D. Provide forms so that no discernible imperfection is in evidence in finished concrete surfaces due to deformation, bulging, jointing or leakage of forms.

3.3 TOLERANCES

A. Conform to ACI 301, Chapter 4, Paragraph 4.3, Specifications for Structural Concrete for Buildings.

3.4 PREPARATION OF FORM SURFACES

A. Conform to ACI 301, Chapter 2, Paragraph 4.4.

3.5 FORM REMOVAL

A. Conform to ACI 347, Chapter 3, Paragraph 3.7 for removal of forms and supports.

3.6 REUSE OF FORMS

A. Forms may be reused if they will produce the same surface quality as new formwork.

END OF SECTION 031100

SECTION 032000 – CONCRETE REINFORCING

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section describes concrete reinforcement.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 031100, Concrete Formwork

B. Section 033000, Cast-In-Place Concrete

1.3 REFERENCES

A. ACI: American Concrete Institute:
   1. ACI SP-66: ACI Detailing Manual.
   2. ACI 315: Details and Detailing of Concrete Reinforcement
   3. ACI 318: Building Code Requirements for Structural Concrete and Commentary.

B. ASTM: American Society for Testing and Materials:
   1. ASTM A82: Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
   2. ASTM A185: Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.
   3. ASTM A615: Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

1.4 SUBMITTAL OF SHOP DRAWINGS

A. Submit complete bar schedule, bar details, and erection drawings in accordance with ACI SP-66.

B. Show each type of bar marked with identification corresponding to identification tag on bar.

C. Erection drawings shall be clear and easily legible and to a minimum scale of:
   1. 1/4 inch - 1 foot.
   2. 1/8 inch - 1 foot if bars in each face are shown on separate drawings.

D. Erection drawings shall show size and location of all openings.

1.5 REINFORCEMENT STEEL STORAGE

A. Store reinforcing steel blocked up off the ground and in orderly stacks.

B. Each stack shall only contain bars with the same identifying label.

PART 2 - PRODUCTS

2.1 MATERIAL

A. Reinforcement Bars:
   1. Reinforcing bars shall conform to ASTM A615, Grade 60.
   2. Welded reinforcing bars shall conform to ASTM A706.

B. Welded Wire Fabric: Conform to ASTM A185 using bright basic wire meeting ASTM A82.

C. Bolster, Chairs, and Accessories:
   1. Conform to ACI SP-66.
   2. Provide all spacers, bolsters, chairs, ties, and other devices necessary to properly space, place, support, and fasten reinforcement in place.
   3. Chairs, supports, and spacers shall be all-plastic or epoxy coated with pre-molded plastic tips.
   4. Do not use rocks, broken bricks, wood blocks, or concrete fragments for reinforcing support.

D. Testing: Perform at the mill for each heat. Submit certified test results, if required.

2.2 FABRICATION OF BARS

A. Fabricate with cold bends conforming to the recommended dimensions shown in ACI 318, Chapter 7.

B. Field fabrication will be allowed only if the Contractor has equipment to properly fabricate steel.

C. Attach metal tags for identification.

PART 3 - EXECUTION

3.1 PLACING METAL REINFORCEMENT

A. Place in accordance with ACI 318, Chapters 7 and 12.

B. Tie securely with 16-gauge or larger annealed iron wire.

C. Place steel with concrete cover in accordance with ACI 318, Chapter 7, Paragraph 7.7, unless otherwise indicated.

D. Splice reinforcing bars in accordance with the schedule of lap splices in the drawings.

E. Lap welded wire fabric not less than the length of one mesh.

END OF SECTION 032000

SECTION 033000 – CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section describes the labor, materials, equipment, and accessories necessary for proportioning and installing cast-in-place concrete and general cast-in-place concrete requirements.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 031100, Concrete Formwork

B. Section 032000, Concrete Reinforcing

C. Section 033100, Concrete Removal and Repair

1.3 REFERENCES

A. ACI: American Concrete Institute:
   1. ACI 301: Specifications for Structural Concrete.
   2. ACI 304R: Guide for Measuring, Mixing, Transporting, and Placing Concrete.
   3. ACI 305: Specification for Hot Weather Concreting.
   4. ACI 306: Specification for Cold Weather Concreting.
   5. ACI 308R: Guide for Curing Concrete.
   6. ACI 309R: Guide for Consolidation of Concrete.

B. ASTM: American Society for Testing and Materials:
   1. ASTM C94: Standard Specification for Ready-Mixed Concrete.
   2. ASTM C171: Standard Specification for Sheet Materials for Curing Concrete.
   3. ASTM C309: Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
   4. ASTM C494: Standard Specification for Chemical Admixtures for Concrete.
   5. ASTM C618: Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
   6. ASTM D1751: Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

C. NRMCA: National Ready Mixed Concrete Association

D. AWS: American Welding Society Codes

1.4 SUBMITTALS - MIX IDENTIFICATION

A. Submit a job mix formula at least 15 days prior to delivery of concrete to the job site.

B. Job mix formula shall be submitted on Form 1, attached.

C. Upon approval of the job mix formula, a mix identification number will be assigned to the mix. This number shall become the identifying designation of that mix and, as such, shall be used in all references to that mix.

D. Concrete delivered to the job site shall be accompanied by a delivery slip bearing the assigned mix identification number.

E. A new job mix formula may be required if unsatisfactory results occur.

1.5 QUALITY CONTROL - PLANT CERTIFICATION

A. The NRMCA certifies plants which can demonstrate that their facilities are capable of furnishing good concrete. The system permits a qualified plant to display a Certificate of Conformance which assures the purchaser that the physical capability of furnishing good concrete is available.

B. For plants which are certified by NRMCA, compliance will be assumed for production facilities within the limits set forth by ASTM C94. Applicable sections of ASTM C94 are as follows: 9. Measuring Materials, 10. Batching Plant, 11. Mixers and Agitators, 12. Mixing and Delivery, and 13. Use of Nonagitating Equipment. These sections provide assurance of facilities that are capable of furnishing good concrete.

C. All production facilities (scales, mixers, trucks, storage bins, conveyors, etc.) shall be continuously maintained in good working condition.

D. Use only concrete plants complying with the ASTM C94 or NRMCA minimum standards.

PART 2 - PRODUCTS

2.1 CONCRETE IN A FRESHLY-MIXED AND UNHARDENED STATE

A. Concrete in a freshly-mixed and unhardened state shall comply with ASTM C94 except as expressly and specifically modified and designated herein. Modifications and designations shall be as follows:
   1. Cement (See ASTM C94 5.2.1) shall contain not more than 0.80 percent total alkalies (Na20 + 0.658 K20).
   2. Pozzolan shall conform to ASTM C618 Class F or Class C. A Certificate of Compliance shall be provided on request. Total weight of Pozzolan shall not exceed 18 percent of the weight of cement.
   3. Quality of concrete (see ASTM C94 6.1):

	CLASS 3500-3/4	CLASS 5000-3/4
Size of coarse aggregate, inches	3/4" Max	3/4” Max.
Slump (Without WRA), inches	4” Max	4” Max.
Slump (With WRA), inches	5” Max	5” Max.
Entrained air, percent +/- 1 1/2%	5	4.5
Alternate for determining proportions	_____	_____
Compressive strength, PSI	3500	5000
Age, days	28	28
Probability of tests falling below specified strength, one out of	_____	_____
Minimum content of cement plus Pozzolan lbs. per c.y.	564	564
Admixtures		Water reducing admixtures conforming to ASTM C494, Type A or D, will be permitted at the Contractor’s option.

4. All concrete for the work shall be as shown on the drawings.

2.2 GROUT

A. Non-metallic: One of the following, or equal, for setting base plates:
   1. “Five Star Grout” (U.S. Grout Corp.)
   2. “Sealtight 588” (W.R. Meadows, Inc.)
   3. “Upcon” (The Upcon Co.)
   4. “Masterflow 928” (Master Builders Co.)

B. Epoxy: One of the following, or equal, for setting equipment:
   1. "Sika-Dur Hi-Mod," "Cement Epoxy" (Sika Chemical Corp.)
   2. "Five Star Epoxy Grout" (U.S. Grout Corp.)
   3. "Ceilcote 648CP" (Ceilcote Co.)

2.3 CURING MATERIAL

A. Liquid Membrane Curing Compound: ASTM C309, Type 2, formulated to be removable after 28 days, and guaranteed not to affect the bond of applied finishes.

B. Polyethylene Sheeting: Of approved manufacture, 4 mils thick.

C. Reinforced Building Paper: ASTM C171.

PART 3 - EXECUTION

3.1 GENERAL

A. The work pier is an active marine facility and will be in operation during the work. Keep personnel, materials, and equipment clear of all vessel and City operations except in areas designated by the City. The work is limited to locations shown on the drawings. City operations take precedent over the Contractor's operations.

B. Take all precautions necessary to protect workers and the environment during the course of the work.

3.2 PREPARATION

A. Clean existing concrete surfaces thoroughly before placing abutting fresh concrete.

3.3 CONCRETE PLACEMENT, CONSOLIDATION, CURING AND PROTECTION

A. Concrete shall be placed, consolidated, cured, and protected in accordance with American Concrete Institute recommended practice. The following ACI standards and reports are guides to good practice and shall be used by the Contractor:
   1. ACI 304R Guide for Measuring, Mixing, Transporting, and Placing Concrete
   2. ACI 305 Hot Weather Concreting
   3. ACI 306 Cold Weather Concreting
   4. ACI 308R Guide for Curing Concrete
   5. ACI 309R Guide for Consolidation of Concrete

3.4 PATCHING

A. Comply with ACI 301, Chapter 5.3.7.

3.5 FINISHING

A. Exposed Concrete Surfaces: Leave with a smooth finish, even textured, and free of blemishes. As soon as the face forms are removed, remove all fins and other projections carefully, level offsets and grind where necessary. Repair, replace and point and fill voids. Patch as specified above.

3.6 GROUTING

A. Remove loose concrete particles, dust, and any other material which would prevent bonding.

B. Perform surface preparation, mixing, placing, and finishing in accordance with the approved manufacturer's printed instructions.

END OF SECTION 033000

Terminal 4 Berth Rehabilitation and Site Improvements
FORM 1
JOB MIX FORMULA (READY-MIXED CONCRETE)

Contractor's Name _____

Supplier Name _____

Batch Plant Location _____

Cement Type _____

Pozzolan Type _____

Sand Type _____

Coarse Aggregate Type _____

Maximum Size of Coarse Aggregate _____

Entrained Air (%) _____

Water Reducing Agent _____

Slump (Inches) _____

PROPORTIONS

Water	_____	Gal/C.Y	_____	Lbs./C.Y.
Cement	_____	Bags/C.Y	_____	Lbs./C.Y.
Pozzolan	_____%	of Cement	_____	Lbs./C.Y.
Sand Size 1	_____%	of Total Aggregate	_____	Lbs./C.Y.
Size 2	_____%	of Total Aggregate	_____	Lbs./C.Y.
C.A. Size 1	_____%	of Total Aggregate	_____	Lbs./C.Y.
Size 2	_____%	of Total Aggregate	_____	Lbs./C.Y.
Size 3	_____%	of Total Aggregate	_____	Lbs./C.Y.
		Total Weight	_____	Lbs./C.Y.
		Unit Weight	_____	Lbs./C.F.

SECTION 033100 – CONCRETE SPALL AND CRACK REPAIR

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section describes:
   1. Repairs including spall patching and epoxy injection of cracks.
   2. Exposed concrete surfaces shall be prepared and repair mortar shall be applied as described in the drawings.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 015000, Temporary Facilities and Controls

B. Section 032000, Concrete Reinforcing

1.3 REFERENCES

A. ACI: American Concrete Institute, latest revision
   1. ACI 304: Guide for Measuring, Mixing, Transporting and Placing Concrete
   2. ACI 318: Building Code Requirements for Structural Concrete and Commentary
   3. ACI 503R: Use of Epoxy Compounds with Concrete

B. ASTM: American Society for Testing and Materials
   1. ASTM C33: Concrete Aggregates
   2. ASTM C39: Test Method for Compressive Strength of Cylindrical Concrete Specimens
   3. ASTM C94M: Ready-Mixed Concrete
   4. ASTM A615: Deformed and Plain Billet-Steel Bar for Concrete Reinforcement

C. AWS: American Welding Society Codes
   1. AWS D1.4: Structural Welding Code - Reinforced Steel

D. ICRI: International Concrete Repair Institute Guidelines

1.4 SUBMITTALS

A. General Submittals:
   1. Product Data: Submit material descriptions, chemical composition, physical properties, test data, mixing and application instructions, and Safety Data Sheets, if applicable.
   2. Samples: Cured samples of repair materials.
   3. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of repair materials with the requirements of this section.
   4. Submit evidence of non-shrink grout conforming to the requirements of this section.

B. Spall Repair Submittals:
   1. Submit data sheets, letters, written plans, schedules, and procedures prior to start of work. Include signatures of Contractor's personnel overseeing the work on all submittals.
   2. Include signature of the high performance concrete (HPC) repair material manufacturer's (RMM) representative on written procedures for surface preparation, HPC repair material placement, and HPC repair material curing.
   3. Technical data sheets for the repair materials used, with the HPC RMM's written instructions for use of the materials.
   4. Letter identifying the name, address, telephone number, and e-mail address of the HPC RMM representative and the Contractor's inspector.
   5. Letter from the HPC RMM indicating the HPC RMM representative has been directly involved in evaluation and placement of HPC repair materials on not less than five marine structures within the last five years and is not an employee of the Contractor or any subcontractor.
   6. Letter certifying that the HPC RMM representative has reviewed procedures for surface preparation, placement, and curing of the HPC repair materials.
   7. Letter identifying the name, address, telephone number, and e-mail address of any subcontractor(s) performing work.
   8. Schedule for the field placement of the HPC repair materials.
   9. Written procedures for surface preparation of areas to receive the HPC repair materials.
   10. Written procedures for placement of the HPC repair materials into a prepared area by the trowel (hand applied) method.
   11. Written procedures for curing the HPC repair materials including minimum cure times, minimum and maximum temperatures, and minimum time for formwork to remain in place.

C. Crack Injection Repair Submittals:
   1. Submit manufacturer's technical data and SDS for each product.
   2. Submit a minimum of three job references where the contractor has successfully completed similar applications.
   3. Provide written procedures for injection of cracks.

D. Containment Submittal:
   1. Contractor shall be responsible for full containment of work. Provide a containment plan for all concrete work in accordance with Section 015000.

1.5 QUALITY ASSURANCE

A. General Quality Assurance:
   1. Installer Qualifications: Installer shall be trained and approved by manufacturer to apply all repair materials as specified in this section.
   2. Manufacturer Qualifications: Manufacturers shall have factory-trained representatives who are available for construction and site inspections, at no additional cost to the City.
   3. Source Limitations: Obtain concrete patching and rebuilding materials through one manufacturer.

B. Spall Repair Quality Assurance:
   1. Qualification of Personnel: Submit evidence that key personnel for this project (contractor and subcontractor(s) if applicable) have a minimum of five years' experience

preparing surfaces and applying HPC repair materials under similar conditions and methods of placement on other projects and have successfully performed surface preparation, placement, curing, and finishing of HPC repair materials on a minimum of three separate marine structure repair projects within the past five years. List by individual and include the following:

a. Name of individual and proposed position for the project.
b. Position or responsibility on each previous project.
c. Previous employer (if other than contractor for this project).
d. Name, address, and telephone number of previous facility owners where projects were performed.
e. Name of contact reference in previous facility owner's organization.
f. Location, size, and description of structures in previous projects.
g. Dates that previous work was performed.
h. Description of work performed on structures in previous projects.

2. Qualifications of the HPC RMM's Representative: Provide records of experience and training, including name, phone number and address; and a statement from the HPC RMM certifying the representative has successfully completed training for material storage, mixing, surface preparation, placement curing, and testing.
3. Repair Material Instructions: Submit HPC RMM's printed instructions, including detailed mixing and placement procedures, minimum and maximum placement temperatures, and curing procedures. Include safety data sheets (SDS) for all materials to be used at the job site.

C. Crack Injection Repair Quality Assurance:
1. Installer Qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of five years or more. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative.
2. Install materials in accordance with all safety and weather conditions required by the manufacturer, or as modified by applicable rules and regulations of local, state, and federal authorities having jurisdiction. Consult material safety data sheets for complete handling recommendations.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original and unopened containers, materials specified by name, manufacturer or standard labels legible and intact.

B. Comply with manufacturer's written instructions for temperature requirements and other storage conditions.

C. Store cementitious materials off ground, under cover, and in a dry location.

D. Store aggregate materials under cover and in a dry location. Maintain grading and avoid contamination of aggregate materials.

PART 2 - PRODUCTS

2.1 AGGREGATE

A. Coarse aggregate shall conform to ASTM C33, No. 8.

B. Fine aggregate shall conform to ASTM C33 and shall be clean and washed natural sand or crushed rock. It shall be uniformly graded with a minimum of 95 percent passing the No. 4 sieve and a maximum of 5 percent passing the No. 200 sieve.

C. Mixing, curing, and washing water shall be clear and clean. If the water contains substances causing discoloration, unusual smell or taste, or other content the City finds suspicious, the City may require the Contractor to provide test results documenting that the water meets the physical test requirements and chemical limits described in ASTM C94M, Section 5.1.3.

D. Calcium chlorides or admixtures containing chlorides are not permitted.

2.2 REPAIR MORTAR

A. Grout used for bonding new concrete to old concrete shall be a slurry formed by mixing the repair mortar with water. Follow the manufacturer's written instructions.

B. Repair mortar shall meet or exceed the requirements of an R3 type repair mortar as described in ASTM C928.

2.3 HPC REPAIR MATERIALS

A. Use materials from one RMM only on the project. Select HPC repair materials suitable for the methods of placement described in this specification. When used in combination, select materials that are compatible. Use prepackaged HPC repair materials with premeasured, properly proportioned components by the HPC RMM. Select HPC repair materials with the following properties.

1.	Minimum Pot Life (75 DEG F)	15 Minutes
2.	Minimum Bond Strength (ACI 503R, Appendix A, Modified for Cementitious Materials)	200 psi
3.	Minimum Compressive Strength (ASTM C 109, Modified for Cementitious Materials)	2,000 psi, 1 Day 4,500 psi, 28 Days
4.	Maximum Drying Shrinkage (ASTM C 157, Modified per ICRI Guideline 320.2R)	0.09, 28 Days
5.	Minimum Splitting Tensile Strength (ASTM C 496):	650 psi, 28 Days
6.	Rapid Freeze/Thaw Durability (ASTM C 666) Minimum Relative Durability Factor:	90, at 300 Cycles
7.	Maximum rapid chloride permeability (ASTM C 1202)	1000 Coulombs
8.	Does not produce a vapor barrier.	

B. Manufacturers and Products
   1. The following HPC repair materials comply with the project specifications.

2. Hand Troweled
    a. BASF-EMACO S488 CI
    b. Sika-Sika Repair SHB
    c. Five Star Structural Concrete V/O
    d. Or pre-bid approved equal

C. Concrete Bonding Agent
1. In lieu of conditioning the prepared concrete surface immediately before placement of HPC repair material, a bonding agent recommended by the HPC RMM may be used. Mix and apply in accordance with the HPC RMM.

D. Curing Compound
1. Provide material recommended by the HPC RMM.

2.4 CRACK REPAIR MATERIALS

A. The epoxy adhesive shall be a two component, 100% solids, moisture insensitive structural epoxy suitable for pressure injection or gravity feed into cracks up to 1/4" in width in horizontal or vertical positions.

B. The crack injection material shall meet all of the following performance criteria when cured at 73ºF (23ºC)"
1. Minimum Compressive Strength: 10,000 psi at 28 days.
2. Minimum Tensile Strength: 4,000 psi at 14 days
3. Minimum Bond Strength: 1,500 psi at 14 days

C. The following crack injection materials comply with these requirements:
1. Euclid Dural Injection Gel
2. Sika Sikadur Injection Gel, Standard Set
3. Five Star Pressure Port Crack Repair System
4. Or pre-bid approved equal

PART 3 - EXECUTION

3.1 GENERAL

A. Take all precautions necessary to protect workers and the environment during the course of the work.
1. HPC and crack injection materials may have potential health hazards if improperly handled. Follow the product manufacturer's written safety precautions throughout mixing, placement, and curing of the materials. During cleaning, cleanup, surface preparation, and placement phases, ensure that employees are protected from toxic and hazardous chemical agents. The existing debris released during power tool cleaning and/or abrasive blasting may cause adverse reactions.

B. Perform work in accordance with all permit requirements, including in-water work restrictions.

C. Perform concrete repair work in strict conformance with the selected product manufacturer's requirements.

D. Pre-Repair Conference: A minimum of one week prior to the start of repairs in accordance with this specification, meet to review the detailed repair procedures including surface preparation, equipment and procedures; material mixing, placing, and curing; schedules; climatic conditions; etc. The selected product manufacturer's representatives shall demonstrate the approved placement method(s) if requested by the City. Required attendees include the superintendent and employees performing the repair work, HPC RMM representative, and the City.

E. Provide adequate quantities of materials to accomplish all work.

F. Verify information included in this specification and drawings and notify the City of any discrepancies before beginning any work that may be affected, including any discrepancies between this specification and the product manufacturer's requirements.

3.2 DELIVERY, STORAGE, AND HANDLING OF MATERIALS

A. HPC Materials:
   1. Ship, store, and handle HPC repair materials in accordance with the HPC RMM's recommendations. Maintain temperature in storage spaces in accordance with those recommendations. Inspect materials for damage prior to use and return non-compliant materials to the HPC RMM.
   2. Mix HPC repair materials and other materials only in such quantities as are required for immediate use, and use before initial set takes place. Do not use HPC repair material which has developed initial set. Do not remix or temper HPC repair material which has partially hardened.

B. Crack Injection Materials:
   1. All materials shall be delivered to the jobsite in their original, unopened packages, clearly labeled with the manufacturer's identification, printed instructions and batch code.
   2. Store and condition the selected product as per the manufacturer's product data sheet.
   3. Refer to the product SDS for additional handling instructions.

3.3 EXAMINATION

A. Verify that surfaces are ready to receive work.

B. Beginning installation means acceptance of substrate by the Contractor.

3.4 SURFACE PREPARATION

A. The surface concrete shall be removed as shown in the drawings or as designated by the City.

B. The Contractor shall not damage steel deck or expansion joints which are to remain in place. Any damage to steel deck or expansion joints shall be corrected by the Contractor, at no additional cost to the City. The area to be repaired shall be marked off using straight lines. The

marked boundaries for the repair area shall be a minimum of two inches outside the perimeter of the spall. Spalls located in close proximity to each other shall be included in a single area marked for repair, or as directed by the City.

C. Locate, mark, and measure the size and extent of all areas designated to be repaired on the drawings. Determine the actual dimensions of each repair by hammer sounding to determine if unforeseen subsurface delaminations exist in addition to visual spalls.

D. Spalled Concrete
   1. Remove loose, unsound, or delaminated concrete from each spalled area by sawcutting the perimeter. Sawcut shall be made perpendicular to deck surface. Use care to avoid damaging the steel during sawcut operation. Remove unsound concrete using small chipping hammers. Remove growth, dirt, grease, paint, or other deleterious materials from concrete surrounding the repair area.
   2. Inspect the cavity for remaining defective concrete by tapping with a hammer or steel rod and listening for dull or hollow sounds. In areas where tapping does not produce a solid tone, remove additional concrete until tapping produces a solid tone.
   3. Where steel deck is exposed, remove all corrosion by abrasive blasting, high pressure water blasting, or mechanical means to near white metal condition and in accordance with the HPC RMM's recommendations.
   4. Sawcut edges of cavity to a depth of 1/2 inch around the area of unsound concrete unless otherwise indicated on the drawings. Make the sawcut in sound concrete. Do not cut the steel deck. Prepare surfaces by abrasive blasting or mechanical scarification, as recommended by the HPC RMM, to remove all loose laitance.
   5. When steel decking is corroded, remove additional concrete for a minimum of six inches to each side beyond active corrosion.
   6. Replace steel decking damaged during sawing or concrete removal at no additional cost to the City.
   7. Limit impact hammer size for concrete removal to 15 pounds and use pointed gads only.
   8. Roughen all concrete surfaces to a 1/4 inch amplitude.
   9. Remove dust, dirt, and loosely bonded material resulting from cleaning, collect, manage, and dispose of all debris in accordance with all permits and all local, state, and federal government regulations. Do not allow debris or water from surface preparation or other associated work, or other items to fall into the water.

E. Crack Injection:
   1. Ensure concrete surface is structurally sound, dry, clean, and free of grease, oil, soil, dust, or other contaminants.
   2. Roughen concrete surfaces through mechanical means.
   3. Route cracks to a maximum 1/8 to 1/4 inch (3-6 mm) width. Remove all loose material and dust via oil-free compressed air or vacuum.
   4. For pressure injection applications, identify optimum port spacing and locations based upon crack width, depth, length, and accessibility. Position ports on opens segments of crack, crack intersections at areas which permit maximum flow into crack and at sufficient locations that will ensure sufficient travel of epoxy between ports.
   5. For pressure injection applications, apply epoxy capping material over crack 1/2 inch (12 mm) wider than crack on both sides of crack in suitable thickness to withstand injection pressures and thermal movement. Firmly tool capping material in both directions across crack ensuring adequate seal and complete encapsulation of crack. Allow capping material to fully cure prior to pressure injection of epoxy material.

6. For gravity fill applications, apply bead of caulk or sealant along length of crack on both sides of crack to act as reservoir for epoxy adhesive. Allow sealant or caulk to fully cure before filling cracks.
7. Condition and maintain all materials and surfaces contacting epoxy adhesive to between 60°F and 90°F (15°C and 32°C), or in accordance with manufacturer's instructions. Shade from direct sunlight as necessary.

3.5 REINFORCING STEEL

A. Provide reinforcing steel bars as indicated in the drawings for all full depth spall repairs.

3.6 HPC REPAIR MIXING, PLACEMENT, CURING, AND REPAIRS

A. Mix batches small enough to ensure placement before the HPC repair material begins to take any set. Mix materials in accordance with the HPC RMM's recommendations.

B. Place HPC repair material and consolidate using methods prescribed by the HPC RMM. Level the final surface to match adjoining surfaces. Remove excess material from adjacent surfaces before it begins to harden. Do not feather out on to adjacent surfaces.

C. Provide two inch clear cover unless otherwise indicated on the drawings.

D. Do not allow wet or cured HPC repair material to enter the water. Construct impervious barriers as required to prevent leaching of wet material into the water. Place impervious materials over any exposed concrete not lined with forms that will come in contact with the water. Keep impervious materials in place until the HPC repair materials are cured.

E. Apply HPC repair material in accordance with the HPC RMM's recommendations. Ensure that material behind reinforcing steel is thoroughly consolidated and that material is worked into the concrete substrate at the interface of subsequent lifts to achieve a sound bond. Prepare cavity surfaces using a stiff bristle brush to apply a thin film (scrub coat) of the HPC repair material unless otherwise directed by the HPC RMM's recommendations. Use wood dowels to consolidate material tightly behind reinforcing steel. Finish the exposed surface to match adjacent surfaces.

F. Cure HPC repair materials in accordance with the HPC RMM's recommendations.

G. Sound repair areas with a hammer to verify adequate bond.

H. Repair any remaining voids or de-bonded areas at no additional cost to the City. Use HPC repair material, prepare void and apply material in accordance with HPC RMM's recommendations.

3.7 HPC REPAIR TESTING AND FIELD QUALITY CONTROL

A. Perform test sample placements for each of the approved HPC repair material products. Apply to three spalled or delamination areas representative for the project, totaling no less than five

square feet of surface area. Submit a test procedure plan denoting locations for test areas and describing methods for accomplishing installation and testing. Receive City's approval before continuing with testing. Prepare the area to receive the sample in accordance with this specification and the HPC RMM's recommendations. Take three core samples (avoiding all reinforcing steel) and test for bond strength to establish compliance with this specification. The HPC RMM representative shall advise the Contractor on proper surface preparation, placement, and curing methods.

B. Obtain and test one sample of the HPC Repair material for each day's production for the first five days of production and one sample each week thereafter. Resume daily sampling if two successive test failures occur. Collect 12 test cubes for each test sample. Identify samples by designated name, HPC repair material batch number, project contract number, where used, and quantity involved.

C. Testing shall be in accordance with ASTM C 109. Test three test cubes at one day, three at seven days, three at 28 days and hold three in reserve. If a sample fails to meet the HPC RMM's published physical after two tests, replace HPC repair materials in the repaired are represented by the samples tested and retest.

D. Bond strength pull off tests shall be conducted in accordance with ACI 503R, Appendix A, modified for concrete at 28 days. Perform two bond strength tests on the substrate in a relatively smooth area after the surface preparation is complete and before HPC repair material is placed. Penetrate substrate 1/2 inch minimum to one inch maximum with the cores to test for micro-cracking. If a substrate test core fails to meet 150 psi minimum bond strength, then perform additional surface preparation and retest before placing HPC repair material. Perform retests in the presence of the City. Also, perform two additional substrate tests at the City's discretion during the project. Once the substrate meets bond strength criteria, place HPC repair material in repair area in accordance with this specification and test bond strength of placed material. Provide the bond strength result data to the City within 24 hours of testing. Take samples for bond strength tests on not less than once for each 200 square feet of repair area unless a larger area is allowed by the City. For the entire project, take no less than three sets of samples of material applied by each method and perform bond strength test on each. Each bond strength test result shall be the average of the three samples. Retest locations represented by erratic bond strengths. Remove HPC repair material not meeting bond strength criteria and provide new material and retest. Repair cored holes with HPC repair material.

E. Assist the City to inspect each repaired area for cracks, spalls, popouts, and loss of bond between repaired area and surrounding concrete by making equipment and access available for use in performing the inspections. Immediately repair all defects so sound, well-bonded repairs result. Repair defects at no additional cost to the City, regardless of level of inspection by the City before, during, or after repair work.

F. HPC RMM representative shall advise the Contractor on material handling, batching and mixing; surface preparation; and curing, inspections, and testing of HPC repair materials.

3.8 CRACK INJECTION EQUIPMENT, MIXING, PLACEMENT, AND FINISHING

A. All necessary tools, equipment, and materials shall be as close as possible to the area being repaired. Equipment shall be clean and dry prior to use.

B. Appropriate clothing and safety equipment shall be worn at all times to avoid breathing vapors and prevent eye and skin contact with components and mixed materials.

C. Pre-mix each component thoroughly. Mix components together in the proportion recommended by the manufacturer.

D. Do not mix more material than can be replaced within the product's working time.

E. Do not add solvents to increase flowability.

F. Attach injection ports and seal rack in accordance with the product manufacturer's instructions. Allow crack sealant to sufficiently harden in order to prevent blowouts.

G. Upon completion of curing, all ports and epoxy capping material shall be removed.

END OF SECTION 033100

SECTION 053100 - STEEL DECKING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Non-Composite form deck.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 031000, Concrete Formwork

B. Section 032000, Concrete Reinforcing

C. Section 033000, Cast-in-Place Concrete.

1.3 SUBMITTALS

A. Product Data: For each type of deck, accessory, and product indicated.

B. Shop Drawings:

   1. Include layout and types of deck panels, anchorage details, special jointing, accessories, and attachments to other construction.

C. Product Certificates: For each type of steel deck.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

2.2 COMPOSITE FLOOR DECK

A. Noncomposite Form Deck: Fabricate ribbed-steel sheet noncomposite form-deck panels to comply with "SDI Specifications and Commentary for Noncomposite Steel Form Deck," in SDI Publication No. 31, with the minimum section properties indicated, and with the following:
   1. Galvanized and Shop-Primed Steel Sheet: ASTM A653/A653M, Structural Steel (SS), Grade 50, G60 zinc coating; cleaned, pretreated, and primed with manufacturer's standard baked-on, rust-inhibitive primer.
   2. Profile Depth: 1-1/2 inches.
   3. Design Uncoated-Steel Thickness: 16 Gage.
   4. Span Condition: Triple span.

2.3 ACCESSORIES

A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

B. Mechanical Fasteners: Corrosion-resistant, self-drilling, self-threading screws.

C. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, of same material and finish as deck; of profile indicated or required for application.

D. Galvanizing Repair Paint: ASTM A 780.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section.

B. Install temporary shoring before placing deck panels if required to meet deflection limitations.

C. Locate deck bundles to prevent overloading of supporting members.

D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.

F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

3.3 FLOOR-DECK INSTALLATION

A. Fasten floor-deck panels to timber supporting members with corrosion resistant, self drilling, self threading screws.

B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of half of the span or 36 inches (914 mm), and as follows:

1. Mechanically fasten with self-drilling, No. 10 (4.8-mm-) diameter or larger, carbon-steel screws.
2. Mechanically clinch or button punch.

C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches (38 mm), with end joints as follows:

1. End Joints: Lapped or butted at Contractor's option.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: City will engage a qualified testing agency to perform tests and inspections.

B. Testing agency will report inspection results promptly and in writing to Contractor and Engineer.

C. Remove and replace work that does not comply with specified requirements.

D. Additional inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

3.5 PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

B. Provide final protection and maintain conditions to ensure that steel deck is without damage or deterioration at time of Substantial Completion.

END OF SECTION 053100

SECTION 055000 – METAL FABRICATIONS

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section describes items made from iron and steel shapes, plates, bars, strips, tubes, pipes, and castings which are not a part of structural steel or other metal systems specified elsewhere.

1.2 REFERENCES

A. AISC: American Institute of Steel Construction
   1. AISC Specifications for Structural Steel Buildings

B. AISI: American Iron and Steel Institute
   1. AISI Specification for the Design of Cold-Formed Steel Structural Members

C. ANSI: American National Standards Institute
   1. ANSI A14.3: American National Standards for Ladders - Fixed - Safety Requirements
   2. ANSI A202.1: Metal Bar Grating Manual
   3. Standard Specification for Open Web Steel Joists

D. ASTM: American Society for Testing and Materials
   1. ASTM A36: Standard Specification for Carbon Structural Steel
   2. ASTM A123: Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
   3. ASTM A153: Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
   4. ASTM A1011: Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength
   5. ASTM F2329: Standard Specification for Zinc Coating, Hot-Dip, Requirements for Application to Carbon and Alloy Steel Bolts, Screws, Washers, Nuts, and Special Threaded Fasteners

E. AWS: American Welding Society
   1. AWS D1.1: Structural Welding Code – Steel

F. NAAMM: National Association of Architectural Metal Manufacturers

G. OR OSHA: Oregon Occupational Safety and Health Administration

1.3 SUBMITTALS

A. Submit the following.
   1. Product Data: Manufacturer's specifications, anchor details, and installation instructions for products to be used in the fabrication of metalwork, including paint products and grout.
   2. Shop drawings: Show fabrication and erection of metal fabrications. Include drawings, elevations, and details of sections and connections. Show anchorage and accessory items. Provide templates for anchor and bolt installation under other sections.

B. Where design of members and connections is specified as part of the work of this section, submit structural analysis showing loadings and stresses, stamped and signed by a structural engineer registered in Oregon with shop drawings showing these items, similarly stamped and signed.

C. For site welding work, submit a detailed plan of safety procedures that includes fume control and shielding.

1.4 QUALITY ASSURANCE

A. Codes and Standards: Comply with the provisions of the following codes, standards and specifications, except where more stringent requirements are shown or specified:
   1. AISC, "Specifications for Structural Steel Buildings," including the "Commentary on the AISC Specifications."
   2. AISI, "Specification for the Design of Cold-Formed Steel Structural Members."
   3. ANSI, "Standard Specification for Open Web Steel Joists," including the "Code of Standard Practice for Steel Joists and Joist Griders."
   4. AWS D1.1, "Structural Welding Code – Steel."

B. Take field measurements prior to preparation of shop drawings and fabrication, where possible. Do not delay job progress; allow for trimming and fitting wherever taking field measurements before fabrication might delay work.

C. Furnish inserts and anchoring devices which must be set in concrete or built into masonry for installation of metalwork. Coordinate delivery with other work to avoid delay.

D. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

PART 2 - PRODUCTS

2.1 MATERIALS AND COMPONENTS

A. For fabrication of metalwork which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names, and roughness.

B. Fabricate metal fabrications from ASTM A572, or as recommended by fabricator for the specific application; except where material is specifically identified.

C. Provide zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners of the type, grade, and class required.

D. Metal Primer Paint:
   1. Zinc-coated steel: Acceptable Manufacturers and Products: Amchem Galv-A-Prep, Tnemec Galv-Gard #22; Rustoleum System, or equal.
   2. Black Steel: Acceptable Manufacturers and Products: Amchem Metal-Prep, Tnemec #37 Chem Prime; Rustoleum System, or equal.
   3. Verify compatibility with the required finish coats of paint. Coordinate selection of metal primer with finish paint requirements specified elsewhere.

2.2 FABRICATION, GENERAL

A. Workmanship:
   1. Use materials of size and thickness shown or, if not shown, of required size and thickness to produce strength and durability in finished product. Work to dimensions shown or accepted on shop drawings, using proven details of fabrication and support. Use type of materials shown or specified for various components of work.
   2. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32 inch unless otherwise shown. Form bent metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

B. Weld corners and seams continuously, complying with AWS recommendations. Grind exposed welds smooth and flush, to match and blend with adjoining surfaces.

C. Form exposed connection with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type shown or, if not shown, socket type flathead (countersunk) screws or bolts. Provide sufficient backing at screw locations to cover at least three threads.

D. Provide for anchorage of type suitable for use with supporting structure. Fabricate and space anchoring devices as shown and as required to provide adequate support for intended use.

E. Cut, reinforce, drill, and tap metal fabrications as required to receive finish hardware and similar items.

F. Galvanizing: Provide a zinc coating for those items shown or specified to be galvanized, as follows:
   1. ASTM A123 for galvanizing iron and steel products.
   2. ASTM A153 for galvanizing iron and steel hardware.
   3. ASTM F2329 for galvanizing fasteners.

G. Shop Painting:
   1. Shop paint metal fabrications (after galvanizing where a zinc coating is specified), unless otherwise specified.

2. Remove scale, rust and other deleterious materials before applying shop coat.
3. Immediately after surface preparation, brush or spray on primer in accordance with manufacturer's instructions and at a rate to provide uniform dry film thickness of 1.0 mils for each coat. Use painting methods which will result in full coverage of joints, corners, edges and exposed surfaces.
4. Apply one shop coat to fabricated metal items, except apply two coats of paint to surfaces inaccessible after assembly or erection. Change color of second coat to distinguish it from the first.

2.3 METAL FABRICATIONS

A. Rough Hardware:
   1. Furnish bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels and other steel and iron shapes as required.
   2. Manufacture or fabricate items of sizes, shapes, and dimensions required.

B. Provide other miscellaneous steel items as required to complete the work. Work of this section is not limited to the items listed above.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine areas and conditions under which metal fabrications are to be installed. Correct conditions which are detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

3.2 INSTALLATION

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing metal fabrications to in-place construction as required.

B. Cutting, Fitting and Placement:
   1. Perform cutting, drilling, and fitting required for installation of metal fabrications. Set work accurately in location, alignment and elevation, plumb, level, true and free of rack, measured from established lines and levels with lines visually parallel. Provide temporary bracing or anchors in framework for items which are to be built into concrete or masonry of similar construction.
   2. Fit exposed connections accurately together to form tight hairline joints. Weld connections which are not to be left as exposed joints, but cannot be shop-welded because of shipping size limitations. Grind joints smooth and touch-up shop paint coat. Do not weld, cut or abrade the surfaces of exterior units which have been hot-dip galvanized after fabrication, and are intended for bolted or screwed field connections.

C. Field Welding: Comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.
   1. Fume Control: Provide welding fume control to protect personnel and the public from exposure to heavy metals.
   2. Shielding: Provide shielding for arc welding operations to protect personnel and the public that may have visual or other access during the work.

D. Touch-Up Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 1.0 mils.

END OF SECTION 055000

SECTION 061000 – ROUGH CARPENTRY

PART 1 - GENERAL

1.1 DESCRIPTION

A. This section describes sheathing, preservative treated wood materials, and roofing cant strips.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 055000, Metal Fabrications

1.3 REFERENCES

A. ALSC: American Lumber Standard Committee

B. ASME: ASME International
   1. ASME B18.2.1: Square, Hex, Heavy Hex, and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws (Inch Series)

C. ASTM: American Society for Testing and Materials
   1. ASTM A47: Standard Specification for Ferritic Malleable Castings
   2. ASTM A153: Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
   3. ASTM A307: Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60,000 PSI Tensile Strength
   4. ASTM A653: Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
   5. ASTM F1667: Standard Specification for Driven Fasteners: Nails, Spikes, and Staples

D. AWC: American Wood Council
   1. AWC NDS: National Design Specification for Wood Construction
   2. AWC WFCM: Wood Frame Construction Manual for One- and Two-Family Dwellings

E. AWPA: American Wood Protection Association
   1. AWPA U1: Use Category System: User Specification for Treated Wood

F. IBC: International Building Code

G. NFPA: National Forest Products Association
   1. Manual for House Framing

H. NIST: National Institute of Standards and Technology, U.S. Department of Commerce
   1. PS 20: American Softwood Lumber Standard

I. WCLIB: West Coast Lumber Inspection Bureau

1. WCLIB (GR): Standard Grading Rules for West Coast Lumber No. 17

J. WWPA: Western Wood Products Association
1. WWPA G-5: Western Lumber Grading Rules

1.4 QUALITY ASSURANCE

A. Lumber: Comply with PS 20 and approved grading rules and inspection agencies.
1. Acceptable Lumber Inspection Agencies: WCLIB and WWPA.

1.5 DELIVERY, STORAGE, AND HANDLING

A. General: Cover wood products to protect against moisture. Support stacked products to prevent deformation and to allow air circulation.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Dimension Lumber: Comply with PS 20 and requirements of specified grading agencies.
1. If no species is specified, provide any species graded by the agency specified; if no grading agency is specified, provide lumber graded by any grading agency meeting the specified requirements.
2. Grading Agency: Any grading agency whose rules are approved by the Board of Review, American Lumber Standard Committee (www.alsc.org) and who provides grading service for the species and grade specified; provide lumber stamped with grade mark unless otherwise indicated.

B. Miscellaneous steel connectors and support angles for wood framing shall comply with the requirements of Section 055000.

2.2 DIMENSION LUMBER

A. Grading Agency: West Coast Lumber Inspection Bureau (WCLIB).

B. Grading Agency: Western Wood Products Association (WWPA).

C. Sizes: Nominal sizes as indicated on drawings, S4S.

D. Moisture Content: S-dry or MC19.

2.3 ACCESSORIES

A. Bolts, Nuts, Washers, and Screws:
1. Lag Screws and Lag Bolts: ASME B18.2.1, square or hex head.

2. Bolts: ASTM A307, unless noted otherwise.
3. Nuts: Heavy Hex, ASTM A563, grade to match bolt.
4. Plain Washers: ASTM F844, wide series, max thickness to match bolt.
5. Malleable Washers: ASTM A47

B. All accessories shall be hot dip galvanized.

2.4 FACTORY WOOD TREATMENT

A. Lumber treatment shall be ACZA (Chemonite).

B. Comply with requirements of AWPA U1 - Use Category System for wood treatments determined by use categories, expected service conditions, and specific applications.
1. Preservative-Treated Wood: Provide lumber and plywood marked or stamped by an ALSC-accredited testing agency, certifying level and type of treatment in accordance with AWPA standards.

C. Preservative Pressure Treatment of Lumber Above Grade: AWPA U1, Use Category UC3B, Commodity Specification A, using waterborne preservative to 0.25 pounds per cubic foot retention.
1. Kiln dry lumber after treatment to maximum moisture content of 19 percent.
2. Treat lumber in contact with roofing, flashing, or waterproofing.
3. Treat lumber in contact with masonry or concrete.
4. Treat lumber less than 18 inches above grade.

D. Preservative Pressure Treatment of Lumber in Contact with Soil: AWPA U1, Use Category UC4A, Commodity Specification A using waterborne preservative to 0.4 pounds per cubic foot retention.
1. Preservative for Field Application to Cut Surfaces: As recommended by manufacturer of factory treatment chemicals for brush-application in the field.
2. Restrictions: Do not use lumber or plywood treated with chromated copper arsenate (CCA) in exposed exterior applications subject to leaching.

PART 3 - EXECUTION

3.1 INSTALLATION - GENERAL

A. Select material sizes to minimize waste.

B. Reuse scrap to the greatest extent possible; clearly separate scrap for use on site as accessory components, including: shims, bracing, and blocking.

C. When field cutting, drilling, or fabrication is necessary, perform the work away from the water to the greatest extent possible. All waste, including sawdust, shall be collected and disposed of appropriately.

3.2 FRAMING INSTALLATION

A. Set structural members level, plumb, and true to line. Discard pieces with defects that would lower required strength.

B. Make provisions for temporary construction loads, and provide temporary bracing sufficient to maintain structure in true alignment and safe condition until completion of erection and installation of permanent bracing.

C. Install structural members full length without splices unless otherwise specifically detailed.

D. Comply with member sizes, spacing, and configurations indicated, and fastener size and spacing indicated, but not less than required by applicable codes and AWC WFCM.

E. Install horizontal spanning members with crown edge up and not less than 1-1/2 inches of bearing at each end.

3.3 BOLTING

A. Install washers under nuts and under bolt heads bearing on wood.

B. Soap threads of lag bolts prior to installing.

C. Drill Lag Bolt Holes in accordance with ANSI/AWC NDS-2012, Section 11.1.4.

D. Drill Machine Bolt Holes 1/16 inch larger than bolt diameter.

E. Furnish bolts with threads for nuts not bearing on wood.

F. Enlarge lag bolt holes to shank diameter for length of unthreaded shank.

G. Do not drive lag screws, wood screws, and lag bolts.

3.4 INSTALLATION OF TEMPORARY SUPPORT

A. Adequately brace structure for wind and earthquake forces until final framing has been secured.

3.5 COMPLETION

A. Remove split and warped framing prior to installation of metal form deck.

B. Adjusting Defective Work: Remove and replace defective or damaged timber framing at the discretion of the City.

C. Daily and Final Cleaning: Remove excess wood, sawdust, and unused fasteners from the site.

END OF SECTION 061000

SECTION 31 62 16 – TUBULAR STEEL PILE

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

The extent and location of the Work is indicated on the Drawings. The Work includes the transportation and delivery of all materials, labor, and equipment necessary to remove existing fender piles as indicated by the Contract and to install new steel pipe fender piles. The Work also includes pile cut-offs in accordance with the Drawings and this Section. All piles are to be installed by vibratory driving. The Contractor shall also furnish detailed pile driving records to the Engineer for review on a daily basis.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including the General Conditions and Supplementary Conditions, apply to this Work, as if specified in this Section.

1.3 SUMMARY

A. Section Includes:
   1. 12 ¾" diameter by 0.375" wall steel pipe fender pile.

1.4 SUBMITTALS

A. Product Data: Mill Certificate for steel pipe piling.

B. Shop drawings include pile layouts, elevations, details of sections and connections, as well as lifting, handling, transporting, and bunking schemes.

C. Pile removing procedure to be used for removal of existing piles, and pile driving procedures to be used for the installation of the driven steel pipe piles.

D. Manufacturer's specifications and certificates for proposed vibratory hammer.

E. Proposed welding procedures conforming to AWS D1.1 to be used for pile splicing and pile tip installing, if applicable.

F. Proposed procedure for Non-destructive testing of pile splice welds, if applicable.

G. Pile-driving records, including as-driven pile locations, cutting-off and pile buildup locations.

H. Close-out submittals including as-built drawings.

1.5 QUALITY ASSURANCE

A. The Contractor shall provide a detailed survey of all of the pile locations and provide that to the Engineer prior to final acceptance of the piles and prior to cutting off any piles. The Contractor shall replace any piles, or add additional pile(s), for piles that do not meet the specified refusal criteria or do not meeting the following tolerances: the top work points of piles shall be located within 2 inches of the indicated plan locations, the maximum deviation from plumb shall be equal to 1 inch per 10feet of pile length, and cut-off elevations shall be within ¼ inch of the elevations indicated on the drawings.

B. The Contractor shall provide a qualified superintendent who is thoroughly familiar with this type of installation and who shall direct all Work performed under this Section. The Superintendent shall have a minimum of 5 years successful experience installing similar piling.

C. The Contractor shall allow the Engineer unhindered access to the piling and shall assist the Engineer in carrying out any inspection, including suitable access. All welds will be inspected visually by the Engineer.

D. The Contractor shall keep a detailed record of all pile driving operations. The pile driving log shall give the date, time, hammer information, diameter, length, location, type, total depth of penetration, rate of penetration, cut-off location, and final refusal accepted. Any unusual phenomena shall be noted and recorded, especially if they indicate possible damage to the pile. The Contractor shall submit the pile driving records daily to the Engineer for review.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with the requirements of ASTM A252, Grade 3, seamless or welded, with a minimum yield strength of 50 ksi typical.

B. The outside circumference of the pipe piling shall not vary by more than 0.375 inches from the circumference based on the diameter shown on the Drawings.

C. Conform to the requirements of API 5L for pipe pile straightness.

D. Perform welds to fabricate pipe at a permanent manufacturing facility using either an automatic fusion weld process or an electric resistance weld process. Provide complete joint penetration welds only.

E. Perform non-destructive testing (NDT) on 100 percent of each longitudinal, circumferential, or spiral weld made at the permanent manufacturing facility. Use either radiographic, radioscopic, real-time imaging systems, or ultrasonic methods of NDT that are in conformance with the requirements of ASTM A 53, AWS D1.1, or API 5L. Provide records of this testing to the Owner prior to delivery of pipe piles. For repairs conform to the requirements of AWS D1.1. If repairs are required in a portion of the weld, perform additional NDT on 100 percent of the repairs. Perform NDT on both sides of the repair for a length equal to 10 percent of the length of the pipe outside circumference. After all NDT is performed on the repair, and if more repairs

are required that have a cumulative length equal to or more than 100 percent of the length of the pipe outside circumference, perform NDT on the entire splice weld.

PART 3 - EXECUTION

3.1 GENERAL

A. Pile Driving Plan: Submit a pile driving plan for review by the Contracting Officer at least two weeks prior to pile driving. As a minimum, include performance requirements and a complete description of driving equipment, method of removing existing piles, temporary bracing layout for piles, alignment of pile driving equipment, and templates or other means for pile driving. Also include a description of methods to identify and prevent pile interferences with other piles and structures framing prior to driving. Include figures locating structures framing and the deck and showing the positions of pile driving equipment during installation. Do not commence work until the plan has been approved by the Contracting Officer.

B. Hammers: All piling shall be installed using a vibratory hammer with a minimum drive force of 85 tons.

C. Inadequate Pile Driving Equipment: If at any time during driving a hammer assembly or associated equipment is considered to be inadequate by the Contracting Officer, then supply an acceptable hammer(s) assembly or associated equipment at its own expense.

D. Environmental Restrictions: Plan and perform pile driving operations in accordance with permit requirements, including noise attenuation and wildlife monitoring.

E. Welding: Submit joint welding procedures for pipe pile splices and perform welding at splices in accordance with AWS D1.1 using certified welders, welding operators, and qualified joint welding procedures. Provide splices with complete penetration butt welds using the reviewed welding procedures. Test all pile splices in accordance with AWS D1.1 procedures.

F. Obstructions: Where obstructions inhibit or prevent piles from being driven in the location or to the final penetration, use special methods as required, including spudding, predrilling, or other proposed means approved by the Owner, at no additional cost to the Owner.

3.2 HANDLING

A. Handle steel piling by use of bridles, strong backs, or other rigging, which shall prevent permanent deformations and damage. Store piling on level ground or timber blocking so that axis of each pile is maintained in a straight line.

B. Disposal of existing piles shall be as indicated by the Owner.

3.3 PILE DRIVING

A. General

Submit a detailed pile driving plan and schedule showing the location of each pile to be driven. Include dimensions and field-verified measurements relative to any obstructions. Unless otherwise indicated on the Drawings, remove obstructions before proceeding with pile driving.

The Contractor shall be responsible for determining the pile lengths required and for ordering and furnishing piling of sufficient length to obtain the penetration specified or shown on the Drawings.

Mark all steel piling at 1-foot intervals beginning at the tip and provide callouts of the length at 5-foot intervals.

Install piling in a satisfactory and undamaged manner and make pile inspections prior to installation as necessary to ensure this is done. Immediately report any damaged pile to the Owner.

Drive piles between the hours of 7:00 a.m.to 6:00 p.m., unless otherwise stipulated in the project permits. Perform pile driving in accordance with applicable provisions of local, state, and federal codes along with all environmental permits covering this work. Applicable permits are included with the contract documents.

Drive piles at the designated locations and be prepared to encounter subsurface obstructions.

Inspect all piles after driving. Perform a visual inspection from mudline to top of each pile. Verbally report the pile inspection results to the Owner upon completion of the inspection within 48 hours of completion of pile installation. Furnish a written report to the Owner stating the results of all inspections within 48 hours of completion of all pile driving.

The Owner, at its discretion, may inspect the above-water and underwater portions of piling. Make available the site, or portions thereof, to meet the Owner's inspection schedule, and at no additional cost to the Owner. A report will be prepared by the Owner and made available for review. Any discrepancy between the Owner's and the Contractor's inspection reports shall be resolved by a joint inspection. Inspection by the Owner shall be performed at no cost to the Contractor.

B. Minimum Penetration: Drive each pile until the tip is a minimum of 30 feet below the mudline or to practical refusal, whichever is reached first, unless otherwise shown on the Drawings. Practical refusal is defined as a penetration rate of less than 12 inches per minute or as defined by the hammer manufacturer, whichever rate is greater. Notify the Owner if practical refusal is met prior to achieving 25 feet of embedment. The Owner reserves the option to, based on results of the pile driving, to modify final tip penetration criteria.

C. Location for Driving: Drive piles in the designated locations, remove obstructions as necessary to obtain the required penetration and pile alignment tolerances. Survey as-driven locations of piling and provide a written record of plan location, tip elevation, and top elevation for each pile to the Owner within 48 hours of driving each pile. If not submitted within the specified time frame, the Owner may retain a surveyor to record such information and will deduct the cost of survey work from the contract.

D. Splicing: Limit the variation in edge alignment for abutting steel pipe pile ends to 0.1875 times the wall thickness, with a maximum allowable variation of 0.063 inches.

E. Damaged or Defective Piles: The handling and driving of piles shall not subject them to excessive or undue abuse. Piles exhibiting any of the following characteristics may be rejected by the Owner.

a) Any pile damaged during handling or driving, as indicated by bends, buckling, cracks, or

other damage.

b) Any pile not meeting the driving tolerances listed above.

c) Any pile that does not reach the prescribed tip elevation shown on the Drawings or meet the refusal criteria provided by the Owner.

The Owner may direct that a rejected pile be removed and re-driven in a location determined by the Owner or be removed and replaced with a new pile driven in a location determined by the Owner. Rejected piles, unless directed to be re-driven, shall be removed and disposed of at no additional cost to the Owner. The Owner shall not incur any design and construction costs resulting from rejected piling.

3.4 MEASUREMENT AND PAYMENT

F. Furnishing Pile: Measurement and payment will be on the lineal foot basis to the nearest foot, for "Furnishing Steel Piles ____". Measurement shall be from the tip of the pile to the cut-off location. Payment shall constitute full compensation for the work including splicing.

G. Driving Pile: Measurement and payment will be on the lineal foot basis to the nearest foot, for "Driving Steel Piles ____". Measurement shall be from the tip of the pile to the mudline. Payment shall constitute full compensation for removal and disposal of existing piles.

END OF SECTION 31 62 16

SECTION 321373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Hot-applied joint sealants.
   2. Joint-sealant backer materials.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of joint sealant and accessory.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

B. Product Testing: Test joint sealants using a qualified testing agency.

1.6 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

   1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
   2. When joint substrates are wet.
   3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
   4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.2 HOT-APPLIED JOINT SEALANTS

A. Hot-Applied, Single-Component Joint Sealant: ASTM D6690, Type I, II, or III.

2.3 JOINT-SEALANT BACKER MATERIALS

A. Joint-Sealant Backer Materials: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing.

B. Round Backer Rods for Cold- and Hot-Applied Joint Sealants: ASTM D5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

2.4 PRIMERS

A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Before installing joint sealants, clean out joints immediately to comply with joint-sealant manufacturer's written instructions.

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.

B. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions.

C. Install joint-sealant backings to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of joint-sealant backings.
2. Do not stretch, twist, puncture, or tear joint-sealant backings.
3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install joint sealants immediately following backing installation, using proven techniques that comply with the following:

1. Place joint sealants so they fully contact joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:

1. Remove excess joint sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.

F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

3.4 CLEANING AND PROTECTION

A. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.

B. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

END OF SECTION 321373