

	24VDC - CONT'D		24C Ƴ	
- DRK BLUE		24V DISCRETE INPUT MODULE MODULE 4 1769 - IO16	WI W/ ST	HITE 'BLUE RIPE
·		Ø DI:4/00 INO	ANALY FAULT	ZER 1
	□	—Ø_DI:4/01 IN1	ANALY FAULT	ZER 2
	□	—Ø_DI:4/02 IN2	ANALY FAULT	ZER 3
	R1/S4/4.03	Ø DI:4/03 IN3	ANALY FAULT	ZER 4
	□	—Ø_DI:4/04 IN4	ANALY FAULT	ZER 5
	□	Ø_DI:4/05 IN5	337 Z0 FLOW	ONE TOTALIZED
	□	-Ø_DI:4/06 IN6	400 Z0 2 <u>4</u> C FLOW	ONE TOTALIZED
		DCCOM1 O ODI:4/07 IN7		K
		Ø DI:4/08 IN8	ATS IN POSIIT	I EMERGENCY TON
	□	Ø DI:4/09 IN9	ATS IN POSIT	I UTILITY ION
	□	ØDI:4/10 IN10	ATS U AVAIL	TILITY POWER ABLE
		Ø <u>DI:4/11</u> IN11	ATS F	AULT
Г — — — — — — — — — — — — — — — — — — —		ODI:4/12 IN12	BLOWI DAMPE	ER INTAKE ER OPEN
	□ R1/S4/4.13	Ø DI:4/13 IN13	BLOWI DAMPE	ER INTAKE ER FAULT
 			PH TRI BUILD	EATMENT ING
			INTRU	SION SION
				5
			•	
			24C	
pH TREAT		DING - RTU	J PANEL	SHEET
	I/O SHE	ET 2		1-5
PROJECT NO.: 21-30	28 SCALE:	AS SHOWN DATE:	AUGUST 202	3



CITY OF LACEY, WASHINGTON MADRONA pH TREATMENT PROJECT LACEY CONTRACT **#PW 2022-37**

	24C ─►	24P ॅ◄	24VDC - CONT'D	24C	
RETE DULE E 5 Q16	WHITE W/BLUE STRIPE	D	RK BLUE 120V RELAY OUTPUT MODULE MODULE 6	WHITE W/BLUE STRIPE	
(0]	GENERATOR RUNNING	•	$- \phi VADC/1$		
<u>′1</u>	GENERATOR FAULT		OUT 0 		CR M
/2	400 ZONE PRESSURE RELIEF FLOW		$\begin{array}{c c} OUT 1 \\ \hline \bullet & DO:6/01 \\ O1 \\ OUT 2 \\ \hline \bullet & DO:6/02 \\ \hline \hline \hline \bullet & DO:6/02 \\ \hline $		CR 어 CR CR
<u>′3</u>	PRESSURE RELIEF FLOW		OUT 3 OUT 3 CUT 3 R1/S6/6.03		CR
/4	TREATMENT AREA FIRE/SMOKE ALARM	•	- Ø VADC/2		
<u>′5</u>	BLOWER ROOM FIRE/SMOKE ALARM		OUT 4 	CR 5	CR CR
6	HYPOCHLORITE ROOM FIRE/SMOKE ALARM		OUT 5 		CR of
′7	ELECTRICAL ROOM FIRE/SMOKE ALARM		OUT 6 		ି CR
1_ ○	•		OUT 7 OUT 7 R1/S6/6.07		ି CR କ
/8	SPARE	•			
(9)	SPARE		OUT 8 OUT 8 OUT 8 R1/S6/6.08		CR o-
.0	SPARE		OUT 9 		CR-
.1	SPARE		OUT 10 		CR-
.2	SPARE		O10 OUT 11 OUT 11 OUT 11 OUT 11 OUT 11		ି CR-
.3	SPARE	•	011 ••• VADC/4		·
.4	SPARE		OUT 12 OUT 12 OUT 12 R1/S6/6.12		CR-
.5	SPARE		OUT 13 OUT 13 PO- DO:6/13 O R1/S6/6.13		CR-
2 0	•		$\begin{array}{c c} & 013 \\ \hline \\ OUT 14 \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \\ \\ \hline \\ \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \hline \\ \hline \\ \hline \\ \hline $		ି CR- କ
			OUT 15 OUT 15 COLT R1/S6/6.15 O15	CR 16	ି CR ଜ୍
	 24C	 24P		 24C	

	CR9A	CR9A	1
CR-9	CR9B	CR9B	↓ BLOWER 3 ↓ VFD FAULT RESET
0 0	CR10A	CR10A	٢
CR-10	CR10B	CR10B	↓ BOOSTER PUMP P4 ↓ VFD RUN CALL
	CR11A	CR11A	
CR-11	CR11B	CR11B	∫ VFD FAULT RESET
0 0	CR12A	CR12A	٢
CR-12	CR12B	CR12B	↓ BOOSTER PUMP P5 ↓ VFD RUN CALL
	CR13A	CR13A)
CR-13	CR13B	CR13B	↓BOOSTER PUMP P5 ∫ VFD FAULT RESET
- -	CR14A	CR14A	٢
CR-14	CR14B	CR14B	↓BOOSTER PUMP P6 ↓VFD RUN CALL
	CR15A	CR15A)
CR-15	CR15B	CR15B	↓BOOSTER PUMP P6 ↓VFD FAULT RESET
	CR16A	CR16A	٢
CR-16 	CR16B	CR16B	BLOWER INTAKE

	CR5A	CR5A)
	CR5B	CR5B	$\begin{array}{c} & \\ \\ \\ \\ \\ \\ \end{array} \end{array} \int \text{VFD FAULT RESET}$
- -	CR6A	CRGA	
CR-6	CR6B	CR6B	── ↓ BLOWER 2 ↓ VFD RUN CALL
	CR7A	CR7A	
	CR7B	CR7B	$\begin{array}{c} \neg \\ \downarrow \text{ BLOWER 2} \\ \neg \\ \downarrow \\ \downarrow \text{ VFD FAULT RESET} \end{array}$
	CR8A	CR8A	
CR-8	CR8B	CR8B	$\stackrel{\frown}{}_{\rightarrow}$ blower 3 $\stackrel{\frown}{}_{\rightarrow}$ VFD RUN CALL

	CR1A	CR1A	
	CR1B	CR1B	$\int CHLORINE SKID 1$
- 11 -	CR2A	CR2A	
	CR2B	CR2B	CHLORINE SKID 2
	CR3A	CR3A	· • •
	CR3B	CR3B	$\int CHLORINE SKID 3$
- 11 -	CR4A	CR4A	
CR-4 어누~	CR4B	CR4B	↓BLOWER 1 ↓VFD RUN CALL

SCHEDULE A SHEET

pH TREATMENT BUILDING - RTU PANEL I/O SHEET 3

I-6



ΥĽ	ROJEC	51#.21.07.01					
01 0					NOTICE	TBC	ES E. MITC
01					0 ½ 1	DESIGNED	
21						JSC	Magan Shepite
ts/					IF THIS BAD DOES	DRAWN	
jec –					NOT MEASURE 1"	TBC	#25495
o' –					THEN DRAWING IS NOT TO SCALE	CHECKED	GISTERED
<u>.</u>	٥.	DATE	BY	REVISION			ONAL -

		4 PT. ANALOG OUTPUT MODULE MODULE 8 1769 - OF4 +24VDC O DC NEUT O	W W, ST DC42 DC42 AE 24C
VFD SPEED	BLOWER 2 VFD SPEED CONTROL	V OUT 0+ 0 AO-8.0 I OUT 0+ 0- ANLG COM 0-	R1/S8/AO.00+ R1/S8/AO.00-
VFD SPEED	BLOWER 3 VFD SPEED CONTROL	V OUT 1+ ♥ AO-8.1 I OUT 1+ ♥ ANLG COM ♥	R1/S8/AO.01+ R1/S8/AO.01-
SPEED	BOOSTER PUMP P4 SPEED CONTROL	V OUT 2+ AO-8.2 I OUT 2+ ANLG COM	R1/S8/A0.02+ R1/S8/A0.02-
PANEL VFD SPEED	BOOSTER PUMP P5 SPEED CONTROL	V OUT 3+ AO-8.3 I OUT 3+ ANLG COM ●-	R1/S8/AO.03+ R1/S8/AO.03-















pH TREATMENT BUILDING - RTU PANEL I/O SHEET 4

SCHEDULE A







JE	4 PT. ANALOG INPUT MODULE EXPANSION MODULE 1 1769 - IF4	
U44 DC44 C-2 24C	Ø +24VDC Ø DC NEUT	
1A/S1/AI.00+ 24C	 ⊘ V:IN 0+ → I:IN 0+ AI-1.00+ → V/I:IN 0- AI-1.00- ⊘ ANLG COM 	NaCIO DAY TANK LEVEL
1A/S1/AI.01+ 1A/S1/AI.01-	Ø V:IN 1+ −Ø I:IN 1+ AI-1.01+ −Ø V/I:IN 1- AI-1.01- Ø ANLG COM	CHLORINE SKID 1 DOSING RATE (FLOW)
1A/S1/AI.02+ 1A/S1/AI.02-	Ø V:IN 2+ —Ø I:IN 2+ AI-1.02+ —Ø V/I:IN 2- AI-1.02- Ø ANLG COM	CHLORINE SKID 2 DOSING RATE (FLOW)
1A/S1/AI.03+ 1A/S1/AI.03-	 ⊘ V:IN 3+ → I:IN 3+ AI-1.03+ → V/I:IN 3- AI-1.03- ⊘ ANLG COM 	CHLORINE SKID 3 DOSING RATE (FLOW)

OH TREATMENT BUILDING - RTU PANEL	I
I/O SHEET 5	

SCHEDULE A SHEET



				24V 24
	4 PT. ANALOG INPUT MODULE EXPANSION MODULE 2			WHITE W/BLUE STRIPES
	1769 - IF4			
46	-0 +24VDC			
С	O DC NEUT			•
00+	Ø V:IN 0+		AI-FU05+	۹I-FU05+ ۲۰∕۰۰۰≸۰ ₀
00-	\bigcirc I:IN 0+ AI-2.00+	BLOWER 1 VFD SPEED FEEDBACK (0-60HZ.)	$VFD \qquad \qquad$	JH[1/2A]H ABC-1/2
	Ø ANLG COM			
			-	-
	Ø V:IN 1+			DC-FU51
01+	Ø <u>I:IN 1+</u> AI-2.01+	BLOWER 1 FILTER	PRESSURE - $1 \downarrow \chi \chi$ PDIT-B2A $\square \downarrow \downarrow \chi \chi$ R1A/S3/AI.01+ $\downarrow \downarrow$	ABC-1/2
С	─Ø V/I:IN 1- AI-2.01-	DIFFERENTIAL PRESSURE		
	Ø ANLG COM		ן- ∟ ,]]
				DC-FU52
	Ø V:IN 2+		AERATION $+$ UNIT 2 DIFF \square $+$ $ +$ $ \square$ \square \square \square \square \square \square \square \square \square	ABC-1/2
02+	Ø [1:IN 2+] AI-2.02+	AERATION UNIT 1 DIFFERENTIAL	$\begin{array}{c c} PDIT-B2B & \boxtimes & \neg \\ \hline & & & - \\ \hline & & & - \\ \hline \end{array}$	
	Ø V/I:IN 2- AI-2.02-	PRESSURE	 [└──_[
	Ø ANLG COM			Ē
			$AERATION \pm 0 DC53 (1 - 1)$	DC-FU53
03+	$\bigcirc V:IN 3+$		UNIT 2 LEVEL \bowtie \downarrow \land	_H <u>I1/2A</u> HL ABC-1/2 ¬^
С	-⊘ V/I:IN 3- AI-2.03-	AERATION UNIT 1 LEVEL		
	Ø ANLG COM]] _]]]]
				24

SCHEDULE A



C

	4 PT. ANALOG INPUT MODULE EXPANSION MODULE 4 1769 - IF4					WHITE W/BLUE STRIPES
54 C	──Ø +24VDC──Ø DC NEUT					
00+ 00-	 ⊘ V:IN 0+ → I:IN 0+ AI-4.00+ → V/I:IN 0- AI-4.00- ⊘ ANLG COM 	BLOWER 3 VFD SPEED FEEDBACK (0-60HZ.)	BOOSTER PUMP P4 VFD PANEL VFD AI-FU08+ FEEDBACK R1A/S5/AI.00-] + ^ / /	AI-FU07+ 1 1 21A/S5/AI.00- 1 1 1 1 1 1 1 1 1 1 1 1 1	AI-FU07+
01+ C	 ⊘ V:IN 1+ → I:IN 1+ AI-4.01+ → V/I:IN 1- AI-4.01- ⊘ ANLG COM 	BLOWER 3 FILTER DIFFERENTIAL PRESSURE	AERATION UNIT 1 ANALYZER AIT-1 + CL2 RESIDUAL -	$ \begin{bmatrix} -f_{1} & & & \\ f_{1} & & & \\ & f_{1} & & \\ & & & \\ + & & & \\ + & & & \\ & & & \\ \end{bmatrix} $	AI-FU08+ 1 21A/S5/AI.01- 1 1 1 1 1 1 1 1 1 1 1 1 1	AI-FU08+
02+ C	 ⊘ V:IN 2+ ⊘ I:IN 2+ AI-4.02+ ⊘ V/I:IN 2- AI-4.02- ⊘ ANLG COM 	AERATION UNIT 3 DIFFERENTIAL PRESSURE	 PH LEVEL □ □ □ □	$ \\ + -f + - \wedge - H \\ + - + - + - + - H \\ + - + - + - + - + H \\ + - + - + - + - + - + H \\ + - + - + - + - + - + - + - + H \\ + - + - + - + - + - + - + - + - + - +$	AI-FU09+4 1 1 21A/S5/AI.02- 1 1 1 1 1 1 1 1 1 1 1 1 1	AI-FU09+
03+ C	 ⊘ V:IN 3+ → I:IN 3+ AI-4.03+ → V/I:IN 3- AI-4.03- ⊘ ANLG COM 	AERATION UNIT 3 LEVEL	PWR MASS AIR FLOWMETER (MAF1) OUT UUT	$\begin{bmatrix} -f_{1} & f_{2} \\ f_{1} & f_{2} \\ f_{1} & f_{3} \\ f_{1} & f_{3} \\ f_{3} & f_{3} \\ f_{3} & f_{3} \end{bmatrix} \xrightarrow{f_{1}} \xrightarrow{f_{2}} \xrightarrow{f_{3}} \xrightarrow$	DC59 24C AI-FU10+ (4 R1A/S5/AI.03- 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	DC-FU59 <u>1/2A</u> ABC-1/2 AI-FU10+ <u>ABC-1/2</u> ABC-1/2 <u>-</u> <u>-</u> <u>-</u> <u>-</u>
						2

SCHEDULE A



SCHEDULE A



SCHEDULE A SHEET

I-12





Industrial

Systems INC

C PROJ	: is@industrialsystem CB #196597 WA 018436 ECT#:21.07.01	is-inc.com #INDUSSI8	880K9			
	DATE	BY	REVISION	NOTICE	TBC DESIGNED JLB DRAWN TBC CHECKED	Deversioned by a construction of the second





CITY OF LACEY, WASHINGTON MADRONA pH TREATMENT PROJECT LACEY CONTRACT #PW 2022-37

24C

 $^{24C}_{\gamma}$

- WHITE W/BLUE

STRIPE

		DRI	< BLUE		
4 PT. ANALOG INPUT MODULE	ć	2	120V RELAY		
XPANSION 2 MODULE 1		-	OUTPUT MODULE	ר	
1769 - IF4			1769 - OW16	<u>_</u>	
0 + 24 VDC				D1B/S2/2 00	
Ø DC NEUT				KID/32/2.00	
				R1B/S2/2.01	CR0
			01		
Ø V:IN 0+				R1B/S2/2.02	
			│		
	SPARE				
Ø V/I:IN 0-AI-10.00-			DO:2/03	R1B/S2/2.03	
			03		
Ø ANLG COM	•		Ø VADC/2		
				R1B/S2/2.04	CR
					421
O[V:IN 1+]			OUT 5		
Ø I:IN 1+ AI-10.01+					
	SPARE				
Ø V/I:IN 1-AI-10.01-					
			06		
			OUT 7		
			│└╍┤┝╍ <u>┤</u> DO:2/07│◎ 07		
Ø V:IN 2+			VADC/3		
Ø I:IN 2+ AI-10.02+					
Ø V/I·IN 2-AI-10 02-	SPARE				
Ø ANLG COM			09		
			OUT 10		
			⊢⊶ ⊢⊶ <u>D0:2/10</u>]⊗ 		
			OUT 11		
Ø V:IN 3+					
	SPARE	•	Ø VADC/4		
Ø V/I:IN 3-AI-10.03-					
			\rightarrow D0:2/12		
O ANLG COM			012		
			OUT 14		
			015		

24P

24P

24VDC - CONT'D

	CR17A	CR17A	
CR-17	CR17B	$ \begin{array}{c}$	HVAC HP-1 POWER SHUTOFF CONTACTOR
	CR18A	CR18A	HVAC HP-2 POWER
CR-18	CR18B	CR18B	SHUTOFF CONTACTOR
0110	CR19A	CR19A)
CR-19	CR19B	CR19B	SPARE
° °	CR20A	CR20A	
CR-20	CR20B	CR20B	SPARE
° °			
CP_21	CR21A	-	SPARE
	CR21B	CR21B ───────── ~ ~	Ĵ
			SPARE
			SPARE
			SPARE
			SPARE
			SPARE
			SPARE
			SPARE
			SPARE
			SPARE
			SPARE
			SPARE

pH TREATMENT BUILDING - RTU PANEL I/O SHEET 10

SCHEDULE A SHEET

I-13

	1 QTY DESCRIPTION	MANUFACTURER	CATALOG NUMBER	EQUALS ALLOWED	ITEM		Y DESCRIPTION	MANUFACTURER	CATALOG NUMBER	EQUALS ALLOWED	ŀ	1
1	1 NEMA 4 ENCLOSURE, 30"x30"x12"	HOFFMAN	CSD303012	YES	16	1	END CAP TERMINATOR, RIGHT	ALLEN-BRADLEY	1769-ECR	NO	T	CITY O
2	1 BACK PANEL	HOFFMAN	CP-3030	YES	17	1	24VDC POWER SUPPLY, 4AMP	SOLA	SDP4-24-100LT	NO	2½"	
3	1 OPERATOR INTERFACE TERMINAL W/TOUCHSCREEN, 10.1", 24VDC	MAPLE SYSTEMS	CMT2108X2	NO	18	1	5 PORT INDUSTRIAL UNMANAGED ETHERNET SWITCH	N-TRON	105TX-SL	NO	_/2	8824 MIL
4	1 3 POS. SELECTOR SWITCH, 30MM, HEAVY DUTY, W/INGRESS OPERATOR & 2 NO CONTACTS	EATON	E34VHBA1-2 W/F34A1 OPERATOR	NO	19	2	10A, 1-POLE MINIATURE CIRCUIT BREAKER, CLASS C TRIP	EATON	FAZ-C10/1-NA	NO	T (
5	1 BILLE LED PUSH/TEST IND. 30MM. 120V W/XEMR	FATON	F34TPB12011P06	NO	20	7	120V CONTROL RELAY, DPDT WITH INDICATOR	IDEC	RH2B-UL-AC120	NÖ		
6		EATON		NO	21	7	CONTROL RELAY BASE	IDEC	SH2B-05	NO	<u>3</u> " TE	VT
-			ES4TFB120LAF00	NO	22	13	AC FUSE HOLDER TERMINAL W/NEON BLOWN FUSE INDICATOR	SPRECHER SCHUH	V7-H4	NO	16	
/	1 RED LED PUSH/TEST IND., 30MM, 120V W/XFMR & 1NO&1NC CONTACTS	EATON	E34TPB120LRP06-1	NO	23	13	AC FUSES, SIZES AND TYPE AS SHOWN	BUSSMAN	GDL TYPE	NO		
8	1 REMOTE I/O ADAPTER MODULE	ALLEN-BRADLEY	1769-AENTR	NO	7.4	10				NO		
9	1 PLC POWER SUPPLY, 2AMP	ALLEN-BRADLEY	1769-PA2	NO	24	10	DC FUSE HOLDER TERMINAL WYLED BLOWN FUSE INDICATOR			NO		OFF HAND AUTO
10	1 8 PT RELAY OUTPUT MODULE	ALLEN-BRADLEY	1769-OW8	NO	25	18	DC FUSES, SIZES AND TYPE AS SHOWN	BUSSMAN	ABC TYPE	NO		21/4"
11	1 16 PT 120V INPUT MODULE	ALLEN-BRADLEY	1769-IA16	NO	26	AR	FEED-THRU & GROUNDING TERMINAL BLOCK, END PLATES & END STOPS	SPRECHER SCHUH	V7-W4 SERIES	NO		
12	1 16 PT DC INPUT MODULE	ALLEN-BRADLEY	1769-IQ16	NO	27	AR	STEEL DIN-RAIL	ENTRELEC	PR30	YES		⊢_2"—
13	1 4 CH. ANALOG INPUT MODULE	ALLEN-BRADLEY	1769-IF4	NO								. 2
14	1 2 CH. ANALOG OUTPUT MODULE	ALLEN-BRADLEY	1769-OF2	NO			Vinyl Labels			-		
15	1 END CAP TERMINATOR, LEFT	ALLEN-BRADLEY	1769-ECL	NO	Whit	te ba	ckground with 18 point black font, text to include: (X replace with cour	nt identifier as shown)	{Mount on back panel}			
L		1	1		<1>	CE	B-X <2> CR-X <3> PS-1 <4> AC-FUX TYPE SIZE <5> DC- TYPE	FUX SIZE <6> AIX-FUX TYPE SIZE <	7> AOX-FUX TYPE SIZE <8> NOT U	SED		

Suite #2090

NO |







GENERAL NOTES

THE TABLE BELOW.

1. PROVIDE AND INSTALL VINYL LABELS ON BACK

PANEL FOR ALL FUSING, RELAYS, CIRCUIT

BREAKERS AND POWER SUPPLIES AS SHOWN IN

BLACK PLATES WITH ROUNDED CORNERS AND WHITE LETTERS

SCHEDULE A SHEET

I-14



SCHEDULE A SHEET

I-15



CONTROL SYSTEM SOURCE #21 - I/O PANEL I/O SHEET 1

SCHEDULE A

I-16

DDOJECT	
PROJECT	NO.

21-3028 SCALE:

AS SHOWN DATE:

AUGUST 2023

.





24VDC CO FROM I-	NT'D 17	
24C 2	24P	
E UE PES	DRK BLUE	4 PT. ANALOG INPUT MODULE EXPANSION MODULE 4 1769 - IF4

DC-FU9	
ABC-2	0 124000
24C	
	DC NEUT

24C			
R2/S4/AI.00+ R2/S4/AI.00-	 ⊘ V:IN 0+ → I:IN 0+ AI-4.00+ → V/I:IN 0- AI-4.00- ⊘ ANLG COM 	WELL FLOW WELL PUMP VFD (0-2500 GPM) SPEED COMMAND	$V \text{ OUT } 0 + \emptyset$ $AO-5.0 I \text{ OUT } 0 + \emptyset F$ $ANLG \text{ COM } \emptyset F$
		SPARE	
R2/S4/AI.01+	\emptyset V:IN 1+ \emptyset I:IN 1+ AI-4.01+	WELL	$\begin{array}{c c} V & OUT & 1+ \\ \hline \\ AO-5.1 & \hline I & OUT & 1+ \\ \hline \end{array} \\ \end{array} $
R2/S4/AI.01-	-Ø V/I:IN 1- AI-4.01-	RAW WATER PH (-1.0 - 15.0)	ANLG COM O
	Ø ANLG COM		
R2/S4/AI.02+ 24C	-⊘ I:IN 2+ AI-4.02+ ⊘ V/I:IN 2- AI-4.02-	WELL LEVEL (0-346 FT.) (0-150PSI)	
	Ø ANLG COM		
R2/S4/AI.03+ R2/S4/AI.03-	⊘ <u>I:IN 3+</u> AI-4.03+ ⊘ <u>V/I:IN 3-</u> AI-4.03-	WELL PUMP VFD SPEED FEEDBACK (0-60 HZ.)	

Shaping our community CITY OF LACEY, WASHINGTON MADRONA pH TREATMENT PROJECT LACEY CONTRACT #PW 2022-37

2 PT. ANALOG

OUTPUT MODULE

EXPANSION MODULE 5

1769 - OF2



	C	ONTRO	DL SYSTE	Μ		SCHEDULE A SHEET
	SOUR	CE #2	1 - I/O F	PANEL		I-18
		I/O S	SHEET 3			
PROJECT NO.:	21-3028	SCALE:	AS SHOWN	DATE:	AUGUST 2023	

#	TEM	QTY DESCRIPTION	MANUFACTURER	CATALOG NUMBER	EQUALS ALLOWED	ITEM	ι οτ	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	EQUALS ALLOWED		:
	1	1 NEMA 4 ENCLOSURE, 30"x30"x12"	HOFFMAN	CSD303012	YES	16	1	END CAP TERMINATOR, RIGHT	ALLEN-BRADLEY	1769-ECR	NO		
	2	1 BACK PANEL	HOFFMAN	CP-3030	YES	17	1	24VDC POWER SUPPLY, 4AMP	SOLA	SDP4-24-100LT	NO	2½"	
	3	1 OPERATOR INTERFACE TERMINAL W/TOUCHSCREEN, 10.1", 24VDC	MAPLE SYSTEMS	CMT2108X2	NO	18	1	5 PORT INDUSTRIAL UNMANAGED ETHERNET SWITCH	N-TRON	105TX-SL	NO		8824 MII
	4	1 3 POS. SELECTOR SWITCH, 30MM, HEAVY DUTY, W/INGRESS OPERATOR 8, 2 NO CONTACTS	EATON	E34VHBA1-2 W/E34A1 OPERATOR	NO	19	2	10A, 1-POLE MINIATURE CIRCUIT BREAKER, CLASS C TRIP	EATON	FAZ-C10/1-NA	NO		
-	5	1 BULE LED PUSH/TEST IND 30MM 120V/W/XEMR	ΕΛΤΟΝ	E34T9812011006	 NO	20	7	120V CONTROL RELAY, DPDT WITH INDICATOR	IDEC	RH2B-UL-AC120	NO		
-			EATON	E34TPB120LLF00		21	7	CONTROL RELAY BASE	IDEC	SH2B-05	NO	3 " -	
-	•	AMBER LED PUSH/TEST IND., 30MM, 120V W/XFMR	EATON	E3419B120LAP06	NO	22	13	3 AC FUSE HOLDER TERMINAL W/NEON BLOWN FUSE INDICATOR	SPRECHER SCHUH	V7-H4	NO	16	
_	7	1 RED LED PUSH/TEST IND., 30MM, 120V W/XFMR & 1NO&1NC CONTACTS	EATON	E34TPB120LRP06-1	NO	23	1:	AC FLISES SIZES AND TYPE AS SHOWN	BUSSMAN	GDI TYPE	NO		
	8	1 REMOTE I/O ADAPTER MODULE	ALLEN-BRADLEY	1769-AENTR	NO					N2 UF	NO		
	9	1 PLC POWER SUPPLY, 2AMP	ALLEN-BRADLEY	1769-PA2	NO	24	18	B DC FUSE HOLDER TERMINAL W/LED BLOWN FUSE INDICATOR	SPRECHER SCHUH	V7-H5	NU		OFF HAND AUTO
	10	1 8 PT RELAY OUTPUT MODULE	ALLEN-BRADLEY	1769-OW8	NO	25	18	8 DC FUSES, SIZES AND TYPE AS SHOWN	BUSSMAN	ABC TYPE	NO		21/4"
	11	1 16 PT 120V INPUT MODULE	ALLEN-BRADLEY	1769-IA16	NO	26	A	R FEED-THRU & GROUNDING TERMINAL BLOCK, END PLATES & END STOPS	SPRECHER SCHUH	V7-W4 SERIES	NO		
-	12	1 16 PT DC INPUT MODULE	ALLEN-BRADLEY	1769-IQ16	NO	27	A	R STEEL DIN-RAIL	ENTRELEC	PR30	YES		⊥ <u> </u>
	13	1 4 CH. ANALOG INPUT MODULE	ALLEN-BRADLEY	1769-IF4	NO	8							-
	14	1 2 CH. ANALOG OUTPUT MODULE	ALLEN-BRADLEY	1769-OF2	NO			Vinyl Labels					
	15	1 END CAP TERMINATOR, LEFT	ALLEN-BRADLEY	1769-ECL	NO	Whit	te ba	ackground with 18 point black font, text to include: (X replace with cou	nt identifier as shown)	{Mount on back panel}			
			1			<1>	6	CB-X < CR-X <3> PS-1 <4> AC-FUX TYPE SIZE <5> DC TYPE	-FUX E SIZE <6> AIX-FUX TYPE SIZE	<7> AOX-FUX TYPE SIZE <8> NOT U	JSED		

TYPE SIZE

Suite #2090

NO |







GENERAL NOTES

THE TABLE BELOW.

1. PROVIDE AND INSTALL VINYL LABELS ON BACK

BREAKERS AND POWER SUPPLIES AS SHOWN IN

PANEL FOR ALL FUSING, RELAYS, CIRCUIT

BLACK PLATES WITH ROUNDED CORNERS AND WHITE LETTERS

SCHEDULE A SHEET

I-19



SCHEDULE A SHEET

I-20



CONTROL SYSTEM SOURCE #22 - I/O PANEL I/O SHEET 1

SCHEDULE A

I-21

PROJECT NO .:

21-3028 SCALE:

AS SHOWN DATE:

TE: AUGUS





24VDC(FROM	CONT'D I-22		
24C	24P		
E UE PES	DRK BLUE	4 PT. ANALOG INPUT MODULE EXPANSION MODULE 4	

DRK BLUE	4 PT. ANALOG INPUT MODULE EXPANSION MODULE 4 1769 - IF4		2 PT. ANALOG OUTPUT MODULE EXPANSION MODULE 5 1769 - OF2
DC-FU9 DC9 ABC-2 24C	Ø +24VDC Ø DC NEUT		+24VDC O DC NEUT O
R3/S4/AI.00+	 ⊘ V:IN 0+ ⊘ I:IN 0+ AI-4.00+ ⊘ V/I:IN 0- AI-4.00- ⊘ ANLG COM 	WELL FLOW WELL PUMP VFD (0-2500 GPM) SPEED COMMAND	VOUT 0+ 0 AO-5.0 IOUT 0+ 0 ANLG COM 0
R3/S4/AI.01+ R3/S4/AI.01-	 ⊘ V:IN 1+ → I:IN 1+ AI-4.01+ → V/I:IN 1- AI-4.01- ⊘ ANLG COM 	SPARE SPARE WELL RAW WATER PH (-1.0 - 15.0)	VOUT 1+ O AO-5.1 IOUT 1+ O ANLG COM O
R3/S4/AI.02+	Ø <u>V:IN 2+</u> Ø <u>I:IN 2+</u> AI-4.02+ Ø <u>V/I:IN 2-</u> AI-4.02- Ø <u>ANLG COM</u>	WELL LEVEL (0-346 FT.) (0-150PSI)	

CITY OF LACEY, WASHINGTON MADRONA pH TREATMENT PROJECT LACEY CONTRACT #PW 2022-37



	C	ONTRO	DL SYSTE	M		SCHEDULE A SHEET
	SOUR	CE #2 I/O S	2 - I/O F SHEET 3	PANEL		I-23
PROJECT NO.:	21-3028	SCALE:	AS SHOWN	DATE:	AUGUST 2023	

#	EM Q	QTY	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	EQUALS ALLOWED		Y DESCRIPTION	MANUFACTURER	CATALOG NUMBER	EQUALS ALLOWED	ŀ	
	1	1	IEMA 4 ENCLOSURE, 30"x30"x12"	HOFFMAN	CSD303012	YES	16 1	END CAP TERMINATOR, RIGHT	ALLEN-BRADLEY	1769-ECR	NO		CITY (
	2	1 1	ACK PANEL	HOFFMAN	CP-3030	YES	17 1	24VDC POWER SUPPLY, 4AMP	SOLA	SDP4-24-100LT	NO	2½"	
	3	1 (DPERATOR INTERFACE TERMINAL W/TOUCHSCREEN, 10.1", 24VDC	MAPLE SYSTEMS	CMT2108X2	NO	18 1	5 PORT INDUSTRIAL UNMANAGED ETHERNET SWITCH	N-TRON	105TX-SL	NO	_/2	8824 MI
-	4	1	POS. SELECTOR SWITCH, 30MM, HEAVY DUTY, W/INGRESS OPERATOR	EATON	E34VHBA1-2	NO	19 2	10A, 1-POLE MINIATURE CIRCUIT BREAKER, CLASS C TRIP	EATON	FAZ-C10/1-NA	NO	T (
+	-			EATON(W/E34A1 OPERATOR		20 7	120V CONTROL RELAY, DPDT WITH INDICATOR	IDEC	RH2B-UL-AC120	NO		
-	2	1 1	LUE LED POSH/TEST IND., 30MM, 120V W/XFMR	EATUN	E34TPB120LLP06	NU	21 7	CONTROL RELAY BASE	IDEC	SH28-05	NO	3	V T
-	6	1 /	MBER LED PUSH/TEST IND., 30MM, 120V W/XFMR	EATON	E34TPB120LAP06	NO	22 13	AC FUSE HOLDER TERMINAL W/NEON BLOWN FUSE INDICATOR	SPRECHER SCHUH	V7-H4	NO	$\frac{3}{16}$ " IE	
	7	1	ED LED PUSH/TEST IND., 30MM, 120V W/XFMR & 1NO&1NC CONTACTS	EATON	E34TPB120LRP06-1	NO	23 13		BUSSMAN	GDI TYPE	NO		
	8	1	EMOTE I/O ADAPTER MODULE	ALLEN-BRADLEY	1769-AENTR	NO	24 10			VZUE	NO		
	9	1	LC POWER SUPPLY, 2AMP	ALLEN-BRADLEY	1769-PA2	NO	24 10	BC FUSE HOLDER TERMINAL W/LED BLOWN FUSE INDICATOR	SPRECHER SCHUN	V7-H5	NO		OFF HAND AUTO
	10	1 8	PT RELAY OUTPUT MODULE	ALLEN-BRADLEY	1769-OW8	NO	25 18	B DC FUSES, SIZES AND TYPE AS SHOWN	BUSSMAN	ABC TYPE	NO		21/4"
	11	1 :		ALLEN-BRADLEY	1769-IA16	NO	26 AF	R FEED-THRU & GROUNDING TERMINAL BLOCK, END PLATES & END STOPS	SPRECHER SCHUH	V7-W4 SERIES	NO		
	12	1 :	6 PT DC INPUT MODULE	ALLEN-BRADLEY	1769-IQ16	NO	27 AF	R STEEL DIN-RAIL	ENTRELEC	PR30	YES		⊥
	13	1 4	CH. ANALOG INPUT MODULE	ALLEN-BRADLEY	1769-IF4	NO					72		· 2
	14	1	CH. ANALOG OUTPUT MODULE	ALLEN-BRADLEY	1769-OF2	NO		Vinyl Labels			-		
	15	1	ND CAP TERMINATOR, LEFT	ALLEN-BRADLEY	1769-ECL	NO	White ba	ackground with 18 point black font, text to include: (X replace with cou	nt identifier as shown)	{Mount on back panel}			
L_	I			1	1		<1> C	B-X <pre><2> CR-X </pre> <pre><3> PS-1 </pre> <pre><4> AC-FUX TYPE SIZE</pre> <pre><5> DC TYPE</pre>	-FUX SIZE <6> AIX-FUX TYPE SIZE	<7> AOX-FUX TYPE SIZE <8> NOT U	JSED		



12119 NE 99th Street

Suite #2090





GENERAL NOTES

THE TABLE BELOW.

1. PROVIDE AND INSTALL VINYL LABELS ON BACK

BREAKERS AND POWER SUPPLIES AS SHOWN IN

PANEL FOR ALL FUSING, RELAYS, CIRCUIT

BLACK PLATES WITH ROUNDED CORNERS AND WHITE LETTERS

SCHEDULE A SHEET

I-24



SCHEDULE A SHEET

I-25



CONTROL SYSTEM SOURCE #28 - I/O PANEL I/O SHEET 1

SCHEDULE A

I-26

PROJECT NO .:

21-3028 SCALE:

AS SHOWN DATE:

AUGUST 2023

IST 2023





24VDC FROM	CONT'D I I-27		
24C	24P		
		4 PT. ANALOG	

∕−DRK E	BLUE	4 PT. ANALOG INPUT MODULE EXPANSION MODULE 4			OUTPUT MODULE EXPANSION MODULE 5	
D 	C-FU9 	1769 - IF4 			1769 - OF2 +24VDC ○ DC NEUT ○	D 2
	R4/S4/AI.00+ R4/S4/AI.00-	 ⊘ V:IN 0+ ⊘ I:IN 0+ AI-4.00+ ─ ○ V/I:IN 0- AI-4.00- ⊘ ANLG COM 	WELL FLOW (0-2500 GPM)	WELL PUMP VFD SPEED COMMAND	V OUT 0+ ♥ AO-5.0 I OUT 0+ ♥ ANLG COM ♥	R
			SPARE			
	R4/S4/AI.01+ R4/S4/AI.01-	 ⊘ V:IN 1+ ⊘ I:IN 1+ AI-4.01+ ○ V/I:IN 1- AI-4.01- ⊘ ANLG COM 	WELL RAW WATER PH (-1.0 - 15.0)	SPARE	AO-5.1 IOUT 1+ O ANLG COM O	R
	R4/S4/AI.02+ 24C	 ⊘ V:IN 2+ ⊘ I:IN 2+ AI-4.02+ ⊘ V/I:IN 2- AI-4.02- ⊘ ANLG COM 	WELL LEVEL (0-346 FT.) (0-150PSI)			
	R4/S4/AI.03+ R4/S4/AI.03-	 Ø V:IN 3+ Ø I:IN 3+ AI-4.03+ Ø V/I:IN 3- AI-4.03- Ø ANLG COM 	WELL PUMP VFD SPEED FEEDBACK (0-60 HZ.)			

CONTROL SYSTEM	SCHEDULE A
SOURCE #28 - I/O PANEL	I-28







GENERAL NOTES

1. PROVIDE AND INSTALL VINYL LABELS ON BACK PANEL FOR ALL FUSING, RELAYS, CIRCUIT BREAKERS AND POWER SUPPLIES AS SHOWN IN THE TABLE BELOW.

DESCRIPTION	MANUFACTURER	CATALOG NUMBER	EQUALS ALLOWED
)SURE,40"x24"x12"	SAGINAW	SCE-40EL2412LP	YES
	SAGINAW	SCE-40P24	YES
DAPTER MODULE	ALLEN-BRADLEY	1769-AENTR	NO
PPLY, 2AMP	ALLEN-BRADLEY	1769-PA2	NO
TPUT MODULE	ALLEN-BRADLEY	1769-OW8	NO
TMODULE	ALLEN-BRADLEY	1769-IQ16	NO
INPUT MODULE	ALLEN-BRADLEY	1769-IF4	NO
linator, left	ALLEN-BRADLEY	1769-ECL	NO
INATOR, RIGHT	ALLEN-BRADLEY	1769-ECR	NO
SUPPLY, 4AMP	SOLA	SDP4-24-100LT	NO
INIATURE CIRCUIT BREAKER, CLASS C TRIP	EATON	FAZ-C10/1-NA	NO
RELAY, DPDT WITH INDICATOR	IDEC	RH2B-UL-AC120	NO
AY BASE	IDEC	SH2B-05	NO
ER TERMINAL W/NEON BLOWN FUSE INDICATOR	SPRECHER SCHUH	V7-H4	NO
S AND TYPE AS SHOWN	BUSSMAN	GDL TYPE	NO
ER TERMINAL W/LED BLOWN FUSE INDICATOR	SPRECHER SCHUH	V7-H5	NO
S AND TYPE AS SHOWN	BUSSMAN	ABC TYPE	NO
GROUNDING TERMINAL BLOCK, END PLATES & END STOPS	SPRECHER SCHUH	V7-W4 SERIES	NO
	ENTRELEC	PR30	YES
PTACLE - DIN-RAIL MOUNT	PHOENIX CONTACT	0804155	NO
SAFE RELAY - 2 CHANNEL - DIP SWITCH CONFIGURABLE	TURCK	IM1-22EX-R	NO
	EATON OR APC	5SC1500 / SMT1500	NO

		Vinyl	Labels					
8 point black font, text to include: (X replace with count identifier as shown) {Mount on back panel}								
CR-X	<3> PS-1	<4> AC-FUX TYPE SIZE	<5> DC-FUX TYPE SIZE	<6> AI-FUX TYPE SIZE	<7> NOT USED	<8> [ISF		

CONTROL SYSTEM
CHLORINE BUILDING - I/O PANEL
GENERAL ARRANGEMENT

SCHEDULE A SHEET

I-29





SHEET **CHLORINE BUILDING - I/O PANEL** AND ETHERNET CONNECTIONS

SCHEDULE A

I-30





4 ∞ 202

ALOG DULE ODULE 3 IF4				
AI-3.00+ AI-3.00-	CL2 TANK 1 LEVEL (FT)			
AI-3.01+ AI-3.01-	(FUTURE) CL2 TANK 2 LEVEL (FT)			
AI-3.02+ AI-3.02-	SPARE			
AI-3.03+ AI-3.03-	SPARE			

CONTROL SYSTEM CHLORINE BUILDING - I/O PANEL I/O SHEET 2

SCHEDULE A SHEET

I-32

PROJECT NO .:

21-3028 SCALE:

AS SHOWN DATE:





GENERAL NOTES

1. PROVIDE AND INSTALL VINYL LABELS ON BACK PANEL FOR ALL RELAYS AND CIRCUIT BREAKERS AS SHOWN IN THE TABLE BELOW.



CORNERS AND WHITE LETTERS

DESCRIPTION	MANUFACTURER	CATALOG NUMBER	EQUALS ALLOWED
, 16"x16"x8"	HOFFMAN	A16168LPG	YES
	HOFFMAN	A16P16	YES
TE (SEE NAMEPLATE SCHEDULE)	PANEL FABRICATOR CHOI	CE	YES
Y, DPDT WITH INDICATOR	IDEC	RH2B-UL-AC120	NO
Y BASE	IDEC	SJ2S-05B	NO
KER (SIZE ACCORDING TO DRAWINGS)	EATON	FAZ-C**/1-NA	NO
ON FUSED)	SPRECHER SCHUH	V7-W4 SERIES	NO
D STOP	SPRECHER SCHUH	V7-W4 SERIES	NO
D PLATE	SPRECHER SCHUH	V7-W4 SERIES	NO
ROUND)	SPRECHER SCHUH	V7-W4 SERIES	NO
NOTED ON DRAWING)	PANEL FABRICATOR CHOI	CE	YES
	ENTRELEC	PR30	YES
MULTI-FUNCTION, 120VAC, (2) DPDT RELAYS	ALLEN-BRADLEY	700-FSA4UU23	YES

	and the second	Vinyl	Labels			
int l	plack font, text to	include: (X replac	e with count iden	tifier as shown)	{Mount on bar	ck panel}
	<3> TDR	<4> NOT USED	<5> NOT USED	<6> NOT USED	<7> NOT USED	<8> NOT USED
						1

VENTILATION CONTROL PANEL GENERAL ARRANGEMENT

SCHEDULE A SHEET

I-33

Industrial





VENTILATION CONTROL SCHEMATIC

120V

FROM PANEL

"PH-1PB"

12119 N Suite #2 Vancouv Phone: Fax: e-mail: is OR CCE AK #101 PROJEC	E 99th Street 090 /er, Washington 98 (360) 718-7267 (360) 952-8958 s@industrialsystem 8 #196597 WA 18436 CT#:21.07.01	NS INC 582 s-inc.com #INDUSSI880K9				
				NOTICE	TBC DESIGNED JLB	Docusigned by
NO.	DATE	BY	REVISION	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	TBC CHECKED	PEGISTER SOUNAL





HVAC POWER SCHEMATIC SCALE: NONE





SCHEDULE A SHEET

I-34



PROJECT NO .:

(<u>2</u> I-34

21-3028 SCALE:

AS SHOWN DATE:

GENERAL	<u>GENERAL INSTRUMENT SYMBOLS</u> <u>INSTRUMENT IDENTIFICATION LETTERS</u>												
LOCATION/ACCESSIBILITY	DISCRETE	SHARED DISPLAY AND CONTROL	PLC	DISCRETE HARDWARE		FIRST LETTER	SUCCEEDING LETTERS						
FIELD MOUNTED		(DCS)		INTERLOCK			MODIFIER	READOUT OR		MODIFIER			
 FIELD OR LOCALLY MOUNTED. ACCESSIBLE TO AN OPERATOR AT DEVICE. 		\square		\land	A	ANALYSIS		ALARM	TONCTION				
					B	BURNER, FLAME, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE			
PRIMARY LOCATION NORMALLY					D	USER'S CHOICE (TYPICALLY	DIFFERENTIAL		COMMAND	DIVERT			
ACCESSIBLE TO AN OPERATOR 1. CENTRAL OR MAIN CONTROL ROOM. 2. FRONT OF MAIN PANEL OR CONSOLE					E	DENSITY OR SPECIFIC GRAVITY) VOLTAGE		SENSOR (PRIMARY ELEMENT)					
 MOUNTED. 3. VISIBLE ON VIDEO DISPLAY. 4. ACCESSIBLE TO AN OPERATOR AT 					F	FLOW RATE	RATIO (FRACTION)						
PRIMARY LOCATION NORMALLY					G	USER'S CHOICE OR GAUGING (DIMENSIONAL)		GLASS, VIEWING DEVICE					
1. CENTRAL OR MAIN CONTROL ROOM. 2. REAR OF PANEL OR CABINET MOUNTED					H	HAND CURRENT (ELECTRICAL)		INDICATE		HIGH			
 NOT VISIBLE ON VIDEO DISPLAY. NOT NORMALLY ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE 					J	POWER	SCAN						
AUXILIARY LOCATION NORMALLY					К 		OF CHANGE		STATION	LOW			
 SECONDARY OR LOCAL CONTROL ROOM. FIELD OR LOCAL CONTROL PANEL. 			\square		M	USER'S CHOICE (TYPICALLY	MOMENTARY			MIDDLE,			
 FRONT OF SECONDARY OR LOCAL PANEL MOUNTED. VISIBLE ON VIDEO DISPLAY. 					N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE			
5. ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE. AUXILIARY LOCATION NORMALLY					O P	USER'S CHOICE PRESSURE, VACUUM		ORIFICE, RESTRICTION POINT (TEST) CONNECTION		OPEN			
INACCESSIBLE TO AN OPERATOR 1. SECONDARY OR LOCAL CONTROL ROOM. 2. ETELD OR LOCAL CONTROL PANEL	\square				Q	QUANTITY	INTEGRATE, TOTALIZE						
 REAR OF SECONDARY OR LOCAL PANEL OR CABINET MOUNTED. NOT VISIBLE ON VIDEO DISPLAY. 					R	RADIATION	CAEETV	RECORD	SWITCH				
5. NOT NORMALLY ACCESSIBLE TO AN OPERATOR AT DEVICE OR CONSOLE.					T	TEMPERATURE			TRANSMIT	THROUGH			
<u>A</u>	BBREVIAT	IONS			U V	MULTIVARIABLE VIBRATION, MECHANICAL ANALYSIS		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION			
AG ABOVE GROUND ATM ATMOSPHERE		LO LP	LOCKED O	PEN SURE	w	WEIGHT, FORCE, TORQUE		WELL	LOUVÉR				
BYP BYPASS CC CHEMICAL CLEAN	OUT	LPT MTL	LOW POIN MATERIAL	Г	X		X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED			
CL CENTERLINE CO CLEANOUT		MAF MAX	MASS AIR MAXIMUM	FLOW	ľ	EVENT, STATE OR PRESENCE	Y AXIS		COMPUTE, CONVERT				
CONN CONNECTION CTR CENTER		MCC MCP	MOTOR CO MAIN CON	NTROL CENTER TROL PANEL	Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR,				
CVLS CHECK VALVE LIM	IIT SWITCH	MIN MOV	MINIMUM MOTOR OP	ERATED VALVE					FINAL CONTROL ELEMENT				
DESDESIGNNCDIADIAMETERNNFDPDESIGN PRESSURENOD/DDIEFEDENTIAL DRESSURENO7		NC NNF	NORMALLY NORMALLY	CLOSED NO FLOW									
		NO NOZ	NORMALLY OPEN NOZZLE TYPICAL INSTRUMENT TAG NUMBERS & DE							TION			
DRN DRAIN	TURF	0/C	OPEN/CLO	SE									
DWG DRAWING	TORE	OIT	OPERATOR	INTERFACE TERM	INAL	YPE INT IDENTIFICATION LET	TERS'						
EL ELEVATION			OVERHEAD PROGRAMMABLE LOGIC CONTROLLER										
FOF FACE OF FLANGE		PRESS	PRESSURE PROCESS VARIABLE										
(F) FURNISHED FC FAIL CLOSED		PV (R)	RELOCATED REQUIRED										
FI FAIL INDETERMIN FL FAIL LOCKED (LAS	ATE ST POSITION)	REQD RIO	REMOTE I/O PANEL										
FLG FLANGE FO FAIL OPEN		RTD SC	RESISTANCE TEMPERATURE DETECTOR WITCH USED, LETTER DISTINGUISHES BETWEEN SAMPLE CONNECTION MULTIPLE SIMILAR DEVICES										
FP FULL PORT FV FULL VACUUM		SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION USED WHEN MULTIPLE TRAINS ARE USED AND						D AND				
GO GEAR OPERATED GR GRADE		SCH SD	SCHEDULE REPRESENTS THE TRAIN NUMBER SHUTDOWN										
HC HOSE CONNECTIC HDR HEADER	DN	SG SIS	SPECIFIC GRAVITY SAFETY INSTRUMENTED SYSTEM HAND SWITCH ARREVIATIONS						TONS				
HH HAND HOLE HOA HAND/OFF/AUTOM	1ATIC	SO SP	STEAM OUT SET POINT										
HP HIGH PRESSURE HPT HIGH POINT		SS STD	STAINLESS STANDARD	S STEEL S/S or STA	ART/ST	TOP AO = AI AM = A	UTO/OFF UTO/MANUAL	LOS = LO LA = LO	DCKOUT/STOP CAL/AUTO				
IAS INSTRUMENT AIR	SUPPLY	T/C TDH	THERMOCO	DUPLE FERENTIAL HEAD		CM = CM CL = CC	OMPUTER/MAN OMPUTER LOCA	$\begin{array}{llllllllllllllllllllllllllllllllllll$	CAL/REMOTE EN/CLOSE				
LCP LOCAL CONTROL F	PANEL			URE		ES = EN FR = FC	IERGENCY STC RWARD/REVE	OP OCA = 0 RSE OO = 01	PEN/CLOSE/AUTC)			
THRD TSO TYP			TIGHT SHUT-OFF TYPICAL $FOR = FORWARD/OFF/REVERSE$ $OOA = ON/OFF/AUTO$ $OSC = OPEN/STOP/CLOSE$:				
			FOS = FAST/OFF/SLOW $FOS = FAST/OFF/SLOW$ $FOS = FAST/OFF/SLOW$ $FOS = PRIME/OFF/AUT$						RIME/OFF/AUTO				
Systems INC		VAC				HIM = H	HUMAN INTERF	ACE MODULE RF = RU	N/FAULT	R			
12119 NE 99th StreetVBSuite #2090VFDVancouver, Washington 98682VFD		VB VFD	VUKTEX BREAKER NUKTEX BREAKER NUKEX BREAKER NUKEX BREAKER NUKEX B										
Phone: (360) 718-7267 W/ WITH Fax: (360) 952-8958 W/O WITHOUT e-mail: is@industrialsystems-inc.com W/O WITHOUT OR CCB #196597 WA #INDUSSI880K9 W/O				LOC = L LOR = L	OCAL/OFF/REI	MOTE $V/B = V$	D/BYPASS						
AK #1018436 PROJECT#:21.07.01													
				NOTICE	R	SC				1			
					DESI	B			100				
				IF THIS BAR DOES	DR/ P	AWN			130				
				THEN DRAWING IS NOT TO SCALE	CHE	CKED				0			

NO. DATE BY

REVISION

PIPING LINE SYMBOLS

PRIMARY (AG & UG)

SECONDARY / UTILITY (AG & UG)

FUTURE OR EXISTING ON NEW P&IDs

JACKETED OR DOUBLE CONTAINMENT

INSTRUMENT LINE SYMBOLS

INSTRUMENT SUPPLY OR CONNECTION TO PROCESS	
PNEUMATIC SIGNAL	
ELECTRIC SIGNAL (ANALOG)	
ELECTRIC SIGNAL (DISCRETE)	\ \ \-
HYDRAULIC SIGNAL	<u> </u>
CAPILLARY TUBE	~~ x ~ x ~ x
ELECTROMAGNETIC, SONIC, OPTICAL, OR NUCLEAR SIGNAL	
SOFTWARE OR DATA LINK	<u> </u>

FLOW STREAM IDENTIFIERS

BW = BACKWASHCA = CAUSTIC SODACL2 = CHLORINECOA = COAGULANTDR = DRAIN FTB = FILTER TO BACKWASHFL = FLUORIDEFTW = FILTER TO WASTE FW = FINISHED WATER

MECHANICAL LINK

IA = INSTRUMENT AIR NAOCL = SODIUM HYPOCHLORITE NACO = SODA ASHPA = PROCESS AIRPOL = POLYMERRW = RAW WATERSW = SUPPLY WATER WST = WASTE

— • • •







CITY OF LACEY, WASHINGTON MADRONA pH TREATMENT PROJECT LACEY CONTRACT #PW 2022-37



			<u>PR</u>]	IMARY ELE	<u>MEN</u>	T SYME	<u>30LS</u>			
	×)	GENERAL SYMBOL IN-LINE ELEMENT XX = FS, FG, FE	Ξ , FT		RADAF (NON-	२ CONTACT))	-	AE X	ANALYZ X INDIO pH = H
-(FT		IN-LINE FLOW ELEMENT W INTEGRAL INDICATING TF XXXX = MASS, CORIOLIS, INT. ORIFICE	VITH ≀ANSMIT , THER№		ULTRA LEVEL	SONIC SENSOR				CL2 = 0 DO = 1 H2S = LEL = O2 = ORP =
		IN-LINE FLOW ELEMENT W SEPARATE INDICATING TF XXXX = MASS, CORIOLIS,	VITH RANSMI ⁻ , THERM		SUBMS PRESS	SERIBLE SURE			\bigcirc	TUR =
	├───	ORIFICE				SLIISOK			FI	ROTAM VALVE
—Т]	THERMAL							P C	INTEGR
—— М]	MAGNETIC		$\left(\begin{array}{c} - \end{array} \right)$	FLOAT FLOAT	SWITCH SWITCH				
<u> </u>]	TURBINE OR PROPELLER			* = L/L	_L/H/HH		-	\rightarrow	FLUME
\ <u>`</u>		ULTRASONIC			FLOW	SWITCH		-	<u> </u>	WEIR
►	.]	VORTEX		\bigcirc	* = H/	′L				POSITI
[ı]	PITOT TUBE		-(FG)-	FLOW	GLASS		-	— <u>μ</u> —	FUSITI
[]]	AVERAGING PITOT TUBE			FLOW	CONDITIO	NING D	EVICES		ORIFIC
\neg]	FLOW NOZZLE		FO	(e.g., \$	STRAIGHT	ENING \	/ANES) -	[h]	TARGE
	\exists —	VENTURI		\bigvee	RESTR		RIFICE			
		WEDGE METER								
		VALVE SYMBO	<u>LS</u> (N.C. WHEN SH	ADED)			PIPINO	SPECIA	ALTY I
\bowtie	GAT	E VALVE	\bowtie	PLUG VALVE			ΗĴ	Y-TYPE STR	AINER	
	CHE	CK VALVE	\square	DIAPHRAGM	VALVE		6	CONE STRA	INER	⊢ RS
\sim	STO	P CHECK VALVE	\bowtie	3-WAY VALVI	E		0	T-TYPE STR	AINER	DS
	GLO	BE VALVE		4-WAY VALVI	E		± . 0 .			
`€	BUT	TERFLY VALVE		PINCH VALVE	Ē			DUPLEX ST		۲ \\ ۲ \\
\bowtie	NEE	DLE VALVE	Ŕ	ANGLE VALVI	E		ң	BASKET STI	RAINER	لىرىرىا
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	BALI	_ VALVE	₩	KNIFE VALVE	:			FILTER		XX
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12119 NE 99th Stre Suite #2090 Vancouver, Washin Phone: (360) 718.7	 eet ngton 98682 7267						Ħ	MECHANICA	L COUPLING	6
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ITEMS

CONTROL VALVE ACTUATOR SYMBOLS **EJECTOR** (M)MOTOR OPERATED -MANUAL OPERATOR REMOVABLE SPOOL CONSTANT SPEED E/P \frown DESUPERHEATER DIAPHRAGM ELECTRO-PNEUMATIC FLEXIBLE HOSE \ominus PRESSURE BALANCED DIAPHRAGM SINGLE SOLENOID EXPANSION JOINT S S DOUBLE SOLENOID HANDWHEEL WITH ACTUATOR DAMPER RUPTU ┣► SAFET S RELIEF SINGLE SOLENOID --⟨R⟩ BREATHER MANUAL RESET RUPTU [- \square SAFET CYLINDER - PISTON VENT COVER (EXPLC SINGLE SOLENOID -≺R> <u>}</u> PRESS REMOTE RESET IN-LINE MIXER HYDRAULIC MISCELLANEOUS INSTRUMENT SYMBOLS DIVERTER VALVE VACUU CHEMICAL SEAL- DIAPHRAGM \sim **ROTARY VALVE** ANNULAR SEAL EXCESS FLOW VALVE PILOT LIGHT OR GAUGE GLASS ILLUMINATOR X INDICATES COLOR SITE TUBE R = REDG = GREENB = BLUEA = AMBERW = WHITEPILOT OR REMOT DUAL FUNCTION OR INSTRUMENTS INJECTION SPOOL SHARING COMMON HOUSING RELIEF \sim UNDEFINED INTERLOCK LOGIC ζ Ι





CITY OF LACEY, Shaping our community WASHINGTON MADRONA pH TREATMENT PROJECT LACEY CONTRACT **#PW 2022-37**

together



SUBMERSIBLE WELL PUMP

SELF-ACTUATED DEVICES

PROJECT NO.: 21-3028 SCALE:

LEGE	SHEET PID-2	
		SCHEDULE A
OPERATED RELIEF VALVE WITH E SENSOR (USE APPROPRIATE VALVE SYMBOL)		
URE AND VACUUM RELIEF CONSERVATION VENT	DIFFERENTIAL PRESSURE REDUCING REGULATOR	
JM RELIEF VALVE	PRESSURE REDUCING REGUL W/ EXTERNAL TAP	_ATOR
URE RELIEF - SAFETY VALVE	BACK PRESSURE REGULATO W/ EXTERNAL TAP	DR
RE DISC - VACUUM RELIEF Y HEAD FOR VACUUM RELIEF DSION PANEL)	BACK PRESSURE REGULATO (SELF-CONTAINED)	DR
RE DISC - PRESSURE RELIEF Y HEAD FOR PRESSURE F (EXPLOSION PANEL)	PRESSURE REDUCING REGULATOR (SELF-CONTAII	NED)

AS SHOWN DATE:





UTLITY POS TZI 22 ERG UTILITY AVAIL 22 TZI TZI TZI TZI TZI TZI TZI TZI	CTRL PWR FAIL JA 222A POS ZI 22 22 4 4 222A 1 4 222A 1 4 22A 1 1 22 1 1 22 2 2 2 2 2 2 2 2 2 2 2	UPS FAULT JA 222B J J J J J Z Z Z J J J Z Z Z J J Z Z Z J J J Z Z Z Z J J Z	Y NOTES NEW MAGNETIC FLOWM EXISTING FLOW SWITCH REPLACED WITH NEW U EXISTING PRESSURE TH TO BE REMOVED AND S THE CITY.	RW B PID-7 TREATMENT BLDG
			10"x12" 12"-RW	RW B PID-7 TREATMENT BLDG SCHEDULE A SHEET PID-4



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	PROJECT NO.: 21	-3028	SCALE:	AS SH	OWN	DATE:	AUGUS	ST 2023	










SECTION: 32 TOWNSHIP: 18N RANGE: 1W

IRRIGATION MATERIALS AND LEGEND

	AUTOMATIC CONTROLLER TORO SENTINEL PER CITY OF LACY SPECS
	WATER METER (SEE POINT OF CONNECTION DETAILS, SHEET L-6)
27	BACKFLOW PREVENTER & PRESSURE REGULATER, (SEE POINT OF CONNECTION DETAILS, SHEET L-6)
	AUTOMATIC CONTROL VALVE WEATHERMATIC (MAX-DW-10)
$\overline{\mathbf{w}}$	THREE QUARTER 30 PSI RAINBIRD MPR NOZZLE 10', 12' OR 15' RADIUS
XX	FULL 30 PSI RAINBIRD MPR NOZZLE 10', 12' OR 15' RADIUS
\bigotimes	HALF 30 PSI RAINBIRD MPR NOZZLE 10', 12' OR 15' RADIUS
XX	QUARTER 30 PSI RAINBIRD MPR NOZZLE 10', 12' OR 15' RADIUS
	STRIP NOZZLE 4' WIDE 14' OR 28' LENGTH
\bowtie	MANUAL DRAIN VALVE - 0.5" RAIN BIRD BVAL50-1S
	ISOLATION BALL VALVE - 2" (ERA SCH 80 PVC 2 INCH)
	2" IRRIGATION MAINLINE PVC CLASS 200
	1" IRRIGATION LATERAL LINE PVC CLASS 200
• · _ · _ · _ · _	¹ / ₂ " INLINE DRIP EMITTER 1 GPH EMITTERS PRE INSTALLED EVERY 12" PRESSURE RATE 10-50 PSI
	LAND PAVEMENT SLEEVE. 4" DIAMETER OR 2x TOTAL DIAMETER OF ALL PIPES TO BE SLEEVED. TO BE INSTALLED AT DEPTH OF LOCAL CODE.
FOR IRRIGATION D	ETAILS.
AIN LINE LAYOUT IS NLINE SHALL BE INS AS WHERE FEASIBLE	DIAGRAMMATIC. ALL STALLED WITHIN

SCHEDULE A SHEET

IRRIGATION PLAN -1

L-2



IRRIGATION MATERIALS AND LEGEND

SECTION: 32 TOWNSHIP: 18N RANGE: 1W

AUTOMATIC CONTROL VALVE WEATHERMATIC (MAX-DW-10)

THREE QUARTER 30 PSI RAINBIRD MPR NOZZLE 10', 12' OR 15' RADIUS

FULL 30 PSI RAINBIRD MPR NOZZLE 10', 12' OR 15' RADIUS

HALF 30 PSI RAINBIRD MPR NOZZLE 10', 12' OR 15' RADIUS

QUARTER 30 PSI RAINBIRD MPR NOZZLE 10', 12' OR 15' RADIUS

STRIP NOZZLE 4' WIDE 14' OR 28' LENGTH

MANUAL DRAIN VALVE - 1"

ISOLATION BALL VALVE - 2"

2" IRRIGATION MAINLINE PVC CLASS 200

1" IRRIGATION LATERAL LINE PVC CLASS 200

 $\frac{1}{2}$ " INLINE DRIP EMITTER 1 GPH EMITTERS PRE INSTALLED EVERY 12" PRESSURE RATE 10-50 PSI

LAND PAVEMENT SLEEVE. 4" DIAMETER OR 2x TOTAL DIAMETER OF ALL PIPES TO BE SLEEVED. TO BE INSTALLED AT DEPTH OF LOCAL CODE.

2. VALVE AND MAIN LINE LAYOUT IS DIAGRAMMATIC. ALL VALVES AND MAINLINE SHALL BE INSTALLED WITHIN

> SCHEDULE A SHEET

IRRIGATION PLAN -2

L-3



PLANTING METHODS:

1. SOIL PREPARATION: TILL THE SUB-GRADE IN THESE AREAS TO A DEPTH OF AT LEAST FOUR INCHES AND ADD AT LEAST 12 INCHES OF CLEAN COMPOST-AMENDED TOPSOIL. THE COMPOST-AMENDED TOPSOIL SHALL HAVE A GOOD GROWING MEDIUM WITH TEXTURE MATERIAL THAT PASSES THROUGH ONE-INCH AND 35% ORGANIC MATTER FERTILITY.

2. PLANTING TIME: CONTAINERIZED STOCK SHALL BE INSTALLED ONLY FROM FEBRUARY 1 THROUGH MAY 1 AND OCTOBER 1 THROUGH NOVEMBER 15. PLANTINGS OUTSIDE THESE TIMES MAY REQUIRE ADDITIONAL MEASURES TO ENSURE SURVIVAL WHICH SHALL BE SPECIFIED ON THE PLANS.

3. INSTALLED PLANTS SHALL BE TAGGED FOR DORMANT SEASON IDENTIFICATION AND SHALL REMAIN ON PLANT MATERIALS AFTER PLANTING FOR MONITORING PURPOSES.

4. EROSION CONTROL: GRADING, SOIL PREPARATION, AND SEEDING SHALL BE PERFORMED DURING OPTIMAL WEATHER CONDITIONS AND AT LOW FLOW LEVELS TO MINIMIZE SEDIMENT IMPACTS.

5. MULCHING: TREES, SHRUBS, AND GROUNDCOVERS PLANTED IN UPLAND AREAS SHALL BE MULCHED A MINIMUM OF THREE INCHES IN DEPTH AND 18 INCHES IN DIAMETER, TO RETAIN MOISTURE AND DISCOURAGE WEED GROWTH AROUND NEWLY INSTALLED PLANT MATERIAL. APPROPRIATE MULCHES ARE MADE FROM COMPOSTED BARK OR LEAVES THAT HAVE NOT BEEN CHEMICALLY TREATED.

6. ACCESS: MAINTENANCE ACCESS FOR PLANT MAINTENANCE SHALL BE PROVIDED FOR SENSITIVE AREAS AND VEGETATED CORRIDORS VIA A FIVE-FOOT EASEMENT OR SHARED BOUNDARY WITH STORMWATER FACILITIES. STORMWATER FACILITIES ACCESS REQUIREMENTS ARE PROVIDED IN CHAPTER 4.

7. WEED CONTROL: THE REMOVAL OF NON-NATIVE, INVASIVE WEEDS SHALL BE NECESSARY THROUGHOUT THE MAINTENANCE PERIOD, OR UNTIL A HEALTHY STAND OF DESIRABLE VEGETATION IS ESTABLISHED.

8. PLANT REPLACEMENT AND PRESERVATION: INSTALLED PLANTS THAT ARE UNHEALTHY OR DAMAGED SHALL BE REPLACED DURING THE MAINTENANCE PERIOD. PRIOR TO REPLACEMENT, THE CAUSE OF LOSS (WILDLIFE DAMAGE, POOR PLANT STOCK, ETC.) SHALL BE DOCUMENTED WITH A DESCRIPTION OF THE CORRECTIVE ACTIONS TAKEN.

9. IF PLANTING OCCURRED OUT OF PLANTING PERIODS INDICATED AT NOTE 2 ABOVE, THE FOLLOWING MEASURES SHOULD BE APPLIED:

- A. HAVE PLANTS INSPECTED FOR EARLY SYMPTOMS OF POOR HEALTH. TREES AFFECTED BY EARLY STAGES OF STRESS COULD DISPLAY PREMATURE FALL COLOR IN LATE SUMMER, PARTIAL DEFOLIATION AND SYMPTOMS OF MOISTURE STRESS.
- B. PROVIDE SUPPLEMENTAL IRRIGATION EACH WEEK OR MORE OFTEN ON NEWLY PLANTED TREES, SHRUBS AND OLDER PLANTS STRESSED WITH INSECT OR DISEASE PROBLEMS WHEN RAINFALL IS LACKING IN SUMMER.
- C. PRUNE FLOWERING TREES AND SHRUBS SUCH AS DOGWOOD, AZALEAS, RHODODENDRON AND FORSYTHIA. ONCE FLOWER BUDS BEGIN TO FORM IN LATE SUMMER, JUDICIOUS PRUNING REDUCES THE BLOOM SOMEWHAT BUT SHOULD NOT IMPACT THE DISPLAY SIGNIFICANTLY.
- D. INSPECT FOR PESTS THAT COMMONLY ARRIVE DURING HOT, DRY WEATHER AND APPLY TREATMENTS AS NEEDED
- E. ASSESS CANOPIES FOR DEAD BRANCHES AND STRUCTURAL WEAKNESSES THAT CAN BE PRUNED LATER IN WINTER



CITY OF LACEY, WASHINGTON MADRONA pH **TREATMENT PROJECT** LACEY CONTRACT **#PW 2022-37**

PLANTS MAINTENANCE NOTES:

1. PRIOR TO PLANTS AND LAWN INSTALLATION, A PERMANENT IRRIGATION SYSTEM TO BE DESIGNED AND BUILT ACCORDING TO PLANTS REQUIREMENTS BY CERTIFIED IRRIGATION CONTRACTOR AND SUBMITTED FOR APPROVAL. LAWN AREAS WOULD REQUIRE SPRAY HEADS IRRIGATION AND TREES/SHRUBS AREAS WOULD REQUIRE DRIP IRRIGATION.

2. CONTRACTOR SHALL PROVIDE 1 YEARS PLANT ESTABLISHMENT PERIOD TO MAINTAIN PLANTS IN A VIGOROUS GROWING CONDITION THROUGH PERIODIC INSPECTIONS. DURING PLANT ESTABLISHMENT PERIOD, THE CONTRACTOR SHALL ENSURE PLANTING AREAS ARE FREE OF INVASIVE WEEDS AND PLANTS SHALL BE FREE OF INSECTS AND DISEASES WHILE SHOWING SIGNS OF CONTINUING HEALTH. THE CONTRACTOR SHALL REPLACE ALL PLANTS THAT SHOW UNHEALTHY SIGNS OR ARE DEAD.

3. THE MAINTENANCE PERIOD BEGINS IMMEDIATELY AFTER THE COMPLETION OF ALL PLANTING OPERATION AND WRITTEN NOTIFICATION TO THE ENGINEER.

4. OTHER MAINTENANCE OPERATIONS DURING THE ONE-YEAR GUARANTEE PERIOD:

- RESET PLANTS TO FINISH GRADE AND RESTORATION OF PLANT SAUCERS, AS NECESSARY
- REPAIR DAMAGED OR WASHED OUT EROSION CONTROL SEEDING.
- PRUNING, INCLUDING REMOVAL OF DEAD OR BROKEN BRANCHES.
- DISEASE CONTROL.
- MAINTAINING WRAPPING, GUYS, (TURNBUCKLES,) AND STAKES. (ADJUST TURNBUCKLES TO KEEP GUY WIRES TIGHT.) REPAIR OR REPLACE ACCESSORIES WHEN REQUIRED.
- REPORT ANY PROBLEMS THAT MAY BE A HINDRANCE TO COMPLETING AND FULFILLING THE CONDITIONS OF THE PLANT GUARANTEE WITHIN 7 DAYS TO THE OWNER.

SCHEDULE	Α
SHEET	

LANDSCAPING DETAILS





SECTION: 32 TOWNSHIP: 18N RANGE: 1W

SLEEVING COORDINATION NOTES

1. INSTALLATION OF IRRIGATION SLEEVING IS THE **RESPONSIBILITY OF THE GENERAL CONTRACTOR . SLEEVES** SHALL BE INSTALLED PRIOR TO THE START OF PAVING OPERATIONS. THE GENERAL CONTRACTOR SHALL COORDINATE WITH THE IRRIGATION CONTRACTOR FOR LOCATION AND SIZING OF SLEEVES PRIOR TO THE START OF CONSTRUCTION.

2. THE CONTRACTOR SHALL SLEEVE ALL IRRIGATION DISTRIBUTION LINES, VALVE CONTROL WIRES AND COMMUNICATION WIRES UNDER ALL PAVED SURFACES, WALL FOOTERS, DRAINAGE CHANNELS, INLETS, CATCH BASINS, ETC.

3. ALL SLEEVES SHALL EXTEND A MINIMUM OF 6" BEYOND EDGE OF ALL OBSTRUCTIONS. NO TEES, ELLS OR OTHER TURNS IN PIPING SHALL BE LOCATED UNDER ANY OBSTRUCTIONS.

4. MARK ALL SLEEVE LOCATIONS WITH A CHISELED 'X' IN THE PAVING DIRECTLY ABOVE SLEEVE LOCATION.

5. ALL MAINLINE, VALVE CONTROL AND COMMUNICATION WIRES, LATERALS UNDER PAVED SURFACES ARE TO BE INSTALLED IN SEPARATE SLEEVING.



SCHEDULE A SHEET **IRRIGATION DETAILS** L-5 PROJECT NO.: 21-3028 SCALE: AS SHOWN DATE: AUGUST 2023



SCHEDULE B WESTSIDE PH TREATMENT PROJECT LACEY CONTRACT #PW 2022-37 JANUARY 2024





SECTION: <u>28</u> TOWNSHIP: <u>18N</u> RANGE: <u>1W</u> ADDRESS: 3300 COLLEGE ST SE, LACEY WA 98503



VICINITY MAP SCALE: 1"=1/2 MILE

CITY OF LACEY OFFICIALS

CONTACT: 360-491-5600

MAYOR: ANDY RYDER

DEPUTY MAYOR: MALCOLM MILLER

COUNCIL MEMBERS:

LENNY GREENSTEIN MICHAEL STEADMAN CAROLYN COX ED KUNKEL ROBIN VASQUEZ

CITY MANAGER: SCOTT SPENCE

CITY ATTORNEY: DAVE SCHNEIDER

CITY ENGINEER: AUBREY COLLIER, P.E., S.E.

DIRECTOR OF PUBLIC WORKS: SCOTT EGGER, P.E.

APPROVED FOR CONSTRUCTION DIRECTOR OF PUBLIC WORKS

DATE

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ANC.RO OF WASH 10 55144 PEGISTERED SSI ONAL ENG 8-31-2023		CONSOC CUTY LACEY	CITY OF LACEY, WASHINGTON WESTSIDE pH REATMENT PROJECT LACEY CONTRACT #PW 2022-37
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BOOSTER PUMP STATION BUILDING - RTU PANEL - DEMO BOOSTER PUMP STATION BUILDING - RTU PANEL - GENERAL ARRANGEMENT BOOSTER PUMP STATION BUILDING - RTU PANEL - POWER, FUSING AND ETHERNET CONNECTIONS BOOSTER PUMP STATION BUILDING - RTU PANEL - I/O SHEET 1 BOOSTER PUMP STATION BUILDING - RTU PANEL - I/O SHEET 2 BOOSTER PUMP STATION BUILDING - RTU PANEL - I/O SHEET 3 BOOSTER PUMP STATION BUILDING - RTU PANEL - I/O SHEET 4 BOOSTER PUMP STATION BUILDING - RTU PANEL - I/O SHEET 5 BOOSTER PUMP STATION BUILDING - RTU PANEL - I/O SHEET 6

RUMENTATION DIAGRAMS

PI&D LEGEND 1 OF 2 PI&D LEGEND 2 OF 2 P&ID WELL 1 P&ID WELL 2 P&ID WELL 3 P&ID CL2 TRANSFER P&ID pH TREATMENT P&ID BOOSTER PUMPS P&ID RESERVOIR AND BOOSTER STATION

PLANTING PLAN IRRIGATION PLAN PLANTING DETAILS IRRIGATION DETAILS

SCHEDULE	В
SHEET	

INDEX OF DRAWINGS

G-2

PIPE SYMBOLS SCHEMATIC PLANT WELDED JOINT FLANGED JOINT GROOVED END JOINT MECHANICAL JOINT PUSH-ON JOINT (RUBBER GASKET) FLANGED COUPLING ADAPTER DOUBLE BALL FLEXIBLE EXTENSION COUPLING \neg FLEXIBLE COUPLING W/THRUST RING ELBOW UP ELBOW DOWN TEE UP TEE DOWN LATERAL UP -101-----LATERAL DOWN CONCENTRIC REDUCER -XECCENTRIC REDUCER UNION BLIND FLANGE _____ CAP LONG SLEEVE FLEXIBLE COUPLING $\rightarrow \sim -$ CAPPED END OR PLUGGED END FITTING $\overline{}$ SECTION AND DETAIL DESIGNATIONS SECTION DESIGNATIONS DETAIL DESIGNATIONS - SECTION LETTER DESIGNATION – DETAIL NUMBER DETAIL SCALE: - SHEET WHERE SECTION 2/ IS SHOWN * - SECTION LETTER - SHEET FROM WHICH DESIGNATION **SECTION** DETAIL IS TAKEN * A SCALE: 2 - SHEET FROM WHICH SECTION IS TAKEN * * NOTE: IF PLAN AND SECTION FOR DETAIL CALL-OUT AND DETAIL ARE SHOWN ON THE SAME DRAWING, DRAWING NUMBER IS REPLACED WITH A DASH. NOTICE SWW DESIGNED 1/2 SWW DRAWN IF THIS BAR DOES NCR NOT MEASURE 1' THEN DRAWING IS CHECKED NOT TO SCALE NONAL ET

DATE BY

NO.

REVISION

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TOPOGRAPHIC LEGEND

	EXISTING	PROPUSED
WATERLINE	10"W	—— 12"DI W ——
ELECTRICITY	— — — E— — —	———— E ————
GAS		4"G
TELEPHONE/TELEMETRY	— — — T — — —	T
CABLE TELEVISION	CATV	CATV
SANITARY SEWER LINE		
SANITARY SEWER FORCE MAIN	——————————————————————————————————————	
STORM DRAIN		
CULVERT		→12"D<
ABANDON PIPE		+-1 +-+ 1-+-1 ++ 1-+1 +
DRAINAGE DITCH	· · · · · · · ·	· · · · · · · ·
BARBWIRE FENCE	xx	—XXX
CHAIN LINK FENCE	-000	-000
TEMPORARY SILT FENCE		<u> </u>
ROCK WALL		
TREE/BUSH LINE		
CENTERLINE		
FASEMENT/PROPERTY LINE		
RIGHT-OF-WAY		
EDGE OF PAVEMENT/AC		
		化气管 化环境 医骨膜炎 法法律法 医马马氏的 化
		<u>- 27 - 56. – 58 - 58. – 58. – 58. – 58. – 58. – 58. – 58. – 58. – 58. – 58. – 58. – 58. – 58. – 58. – 58. – 58</u>
SIDEWALK		
	S/W	<u></u> \$/W
	200	200
	200	200
	\bigcirc	0
	\bigcirc	0
CATCH BASIN/FIELD INLET		
	\bigtriangleup	▲
VALVE	⊗	€
AIR INJECTION ASSEMBLY		
BLOW-OFF ASSEMBLY	o	
AIR RELEASE ASSEMBLY	-9)	
FIRE HYDRANT ASSEMBLY	A	
WATER METER		5
WATER SAMPLE STATION		Ø
PULL BOX/JUNCTION BOX		
UTILITY POLE	-0-	
GUY WIRE	←	
LIGHT POST	\$	
MAIL BOX		
SIGN	— 。 —	
BENCHMARK		\sim
TREE DECIDUOUS		
TREE CONIFEROUS	M	Mining and Mi
TREE TO BE REMOVED		-X
SURFACE ELEVATION	+ 176.63	+ 176.63





OF LACEY, SHINGTON WESTSIDE pH TREATMENT PROJECT LACEY CONTRACT #PW 2022-37

VALVE SYMBOLS								
PLANT	<u>SCHEMATIC</u>							
		GATE VALVE						
		GLOBE VALVE						
		BALL VALVE						
	¢	BALANCING VALVE						
	<u> </u>	DIAPHRAGM VALVE						
	\longrightarrow	PLUG VALVE (TOP)						
		PLUG VALVE (SIDE)						
		3-WAY PLUG VALVE						
		SWING CHECK VALVE						
		DOUBLE CHECK ASSEMBLY						
		BALL SWING CHECK						
		SILENT CHECK VALVE						
		PRESSURE REDUCING VALVE						
		ALTITUDE CONTROL VALVE						
		SOLENOID VALVE						
	₹¬	RELIEF VALVE						
	— ↓	NEEDLE VALVE						
	☆	HOSE VALVE						
		REDUCED PRESSURE BACKFLOW PREVENTER W/GATE VALVES						

MISCELLANEOUS PIPING SYMBOLS

	STRAINER
	SIGHT GLASS
Ž	PRESSURE GAUGE W/COCK
ф Х	PRESSURE SWITCH W/COCK
Μ	METER
SP	SLIP ON JOINT PIPE
$\langle R \rangle$	RESTRAINED JOINT PIPE

HOSE BIBB

SYMBOLS AND LEGEND

SCHEDULE B SHEET

G-3

21-3172 SCALE: AS SHOWN DATE: AUGUST 2023 PROJECT NO.:

\bigcirc	ΔΤ			2)			GAS	ΜΛΝ	ΜΔΝΙΙΔΙ	PM	ROOM	\٨/	ΜΔΤΕΡ
AASHTO	AMERICAN ASSOCIATION OF STATE	COORD	COORDINATE	` J	GA		GAUGE	MATL	MATERIAL	RND	ROUND	W/	WITH
	HIGHWAY & TRANSPORTATION OFFICIALS	COP	COPPER		GAL	L	GALLON	MAX	MAXIMUM	RO	ROUGH OPENING	W/O	
AD ABAN (D)	ABANDON (ED)	CORP	CORRUGATED		GAI	L V	GROOVED COUPLING	MCP	MASTER CONTROL CENTER	RPBPD	REDUCED PRESSURE BACKFLOW	WD	WOOD
ABS	ACRYLONITRILE BUTADIENE STYRENE	CP CP	CONTROL POIN	IT	GFA	A	GROOVED FLANGE ADAPTER	MECH	MECHANICAL		PREVENTION DEVICE	WF	WIDE FLANGE
ABV	ABOVE ASPHALTIC CONCRETE	CPLG CPVC	CHLORINATED	POLYVINYL CHLC	ORIDE GIP	5	GALVANIZED IRON GALVANIZED IRON PIPE	MFR	METAL MANUFACTURER	RR	REVOLUTIONS PER MINUTE RAILROAD	WHTR	WALL HYDRANT WATER HEATER
ACP	ASPHALTIC CONCRETE PAVING	CR	CRUSHED ROCH	K	GJ		GRIP JOINT	MGD	MILLION GALLONS PER DAY	RST	REINFORCING STEEL	WI	WROUGHT IRON
ADJ ADJC	ADJUSTABLE ADJACENT	CS CSP	COMBINED SEV	VER VER PIPE	GL	V	GLASS GLOBE VALVE	MH MIN	MANHOLE MINIMUM	RI	RIGHT	WM WP	WATER METER WORKING POINT / WATERPROOFING
AFF	ABOVE FINISHED FLOOR	CT	COURT		GN	D	GROUND	MIPT	MALE IRON PIPE THREAD	SALV	SALVAGE	WS	WATER SERVICE
AFG AHR	ABOVE FINISHED GRADE	CTR CU	CENTER		GPI GPI	D H	GALLONS PER DAY GALLONS PER HOUR	MISC M1	MISCELLANEOUS MECHANICAL 10INT	SAN SC	SANITARY SOLID CORE	WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
AL	ALUMINUM	CULV	CULVERT	<i>,</i>	GPN	M	GALLONS PER MINUTE	MON	MONUMENT / MONOLITHIC	SCHED	SCHEDULE	WT	WEIGHT
ALT AMP	ALTERNATE	CV CW	CONTROL VALV	COLD WATER	GPS GR	S	GALLONS PER SECOND GRADE	MOT MP	MOTOR MILEPOST	SD SDL	STORM DRAIN SADDLE	WTP WTRT	WATER TREATMENT PLANT WATERTIGHT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	CY	CUBIC YARDS		GR	LN	GRADE LINE	MSL	MEAN SEA LEVEL	SDR	STANDARD DIMENSION RATIO	WWF	WELDED WIRE FABRIC
		CYL	CYLINDER LOCI	K	GR	TG	GRATING GATE VALVE	MTD	MOUNTED	SECT SHI DR	SECTION SHOULDER		WASTEWATER TREATMENT FACILITY WASTEWATER TREATMENT PLANT
APWA	AMERICAN PUBLIC WORKS ASSOCIATION				GRY GRY	VL	GRAVEL	NA	NOT APPLICABLE	SHT	SHEET	000011	
ARCH	ARCHITECTURAL	DC	DIRECT CURRE	NT	GYF	Р	GYPSUM		NORMALLY CLOSED	SIM	SIMILAR	X SECT	CROSS SECTION
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS	DEFL			НВ		HOSE BIBB	NIC	NOT IN CONTRACT	SLV	SLEEVE	ALMIX	
ASSN	ASSOCIATION	DI	DUCTILE IRON		HC		HOLLOW CORE	NO / NO.	NORMALLY OPEN / NUMBER	SOLN	SOLUTION	YD VH	YARD DRAIN/YARD
ASTM	AMERICAN SOCIETY FOR TESTING	DIA DIM	DIAMETER		HDI	R	HEADER	NORM	NORMAL	SPCL	SPECIAL	YR	YEAR
	& MATERIALS	DIR	DIRECTION		HD	WE	HARDWARE	NRS	NON-RISING STEM	SPEC (S)	SPECIFICATION (S)	7.1	ZINC
AUTO	AUTOMATIC	DIST	DISTANCE		HG	T	HEIGHT	1115	NOT TO SCALE	SPL	SPOOL	ZIN	ZINC
		DR			HH	I		0 TO 0		SPRT	SUPPORT		
AVE	AVENUE	DWG	DRAWING		HM HNI	DRL	HAND RAIL	OD	OUTSIDE DIAMETER	SQ FT	SQUARE FOOT		
AWWA	AMERICAN WATER WORKS ASSOCIATION		DOWEL		HO	A	HAND-OFF-AUTO	ODOT	OREGON DEPARTMENT OF TRANSPORTATION	SQ IN	SQUARE INCH		
B&S	BELL & SPIGOT	DWY	DRIVEWAY		HO	RIZ	HAND-OFF-REMOTE HORIZONTAL	OF OPNG	OVERFLOW / OUTSIDE FACE OPENING	SQTD	SQUARE YARD SANITARY SEWER		
BC	BOLT CIRCLE	EA	EACH		HP	<u> </u>	HIGH PRESSURE / HORSEPOWER	OPP	OPPOSITE	SST	STAINLESS STEEL		
вD BETW	BUARD BETWEEN	ECC	ECCENTRIC		HPC HPT	G T	HIGH PRESSURE GAS HIGH POINT	ORIG OVHD	ORIGINAL OVERHEAD	STA	SIKEEI STATION		
BF	BOTH FACE	EF EL	EACH FACE		HR	-	HOUR	0 VIID		STD	STANDARD		
BFD BFILL	BACKFLOW PREVENTION DEVICE BACK FILL	ELB	ELBOW		HSI HV	В	HIGH STRENGTH BOLT HOSE VALVE	P&ID PC	PROCESS & INSTRUMENTATION DIAGRAM	STOR	STEEL STORAGE		
BFV	BUTTERFLY VALVE	ENCL	ENCLOSURE		HVA	AC	HEATING, VENTILATION, AIR	PCC	POINT OF COMPOUND CURVE	STR	STRAIGHT		
BHP BKGD	BRAKE HORSEPOWER BACKGROUND	EOP		MENT	нм	/1	CONDITIONING HIGH WATER LINE	PCVC PF	POINT OF CURVATURE ON VERTICAL CURVE	STRUCT	STRUCTURE / STRUCTURAL		
BLDG	BUILDING	EQL SP	EQUALLY SPACE	ED	HW	/Y	HIGHWAY	PERF	PERFORATED	SUCT	SUCTION		
BLK BLVD	BLOCK BOULEVARD	EQUIP FW	EQUIPMENT FACH WAY		HYI HYI	D DR	HYDRANT HYDRAULIC	PERM	PERMANENT PERPENDICULAR	SV S/W	SOLENOID VALVE SIDEWALK		
BM	BENCH MARK / BEAM	EXC	EXCAVATE			BR		PG	PRESSURE GAUGE	SWD	SIDEWATER DEPTH		
BMP BO	BEST MANAGEMENT PRACTICE	EXIST EXIST GR	EXISTING EXISTING GRAI	DE	I&C IAM		INSTRUMENTATION & CONTROL	PH pt	PIPE HANGER	SWGR SYMM	SWITCH GEAR		
BOC	BACK OF CURB	EXP	EXPANSION	 	ID	, u	INSIDE DIAMETER	PIVC	POINT OF INTERSECTION ON	SYS	SYSTEM		
BS BSMT	BOTH SIDES	EXP BI EXP JT	EXPANSION BO	INT	IE		INVERT ELEVATION	DL or X	VERTICAL CURVE	T or TEI			
BTF	BOTTOM FACE	EXT	EXTERIOR		IMP	PVT	IMPROVEMENT	PLBG	PLUMBING	T&B	TOP & BOTTOM		
BTU BV	BRITISH THERMAL UNIT	F	FAHRENHEIT			~ C		PNL		TAN TB			
BW	BOTH WAYS	F TO F	FACE TO FACE		INF	FL	INFLUENT	POLY	POLYETHYLENE	ТВМ	TEMPORARY BENCH MARK		
C		FB	FLAT BAR			ן די	INJECTION	POT		ТС	TOP OF CONCRETE / TOP OF CURB		
СТОС	CENTER TO CENTER	FCA	FLANGED COUP	PLING ADAPTER	INS	SUL	INSTALLATION / INSTALL INSULATION	PRC	POINT OF REVERSE CURVATURE	TEMP	TEMPERATURE / TEMPORARY		
CARV	COMBINATION AIR RELEASE VALVE	FCO	FLOOR CLEANO		INT	FER FD	INTERCEPTOR	PRCST	PRECAST	T&G	TONGUE & GROOVE		
CATV	CATCH BASIN	FDN	FOUNDATION		INV	/	INVERT	PRESS	PRESSURE	THRD	THREAD(ED)		
CCP	CONCRETE CYLINDER PIPE	FEXT	FAR FACE	SHEK	IP IDT	_	IRON PIPE	PRKG	PARKING		THROUGH		
CFM	CUBIC FEET PER MINUTE	FGL	FIBERGLASS		IR		IRON ROD	PROP	PROPERTY PRESSURE REDUCING VALVE	15	POINT		
CFS	CUBIC FEET PER SECOND	FIN FL	FINISH FLOOR		IRR	RIG	IRRIGATION	PS	PUMP STATION				
CHEM	CHEMICAL	FIN GR	FINISH GRADE		TI I		JOINT	PSL	PIPE SLEEVE	TST	TOP OF STEEL		
CHFR		FITG	FITTING		JUL	NC	JUNCTION	PSPT	PIPE SUPPORT		TOP OF WALL		
CIKV	CAST IRON	FL FLFX	FLOOR LINE		KPL	L	KICK PLATE	PTVC	POINT OF TANGENCY POINT OF TANGENCY ON VERTICAL				
CIPC	CAST IRON PIPE	FLG	FLANGE		KVA KVA	A /	KILOVOLT AMPERE			UG			
CIPC	CAST IN PLACE CONCRETE CAST IRON SOIL PIPE	FLL FLR			KW	, /Y	KEYWAY	PVC	POLYVINYL CHLORIDE	UN	UNION		
Clorf	CONSTRUCTION JOINT	FM	FORCE MAIN		Ι.			PVMT		UON	UNLESS OTHERWISE NOTED		
CL2	CHLORINE	FO	FIBER OPTIC	RETE		В	LABORATORY	PWK	ruwer	6060	UNITED STATES GEULUGIC SURVEY		
CLG CL1	CEILING CONTROL 10INT	FOF	FACE OF FINIS	H		V		QTY	QUANTITY	V	VENT / VOLT		
CLR	CLEAR	FOM	FACE OF MASO	NRY	LB LF		LINEAL FOOT	RAD	RADIUS	VAC	VACUUM BREAKER		
	CONTROLLED LOW STRENGTH MATERIAL	FPM	FEET PER MINU	JTE	LIN	J	LINEAL / LINEAR	RC		VBOX			
CMU	CONCRETE MASONRY UNIT	FPS	FEET PER SECO			С	LOCATION	RD	ROAD / ROOF DRAIN	VERT	VERTICAL CORVE		
CND		FT	FEET / FOOT	LINI UNCLU PLAS	LON	NG		RDCR	REDUCER	VFD	VARIABLE FREQUENCY DRIVE		
COL	COLUMN	FTG	FOOTING		LP LPT	Г	LOW PRESSURE	REINF	KEFERENCE REINFORCE (D) (ING) (MFNT)	VOL VCP	VOLUME VITRIFIED CLAY PIPE		
COMB	COMBINATION	FUT	FUTURE		LRC	G		REQ'D	REQUIRED	VTR	VENT THROUGH ROOF		
CONN	CONNECTION				LS		LEFT	RESTR RECA	RESTRAINED RESTRAINED FLANGE COUPLING ADAPTER				
CONST	CONSTRUCTION												
				-	LW	L	LOW WATER LINE						
			NOTICE	SWW	ANC.ROSA				Shaping CI		ΕΥ,		SCHEDULE B
			0 ½ 1	DESIGNED	OF WASHING				together W	ASHINGTO	DN [®]		SHEET
				SWW					W W	ESTSIDE p	OH ABBRE	VIATIO	G-4
			IF THIS BAR DOES					VI	TREAT	MENT PRO	DJECT		
			- THEN DRAWING IS	CHECKED	PEGISTERED NEL	•							
NO. DATE	E BY REVISION				8-31-2	2023				- vv ZUZZ-3	PROJECT NO.: 21-3172 SCALE:	AS SHOW	VN DATE: AUGUST 2023







PROJECT NO .:	21-3172 SCALE:	AS SHOWN DA	TE: AUGUST 2023

GE	NERAL NOTES			PF
1.	CONTRACTOR SHALL ADHERE TO THE CITY OF LACEY DEVELOPME & PUBLIC WORKS STANDARDS.	NT GUIDELINES		1.
2.	THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STAR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANC	TING WORK ANI IES.)	2.
3.	THE CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UT COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FO	TILITIES BEFORE OR ANY AND ALL	Ē	3.
	DAMAGES WHICH MIGHT BE CAUSED BY THE CONTRACTOR'S FAIL EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UT LOCATOR SERVICES SHOULD BE CONDUCTED PRIOR TO ANY CON- SUBSURFACE EXPLORATION.	URE TO TILITIES. ALL STRUCTION OR		4.
4.	CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITIES TO DETER EXACT HORIZONTAL AND VERTICAL LOCATIONS IN ACCORDANCE SPECIFICATION 7-08.3(1).	RMINE THEIR WITH WSDOT		5.
5.	LINEAL FOOTAGE OF PIPING SHOWN ON THE DRAWING REFERS TO HORIZONTAL LENGTHS.	O THE		6.
6.	PRIOR TO BACKFILL ALL PIPES AND APPURTENANCES SHALL BE IN THE CONSTRUCTION INSPECTOR. APPROVAL SHALL NOT RELIEVE CONTRACTOR FOR CORRECTION OF ANY DEFICIENCIES AND/OR F DETERMINED BY SUBSEQUENT TESTING AND INSPECTION.	ISPECTED BY THE AILURES AS		7.
7.	CONTRACTOR SHALL MAKE ALL ARRANGEMENTS NECESSARY TO C SUFFICIENT WATER, POWER, AND LIGHTING FOR CONSTRUCTION)BTAIN PURPOSES.		
8.	RESTRAIN ALL DUCTILE IRON PIPING, MECHANICAL JOINT VALVES COUPLINGS, AND FITTINGS.	S, TEES, BENDS,		8.
9.	CONTRACTOR SHALL NOT REMOVE ANY TREES UNLESS INDICATED DIRECTED BY ENGINEER.	O ON PLANS OR		
10.	WHEN AN UNANTICIPATED DISCOVERY OF PROTECTED CULTURAL (E.G. BONES, SHELL STONE TOOLS, BEADS, CERAMICS, OLD BOTT ETC.) OR HUMAN REMAINS ARE DISCOVERED, THE PROPERTY OW CONTRACTOR WILL IMMEDIATELY STOP ALL WORK, COMPLETELY S LOCATION, AND CONTACT THE WASHINGTON STATE DEPARTMENT ARCHEOLOGY AND HISTORIC PRESERVATION AND OTHER CONTAC IDENTIFIED IN THE CITY OF LACEY STANDARD INADVERTENT ARC AND HISTORIC RESOURCES DISCOVERY PLAN (LMC 16.53.080).	MATERIALS FLES, HEARTHS, NER OR SECURE THE F OF CTS AS CHEOLOGICAL		9.
11.	THE EXISTING SITE IS AN OPERATING WELL FIELD, RESERVOIR A PUMP STATION. CONTRACTOR SHALL MAKE PROVISIONS TO PROV OWNER WITH CONTINUOUS ACCESS TO THE SITE THROUGHOUT O AND ENSURE THE CONTINUOUS OPERATION OF THE FACILITIES A AGREED UPON SHUTDOWNS AS COORDINATED WITH THE CITY. S SPECIFICATIONS 1-08.4(1) FOR WORK SEQUENCE AND FACILITY S REQUIREMENTS.	ND BOOSTER /IDE THE CONSTRUCTION SIDE FROM EE SECTION D SHUTDOWN		10
12.	CONTRACTOR SHALL NOT BLOCK ACCESS TO PRIVATE DRIVEWAYS THE PROJECT SITE, SEE SECTION D SPECIFICATIONS 1-08.4(1) FOR	S ADJACENT TO OR ACCESS		
	REQUIREMENTS DURING CONSTRUCTION.			11
		1		12
	VERTICAL DATUM NGVD 29 CITY OF LACEY BM#711 CITY OF LACEY SE COR LARGE POWER VAULT CHAMBER CREEK APT. ELEV.=229.06			
I O	The Topographic Survey depicts the physical features that were visible at the time of the survey. The City of Lacey is not responsible for the location of underground utilities that are marked or not marked in the field by other utility providers. All feature locations should be independently verified prior to design or construction.			
		NOTICE		
			SWW DESIGNED	

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REVISION

RESSURE SEWER SERVICE NOTES

ALL SEWER MAINS SHALL BE FIELD STAKED FOR GRADES AND ALIGNMENT IN ACCORDANCE WITH SECTION 7A.030 OF THE DEVELOPMENT GUIDELINES.

ALL SIDE SEWER LOCATIONS SHALL BE MARKED ON THE FACE OF THE CURB WITH AN EMBOSSED "S" 3" HIGH AND 1/4 INCH INTO CONCRETE.

BEDDING OF THE PRESSURE SEWER MAIN AND COMPACTION OF THE BACKFILL MATERIAL SHALL BE REQUIRED.

A 3 FOOT SQUARE X 8 INCH THICK CONCRETE PAD WITH #4 REBAR SHALL BE INSTALLED AROUND ALL VALVES THAT ARE NOT IN A PAVEMENT AREA.

TEMPORARY STREET PATCHING SHALL BE ALLOWED FOR AS APPROVED BY THE CITY ENGINEER. TEMPORARY STREET PATCHING SHALL BE PROVIDED BY PLACEMENT AND COMPACTION OF 1 INCH MAXIMUM ASPHALT CONCRETE COLD MIX. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AS REQUIRED.

EROSION CONTROL MEASURES SHALL BE TAKEN BY THE CONTRACTOR DURING CONSTRUCTION TO PREVENT INFILTRATION OF EXISTING AND PROPOSED STORM DRAINAGE FACILITIES AND ROADWAYS.

ALL BURIED POWER FOR S.T.E.P/GRINDER SYSTEMS SHALL BE INSTALLED WITH CONTINUOUS TRACER TAPE INSTALLED 12 INCHES ABOVE THE BURIED POWER. THE MARKER SHALL BE PLASTIC NON-BIODEGRADABLE, METAL CORE BACKING MARKED "POWER". TAPE SHALL BE FURNISHED BY CONTRACTOR.

PRESSURE MAINS LESS THAN 4 INCHES IN DIAMETER SHALL BE HDPE SDR 11 OR SCHEDULE 80 PVC ASTM D1784 WITH RUBBER GASKET JOINTS. PRESSURE MAINS 4 INCHES IN DIAMETER OR GREATER SHALL BE HDPE SDR 11 OR PVC C-900DR 14. CERTAIN-TEED CERTA-LOK C-900 R/J PIPE IS APPROVED FOR USE WHERE RESTRAINED JOINTS ARE REOUIRED. WELDED POLY (HDPE) PIPE SHALL BE HI DENSITY ASTM D 3350, SDR 11 4710 SOCKET WELDED OR BUTT FUSION WELDED. HDPE PIPE SHALL BE SIZED BY INSIDE PIPE DIAMETER. FITTINGS AND VALVES SHALL COMPLY WITH SECTION 7E.040 OF THE DEVELOPMENT GUIDELINES. PIPING FOR SEWER LINES SHALL BE GREEN, WHITE OR BLACK. HDPE SEWER PIPE SHALL BE GREEN OR BLACK WITH A GREEN STRIPE MANUFACTURED ON THE PIPE.

S.T.E.P/GRINDER SERVICE LINE FROM MAIN CONNECTION TO SERVICE BALL VALVE SHALL BE 1 ¹/₄ INCH OR 2 INCH DIAMETER SCHEDULE 80 PVC. HDPE PIPE SHALL BE HI DENSITY ASTM D 3350, SDR 11 4710 SOCKET OR BUTT FUSION

0. ALL PLASTIC PIPE AND SERVICES SHALL BE INSTALLED WITH CONTINUOUS TRACER TAPE INSTALLED 12 INCHES TO 18 INCHES UNDER THE PROPOSED FINISHED SUBGRADE. THE MARKER SHALL BE PLASTIC NON-BIODEGRADABLE. METAL CORE OR BACKING MARKED SEWER WHICH CAN BE DETECTED BY A STANDARD METAL DETECTOR. IN ADDITION, S.T.E.P SYSTEMS AND PRESSURE MAINS SHALL BE INSTALLED WITH 12 GAUGE DIRECT BURY, U.S.E. GREEN COATED COPPER WIRE WRAPPED AROUND ALL PLASTIC PIPE, BROUGHT UP AND TIED OFF AT VALVE BODY. CONTINUITY TESTING OF THE WIRE WILL BE DONE BY THE CITY. TAPE SHALL BE TERRA TAPE "D" OR APPROVED EQUAL. THE TAPE AND WIRE SHALL BE FURNISHED BY THE CONTRACTOR.

PRIOR TO ACCEPTANCE OF THE PROJECT THE PRESSURE MAINLINE AND SERVICE LINES SHALL BE SUBJECT TO A HYDROSTATIC PRESSURE TEST OF 175 POUNDS FOR 15 MINUTES AND ANY LEAKS OR IMPERFECTIONS DEVELOPING UNDER SAID PRESSURE SHALL BE REMEDIED BY THE CONTRACTOR. PRESSURE TESTING SHALL NOT EXCEED THE PRESSURE RATING OF VALVES OR OTHER COMPONENTS WITHIN THE SYSTEM. NO AIR WILL BE ALLOWED IN THE LINE. THE MAIN SHALL BE TESTED BETWEEN VALVES. INSOFAR AS POSSIBLE, NO HYDROSTATIC PRESSURE SHALL BE PLACED AGAINST THE OPPOSITE SIDE OF THE VALVE BEING TESTED. THE PRESSURE TEST SHALL BE MAINTAINED WHILE THE ENTIRE INSTALLATION IS INSPECTED. IN ADDITION, ALL PRESSURE MAINS SHALL BE PIGGED IN THE PRESENCE OF THE CITY INSPECTOR PRIOR TO PLACING THE MAIN IN SERVICE.

PRIOR TO BACKFILL, ALL MAINS AND APPURTENANCES SHALL BE INSPECTED AND APPROVED BY THE CITY OF LACEY CONSTRUCTION INSPECTOR. APPROVAL SHALL NOT RELIEVE THE CONTRACTOR FOR CORRECTION OF ANY DEFICIENCIES AND/OR FAILURES AS DETERMINED BY SUBSEQUENT TESTING AND INSPECTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY OF LACEY FOR THE REQUIRED INSPECTIONS.

- 13. SINGLE AND DUPLEX FAMILY S.T.E.P. PUMPING SYSTEMS INSTALLED IN LACEY SHALL BE AN ORENCO CERTIFIED PACKAGE AND BE ACCOMPANIED BY A CERTIFICATE OF ORIGIN LETTER FROM ORENCO. THE CERTIFICATE OF ORIGIN LETTER SHALL BE PRESENTED TO THE CITY OF LACEY INSPECTOR AT TIME OF INSTALLATION AND INSPECTION OF THE PUMPING SYSTEM. PACKAGE COMPONENTS AND INSTALLATION REQUIREMENTS SHALL ALSO COMPLY WITH LACEY DETAILS. A PDF VERSION OF THE CERTIFICATE OF ORIGIN LETTER AND THE MANUFACTURER'S SUBMITTAL DATA OF THE REQUIRED COMPONENTS CAN BE FOUND ONLINE AT THE CITY OF LACEY WEBSITE UNDER THE PUBLIC WORKS HEADING THEN UNDER DEVELOPMENT GUIDELINES AND PUBLIC WORKS STANDARDS.
- 14. SINGLE AND DUPLEX FAMILY GRINDER SYSTEM SHALL BE MANUFACTURED BY E-ONE (ENVIRONMENT ONE CORPORATION) ONLY AND SHALL BE PURCHASED AND INSTALLED AS A PACKAGED SYSTEM FROM E-ONE. THIS INCLUDES THE ELECTRICAL CONTROL PANEL, WIRING FROM PANEL TO PUMP CHAMBER, THE PUMP AND PUMPING COMPONENTS AND PUMP CHAMBER. NO SUBSTITUTION OF PARTS SHALL BE ALLOWED.
- 15. ALL STEP AND GRINDER SYSTEMS INSTALLED IN COMMERCIAL APPLICATIONS SHALL MEET THE APPLICATIVE ELECTRICAL REQUIREMENTS FOR COMMERCIAL SYSTEMS.
- 16. ALL VALVES UP TO 2 INCH SHALL BE RED HANDLE CEPEX POLY TRUE UNION FIPT X FIPT BALL VALVES WITH APPROPRIATE COUPLINGS. ALL VALVES THREE TO 24 INCH SHALL BE PRATT, MILLIKEN, OR CRISPIN PLUG VALVES OR APPROVED EQUAL. PLUG VALVES SHALL BE OF A FULL ROUND PORT DESIGN (100% OPENING) AND EPOXY COATED ON THE INSIDE AND OUTSIDE AS SPECIFIED IN 7D.030. ALL PLUG VALVES SHALL HAVE A 2 INCH OPERATING NUT, GEAR REDUCTION OPERATION, AND BE RATED FOR BURIAL. TAPPING VALVES SHALL BE RESILIENT WEDGE GATE VALVES AND BE EPOXY COATED ON THE INSIDE AND OUTSIDE.





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Shaping our community

CITY OF LACEY, WASHINGTON WESTSIDE pH **TREATMENT PROJECT** LACEY CONTRACT **#PW 2022-37** PROJECT NO.:

SCHEDULE B SHEET

G-5

GENERAL AND SEWER NOTES

WATER NOTES

- 1. WATER MAINS LARGER THAN 4" SHALL BE DUCTILE IRON STANDARD THICKNESS CLASS 52 OR 53.
- 2. GATE VALVES SHALL BE RESILIENT WEDGE, NRS (NON RISING STEM) WITH O-RING SEALS. VALVE ENDS SHALL BE MECHANICAL JOINT OR ANSI FLANGES. VALVES SHALL CONFORM TO AWWA C-515 LATEST REVISION VALVES SHALL BE MUELLER, M & H, KENNEDY, CLOW R/W, WATEROUS SERIES 2500, EJ FLOWMASTER OR AMERICAN AVK.
- 3. EXISTING VALVES SHALL BE OPERATED BY CITY EMPLOYEES ONLY.
- 4. HYDRANTS SHALL BE CITY APPROVED AS SPECIFIED ON THE HYDRANT DETAILS AND SHALL BE BAGGED UNTIL THE SYSTEM IS APPROVED.
- 5. THE CONTRACTOR WITH THE ASSISTANCE OF THE CITY INSPECTOR SHALL INSTALL, CHLORINATE AND FILL THE WATER MAIN. TESTING SHALL INCLUDE THE MAIN, VALVES, SERVICE LINES AND APPURTENANCES. AFTER TESTING IS COMPLETED, THE NEWLY CONSTRUCTED SYSTEM SHALL BE FLUSHED. AFTER FLUSHING CHLORINATED WATER FROM DISINFECTED LINES, THE CITY SHALL MEASURE CHLORINE RESIDUAL TO VERIFY THAT FLUSHING IS COMPLETE. THIS WILL BE COMPLETED PRIOR TO THE CITY TAKING MICROBIOLOGICAL SAMPLES.
- 6. ALL PIPE AND SERVICES SHALL BE INSTALLED WITH CONTINUOUS TRACER TAPE INSTALLED 12" TO 18" UNDER THE FINAL GROUND SURFACE. THE MARKER SHALL BE PLASTIC NON-BIODEGRADABLE, METAL CORE BACKING MARKED "WATER" WHICH CAN BE DETECTED BY A STANDARD METAL DETECTOR. TAPE SHALL BE 3 INCH WIDE TERRA TAPE "D" OR APPROVED EQUAL. IN ADDITION TO TRACER TAPE, INSTALL DIRECT BURY, U.S.E. 12 GAUGE BLUE COATED COPPER WIRE, WRAPPED AROUND OR TAPED TO THE PIPE, AS SHOWN ON CITY STANDARD DRAWINGS. LOW VOLTAGE GREASE-TYPE SPLICE KITS SHALL BE USED ON TRACER WIRE. AFTER THE WIRE NUT IS USED TO CONNECT THE WIRE TOGETHER AN OVERHAND KNOT SHALL BE TIED JUST OUTSIDE THE GREASE KIT TO PREVENT IT FROM COMING APART. CONTINUITY TESTING OF THE WIRE WILL BE DONE BY THE CITY.
- ALL SERVICE LINE LOCATIONS SHALL BE MARKED ON THE TOP OR FACE OF THE CURB WITH AN EMBOSSED "W" 3 INCHES HIGH AND 1/4 INCH INTO CONCRETE.
- 8. THE CITY WILL BE GIVEN 72 HOURS NOTICE PRIOR TO SCHEDULING A SHUTDOWN. WHERE CONNECTIONS REQUIRE "FIELD VERIFICATION", CONNECTION POINTS SHALL BE EXPOSED BY THE CONTRACTOR AND FITTINGS VERIFIED 72 HOURS PRIOR TO DISTRIBUTING SHUT-DOWN NOTICES.
- SEPARATION BETWEEN WATER AND SEWER SHALL BE MAINTAINED PER ECY STANDARDS.
- 10. AT ANY CONNECTION TO AN EXISTING LINE WHERE A NEW VALVE IS NOT INSTALLED, THE EXISTING VALVE MUST BE PRESSURE TESTED TO CITY STANDARDS PRIOR TO CONNECTION. IF AN EXISTING VALVE FAILS TO PASS THE TEST, THE CONTRACTOR SHALL MAKE THE NECESSARY PROVISIONS TO TEST THE NEW LINE PRIOR TO CONNECTION TO THE EXISTING SYSTEM OR INSTALL A NEW VALVE.
- 11. THE MINIMUM BURIAL DEPTH OF ALL WATER LINES SHALL BE 42 INCHES. THE CONTRACTOR SHALL MAINTAIN A MINIMUM OF 18 INCHES OF VERTICAL SEPARATION BETWEEN SANITARY SEWERS/RECLAIMED WATER AND WATER MAINS. TO ACCOMMODATE CROSSINGS, THE MINIMUM COVER FOR WATER MAIN OF 42 INCHES MAY BE REDUCED TO 30 INCHES UPON APPROVAL BY THE CITY TO PROVIDE FOR AS MUCH VERTICAL SEPARATION AS POSSIBLE. WHEN A REDUCED DEPTH IS ALLOWED, DUCTILE IRON PIPING AND/OR CASINGS MAY BE REQUIRED.

- THE LINE(S) AND BOXES.
- ADVANCE OF INSTALLATION.
- PRESSURE BE LESS THAN 225 PSI.
- CHART REQUIREMENTS.
- SHALL NOT BE PERMITTED.
- SPECIALIST.

DATE	BY	REVISION	NOTICE 0 ½ 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	SWW DESIGNED SWW DRAWN NCR CHECKED	REAL STORAGE

12. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION AND DEPTH OF THE EXISTING MAIN AND PROVIDE THE FITTINGS REQUIRED TO MAKE THE CONNECTIONS TO THE EXISTING MAIN.

13. THE CONTRACTOR SHALL INSTALL A TEMPORARY 2 INCH BRASS BLOW OFF FOR FLUSHING AND SAMPLING ON THE EXISTING AND/OR NEW WATER MAIN. THE BLOW OFF SHALL BE CONSTRUCTED WITH A STANDARD 2 INCH TAPPING SADDLE AND FORD BRASS CORPORATION STOP WITH 2 INCH BRASS PIPE EXTENDED UP TO FINISHED GRADE. WHEN FLUSHING AND SAMPLING ARE COMPLETED, THE 2 INCH PIPE SHALL BE REMOVED. THE CORPORATION STOP SHALL BE SHUT OFF AND CAPPED TIGHT WITH A THREADED BRASS CAP.

14. WHEN AN EXISTING CITY WATER MAIN IS TO BE ABANDONED, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE AND ABANDON THE EXISTING MAIN. IT SHALL ALSO BE THE CONTRACTOR'S RESPONSIBILITY TO INSTALL AND TRANSFER EXISTING WATER SERVICES TO THE NEW MAIN.

15. SAND SHALL BE PLACED AROUND AND UNDER SERVICE LINES AND METER BOXES BY HAND TO A HEIGHT OF 6 INCHES ABOVE AND 6 INCHES BELOW

16. METERS 3 INCHES OR LARGER IN SIZE MUST BE ORDERED FROM CITY UTILITY BILLING BY THE CONTRACTOR A MINIMUM OF 10 WEEKS IN

17 ALL VALVE BOX, BLOW-OFF AND MANHOLE LIDS SHALL BE CLEAN AND CLEAR OF ASPHALT OR CONCRETE BEFORE SCHEDULING A WALK THROUGH.

18. THE WATER MAIN AND APPURTENANCES AND SERVICE CONNECTIONS TO THE METER SETTER SHALL BE TESTED IN SECTIONS OF CONVENIENT LENGTHS UNDER A HYDROSTATIC PRESSURE EQUAL TO 150 PSI IN EXCESS OF THAT UNDER WHICH IT WILL OPERATE. IN NO CASE SHALL THE TEST

19. ALL WATER MAINS AND SERVICE LINES SHALL BE BEDDED PER CITY STANDARD DRAWING 6-26 AND MEETING THE PIPE BEDDING SPECIFICATION

20. ALL BRASS PIPE AND FITTINGS SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA AND COMPLY WITH PUBLIC LAW 111-380 (REDUCTION OF LEAD IN DRINKING WATER ACT). IMPORTED BRASS PIPE AND FITTINGS

21. WHEN USING A HYDRANT METER TO FILL A TANKER TRUCK OR PORTABLE TANK OF ANY KIND, AN APPROVED PERMANENTLY INSTALLED AIR GAP OF AT LEAST TWO TIMES THE INSIDE DIAMETER OF THE FILL PIPE IS REQUIRED. ANY AIR GAP ON TANKER TRUCKS OR PORTABLE TANKS USED WITHIN THE CITY OF LACEY WATER SYSTEM MUST BE INSPECTED ANNUALLY BY A CERTIFIED BACKFLOW ASSEMBLY TESTER (BAT) AND A TYPICAL BACKFLOW PREVENTION TEST REPORT SUBMITTED TO THE LACEY CROSS-CONNECTION

DRAINAGE NOTES

- 1. ALL APPROVALS AND PERMITS REQUIRED BY THE CITY OF LACEY SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION.
- 2. STORM DRAIN PIPE SHALL BE ON THE WSDOT QUALIFIED PRODUCTS LIST FOR THE SPECIFICATION LISTED BELOW:
- A. PLAIN CONCRETE STORM SEWER PIPE OR REINFORCED CONCRETE STORM SEWER PIPE PER WSDOT STANDARD SPECIFICATION 9-05.7. B. SOLID WALL PVC STORM SEWER PIPE PER WSDOT STANDARD
- SPECIFICATION 9-05.12(1). C. DUCTILE IRON SEWER PIPE PER WSDOT STANDARD SPECIFICATION 9-05.13.
- D. HANCOR BLUE SEAL[™] AND ADVANCED DRAINAGE SYSTEMS (ADS/HANCOR) N-12 HDPE AND (ADS/HANCOR) SANITITE UP TO 36" IN DIAMETER PER WSDOT STANDARD SPECIFICATIONS 9-05.20 AND 9-05.24.
- E. CONTECH DUROMAXX STEEL RIB REINFORCED POLYETHYLENE PIPE, IN DIAMETERS FROM 24 INCH TO 60 INCH PER WSDOT STANDARD SPECIFICATION 9-05.22.
- 3. ALL STORM DRAINAGE SYSTEMS SHALL BE AIR TESTED AT 4 PSI EXCEPT CONCRETE PIPE WHICH SHALL BE TESTED PER WSDOT/APWA STANDARD FOR 15. THE STORM DRAINAGE SYSTEM SHALL BE CONSTRUCTED ACCORDING TO APPROVED PLANS ON FILE WITH THE CITY. ANY MATERIAL DEVIATION FROM CONCRETE STORM PIPE. ALL FLEXIBLE PIPE SHALL BE MANDREL TESTED PER WSDOT/APWA STANDARDS. TESTING SHALL BE DONE BY THE CONTRACTOR. THE APPROVED PLANS WILL REQUIRE WRITTEN APPROVAL FROM THE CITY.
- 16. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SIMILARLY 4. TESTING OF THE STORM SEWER SHALL INCLUDE VIDEO TAPING OF THE MAIN STABILIZED TO THE SATISFACTION OF THE JURISDICTION. FOR SITES BY THE CONTRACTOR, IMMEDIATELY PRIOR TO VIDEO TAPING, ENOUGH WHERE GRASS HAS BEEN PLANTED THROUGH HYDROSEEDING, THE WATER SHALL BE RUN DOWN THE LINE SO IT COMES OUT THE LOWER CATCH BASIN. A COPY OF THE VIDEO TAPE SHALL BE SUBMITTED TO THE CITY OF PERFORMANCE BOND WILL NOT BE RELEASED UNTIL THE GRASS HAS BEEN LACEY. ACCEPTANCE OF THE LINE WILL NOT BE MADE UNTIL AFTER THE TAPE THOROUGHLY ESTABLISHED, UNLESS OTHERWISE APPROVED BY THE HAS BEEN REVIEWED AND APPROVED BY THE CITY. TESTING SHALL TAKE JURISDICTION. PLACE AFTER ALL UNDERGROUND UTILITIES ARE INSTALLED AND COMPACTION OF THE ROADWAY SUBGRADE IS COMPLETE.
- 5. SPECIAL STRUCTURES AND OUTLET CONTROLS SHALL BE INSTALLED PER PLANS AND MANUFACTURERS' RECOMMENDATIONS
- 6. ALL DISTURBED AREAS SHALL BE STABILIZED IN ACCORDANCE WITH CORE REQUIREMENT 2 OF THE CURRENT CITY OF LACEY STORMWATER DESIGN MANUAL. FOR SITES WHERE VEGETATION HAS BEEN PLANTED THROUGH HYDROSEEDING, THE FINANCIAL GUARANTEE WILL NOT BE RELEASED UNTIL THE VEGETATION HAS BEEN THOROUGHLY ESTABLISHED.
- 7. WHERE CONNECTIONS REQUIRE "FIELD VERIFICATIONS", CONNECTION POINTS WILL BE EXPOSED BY CONTRACTOR AND FITTINGS VERIFIED 48 HOURS PRIOR TO DISTRIBUTING SHUT-DOWN NOTICES.
- 8. ALL CATCH BASINS SHALL HAVE PADS PER LACEY STANDARD DETAIL
- 9. ANY CHANGES TO THE DESIGN SHALL FIRST BE REVIEWED AND APPROVED BY THE PROJECT ENGINEER AND THE CITY OF LACEY.
- 10. ALL STORM PIPES SHALL BE A MINIMUM OF 12 INCH DIAMETER FOR MAINS PLACE, AND READY TO USE. AND CROSSINGS. WHEN PRIVATE STORMWATER (I.E. ROOF, LOT OR 21. COMPACTION OF ALL FILL AREAS SHALL BE PER CURRENT APWA FOOTING DRAINS) CANNOT BE INFILTRATED ON INDIVIDUAL LOTS, THE MINIMUM STANDARD PIPING CONNECTION TO THE PUBLIC SYSTEM SHALL BE SPECIFICATIONS. FILL SHALL BE PROVIDED IN 6" MAXIMUM LIFTS AND 8 INCH PVC. THE 8 INCH MAIN USED FOR CONNECTION SHALL BEGIN AT SHALL BE COMPACTED TO 95 PERCENT OF ITS MAXIMUM RELATIVE DENSITY. THE RIGHT-OF-WAY, THE CONNECTION TO THE CATCH BASIN OR MANHOLE SHALL BE CORED.
- 11. ALL STORM MAINS AND RETENTION/DETENTION AREAS SHALL BE STAKED FOR GRADE AND ALIGNMENT BY AN ENGINEERING OR SURVEY FIRM LICENSED TO PERFORM SUCH WORK.

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together

CITY LACEY





CITY OF LACEY, our community WASHINGTON WESTSIDE pH **TREATMENT PROJECT** LACEY CONTRACT **#PW 2022-37**

- 12. THE MINIMUM STAKING OF STORM SEWER SYSTEMS SHALL BE AS FOLLOWS: A. STAKE LOCATION OF ALL CATCH BASINS, MANHOLES AND OTHER FIXTURES FOR GRADE AND ALIGNMENT
 - B. STAKE LOCATION, SIZE, AND DEPTH OF RETENTION/DETENTION
 - FACILITY. C. STAKE FINISHED GRADE OF ALL STORMWATER FEATURES, INCLUDING BUT NOT LIMITED TO CATCH BASIN/MANHOLE RIM ELEVATIONS, OVERFLOW STRUCTURES, WEIRS, AND INVERT ELEVATIONS OF ALL PIPES IN CATCH BASINS, MANHOLES, AND PIPES THAT DAYLIGHT.
- 13. PIPE MATERIALS USED FOR STORMWATER CONVEYANCE SHALL BE AS APPROVED BY THE JURISDICTION. PIPE SIZE, SLOPE, COVER, ETC., SHALL BE AS SPECIFIED IN THE CITY OF LACEY DEVELOPMENT GUIDELINES AND PUBLIC WORKS STANDARDS.
- 14. ALL DRIVEWAY CULVERTS SHALL BE OF SUFFICIENT LENGTH TO PROVIDE A MINIMUM 3:1 SLOPE FROM THE EDGE OF THE DRIVEWAY TO THE BOTTOM OF THE DITCH. CULVERTS SHALL HAVE BEVELED END SECTIONS TO MATCH THE SIDE SLOPE.

- 17. ALL BUILDING DOWNSPOUTS ON COMMERCIAL SITES SHALL BE CONNECTED TO THE STORM DRAINAGE SYSTEM, UNLESS OTHERWISE APPROVED BY THE CITY.
- 18. ALL EROSION CONTROL AND STORMWATER FACILITIES SHALL BE REGULARLY INSPECTED AND MAINTAINED BY THE CONTRACTOR DURING THE CONSTRUCTION PHASE OF THE DEVELOPMENT PROJECT.
- 19. NO FINAL CUT OR FILL SLOPE SHALL EXCEED TWO (2) HORIZONTAL TO ONE (1) VERTICAL WITHOUT STABILIZATION BY ROCKERY OR BY A STRUCTURAL RETAINING WALL.
- 20. THE PROJECT ENGINEER SHALL VERIFY THE LOCATIONS, WIDTHS, THICKNESSES, AND ELEVATIONS OF ALL EXISTING PAVEMENTS AND STRUCTURES, INCLUDING UTILITIES AND OTHER FRONTAGE IMPROVEMENTS, THAT ARE TO INTERFACE WITH NEW WORK, PROVIDE ALL TRIMMING, CUTTING, SAW CUTTING, GRADING, LEVELING, SLOPING, COATING, AND OTHER WORK, INCLUDING MATERIALS AS NECESSARY TO CAUSE THE INTERFACE WITH EXISTING WORKS TO BE PROPER, WITHOUT CONFLICT ACCEPTABLE TO THE ENGINEER AND THE JURISDICTION, COMPLETE IN

WATER AND DRAINAGE NOTES

SCHEDULE B SHEET

G-6



SURVEY CONTROL NOTES:

BASIS OF BEARING

MERIDIAN IS WASHINGTON COORDINATE SYSTEM OF 1983/91 - SOUTH ZONE DERIVED FROM TIES TO HPGN STATIONS SANDERSON, MCKENNA AND CBL1110 AND TO WSDOT GPS STATIONS G259R, GP34005-2, GP34005-4, GP34101-32, GP34101-39, HC34-2, LUHR RM2, TS34-33, TS34-59 AND TO THURSTON COUNTY GPS STATIONS U-531, AT-194, AT-352, AT-355, AT-447, AT449 AND AT-478.

DISTANCES SHOWN ARE GROUND SCALE U.S. SURVEY FEET. COMBINED SCALE FACTOR (GROUND TO GRID) IS 0.999935701. SURVEY AF# 3111152 DATED 09-24-1997.

METHOD OF SURVEY

SURVEY PERFORMED BY CONVENTIONAL FIELD TRAVERSE USING A LEICA TS-16 (THREE SECOND TOTAL STATION), LINEAR AND ANGULAR CLOSURE OF THE TRAVERSE MEET THE STANDARDS OF WAC 332-130-090.

BOUNDARY

THE BOUNDARY WAS COMPILED USING PHYSICAL FEATURES TIED IN THE FIELD AND DOCUMENTS OF RECORD AS SHOWN BELOW.

SURVEY REFERENCE AF# 3111152

<u>PLAT REFERENCE</u> KOMACHIN VILLAGE AFN. 3085583, BOWERY ONE V.19, PG. 20, BEL AIR PARK V.16, PG. 38.

VERTICAL THE CITY OF LACEY BENCHMARKS ARE BASED ON NGVD 29 DATUM FROM PRIMARY CONTROL ESTABLISHED BY FEDERAL AND STATE AGENCIES TO FIRST OR SECOND ORDER ACCURACY. THE CITY OF LACEY'S BENCHMARKS ARE GENERALLY TO THIRD ORDER ACCURACY.

BENCHMARK CITY OF LACEY BM#711

CITY OF LACEY SE COR LARGE POWER VAULT CHAMBER CREEK APT. LEV. = 229.06

SOURCE OF CONTOURS COMPILE FIELD MEASUREMENTS USING AUTOCAD CIVIL 3D-2020

SOURCE OF UTILITY MARKINGS PROVIDED BY CITY OF LACEY SHOP ONLY

FIELD SURVEYOR & FIELD BOOK SURVEYORS NAME PERRYMAN FB 293

SCHEDULE B SHEET



DEMOLITION KEY NOTES:

- 1 REMOVE EXISTING GATE AND FENCE
- 2 SAWCUT
- 3 ABANDON WATER/DRAIN LINE
- 4 PROTECT EXISTING TRANSFORMER
- 5 PROTECT EXISTING WELL (S-01S) AND TEST WELL
- 6 PROTECT EXISTING POWER MANHOLE
- 7 PROTECT EXISTING BACKUP GENERATOR
- 8 ABANDON SEWER LINE
- 9 COMPLETELY REMOVE AND DISPOSE OF EXISTING MANHOLE
- 10 COORDINATE ABANDONMENT OF EXISTING WATERLINE WITH CITY OF LACEY WATER DEPARTMENT
- 11 REMOVE EXISTING SAMPLE STATION
- 12 REMOVE EXIST CONC SLAB TO NEAREST JOINT. SEE ELEC SHEETS FOR COORDINATION WITH CONDUIT INSTALLATION.

DEMOLITION GENERAL NOTES:

- 1. A PRECONSTRUCTION MEETING SHALL BE HELD WITH SOUND URBAN FORESTRY AND CONFIRMATION FROM THE FORESTER THAT THE MEETING HAS BEEN HELD SHALL BE PROVIDED TO THE CITY OF LACEY COMMUNITY DEVELOPMENT DEPARTMENT PRIOR TO THE START OF SITE CONSTRUCTION OR GRADING ACTIVITY.
- 2. REMOVE TOP SECTION OF ALL VALVE BOXES ALONG ABANDONED WATER LINES AND BACKFILL REMAINDER OF VALVE BOX WITH SUITABLE MATERIAL.

ESC KEY NOTES:

- 1 INSTALL STABILIZED CONSTRUCTION ENTRANCE PER WSDOT STD PLAN I-80.10-01, DET 3, SHT C-3
- 2 INSTALL HIGH VISIBILITY SILT FENCE PER WSDOT STD PLAN I-30.15-02, DET 2, SHT C-3
- (3) INSTALL STORM DRAIN INLET PROTECTION PER WSDOT STANDARD PLAN I-40.20-00, DET 5, SHT C-3
- (4) INSTALL TREE PROTECTION FOR TREES TO REMAIN IN PLACE PER DET 1 AND DET 4, SHT C-3



EXISTING CONDITIONS, EROSION SEDIMENTATION CONTROL AND SITE PREPARATION PLAN - 1

SCHEDULE B



DEMOLITION KEY NOTES:

- 1 REMOVE EXISTING GATE AND FENCE
- 2 SAWCUT
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- (4) INSTALL TREE PROTECTION FOR TREES TO REMAIN IN PLACE PER DET 1 AND DET 4, SHT C-3



EXISTING CONDITIONS, EROSION SEDIMENTATION CONTROL AND SITE PREPARATION PLAN - 2

SCHEDULE B



GRATE FRAME



MEASURE	ECY BMP
PRESERVING NATURAL VEGETATION	C101
CONSTRUCTION FENCE	C103
GRAVEL CONSTRUCTION ENTRANCE	C105
CONSTRUCTION ROAD STABILIZATION	C107
TEMPORARY AND PERMANENT SEEDING	C120
MULCHING	C121
PLASTIC COVERING	C123
DUST CONTROL	C140
GRASS-LINED CHANNELS	C201
LEVEL SPREADER	C206
CHECK DAM	C207
GEOTEXTILE-ENCASED CHECK DAM	C208
OUTLET PROTECTION	C209
STORM DRAIN INLET PROTECTION	C220
HIGH VISIBILITY SILT FENCE	C233



PT NO.	DESCRIPTION	NORTHING
32	EOP (MATCH EXIST)	N622718.3
33	EOP PI	N622707.06
34)	FLOW LINE	N622680.59
35	CONC WALK	N622680.59
(36)	CONC WALK	N622680.59
37	FLOW LINE	N622665.59
38	EOP PI	N622661.47
39	EOP (MATCH EXIST)	N622660.37
(40)	EOP (MATCH EXIST)	N622660.2
(41)	EOP (MATCH EXIST)	N622650.5
(42)	EOP (MATCH EXIST)	N622650.36
(43)	EOP (MATCH EXIST)	N622636.44
(44)	EOP	N622628.46
(45)	EOP	N622628.39
(46)	EOP PT	N622665.59
(47)	EOP PT	N622688.02
(48)	END OF PROP FENCE	N622836.03
(49)	END OF PROP FENCE	N622842.88
(50)	8IN METER VAULT HATCH	N622360.12
(51)	GRINDER PUMP	N622737.14
(52)	SUMP DRAIN SPLASH BLOCK	N622836.3
(53)	SUMP DRAIN SPLASH BLOCK	N622750.59
(54)	SUMP DRAIN SPLASH BLOCK	N622352.07
(55)	VAULT CORNER (NW)	N622848.3
(56)	VAULT CORNER (SE)	N622837.64
(57)	VAULT CORNER (NW)	N622749.25
58	VAULT CORNER (SE)	N622742.92
(59)	VAULT CORNER (NW)	N622364.53
(60)	VAULT CORNER (SE)	N622355.72

	LAYOUT POI	NIS	
PT NO.	DESCRIPTION	NORTHING	EASTING
	BLDG CORNER (NW)	N622727.59	E61387.27
2	BLDG CORNER (NE)	N622727.59	E61453.27
3	BLDG CORNER (SE)	N622685.59	E61453.27
4	BLDG CORNER (SW)	N622685.59	E61387.27
5	CONTROL VALVE VAULT HATCH	N622842.98	E61490.09
6	EOP (MATCH EXIST)	N622834.26	E61347.94
7	EOP (MATCH EXIST)	N622834.02	E61364.25
8	EDGE OF GRAVEL	N622819.37	E61334.05
9	EDGE OF GRAVEL	N622800.25	E61333.50
10	EDGE OF GRAVEL	N622793.43	E61339.94
(11)	EDGE OF GRAVEL	N622777.36	E61338.68
(12)	EOP PT	N622775.95	E61356.62
(13)	EOP PI	N622754.85	E61343.18
14	EOP, GRADE BREAK	N622749.59	E61368.53
(15)	EDGE OF GRAVEL PT	N622749.59	E61416.62
(16)	EDGE OF GRAVEL PT	N622746.59	E61419.62
17	12IN METER VAULT HATCH	N622746.09	E61391.19
18	EOP PT	N622743.59	E61386.53
(19)	EOP PT	N622743.59	E61416.62
20	EOP (MATCH EXIST)	N622743.41	E61450.72
21	EOP (MATCH EXIST)	N622742.35	E61488.08
(22)	EOP PT	N622740.59	E61419.62
23	FL, EOP	N622738.41	E61450.72
24	FL PI, GRADE BREAK	N622737.53	E61481.51
25	CONC WALK, EOP	N622734.59	E61419.62
26	CONC WALK	N622734.59	E61450.72
(29)	CONC WALK	N622732.59	E61458.27
30	CONC WALK	N622732.59	E61450.72
31	FL (MATCH EXIST)	N622720.57	E61499.78

NO.







					SCHEDULE B
	SITE DE	TAILS -	1		C-5
PROJECT NO.: 21-31	72 SCALE:	AS SHOWN	DATE:	AUGUST 2023	



1/8

1/2" REFLECTIVE TAPE (TYP.)

STEEL PIPE ~ ASTM A 53, NPS 3 (3" NOM.), SCHEDULE 80

1/2" REFLECTIVE TAPE (TYP.)

1/8

1/4" × 1 1/2" × 2" STEEL PLATE WITH ROUNDED CORNERS AND 3/4" CENTERED HOLE

This bollard does not have an effective breakaway design feature and cannot be installed within the

> SCHEDULE B SHEET

> > C-6

SITE DETAILS - 2

PROJECT NO.:



NO.

DATE BY

REVISION

NOT TO SCALE



STORM DRAINAGE SCHEDULE:

- N622752.59, E61433.39 FURNISH & INSTALL 1-TYPE 1 CB RIM=231.54 IE 8" PVC SE=228.03
- $\langle 2 \rangle$ N622662.30, E61535.49 FURNISH & INSTALL: 1-TYPE 1 CB, SOLID COVER RIM=231.56 IE 8" PVC NW=227.35 IE 6" PVC N=227.35 IE 6" PVC S=227.35
- **GRADING KEY NOTES:**
- 1 MATCH GRADE AND CONTROL JOINT LAYOUT OF EXIST CONC SLAB
- 2 **DISPERSION TRENCH PER DET 5** SHT C-10
- ADJUST EXIST POWER MANHOLE 3 **RIM ELEVATION TO FINISHED** GRADE
- 4 THICKENED EDGE CONC WALK, SEE DET 4, SHT C-10

GRADING POINTS	
DESCRIPTION	ELEVATION
BLDG CORNER (NW)	233.40
BLDG CORNER (NE)	233.40
BLDG CORNER (SE)	233.40
BLDG CORNER (SW)	233.40
CONTROL VALVE VAULT HATCH	233.03
EOP (MATCH EXIST)	233.50
EOP (MATCH EXIST)	233.74
EDGE OF GRAVEL	233.06
EDGE OF GRAVEL	232.68
EDGE OF GRAVEL	232.68
EDGE OF GRAVEL	232.35
EOP PT	232.48
EOP PI	232.18
EOP, GRADE BREAK	232.74
EDGE OF GRAVEL PT	232.96
EDGE OF GRAVEL PT	233.02
12IN METER VAULT HATCH	233.02
EOP PT	233.05
EOP PT	233.08
EOP (MATCH EXIST)	232.60
EOP (MATCH EXIST)	232.28
EOP PT	233.14
FL, EOP	232.55
FL PI, GRADE BREAK	232.11
CONC WALK, EOP	233.26

- (3) N622606.89, E61421.70 FURNISH & INSTALL: 1-TYPE 1 CB, SOLID COVER RIM=232.73 IE 8" PVC N=228.54 IE 8" PVC SE=228.54
- < 4 > N622583.15, E61445.92 FURNISH & INSTALL: 1-TYPE 1 CB, SOLID COVER RIM=232.38 IE 8" PVC NW=228.23 IE 6" PVC N=228.23 IE 6" PVC S=228.23
- 5 MATCH EXIST GRADE AT TRANSFORMER

7

8

- 6 TRANSITION FROM TYPICAL TO THICKENED EDGE SECTION WITH 6IN CURB OVER 7 FT
 - SANITARY SEWER CLEANOUT LID SET FLUSH WITH SIDEWALK FINISHED GRADE, SEE CITY STD DWG 7-7.0, SHT C-18
 - ROOF/FOUNDATION DRAIN HIGH POINT, IE = 231.9

	GRADING PUI	
PT NO.	DESCRIPTION	ELEVATION
(26)	CONC WALK	233.26
(27)	EOP	232.70
28	EOP	232.80
29	CONC WALK	233.20
30	CONC WALK	233.30
31	FL (MATCH EXIST)	231.46
32	EOP (MATCH EXIST)	231.74
33	EOP PI	232.36
34)	FLOW LINE	233.30
35	CONC WALK	233.20
36	CONC WALK	233.30
37)	FLOW LINE	233.05
(38)	EOP PI	233.20
39	EOP (MATCH EXIST)	233.81
(40)	EOP (MATCH EXIST)	233.81
(41)	EOP (MATCH EXIST)	234.10
(42)	EOP (MATCH EXIST)	234.10
(43)	EOP (MATCH EXIST)	234.10
(44)	EOP	233.87
(45)	EOP	233.24
(46)	EOP PT	232.70
(47)	EOP PT	231.82

CDADING DOINTS

SITE GRADING, PAVING, AND DRAINAGE PLAN



C-7



1. EXISTING UTILITY LOCATION SHOWN HERE ARE APPROXIMATE AND BASED UPON THE BEST AVAILABLE DATA AT THE TIME OF DESIGN. CONTRACTOR SHALL POTHOLE ALL EXISTING UTILITIES TO DETERMINE THEIR EXACT HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION IN ACCORDANCE WITH WSDOT SPECIFICATION 708.3(1).

> CITY OF LACEY, WASHINGTON WESTSIDE pH TREATMENT PROJECT LACEY CONTRACT **#PW 2022-37**

SITE GRADING, PAVING, AND DRAINAGE PROFILES

SCHEDULE B SHEET

C-8

PROJECT NO .:

21-3172 SCALE:

AS SHOWN DATE:

- 0.12 square inches per foot shall be used with the minimum required rebar shown in the ALTERNATIVE PRECAST BASE SECTION. Wire mesh shall not be placed in the knockouts.
- the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with Standard Specification Section 9-04.3.
- adjustment section with flange up.
- 1:24 or steeper.







WA1	FER PIPING SCHEDULE:	_	
1	N:622878.02, E:61289.60 1-16"X12" DI TEE, FLG 2-16" DI GV, FLG W/ BEVEL GEAR	20	N:6 1-FI STD
	1-12" DI GV, FLG X MJ 2-16" FLG COUPLING ADAPTER CONNECT TO EXIST PER DET 5,	21	N:6 1-12 1-8'
2	N:622875.69, E:61348.10 2-16" DI LONG BODY SLEEVE, MJ 1-AC PIPE END CAP 16" DI SPOOL, LENGTH TO FIT	22	N:6 1-12 1-12 1-6' 1-12
3	N:622854.73, E:61507.93 1-12" DI TEE, FLG 1-12" DI GV, FLG X MJ 2-12" FLG COUPLING ADAPTER CONNECT TO EXIST PER DET 1, SHT C-19	23	1-12 N:6 1-12 1-8 1-12 1-12
4	N:622854.57, E:61479.26 1-12" DI TEE, FLG 1-12" DI GV, FLG 1-12" DI GV, FLG X M1	24)	N:6 1-1' COF
+0.0121	2-12" FLG COUPLING ADAPTER CONNECT TO EXIST PER DET 1, SHT C-19	25	N:6 1-6' 1-6'
5	N:622843.47, E:61479.26 1-12" DI 90° (ROLLED) BEND, MJ	26	N:6 1-1' COF
(6)	N:622843.47, E:61501.93 1-12" DI TEE, MJ 2-12" DI GV, MJ	27)	N:6 1-8'
7	N:622843.47, E:61507.93 1-12" DI 90° (ROLLED) BEND, MJ	28	N:6
8	N:622825.88, E:61445.12 1-12" DI 11.25° VERT BEND, MJ	29	N:6 1-8'
(9)	N:622825.88, E:61437.28 1-12" DI 11.25° VERT BEND, MJ	30	N:6 1-8'
(10)	N:622825.88, E:61501.93 1-12" DI 90° BEND, MJ	(31)	3-8' N:6
	N:622825.88, E:61389.82 1-12" DI 90° BEND, MJ	(2)	1-8' 1-8'
(12)	N:622815.85, E:61333.33 1-1" DOUBLE METER W/ VALVE BOX PER CITY STD DWG 6-2.1, SHT C-16	(33)	1-8' N:6
0	CONNECT TO EXIST 1" AND 5/8" SERVICE LINES FOR CHLORINE BUILDING	34)	1-8' N:6 1-8'
(13)	N:622804.77, E:61291.85 1-12" DI LONG BODY SLEEVE CONNECT TO EXIST PER DET 4, SHT C-18	35)	CON N:6 1-8'
(14)	N:622791.35, E:61336.66 REPLACE 6IN S01 FLOW METER	36	N:6 1-8'
(15)	AND CONNECT TO EXIST PER DET 1, SHT C-18	37)	N:6 1 -8
	1-8" DI GATE VALVE, MJ 1-8"X6" DI RED, MJ	38	N:6 1-8' 1-8'
(16)	N:622789.78, E:61379.27 1-8" DI 90° BEND, MJ	(39)	1-8' N:6
(17)	N:622782.91, E:61297.53 1-1" METER SERVICE W/ VALVE BOX PER CITY STD DWG 6-1.1, SHT C-17	(40)	1-8' N:6 1-8'
(18)	N:622767.92, E:61389.82 METER CALIBRATION VALVE BOX	(41)	N:6 1-8'
(19)	N:622757.59 F:61379 27		-

METER CALIBRATION VALVE BOX હ્ય

- 522752.58, E:61401.75 IRE HYDRANT ASSY PER CITY D DET 6-8.0, SHT C-16
- 522732.59, E:61395.85 2"X8" DI TEE, MJ X FLG " DI GV, FLG X MJ
- 522732.59, E:61389.82 2" DI TEE, FLG 2" DI GV, FLG X MJ " DI GV, FLG X MJ 2"X6" DI RED, FLG 2" ADAPTER, FLG X MJ
- 522732.59, E:61406.27 2"X8" DI TEE, FLG " DI GV, FLG X MJ 2"X6" DI RED, FLG X MJ 12" ADAPTER, FLG X MJ
- 522732.59, E:61393.28 " TAPPING SADDLE WITH RP STOP
- 522732.59, E:61417.79 " DI 90° BEND, FLG X MJ " DI GV, FLG X MJ
- 522732.59, E:61403.27 " TAPPING SADDLE WITH RP STOP
- 522687.24, E:61483.83 " DI LONG BODY SLEEVE, MJ NNECT TO EXIST
- 522682.18, E:61416.70 " DI GATE VALVE, MJ
- 522680.59, E:61379.27 " DI 90° BEND, MJ
- 522680.59, E:61395.86 " DI TEE, FLG " DI GV, FLG X MJ
- 522679.18, E:61406.28 " DI 22.5° BEND, MJ " DI GATE VALVE, MJ
- 522673.04, E:61466.43 " DI 22.5° (ROLLED) BEND, MJ
- 522670.63, E:61395.86 B" DI 45° BEND, MJ
- 522667.97, E:61363.29 " DI LONG BODY SLEEVE, MJ NNECT TO EXIST
- 522667.61, E:61370.78 " DI 11.25° VERT BEND, MJ
- 522667.17, E:61379.94 " DI 11.25° VERT BEND, MJ
- 522667.01, E:61383.27 3"X4" DI TEE, MJ
- 622666.38, E:61396.31 "X8" DI (ROLLED) TEE, MJ " DI 11.25° VERT BEND, MJ " DI SPOOL, LENGTH TO FIT
- 522664.29, E:61439.91 " DI 22.5° (ROLLED) BEND, MJ
- 622661.73, E:61413.49 " DI 22.5° BEND, MJ
- 522656.21, E:61410.28 B" DI 45° BEND, MJ

SITE PIPING PLAN - 1

C-11

estside Ph Treatment\CAD\Sheets\21-31/2-WA-C.dwg C-12 8/30/2023 10:39 AM SEAN.WALMSLEY 23.0S (LMS Tech)	<u>NO</u> 1. I INS 2. U RES			ION VALVE BOX TO PROVIDE CITY WI RESSURE PIPING VEDGE TYPE REST	O BE INSTALLED BY TH MINIMUM 5 WO SHALL BE CLASS 5 RAINER, EBAA MEO	THE CITY. CON RKING DAYS NO 2 MECHANICALI	NTRACTOR TO PROTICE WHEN THE	OVIDE EXCAVAT SWORK IS SCHE ALL MJ FITTINGS	FE02 EXIST TO BE SEE D 12' WS 0 T 12' WS 12' 12' 12' 12' 12' 12' 12' 12' 12' 12
Vestside Pn	2. U RES	JNDERGRO STRAINED V TIMING OF	UND P VITH V ITEMS	RESSURE PIPING VEDGE TYPE REST	SHALL BE CLASS 5 RAINER, EBAA MEC	2 MECHANICALI GALUG, OR EQU RDINATED WITH	LY RESTRAINED. AL. I AND APPROVED	ALL MJ FITTINGS BY CITY.	SHALL BE
Lacey - w	4. [MAXIMUM F	PIPE JC	DINT DEFLECTION	SHALL BE LIMITED	TO ONE-HALF (OF MANUFACTUR	ERS ALLOWABLE	DEFLECTION.
31/2 -	5. `	VALVE BOX	ES SH	ALL BE INSTALLED	D ON ALL BURIED V	ALVES PER CIT	Y STD DWG 6-12	.0, SHT C-17.	
C_projects/z1/							IF THIS BAR DOES NOT MEASURE 1"	SWW DESIGNED SWW DRAWN NCR	BOF WASHING S55144 CF GIGTEREV.
K:\tat	NO.	DATE	BY		REVISION		NOT TO SCALE	CHECKED	SSIONAL ENGINE



WATER PIPING SCHEDULE (CONT):

- (42) N:622613.72, E:61357.04 REPLACE 6IN S02 FLOW METER PER DET 2, SHT C-18
- (43) N:622613.09, E:61349.30 1-6" DI 90° BEND, MJ 1-8"X6" DI RED, MJ 1-8" DI GV, MJ CONNECT TO EXIST PER DET 2, SHT C-18
- (44) N:622607.19, E:61353.32 1-1" METER SERVICE W/ VALVE BOX PER CITY STD DWG 6-1.1, SHT C-17
- (45) N:622598.09, E:61413.49 1-8" DI 90° BEND, MJ
- (46) N:622597.59, E:61392.11 METER CALIBRATION VALVE BOX
- (47) N:622596.59, E:61349.69 1-8" DI 90° BEND, MJ
- (48) N:622588.02, E:61410.28 1-8" DI 22.5° BEND, MJ
- (49) N:622583.56, E:61416.70 1-8" DI 22.5° BEND, MJ
- (50) N:622475.13, E:61461.61 1-8" DI 22.5° BEND, MJ
- (51) N:622474.29, E:61457.39 1-8" DI 22.5° BEND, MJ
- (52) N:622427.37, E:61457.39 1-8" DI 90° BEND, MJ
- (53) N:622427.37, E:61476.46 1-8" BLOWOFF ASSY, MJ PER DET 1, SHT C-17
- (54) N:622410.21, E:61461.61 1-8" DI 45° BEND, MJ
- (55) N:622404.91, E:61330.38 1-12"X6" DI TEE, FLG W/ THRUST BLOCK 1-6" DI GV, FLG X MJ 2-12" FLG COUPLING ADAPTER
- (56) N:622404.15, E:61342.29 1-FIRE HYDRANT ASSY PER CITY STD DET 6-8.0, SHT C-16
- (57) N:622380.16, E:61334.11 1-1" DOUBLE METER W/ VALVE BOX PER CITY STD DWG 6-2.1, SHT C-16
- N:622372.56, E:61421.16 METER CALIBRATION VALVE BOX 58
- N:622364.34, E:61344.79 (59) 1-8" DI 90° BEND, MJ CONNECT TO EXIST PER DET 3, SHT C-18
- 60 N:622358.94, E:61406.52 1-8" DI 45° BEND, MJ
- N:622365.68, E:61375.33 WATER SERVICE VALVE BOX PER 61 DET 2, SHT C-17
- 62 N:622424.37, E:61476.46 1" CURB STOP AND METER BOX

SHEET

SITE PIPING PLAN-2

SCHEDULE B

#PW 2022-37



	SCHEDULE B
SITE PIPING PROFILES - 1	C-13
	4



PROJECT NO.: 21-3172 SCALE: AS SHOWN DATE: AUGUST 20
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REVISION

SWW

DRAWN

NCR

CHECKED

UNAL -

F THIS BAR DOES

NOT MEASURE 1

THEN DRAWING I

NOT TO SCALE

DATE BY

NO.





SCHEDULE B SHEET **SITE PIPING DETAILS - 1**

21-3172 SCALE: AS SHOWN DATE: PROJECT NO.: AUGUST 202

C-16





THRUST LOADS									
TINGS IN POUNDS AT 200 POUNDS PER SQUARE INCH OF WATER PRESSURE									
O° BEND	45° BEND	22—1/2° BEND	11-1/4° BEND	DEAD END OR TEE					
3,600	2,000	1,000	500	2,600					
8,000	4,400	2,300	1,200	5,700					
14,300	7,700	4,000	2,000	10,100					
22,300	12,100	6,200	3,100	15,800					
32,000	17,400	8,900	4,500	22,700					
43,600	23,600	12,100	6,100	30,800					
57,000	30,800	15,700	7,900	40,300					

EY, WASHINGTON		CITY	POUNDS PER SQUARE FOOT	
PUBLIC WORKS	PT. UF PU		0	
	mini		1,000	
JST LOADS	2,000			
-	3,000	AVEL		
DWG. NO	00	APPROVED	4,000	AVEL
<u>Schump</u> 3-15	R G Sch			VITH
CKD DATE	DWN	DES	10,000	
RAS 12/15/20	WHO	WHO		



STRUCTURAL NOTES

SECTION	CONFORM TO EDITION. SPEC N. 12.8. D 1.379 0.507 1.103 0.505 IV 1.5 D SPECIAL RE 5.0 1.0 0.331 ON 12.7.2. 107 MPH C 1.0 TABLE. THE C ND OWNER PI	EINFORCED CMU BEARING WALLS
N SHALL (3C), 2018 ST EDITION 5 SECTION -16 SECTION LLOWING FFICIAL A REQUIREE MANCE TO	CONFORM TO EDITION. SPEC N. 12.8. D 1.379 0.507 1.103 0.505 IV 1.5 D SPECIAL RE 5.0 1.0 0.331 ON 12.7.2. 107 MPH C 1.0 TABLE. THE C ND OWNER PI O PER IBC SEC D THE APPROV	EINFORCED CMU BEARING WALLS
5 SECTION -16 SECTION LLOWING FFICIAL A REQUIRE MANCE TO MANCE TO	1 12.8. D 1.379 0.507 1.103 0.505 IV 1.5 D SPECIAL RE 5.0 1.0 0.331 ON 12.7.2. 107 MPH C 1.0 TABLE. THE C ND OWNER PI O PER IBC SEC	EINFORCED CMU BEARING WALL: CONTRACTOR SHALL SUBMIT A RIOR TO COMMENCEMENT OF
5 SECTION -16 SECTION LLOWING FFICIAL A REQUIRE MANCE TO MANCE TO	I 12.8. D 1.379 0.507 1.103 0.505 IV 1.5 D SPECIAL RE 5.0 1.0 0.331 ON 12.7.2. 107 MPH C 1.0 TABLE. THE C ND OWNER PI	EINFORCED CMU BEARING WALL: CONTRACTOR SHALL SUBMIT A RIOR TO COMMENCEMENT OF
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-16 SECTION -16 SECTION LLOWING FFICIAL A REQUIREE MANCE TO	D 1.379 0.507 1.103 0.505 IV 1.5 D SPECIAL RE 5.0 1.0 0.331 ON 12.7.2. 107 MPH C 1.0 TABLE. THE C ND OWNER PI O PER IBC SEC D THE APPROV	EINFORCED CMU BEARING WALL CONTRACTOR SHALL SUBMIT A RIOR TO COMMENCEMENT OF
-16 SECTION -16 SECTION LLOWING FFICIAL A REQUIREE MANCE TO MANCE TO	D 1.379 0.507 1.103 0.505 IV 1.5 D SPECIAL RE 5.0 1.0 0.331 ON 12.7.2. 107 MPH C 1.0 TABLE. THE C ND OWNER PI O PER IBC SEC D THE APPROV	EINFORCED CMU BEARING WALL
-16 SECTI LLOWING FFICIAL A REQUIREI MANCE TO	D 1.379 0.507 1.103 0.505 IV 1.5 D SPECIAL RE 5.0 1.0 0.331 ON 12.7.2. 107 MPH C 1.0 TABLE. THE C ND OWNER PH O PER IBC SEC D THE APPROV	EINFORCED CMU BEARING WALL CONTRACTOR SHALL SUBMIT A RIOR TO COMMENCEMENT OF
-16 SECTI LLOWING FFICIAL A REQUIREE MANCE TO	ON 12.7.2. 107 MPH C 1.0 TABLE. THE C ND OWNER PH O PER IBC SEC O THE APPROV	CONTRACTOR SHALL SUBMIT A RIOR TO COMMENCEMENT OF
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LLOWING FFICIAL A REQUIREI MANCE TO	107 MPH C 1.0 TABLE. THE C ND OWNER PI O PER IBC SEC THE APPROV	CONTRACTOR SHALL SUBMIT A RIOR TO COMMENCEMENT OF
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ie contr I.		TION 1704.6 TO VERIFY VED CONSTRUCTION L NOTIFY THE ENGINEER A
UCTURE		
EPORTS SI ALL BE PRO R AND BU	HALL BE PROV OVIDED AFTEI JILDING OFFIC	/IDED FOR EACH DAY ON SITE BY R EACH OBSERVATION. REPORTS CIAL.
CONT	PERIODIC	REMARKS
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ALL ITEMS MARKED WITH AN "X" SHALL BE INSPECTED IN ACCORDANCE WITH IBC CHAPTER 17. SPECIAL INSPECTION SHALL BE PERFORMED BY A QUALIFIED TESTING AGENCY. THE STRUCTURAL ENGINEER AND BUILDING OFFICIAL SHALL BE FURNISHED WITH COPIES OF ALL RESULTS. ANY INSPECTION FAILING TO MEET THE PROJECT SPECIFICATIONS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE DESIGN TEAM.



STRAP NAILING

STRUCTURAL STEEL

FABRICATION & ERECTION

250 4TH AVE. S., SUITE 200 EDMONDS, WASHINGTON 98020 PHONE (425) 778-8500 FAX (425) 778-5536

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PRIOR TO FABRICATION:

- 2. CONCRETE REINFORCING
 - 3. CMU UNITS

ENGINEER'S SHOP DRAWING REVIEW IS FOR GENERAL CONFORMANCE WITH THE DESIGN CONCEPT AND CONTRACT DOCUMENTS. MARKINGS OR COMMENTS SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM COMPLIANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. THE CONTRACTOR REMAINS RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFORMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, FOR SELECTING FABRICATION PROCESSES, FOR TECHNIQUES OF ASSEMBLY, AND FOR PERFORMING THE WORK IN A SAFE MANNER.

ENGINEER'S SHOP DRAWING REVIEW OF STRUCTURAL COMPONENTS DESIGNED BY OTHERS IS FOR LOADS IMPOSED ON THE BASIC STRUCTURE. THE COMPONENT DESIGNER IS RESPONSIBLE FOR CODE CONFORMANCE AND ALL CONNECTIONS TO THE BASIC STRUCTURE. SHOP DRAWINGS SHALL INDICATE MAGNITUDE AND DIRECTION OF THE LOADS IMPOSED ON THE BASIC STRUCTURE AND SHALL BE STAMPED & SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE SAME STATE AS THE PROJECT.

FABRICATION SHALL BEGIN ONLY AFTER SHOP DRAWINGS BEARING THE STAMP AND SIGNATURE OF THE PROJECT ENGINEER OF RECORD AND CONTRACTOR HAVE BEEN RECEIVED.

FOUNDATIONS: SPREAD FOOTINGS

OILS REPORT:	REPORT NO:
	PREPARED BY
	DATED:

ALLOWABLE SOIL PRESSURE:

LATERAL EARTH PRESSURE:	
PASSIVE:	N

COEFFICIENT OF FRICTION: 0.6 (ULTIMATE)

FOOTINGS SHALL BEAR ON FIRM UNDISTURBED EARTH OR COMPACTED STRUCTURAL FILL AS SPECIFIED IN THE GEOTECHNICAL REPORT. BOTTOM OF FOOTINGS SHALL EXTEND AT LEAST 18" BELOW ADJACENT EXTERIOR GRADE. ANY FOOTING ELEVATIONS SHOWN IN THE DRAWINGS REPRESENT MINIMUM DEPTHS AND ARE FOR BIDDING ONLY. ACTUAL FOOTING ELEVATIONS ARE SUBJECT TO SITE CONDITIONS AND MUST THEREFORE BE ESTABLISHED BY THE CONTRACTOR. FOOTINGS SHALL BE CENTERED BELOW COLUMNS OR WALLS ABOVE, UNLESS NOTED OTHERWISE.

FOUNDATION REDESIGN.

CONCRETE

ALL CONCRETE SHALL BE MIXED, PROPORTIONED, CONVEYED, AND PLACED IN ACCORDANCE WITH CHAPTER 26 OF ACI 318 AND THE AMERICAN CONCRETE INSTITUTE'S SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI 301).

ALL CONCRETE SHALL BE STONE-AGGREGATE CONCRETE HAVING A UNIT WEIGHT OF APPROXIMATELY 150 POUNDS PER CUBIC FOOT.

CONCRETE STRENGTHS AT 28 DAYS (f'c) AND MIX CRITERIA SHALL BE AS FOLLOWS:

TYPE OF CONSTRUCTION	f'c	MAXIMUM WATER/CEMENT RATIO	MIN CEMENT CONTENT PER CUBIC YARD	MAXIMUM SHRINKAGE STRAIN
SLABS ON GRADE	4000 PSI	0.52	5 1/2 SACK	N/A
FOOTINGS	4000 PSI	0.52	5 1/2 SACK	N/A
WALLS	4000 PSI	0.52	5 1/2 SACK	N/A

THE MINIMUM AMOUNT OF CEMENT LISTED ABOVE MAY BE CHANGED IF A CONCRETE PERFORMANCE MIX IS SUBMITTED TO THE ENGINEER AND THE BUILDING DEPARTMENT FOR APPROVAL TWO WEEKS PRIOR TO PLACING ANY CONCRETE. THE PERFORMANCE MIX SHALL INCLUDE THE AMOUNTS OF CEMENT, FINE AND COARSE AGGREGATE, WATER, AND ADMIXTURES AS WELL AS THE WATER-CEMENT RATIO, SLUMP, CONCRETE YIELD, AND SUBSTANTIATING STRENGTH DATA IN ACCORDANCE WITH CHAPTER 26 OF ACI 318.

ALL CONCRETE EXPOSED TO WEATHER OR TO FREEZING TEMPERATURES SHALL BE AIR-ENTRAINED IN ACCORDANCE WITH ACI 318 TABLE 19.3.3.1 FOR MODERATE EXPOSURE CLASS F1.

REINFORCING STEEL

REINFORCING STEEL SHALL BE DEFORMED BILLET STEEL CONFORMING TO ASTM A615, AND SHALL BE GRADE 60 (Fy = 60,000 PSI), UNLESS NOTED OTHERWISE. GRADE 60 REINFORCING BARS INDICATED ON DRAWINGS TO BE WELDED SHALL CONFORM TO ASTM A706. REINFORCING COMPLYING WITH ASTM A615 MAY BE WELDED IF MATERIAL PROPERTY REPORTS INDICATING CONFORMANCE WITH WELDING PROCEDURES SPECIFIED IN AWS D1.4 ARE SUBMITTED

WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. PROVIDE WELDED WIRE FABRIC IN SHEETS NOT ROLLS. LAP WELDED WIRE FABRIC 12" AT SIDES AND ENDS.

REINFORCING STEEL SHALL BE DETAILED INCLUDING HOOKS AND BENDS IN ACCORDANCE WITH ACI SP-66 AND ACI 318, LATEST EDITIONS. UNLESS OTHERWISE NOTED, REINFORCING SPLICE LENGTHS AND DEVELOPMENT LENGTHS SHALL BE PER SCHEDULE.

REINFORCING SHALL BE PLACED AND ADEQUATELY SUPPORTED PRIOR TO PLACING CONCRETE. WET-SETTING EMBEDDED ITEMS IS NOT ALLOWED WITHOUT PRIOR ENGINEER APPROVAL. BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL NOT BE FIELD BENT UNLESS SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER. REFER TO CHAPTER 25 OF ACI 318 FOR OTHER REINFORCING STEEL REQUIREMENTS.

MINIMUM LAPS AND EMBEDMENT

SHOP DRAWINGS FOR THE FOLLOWING ITEMS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW

- 4. CMU REINFORCING
- 5. CMU GROUT & MORTAR
- 6. STRUCTURAL STEEL

SHOP DRAWINGS SHALL BE REVIEWED. REVISED AS REQUIRED FOR FIELD CONDITIONS. AND DATE STAMPED BY THE CONTRACTOR PRIOR TO REVIEW BY THE ENGINEER. CONTRACTOR SHALL PROVIDE (3) SETS OF SHOP DRAWINGS FOR ENGINEER'S REVIEW. ALLOW TWO WEEKS FOR SHOP DRAWING APPROVAL BY ENGINEER.

> 2021-085-21 HWA GEOSCIENCES, INC. 11/03/21

2000 PSF (BUILDING FOUNDATIONS) 1500 PSF (GENERATOR AND FUEL TANK PADS)

N/A

EXCAVATIONS AND DRAINAGE INSTALLATION SHALL BE OBSERVED BY A SOILS ENGINEER. IF EXCAVATION SHOWS SOIL CONDITIONS TO BE OTHER THAN THOSE ASSUMED ABOVE NOTIFY THE STRUCTURAL ENGINEER FOR POSSIBLE UNLESS OTHERWISE NOTED, REINFORCING SPLICE LENGTHS AND DEVELOPMENT LENGTHS SHALL BE AS TABULATED BELOW

f'c = 4000 PSI									
	DEVELOPM	ENT LENGTH	LAP SPLICE						
TENS	SION	COMPRESSION	TENSION		COMPRESSION				
TOP BARS	OTHER BARS	ALL BARS	TOP BARS	OTHER BARS	ALL BARS				
19	15	8	24	19	12				
25	19	10	33	25	15				
31	24	12	41	31	19				
37	29	15	49	37	23				
54	42	17	71	54	27				
62	48	19	81	62	30				
	TEN: TOP BARS 19 25 31 37 54 62	DEVELOPM TENSION TOP BARS OTHER BARS 19 15 25 19 31 24 37 29 54 42 62 48	f'c = 4000 P DEVELOPMENT LENGTH TENSION COMPRESSION TOP BARS OTHER BARS ALL BARS 19 15 8 25 19 10 31 24 12 37 29 15 54 42 17 62 48 19	f'c = 4000 PSI DEVELOPHENT LENGTH TENEION COMPRESSION TENE TOP BARS OTHER BARS ALL BARS TOP BARS 19 15 8 24 25 19 10 33 31 24 12 41 37 29 15 49 54 42 17 71 62 48 19 81	f'c = 4000 PSIDEVELOPHENT LENGTHLAPTENTIONCOMPRESSIONTENTIONTOP BARSOTHER BARSALL BARSTOP BARSOTHER BARS19158241925191033253124124131372915493754421771546248198162				

. ALL LENGTHS ARE IN INCHES.

ALL LAP SPLICES ARE CLASS B.

. "TOP BARS" ARE HORIZONTAL REINFORCEMENT PLACED SUCH THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.

CONCRETE COVER ON REINFORCING

CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH:

CONCRETE EXPOSED TO EARTH AND WEATHER:

#6 BARS AND LARGER

#5 BARS AND SMALLER

CONCRETE NOT EXPOSED TO EARTH OR WEATHER: SLABS, WALLS AND JOISTS

COLUMN TIES OR SPIRALS AND BEAM STIRRUPS

CONCRETE GENERAL NOTES

VERTICAL BARS SHALL START FROM TOP OF FOOTING. HORIZONTAL BARS SHALL START A DISTANCE OF 1/2 THE NORMAL BAR SPACING FROM TOP OF FOOTING AND TOP OF FRAMED SLABS. IN ADDITION, THERE SHALL BE A HORIZONTAL BAR AT A MAXIMUM OF 3" FROM TOP OF WALL AND BOTTOM OF FRAMED SLABS.

-3"

1 1/2"

3/4"

1 1/2"

PROVIDE CORNER BARS TO MATCH THE HORIZONTAL REINFORCING WITH TENSION LAP SPLICE AT EACH SIDE PER TABLE, OR BEND ONE SIDE OVER TO PROVIDE TENSION LAP.

PROVIDE CONTROL OR CONSTRUCTION JOINTS IN SLABS ON GRADE TO BREAK UP SLAB INTO RECTANGULAR AREAS OF NOT MORE THAN 400 SQUARE FEET EACH. AREAS TO BE AS SQUARE AS PRACTICAL AND HAVE NO ACUTE ANGLES. JOINT LOCATIONS TO BE APPROVED BY THE ENGINEER.

ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED AND PROPERLY PREPARED IMMEDIATELY PRIOR TO POURING OF CONCRETE. DOWEL STEEL SHALL BE THE SAME SIZE AND SPACING AS MAIN REINFORCING DETAILED BEYOND JOINT.

SEE ARCHITECTURAL DRAWINGS AND MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND DIMENSIONS OF OPENINGS IN CONCRETE WALLS, FLOORS AND ROOF, UNLESS INDICATED OTHERWISE, REINFORCE AROUND OPENINGS GREATER THAN 12" IN EITHER DIRECTION WITH (2) #5 EACH SIDE AND (1) #5 x 4'-0" DIAGONAL AT EACH CORNER. EXTEND BARS 2'-0" BEYOND EDGE OF OPENING. IF 2'-0" IS UNAVAILABLE, EXTEND AS FAR AS POSSIBLE AND HOOK. HOOK ALL REINFORCING INTERRUPTED BY OPENINGS.

BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL NOT BE FIELD BENT UNLESS SO DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

SEE ARCHITECTURAL DRAWINGS FOR ALL GROOVES, NOTCHES, CHAMFERS, FEATURE STRIPS, COLOR, TEXTURE AND OTHER FINISH DETAILS AT ALL EXPOSED CONCRETE SURFACES. PROVIDE 3/4" CHAMFER AT ALL CORNERS EXCEPT AS NOTED

MASONRY

CONCRETE MASONRY UNITS SHALL BE ASTM C90, MEDIUM WT, TYPE I f'm = 2000 PSI. BLOCKS SHALL BE PLACED IN RUNNING BOND. ALL MASONRY CONTAINING REINFORCING AND CELLS BELOW GRADE SHALL BE GROUTED SOLID.

MORTAR SHALL CONFORM TO ASTM C 270 TYPE S.

GROUT SHALL CONFORM TO ASTM C 476 W/ f'c = 2000 PSI

PROVIDE CLEANOUTS IN THE BOTTOM COURSE OF MASONRY FOR EACH GROUT POUR EXCEEDING 5 FEET. IF THE CELLS ARE SOLID GROUTED, CLEANOUTS ARE REQUIRED AT 32" OC MAXIMUM. GROUT FOR EACH POUR SHALL BE STOPPED 1 1/2" BELOW THE TOP OF THE LAST COURSE OF BLOCK. ALL GROUT TO BE THOROUGHLY CONSOLIDATED BY VIBRATING IMMEDIATELY AFTER PLACING.

STRUCTURAL STEEL

STRUCTURAL STEEL DESIGN, FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS", LATEST EDITION.

WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992, Fy = 50 KSI.

PLATES, ANGLES, CHANNELS, AND RODS SHALL CONFORM TO ASTM A36, Fy = 36 KSI.

STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B, Fy = 46 KSI.

STEEL PIPE SHALL CONFORM TO ASTM A53 GRADE B, Fy = 35 KSI.

BOLTS CONNECTING STEEL MEMBERS SHALL CONFORM TO ASTM A325-N. BOLTS SHALL BE 3/4"Ø MINIMUM, UNO ANCHOR BOLTS SHALL CONFORM TO ASTM A307.

CONTRACTOR SHALL PROVIDE CONNECTION ADJUSTMENT TOLERANCES TO SATISFY THE REQUIREMENTS OF AISC MANUAL OF STEEL CONSTRUCTION.

UNLESS SPECIFIED AS STAINLESS STEEL, ALL STEEL MEMBERS, SHAPES, BOLTS, AND ACCESSORIES SHALL BE HOT DIP GALVANIZED.







CITY OF LACEY, WASHINGTON WESTSIDE pH **TREATMENT PROJECT** LACEY CONTRACT **#PW 2022-37**

WELDING

WELDING SHALL CONFORM TO AWS "STRUCTURAL WELDING CODE", LATEST EDITION. ALL WELDING SHALL BE DONE WITH 70 KSI LOW HYDROGEN ELECTRODES. WHERE NOT CALLED OUT, MINIMUM FILLET WELD SIZE SHALL BE PER TABLE 5.8 IN AWS D1.1, LATEST EDITION.

WELDING OF REINFORCING BARS SHALL NOT BE PERMITTED UNLESS SPECIFICALLY CALLED OUT ON DRAWINGS OR APPROVED BY STRUCTURAL ENGINEER. WELDING OF GRADE 60 REINFORCING BARS SHALL BE PERFORMED USING LOW HYDROGEN ELECTRODES. WELDING OF GRADE 40 REINFORCING BARS SHALL BE PERFORMED USING E70XX ELECTRODES. SEE REINFORCING NOTES FOR MATERIAL REQUIREMENTS OF WELDED BARS. WELDING WITHIN 4" OF COLD BENDS IN REINFORCING BARS IS NOT PERMITTED.

ALL WELDING SHALL BE DONE BY WASHINGTON ASSOCIATION OF BUILDING OFFICIALS (WABO) CERTIFIED WELDERS.

NAILS, BOLTS, AND METAL CONNECTORS FOR WOOD

ALL NAILS SHALL CONFORM TO THE STANDARDS SET FORTH BY THE NATIONAL DESIGN STANDARDS (NDS) FOR WOOD CONSTRUCTION, LATEST EDITION. NAILING NOT SPECIFIED SHALL BE PER IBC TABLE 2304.10.1 NAILING SCHEDULE. ALL NAILS CALLED OUT ON PLANS SHALL BE COMMON NAILS UNLESS NOTED OTHERWISE AND SHALL MEET OR EXCEED THE FOLLOWING MINIMUM GUIDELINES:

NAIL	SHANK Ø	MIN LENGTH
8d COMMON	0.131Ø	2 1/2" SHANK
10d COMMON	0.148Ø	3" SHANK
12d COMMON	0.148Ø	3 1/4" SHANK
16d COMMON	0.162Ø	3 1/2" SHANK

10d BOX NAILS MAY BE SUBSTITUTED FOR 8d COMMON NAILS WITH NO CHANGE IN NAIL SPACING. FRAMING MEMBERS MAY BE NAILED WITH 16d SINKERS (0.148"Ø x 3 1/4"), BUT ONLY 16d COMMON NAILS SHALL BE USED WHERE 16d NAILS ARE INDICATED IN THIS DRAWING SET. ENGINEER MAY APPROVE OTHER NAILS IF NAIL LABELS ARE SUBMITTED TO ENGINEER PRIOR TO START OF CONSTRUCTION.

ALL BOLTS IN WOOD MEMBERS SHALL CONFORM TO ASTM A307. PROVIDE WASHERS UNDER THE HEADS AND NUTS OF ALL BOLTS AND LAG SCREWS BEARING ON WOOD. LEAD HOLES FOR LAG BOLTS SHALL BE BORED FOR THE SHANK AND THREADED PORTIONS PER NDS 12.1.4.2.

CONNECTORS CALLED OUT BY LETTERS AND NUMBERS SHALL BE "STRONG-TIE" BY SIMPSON COMPANY, CATALOG TO BE THE LATEST EDITION, OR ENGINEER APPROVED EQUAL. CONNECTORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND WITH THE NUMBER AND SIZE OF FASTENERS AS SPECIFIED BY THE MANUFACTURER. WHERE CONNECTOR STRAPS CONNECT TWO MEMBERS, PLACE ONE-HALF OF THE NAILS, SCREWS, OR BOLTS IN EACH MEMBER.

INSTALL SOLID BLOCKING AT ALL BEARING POINTS. ALL SHIMS SHALL BE SEASONED, DRIED, AND THE SAME GRADE (MINIMUM) AS MEMBERS CONNECTED.

GALVANIZATION

UNLESS NOTED OTHERWISE, STEEL CONNECTORS IN CONTACT WITH TREATED WOOD SHALL BE GALVANIZED ACCORDING TO THE FOLLOWING TABLE:

GALVANIZATION	UNTREATED WOOD	CCA-C	SBX	ACQ-C ACQ-D	CBA-A CA-B	OTHER BORATE	ACZA	OTHER PT WOOD
G90	Х	Х	Х					
G185	Х	Х	Х	Х	Х	Х		
HDG	Х	Х	Х	Х	Х	Х		
STT300	Х	Х	Х	Х	Х	Х	Х	Х

G90 = 0.90 OZ. OF ZINC PER SQUARE FOOT OF AREA G185 = 1.85 OZ. OF ZINC PER SQUARE FOOT OF AREA

HDG = HOT DIP GALVANIZED

SST300 = TYPE 316L STAINLESS STEEL

RATED SHEATHING

RATED SHEATHING SHALL BE GRADE C-D INT-APA WITH EXTERIOR GLUE OR OSB SHEATHING WITH EXTERIOR GLUE IN CONFORMANCE WITH IBC STANDARD 2303.1.5.

TIMBERSTRAND, MICROLLAM, AND PARALLAM MEMBERS

FABRICATED IN CONFORMANCE WITH THE INTERNATIONAL CODE COUNCIL EVALUATION SERVICE (ICC-ES) REPORT NO. ESR-1387 OR CCMC REPORT NO. 12627-R, 08675-R, AND 11161-R. EACH MEMBER SHALL BE IDENTIFIED BY A STAMP INDICATING THE PRODUCT TYPE AND GRADE, ICC-ES OR CCMC REPORT NUMBER, MANUFACTURER'S NAME, PLANT NUMBER AND INDEPENDENT INSPECTION AGENCY'S LOGO. FABRICATOR SHALL BE CERTIFIED. MEMBERS SHALL MEET THE FOLLOWING MINIMUM STANDARDS:

SIZE CLASSIFICATION	SPECIES	GRADE	Fb (PSI)	Fv (PSI	Fc (PSI)
BEAMS & POSTS (d < 9 1/2")	LSL	1.3E	1,700	425	1,835
RAFTERS & BEAMS (d ≥ 9 1/2")	LSL	1.55E	2,325	310	-
BEAMS & POSTS	LVL	2.0E	2,600	285	2,510
POSTS (d < 9 1/2")	PSL	1.8E	2,400	190	2,500
BEAMS (d ≥ 9 1/2")	PSL	2.0E	2,900	290	-

TIMBERSTRAND, MICROLLAM, AND UNTREATED PARALLAM MEMBERS ARE INTENDED FOR DRY-USE APPLICATIONS. UNLESS NOTED OTHERWISE, ENGINEERED WOOD BEAMS EXPOSED TO WEATHER SHALL BE TREATED PER MANUFACTURES RECOMMENDATIONS.

GLUE-LAMINATED TIMBER

GLUE-LAMINATED TIMBER SHALL BE DOUGLAS FIR, FABRICATED IN CONFORMANCE WITH ANSI/AITC STANDARD A190.1, LATEST EDITION. EACH MEMBER SHALL BEAR AN AITC IDENTIFICATION MARK AND SHALL BE ACCOMPANIED BY AN AITC CERTIFICATE OF CONFORMANCE. FABRICATOR SHALL BE CERTIFIED. MEMBERS SHALL BE OF THE FOLLOWING MINIMUM STANDARDS:

SPAN	COMBINATION	Fb
SIMPLE SPAN BEAMS	24F-V4	2400 PSI
CANTILEVER OR MULTI-SPAN BEAMS	24F-V8	2400 PSI

	SCHEDULE B
STRUCTURAL NOTES - 1	S-1



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STRUCTURAL NOTES

(THESE NOTES ARE TYPICAL UNLESS NOTED OR DETAILED OTHERWISE ON DRAWINGS) TYPICAL FRAMING NOTES

1. WOOD SILL PLATES ON CMU

SILL PLATES BEARING ON CMU SHALL BE PRESSURE-TREATED. BOLT SILLS TO CMU WITH 3/4"Ø ANCHOR BOLTS WITH 7" MINIMUM EMBEDMENT. PLACE AT 24" ON MAXIMUM. USE MINIMUM OF TWO ANCHOR BOLTS PER SILL AND PLACE ONE WITHIN 16' OF EITHER END TYPICAL UNLESS NOTED OR DETAILED OTHERWISE.

2. ROOF AND FLOOR FRAMING

PROVIDE 1 1/2" FULL DEPTH BLOCKING FOR RAFTERS AT ALL SUPPORTS AND AT 8'-0" OC MAXIMUM UNO. INTERMEDIATE 8'-0" OC BLOCKING NOT REQ'D IF CEILING IS INSTALLED DIRECTLY TO UNDERSIDE OF FRAMING. PROVIDE BLOCKING FOR ROOF RAFTERS AT SUPPORTS AND WHERE INDICATED ON PLANS AND DETAILS.

3. DIAPHRAGM NAILING

ALL DIAPHRAGM NAILINGS SHALL BE AS CALLED OUT OR ON THE PLAN NOTES.

THE USE OF NAIL GUNS WILL BE APPROVED IF NAILING INTO THE DIAPHRAGMS CAN BE INSTALLED FLUSH WITH FACE OF SHEATHING. NAIL PENETRATIONS GREATER THAN 1/16" ARE NOT ACCEPTABLE.

GENERAL

STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH ARCHITECTURAL, CIVIL, ELECTRICAL, AND MECHANICAL DRAWINGS FOR BIDDING AND CONSTRUCTION. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS FOR COMPATIBILITY BEFORE PROCEEDING. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING.

CONTRACTOR TO SEE ARCHITECTURAL, CIVIL, ELECTRICAL AND MECHANICAL DRAWINGS FOR SIZE AND LOCATION OF PIPE, VENT, DUCT AND OTHER OPENINGS AND DETAILS NOT SHOWN ON THESE DRAWINGS.

CONTRACTOR SHALL BE RESPONSIBLE FOR ERECTION STABILITY AND TEMPORARY SHORING AS NECESSARY UNTIL PERMANENT SUPPORT AND STIFFENING ARE INSTALLED.

CONTRACTOR-INITIATED CHANGES SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO FABRICATION OR CONSTRUCTION. CHANGES SHOWN ON SHOP DRAWINGS ONLY WILL NOT SATISFY THIS REQUIREMENT.

DRAWINGS INDICATE GENERAL AND TYPICAL DETAILS OF CONSTRUCTION. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF A SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED, SUBJECT TO REVIEW AND APPROVAL BY THE ARCHITECT AND THE STRUCTURAL ENGINEER.







our community

CITY OF LACEY, WASHINGTON WESTSIDE pH TREATMENT PROJECT LACEY CONTRACT #PW 2022-37

LEGEND					
DIRECTION OF FRAMING		NATIVE SOIL			
EXTENT OF FRAMING	\longleftrightarrow	GRANULAR FILL			
COLUMNS		STRUCTURAL STEEL	5		
COLUMN BEARING ON BEAM		RATED SHEATHING	<u>(</u>)		
BEAM CONTINUOUS OVER SUPPORT	CE	SHEAR WALL (SEE SCHEDULE)	SWX		
CONCRETE WALL	<u>;</u>	COLUMN MARK (SEE SCHEDULE)	<u>c</u> t		
BEARING STUD WALL	<u></u>	FOOTING MARK (SEE SCHEDULE)	FX		
NON-BEARING STUD WALL	5S	HOLDOWN MARK (SEE SCHEDULE)	<		
BEARING STUD SHEAR WALL	54444445	HANGER MARK (SEE SCHEDULE)	X		
NON-BEARING STUD SHEAR WALL	5	FLAG NOTE (SEE PLAN NOTES)	\bowtie		
CMU WALL		STEEL MOMENT FRAME CONN.			

ABBREVIATIONS				
(A)	ABOVE	GLB	GLUE-LAMINATED BEAM	
AB	ANCHOR BOLT	HORIZ	HORIZONTAL	
ALT	ALTERNATE	КР	KING POST	
ARCH	ARCHITECT	KSI	KIPS PER SQUARE INCH	
(B)	BELOW	L	ANGLE	
BD	BAR DIAMETER	MECH	MECHANICAL	
BLKG	BLOCKING	MF	MOMENT FRAME	
BM	BEAM	MTL	METAL	
BOT	BOTTOM	NS	NEAR SIDE	
BRNG	BEARING	OC	ON CENTER	
BTWN	BETWEEN	OPP	OPPOSITE	
CJP	COMPLETE JOINT PENETRATION	PL	PLATE	
CLR	CLEAR	PLCS	PLACES	
СМИ	CONCRETE MASONRY UNIT	PSI	POUNDS PER SQUARE INCH	
COL	COLUMN	PSF	POUNDS PER SQUARE FOOT	
CONC	CONCRETE	P/T	POST TENSIONED	
CONN	CONNECTION	РТ	PRESSURE TREATED	
CONT	CONTINUOUS	REINF	REINFORCING	
COORD	COORDINATE	REQ'D	REQUIRED	
DBL	DOUBLE	SCHED	SCHEDULE	
DET	DETAIL	SIM	SIMILAR	
DIA	DIAMETER	SOG	SLAB ON GRADE	
DIM	DIMENSION	STD	STANDARD	
DIR	DIRECTION	STIFF	STIFFENER	
EA	EACH	STL	STEEL	
ELEV	ELEVATION	SYMM	SYMMETRICAL	
ES	EACH SIDE	SW	SHEARWALL	
EX	EXISTING	тос	TOP OF CONCRETE	
EXP	EXPANSION	TOS	TOP OF STEEL	
FLR	FLOOR	TOW	TOP OF WALL	
FDN	FOUNDATION	ТҮР	TYPICAL	
FTG	FOOTING	UNO	UNLESS NOTED OTHERWISE	
FS	FAR SIDE	VERT	VERTICAL	
GC	GENERAL CONTRACTOR	WF	WIDE FLANGE	

SCHEDULE B SHEET

S-2

STRUCTURAL NOTES - 2

ENGINEERING
250 4TH AVE. S., SUITE 200 EDMONDS, WASHINGTON 98020 PHONE (425) 778-8500
FAX (425) 778-5536

NO. DATE	BY	REVISION	NOTICE 0 ½ 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	BTJ DESIGNED LVW DRAWN JGG CHECKED	THOMAS STORAGE THOMAS THOMAS STORAL ESSIONAL



FOUNDATION PLAN NOTES:

2. FOOTINGS AND SLAB ON GRADE SHALL BEAR ON FIRM NATIVE SOIL OR COMPACTED STRUCTURAL FILL AS SPECIFIED IN THE SOILS REPORT. REFER TO THE SOILS REPORT FOR THE SPECIFICS REGARDING EXCAVATION

3. WHERE SLAB ON GRADE IS INDICATED, SLAB SHALL BE 5" THICK W/ #4 @ 12" OC WA WAY, CENTERED. SLAB

1/S-6 FOR CONTROL JOINT CONSTRUCTION.

ADDITIONAL CONCRETE DETAILING REQUIREMENTS.




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250 4TH AVE. EDMONDS, WAS PHONE (425)	EERING S., SUITE 200 5) 778-8500 778-5536

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	NO.	DATE	BY	REVISION	THEN DRAWING IS	CHECKED	SSIONAL E

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MINIMUM CMU WALL REINFORCING (BEARING WALL AND NON BEARING WALL)			
THICKNESS	VERTICAL REINFORCING	HORIZONTAL REINFORCING	
8"	#5 @ 16"	(2) #4 @ 48" OC	









	DATE BY	REVISION	NOTICE	BTJ DESIGNED LVW DRAWN JGG CHECKED	SSEPH G. GAL SSEPH G. GAL OF WASHIN SSEPT OF WASHIN SSEPT OF WASHIN SSEPT OF WASHIN SSEPT OF WASHING SSEPT O
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Shaping our community

CITY OF LACEY, WASHINGTON WESTSIDE pH TREATMENT PROJECT LACEY CONTRACT #PW 2022-37

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SHEET	

FOUNDATION DETAILS - 2

IEET	
S-7	

DRAIFCT	NO
PROJECT	NO.

AUGUST 2023

MINIMUM CMU WALL REINFORCING (BEARING WALL AND NON BEARING WALL)				
THICKNESS	VERTICAL REINFORCING	HORIZONTAL REINFORCING		
8"	#5 @ 16"	(2) #4 @ 48" OC		











				NOTICE	BTJ	OPH G. GAL
					DESIGNED	YOU OF WASHING
				IF THIS BAR DOES NOT MEASURE 1"	DRAWN JGG	
NO.	DATE	BY	REVISION	NOT TO SCALE	CHECKED	OSIONAL ENG







2018 FECC COMMERCIAL PROVISIONS & CMAPTER 51-11C WAC Sincke Deeler Section II - Building "Construction" Data Type of Syst Type of Construction Type VB - CMU, Wood Rafters Standpipe Standp	
Section II - Building "Construction" Data Type of Construction Type of Construent Type of Construction Type of Construction Type of Con	ectior
Accessory of Coust uction of Yape VB - CMU, Wood Rafters Type of Construction Type VB - CMU, Wood Rafters Maximum Building Height 200° freek (to roof ridge) Maximum Allowable Height 40 FT, 18C TABLE 504.3 Number of Stories 1 story Allowable Stories 1 story Allowable Stories 2 550 square feet Minimum Required Poperty Settacks Free Extinguiz Allowable Stories 2 5,530 square feet Minimum Required Poperty Settacks Free Extinguiz Section III - Building "Occupancy" Data Sector III - Building "Accessory III - Coustomarily Occupied Accessory of Incidental Use Areas Not Customarily Occupied Accessory of Incidental Use Areas Not Customarily Occupied Total Occupant Load for Each Room Not Customarily Occupied Accus Building Area 2,530 square feet Allowable Base Area 8,500 square feet Allowable Base Area 8,500 square feet Maximum Floor Area Allowance per Occupant. Section IV Building Area 2,630 square feet Allowable Base Area 8,500 square feet Allowable Base Area 8,500 square feet Maximum Floor Area Allowance per Cocupant. Section VI - "Fire Resistive" Building Elements Section VI - Building Froare Building is only one floor Exits Required per Floor Building formare See Sheet 2-2 Section XI - Section XI - Section XI - Section XI - Section XI - Building is only one floor Exits Required per Floor Building is only one floor Exits Required per Floor Building is only one floor Exits Sign Layout Plan See Sheet E -6 Section XII Required Sit Required Sit Required Sit Required Sit Required Sit Required Sit Section XII - Section XI - Section XII - Section XII Section XII Section XII Required Sit Section XII Required Sit Required Sit Required Sit Section XII Section	stem
Type of Construction Type VB - CMU, Wood Rafters Maximum Building Height 20'0' feet (to roof ridge) Maximum Building Height 20'0' feet (to roof ridge) Number of Stories 1 story, TBC TABLE 504.3 Alswahe Stories 1 story, TBC TABLE 504.4 Basement No Total Floor Area Provided (Gross) 2.5.50 square feet Minimum Required Property Statacis	ected
Basimum Building Height 20° feet (broof ridge) Statappe 3) Maximum Altawabie Height 40 FT, IBC TABLE 504.3 Number of FTARCESO4.3 Altowabie Stories 1 story, IBC TABLE 504.4 Basenent No Total Floor Area Provided (Gross) 2.639 square feet Section VIT Minimum Required Property Satbacks Front Yard 25 FT, LMC 16.48.080 Section VIT Section III - Building "Occupancy" Data Section IX Section IX Section II - Building "Occupancy" Data Section IX Section IX Section II - Building "Occupancy" Data Section IX Treatment R Section II - Building "Occupancy" Data Section IX Treatment R Section II - Building "Occupancy" Data Section IX Treatment R Section II - Building Tocupancy Classification F-1 Section IX Treatment R Total Occupant Load for Fach Room Not Customarily Occupied Total Occupant Load for Fach Room Not Customarily Occupied Solo square feet Total Occupant Load for Each Room NA Customarily Occupied Section XI - Sistarga Root Section XI - Sistarga Root Section V - "Fire Resistive" Building Elements Section XI - Section XI	ystem
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g "Fire Detection and Suppression"		
Alarm System	No	
Alarm System	Yes	
	Ionization Smoke Detector	
	All	
ired	No	
uired	No	
nent Vehicle	1	
ions	Treatment Room, Blower Room, Electrical Room, Storage Room	

ancy Ventilation Requirements

1741 cfm (Treatment Room)
380 cfm (Combined Storage and Restroom)

Code Requirements

conditioned						
itioned space						
nditioned space						
ned space						
ditioned space						
between rafters	U = 0.027					
polystyrene	U = 0.37					
ated Slabs	F = 0.54					
l perlite	At least 50% of cores filled with vermiculite or equivalent					
	See Electrical Sheets					
Materials						
s present						
ty						
accessibility required accessibility required and St	uirements per 2018 IBC 1103.2.9 "Water or ations"					
and Fixture Cour	nt Requirements					
Not Customarily	Occupied					
ound and Padmou	unted Transformers					
nspection, Struct	ural Observation					
spections are listed on Sheet S-1						
requirements ar	e indicated on Sheet S-1					

ecific Requirements

ustomarily Occupied

DOOR S	SCHEDULE						
NO.	DESCRIPTION	ROUGH OPENING	SIZE	OPEN	HARDWARE	U-Value	SPECIFICATION
1	ALUMINUM CURTAIN	16'-0"x10-0"	PER MFR	OVERHEAD	PER MFR	0.37	08 10 00 / 08 71 00
2	ALUMINUM CURTAIN	20'-0"x10-0"	PER MFR	OVERHEAD	PER MFR	0.37	08 10 00 / 08 71 00
3	STEEL DOOR	3'-4"x7'-4"	3'-0"x7'-0"	LHR	GROUP 2	0.37	08 10 00 / 08 71 00
4	STEEL DOUBLE DOOR	6'-8"x7'-4"	6'-0"x7'-0"	LHRA	GROUP 1	0.37	08 10 00 / 08 71 00
5	STEEL DOUBLE DOOR	6'-8"x7'-4"	6'-0"x7'-0"	LHRA	GROUP 1	0.37	08 10 00 / 08 71 00
6	STEEL DOUBLE DOOR	6'-8"x7'-4"	6'-0"x7'-0"	LHRA	GROUP 3	0.37	08 10 00 / 08 71 00
7	STEEL DOUBLE DOOR	6'-8"x7'-4"	6'-0"x7'-0"	LHRA	GROUP 3	0.37	08 10 00 / 08 71 00
8	STEEL DOUBLE DOOR	6'-8"x7'-4"	6'-0"x7'-0"	RHA	GROUP 3	0.37	08 10 00 / 08 71 00
9	STEEL DOOR W/ LOUVER	3'-4"x6'-10"	3'-0"x6'-8"	LHR	GROUP 2	0.37	08 10 00 / 08 71 00

FINISH SCHEDULE

ITEM/SURFACE	MATERIAL	FINISH	COLOR	SPECIFICATION
EXTERIOR WALLS	SPLIT FACE CMU - NATURAL	COATING 300	CLEAR	09 90 00
INTERIOR WALLS	SMOOTH FACE CMU	COATING 302	WHITE	09 90 00
CEILING	MOISTURE RESISTANT GYPSUM BOARD	COATING 304	WHITE	09 90 00
INTERIOR FLOOR	SMOOTH SLAB ON GRADE	COATING 306	TRANSPARENT	09 90 00
ROOF	STANDING SEAM METAL	PER MANUFACTURER	COOL TAHOE BLUE	07 41 13
LOUVERS	ALUMINUM	POWDER COATING	COOL TAHOE BLUE	08 91 19
GUTTERS AND DOWNSPOUTS	ALUMINUM	BAKED ENAMEL	COOL TAHOE BLUE	07 60 00
DOORS	STEEL	COATING 101	WHITE	09 90 00
SOFFITS	FIBER CEMENT	COATING 302	WHITE	09 90 00
OVERHEAD ROLLUP DOOR	ALUMINUM	POWDER COATING	WHITE	08 10 00

ACQUETTE DANEL COUEDULE

ACOUSTIC PANEL SCHEDULE								
NO.	DESCRIPTION	WIDTH (IN)	HEIGHT (IN)	AREA (SF)	MAKE	MODEL	QTY	TOTAL COVERAGE (SF)
AP-1	WALL-MOUNTED ACOUSTIC PANEL	30	120	25	ECKEL	EFP TYPE-2	14	350
AP-2	CEILING-MOUNTED ACOUSTIC PANEL	30	60	12.5	ECKEL	EFP TYPE-3	9	112.5
AP-3	CEILING-MOUNTED ACOUSTIC PANEL	30	48	10	ECKEL	EFP TYPE-3	3	30







WASHINGTON WESTSIDE pH TREATMENT PROJECT LACEY CONTRACT #PW 2022-37

ARCHITECTURAL

CODE SUMMARY AND ARCHITECTURAL SCHEDULES

SCHEDULE	В
HEET	

A -	1
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21-3172 SCALE: PROJECT NO.: AS SHOWN DATE: AUGUST 2023



NOTES:

2. SEE SHT M-1 FOR LOUVER SCHEDULE.

	3. SEE SH	IT M-7 FOR PL	UMBING PLAN			
NO.	DATE	BY	REVISION	NOTICE 0 ½ 1 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE	SWW DESIGNED JLC DRAWN NCR CHECKED	THANCRO THANCRO THE OF WASHING STILL





	ARCHI	FECTURA	L		SCHEDULE B
TREAT	MENT	BUILDIN	G PLA	N	A-3
PROJECT NO.: 21-3172	SCALE:	AS SHOWN	DATE:	AUGUST 2023	

Lacey - Westside PH Treatment\CAD\Sheets\21-3172-WA-A-4.dwg A-4 8/25/2023 8:14 AM JARED.CLOUD 23.0s (LMS Tech)						8'-0"" (TYP)
K:\TAC_Projects\21\317	NO. DATE	BY	REVISIO	 NOTICE	SWW DESIGNED JLC DRAWN NCR CHECKED	THANC.ROC THANC.ROC THOF WASHING STAN STANDAL ENGINE





ARCHITECTURAL

TREATMENT BUILDING

SCHEDULE B SHEET

A-5

SECTIONS - 1 21-3172 SCALE:

AS SHOWN DATE:

AUGUST 2023

PROJECT NO.:









RESTROOM KEY NOTES

 $\left(\frac{2}{A-7}\right)$ (TYP)

- 1) PAPER TOWEL DISPENSER, PER SPEC 10 28 13
- (2) STAINLESS STEEL GRAB BAR, PER SPEC 10 28 13
- (3) TOILET PAPER DISPENSER, PER SPEC 10 28 13
- (4) MIRROR UNIT, PER SPEC 10 28 13

NOTE: SEE SHEET M-7 FOR PLUMBING FIXTURES AND SPEC 10 28 13 FOR ADDITIONAL ACCESSORIES NOT SHOWN ON PLANS.

ARCHITECTURAL

TREATMENT BUILDING SECTIONS - 2

SCHEDULE B SHEET

A-6

PROJECT NO .:

21-3172 SCALE:

AS SHOWN DATE:

AUGUST 2023



	A	RCHIT	ECTURA	L		SCHEDULE B
Α	RCHIT	ECTUR	RAL DET	AILS -	1	A-7
PROJECT NO ·	21-3172	SCALE	AS SHOWN	DATE	AUGUST 2023	



inversion inve			VALVE SCH	EDULE						BI	LOWER SCHEDULE					
Name Metale Resp. Variable Since Market wardsame Since Andrea Sin	TAG NO.	ТҮРЕ	SIZE, INCHES	PRESSURE RA	TING OPERATOR TYPE	SPECIFICATION							MOTOR			
Imm Work Norm	PR1	PRESSURE RELIEVE VALVE	3	150 PSI	PASSIVE HYDRAULIC	40 50 23.74	TAG NO.	ТҮРЕ	AIR FLOW (CFM)	SP, IN W.G.	BLOWER RPM	НР	VOLTS	PHASE	MFR & MODEL NO.	SPECIFICATION
UNIX UNIX	CHKV1	SWING CHECK VALVE	8	150 PSI	PASSIVE HYDRAULIC	40 05 23.24	B-1	MULTISTAGE CENTRIFUGAL	1000	40	3600	20	460	3	SPENCER S24103C	46 51 15
Dirol Windle Class Walk 4 90 / 4 92 / 2 / 2 / 2 92 / 2 / 2 92 / 2 / 2 92 / 2 <td>CHKV2</td> <td>SWING CHECK VALVE</td> <td>8</td> <td>150 PSI</td> <td>PASSIVE HYDRAULIC</td> <td>40 05 23.24</td> <td>B-2</td> <td>MULTISTAGE CENTRIFUGAL</td> <td>1000</td> <td>40</td> <td>3600</td> <td>20</td> <td>460</td> <td>3</td> <td>SPENCER S24103C</td> <td>46 51 15</td>	CHKV2	SWING CHECK VALVE	8	150 PSI	PASSIVE HYDRAULIC	40 05 23.24	B-2	MULTISTAGE CENTRIFUGAL	1000	40	3600	20	460	3	SPENCER S24103C	46 51 15
main	CHKV3	SWING CHECK VALVE	4	150 PSI	PASSIVE HYDRAULIC	40 05 23.24	B-3	MULTISTAGE CENTRIFUGAL	500	40	3600	10	460	3	SPENCER S24103B	46 51 15
defect important 2 INSING MANUAL (2013) MANUAL (2013) </td <td></td> <td>DOUBLE CHECK VALVE BACKFLOW</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>· ·</td> <td>·</td> <td></td> <td>·</td> <td>·</td> <td>·</td> <td>·</td> <td></td> <td>·</td>		DOUBLE CHECK VALVE BACKFLOW						· ·	·		·	·	·	·		·
Control Solumbol Solumbol Control Contro Control Control	CHKV4	PREVENTER	4	150 PSI	PASSIVE HYDRAULIC	40 05 23.24										
Code Code <th< td=""><td>FCV01A</td><td>SOLENOID SHUTOFF VALVE</td><td>6</td><td>150 PSI</td><td>SOLENOID</td><td>40 05 23.73</td><td></td><td></td><td></td><td></td><td>FAN SCHEDULE</td><td></td><td></td><td></td><td></td><td></td></th<>	FCV01A	SOLENOID SHUTOFF VALVE	6	150 PSI	SOLENOID	40 05 23.73					FAN SCHEDULE					
CAUMA Orbital SubJiol S	FCV01B	DEEP WELL CONTROL VALVE	3	150 PSI	HYDRAULIC/SOLENOID	EXISTING							MOTOR			
K-COV/R Disk Mill COUNDON UNION A Disk Mill COUNDON UNION A Disk Mill COUNDON UNION A Disk Mill COUNDON UNION Disk Mill COUNDON UNION Disk Mill COUNDON UNION A Disk Mill COUNDON UNION	FCV02A	SOLENOID SHUTOFF VALVE	6	150 PSI	SOLENOID	40 05 23.73	TAG NO.	ТҮРЕ	AIR FLOW (CFM)	SP, IN W.G.	FAN RPM	HP	VOLTS	PHASE	MFR & MODEL NO.	SPECIFICATION
Chorma Solito Solito Solito Solito Solito Solito Solito Solito Solito Solito Solito Solito Solito Solito Soli	FCV02B	DEEP WELL CONTROL VALVE	3	150 PSI	HYDRAULIC/SOLENOID	EXISTING	EF1	WALL MOUNT	1741	0.26	1160	1/4	115	1	GREENHECK AER-E24C	23 34 00
Chooles Difference Control Average 3 150 PB Mindla UlcyBourMole 4005 23.73 Grass Carrona Lavaro 8 150 PB Manual/Jianomirra 405 32 Grass Carrona Lavaro 8 150 PB Manual/Jianomirra 405 32 Grass Grass 150 PB Manual/Jianomirra 405 32 Grass 6 Arrana Lavaro 8 150 PB Manual/Jianomirra 405 32 Grass 6 Arrana Lavaro 8 150 PB Manual/Jianomirra 405 32 Grass 6 Arrana Lavaro 8 150 PB Manual/Jianomirra 406 32 Grass 6 Arrana Lavaro 8 150 PB Manual/Jianomirra 406 32 Grass 6 Arrana Lavaro 8 150 PB Manual/Jianomirra 406 32 Grass 6 Arrana Lavaro 150 PB Manual/Jianomirra 406 32 Grass 6 Arrana Lavaro 150 PB Manual/Jianomirra 406 32 Grass 6 Arrana Lavaro 150 PB Manual/Jianomirra 406 23	FCV03A	SOLENOID SHUTOFF VALVE	6	150 PSI	SOLENOID	40 05 23.73	EF2	WALL MOUNT	380	0.25	719	1/4	115	1	GREENHECK AER-E24C	23 34 00
CHOSES Electronic Control VALVE 12 150 PS Solution 40 05 327.3 Control Carte VALVE 8 150 PS MANUL/IARDWHELL 40 05 23.4 GVIG GATE VALVE 8 150 PSI MANUL/IARDWHELL 40 05 23.4 GVIG GATE VALVE 8 150 PSI MANUL/IARDWHELL 40 05 23.4 GVIG GATE VALVE 8 150 PSI MANUL/IARDWHELL 40 05 23.4 GVIG GATE VALVE 8 150 PSI MANUL/IARDWHELL 40 05 23.4 GVIG GATE VALVE 8 150 PSI MANUL/IARDWHELL 40 05 23.4 GVIG GATE VALVE 8 150 PSI MANUL/IARDWHELL 40 05 23.4 GVIG GATE VALVE 6 150 PSI MANUL/IARDWHELL 40 05 23.4 GVIG GATE VALVE 6 150 PSI MANUL/IARDWHELL 40 05 23.4 GVIG GATE VALVE 6 150 PSI MANUL/IARDWHELL 40 05 23.4 GVIG GATE VALVE 6 150 PSI SOLENDID 40 05 23.4 GVIG GATE VALVE 6 150 PSI	FCV03B	DEEP WELL CONTROL VALVE	3	150 PSI	HYDRAULIC/SOLENOID	40 05 23.73	EF3	WALL MOUNT	328	0.23	1650	1/20	115	1	GREENHECK SE1-10-428-P	23 34 00
GATE VALVE 8 150 PSI MANUAL/HANDWITE 406 23 GATE VALVE 8 150 PSI MANUAL/HANDWITE 406 23 GVAC GATE VALVE 8 150 PSI MANUAL/HANDWITE 406 23 GVAZ GATE VALVE 8 150 PSI MANUAL/HANDWITE 406 23 GVAZ GATE VALVE 8 150 PSI MANUAL/HANDWITE 406 23 GVAZ GATE VALVE 8 150 PSI MANUAL/HANDWITE 406 23 GVAZ GATE VALVE 8 150 PSI MANUAL/HANDWITE 406 23 GVAZ GATE VALVE 6 150 PSI MANUAL/HANDWITE 406 23 GVAZ GATE VALVE 6 150 PSI MANUAL/HANDWITE 406 23 GVAZ GATE VALVE 6 150 PSI MANUAL/HANDWITE 406 23 GVAZ GATE VALVE 4 150 PSI MANUAL/HANDWITE 406 23 GVAZ GATE VALVE 6 150 PSI MANUAL/HANDWITE 406 23 GVAZ GATE VALVE 4 150 PSI MANUAL/HANDWITE 406 23 G	FCV337	ELECTRONIC CONTROL VALVE	12	150 PSI	SOLENOID	40 05 23.73				L		I				
GATE VALVE 6 150 PS MANUAL/HANDWITEL 405 23 VAC GATE VALVE 6 150 PS MANUAL/HANDWITEL 405 23 VAZ GATE VALVE 8 150 PS MANUAL/HANDWITEL 405 23 VAZ GATE VALVE 8 150 PS MANUAL/HANDWITEL 405 23 VAZ GATE VALVE 6 150 PS MANUAL/HANDWITEL 405 23 VAG GATE VALVE 6 150 PS MANUAL/HANDWITEL 405 23 VAG GATE VALVE 6 150 PS MANUAL/HANDWITEL 405 23 VAG GATE VALVE 6 150 PS MANUAL/HANDWITEL 405 23 VAG GATE VALVE 6 150 PS MANUAL/HANDWITEL 405 23 VAG GATE VALVE 4 150 PS MANUAL/HANDWITEL 405 23 VAG GATE VALVE 4 150 PS MANUAL/HANDWITEL 405 23 VAG GATE VALVE 4 150 PS MANUAL/HANDWITEL 405 23 VAG	GV1A	GATE VALVE	8	150 PSI	MANUAL/HANDWHEEL	40 05 23										
GV2C GATE VALVE 8 10 PS1 MANUL/HANDWEEL 400 52 21 GV2A GATE VALVE 8 10 PS1 MANUL/HANDWEEL 400 52 31 GV2A GATE VALVE 8 10 PS1 MANUL/HANDWEEL 400 52 31 GV2A GATE VALVE 8 10 PS1 MANUL/HANDWEEL 400 52 31 GV2A GATE VALVE 6 10 PS1 MANUL/HANDWEEL 400 52 31 GV3A GATE VALVE 6 10 PS1 MANUL/HANDWEEL 400 52 31 GV3A GATE VALVE 6 10 PS1 MANUL/HANDWEEL 400 52 31 GV3A GATE VALVE 6 10 PS1 MANUL/HANDWEEL 400 52 31 GV3A GATE VALVE 6 10 PS1 MANUL/HANDWEEL 400 52 31 GV3A GATE VALVE 6 10 PS1 MANUL/HANDWEEL 400 52 31 GV3A GATE VALVE 6 10 PS1 MANUL/HANDWEEL 400 52 31 GV3A GATE VALVE 6 10 PS1 MANUL/HANDWEEL 400 52 31	GV1B	GATE VALVE	8	150 PSI	MANUAL/HANDWHEEL	40 05 23			FLOW METE	R SCHEDULE						
GV2A GATU AU/L 8 10°Fi MAUL/HANDWHEL 405.23 GV2B GATE VALVE 8 10°Fi MANUA/HANDWHEL 405.23 GV2C GATE VALVE 6 10°Fi MANUA/HANDWHEL 405.23 GV3B GATE VALVE 6 10°Fi MANUA/HANDWHEL 405.23 GV3A GATE VALVE 6 10°Fi MANUA/HANDWHEL 405.23 GV3B GATE VALVE 6 10°Fi MANUA/HANDWHEL 405.23 GV3B GATE VALVE 6 10°Fi MANUA/HANDWHEL 405.23 GV3C GATE VALVE 6 10°Fi MANUA/HANDWHEL 405.23 GV4A GATE VALVE 6 10°Fi MANUA/HANDWHEL 405.23 GV4 GATE VALVE 4 10°Fi MANUA/HANDWHEL 405.23 FCV30 740 MAUL 10°Fi MANUA/HANDWHEL 405.23 FCV40 4 6 10°Fi 50°Fi GV30 30/FICNID/VALVE 10°Fi 00°F3	GV1C	GATE VALVE	8	150 PSI	MANUAL/HANDWHEEL	40 05 23	TAG NO.	DESCRIPTION	LOCATION	ТҮРЕ	SIZE	PRESSURE RATING	SPECIFICATION			
GV2E GATE VALVE 8 150 PS MANUA/HANDWHER 40 05 23 GV2C GATE VALVE 6 150 PS MANUA/HANDWHER 40 05 23 GV3A GATE VALVE 4 150 PS MANUA/HANDWHER 40 05 23 GV3B GATE VALVE 4 150 PS MANUA/HANDWHER 40 05 23 GV3C GATE VALVE 4 150 PS MANUA/HANDWHER 40 05 23 GV3B GATE VALVE 6 150 PS MANUA/HANDWHER 40 05 23 GV4A GATE VALVE 4 150 PS MANUA/HANDWHER 40 05 23 GV4A GATE VALVE 4 150 PS MANUA/HANDWHER 40 05 23 GV4A GATE VALVE 4 150 PS MANUA/HANDWHER 40 05 23 FCV01D PAFLUBE VALVE 3/4 150 PS MANUA/HANDWHER 40 05 23.72 FCV01D PAFLUBE VALVE 3/4 150 PS MANUA/HANDWHER 40 05 23.72 FCV01D PAFLUBE VALVE 12 160 PS 160 PS 160 PS <td>GV2A</td> <td>GATE VALVE</td> <td>8</td> <td>150 PSI</td> <td>MANUAL/HANDWHEEL</td> <td>40 05 23</td> <td>FE01</td> <td>SOURCE SO1 FLOW METER</td> <td>VAULT</td> <td>MAG METER</td> <td>6 INCHES</td> <td>150</td> <td>40 71 13</td> <td></td> <td></td> <td></td>	GV2A	GATE VALVE	8	150 PSI	MANUAL/HANDWHEEL	40 05 23	FE01	SOURCE SO1 FLOW METER	VAULT	MAG METER	6 INCHES	150	40 71 13			
GYL2 GATE VALVE 8 150 PS MANUA/HANDWREE 400523 GYAB GATE VALVE 4 150 PS MANUA/HANDWREE 400523 GYAC GATE VALVE 6 150 PS MANUA/HANDWREE 400523 GYAG GATE VALVE 6 150 PS MANUA/HANDWREE 400523 GYAG GATE VALVE 4 150 PS MANUA/HANDWREE 40523 GYAG GATE VALVE 4 150 PS MANUA/HANDWREE 40523 GYAG GATE VALVE 4 050 PS MANUA/HANDWREE 40523 GYAG GATE VALVE 4 050 PS MANUA/HANDWREE 40523 GYAG GATE VALVE 4 050 PS MANUA/HANDWREE 40523 GYAG GATE VALVE 372 ONE MINITY POINT FLOW METER VALUT MAG METER 8 INCHES 150 PS 40713 GYAG GATE VALVE 372 ONE MINITY POINT FLOW METER VALUT MAG METER 8 INCHES 150 PS 40713 GYAG GATE VALVE 372 ONE MINITY POINT FLOW METER VALUT MAG METER 8 INCHES 8 I	GV2B	GATE VALVE	8	150 PSI	MANUAL/HANDWHEEL	40 05 23	FE02	SOURCE SO2 FLOW METER	VAULT	MAG METER	6 INCHES	150	40 71 13			
GATE VALVE GATE VALVE G ISO PSI MANAL/HANDWHEL 400524 GV36 GATE VALVE G SOPSI MANUAL/HANDWHEL 40523 GV40 GATE VALVE G SOPSI MANUAL/HANDWHEL 40523 GV44 GATE VALVE G SOPSI MANUAL/HANDWHEL 40523 GV44 GATE VALVE 4 SOPSI MANUAL/HANDWHEL 40523 GV46 GATE VALVE 4 SOPSI MANUAL/HANDWHEL 40523 GV47 GATE VALVE 4 SOPSI MANUAL/HANDWHEL 40523 GV160 GATE VALVE 3/4 SOPSI MANUAL/HANDWHEL 40523 GV170 PRE1UBE VALVE 3/4 SOPSI MANUAL/HANDWHEL 40523 FV010 SWAY SOLINDID VALVE 3/4 SOLINDIO 40523.72 FV010 SWAY SOLINDID VALVE 1/2 SOLINDIO 40523.72 FV101 SUTERELY VALVE, ARR 6 SOLINDIO 40523.72 FV102 SUTERELY VALVE, ARR 6 SOLINDIO 40523.72 FV103 SUTERELY VALVE, AR	GV2C	GATE VALVE	8	150 PSI	MANUAL/HANDWHEEL	40 05 23	FE03	SOURCE SO3 FLOW METER	VAULT	MAG METER	8 INCHES	150	40 71 13			
GATE VALVE 4 150 PSI MANUAL/HANDWHEEL 400 52 3 GV3C GATE VALVE 6 150 PSI MANUAL/HANDWHEEL 400 52 3 GV4A GATE VALVE 4 150 PSI MANUAL/HANDWHEEL 400 52 3 GV4B GATE VALVE 4 150 PSI MANUAL/HANDWHEEL 400 52 3 GV6VIC PRE-LUBE VALVE 3/4 150 PSI SOLENOID 400 52 3.72 FCV01C 3-WAY SOLENOID VALVE 1/2 150 PSI SOLENOID 400 52 3.72 FCV02D 3-WAY SOLENOID VALVE 1/2 150 PSI SOLENOID 400 52 3.72 FFV-10 BUTTERFLY VALVE, AIR 6 150 PSI SOLENOID 400 52 3.72 FFV-2 BUTTERFLY VALVE, AIR 6 150 PSI SOLENOID 400 52 3.72 FFV-1 BUTTERFLY VALVE, AIR 6 150 PSI SOLENOID 400 52 3.72 FFV-2 BUTTERFLY VALVE, AIR 6 150 PSI MANUAL/LEVER 400 52 3.72 FFV-2 BUTTERFLY VALVE, AIR 6 150 PSI MANUAL/LEVER 400 52 3.72 FFV-2 BUTTERFLY VALVE, AIR </td <td>GV3A</td> <td>GATE VALVE</td> <td>6</td> <td>150 PSI</td> <td>MANUAL/HANDWHEEL</td> <td>40 05 23</td> <td>FE337</td> <td>337 ZONE ENTRY POINT FLOW METER</td> <td>VAULT</td> <td>MAG METER</td> <td>12 INCHES</td> <td>150</td> <td>40 71 13</td> <td></td> <td></td> <td></td>	GV3A	GATE VALVE	6	150 PSI	MANUAL/HANDWHEEL	40 05 23	FE337	337 ZONE ENTRY POINT FLOW METER	VAULT	MAG METER	12 INCHES	150	40 71 13			
GATE VALVE 6 A 150 PSi MANUA/HANDWHEL 050 23 GVA GATE VALVE 4 150 PSi MANUA/HANDWHEL 0.052 GVAB GATE VALVE 4 150 PSi MANUA/HANDWHEL 0.052 FCV010 PAF-LUBE VALVE 4 150 PSi MANUA/HANDWHEL 0.052 A FCV010 PAF-LUBE VALVE 3/4 150 PSi SOLENDI A 0.052 A PAF-LUBE VALVE PAF-LUBE VALVE <th< td=""><td>GV3B</td><td>GATE VALVE</td><td>4</td><td>150 PSI</td><td>MANUAL/HANDWHEEL</td><td>40 05 23</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>	GV3B	GATE VALVE	4	150 PSI	MANUAL/HANDWHEEL	40 05 23										
GYAAGATE VALVEA15 PSIMANUA/HANDWHEL00 52 3GVABGATE VALVEA50 PSIMANUA/HANDWHEL40 52 3.7FCV01S-WAY SOLENOD VALVEJ5 PSISOLENOID40 52 3.7 2FCV023-WAY SOLENOID VALVEJ5 PSISOLENOID40 52 3.7 2FCV023-WAY SOLENOID VALVEJ2 SOLENOID40 52 3.7 2FCV033-WAY SOLENOID VALVEJ2 SOLENOID40 52 3.7 2FCV04J2 SOLENOIDSOLENOID40 52 3.7 2FCV05J2 SOLENOIDSOLENOID40 52 3.7 2FCV05J2 SOLENOIDSOLENOID40 52 3.7 2FCV05J2 SOLENOID VALVEJ5 PSISOLENOID40 52 3.7 2FCV16J2 SOLENOIDSOLENOID40 52 3.7 2FCV16J2 SOLENOIDSOLENOIDSOLENOIDFCV16J2 SOLENOIDSOLENOIDSOLENOIDFCV16J2	GV3C	GATE VALVE	6	150 PSI	MANUAL/HANDWHEEL	40 05 23										
GYAB GATE VALVE 4 150 PSi MANUA/HANDWHELE 40 05 23 FCV01C PRE-LUBE VALVE 3/4 150 PSi SOLENDID 4005 23.72 FCV01D 3-WAY SOLENDID VALVE 1/2 50 PSi SOLENDID 4005 23.72 FCV02D 3-WAY SOLENDID VALVE 1/2 50 PSi SOLENDID 4005 23.72 FCV02D 3-WAY SOLENDID VALVE 1/2 SOLENDID 4005 23.72 H-1 FLOR MOUNT OUTSIDE BUILDING 44200 36000 23.8140 FV02D 3-WAY SOLENDID VALVE 6 150 PSi MANUA/LEVER 4005 23.72 H-1 FLOR MOUNT MALMOUNT FLOR MOUNT MALMOUNT 40000 36000 38140 36000 23.8140 FV-20 BUTTERFLY VALVE, AIR 6 150 PSi MANUA/LEVER 4005 23.745115 AH-1 WALMOUNT FRE-MOUNT 15000 12000 23.8140 FV-2 BUTTERFLY VALVE, AIR 6 150 PSi MANUA/LEVER 4005 23.745115 AH-2 WALMOUNT FRE-MOUNT 13500 12000 23.8140 FV-2 BUTTERFLY VALVE, AIR 6 <td>GV4A</td> <td>GATE VALVE</td> <td>4</td> <td>150 PSI</td> <td>MANUAL/HANDWHEEL</td> <td>40 05 23</td> <td></td> <td></td> <td>HVAC SCHEDULE</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	GV4A	GATE VALVE	4	150 PSI	MANUAL/HANDWHEEL	40 05 23			HVAC SCHEDULE							
FCVDICRF-LUBE VALVE3/4150 PSISOLENOID4005 23.72FCVD1D3-WAY SOLENOID VALVE1/2150 PSISOLENOID4005 23.72FCV2D3-WAY SOLENOID VALVE1/2150 PSISOLENOID4005 23.72FCV2D3-WAY SOLENOID VALVE1/2150 PSISOLENOID4005 23.72FCV2D3-WAY SOLENOID VALVE1/2150 PSISOLENOID4005 23.72FCV2D3-WAY SOLENOID VALVE1/2150 PSI0.01004005 23.72FV-1BUTTERFLY VALVE,AIR6150 PSIMANUAL/LEVER4005 23.72FV-2BUTTERFLY VALVE,AIR6150 PSIMANUAL/LEVER4005 23.74FV-2BUTTERFLY VALVE,AIR6150 PSI150 PSI150 PSIFV-2BUTTERFLY VALVE,AIR6150 PSI150 PSI150 PSIFV-2BUTTERFLY VALVE,AIR6150 PSI150 PSI <t< td=""><td>GV4B</td><td>GATE VALVE</td><td>4</td><td>150 PSI</td><td>MANUAL/HANDWHEEL</td><td>40 05 23</td><td></td><td></td><td></td><td>САРАС</td><td>ITY (BTU/HR)</td><td></td><td></td><td></td><td></td><td></td></t<>	GV4B	GATE VALVE	4	150 PSI	MANUAL/HANDWHEEL	40 05 23				САРАС	ITY (BTU/HR)					
FV01D3-WAY SOLENOID VALVE1/2150 PSiSOLENOID4 05 23.72FV02D3-WAY SOLENOID VALVE1/2150 PSiSOLENOID4 05 23.72FV03D3-WAY SOLENOID VALVE1/2150 PSiSOLENOID4 05 23.72FV03D3-WAY SOLENOID VALVE1/2150 PSiSOLENOID4 05 23.72BFV-1BUTTERFLY VALVE, AIR6150 PSiMANUAL/LEVER4 05 23.74 61BFV-2BUTTERFLY VALVE, AIR6150 PSiMANUAL/LEVER4 05 23.74 61BFV-3BUTTERFLY VALVE, AIR6150 PSiMANUAL/LEVER4 05 23.74 61<	FCV01C	PRE-LUBE VALVE	3/4	150 PSI	SOLENOID	40 05 23.72	TAG NO.	ТҮРЕ		HFATING	COOLING	SPECIFICATION				
FCV02D3-WAY SOLENOID VALVE1/2150 PSISOLENOID4005 23.72FCV03D3-WAY SOLENOID VALVE1/2150 PSISOLENOID4005 23.72HP-2FLOOR MOUNTOUTSIDE BUILDING420003600023.8140BFV-1BUTTERFLY VALVE, AIR6150 PSIMANUAL/LEVER4005 23.465115HP-2FLOOR MOUNTTREATMENT ROOM1200023.8140BFV-2BUTTERFLY VALVE, AIR6150 PSIMANUAL/LEVER4005 23.465115HA-2WALLMOUNTBLOWER ROOM135001200023.8140BFV-3BUTTERFLY VALVE, AIR6150 PSIMANUAL/LEVER4005 23.465115HA-4WALLMOUNTELECTRICAL ROOM1300023.8140BFV-3BUTTERFLY VALVE, AIR6150 PSI150 PSI150 PSI150 PSI150 PSI150 PSI150 PSIBFV-	FCV01D	3-WAY SOLENOID VALVE	1/2	150 PSI	SOLENOID	40 05 23.72	HP-1			54000	48000	23 81 40				
FCV03D3-WAY SOLENOID VALVE1/2150 PSiSOLENOID40 05 23.72160 0000160001600016000150 0000BFV-1BUTTERFLY VALVE, AIR6150 PSiMANUAL/LEVER40 05 23.74 65 115MANUAL/LEVER40 05 23.74 65 115BFV-2BUTTERFLY VALVE, AIR6150 PSiMANUAL/LEVER40 05 23.74 65 115MALMALBFV-3BUTTERFLY VALVE, AIR6150 PSiMANUAL/LEVER40 05 23.74 65 115MALH-3WALL MOUNTELECTRICAL ROOM135001200023 81.40H-4WALL MOUNTSTORAGE ROOM600023 81.40H-4WALL MOUNTSTORAGE ROOM600023 81.40H-5WALL MOUNTPESTROOM400073 81.40	FCV02D	3-WAY SOLENOID VALVE	1/2	150 PSI	SOLENOID	40 05 23.72	HP-2			42000	36000	23 81 40				
BVTBUTTERFLY VALVE, AIR6150 PSIMANUAL/LEVER40 05 23 / 46 51 15BFV-2BUTTERFLY VALVE, AIR6150 PSIMANUAL/LEVER40 05 23 / 46 51 15BFV-3BUTTERFLY VALVE, AIR6150 PSIMANUAL/LEVER40 05 23 / 46 51 15H-4WALL MOUNTELECTRICAL ROOM135001200023 81 40AH-4WALL MOUNTSTORAGE ROOM600023 81 40H-5WALL MOUNTPESTROOM4500400023 81 40	FCV03D	3-WAY SOLENOID VALVE	1/2	150 PSI	SOLENOID	40 05 23.72	AH-1			2000	18000	23 81 40				
BFV-2 BUTTERFLY VALVE, AIR 6 150 PSI MANUAL/LEVER 40 05 23 / 46 51 15 BFV-3 BUTTERFLY VALVE, AIR 6 150 PSI MANUAL/LEVER 40 05 23 / 46 51 15 AH-3 WALL MOUNT BSTROOM 6000 23 81 40 AH-3 WALL MOUNT BSTROOM 4000 23 81 40	BFV-1	BUTTERFLY VALVE, AIR	6	150 PSI	MANUAL/LEVER	40 05 23 / 46 51 15	ΔH-2			13500	12000	23 81 40				
BFV-3 BUTTERFLY VALVE, AIR 6 150 PSI MANUAL/LEVER 40 05 23 / 46 51 15 AH-5 VALUATION (CALINO (CA	BFV-2	BUTTERFLY VALVE, AIR	6	150 PSI	MANUAL/LEVER	40 05 23 / 46 51 15	ΔH-3	WALL MOUNT		13500	12000	23 81 40				
Arry Stoked Room 6700 230140 AH-5 WALLMOUNT RESTROOM 4000 23.8140	BFV-3	BUTTERFLY VALVE, AIR	6	150 PSI	MANUAL/LEVER	40 05 23 / 46 51 15		WALL MOUNT		6700	6000	23 81 40				
		· ·	1		I					4500	4000	23 81 40				

	PUMP SCHEDULE								
TAG NO.	SERVICE	ТҮРЕ	SIZE	SPECIFICATION					
P-S1	RAW WATER	VERTICAL TURBINE	30 HP	43 21 52					
P-S2	RAW WATER	VERTICAL TURBINE	50 HP	43 21 39					
P-S3	RAW WATER	VERTICAL TURBINE	20 HP	43 21 39					
P-T1	TREATED WATER	HORIZONTAL CENTRIFUGAL	40 HP	43 21 15					
P-T2	TREATED WATER	HORIZONTAL CENTRIFUGAL	40 HP	43 21 15					
P-T3	TREATED WATER	END SUCTION CENTRIFUGAL	15 HP	43 23 13					
P-CL01	CHLORINE	DIAPHRAGM/METERING	PER SPEC	46 33 42					
P-CL02	CHLORINE	DIAPHRAGM/METERING	PER SPEC	46 33 42					
P-CL03	CHLORINE	DIAPHRAGM/METERING	PER SPEC	46 33 42					

\TAC_Projects\21\3172 				NOTICE	SWW DESIGNED JLC DRAWN NCR CHECKED	THANC.RO THANC.RO THANC.RO THAN FOR WASHING S5144 S5144 S5144 S5144 S5144 S5144 S5144 S5144 S510NAL ENGLY
NO.	DATE	BY	REVISION			8-

	LOUVER SCHEDULE								
TAG NO.	SIZE	DESCRIPTION	SPECIFICATION	DAMPER	SPECIFICATION				
L1/D1	32IN X 32IN	TREATMENT ROOM INTAKE	08 91 19	ELECTRIC	23 09 13				
L2/D2	32IN X 32IN	TREATMENT ROOM EXHAUST	08 91 19	ELECTRIC	23 09 13				
L3/D3	32IN X 32IN	STORAGE ROOM INTAKE	08 91 19	ELECTRIC	23 09 13				
L4/D4	32IN X 32IN	RESTROOM EXHAUST	08 91 19	ELECTRIC	23 09 13				
L5/D5	32IN X 32IN	BLOWER ROOM INTAKE ACOUSTIC LOUVER	08 91 19	ELECTRIC	23 09 13				
L6	32IN X 32IN	STORAGE ROOM/RESTROOM	08 91 19		23 09 13				
L7/D7	16IN X 16IN	WELL BLDG S02 EXHAUST	08 91 19	ELECTRIC	23 09 13				
L8	24IN X 12IN	WELL BLDG S02 DOOR MOUNTED INTAKE LOUVER	08 91 19, 08 10 00						

		MECH	ANICAL			SCHEDULE B
	MECH	ANICA	AL SCHE	DULES		M-1
PROJECT NO.:	21-3172	SCALE:	AS SHOWN	DATE:	AUGUST 2023	

CITY OF LACEY, WASHINGTON WESTSIDE pH TREATMENT PROJECT LACEY CONTRACT **#PW 2022-37**

PROJECT NO.:

GENERAL NOTE:

1. ALL METAL PIPING 3" AND LARGER SHALL BE MECHANICALLY RESTRAINED UNLESS NOTED OTHERWISE

FITTING LIST:

- 1 8" DI TEE, FLG
- (2) 8" RFCA
- (3) 2" FLUSHING CONNECTION, SEE DET 2, SHT M-15
- (4) 8"x5" EXPANISON JOINT RED, FLG
- (5) PRESSURE GAUGE, SEE DET 1, SHT M-15
- 6 6" RFCA
- (7)6"x4" TEE, FLG
- 8 4" RFCA
- (9) 4" 90° ELBOW
- (10) 1" AIR RELEASE VALVE, SEE DET 5, SHT M-14
- (11)PRESSURE INDICATING TRANSMITTER, SEE DET 4, SHT M-14
- (12)8"x6" RED, FLG
- (13) 6" 90° BEND, MJ, RESTR
- (14) 8" LONG BODY SLEEVE, MJ, RESTR
- (15) 6" LONG BODY SLEEVE, MJ, RESTR
- (16) 8" 90° BEND, MJ, RESTR
- (17) 6" BLIND FLANGE
- (18) 8" BLIND FLANGE
- (19) 2" 90° BEND, FLG
- (20) 4"x2" EXPANSION JOINT RED, FLG
- (21) 6"x3" RED, FLG
- (22) WATER QUALITY SAMPLE TAP, SEE DET 3, SHT M-15
- (23) 4" 90° BEND, MJ, RESTR
- (24) 4"x3" RED, FLG
- (25) 8"x6" TEE, FLG
- (26) 8" DI SPOOL, FLGxPE
- (27) 8" DI SPOOL, PE
- (28) 6" DI SPOOL, PE
- (29) 4" DI SPOOL, FLGxPE
- (30) 4" DI SPOOL, PE
- (31) 4" DI SPOOL, FLG
- (32) 6" DI SPOOL, FLGxPE

SCHEDULE B MECHANICAL SHEET M-2 **PUMP AND PIPING FLOOR PLAN** 21-3172 SCALE: AS SHOWN DATE: AUGUST 2023

LINE FROM CHLORINE BLDG

		MECH	ANICAL			SCHEDULE B
TRE	ΕΑΤΜΕ	NT RO	OM SEC	FIONS	S - 2	M-4
PROJECT NO.:	21 - 3172	SCALE:	AS SHOWN	DATE:	AUGUST 2023	

- 3/4" HOT WATER LINE TO EYEWASH AH-1 L-2 COMBINED WQ SAMPLE LINE -0-0---⊐⊈ااد A-2 A-1 团 Èć 囂 FF 233.40' 900 \triangleleft INDIVIDUAL SAMPLE LINES -— PLUMB TO FLOOR DRAIN SECTION F SCALE: 3/4" = 1'-0" M-2 NOTICE SWW DESIGNED 1/2 JLC DRAWN IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE NCR CHECKED SSIONAL ENG. NO. DATE BY REVISION

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NOTES:

1. WATER QUALITY ANALYZER BOARD, SEE DET 3, SHT M-14.

M-5

AUGUST 2023

AS SHOWN DATE:

21-3172 SCALE:

PROJECT NO.:

3. ATTACH EXPOSED PLUMBING TO WALLS PER DET 7, SHT M-15.

4. SEE DET 1, SHT M-16 FOR CMU FLOOR PENETRATIONS

SCHEDULE B MECHANICAL SHEET M-6 **BLOWER ROOM SECTIONS** PROJECT NO.: 21-3172 SCALE: AS SHOWN DATE: AUGUST 2023

PLUMBING NOTES:

1. SLOPE ALL FLOOR DRAIN PIPING AT 1% MINIMUN

2. SLOPE ALL TRENCH DRAINS AT 0.5% MINIMUM. CONTRACTOR TO FIELD VERIFY TRENCH DRAIN INV

	GENERAL NOTE:
М.	1. ALL METAL PIPING SHALL BE MECHANICALLY RESTRAINED UNLESS NOTED OTHERWISE.
/ERT	
7, SHT	
SHOWN,	PLUMBING LIST:
A.L.I.	1 SADDLE TAP, SEE DET 3, SHT M-15
UPPORTS.	2 DOUBLE CHECK VALVE ASSEMBLY
UILDING	3 BALL VALVE
	4 TANKLESS ELECTRIC WATER HEATER
	5 4"Ø FLOOR DRAIN, SEE DET 2, SHT M-14
	6 BOTTOM DRAIN PER TRENCH DRAIN SYSTEM MANUFACTURER W/ P-TRAP
CODE.	7 INTERIOR HOSE BIBB, SEE DET 8, SHT M-15
YIEK	8 4" CLEANOUT PER CITY STD DET 7-7, SHT C-18
	9 WATER CLOSET, PER SPEC 22 00 00
	(10) WALL MOUNT SINK, PER SPEC 22 00 00
	11 LABORATORY SINK, PER SPEC 12 35 53.13
	12 TRAP PRIMER, SEE DET 2, SHT M-14
	13 HOSE RACK, SEE DET 1, THIS SHT

	SCHEDULE B					
	M-7					
PROJECT NO.:	21-3172	SCALE:	AS SHOWN	DATE:	AUGUST 2023	

KEY NOTES:

- (1) SPLIT SYSTEM REFRIGERANT LINES
- (2) AH-3 TO BE MOUNTED ABOVE DOOR

NOTES:

1. SEE SHT M-1 FOR HVAC SCHEDULES.

2. REFRIGERANT PIPING SHALL NOT BE LOCATED DIRECTLY ABOVE ELECTRICAL EQUIPMENT.

3. INDOOR AIR HANDLER DRAIN PIPING SHALL BE ROUTED TO NEAREST EXTERIOR WALL AND TERMINATED PER MANUFACTURER REQUIREMENTS.

4. REFRIGERANT PIPING SHOWN SCHEMATICALLY. INSTALL SYSTEM PER MANUFACTURER RECOMMENDATIONS.

5. HANGERS FOR AERATION UNIT VENT PIPING, IN ACCORDANCE WITH SPECIFICATION SECTION 22 05 29, SHALL BE DESIGNED ASSUMING VENT PIPING IS FILLED WITH WATER.

HEAT PUMP AND AIR CONDITIONER NOTES:

- 1. ROUTE CONDENSATE TO OUTSIDE. CONTRACTOR SHALL PROVIDE CONDENSATE PUMP IF REQUIRED. TERMINATE CONDENSATE PIPE 6" ABOVE FINISHED GRADE IN A MANNER THAT ALLOWS WATER TO FLOW AWAY FROM THE BUILDING.
- 2. MOUNT INSIDE UNITS PER MANUFACTURER **RECOMMENDATIONS.**
- 3. RATED HEATING CAPACITY IS AT AN OUTSIDE TEMPERATURE OF 17° F
- 4. PLACE OUTDOOR UNITS ON 12" HIGH OUTDOOR UNIT STAND, MOUNTED TO CONCRETE EQUIPMENT PAD.
- 5. REFER TO INSTALLATION MANUAL FOR MAXIMUM REFRIGERANT PIPE LENGTHS, NUMBER OF ALLOWED BENDS, AND REQUIRED REFRIGERANT CHARGE.
- 6. FIELD ROUTE REFRIGERANT PIPING BETWEEN INDOOR AND OUTDOOR UNITS. KEEP PIPING STRAIGHT AND PARALLEL WITH SURFACES. DO NO ROUTE REFRIGERANT PIPING ABOVE ANY ELECTRICAL PANELS.
- 7. MOUNT BOTTOM OF INDOOR UNITS 9'0" ABOVE FINISHED FLOOR
- 8. OR EQUAL UNITS ALLOWED. UNIT EFFICIENCIES MUST BE 15% GREATER THAN THE MINIMUM EFFICIENCY LISTED IN THE 2018 WSEC.

		MECH	ANICAL			SCHEDULE B
		HVA	C PLAN			M-8
ROJECT NO.:	21-3172	SCALE:	AS SHOWN	DATE:	AUGUST 2023	

	SCHEDULE B					
	M-9					
PROJECT NO.:	21-3172	SCALE:	AS SHOWN	DATE:	AUGUST 2023	

GENERAL NOTE:

1. EXISTING ANALYZER, METERING PUMP, CHEMICAL FEED AND WATER SAMPLE LINES TO REMAIN IN PLACE DURING CONSTRUCTION UNTIL EXISTING INJECTION POINT IS TAKEN OFF LINE.

	SCHEDULE B					
	M-13					
PROJECT NO.:	21-3172	SCALE:	AS SHOWN	DATE:	AUGUST 2023	