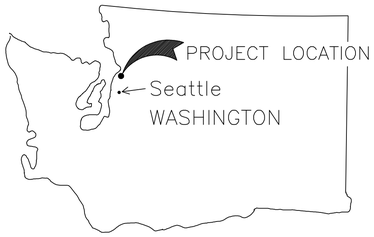
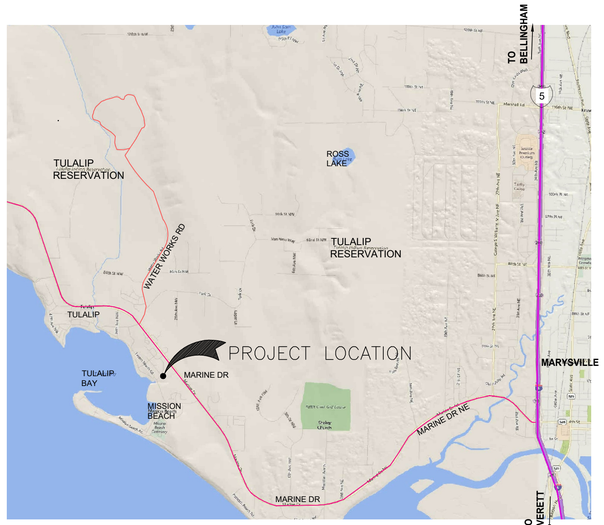
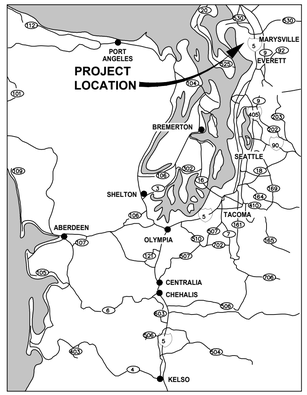
Stantec

McMillen





LOCATION MAP



VICINITY MAP

TULALIP TRIBES
BATTLE CREEK HATCHERY

Exhibit D.1

100% DESIGN SUBMITTAL

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Revision	By	Appd	YYYY.MM.DD

FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

Permit/Seal

DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Whitbeck
Date: 2026.04.09 10:59:31-07'00'

WARNING
0 ½ 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

McMillen
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Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 G-2	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
DRAWING INDEX

Project No.
25-128

Scale
NO SCALE

Revision

Drawing No.
G-2

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ORIGINAL SHEET - ANSI D

VALVES

- HAND / MANUAL OPERATOR (ALSO SHOWN AS NO OPERATOR)
- AIR VACUUM, AIR RELEASE, OR AIR VACUUM AND AIR RELEASE ASSEMBLY
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE

GATES

- SLIDE GATE (CAST IRON, ALUMINUM OR STAINLESS STEEL)

AC	ASPHALT
APPROX	APPROXIMATE
AVAR	AIR VACUUM/AIR RELEASE
BFV	BUTTERFLY VALVE
BLDG	BUILDING
BM	BENCHMARK
BOL	BOLLARD
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
COTG	CLEANOUT TO GRADE
CP	CONTROL POINT
CFS	CUBIC FEET PER SECOND
CV	CHECK VALVE
CHWS	CHILLED WATER SUPPLY
DI	DUCTILE IRON
DF	DOUBLE FLANGE/ DRUM FILTER
DIA	DIAMETER
DP	DIFFERENTIAL PRESSURE
DR	DRAIN
EA	EACH
ERT	EARLY REARING TROUGH
EW	EACH WAY
EHH	ELECTRICAL HAND HOLE
EG	EXISTING GROUND
EL	ELEVATION
FF	FINISH FLOOR
FL	FLANGE
FLEX	FLEXIBLE
FM	FLOW METER
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET
FH	FIRE HYDRANT
FS	FORMALIN SUPPLY
GB	GRADE BREAK
GPM	GALLON PER MINUTE
GS	GAS SERVICE
H	HEIGHT
HB	HOSE BIB
HDPE	HIGH DENSITY POLYETHLENE
HWL	HIGH WATER LEVEL
HWY	HIGHWAY
HP	HORSEPOWER
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
INV	INVERT
LHO	LOW HEAD OXYGENATOR
LIT	LEVEL INDICATING TRANSMITTER
LOX	LIQUID OXYGEN
MIN	MINIMUM
MJ	MECHANICAL JOINT
MP	MEDIUM PRESSURE
NIC	NOT IN CONTACT
NWL	NORMAL WATER LEVEL
NO	NUMBER
OD	OUTSIDE DIAMETER
OF	OVERFLOW
OP	OVERHEAD POWER
P	PUMP
PC	POINT OF CURVATURE
PCA	PACKED COLUMN AERATOR
PI	POINT OF INFLECTION
PP	POWER POLE
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE PIPE
PVMT	PAVEMENT
PW	POTABLE WATER PIPELINE
R	REUSE
RD	ROAD
S	SLOPE
SF	SCREEN FILTER
SQ	SQUARE
STA	STATION
STRUC	STRUCTURE
SW	SURFACE WATER
TC	TOP OF CURB
TDH	TOTAL DISCHARGE HEAD
TOC	TOP OF CONCRETE
TOG	TOP OF GRATING
T&B	TOP AND BOTTOM
TW	TOP OF WALL
TYP	TYPICAL
UTIL	UTILITY
u	MICRON
UV	ULTRAVIOLET
UW	UTILITY WATER
VERT	VERTICAL
VLT	VAULT
WM	WATER METER
W/	WITH
W	WIDTH
WW	WELL WATER PIPELINE

GENERAL SYMBOLOGY

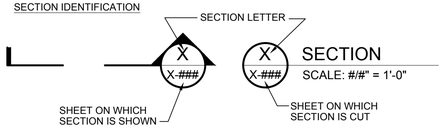
- NEW CONSTRUCTION
- EXISTING (SCREENED)
- FUTURE (PHANTOM)
- EXISTING TO BE REMOVED OR DEMOLISHED
- NORTH ARROW
- BM-2 BENCHMARK

MATERIAL SYMBOLOGY

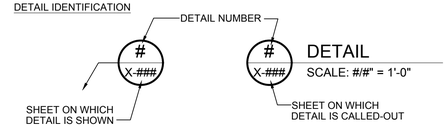
- CONCRETE (PLAN AND SECTION)
- GROUT OR SAND (PLAN AND SECTION)
- STEEL/METAL/FRP (SMALL SCALE SECTION)
- GRATING (PLAN)
- GRATING OR SOLID FRP GRATING (SECTION)
- RAILING (PLAN)
- LUMBER/FRAMING - NOMINAL
- FINISHED GRADE
- GRAVEL/DRAINROCK/AGGREGATE BASE, NEW
- GRAVEL SURFACING, EXISTING
- ASPHALT SURFACING, EXISTING
- ASPHALT SURFACING, NEW
- LIGHT FIXTURE
- MATURE TREE
- CATCH BASIN
- ELECTRICAL/UTILITY VAULT
- EDGE OF PAVING
- x CHAIN LINK FENCE
- DRAINAGE SWALE

REFERENCE SYMBOLS

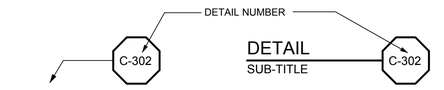
SECTION IDENTIFICATION



DETAIL IDENTIFICATION

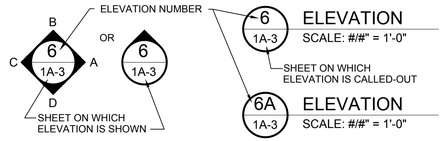


STANDARD DETAIL IDENTIFICATION

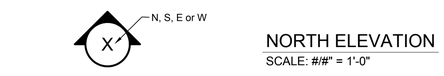


STANDARD DETAILS ARE LOCATED ON DISCIPLINE GENERAL SHEETS, IN NUMERICAL ORDER

INTERIOR ELEVATION IDENTIFICATION

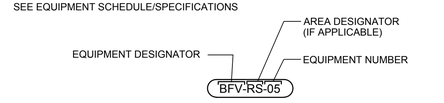


EXTERIOR ELEVATION IDENTIFICATION



EQUIPMENT IDENTIFICATION

SEE EQUIPMENT SCHEDULE/SPECIFICATIONS



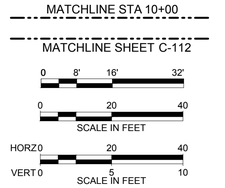
MISCELLANEOUS

4-12	ROOM NUMBER
2-16	DOOR NUMBER
1-8	WINDOW NUMBER
13	ACCESSORY NUMBER
4	WALL TYPE NUMBER
A	SHEET KEY NOTES
###	COORDINATE POINT/ WORK POINT
Ø	ROUND OR DIAMETER
@	AT
∠	ANGLE
℄	CENTERLINE

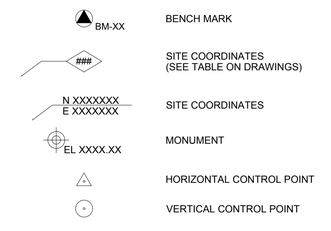
BURIED PIPING (SINGLE-LINE)

P	BURIED POWER
WW	WELL WATER
SW	SURFACE WATER
D	DRAIN
RW	REUSE WATER
CLW	CLEANING WATER
DWS	DOMESTIC WATER (CHLORINATED)
SS	SANITARY SEWER

MISCELLANEOUS



CONTROL SYMBOLS



Revision	By	Appd	YYYY.MM.DD

FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 G-3	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
SYMBOLS AND ABBREVIATIONS

Project No. 25-128
Revision
Scale NO SCALE
Drawing No. G-3

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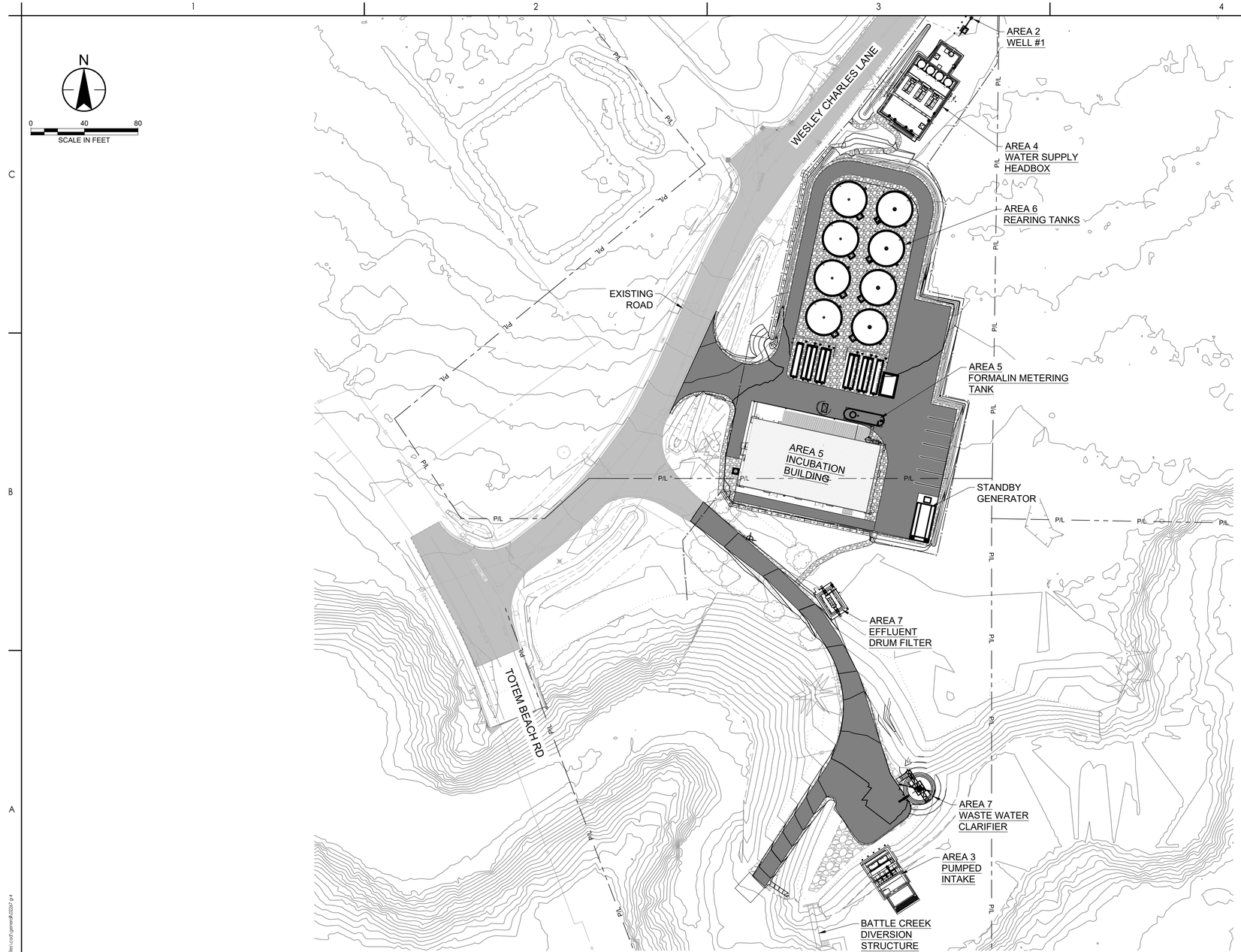

Revision	By	Appd	YYYY.MM.DD

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Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	MCM	DEW	2026.02.26

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BATTLE CREEK HATCHERY

File Name: 02267 G-4	MCM Dwn.	MDV Dsgn.	DEW Chkd.	2026.02.26 YYYY.MM.DD

Title
HATCHERY SITE AND AREA LOCATION PLAN

Project No.	Scale
25-128	1" - 40'
Revision	Drawing No.
0	G-4

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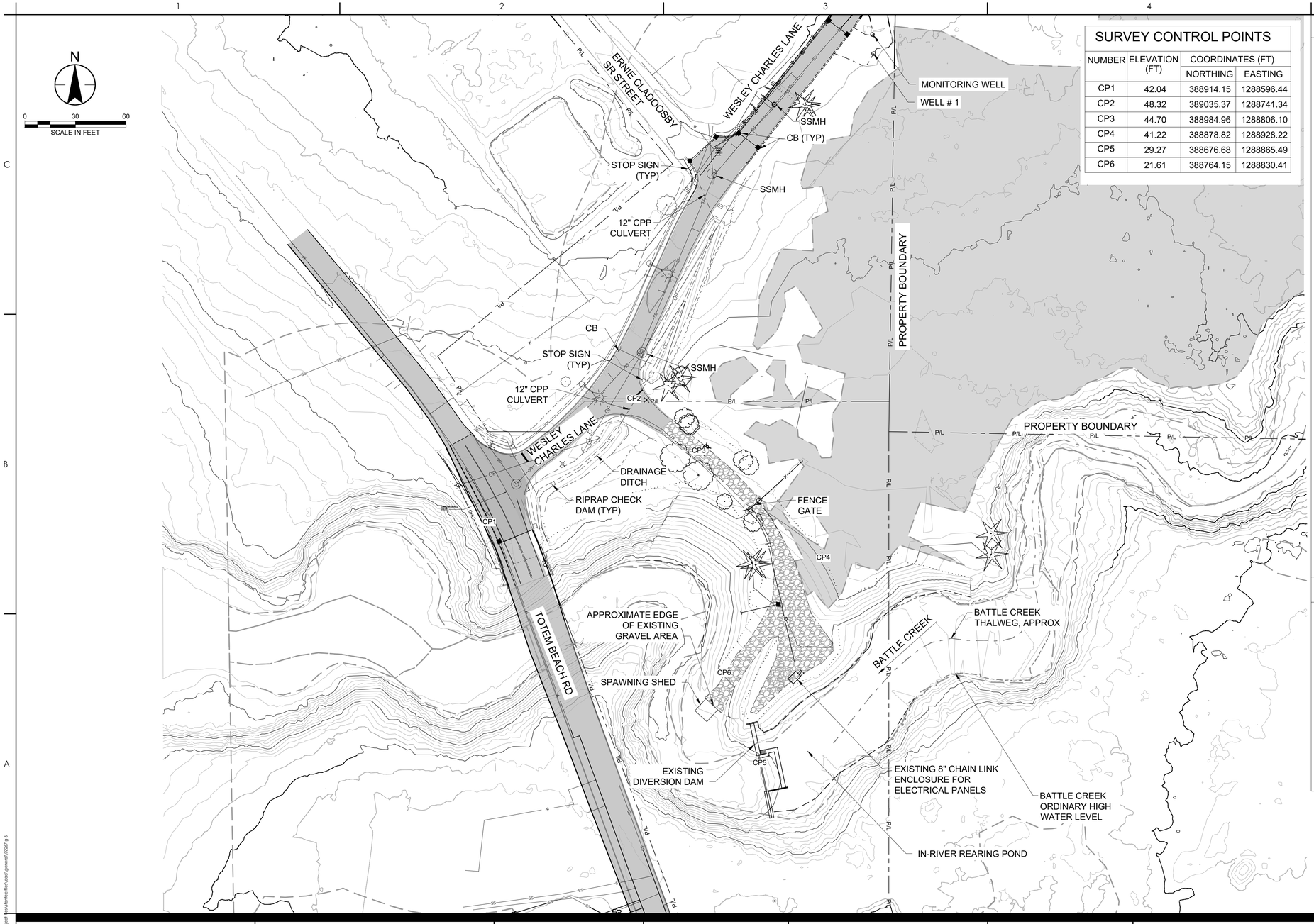

SURVEY CONTROL POINTS

NUMBER	ELEVATION (FT)	COORDINATES (FT)	
		NORTHING	EASTING
CP1	42.04	388914.15	1288596.44
CP2	48.32	389035.37	1288741.34
CP3	44.70	388984.96	1288806.10
CP4	41.22	388878.82	1288928.22
CP5	29.27	388676.68	1288865.49
CP6	21.61	388764.15	1288830.41

GENERAL SHEET NOTES

1. EXISTING TOPOGRAPHIC AND UTILITY MAPPING SHOWN HEREIN WAS PREPARED BY STANTEC CONSULTING SERVICES INC, FOR THE PURPOSE OF THE BATTLE CREEK HATCHERY FACILITY DESIGN AND IS NOT INTENDED FOR USE BY ANY OTHER ENTITY FOR ANY OTHER PURPOSE. FIELD SURVEY WAS PERFORMED IN MARCH, 2020 UTILIZING A LEICA TS-15 SERIES ROBOTIC TOTAL STATION AND CARLSON SURVEYOR2/SURVE CE DATA COLLECTOR MAINTAINED IN ADJUSTMENT TO MANUFACTURERS SPECIFICATIONS. THE SURVEY WAS UPDATED FOR WESLEY CHARLES LANE IMPROVEMENTS BY TRULAND SURVEY LLC IN 2022.
2. SURVEY CONTROL:
   HORIZONTAL: LOCAL SITE DATUM (APPROXIMATES GIS IN AREA). HORIZONTAL CONTROL WAS DERIVED VIA GROUND TRAVERSE, HOLDING POSITION OF MONUMENT FOUND AT EAST QUARTER CORNER OF SECTION 27, T30N, R4E (#10511), AT POSITION SHOWN ON COUNTY GIS AS N = 388994.51 E= 1288993.72 , A PUNCH IN BRASS DISK IN PIPE STAMPED "S27- S26 LS 18086" SURFACE MONUMENT SHOWN ON SITE, AND A BASIS OF BEARINGS OF N 01°13'06" E ALONG EAST SECTION LINE PER RECORD OF SURVEY (R1), LOCALLY REFERENCED AS A LINE BETWEEN SAID QUARTER CORNER AND #10502, A BRASS DISK IN CONC MONUMENT IN CASE AT THE NORTHWESTERLY MOST INTERSECTION OF LLOYD HATCH SR. RD. AND ALPHONSUS BOB LOOP ROAD, AS SHOWN HEREON.

   VERTICAL: NAVD '88 DERIVED VIA TRIG LEVELING HOLDING FOUND SNOHOMISH COUNTY BM "TULALIP" AS 35.85 FEET NAVD '88 PER GSOW DATASHEET.
3. SITE BENCHMARK: STANTEC.CONTROL POINT #10002 SHOWN AND DESCRIBED HEREIN - ELEVATION = 42.04 NAVD '88.
4. TOPOGRAPHIC FEATURES, ELEVATIONS, AND CONTOURS DERIVED VIA DIRECT GROUND SURVEY. CONTOUR INTERVAL IS 2 FEET MEETING OR EXCEEDING NATIONAL MAP ACCURACY STANDARDS (ONE-HALF CONTOUR INTERVAL AT 90% CONFIDENCE LEVEL) UNLESS NOTED OTHERWISE HEREON.
5. RIGHT-OF-WAY AND PARCEL LINES PER RECORD INFORMATION INCLUDING GIS AND/OR CALCULATED FROM REFERENCED PLAT/RECORD INFORMATION, FIT AS POSSIBLE TO LOCAL MONUMENTATION FOUND. THIS DOES NOT REPRESENT A BOUNDARY SURVEY AND SHOULD NOT BE RELIED UPON AS SUCH.
6. UTILITY INFORMATION HEREIN COMPILED FROM MEASUREMENTS MADE TO SURFACE-OBSERVED ABOVE-GRADE FEATURES, AND MEASUREMENTS MADE TO UTILITY LOCATOR MARKINGS FOUND IN FIELD AT TIME OF SURVEY. LOCATES ARRANGED AND PERFORMED BY OTHERS, SURVEYOR DID NOT CALL FOR LOCATES AND NO POTHOLING WAS PERFORMED. UTILITY INFORMATION SHOWN IS APPROXIMATE AND FOR THE DEVELOPMENT OF DESIGN DRAWINGS ONLY AND SHALL NOT BE RELIED UPON FOR CONSTRUCTION. SURVEYOR MAKES NO WARRANTY AS TO THE COMPLETENESS OR ACCURACY OF EXISTING UTILITIES SHOWN ON THIS MAP.

LEGEND

- EXISTING GRAVEL SURFACING
- EXISTING ASPHALT SURFACING
- SD — STORM DRAIN
- SSU — SANITARY SEWER
- P — POWER CABLE
- WATER SURFACE
- WETLAND
- X — CHAIN LINK FENCE
- EP — EDGE OF PAVEMENT
- OHU — OVERHEAD UTILITY
- POWER POLE

Revision | By | Appd | YYYY.MM.DD

FINAL DESIGN | MCM | By | DEW | Appd | 2026.02.26 | YYYY.MM.DD
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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 G-5 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
EXISTING SITE PLAN

Project No. 25-128
Scale 1" = 50'
Revision
Drawing No. G-5

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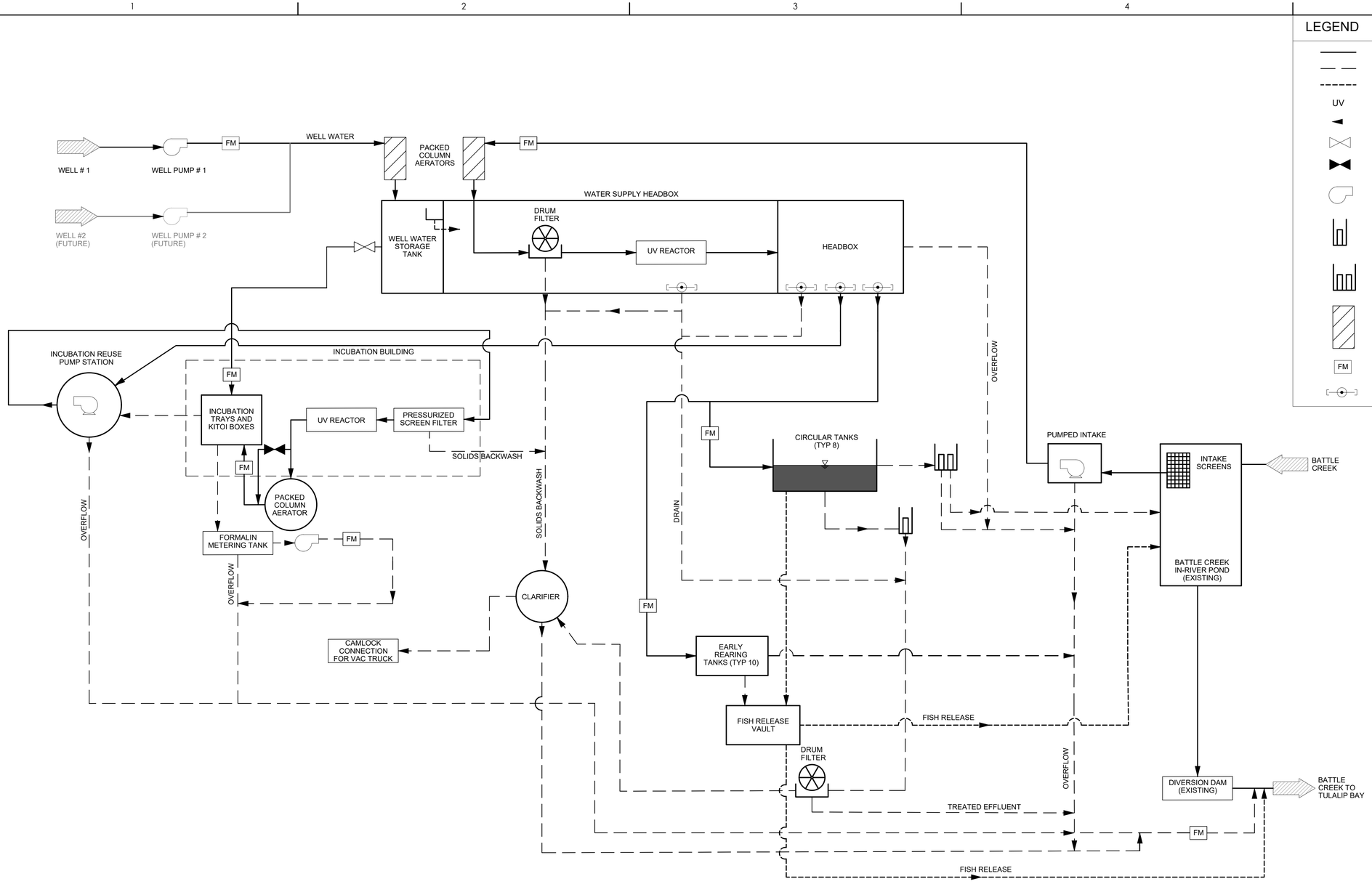

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Exhibit D-1 Page 4 of 155

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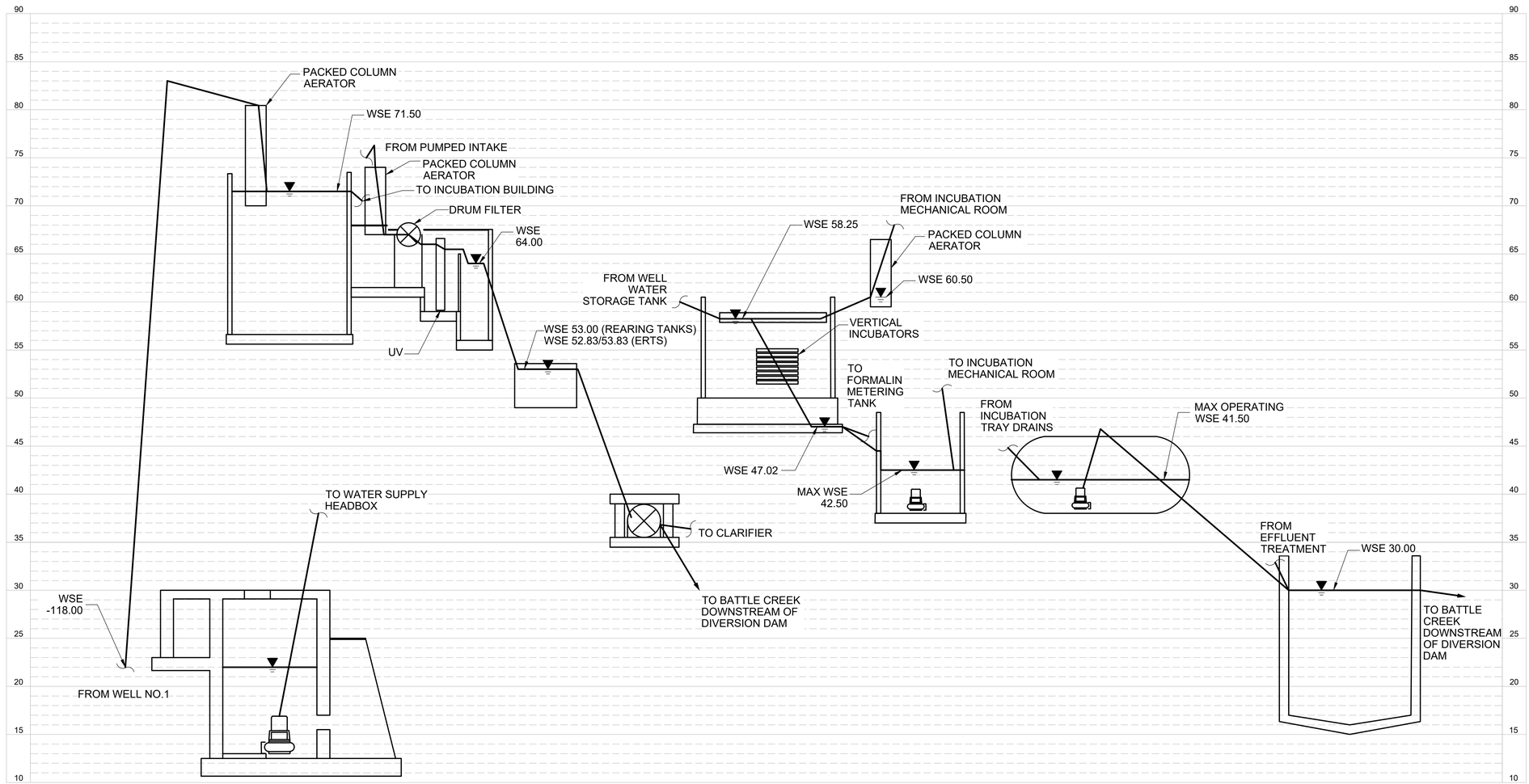
BATTLE CREEK HATCHERY

File Name: 02267 G-6	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
PROCESS FLOW DIAGRAM

Project No. 25-128
Scale NO SCALE
Revision
Drawing No. G-6



WELL NO.1 PUMP | WELL WATER STORAGE TANK / SURFACE WATER INTAKE | WATER SUPPLY HEADBOX | REARING TANKS AND ERTS | EFFLUENT TREATMENT | INCUBATION TRAYS | INCUBATION REUSE | FORMALIN METERING TANK | CLARIFIER

Revision	By	Appd	YYYY.MM.DD

ORIGINAL SHEET - ANSI D

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BATTLE CREEK HATCHERY

File Name: 02267 G-7	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
HYDRAULIC PROFILES

Project No.
25-128

Scale
NO SCALE

Revision

Drawing No.
G-7

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PIPING MATERIAL SCHEDULE

GROUP NO	PIPE ①	FITTINGS	VALVES, 6" AND SMALLER ⑤⑪⑫
CS05	WELDED STEEL, AWWA C200, UNLINED.	WELDED STEEL, FABRICATED, AWWA C208, UNLINED.	AS INDICATED ON DRAWINGS.
CU01	COPPER, ASTM B88, TYPE K, SOFT TEMPERED WHERE BURIED, HARD TEMPERED WHERE EXPOSED.	WROUGHT COPPER OR CAST BRONZE, ASME B16.22, SILVER SOLDER JOINT, 150 PSI, OR COMPRESSION FITTINGS.	BRONZE, SILVER SOLDER JOINT, GLOBE: CRANE #1310 OR STOCKHAM B-14T. CHECK: CRANE #1342 OR 36, OR STOCKHAM B-309Y OR B-345. GATE: CRANE #426 OR STOCKHAM B-104 OR B-105.
DI01	DUCTILE IRON, ANSI A21.51, (AWWA C151), ENDS BELL AND SPIGOT, MECHANICAL JOINTS OR 125 PSI FLANGED. (TYPICAL SERVICE - WATER LINES).	DUCTILE IRON AWWA C110, BELL AND SPIGOT JOINTS (RESTRAINED OR NON-RESTRAINED), MECHANICAL COUPLINGS, ASME B16.1 FLANGES, OR MECHANICAL JOINTS.	GATE: AWWA C500, O-RING SEALS, MECHANICAL JOINT ENDS, CLOW F-5065. BUTTERFLY: AWWA. ECC PLUG DEZURIK PEC, CAST IRON OR MILLIKEN 603E. BALL: PRATT OR APCO-WILLAMETTE.
PE05	POLYETHYLENE, PRESSURE PIPE, AWWA C906.	POLYETHYLENE THERMAL BUTT-FUSED JOINTS, FLANGED JOINTS AT VALVES AND TRANSITIONS.	AS INDICATED ON DRAWINGS.
PV01	POLYVINYL CHLORIDE (PVC), ASTM D1785, SCH 80, TYPE I.	PVC, SCH 80, TYPE I, SOCKET SOLVENT WELD JOINTS, ASTM D2467. SOLVENT SHALL BE COMPATIBLE WITH FLUID SERVICE.	PVC, BALL, DIAPHRAGM, BUTTERFLY, OR LIFT CHECK: NIBCO/CHEMTROL, MCCANNA-MARPAC, OR GEORGE FISCHER SLOANE.
PV03	POLYVINYL CHLORIDE (PVC), PRESSURE PIPE , AWWA C900, WITH BELL AND SPIGOT JOINTS.	DUCTILE IRON FITTINGS, 125 PSI, FOR PVC PIPE, AWWA C110 CEMENT MORTAR LINED, AWWA C104.	GATE: AWWA C500, O-RING SEALS, MECHANICAL JOINT ENDS, CLOW F-5065. BUTTERFLY: AWWA. ECCENTRIC PLUG DEZURIK PEC, CAST IRON OR MILLIKEN 603E. BALL: PRATT OR APCO-WILLAMETTE. SAME AS GROUP DI01.
PV05	POLYVINYL CHLORIDE (PVC), GRAVITY SEWER PIPE, ASTM D3034, BELL AND SPIGOT.	PVC, ANSI/ASTM D3034, BELL AND/OR SPIGOT.	-
PV06	POLYVINYL CHLORIDE, CORRUGATED, GRAVITY SEWER PIPE, ASTM F794 AND F949, BELL AND SPIGOT, PERFORATED (FOR STRUCTURE UNDERDRAIN), NON-PERFORATED (FOR STRUCTURE UNDERDRAIN COLLECTOR).	PVC, BELL AND/OR SPIGOT.	-

FLUID ABBREVIATION	FUNCTION THIS LIST INCLUDES SOME LINES NOT USED IN THIS PROJECT ⑩	PIPING MATERIALS (SEE GENERAL NOTES AT THE RIGHT AND PIPE MATERIAL SHEET)				FIELD TEST REQUIREMENTS ⑧⑨		
		EXPOSED PIPING ⑦		BURIED PIPING ⑥		MINIMUM TEST PRESSURE (PSI)	TEST MEDIUM	LEAKAGE ALLOWANCE ④
		4" DIA AND SMALLER	6" DIA AND LARGER	4" DIA AND SMALLER	6" DIA AND LARGER			
BW	BACKWASH	DI01, PV01	DI01, PV01	DI01, PV01, PV03, PE05	DI01, PV03, PE05	125	WATER	(a)
CHR	CHILLED WATER RETURN	CU01*, PV01*	--	--	--	125	WATER	(a)
CHS	CHILLED WATER SUPPLY	CU01*, PV01*	--	--	--	125	WATER	(a)
D	DRAIN	CU01, PV01	PV01, DI01	CU01, PV01, PV05	CU01, PV01, PV05, CS05	50	WATER	(a)
DWS	DOMESTIC HOT WATER SUPPLY	CU01*, PV01*	DI01*	--	--	125	WATER	(a)
F	FORMALIN	DI01, PV01	DI01, PV01	DI01, PV01, PV03, PE05	DI01, PV03, PE05	125	WATER	(a)
FR	FISH RELEASE	--	--	PE05	PE05	50	WATER	(a)
FM	FORMALIN METERING	DI01	--	PV01	--	125	WATER	(a)
OF	OVERFLOW	--	DI01, PV01	--	DI01, PV05, PV06, CS05	25	WATER	(a)
OX	OXYGEN	CU01	--	CU01	--	125	DRY N2	(a)
PW	POTABLE WATER	DI01, PV01, CU01	--	DI01, PV01, CU01, PE02	--	125	WATER	CS02, DI01, PV01, PE02, CU01(a) PV03(b)
R	REUSE WATER	DI01, PE05, PV01	DI01,PE05, PV01	DI01, PE05, PV01	DI01, PE05, PV03	125	WATER	(a)
SDR	STORM DRAIN	--	--	--	DI01, PV05	⑬	WATER	(c)
SL	SLUDGE	DI01, PV01	DI01, PV01	DI01, PV01, PV03, PE05	DI01, PV03, PE05	125	WATER	(a)
SS	SANITARY SEWER	PE05, PV05	PE05, PV05	PE05, PV05	PE05, PV05	⑭	--	--
SU	STRUCTURE UNDERDRAIN	--	--	PV06	PV06	NO	TEST	REQ'D
SUC	STRUCTURE UNDERDRAIN COLLECTOR	--	--	PV06	PV06	⑬	WATER	(c)
SW	SURFACE WATER	DI01, PV01, CU01	DI01, PE05, PV01	DI01, PE05, PV01, PV03	DI01, PE05, PV01, PV03	125	WATER	RC05, CS02, CS08, DI01, PV01, CU01(a) PV03, PV04(b)
UW	UTILITY WATER (NON-POTABLE WATER)	DI01, PV01, CU01	DI01, PV01	DI01, PE05 PV01, CU01	DI01, PE05, PV03	125	WATER	CS01,DI01,CU01(a) PV03,PV04(b)
VT	VENT	DI01	--	PV01	--	50	--	(a)
WW	WELL WATER	DI01, PV01	DI01, PV01	DI01, PV01, PV03, PE05	DI01, PV03, PE05	125	WATER	(a)

SHEET KEYNOTES

A. LEAKAGE ALLOWANCE IS AS FOLLOWS:
(a) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE.

(b) PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE FOR UNBURIED PIPE AND NOT MORE THAN 0.02 GALLON PER HOUR PER INCH DIAMETER PER 100 FEET OF BURIED PIPE.

(c) PIPES SO DESIGNATED SHALL NOT SHOW A LEAKAGE OF MORE THAN 0.15 GALLON PER HOUR PER INCH OF DIAMETER PER 100 FEET OF PIPE.

B. FOR FIELD TEST PROCEDURES AND ADDITIONAL TEST REQUIREMENTS, SEE PIPING SECTION OF SPECIFICATIONS.

C. NO SUBSTITUTIONS UNLESS ACCEPTED BY THE ENGINEER PER THE SPECIFICATIONS.

D. PIPING GROUP NUMBER SHOWN THUS * SHALL BE INSULATED. SEE PIPING SECTION OF SPECIFICATIONS FOR INSULATING MATERIALS.

E. FOR PIPE LINING AND COATING, SEE SPECIFICATIONS.

F. EXPOSED PIPING SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATIONS, SEE 09 96 00-3.15 SYSTEM FM-11 AND FM-19. COLORS TO BE SELECTED BY ENGINEER.

G. PROPRIETARY NAMES HAVE BEEN QUOTED FOR IDENTIFICATION PURPOSES ONLY. SUBSTITUTIONS WILL BE PERMITTED SUBJECT TO PROVISIONS OF THE SPECIFICATIONS.

H. FOR VALVES 8" AND LARGER, SEE VALVE SCHEDULE. FOR SPECIAL VALVES, SEE SPECIFICATIONS. FOR PIPE LINING AND COATING, SEE SPECIFICATIONS.

I. PIPE MATERIALS SHALL BE PER THE REFERENCE STANDARDS AS MODIFIED BY THE CONTRACT SPECIFICATIONS.

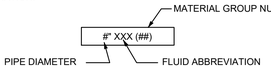
J. STATIC WATER TEST WITH SURFACE 5 FEET ABOVE HIGH POINT OF PIPE.

K. INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE PLUMBING CODE.

GENERAL SHEET NOTES

1. ALTHOUGH SEVERAL PIPE MATERIAL GROUPS MAY BE LISTED ON THIS SHEET FOR A GIVEN FLUID SERVICE, CONTRACTOR SHALL PROVIDE ONLY THE PIPE MATERIAL GROUP SHOWN ON THE DRAWINGS AND SPECIFIED FOR THAT FLUID SERVICE.
2. CHANGE IN PIPING MATERIAL GROUP NUMBER IS INDICATED THUS: —◆
3. ALL FISH RELEASE PIPE BENDS SHALL HAVE A MINIMUM RADIUS OF 5 TIMES THE PIPE DIAMETER. FITTINGS FOR FISH RELEASE PIPE SHALL BE OF SAME MATERIAL AS THE PIPING. ALL FISH RELEASE PIPING SHALL BE FREE OF BURRS AND ROUGH SURFACES. ALL PIPING JOINTS SHALL BE SMOOTH AND FREE OF SURFACE BLEMISHES.

TYPICAL PIPE DESIGNATION:



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BATTLE CREEK HATCHERY

File Name: 02267 G-8	MCM	MDV	DEW	2026.02.26
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Title
PIPE SCHEDULES

Project No.	Scale
25-128	NONE
Revision	Drawing No.
	G-8

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REARING EQUIPMENT SCHEDULE

EQUIMPMENT NUMBER	LOCATION	SERVICE	TYPE	CAPACITY	COMMENTS
I-1 TO I-64	INCUBATION BUILDING	INCUBATION	VERTICAL STYLE INCUBATORS	8 - TRAY	OWNER FURNISHED, CONTRACTOR INSTALLED
K-1 TO K-12	INCUBATION BUILDING	INCUBATION	KITOI BOX		OWNER FURNISHED, CONTRACTOR INSTALLED
E-1	INCUBATION BUILDING	INCUBATION	EGG PICKING TROUGH		
T-1 THRU T-8	REARING TANK AREA	JUVENILE REARING	26-FT DIA FIBERGLASS TANK	17,870 GAL	DUAL DRAIN
ERT-1 & ERT-10	REARING TANK AREA	JUVENILE REARING	EARLY REARING TROUGH (25' X 4' X 4')	2,620 GAL	DUAL STAND PIPES AT DRAIN END
ERT-2 THRU ERT-9	REARING TANK AREA	JUVENILE REARING	EARLY REARING TROUGH (25' X 3' X 3')	1,400 GAL	DUAL STAND PIPES AT DRAIN END

PUMP SCHEDULE

PUMP NUMBER	LOCATION	SERVICE	TYPE	DESIGN FLOW (GPM)	TDH (FT)	ESTIMATED HP	VOLTAGE/PH	REMARKS	
P-201	WELL NO. 1	WELL WATER	SUBMERSIBLE	250	250	15	480/3		
P-301	PUMPED INTAKE	CREEK WATER	SUBMERSIBLE	2400	80	50	480/3		
P-302	PUMPED INTAKE	CREEK WATER	SUBMERSIBLE	2400	80	50	480/3		
P-303	PUMPED INTAKE	CREEK WATER	SUBMERSIBLE	2400	80	50	480/3		
P-530	INCUBATION BUILDING	WELL WATER	SUBMERSIBLE	800	80	25	480/3		
P-531	INCUBATION BUILDING	WELL WATER	SUBMERSIBLE	800	80	25	480/3		
P-540	FORMALIN METERING TANK	WELL WATER	SUBMERSIBLE	6	15	0.4	120/1		
P-541	FORMALIN METERING TANK	WELL WATER	SUBMERSIBLE	6	15	0.4	120/1		

MISCELLANEOUS EQUIPMENT SCHEDULE

EQUIPMENT NUMBER	LOCATION	SERVICE	TYPE	CAPACITY	COMMENTS
PCA-201	WELL WATER STORAGE TANK	WELL WATER	PACKED COLUMN AERATOR	400 GPM	
DC-301	PUMPED INTAKE	LIFTING	DAVIT CRANE	2500 LBS	PROVIDE WITH EXTRA PEDESTAL
SC-301	PUMPED INTAKE	CREEK WATER	INTAKE SCREEN	7200 GPM	AUTOMATED ROTATING BRUSH CLEANER
SC-302	PUMPED INTAKE	CREEK WATER	INTAKE SCREEN	7200 GPM	AUTOMATED ROTATING BRUSH CLEANER
PCA-401	WATER SUPPLY HEADBOX	CREEK WATER	PACKED COLUMN AERATOR	1800 GPM	
PCA-402	WATER SUPPLY HEADBOX	CREEK WATER	PACKED COLUMN AERATOR	1800 GPM	
PCA-403	WATER SUPPLY HEADBOX	CREEK WATER	PACKED COLUMN AERATOR	1800 GPM	
PCA-404	WATER SUPPLY HEADBOX	CREEK WATER	PACKED COLUMN AERATOR	1800 GPM	
DF-401	WATER SUPPLY HEADBOX	CREEK WATER	MICROSCREEN DRUM FILTER	3000 GPM	0.75HP
DF-402	WATER SUPPLY HEADBOX	CREEK WATER	MICROSCREEN DRUM FILTER	3000 GPM	0.75HP
DF-403	WATER SUPPLY HEADBOX	CREEK WATER	MICROSCREEN DRUM FILTER	3000 GPM	0.75HP
UV-401	WATER SUPPLY HEADBOX	CREEK WATER	OPEN CHANNEL UV REACTOR	3000 GPM	
UV-402	WATER SUPPLY HEADBOX	CREEK WATER	OPEN CHANNEL UV REACTOR	3000 GPM	
UV-403	WATER SUPPLY HEADBOX	CREEK WATER	OPEN CHANNEL UV REACTOR	3000 GPM	
SF-510	INCUBATION BUILDING	CREEK WATER/INCUBATION REUSE	MECHANICAL SCREEN FILTER	800 GPM	1/4HP MOTOR
UV-510	INCUBATION BUILDING	CREEK WATER/INCUBATION REUSE	CLOSED VESSEL UV REACTOR	300 GPM	
UV-511	INCUBATION BUILDING	CREEK WATER/INCUBATION REUSE	CLOSED VESSEL UV REACTOR	300 GPM	
PCA-510	INCUBATION BUILDING	CREEK WATER/INCUBATION REUSE	PACKED COLUMN AERATOR	800 GPM	
CHS-500	INCUBATION BUILDING	WELL WATER	CHILLER SYSTEM	80 GPM	
T-540	INCUBATION BUILDING	WELL WATER	FORMALIN METERING TANK	12000 GAL	BURIED FIGERGLASS TANK
DVF-601	FISH RELEASE VAULT	FISH RELEASE	DIVERSION FLUME AND GATE	N/A	MANUAL GATE W/ HAND CRANK, ALUMINUM
CFR-701	CLARIFIER	SLUDGE	CLARIFIER RAKE MECHANISM	N/A	1 HP MOTOR
DF-701	EFFLUENT TREATMENT SUMP	TANK EFFLUENT	DRUM FILTER	2000 GPM	0.75HP
GEN-101	SITE	ELECTRICAL	STANDBY GENERATOR	200 KW	WITH FUEL TANK

METER SCHEDULE

EQUIPMENT NUMBER	LOCATION	TYPE	SIZE	CAPACITY	COMMENTS
FM-201	WELL WATER STORAGE TANK	INSERTION ELECTROMAGNETIC	8	0 - 800 GPM	TO PCA-201
FM-401	WATER SUPPLY HEADBOX	INSERTION ELECTROMAGNETIC	12	0 - 7200 GPM	TO PCA-401 THRU PCA-404
FM-501	INCUBATION BUILDING	INSERTION ELECTROMAGNETIC	8	0 - 800 GPM	WELL WATER SUPPLY TO INCUBATION
FM-502	INCUBATION BUILDING	INSERTION ELECTROMAGNETIC	8	0 - 800 GPM	SURFACE WATER SUPPLY TO INCUBATION
FM-601 TO FM-608	REARING TANKS	CLAMP-ON ULTRASONIC	6	0 - 600 GPM	SUPPLY PIPE FOR EACH TANK
FM-611 TO FM-620	REARING TANKS	CLAMP-ON ULTRASONIC	3	0 - 100 GPM	SUPPLY PIPE FOR EACH TROUGH
FM-701	CLARIFIER	OPEN CHANNEL	N/A	0 - 7200 GPM	COMBINED FLOW TO OUTFALL

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Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	MCM	DEW	2026.02.26

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BATTLE CREEK HATCHERY

File Name: 02267 G-9	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
EQUIPMENT SCHEDULE - I

Project No.	Scale
25-128	NONE
Revision	Drawing No.
	G-9

GATE SCHEDULE

EQUIPMENT NUMBER	LOCATION	SHEET	MATERIAL	TYPE	SIZE (W x H)	OPERATOR	SEATING HEAD (FT)	UNSEATING HEAD (FT)	COMMENTS
G-301	SURFACE WATER INTAKE	3M-1	ALUMINUM	DOWNWARD OPENING	36 X 48	MANUAL, HANDWHEEL	15	5	OVERFLOW WEIR GATE - 48" TRAVEL
G-401	HEAD BOX	4M-1	ALUMINUM	SELF CONTAINED	10 X 10	MANUAL, HANDWHEEL	15	5	SUPPLY ISOLATION TO INCUBATION BUILDING
G-402	HEAD BOX	4M-1	ALUMINUM	SELF CONTAINED	18 X 18	MANUAL, HANDWHEEL	15	5	SUPPLY ISOLATION FOR TANKS T-1 TO T-14
G-403	HEAD BOX	4M-1	ALUMINUM	SELF CONTAINED	10 X 10	MANUAL, HANDWHEEL	15	5	DRAIN GATE TO CLARIFIER
G-404	HEAD BOX	4M-1	ALUMINUM	SELF CONTAINED	18 X 18	MANUAL, HANDWHEEL	15	5	SUPPLY ISOLATION FOR TANKS T-15 TO T-28
G-405	HEAD BOX	4M-1	ALUMINUM	SELF CONTAINED	6 X 6	MANUAL, HANDWHEEL	15	5	DRAIN GATE TO CLARIFIER
G-406	HEAD BOX	4M-1	ALUMINUM	SELF CONTAINED	6 X 6	MANUAL, HANDWHEEL	15	5	DRAIN GATE

VALVE SCHEDULE (6" AND LARGER)

EQUIPMENT NUMBER	LOCATION	SHEET	TYPE	SIZE	OPERATOR	COMMENTS
BFV-201	WELL WATER STORAGE TANK	4M-1	BUTTERFLY	8	MANUAL, HANDWHEEL	
BFV-202	WELL WATER STORAGE TANK	4M-1	BUTTERFLY	6	MANUAL, HANDWHEEL	
BFV-203	WELL WATER STORAGE TANK	4M-1	BUTTERFLY	8	MANUAL, SQUARE NUT	BURIED
KGV-301	PUMPED INTAKE	3M-1	KNIFE GATE	24	MANUAL, HANDWHEEL	INTAKE SCREEN SUPPLY ISOLATION
KGV-302	PUMPED INTAKE	3M-1	KNIFE GATE	24	MANUAL, HANDWHEEL	INTAKE SCREEN SUPPLY ISOLATION
CV-301	PUMPED INTAKE	3M-1	SWING CHECK	12	N/A	
BFV-301	PUMPED INTAKE	3M-1	BUTTERFLY	12	MANUAL, HANDWHEEL	P-301 ISOLATION
CV-302	PUMPED INTAKE	3M-1	SWING CHECK	12	N/A	
BFV-302	PUMPED INTAKE	3M-1	BUTTERFLY	12	MANUAL, HANDWHEEL	P-302 ISOLATION
CV-303	PUMPED INTAKE	3M-1	SWING CHECK	12	N/A	
BFV-303	PUMPED INTAKE	3M-1	BUTTERFLY	12	MANUAL, HANDWHEEL	P-303 ISOLATION
BFV-401	WATER SUPPLY HEADBOX	4M-1	BUTTERFLY	12	MANUAL, HANDWHEEL	
BFV-402	WATER SUPPLY HEADBOX	4M-1	BUTTERFLY	12	MANUAL, HANDWHEEL	
BFV-403	WATER SUPPLY HEADBOX	4M-1	BUTTERFLY	12	MANUAL, HANDWHEEL	
BFV-404	WATER SUPPLY HEADBOX	4M-1	BUTTERFLY	12	MANUAL, HANDWHEEL	
BFV-501	INCUBATION BUILDING	5M-7	BUTTERFLY	8	MANUAL, SQUARE NUT	BURIED, WELL WATER SUPPLY
BFV-502	INCUBATION BUILDING	5M-7	BUTTERFLY	8	MANUAL, HANDWHEEL	SURFACE WATER SUPPLY
BFV-503	INCUBATION BUILDING	5M-7	BUTTERFLY	6	MANUAL, QUARTER TURN	ROW 1 SUPPLY ISOLATION
BFV-504	INCUBATION BUILDING	5M-7	BUTTERFLY	6	MANUAL, QUARTER TURN	ROW 2 SUPPLY ISOLATION
BFV-505	INCUBATION BUILDING	5M-4	BUTTERFLY	6	MANUAL, SQUARE NUT	BURIED, WELL WATER SUPPLY TO KITOI BOXES
BFV-510	INCUBATION BUILDING	5M-10	BUTTERFLY	8	MANUAL, HANDWHEEL	SF-510 INLET ISOLATION
BFV-511	INCUBATION BUILDING	5M-10	BUTTERFLY	8	MANUAL, HANDWHEEL	UV BYPASS
BFV-512	INCUBATION BUILDING	5M-10	BUTTERFLY	8	MANUAL, HANDWHEEL	UV-510 INLET ISOLATION
BFV-513	INCUBATION BUILDING	5M-10	BUTTERFLY	8	MANUAL, HANDWHEEL	UV-511 INLET ISOLATION
BFV-514	INCUBATION BUILDING	5M-10	BUTTERFLY	8	MANUAL, HANDWHEEL	UV-510 OUTLET ISOLATION
BFV-515	INCUBATION BUILDING	5M-10	BUTTERFLY	8	MANUAL, HANDWHEEL	UV-511 OUTLET ISOLATION
BFV-516	INCUBATION BUILDING	5M-10	BUTTERFLY	8	MANUAL, HANDWHEEL	PCA-510 BYPASS
PRV-510	INCUBATION BUILDING	5M-10	BUTTERFLY	6	N/A	PRESSURE REGULATING VALVE
BFV-520	INCUBATION BUILDING	5M-8	BUTTERFLY	8	MANUAL, SQUARE NUT	BURIED, DRAIN TO FORMALIN
BFV-521	INCUBATION BUILDING	5M-8	BUTTERFLY	8	MANUAL, SQUARE NUT	BURIED, DRAIN TO REUSE PUMP SUMP
BFV-522	INCUBATION BUILDING	5M-8	BUTTERFLY	8	MANUAL, SQUARE NUT	BURIED, DRAIN TO REUSE PUMP SUMP
BFV-523	INCUBATION BUILDING	5M-8	BUTTERFLY	8	MANUAL, SQUARE NUT	BURIED, DRAIN TO FORMALIN
BFV-530	INCUBATION REUSE SUMP	5M-11	BUTTERFLY	6	MANUAL, HANDWHEEL	P-530 ISOLATION
CV-530	INCUBATION REUSE SUMP	5M-11	SWING CHECK	6	N/A	
BFV-531	INCUBATION REUSE SUMP	5M-11	BUTTERFLY	6	MANUAL, HANDWHEEL	P-531 ISOLATION
CV-531	INCUBATION REUSE SUMP	5M-11	SWING CHECK	6	N/A	
CV-540	FORMALIN METERING TANK	5M-12	SWING CHECK	8	N/A	OVERFLOW ISOLATION
BFV-601 THRU BFV-608	REARING TANKS SUPPLY PIPE	6M-3	BUTTERFLY	6	MANUAL, HANDWHEEL	
KGV-601 THRU KGV-608	FISH RELEASE PIPE	6M-4	KNIFE GATE	6	MANUAL, HANDWHEEL	

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Revision | By | Appd | YYYY.MM.DD

FINAL DESIGN | MCM By | DEW Appd | 2026.02.26 YYYY.MM.DD
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BATTLE CREEK HATCHERY

File Name: 02267 G-10 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
EQUIPMENT SCHEDULE - II

Project No. 25-128
Revision
Scale NONE
Drawing No. G-10

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CIVIL GENERAL NOTES

GENERAL

1. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE FROM DAMAGE. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
2. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL DEBRIS FROM DEMOLITION AT CONTRACTOR'S EXPENSE.
3. ALL BUILDING COORDINATES ARE TO THE CENTERLINE OF STEEL COLUMNS OR TO THE OUTSIDE CORNERS OF STRUCTURES.
4. THE CONTRACTOR SHALL DISPOSE OF ALL NON-ORGANIC WASTES SUCH AS OLD GUNITE, PIPING, ROCK RUBBLE ETC... AT AN APPROVED LANDFILL OR, OTHER SUITABLE DISPOSAL SITES AT THE CONTRACTOR'S EXPENSE.
5. CONTRACTOR SHALL RESTORE ALL SURVEY MONUMENTS THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION.

UTILITIES

1. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL LOCATE ALL EXISTING UTILITIES IN AND AROUND THE AREAS OF NEW CONSTRUCTION. THE CONTRACTOR SHALL POTHOLE FOR EXISTING UTILITIES PRIOR TO SUBMITTAL OF SHOP DRAWINGS, FOR POINTS OF CONNECTIONS.
2. THE CONTRACTOR SHALL PROTECT ALL REMAINING EXISTING UTILITIES.
3. LOCATIONS OF UNDERGROUND UTILITIES SHOWN ON THE DRAWINGS WERE OBTAINED FROM AVAILABLE RECORDS. THE CONTRACTOR SHALL VERIFY ALL LOCATIONS AND ELEVATIONS AND SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT UTILITY LINES WHETHER SHOWN OR NOT SHOWN.
4. PRIOR TO ANY CONNECTION TO AN EXISTING UTILITY, THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY OWNER. PRIOR TO ANY EXCAVATION IN THE VICINITY OF ANY EXISTING UNDERGROUND FACILITIES, INCLUDING ALL WATER, SEWER, STORM DRAIN, GAS, PETROLEUM PRODUCTS, OR OTHER PIPELINES; ALL BURIED ELECTRIC POWER, COMMUNICATIONS, OR TELEVISION CABLES; ALL TRAFFIC SIGNAL AND STREET LIGHTING FACILITIES; AND ALL ROADWAY, STATE HIGHWAY, AND RAILROAD RIGHTS-OF-WAY, THE CONTRACTOR SHALL NOTIFY THE RESPECTIVE AUTHORITIES REPRESENTING THE OWNERS OR AGENCIES RESPONSIBLE FOR SUCH FACILITIES NOT LESS THAN 3 DAYS NOR MORE THAN 7 DAYS PRIOR TO EXCAVATION SO THAT A REPRESENTATIVE OF SAID OWNERS OR AGENCIES CAN BE PRESENT DURING SUCH WORK IF THEY SO DESIRE. IN THE CASE OF THE UNDERGROUND UTILITY SERVICE ALERT CENTER, THIS NOTICE WILL GIVE THEM TIME TO MARK THE LOCATION OF THE UTILITIES. THE CONTRACTOR SHALL ALSO NOTIFY THE REGIONAL OR LOCAL UNDERGROUND SERVICE ALERT COMPANY AT LEAST 3 DAYS, BUT NO MORE THAN 7 DAYS, PRIOR TO SUCH EXCAVATION.
5. FOR ANY UTILITY CROSSINGS WITH LESS THAN 12 INCHES VERTICAL CLEARANCE, PROVIDE UNDERGROUND UTILITY SUPPORT PER STANDARD DETAIL C-608.

PIPING

1. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 36 INCHES OF COVER ON ALL PIPELINES UNLESS OTHERWISE SHOWN OR DIRECTED.
2. STRAIGHT SLOPES SHALL BE MAINTAINED BETWEEN INVERT ELEVATIONS SHOWN OR SPECIFIED.
3. THE CONTRACTOR SHALL ADJUST ALL VALVE BOXES, PULL BOXES, CATCH BASINS AND MANHOLES TO FINISHED GRADE UNLESS OTHERWISE SHOWN OR SPECIFIED. MANHOLES IN OPEN FIELDS SHALL BE SET ONE FOOT ABOVE GRADE. APPROXIMATE RIM ELEVATIONS ARE SHOWN ON DRAWINGS.
4. ALL PIPE TRENCHING AND BACKFILL SHALL BE IN ACCORDANCE WITH DETAIL C-601 FOR FLEXIBLE PIPE. THE PIPING SHOWN ON THESE PLANS SHALL BE RESTRAINED JOINT DESIGN AT ALL SLEEVE TYPE COUPLINGS.

CIVIL GENERAL NOTES - CONTINUED

EROSION CONTROL

1. THE CONTRACTOR SHALL SUBMIT AN EROSION CONTROL PLAN FOR WORK DURING THE CONSTRUCTION, SIGNED AND STAMPED BY A REGISTERED CIVIL ENGINEER PRIOR TO THE START OF CONSTRUCTION.
   a. ALL SLOPES SHALL BE PROTECTED FROM EROSION DURING ROUGH GRADING OPERATIONS AND THEREAFTER, UNTIL INSTALLATION OF FINAL GROUNDCOVER (SEE LANDSCAPE PLANS FOR FINAL GROUNDCOVER).
   b. ALL SLOPE PROTECTION SWALES SHALL BE CONSTRUCTED AT THE SAME TIME AS BANKS ARE GRADED.
   c. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF EROSION CONTROL MEASURES CONTAINED WITHIN THE CONTRACT SPECIFICATIONS OR AS REQUIRED BY THE CITY, THE TRIBE, OR OTHER REGULATORY AUTHORITY. THE CONTRACTOR SHALL ALSO PROVIDE ANY ADDITIONAL EROSION CONTROL MEASURES (E.G. HYDROSEEDING, MULCHING OF STRAW, SAND BAGGING, DIVERSION DITCHES, ETC.) DICTATED BY FIELD CONDITIONS TO PREVENT EROSION OR THE INTRODUCTION OF DIRT, MUD, OR DEBRIS INTO EXISTING PUBLIC STREETS, WATERWAYS, OR ONTO ADJACENT PROPERTIES DURING ANY PHASE OF CONSTRUCTION OPERATIONS.

GENERAL CIVIL SYMBOLS

- NEW
- EXISTING
- FUTURE
- EXISTING TO BE REMOVED OR DEMOLISHED
- CENTERLINE
- EARTH (IN SECTION)
- COMPACTED EARTH (IN SECTION)
- S=0.0123 — SLOPE ON PAVED SURFACE
- 3:1 — BERM SLOPE (HORZ TO VERT)

TOPOGRAPHY AND MAPPING SYMBOLS

- 125 — MAJOR CONTOURS
- MINOR CONTOURS
- TOP OF SLOPE
- TOE OF SLOPE
- P/L — PROPERTY LINE
- R/W — RIGHT-OF-WAY LINE
- GB — GRADE BREAK
- R — RIDGE LINE
- ESMT — EASEMENT LINE
- TEMP ESMT — TEMPORARY EASEMENT LINE
- TRAIL OR DIRT ROAD
- FLOW LINE
- FLOOD HAZARD AREA
- RAILROAD
- GUARDRAIL (PERMANENT)
- GUARDRAIL (REMOVABLE)
- VEGETATION
- WELL

STRUCTURES

- x x — FENCE (CHAINLINK)
- FENCE (WOOD)
- STRUCTURE
- STRUCTURE (BELOW GRADE)
- CB CB — CATCH BASIN

ROAD AND PAVING SYMBOLS

- ASPHALT RESTORATION AREA
- GRAVEL RESTORATION AREA

Revision	By	Appd	YYYY.MM.DD

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Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: 02267 GC-1	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
CIVIL
NOTES, ABBREVIATIONS AND SYMBOLS

Project No. 25-128
Revision
Scale NONE
Drawing No. GC-1

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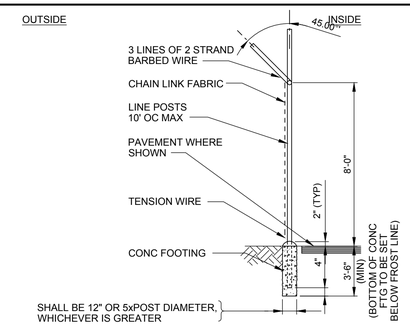
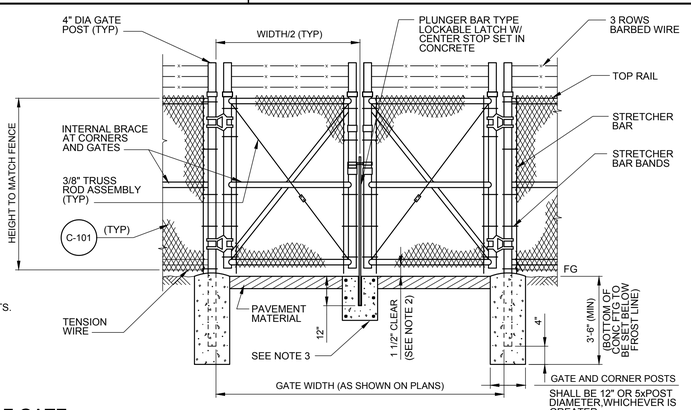


NOTES:

1. SEE SPECIFICATIONS FOR FENCE MATERIAL, COATINGS, AND INSTALLATION REQUIREMENTS.
2. EXTENSION ARM MAY BE TURNED IN AT OPTION OF OWNER.

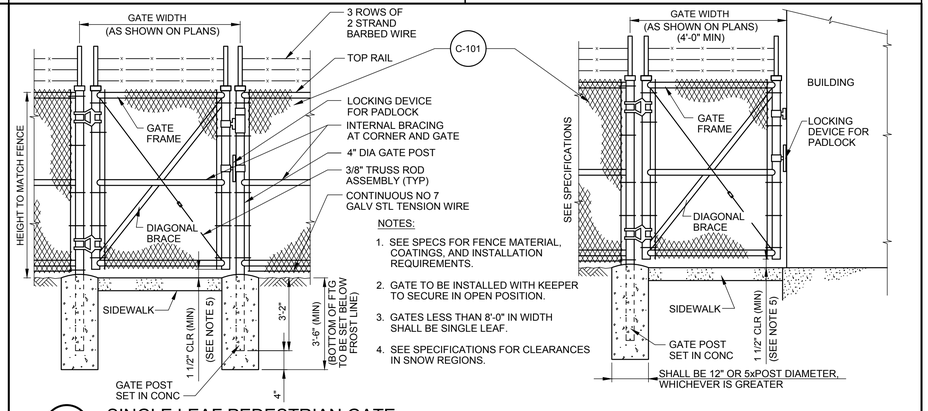
C-101 CHAIN LINK FENCE



NOTES:

1. SEE SPECIFICATIONS FOR FENCE MATERIAL, COATINGS, AND INSTALLATION REQUIREMENTS.
2. SEE SPECIFICATIONS FOR CLEARANCES IN SNOW REGIONS.
3. 12" DIAMETERx18" DEEP CONCRETE STOP W/ 20 GA STEEL PLUNGER SLEEVE, DIA = ROD OD +1/2".

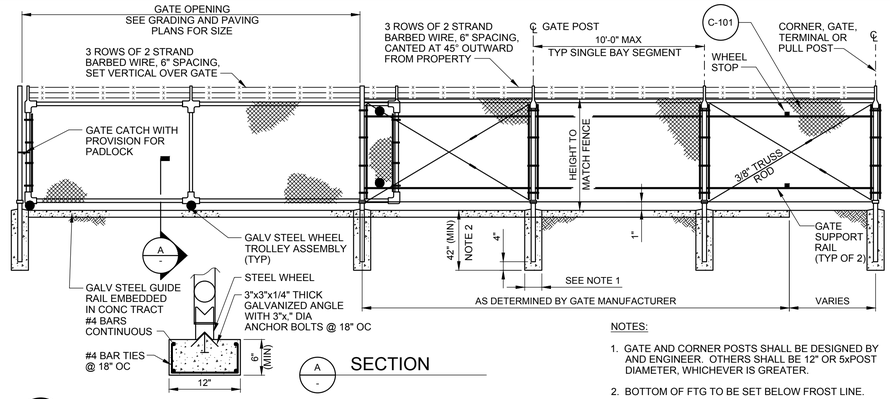
C-102 DOUBLE LEAF GATE
REV 010119



NOTES:

1. SEE SPECS FOR FENCE MATERIAL, COATINGS, AND INSTALLATION REQUIREMENTS.
2. GATE TO BE INSTALLED WITH KEEPER TO SECURE IN OPEN POSITION.
3. GATES LESS THAN 8'-0" IN WIDTH SHALL BE SINGLE LEAF.
4. SEE SPECIFICATIONS FOR CLEARANCES IN SNOW REGIONS.

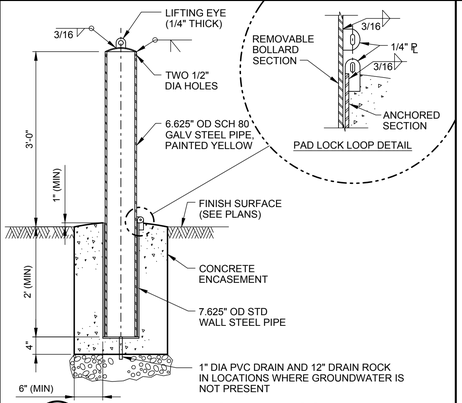
C-103 SINGLE LEAF PEDESTRIAN GATE
REV 010119



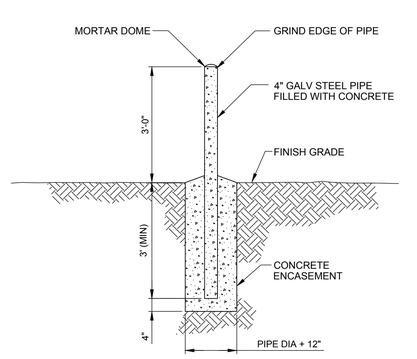
NOTES:

1. GATE AND CORNER POSTS SHALL BE DESIGNED BY AND ENGINEER. OTHERS SHALL BE 12" OR 5xPOST DIAMETER, WHICHEVER IS GREATER.
2. BOTTOM OF FTG TO BE SET BELOW FROST LINE.

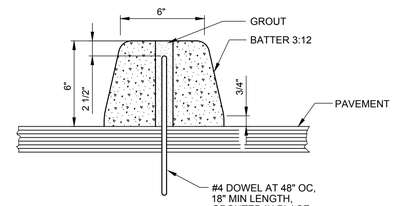
C-105 SLIDING GATE
REV 010119



C-113 REMOVABLE GUARD POST
REV 010119



C-114 GUARD POST
REV 010119



NOTES:

1. WHEEL STOP SHALL BE CONSTRUCTED OF PORTLAND CEMENT CONCRETE.
2. EPOXY CEMENT COAT SHALL BE APPLIED TO PAVEMENT SURFACE PRIOR TO INSTALLATION OF WHEEL STOP.
3. ALL EXPOSED CORNERS ON WHEEL STOP TO BE ROUNDED WITH A 1/2" RADIUS.
4. PRECAST WHEEL STOP SHALL BE 5'-0" LONG UNLESS INDICATED OTHERWISE.

C-116 PRECAST WHEEL STOP
REV 010119

Revision	By	Appd	YYYY.MM.DD
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Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	MCM	DEW	2026.02.26

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BATTLE CREEK HATCHERY

File Name: 02267 GC-2	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
CIVIL STANDARD DETAILS - 1

Project No. 25-128
Scale
Revision
Drawing No. GC-2

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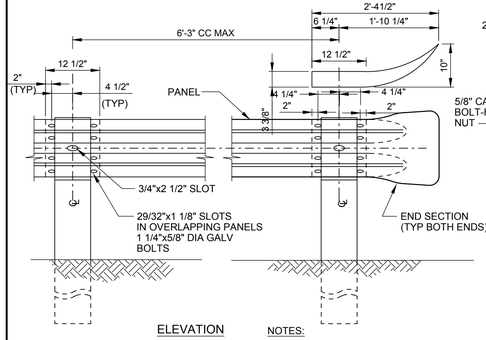

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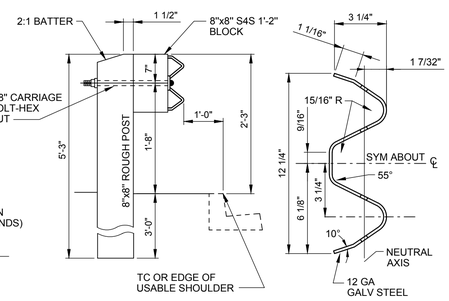


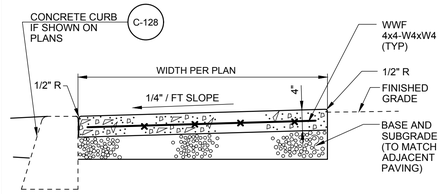
SECTION

PANEL SECTION

NOTES:

1. RAIL TO BE ATTACHED TO POSTS PER MANUFACTURERS INSTRUCTIONS.
2. ALL TIMBER SHALL BE DOUGLAS FIR OR SOUTHERN PINE, TREATED CONFORMING TO AASHTO M133.
3. ALL LAPS IN DIRECTION OF TRAFFIC.

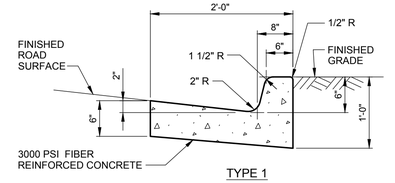
C-119 **GUARD RAIL**
REV 010119



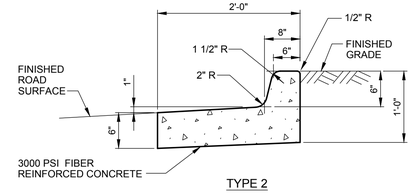
NOTES:

1. EXPANSION JOINTS OF 1/2" PREMOLDED JOINT FILLER SHALL BE PLACED AT 24'-0" MAXIMUM SPACING, AND WHEN ABUTTING EXISTING CONCRETE OR FIXED STRUCTURE.
2. SCORE LINES AT RIGHT ANGLES TO CENTERLINE SHALL BE MARKED AT 60" INTERVALS. ON WALKS EXCEEDING SIX FEET IN WIDTH, A CONTINUOUS SCORE LINE SHALL BE MARKED ON THE CENTERLINE.
3. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL FINISH REQUIREMENTS.
4. WITH THE APPROVAL OF THE ENGINEER, FIBER REINFORCED CONCRETE MAY BE USED, AND THE REINFORCING SHOWN ABOVE MAY BE OMITTED. WHERE DRIVES CROSS SIDEWALKS, THE REINFORCING SHALL REMAIN.

C-120 **CONCRETE SIDEWALK**
REV 010119



TYPE 1



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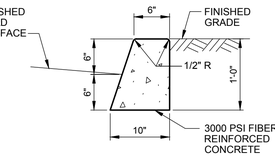
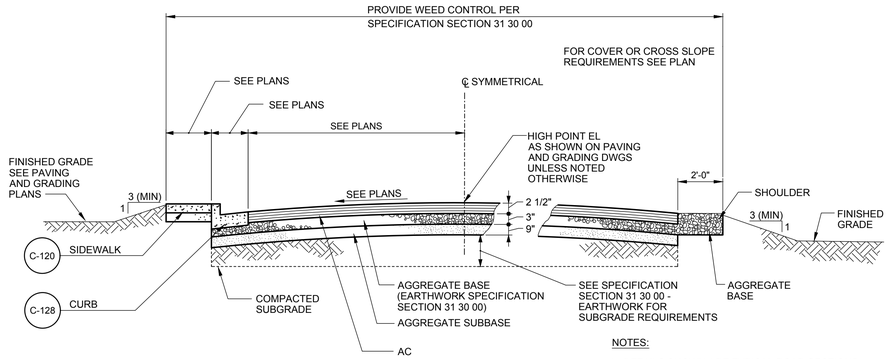


TYPE 3

NOTES:

1. EXPANSION JOINTS OF 1/2" PREMOLDED JOINT FILLER SHALL BE PLACED AT 50'-0" SPACING AND WHERE CURB AND GUTTER BUTTS OTHER CONCRETE STRUCTURES.
2. ALL EXPOSED SURFACES OF CURB SHALL BE GIVEN A MORTAR BRUSH COAT CONSISTING OF ONE PART PORTLAND CEMENT, AND THEN TROWELED SMOOTH.
3. SCORE AT RIGHT ANGLES AT 10'-0" OC.

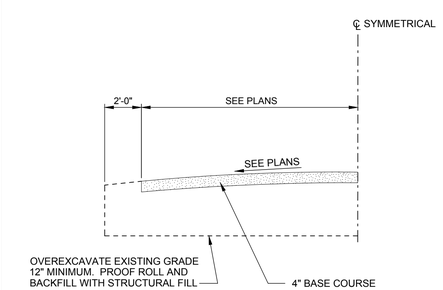
C-128 **CURB AND GUTTER**
TYPES 1, 2, AND 3
REV 010119



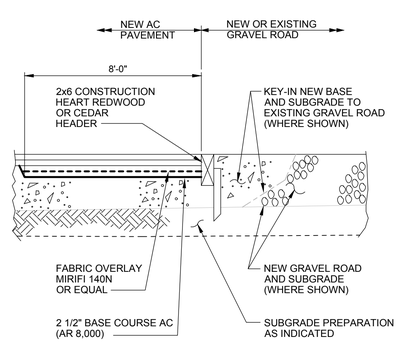
NOTES:

1. DETAILS SHOWN ARE TYPICAL ROAD SECTIONS UNLESS NOTED OTHERWISE
2. SEE GENERAL NOTES FOR DIMENSION REQUIREMENTS

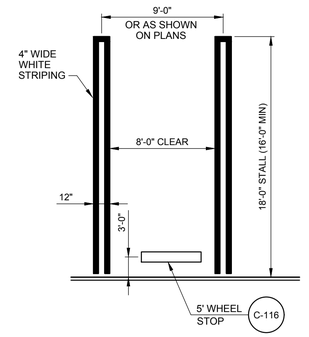
C-130 **AC ROAD SECTION**
REV 010119



C-132 **GRAVEL ROAD SECTION**
REV 010119



C-133 **AC PAVEMENT GRAVEL TRANSITION**
REV 010119



C-170 **PARKING STALL**
REV 010119

0 Revision				2022.12.02 YYYY.MM.DD
FINAL DESIGN Issued	MCM By	DEW Appd	2026.02.26 YYYY.MM.DD	

Permit/Seal

DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Whitbeck
Date: 2026.04.09 11:00:06-07'00'

WARNING
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Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 GC-3 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
CIVIL STANDARD DETAILS - 2

Project No. 25-128
Scale
Revision
Drawing No.
GC-3

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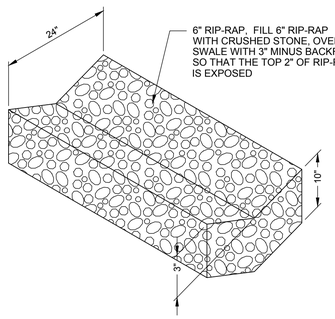
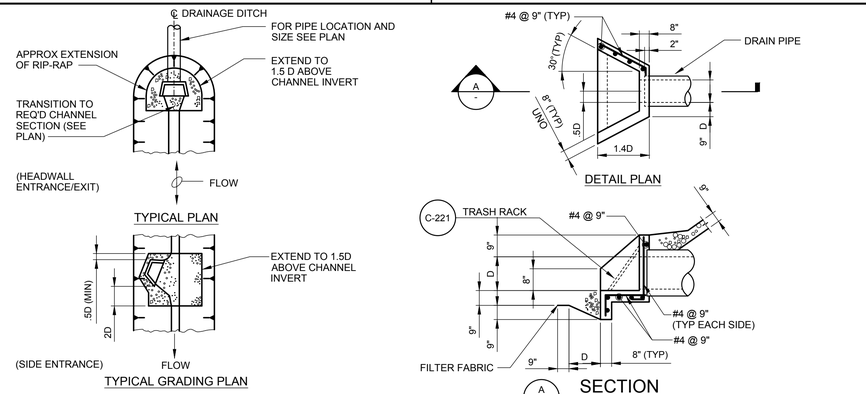


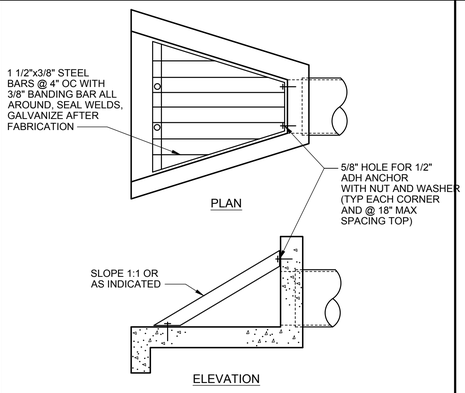
C-201 DRAINAGE SWALE

REV 010119



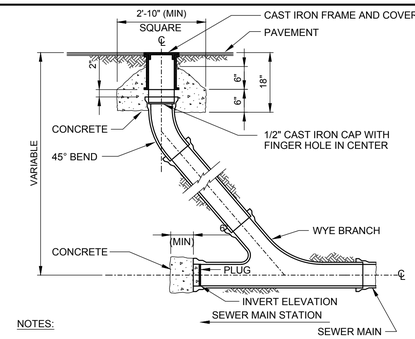
C-220 LARGE DRAIN PIPE INLET AND OUTLET

REV 010119



C-221 TRASH RACK

REV 010119

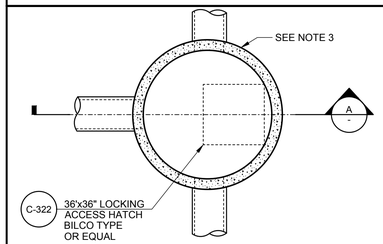


NOTES:

1. IF IN UNIMPROVED AREA TOP SHALL BE 6" ABOVE GRADE.
2. SEE PLAN FOR STATION AND INVERT ELEVATION. PIPE AND FITTINGS SHALL BE OF THE SAME MATERIAL AS THE MAIN LINE SEWER.

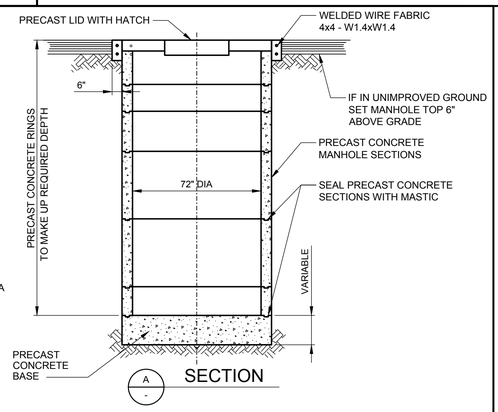
C-302 CLEANOUT TO GRADE (COTG)

REV 010119



NOTES:

1. PROVIDE INDIVIDUAL RUNG LADDER OR FIXED LADDER CONFORMING TO OSHA REQUIREMENTS AND SPECIFICATIONS.
2. SEE SPECIFICATIONS FOR MANHOLE ADJUSTMENTS TO MATCH GRADE.
3. KOR N SEAL BOOT FOR CORE-DRILLED SECTIONS. SAND COLLAR FOR SECTIONS WITH KNOCKOUTS.
4. THIS DETAIL IS NOT FOR UTILITIES CONFIRMING TO CITY STANDARDS.



C-320 DROP MANHOLE

0				2022.12.02	
Revision	By	Appd		YYYY.MM.DD	
FINAL DESIGN	MCM	DEW		2026.02.26	
Issued	By	Appd		YYYY.MM.DD	

Permit/Seal

DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Whitbeck
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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 GC-4

MCM	MDV	DEW		2026.02.26
Dwn.	Dsgn.	Chkd.		YYYY.MM.DD

Title
CIVIL STANDARD DETAILS - 3

Project No.
25-128

Scale

Revision

Drawing No.
GC-4

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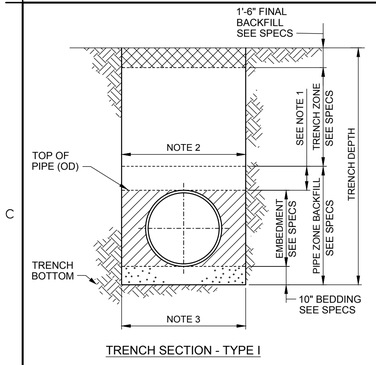
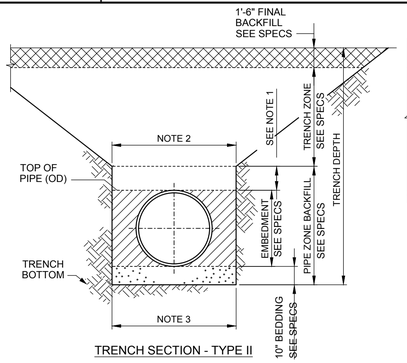
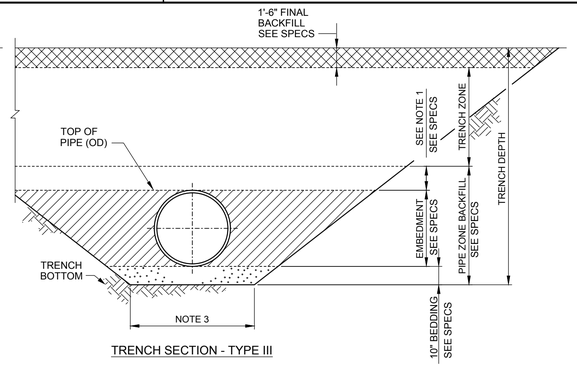


TRENCH SECTION - TYPE I



TRENCH SECTION - TYPE II



TRENCH SECTION - TYPE III

NOTES:

1. 6" MIN FOR PIPE DIAMETER < 24"
   12" MIN FOR PIPE DIAMETER > 24"
2. MAX TRENCH WIDTH @ TOP OF PIPE:
   OD + 36" FOR, 18" AND LARGER PIPE OD
   OD + 24" FOR LESS THAN 18"
3. MIN TRENCH BOTTOM WIDTH =
   OD + 24" FOR MECHANICAL COMPACTION

A. FLEXIBLE PIPE REFERS TO ALL STEEL, DUCTILE-IRON, AND PLASTIC PIPES.

B. TYPICAL TRENCH SECTIONS (I, II AND III) ARE TO BE USED ONLY WHERE STABLE, COMPACT SOIL CONDITIONS EXIST. IF BOULDERS OR LARGE OBSTRUCTIONS ARE ENCOUNTERED, TRENCH SECTIONS MAY BE DEEPER OR WIDER THAN SHOWN. THE ENGINEER SHALL BE ADVISED SHOULD THIS OCCUR.

C. THE NEED FOR PROTECTIVE SYSTEMS AND EXCAVATION SLOPES SHALL BE DETERMINED CONSIDERING APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, AND GEOTECHNICAL CONSULTANTS' RECOMMENDATIONS.

D. PROTECTIVE SYSTEMS SHALL BE DESIGNED AND BUILT IN ACCORDANCE WITH THE APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS.

E. SUPPORTING DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER REGARDING PIPE DESIGN AND COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS.

F. UNSUPPORTED VERTICAL AND/OR SLOPING TRENCH WALL SLOPES SHALL NOT BE STEEPER THAN ALLOWED BY APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, UNLESS SUPPORTING DOCUMENTATION IS SUBMITTED, ACCORDING TO AFOREMENTIONED SAFETY STANDARDS.

G. TRENCH SECTIONS OTHER THAN THE TYPICAL SECTIONS SHOWN MAY BE UTILIZED PROVIDED THEY COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. DOCUMENTATION SUPPORTING THIS COMPLIANCE AND PIPE DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER.

H. IF OVER-EXCAVATION DUE TO POOR FOUNDATION MATERIAL IS ORDERED BY THE ENGINEER, THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTION OF THE SPECIFICATIONS ARTICLE ENTITLED, "FILL AND BACKFILL MATERIAL REQUIREMENTS."

I. IF DURING CONSTRUCTION, THE WATER TABLE IS DISCOVERED TO BE ABOVE THE TRENCH BOTTOM, THE ENGINEER SHALL BE NOTIFIED, AND APPROPRIATE DEWATERING SHALL BE IMPLEMENTED TO LOWER THE WATER LEVEL BELOW THE TRENCH BOTTOM. THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTIONS OF THE SPECIFICATIONS, OR AS ORDERED BY THE ENGINEER.

C-601 TRENCH SECTION FLEXIBLE PIPE

REV 010119

A. RIGID PIPE REFERS TO ALL TYPES OF REINFORCED AND UN-REINFORCED CONCRETE PIPE AND VITRIFIED CLAY PIPE.

B. TYPICAL TRENCH SECTIONS (I, II AND III) ARE TO BE USED ONLY WHERE STABLE, COMPACT SOIL CONDITIONS EXIST. IF BOULDERS OR LARGE OBSTRUCTIONS ARE ENCOUNTERED, TRENCH SECTIONS MAY BE DEEPER OR WIDER THAN SHOWN. THE ENGINEER SHALL BE ADVISED SHOULD THIS OCCUR.

C. THE NEED FOR PROTECTIVE SYSTEMS, AND EXCAVATION SLOPES SHALL BE DETERMINED CONSIDERING APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, AND GEOTECHNICAL CONSULTANTS' RECOMMENDATIONS.

D. PROTECTIVE SYSTEMS SHALL BE DESIGNED AND BUILT IN ACCORDANCE WITH THE APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS.

E. SUPPORTING DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER REGARDING PIPE DESIGN AND COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS.

F. UNSUPPORTED VERTICAL AND/OR SLOPING TRENCH WALL SLOPES SHALL NOT BE STEEPER THAN ALLOWED BY APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, UNLESS SUPPORTING DOCUMENTATION IS SUBMITTED, ACCORDING TO AFOREMENTIONED SAFETY STANDARDS.

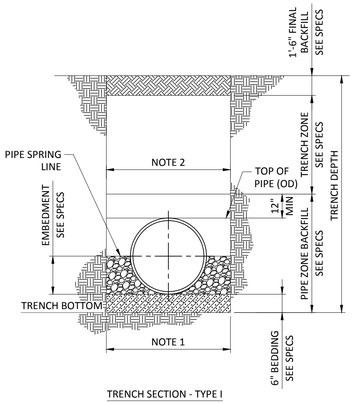
G. TRENCH SECTIONS OTHER THAN THE TYPICAL SECTIONS SHOWN MAY BE UTILIZED PROVIDED THEY COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. DOCUMENTATION SUPPORTING THIS COMPLIANCE AND PIPE DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER.

H. IF OVER-EXCAVATION DUE TO POOR FOUNDATION MATERIAL IS ORDERED BY THE ENGINEER, THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTION OF THE SPECIFICATIONS ARTICLE ENTITLED, "FILL AND BACKFILL MATERIAL REQUIREMENTS."

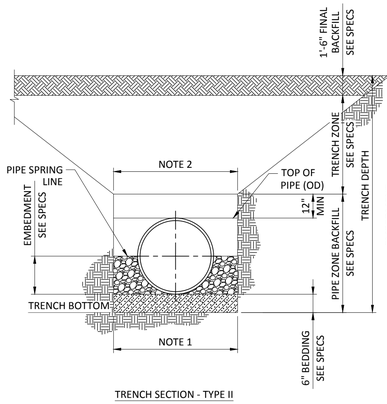
I. IF DURING CONSTRUCTION, THE WATER TABLE IS DISCOVERED TO BE ABOVE THE TRENCH BOTTOM, THE ENGINEER SHALL BE NOTIFIED, AND APPROPRIATE DEWATERING SHALL BE IMPLEMENTED TO LOWER THE WATER LEVEL BELOW THE TRENCH BOTTOM. THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTIONS OF THE SPECIFICATIONS, OR AS ORDERED BY THE ENGINEER.

NOTES:

1. MIN TRENCH BOTTOM WIDTH =
   O.D. + 24" FOR MECHANICAL COMPACTION
   O.D. + 18" FOR WATER CONSOLIDATION
2. MAX TRENCH WIDTH @ TOP OF PIPE:
   O.D. + 36" FOR, 18" & LARGER PIPE O.D.
   O.D. + 24" FOR LESS THAN 18" PIPE O.D.



TRENCH SECTION - TYPE I



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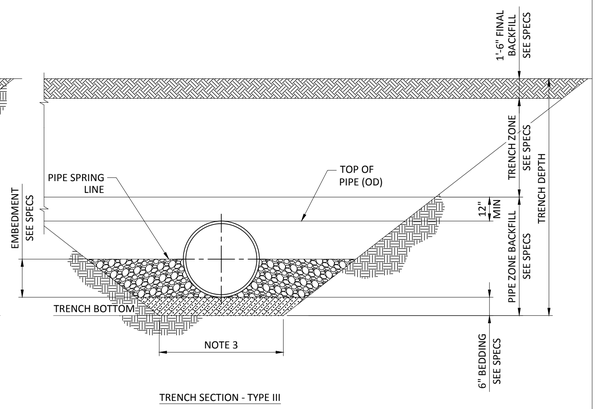

TRENCH SECTION - TYPE III

C-602 TRENCH SECTION RIGID PIPE

REV 010119

0 Revision				2022.12.02 YYYY.MM.DD
FINAL DESIGN Issued	MCM By	DEW Appd	2026.02.26 YYYY.MM.DD	

Permit/Seal

DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 GC-5 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
CIVIL STANDARD DETAILS - 4

Project No. 25-128
Scale
Revision
Drawing No. GC-5

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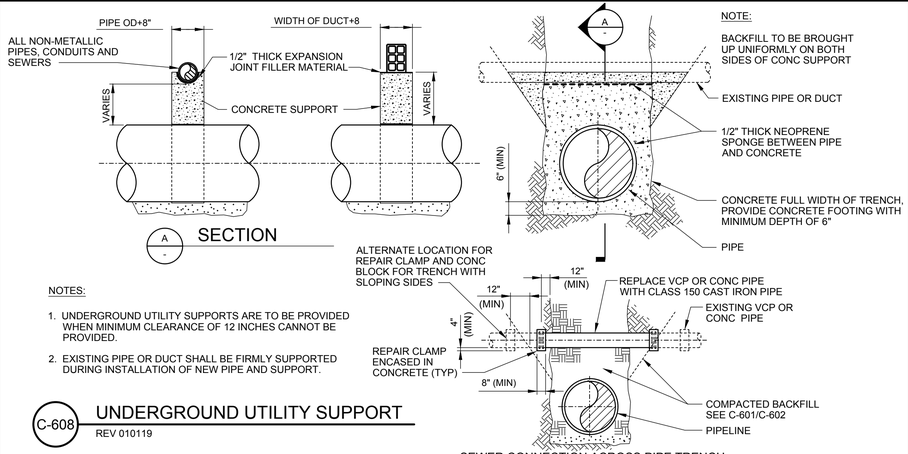
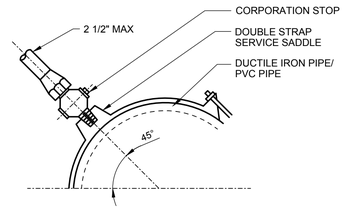
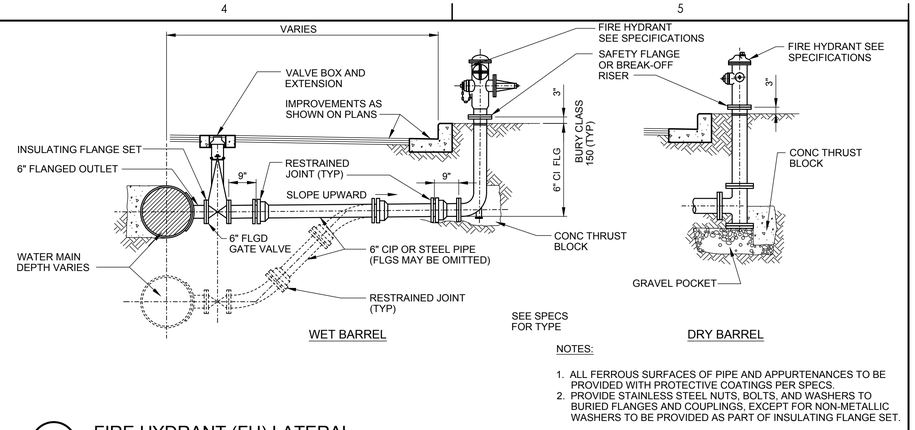


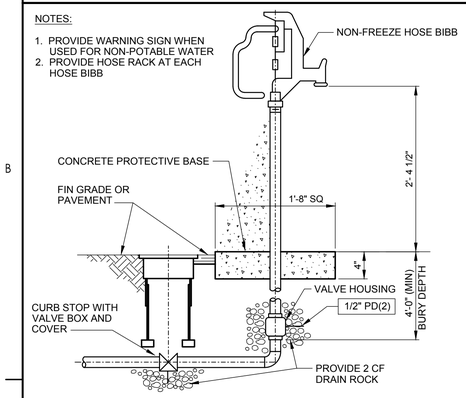
C-608 UNDERGROUND UTILITY SUPPORT
REV 010119



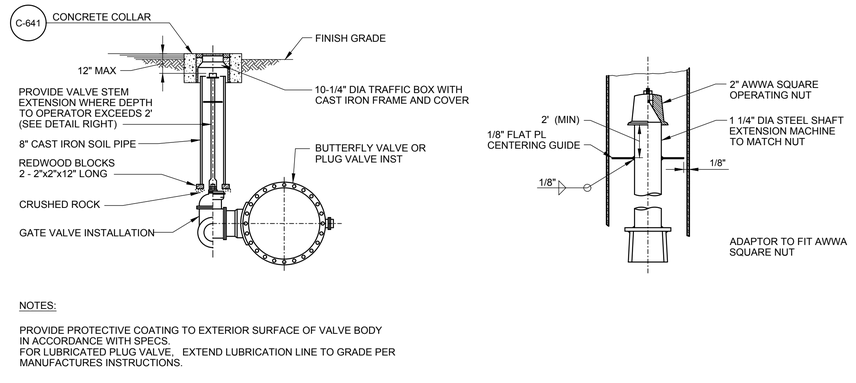
C-619 SERVICE TAP
REV 010119



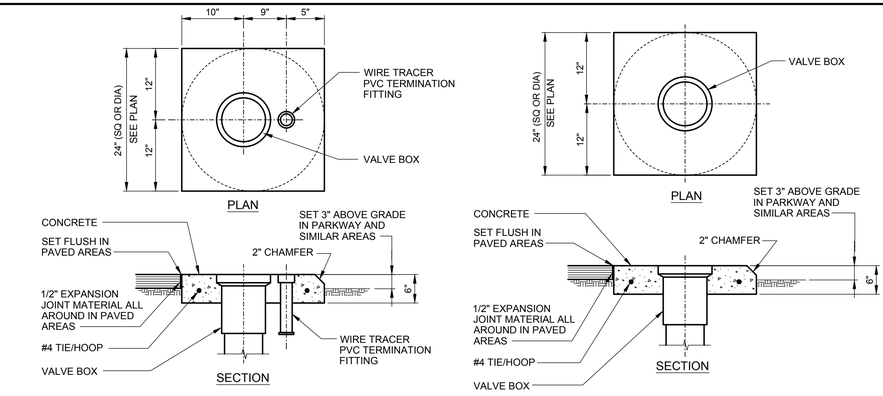
C-626 FIRE HYDRANT (FH) LATERAL
REV 010119



C-627 NON-FREEZE YARD HYDRANT
REV 010119



C-640 BURIED VALVE INSTALLATION
REV 010119



C-641 VALVE BOX COLLAR
REV 010119

0				2022.12.02
Revision	By	Appd		YYYY.MM.DD

ORIGINAL SHEET - ANSI D

FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

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Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 GC-6	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
CIVIL STANDARD DETAILS - 5

Project No. 25-128
Scale
Revision
Drawing No.
GC-6

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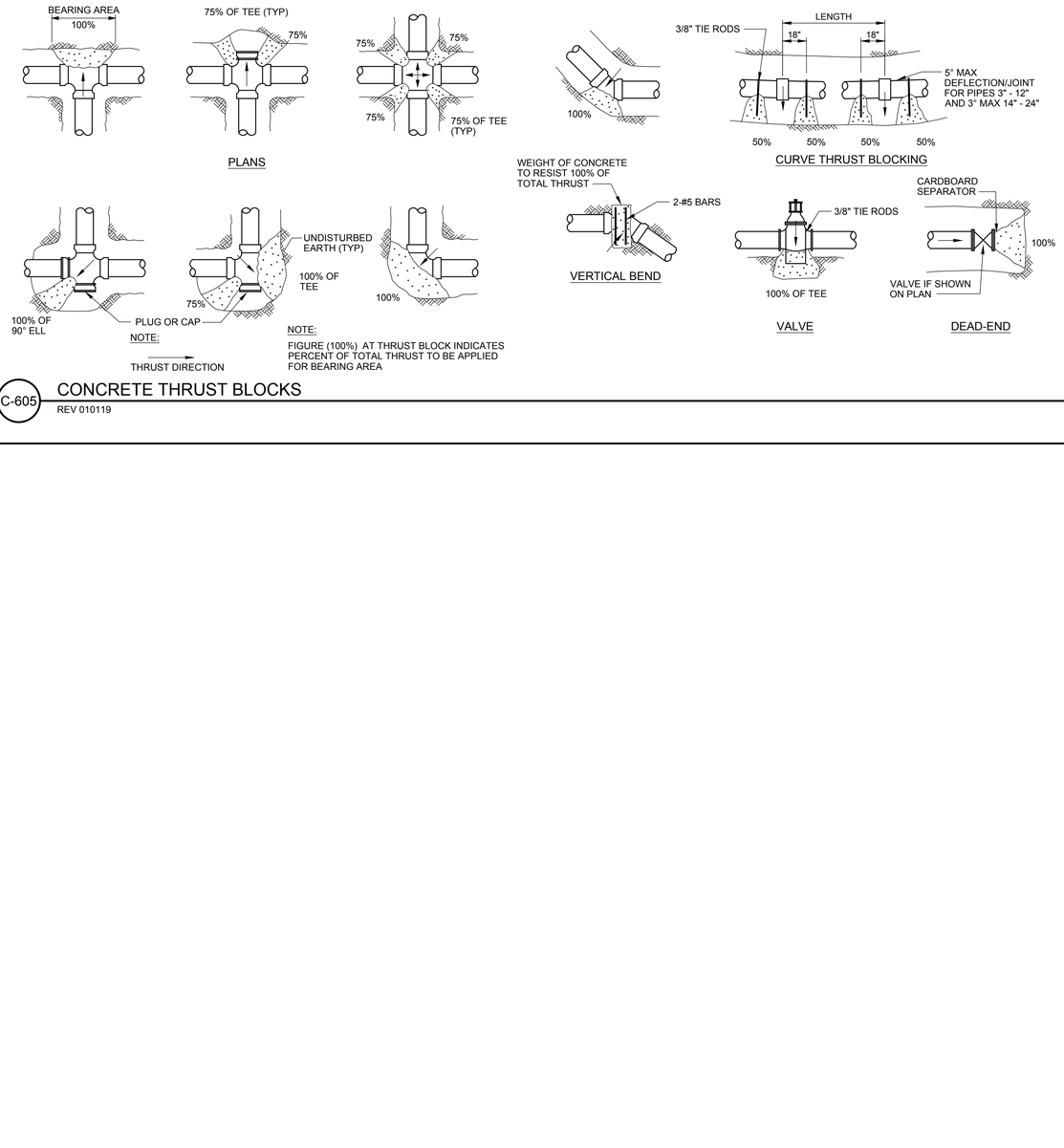

NOTE:

FIGURE (100%) AT THRUST BLOCK INDICATES PERCENT OF TOTAL THRUST TO BE APPLIED FOR BEARING AREA

THRUST PER PSI OF WATER PRESSURE AT VARIOUS FITTINGS				
PIPE SIZE	DEAD END OR TEE	90° ELBOW	45° ELBOW	22 1/2° ELBOW
4	19	27	15	7
6	39	55	30	15
8	67	94	51	26
10	109	154	84	43
12	155	218	119	61
14	210	296	161	82
16	275	383	209	106
18	351	494	269	137
20	434	611	333	169
24	623	878	478	244

EXAMPLE:

8-INCH 90° ELBOW, PRESSURE=200 PSF
FROM TABLE: THRUST = 94x200 = 18,800 lb
ASSUME BEARING STRENGTH OF SOIL = 2000 PSF

18,800 / 2000 =9.4 SQ FT= BEARING AREA REQUIRED FOR THRUST BLOCK

SIDE THRUST PERM 100 PSI PRESSURE PER DEGREE OF DEFLECTION			
PIPE SIZE	SIDE THRUST-lb	PIPE SIZE	SIDE THRUST-lb
4	35	14	377
6	72	16	486
8	122	18	665
10	197	20	790
12	278	24	1150

MULTIPLY THRUST BY DEGREE OF DEFLECTION TO OBTAIN TOTAL THRUST

NOTES:

1. IN USING THE ABOVE TABLES, USE THE MAXIMUM INTERNAL PRESSURE ANTICIPATED (i.e. HYDROSTATIC TEST PRESSURE) POSSIBLE SURGE PRESSURE DUE TO PUMP SHUT-OFF, ETC.
2. SEE SOILS REPORT FOR BEARING STRENGTH OF SOIL IN THE ABSENCE OF A SOILS REPORT AN AVERAGE SOIL (SPADABLE MEDIUM CLAY) CAN BE ASSUMED TO HAVE A BEARING STRENGTH OF 2000 PSF
3. WITH SOLVENT WELDED JOINTS
4. USE LIGHTWEIGHT CONCRETE FOR HILL THRUST BLOCK.
5. CONCRETE FOR THRUST BLOCKS TO BE 2000 PSI.

C-605

CONCRETE THRUST BLOCKS

REV 010119

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	MCM	DEW	2026.02.26

Permit/Seal

DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 47045 — REGISTERED PROFESSIONAL ENGINEER

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Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 GC-7	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
CIVIL STANDARD DETAILS - 6

Project No. 25-128
Scale
Revision
Drawing No.
GC-7

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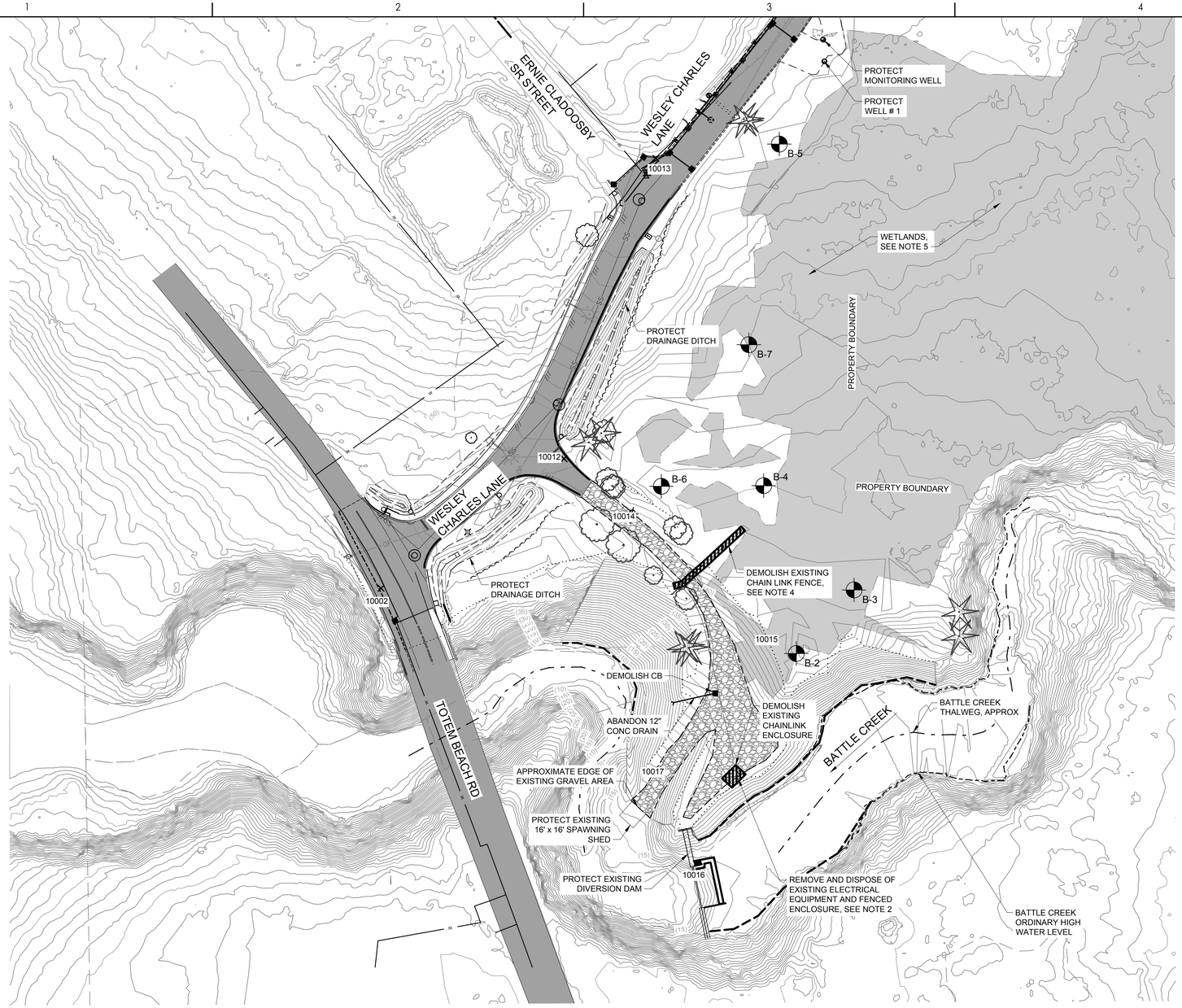

BATTLE CREEK DEMOLITION PLAN

SCALE: 1" = 50'

GENERAL SHEET NOTES

1. PRIOR TO ANY EXCAVATION IN THE VICINITY OF ANY EXISTING UNDERGROUND FACILITIES, INCLUDING ALL WATER, SEWER, STORM DRAIN,GAS, PETROLEUM PRODUCTS, OR OTHER PIPELINES; ALL BURIED ELECTRIC POWER, COMMUNICATIONS, OR TELEVISION CABLES; ALL TRAFFIC SIGNAL AND STREET LIGHTING FACILITIES; AND ALL ROADWAY, STATE HIGHWAY, AND RAILROAD RIGHTS-OF-WAY, THE CONTRACTOR SHALL NOTIFY THE RESPECTIVE AUTHORITIES REPRESENTING THE OWNERS OR AGENCIES RESPONSIBLE FOR SUCH FACILITIES NOT LESS THAN 3 DAYS NOR MORE THAN 7 DAYS PRIOR TO EXCAVATION SO THAT A REPRESENTATIVE OF SAID OWNERS OR AGENCIES CAN BE PRESENT DURING SUCH WORK IF THEY SO DESIRE. IN THE CASE OF THE UNDERGROUND UTILITY SERVICE ALERT CENTER (811), THIS NOTICE WILL GIVE THEM TIME TO MARK THE LOCATION OF THE UTILITIES. THE CONTRACTOR SHALL ALSO NOTIFY THE REGIONAL OR LOCAL UNDERGROUND SERVICE ALERT COMPANY AT LEAST 3 DAYS, BUT NO MORE THAN 7 DAYS, PRIOR.
2. CONTRACTOR SHALL PROVIDE TEMPORARY POWER TO SPAWNING SHED DURING CONSTRUCTION.
3. REFER TO MITIGATION PLAN FOR WORK REQUIRED TO MITIGATE WETLANDS IMPACTED DURING THE PROJECT.
4. CONTRACTOR SHALL PROVIDE TEMPORARY FENCING AND SECURED ACCESS TO AREAS NEAR DIVERSION DAM AND SPAWNING SHED AT ALL TIMES.
5. PROTECT WETLANDS AND WETLAND VEGETATION BEYOND LIMITS OF DISTURBANCE FOR PROJECT FEATURES.

LEGEND

- EXISTING GRAVEL SURFACING
- EXISTING ASPHALT SURFACING
- SD — STORM DRAIN
- SS — SANITARY SEWER
- OP — OVERHEAD POWER
- W — DOMESTIC WATER
- P — BURIED POWER
- WATER SURFACE
- RIGHT OF WAY
- P/L — PROPERTY LINE
- X — CHAIN LINK FENCE
- /// — EDGE OF PAVEMENT
- EXISTING TO BE REMOVED OR DEMOLISHED
- GEOTECHNICAL BOREHOLE
- WETLAND

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	MCM	DEW	2026.02.26

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BATTLE CREEK HATCHERY

File Name: 02267 1C-1 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
CIVIL NOTES AND DEMOLITION PLAN

Project No. 25-128
Scale AS NOTED
Revision
Drawing No. 1C-1

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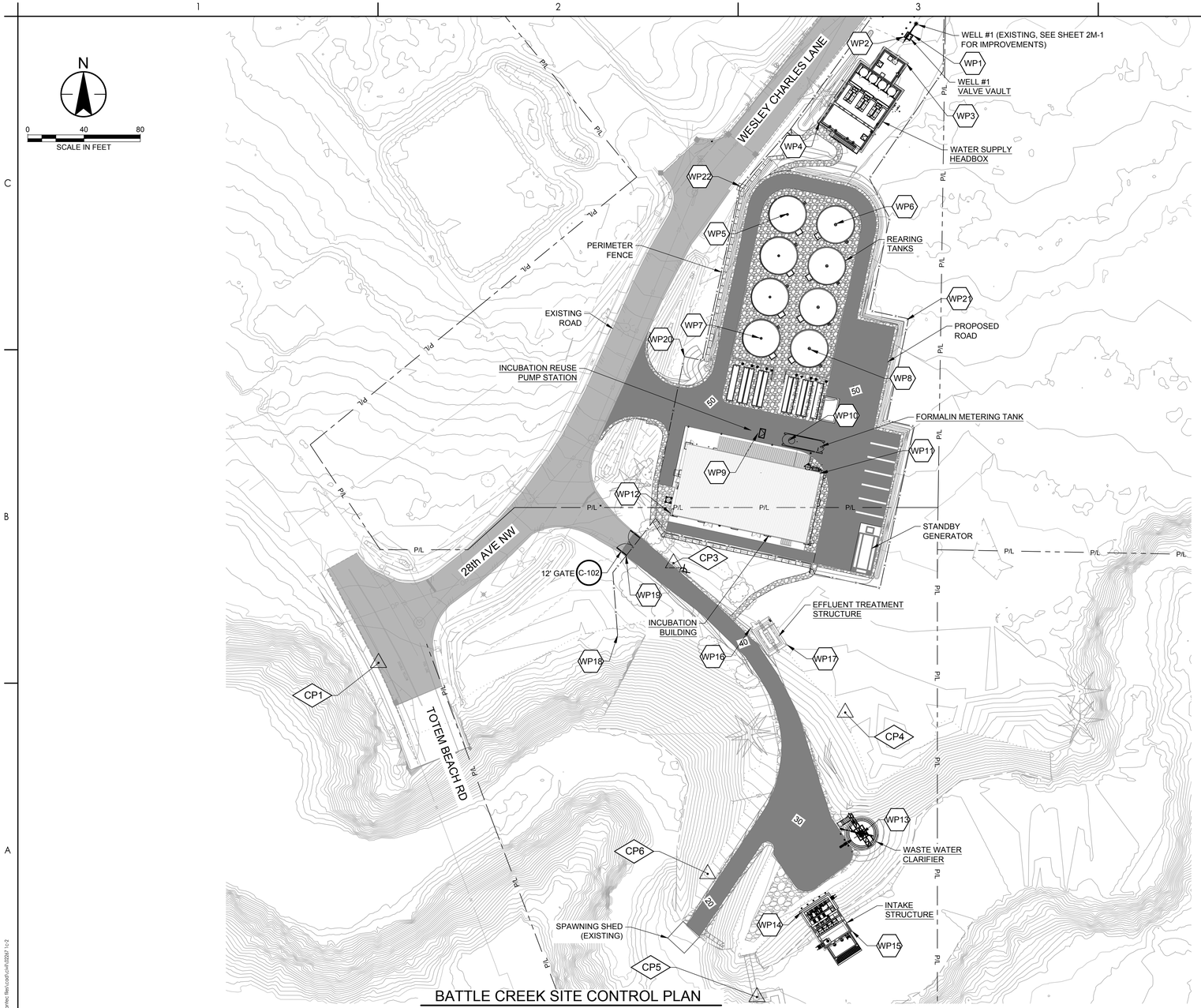

BATTLE CREEK SITE CONTROL PLAN

SCALE: 1" = 40'

GENERAL SHEET NOTES

1. VERTICAL DATUM IS NAVD88 HORIZONTAL DATUM IS WA STATE PLANE COORDINATES - NORTH ZONE.
2. WORK POINTS ARE INTENDED TO LOCATE STRUCTURES, PIPELINES, EQUIPMENT, AND OTHER PHYSICAL FEATURES. WORK POINTS SHALL ONLY BE ADJUSTED UPON WRITTEN APPROVAL OF THE OWNER.
3. ALL STRUCTURE COORDINATES ARE TO OUTSIDE CORNER OF COLUMN OR STRUCTURE UNO.

CONTROL POINTS

PT NO.	NORTHING	EASTING	ELEVATION
CP1	388914.1536	1288596.4402	42.04
CP2	389035.3678	1288741.3447	48.32
CP3	388984.9626	1288806.0986	44.70
CP4	388878.8157	1288928.2229	41.22
CP5	388676.6808	1288865.4936	29.27
CP6	388764.1511	1288830.4135	21.61

WORK POINT TABLE

POINT NO	NORTHING	EASTING	DESCRIPTION
WP1	389359.94	1288976.65	NE CORNER OF WELL #1 PUMP VALVE VAULT
WP2	389358.83	1288970.02	SW CORNER OF WELL #1 PUMP VALVE VAULT
WP3	389339.90	1288971.76	NE CORNER OF WATER SUPPLY HEADBOX
WP4	389298.41	1288909.87	SW CORNER OF WATER SUPPLY HEADBOX
WP5	389233.34	1288887.32	CENTERPOINT OF REARING TANK 6
WP6	389226.06	1288921.56	CENTERPOINT OF REARING TANK 1
WP7	389144.73	1288868.45	CENTERPOINT OF REARING TANK 8
WP8	389137.45	1288902.69	CENTERPOINT OF REARING TANK 4
WP9	389077.33	1288866.21	CENTERPOINT OF INCUBATION REUSE PUMP STATION
WP10	389072.13	1288888.01	FORMALIN METERING TANK
WP11	389048.66	1288910.19	NE CORNER OF INCUBATION BUILDING
WP12	389020.43	1288804.01	SW CORNER OF INCUBATION BUILDING
WP13	388792.86	1288939.90	CENTER OF WASTEWATER CLARIFIER
WP14	388736.93	1288896.90	NW CORNER OF PUMPED INTAKE
WP15	388723.46	1288933.07	SE CORNER OF PUMPED INTAKE
WP16	388938.62	1288860.72	WEST CORNER OF EFFLUENT TREATMENT PAD
WP17	388926.91	1288886.90	EAST CORNER OF EFFLUENT TREATMENT PAD
WP18	388933.76	1288766.43	CHAINLINK FENCE CORNER POST
WP19	388990.16	1288772.39	CHAINLINK FENCE CORNER POST
WP20	389131.72	1288813.87	CHAINLINK FENCE CORNER POST
WP21	389157.82	1288971.98	CHAINLINK FENCE CORNER POST
WP22	389252.84	1288853.56	CHAINLINK FENCE CORNER POST

Revision	By	Appd	YYYY.MM.DD

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FINAL DESIGN	MCM By	DEW Appd	2026.02.26 YYYY.MM.DD
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BATTLE CREEK HATCHERY

File Name: 02267 1C-2

MCM Dwn.	MDV Dsgn.	DEW Chkd.	2026.02.26 YYYY.MM.DD

Title
SITE CONTROL PLAN

Project No. 25-128

Scale AS NOTED

Revision 0

Drawing No. 1C-2

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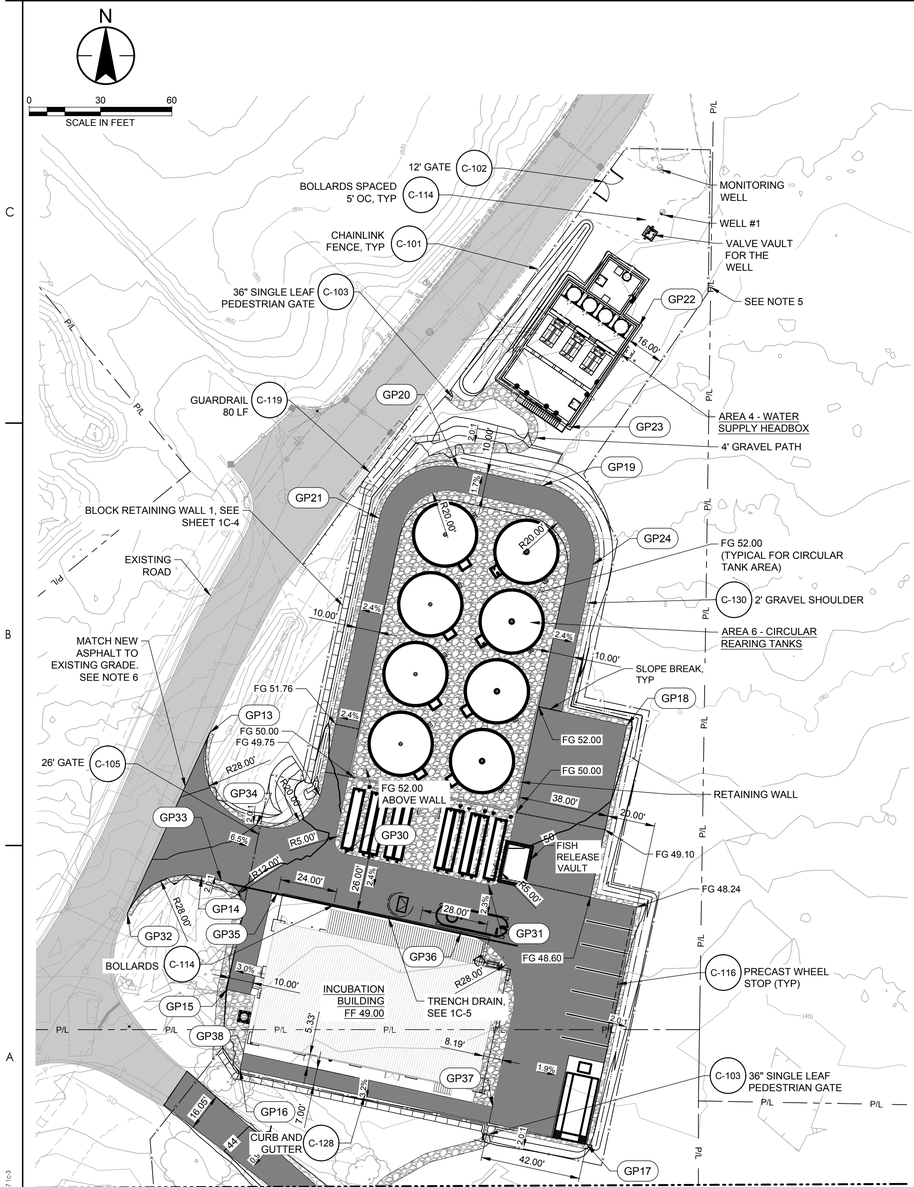
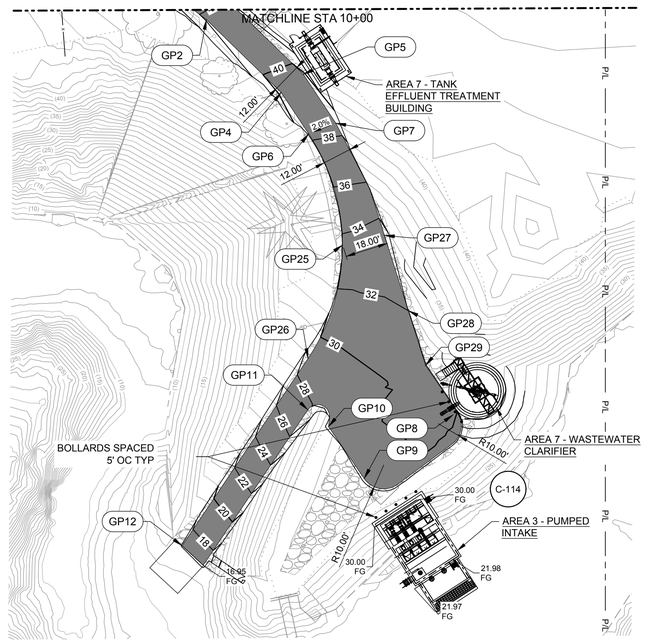


PAVING AND GRADING PLAN - HATCHERY AREA

SCALE: 1" = 30'



PAVING AND GRADING PLAN - DIVERSION DAM AND INTAKE ACCESS ROAD

SCALE: 1" = 30'

PAVING LEGEND

- GRAVEL
- STORM DITCH
- ASPHALT
- PROPERTY LINE
- SLOPE BREAK

GENERAL SHEET NOTES

1. ALL GRAVEL PAVING AND SURFACING SHALL OCCUR AFTER ALL CONSTRUCTION IS COMPLETE. ANY GRAVEL PAVING OR SURFACING THAT OCCURS PRIOR TO COMPLETION OF CONSTRUCTION SHALL BE AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
2. SLOPE GRADE UNIFORMLY BETWEEN ELEVATIONS SHOWN.
3. REFER TO SPECIFICATIONS FOR FILL UNDER STRUCTURES.
4. GRADING POINTS ARE INTENDED TO GENERALLY LOCATE THE GRADE. THE GRADING AND EXCAVATION GRADE POINTS SHOWN REPRESENT THE MINIMUM REQUIREMENTS. GRADING POINTS MAY BE ADJUSTED WITH THE APPROVAL OF THE OWNER IN THE FIELD. ADDITIONAL EXCAVATION MAY BE REQUIRED TO SUIT THE CONTRACTOR'S MEANS AND METHODS TO COMPLETE THE WORK. SUCH ADDITIONAL EXCAVATIONS SHALL BE CONSIDERED INCIDENTAL AND INCORPORATED INTO THE BID PRICE.
5. CONTRACTOR SHALL COORDINATE WITH OWNER TO FIELD LOCATE FENCE AROUND EXISTING VEGETATION TO REDUCE EXTENT OF LARGE TREE REMOVAL .
6. CONNECTIONS TO EXISTING ROAD SHALL BE SAWCUT AND SEALED JOINTS.

GRADE POINT TABLE

POINT #	NORTHING	EASTING	FG	EG
GP1	388992.76	1288769.01	45.74	45.85
GP2	388949.18	1288825.85	41.80	43.73
GP3	388957.78	1288834.22	42.04	43.38
GP4	388918.52	1288857.34	39.42	41.07
GP5	388926.23	1288866.63	39.66	41.85
GP6	388901.12	1288868.90	38.29	38.50
GP7	388905.60	1288880.34	38.53	38.98
GP8	388784.23	1288931.40	30.00	30.08
GP9	388756.13	1288892.23	30.00	29.51
GP10	388777.98	1288877.24	29.21	28.72
GP11	388785.02	1288868.55	27.89	26.15
GP12	388727.86	1288815.62	16.95	16.76
GP13	389149.40	1288788.13	56.29	56.29
GP14	389089.55	1288779.18	51.50	51.59
GP15	389041.37	1288795.38	48.76	48.60
GP16	389007.39	1288800.84	48.85	46.02
GP17	388977.33	1288945.09	48.06	44.66
GP18	389148.50	1288982.54	51.10	50.00
GP19	389245.57	1288964.43	51.76	52.53
GP20	389261.07	1288892.79	51.76	56.12
GP21	389239.53	1288859.48	51.76	58.35
GP22	389319.13	1288968.52	57.00	56.91
GP23	389272.85	1288927.75	56.00	51.99
GP24	389212.38	1288985.90	51.76	52.00
GP25	388854.29	1288883.11	32.33	32.41
GP26	388806.62	1288868.63	29.04	27.85
GP27	388858.37	1288900.80	33.00	33.80
GP28	388826.70	1288910.85	32.00	31.96
GP29	388803.69	1288918.05	31.05	30.87
GP30	389098.46	1288844.80	49.40	49.35
GP31	389085.37	1288905.44	49.40	48.43
GP32	389073.29	1288753.44	50.80	50.80
GP33	389087.14	1288793.00	51.00	52.51
GP34	389110.55	1288807.77	51.50	54.32
GP35	389082.04	1288816.63	48.88	48.58
GP36	389065.31	1288894.13	48.88	47.48
GP37	388992.04	1288907.08	48.90	44.81
GP38	389014.64	1288802.38	48.88	46.92

Revision	By	Appd	YYYY.MM.DD
0	MCM	DEW	2026.02.26
1			

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	MCM	DEW	2026.02.26

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BATTLE CREEK HATCHERY

File Name: 02267 1C-3 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
PAVING AND GRADING PLAN

Project No. 25-128
Scale AS NOTED
Revision 0 1
Drawing No. 1C-3

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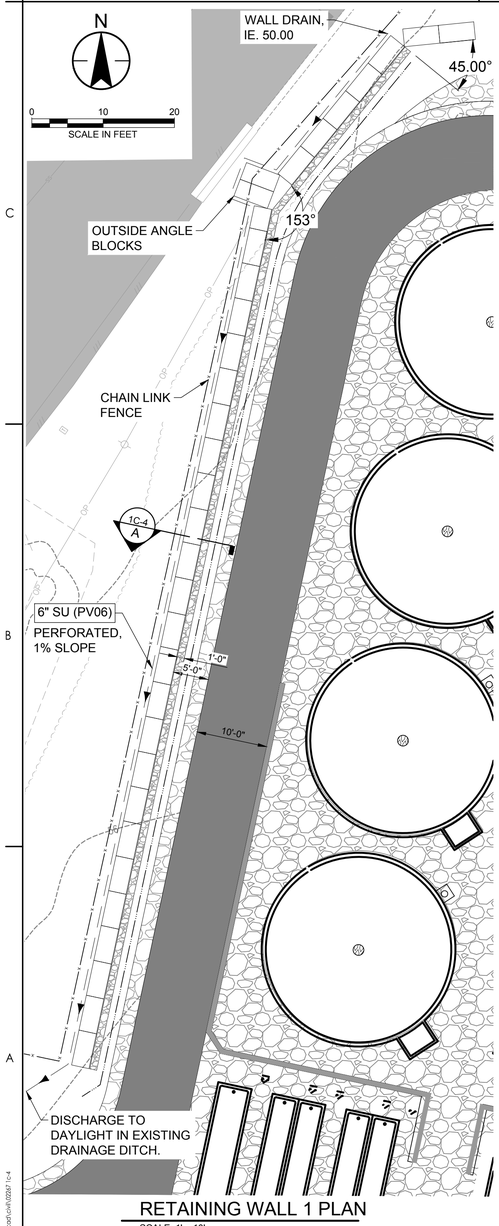
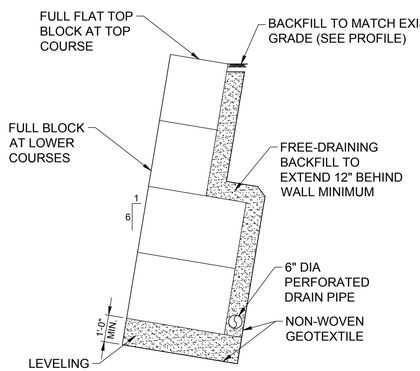


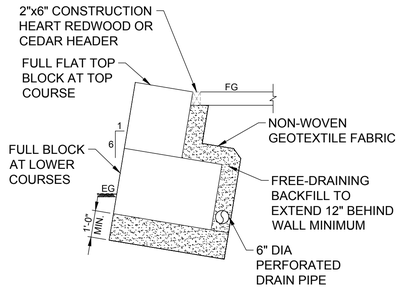
RETAINING WALL 1 PLAN

SCALE: 1" = 10'



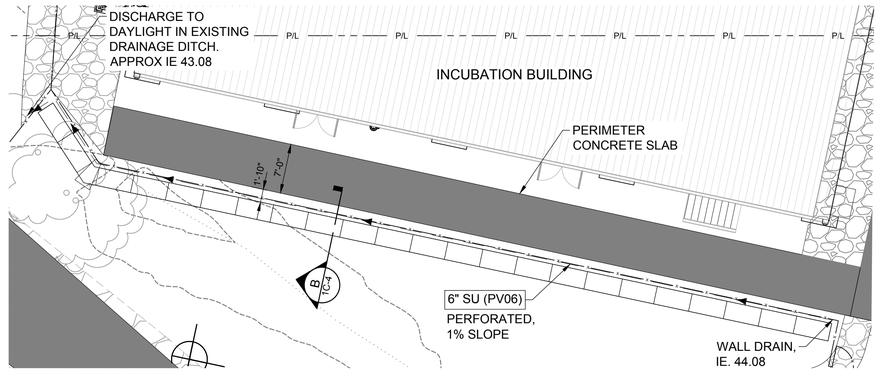
A 1C-4 RETAINING WALL 1 SECTION

SCALE: 3/8" = 1'



B 1C-4 RETAINING WALL 2 SECTION

SCALE: 3/8" = 1'

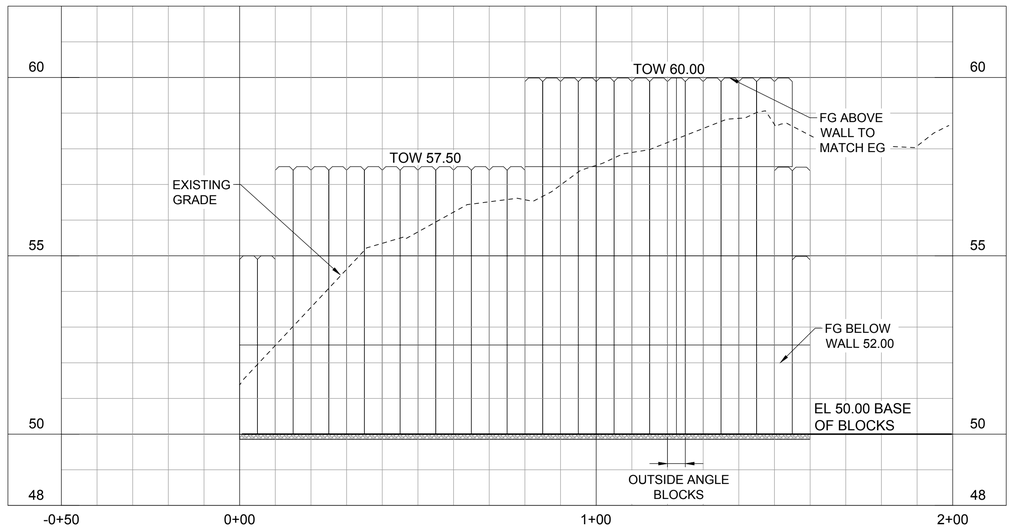


RETAINING WALL 2 PLAN

SCALE: 1" = 10'

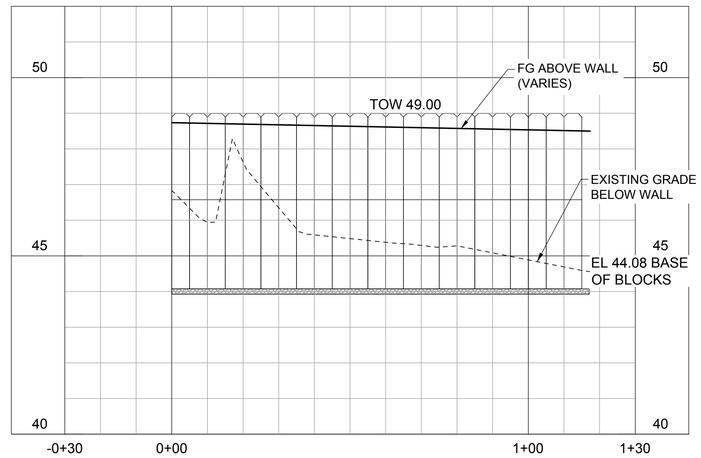
GENERAL SHEET NOTES

1. CONTRACTOR SHALL USE ULTRABLOCK FULL PLAIN FACE BLOCKS, OR EQUIVALENT. SEE SPEC SECTION 31 90 00 FOR ADDITIONAL REQUIREMENTS.
2. SECTION WILL VARY DEPENDING ON HEIGHT OF RETAINING WALL. CONTRACTOR SHALL FOLLOW THE ULTRABLOCK BUILDING GUIDE FOR RETAINING WALL CONSTRUCTION.



RETAINING WALL 1 PROFILE

SCALE: 1" = 10'



RETAINING WALL 2 PROFILE

SCALE: 1" = 10'

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	MCM	DEW	2026.02.26

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STATE OF WASHINGTON
47046
REGISTERED
PROFESSIONAL ENGINEER

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 1C-4	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

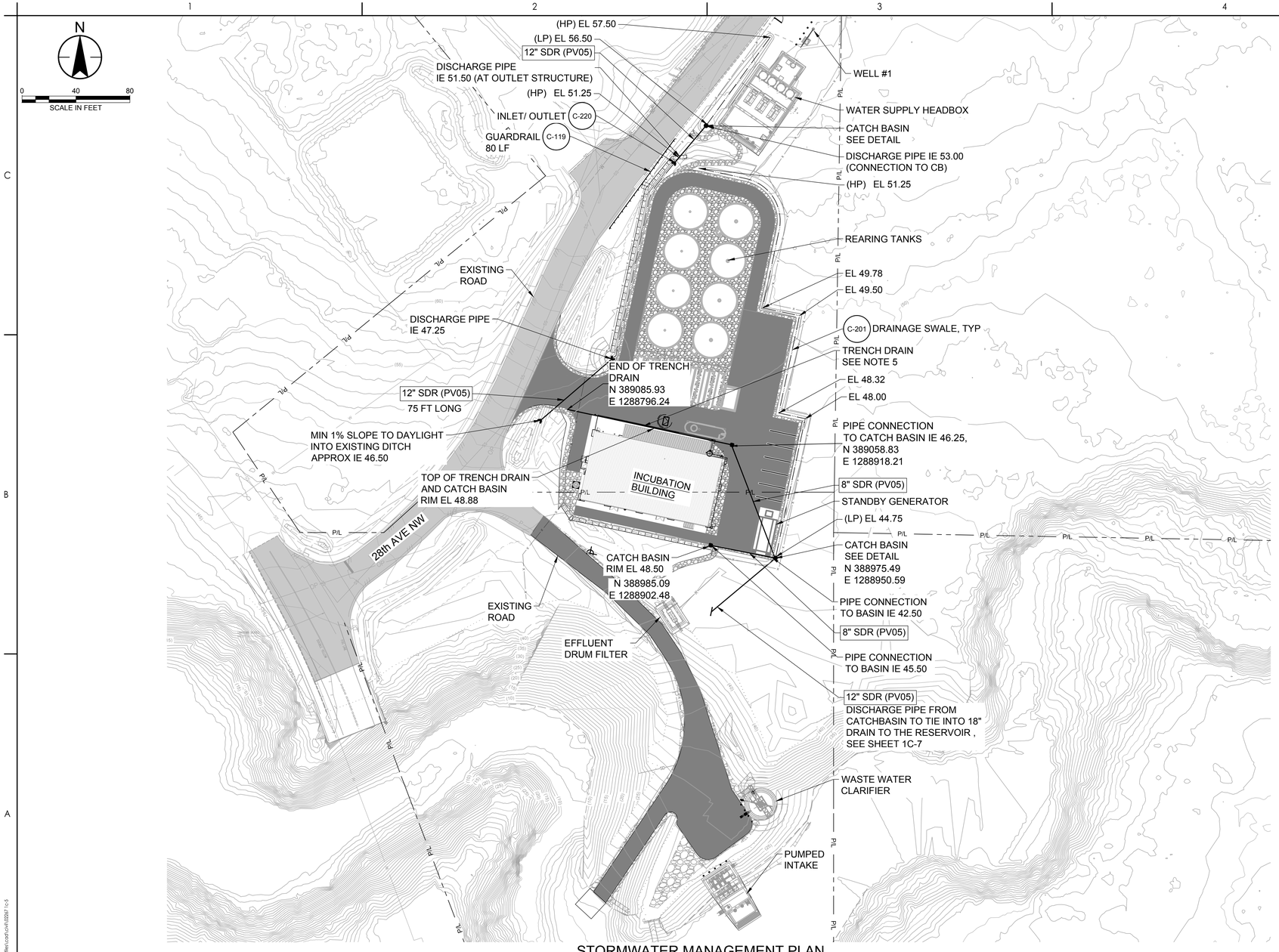
Title
RETAINING WALL PLAN AND PROFILE

Project No. 25-128

Scale AS NOTED

Revision

Drawing No.
1C-4

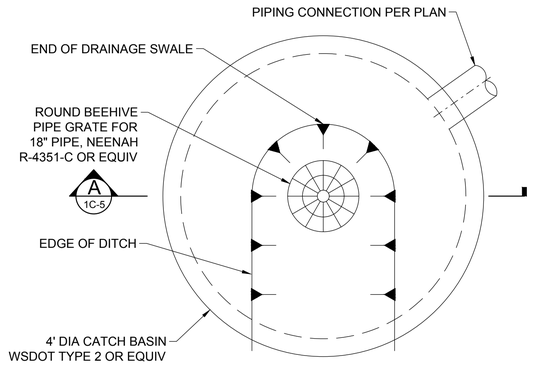


STORMWATER MANAGEMENT PLAN

SCALE: 1" = 40'

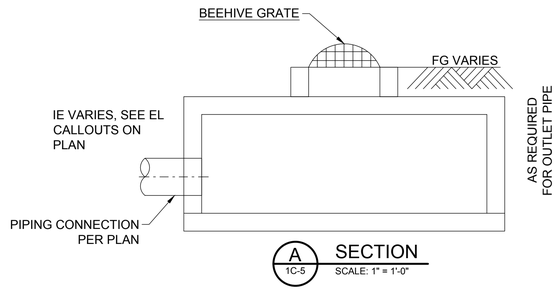
GENERAL SHEET NOTES

1. SEE PIPING PROFILES ON SHEETS ON 1C-9 TO 1C-12. STRAIGHT SLOPES SHALL BE MAINTAINED BETWEEN INVERT ELEVATIONS SHOWN OR SPECIFIED.
2. PIPE DIAMETERS SHOWN ON THE DRAWINGS FOR PIPE ARE NOMINAL DIAMETERS. SEE SPECIFICATIONS FOR DETERMINATION OF WALL INSIDE DIAMETER, WALL THICKNESS, OR PRESSURE RATING.
3. ALL PIPE STATIONING IS RELATIVE TO EACH PIPE. STATIONING REPRESENTS THE HORIZONTAL LENGTH OF PIPE. IT DOES NOT REFLECT THE PIPE LENGTH.
4. ALL WALL PENETRATIONS SHALL BE M-112, UNLESS NOTED OTHERWISE.
5. TRENCH DRAIN SHALL BE HUBBEL POLYCAST 700 SERIES OR EQUIVALENT. TRENCH DRAIN SHALL BE TRAFFIC-RATED, PRESLOPED TRENCH DRAIN .



CATCHBASIN DETAIL

SCALE: 1" = 1'-0"



A
1C-5
SECTION

SCALE: 1" = 1'-0"

NOTES:

A. BEEHIVE GRATE SHALL HAVE MINIMUM THICKNESS OF 1 1/2 INCHES

B. BEEHIVE GRATE SHALL BE CAST IRON

Revision	By	Appd	YYYY.MM.DD				
FINAL DESIGN	MCM	DEW	2026.02.26				
Issued	By	Appd	YYYY.MM.DD				

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Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 1C-5 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
STORMWATER DRAINAGE PLAN

Project No. 25-128
Scale AS NOTED
Revision 0
Drawing No. 1C-5

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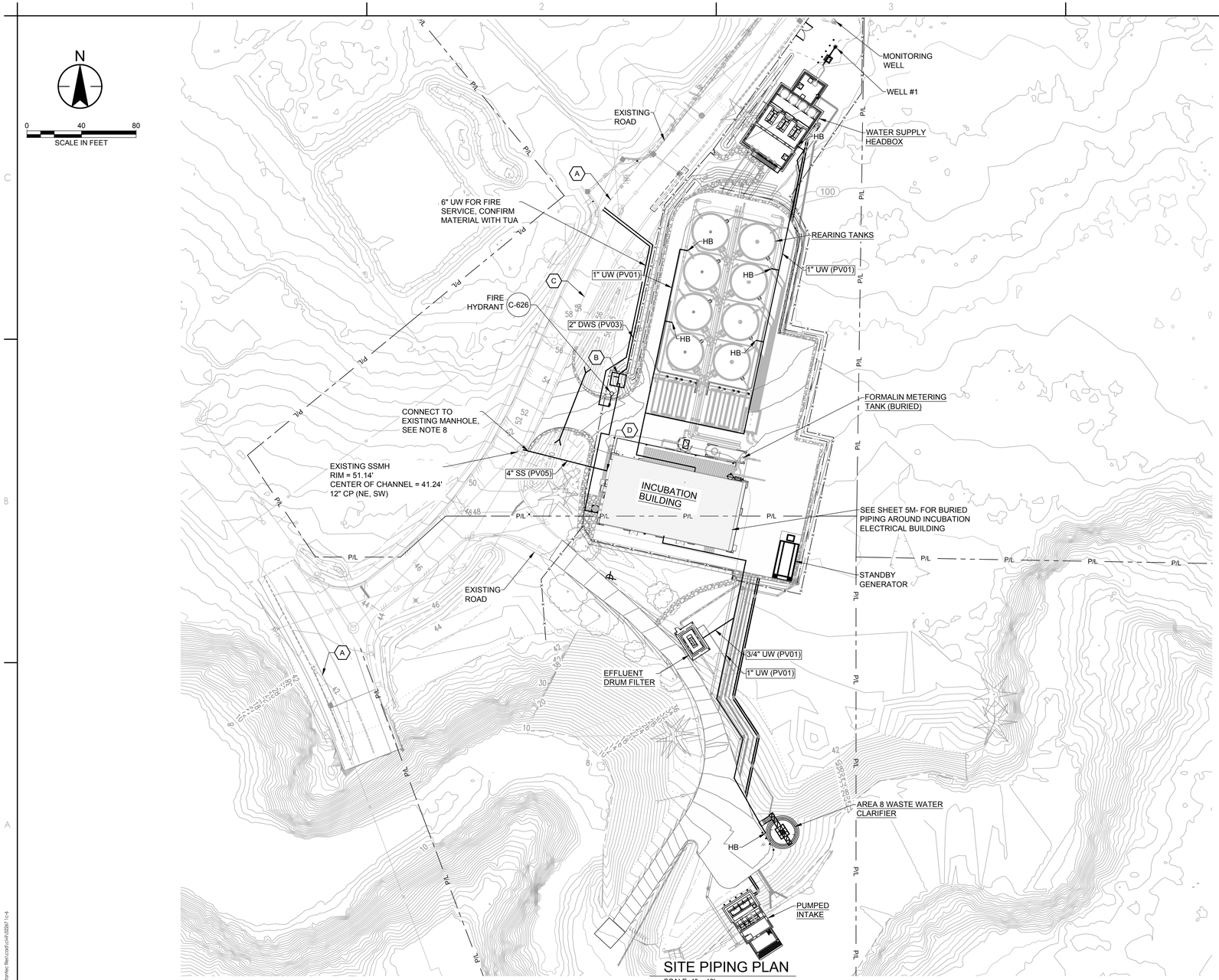

SITE PIPING PLAN

SCALE: 1" = 40'

COORDINATION NOTES

1. CONTRACTOR MUST POTHOLE OR EXCAVATE TO EXPOSE THE WATER MAIN AT THE LOCATION PROPOSED FOR A HOT TAP CONNECTION TO ALLOW INSPECTION BY THE TULALIP UTILITY AUTHORITY (TUA). THE CONNECTION WILL NOT OCCUR UNTIL THE INSPECTOR HAS VERIFIED THE EXISTING GRADE AND ALIGNMENT.
2. CONTRACTOR SHALL INSTALL FIRE HYDRANT IN ACCORDANCE WITH TULALIP TRIBE STANDARDS AND IN COORDINATION WITH TUA.
3. CALL THE TUA 48 HOURS IN ADVANCE OF THE DESIRED DATE OF THE CONNECTION TO SCHEDULE INSPECTION.
4. THE TAP COUPON MUST BE RETAINED FOR OBSERVATION BY THE INSPECTOR.
5. CALL THE TUA TO SCHEDULE AN INSPECTOR 48 HOURS IN ADVANCE OF HYDROSTATIC PRESSURE TESTING PRIOR TO DISINFECTION.
6. POST CHLORINATION LAB RESULTS MUST BE PROVIDED TO THE TUA FOR APPROVAL BEFORE FLUSHING, DE-CHLORINATION, AND DISCHARGE.
7. IN NO CIRCUMSTANCES SHALL WATER CONTAINING CHLORINE BE DISCHARGED INTO NATURAL SURFACE WATERS.
8. CONTRACTOR SHALL DETERMINE IN FIELD CONNECTION ELEVATION TO EXISTING SS MANHOLE. MINIMUM 2% SLOPE FROM CLEANOUT NEAR BLDG, SEE PLUMBING SHEETS. PROVIDE KOR-N-SEAL BOOT OR EQUIV AT MANHOLE CONNECTION.
9. HOSE BIBBS SHALL BE ¾" PER STANDARD DETAIL D-823 UNO.

KEY NOTES

A. EXISTING WATER MAIN.

B. METER BOX WITH 2" CURB STOP AND METER SETTER. METER PROVIDED BY TULALIP UTILITY AUTHORITY.

C. EXISTING 10" CONCRETE SEWER MAIN.

D. SEWER LATERAL EXITS BUILDING AT 43 FT OF ELEVATION.

0 Revision	By	Appd	2022.12.02 YYYY.MM.DD
FINAL DESIGN Issued	MCM By	DEW Appd	2026.02.26 YYYY.MM.DD

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 1C-6 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
UTILITIES PLAN

Project No. 25-128
Revision
Scale AS NOTED
Drawing No. 1C-6

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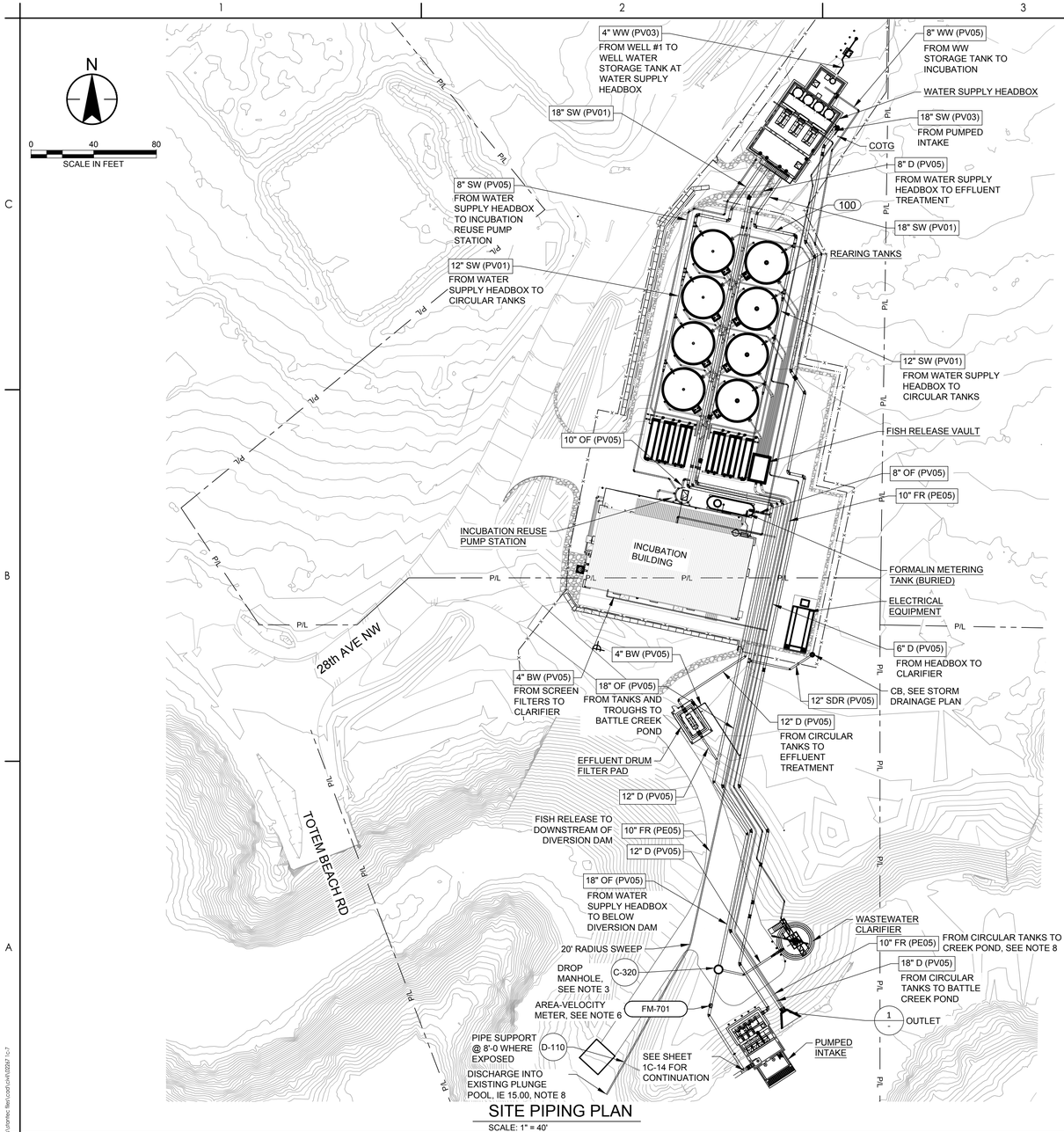
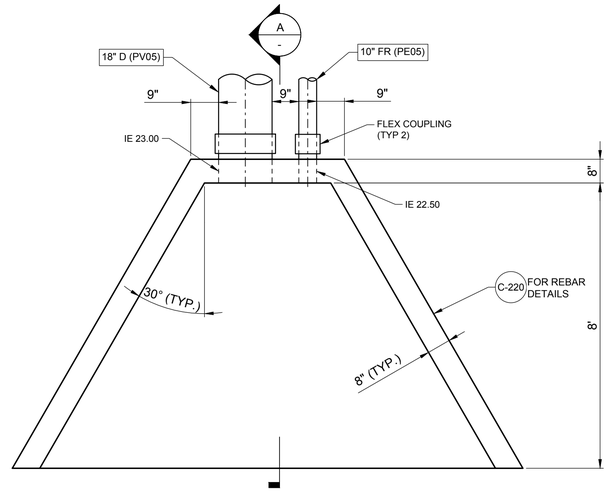


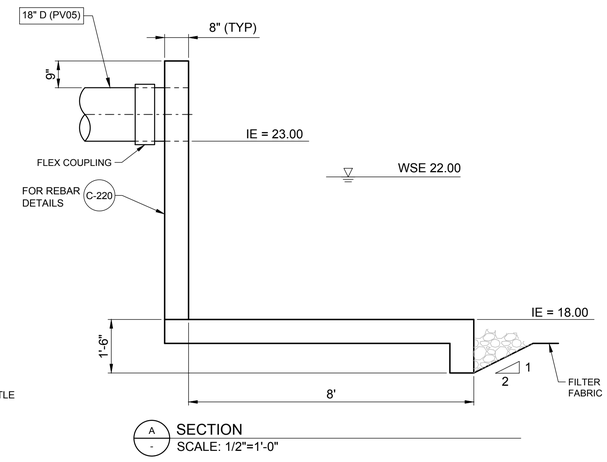
SITE PIPING PLAN

SCALE: 1" = 40'



1 - DETAIL

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



A - SECTION

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

GENERAL SHEET NOTES

1. SEE PIPING PROFILES ON SHEETS ON 1C-9 TO 1C-12. STRAIGHT SLOPES SHALL BE MAINTAINED BETWEEN INVERT ELEVATIONS SHOWN OR SPECIFIED.
2. PIPE DIAMETERS SHOWN ON THE DRAWINGS FOR PIPE ARE NOMINAL DIAMETERS. SEE SPECIFICATIONS FOR DETERMINATION OF WALL INSIDE DIAMETER, WALL THICKNESS, OR PRESSURE RATING.
3. ALL PIPE STATIONING IS RELATIVE TO EACH PIPE. STATIONING REPRESENTS THE HORIZONTAL LENGTH OF PIPE. IT DOES NOT REFLECT THE PIPE LENGTH.
4. ALL WALL PENETRATIONS SHALL BE D-112, UNLESS NOTED OTHERWISE.
5. SEE SHEET 1C-8 FOR ENLARGED PIPING PLANS.
6. CONTRACTOR SHALL INSTALL FLOW METER IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. UPSTREAM AND DOWNSTREAM CLEARANCES SHALL BE COORDINATED BY THE CONTRACTOR IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
7. HDPE FOR FISH RELEASE PIPE SHALL BE INSTALLED ENTIRELY WITH LONG-RADIUS SWEEPING BENDS. MITERED OR COMPACT ELBOWS ARE NOT ALLOWED. INSIDE BEAD FROM THE FUSION PROCESS SHALL BE REMOVED.
8. CONTRACTOR SHALL FIELD VERIFY WITH OWNER THE DEPTH AND LOCATION OF FISH RELEASE OUTFALL INTO EXISTING PLUNGE POOL.

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

ORIGINAL SHEET - ANSI D

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	MCM	DEW	2026.02.26

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 1C-7

	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
PROCESS PIPING PLAN

Project No. 25-128

Scale AS NOTED

Revision

Drawing No. 1C-7

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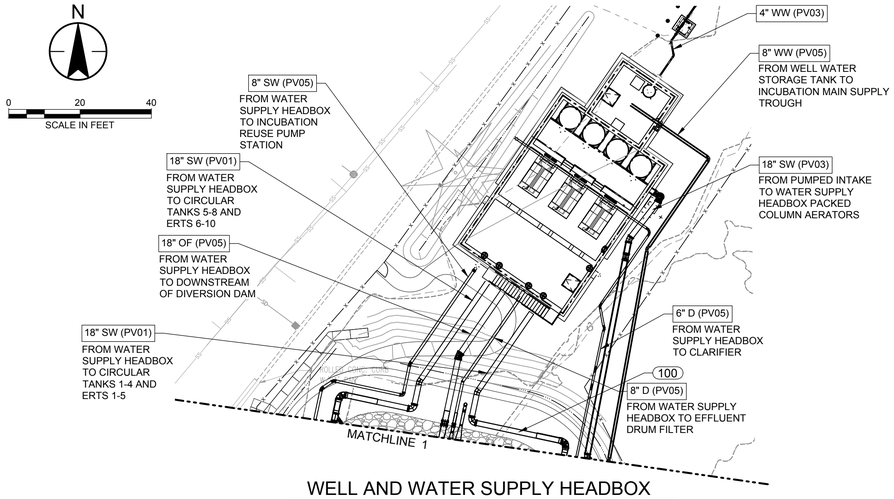
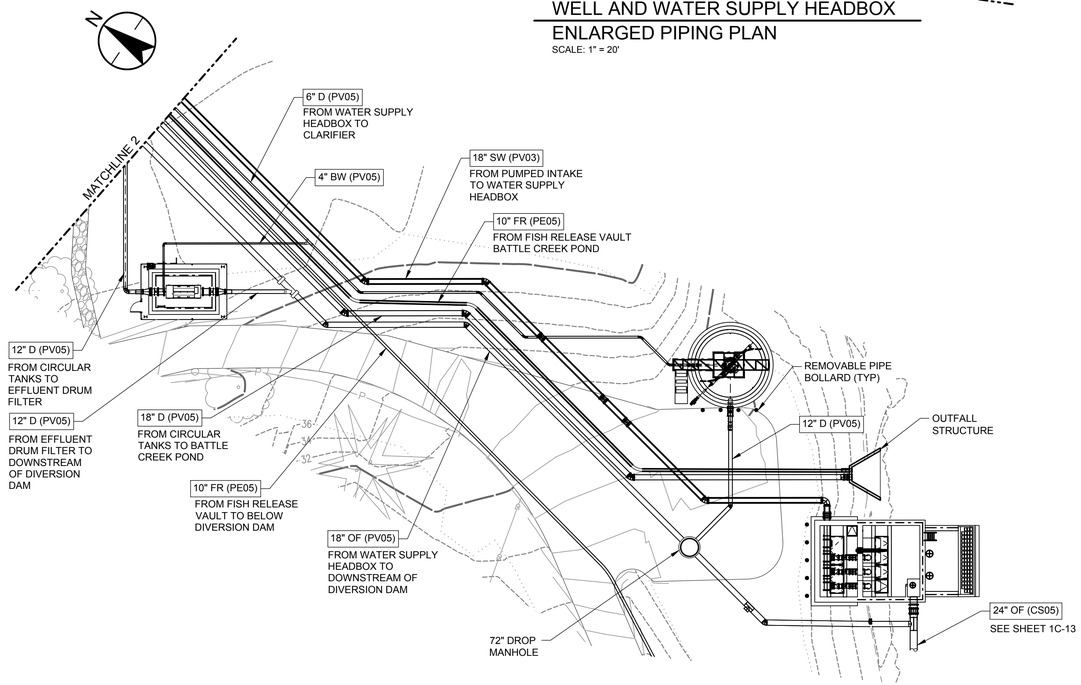


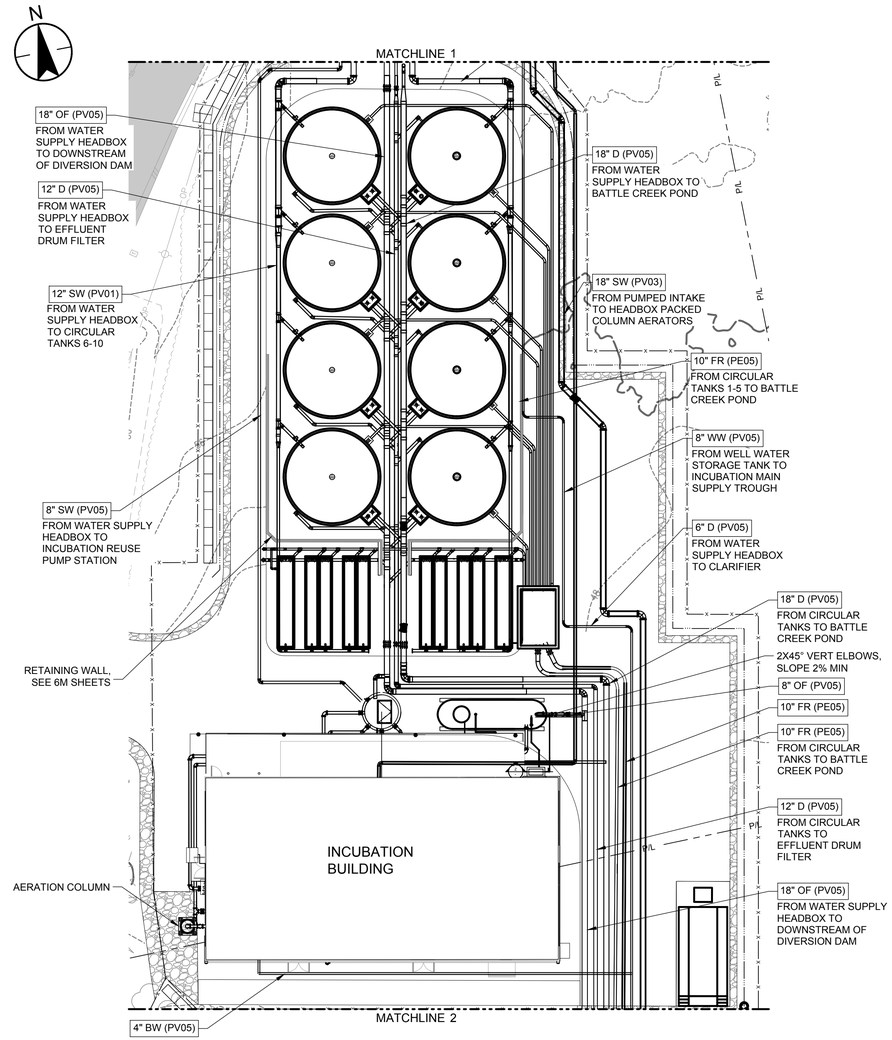
WELL AND WATER SUPPLY HEADBOX ENLARGED PIPING PLAN

SCALE: 1" = 20'



PUMPED INTAKE, EFFLUENT TREATMENT, AND WASTEWATER CLARIFIER ENLARGED PIPING PLAN

SCALE: 1" = 20'



REARING TANKS AND INCUBATION ENLARGED PIPING PLAN

SCALE: 1" = 20'

Revision	By	Appd	
0 Revision			2022.12.02 YYYY.MM.DD

	By	Appd	
FINAL DESIGN Issued	MCM	DEW	2026.02.26 YYYY.MM.DD

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 1C-8 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
ENLARGED SITE PIPING PLANS

Project No. 25-128
Revision
Scale AS NOTED
Drawing No. **1C-8**

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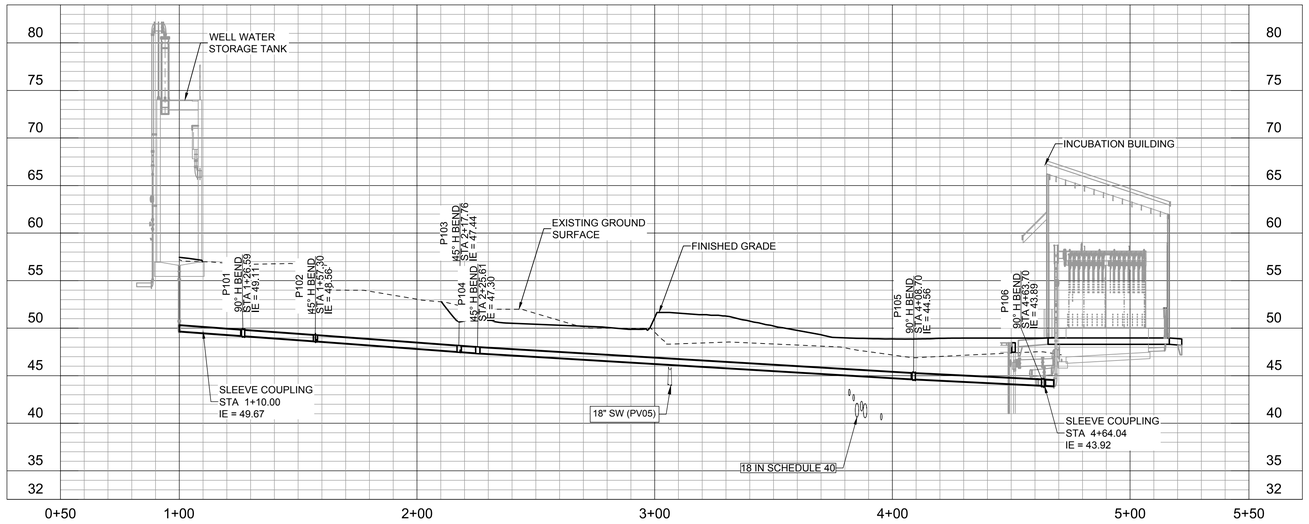
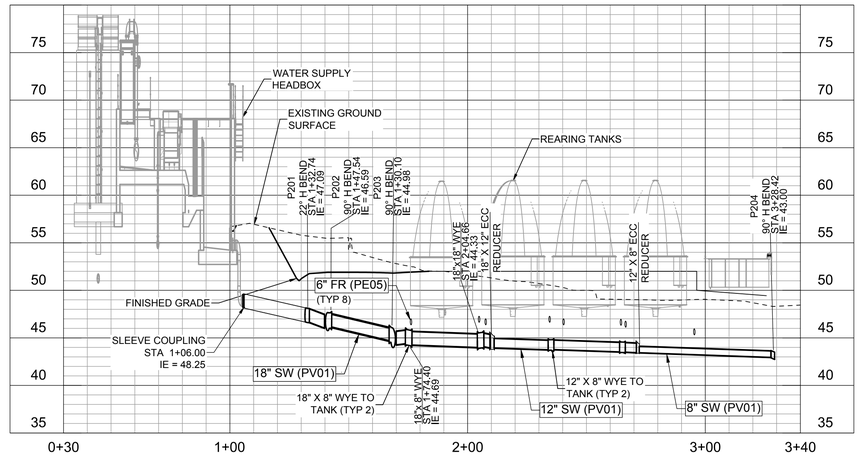


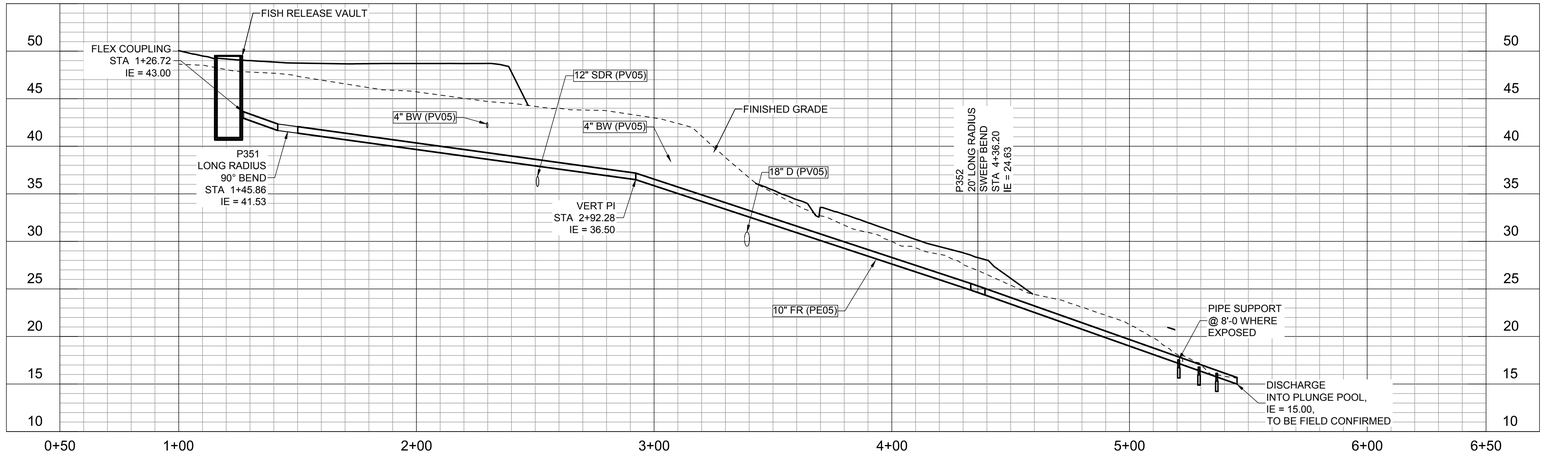
8" WW FROM WATER SUPPLY HEADBOX TO INCUBATION PROFILE

SCALE: HORIZ 1" = 30' , VERT EXAGGERATION 4:1



18" SW FROM WATER SUPPLY HEADBOX TO EAST REARING TANKS

SCALE: HORIZ 1" = 30' , VERT EXAGGERATION 4:1



10" FR FROM FISH RELEASE VAULT TO DOWNSTREAM OF DIVERSION DAM

SCALE: HORIZ 1" = 30' , VERT EXAGGERATION 4:1

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	MCM	DEW	2026.02.26

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 1C-9 TO 12	MCM Dwn.	MDV Dsgn.	DEW Chkd.	2026.02.26 YYYY.MM.DD

Title
SITE PIPING PROFILES - I

Project No.	Scale
25-128	AS NOTED
Revision	Drawing No.
	1C-9

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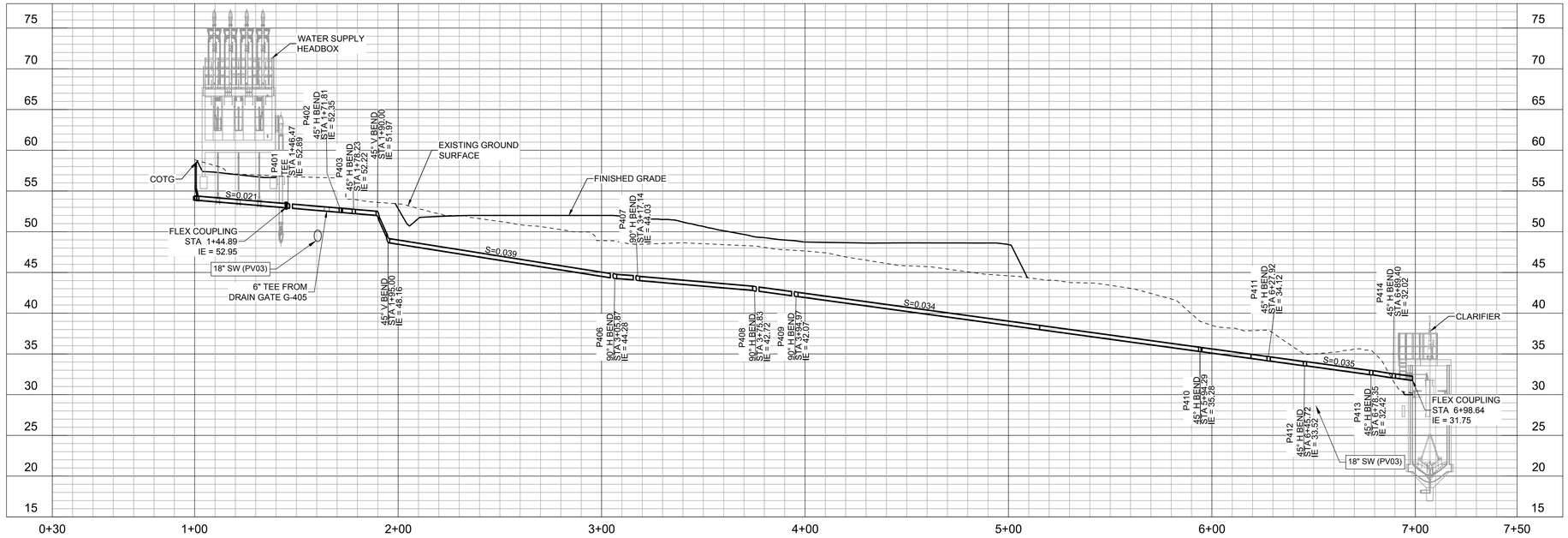
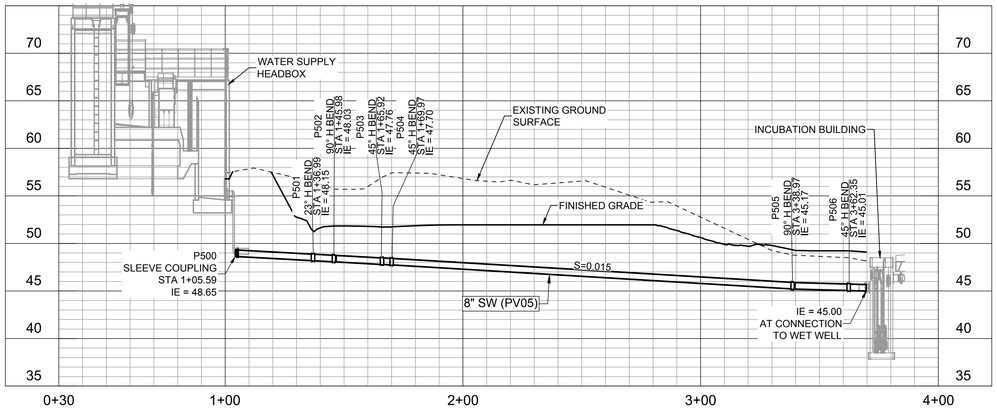


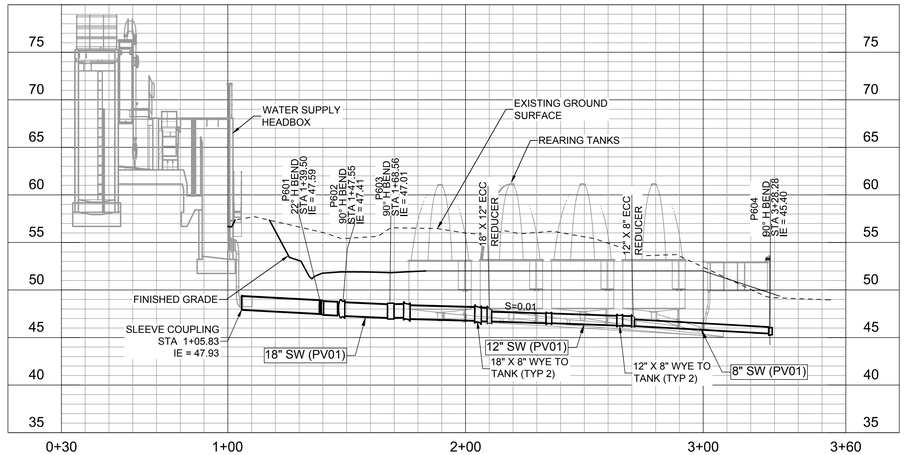
6" D WATER SUPPLY HEADBOX TO CLARIFIER

SCALE: HORIZ 1" = 30' , VERT EXAGGERATION 4:1



8" SW FROM WATER SUPPLY HEADBOX TO INCUBATION REUSE PUMP STATION PROFILE

SCALE: HORIZ 1" = 30' , VERT EXAGGERATION 4:1



18" SW FROM WATER SUPPLY HEADBOX TO WEST REARING TANKS

SCALE: HORIZ 1" = 30' , VERT EXAGGERATION 4:1

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FINAL DESIGN	MCM	DEW		2026.02.26
Issued	By	Appd		YYYY.MM.DD

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STATE OF WASHINGTON
47046
REGISTERED
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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 1C-9 TO 12	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
SITE PIPING PROFILES - II

Project No.
25-128

Scale
AS NOTED

Revision

Drawing No.
1C-10

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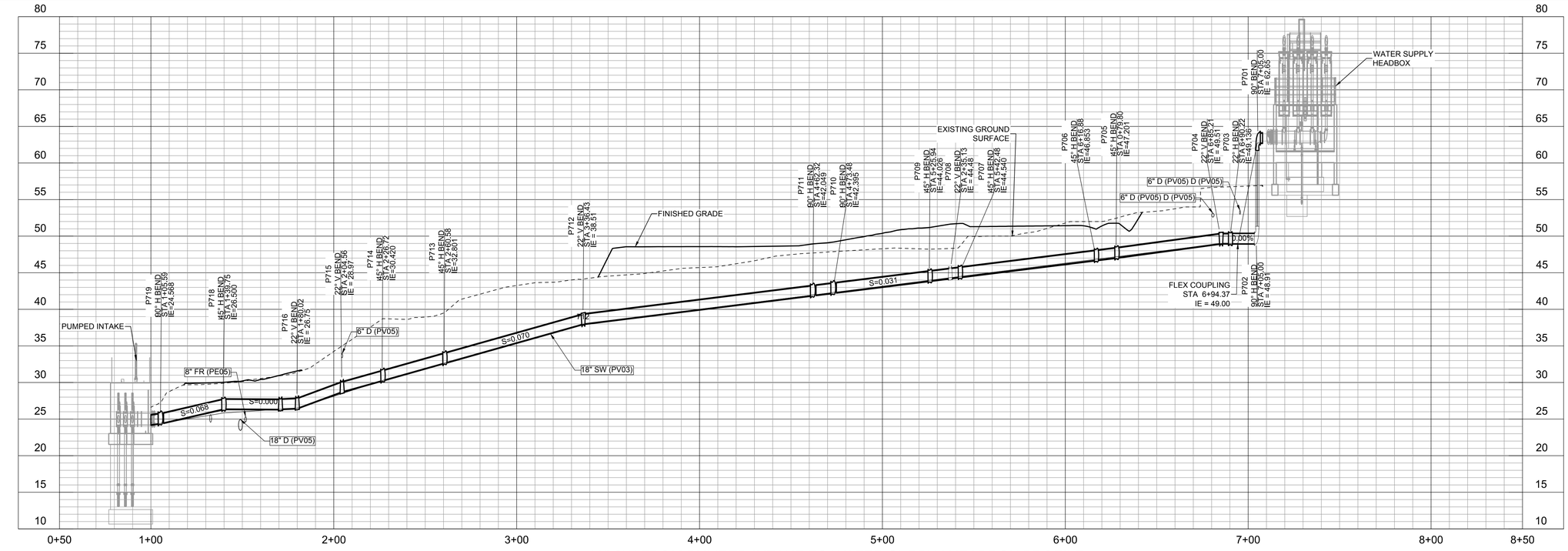
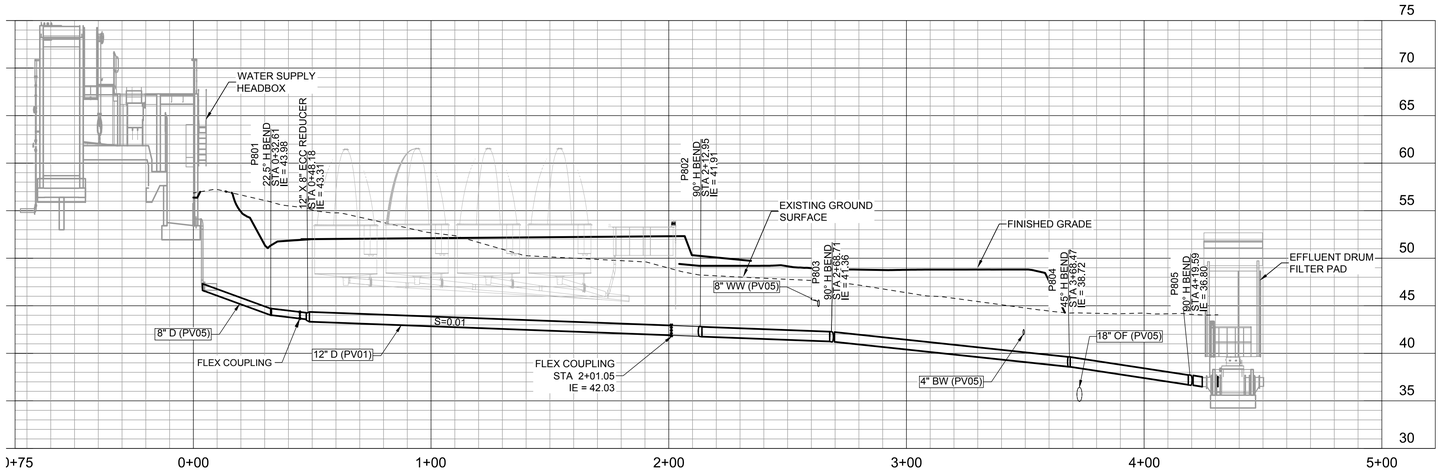


18" SW FROM PUMPED INTAKE TO WATER SUPPLY HEADBOX PROFILE

SCALE: HORIZ 1" = 30' , VERT EXAGGERATION 4:1



12" D FROM WATER SUPPLY HEADBOX TO EFFLUENT DRUM FILTER PROFILE

SCALE: HORIZ 1" = 30' , VERT EXAGGERATION 4:1

0 Revision	By	Appd	2022.12.02 YYYY.MM.DD	
FINAL DESIGN Issued	MCM By	DEW Appd	2026.02.26 YYYY.MM.DD	

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Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 1C-9 TO 12 | MCM Dwn. | DEV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
SITE PIPING PROFILES - III

Project No. 25-128
Scale AS NOTED
Revision
Drawing No. 1C-11

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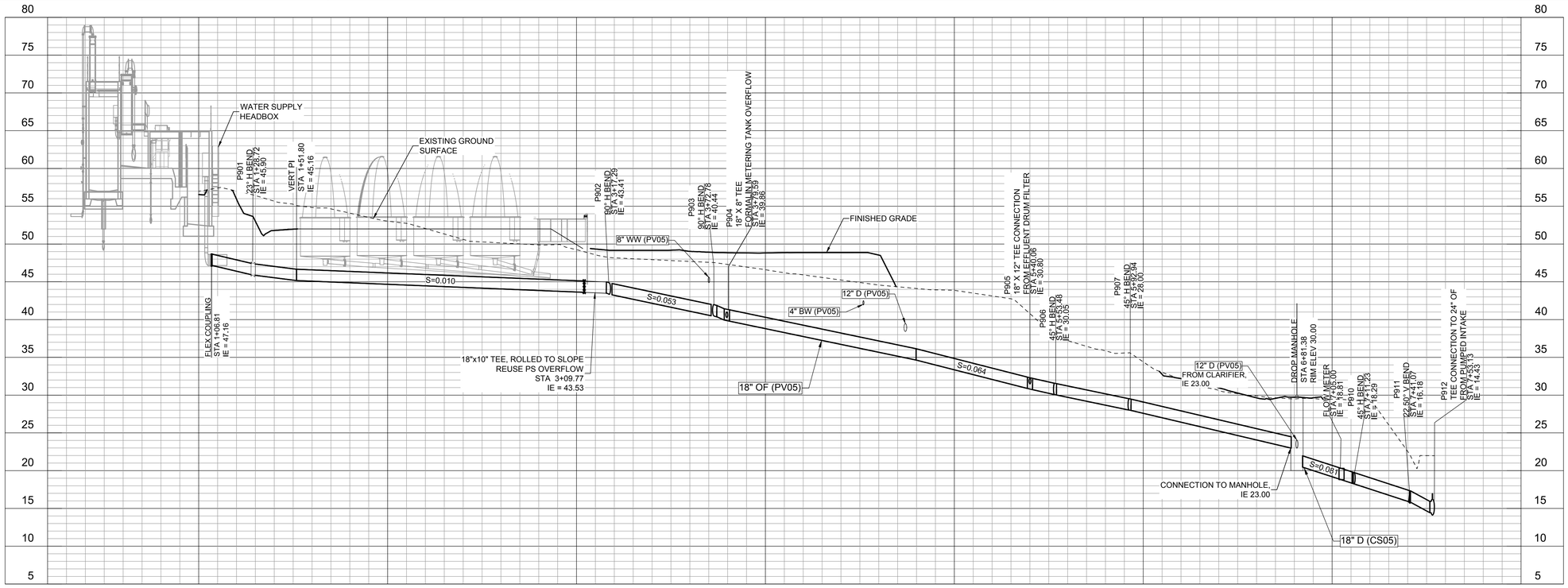
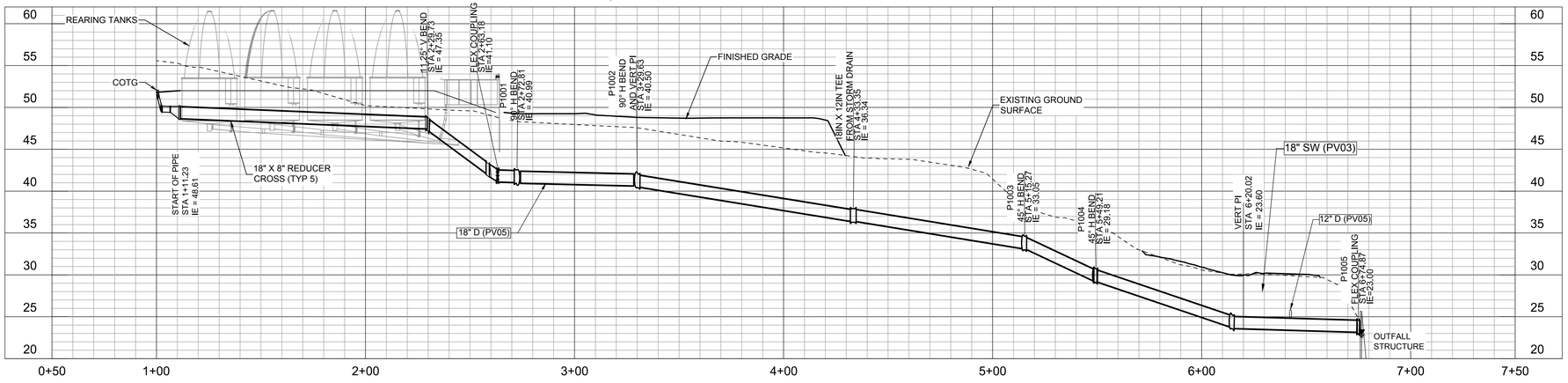


18" OF FROM HEADBOX TO BATTLE CREEK OUTFALL BELOW DAM

SCALE: HORIZ 1" = 30' , VERT EXAGGERATION 4:1



18" D FROM CIRCULAR TANKS TO BATTLE CREEK POND

SCALE: HORIZ 1" = 30' , VERT EXAGGERATION 4:1

0 Revision	By	Appd	2022.12.02 YYYY.MM.DD
FINAL DESIGN Issued	MCM By	DEW Appd	2026.02.26 YYYY.MM.DD

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 1C-9 TO 12 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
SITE PIPING PROFILES - IV

Project No. 25-128
Revision
Scale AS NOTED
Drawing No. 1C-12

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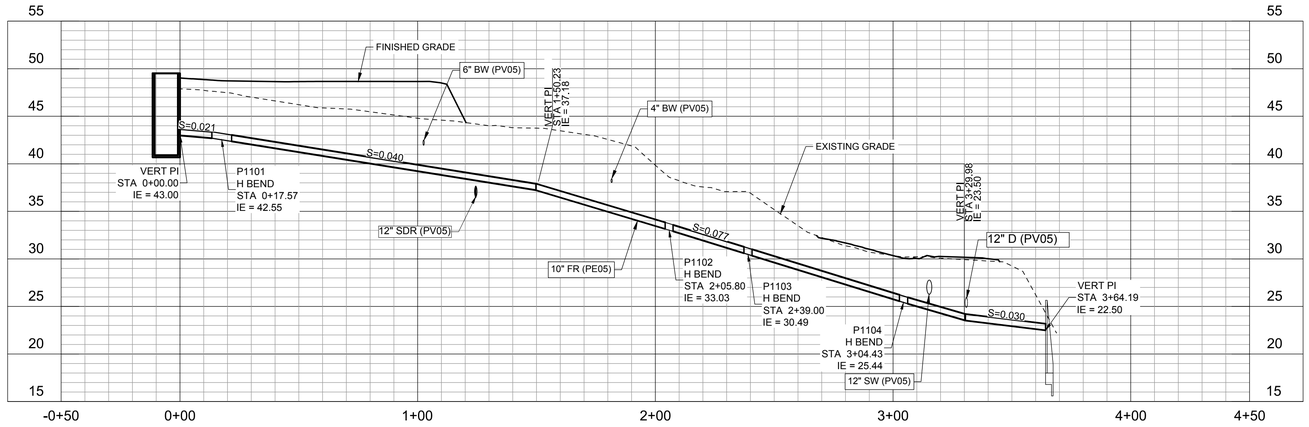

10" FR FROM FISH RELEASE VAULT TO BATTLE CREEK POND

SCALE: HORIZ 1" = 30' , VERT EXAGGERATION 4:1

0				2022.12.02
Revision		By	Appd	YYYY.MM.DD

FINAL DESIGN		MCM	DEW	2026.02.26
Issued		By	Appd	YYYY.MM.DD

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DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 47045 — REGISTERED PROFESSIONAL ENGINEER

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Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 1C-9 TO 12		MCM	MDV	DEW	2026.02.26
		Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
SITE PIPING PROFILES - V

Project No.
25-128

Scale
AS NOTED

Revision

Drawing No.
1C-13

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ORIGINAL SHEET - ANSI D

8" WW FROM WATER SUPPLY HEADBOX TO INCUBATION PROFILE					
POINT #	SIZE	NORTHING	EASTING	STA	DESCRIPTION
P101	8	389322.39	1288980.46	1+26.59	90° BEND
P102	8	389297.15	1288962.91	1+57.30	45° BEND
P103	8	389237.60	1288952.21	2+17.76	45° BEND
P104	8	389231.02	1288956.50	2+25.61	45° BEND
P105	8	389051.94	1288918.41	4+08.70	90° BEND
P106	8	389063.53	1288864.63	4+63.70	90° BEND

18" SW FROM WATER SUPPLY HEADBOX TO EAST REARING TANKS					
POINT #	SIZE	NORTHING	EASTING	STA	DESCRIPTION
P201	18	389256.91	1288915.31	1+32.74	22.5° BEND
P202	18	389248.55	1288913.54	1+47.54	90° BEND
P203	18	389242.84	1288940.44	1+30.10	90° BEND
P204	8	389086.61	1288907.21	3+28.42	90° BEND

10" FR FROM FISH RELEASE TANKS TO DOWNSTREAM OF DIVERSION DAM					
POINT #	SIZE	NORTHING	EASTING	STA	DESCRIPTION
P301	10	389073.87	1288935.26	1+45.86	LONG RADIUS 90° BEND CP
P302	10	388790.41	1288872.46	4+36.20	20' LONG RADIUS SWEEP CP

6" D WATER SUPPLY HEADBOX TO CLARIFIER					
POINT #	SIZE	NORTHING	EASTING	STA	DESCRIPTION
P401	6	389301.96	1288964.09	1+46.47	TEE
P402	6	389281.07	1288949.73	1+71.81	45° BEND
P403	6	389274.76	1288951.06	1+78.23	45° BEND
P404	6	389263.25	1288948.45	1+90.00	45° BEND
P405	6	389258.36	1288947.41	1+95.00	45° BEND
P406	6	389149.92	1288924.35	3+05.87	90° BEND
P407	6	389147.57	1288935.38	3+17.14	90° BEND
P408	6	389090.17	1288923.17	3+75.83	90° BEND
P409	6	389086.19	1288941.89	3+94.97	90° BEND
P410	6	388891.22	1288900.45	5+94.29	45° BEND
P411	6	388863.02	1288918.76	6+27.92	45° BEND
P412	6	388845.61	1288915.05	6+45.72	45° BEND
P413	6	388818.24	1288932.83	6+78.35	45° BEND
P414	6	388807.43	1288930.52	6+89.40	45° BEND

8" SW FROM WATER SUPPLY HEADBOX TO INCUBATION REUSE PUMP STATION PROFILE					
POINT #	SIZE	NORTHING	EASTING	STA	DESCRIPTION
P500	8	389290.94	1288914.44	1+05.19	SLEEVE COUPLING
P501	8	389264.74	1288896.43	1+36.99	22.5° BEND
P502	8	389255.94	1288894.56	1+45.98	90° BEND
P503	8	389260.09	1288875.06	1+65.92	45° BEND
P504	8	389257.88	1288871.66	1+69.97	45° BEND
P505	8	389092.58	1288836.50	3+38.97	90° BEND
P506	8	389087.71	1288859.37	3+62.35	45° BEND
P507	8	389290.94	1288914.44	1+05.19	SLEEVE

18" SW FROM WATER SUPPLY HEADBOX TO WEST REARING TANKS					
POINT #	SIZE	NORTHING	EASTING	STA	DESCRIPTION
P601	18	389259.84	1288899.12	1+39.50	22.5° BEND
P602	18	389251.98	1288897.44	1+47.55	90° BEND
P603	18	389256.35	1288876.88	1+68.56	90° BEND
P604	8	389100.13	1288843.61	3+28.28	90° BEND

18" SW FROM PUMPED INTAKE TO WATER SUPPLY HEADBOX PROFILE					
POINT #	SIZE	NORTHING	EASTING	STA	DESCRIPTION
P701	18	389311.90	1288966.32	7+05.00	90° BEND
P702	18	389311.66	1288966.76	7+05.00	90° BEND
P703	18	389299.71	1288957.95	6+90.22	22.5° BEND
P704	18	389294.80	1288956.99	6+85.21	22.5° BEND
P705	18	389238.71	1288946.13	6+28.08	45° BEND
P706	18	389229.32	1288952.23	6+16.88	45° BEND
P707	18	389156.55	1288936.76	5+42.48	45° BEND
P708	18	389152.02	1288939.69	5+37.09	22.5° BEND
P709	18	389142.67	1288945.77	5+25.94	45° BEND
P710	18	389091.36	1288934.86	4+73.48	90° BEND
P711	18	389089.04	1288945.77	4+62.32	90° BEND
P712	18	388965.90	1288919.58	3+36.43	22.5° BEND
P713	18	388891.70	1288903.82	2+60.58	45° BEND
P714	18	388863.30	1288922.26	2+26.72	45° BEND
P715	18	388841.63	1288917.65	2+04.56	22.5° BEND
P716	18	388817.63	1288912.54	1+80.02	22.5° BEND
P717	18	388808.67	1288910.64	1+70.87	22.5° BEND
P718	18	388778.24	1288904.17	1+39.75	45° BEND
P719	18	388749.58	1288922.77	1+05.59	90° BEND

12" D FROM WATER SUPPLY HEADBOX TO EFFLUENT DRUM FILTER PROFILE					
POINT #	SIZE	NORTHING	EASTING	STA	DESCRIPTION
P801	8	389259.85	1288911.27	0+32.61	22.5° BEND
P802	12	389083.53	1288873.97	2+12.95	90° BEND
P803	12	389071.92	1288928.51	2+68.71	90° BEND
P804	12	388974.35	1288907.76	3+68.47	45° BEND
P805	12	388946.51	1288864.89	4+19.59	90° BEND

18" OF FROM HEADBOX TO BATTLE CREEK OUTFALL BELOW DAM					
POINT #	SIZE	NORTHING	EASTING	STA	DESCRIPTION
P901	18	389267.09	1288910.18	1+28.72	22.5° BEND
P902	18	389082.64	1288870.95	3+17.29	90° BEND
P903	18	389071.10	1288925.23	3+72.78	90° BEND
P904	18 x 10	389064.44	1288923.82	3+79.59	18" X 8" TEE
P905	18 x 8	388907.48	1288890.43	5+40.06	18" X 12" TEE CONNECTION FROM EFFLUENT DRUM FILTER
P906	18	388894.35	1288887.64	5+53.48	45° BEND
P907	18	388861.26	1288909.13	5+92.94	45° BEND
P908	18	388745.56	1288884.52	7+11.23	45° BEND
P909	18	388720.83	1288900.89	7+41.07	22.5° BEND
P910	24 x 18	388710.32	1288906.88	7+53.13	TEE CONNECTION TO 24" OF FROM PUMPED INTAKE

18" D FROM CIRCULAR TANKS TO BATTLE CREEK POND					
POINT #	SIZE	NORTHING	EASTING	STA	DESCRIPTION
P1000	18	389242.79	1288909.80	1+11.23	START
P1001	18	389084.99	1288876.28	2+72.81	90° BEND
P1002	18	389073.18	1288931.90	3+29.63	90° BEND
P1003	18	388891.61	1288893.25	5+15.27	45° BEND
P1004	18	388863.17	1288911.72	5+49.21	45° BEND
P1005	18	388748.69	1288931.10	6+74.87	FLEX COUPLING

10" FR FROM FISH RELEASE VAULT TO BATTLE CREEK POND					
POINT #	SIZE	NORTHING	EASTING	STA	DESCRIPTION
P1101	10	389075.18	1288937.69	0+17.56	LONG RADIUS 90° BEND CP
P1102	10	388891.25	1288897.50	2+05.80	LONG RADIUS 90° BEND CP
P1103	10	388862.98	1288914.90	2+39.00	LONG RADIUS 90° BEND CP
P1104	10	388799.09	1288900.82	3+04.42	LONG RADIUS 90° BEND CP

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Revision	By	Appd	YYYY.MM.DD

ORIGINAL SHEET - ANSI D

FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

Permit/Seal

DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Whitbeck
Date: 2026.04.09 11:00:08-07'00'

WARNING
0 ½ 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

McMillen
1471 Shoreline Dr. Ste 100, Boise, ID 83702 | (208) 342-4214 | mcmillen.com

Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267.1C-9 TO 12

MCM	MDV	DEW	2026.02.26
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

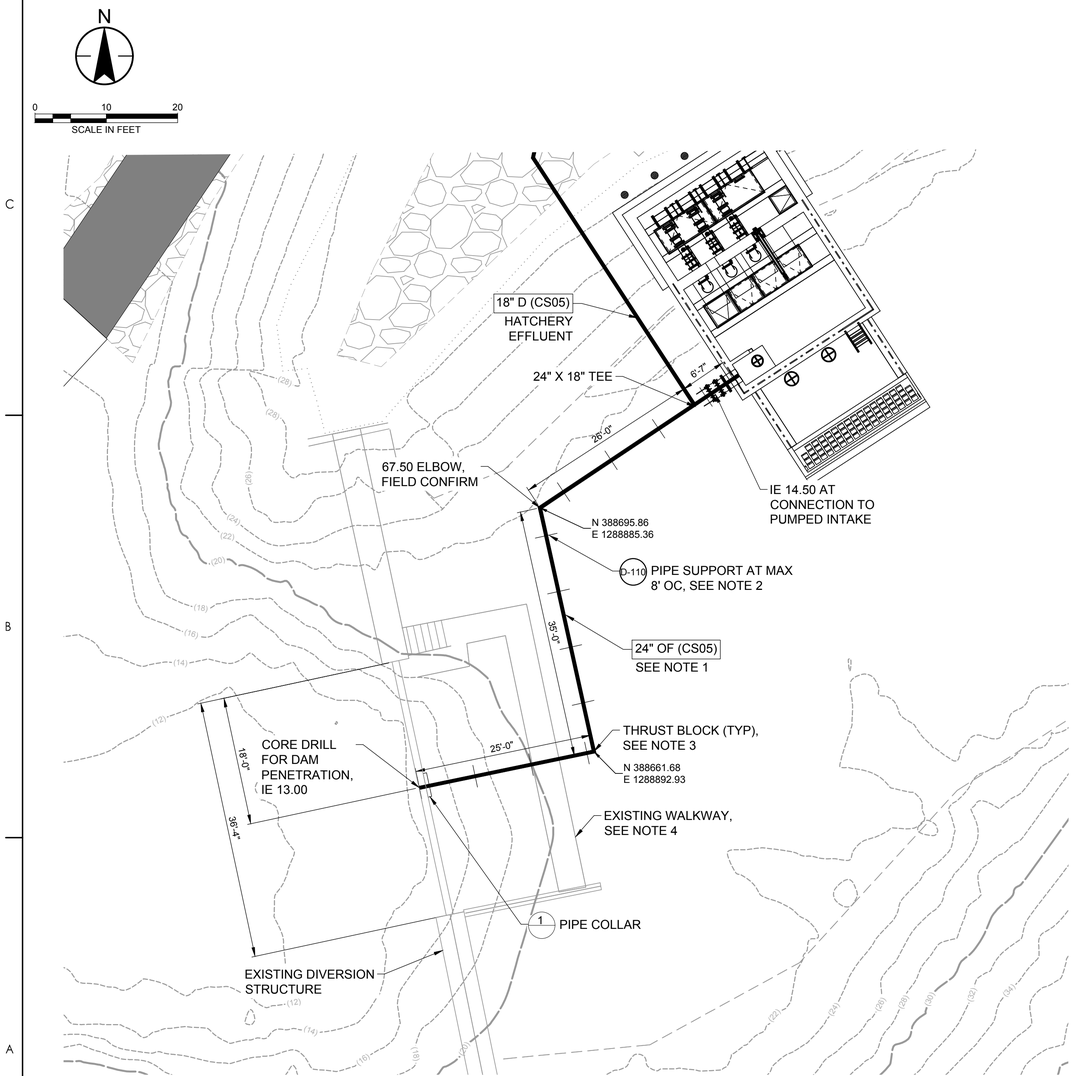
Title
PIPING POINTS

Project No.
25-128

Revision

Scale
AS NOTED

Drawing No.
1C-14

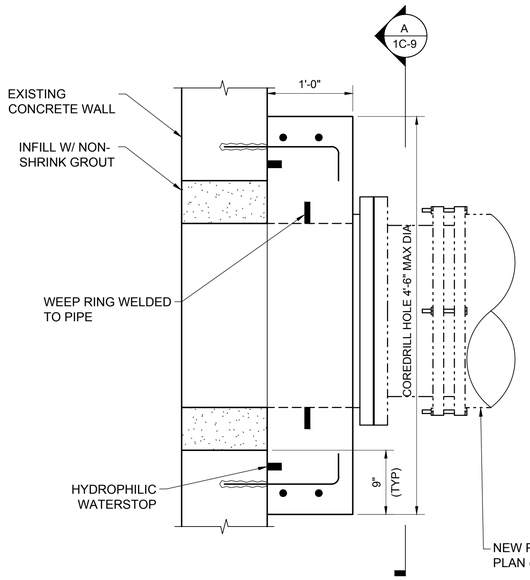


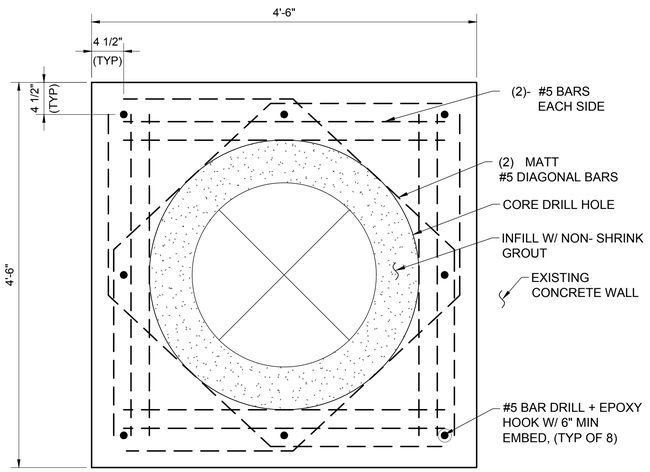
ENLARGED DETAIL - 24" OF PUMPED INTAKE TO OUTFALL

SCALE: 1" = 10'

GENERAL SHEET NOTES

1. SLOPE PIPE CONTINUOUSLY FROM PUMPED INTAKE TO OUTFALL AT DIVERSION DAM. CONTRACTOR SHALL NOTE THAT A BATHYMETRIC SURVEY OF THE RESERVOIR FLOOR WAS NOT CONDUCTED. FIELD VERIFY ELEVATIONS AND ROUTING OF THE PIPE WITH THE ENGINEER. PIPE MAY BE PARTIALLY BURIED IN SOME AREAS NEAR THE BANK.
2. CONCRETE PIERS FOR PIPE SUPPORTS SHALL BE EXCAVATED AND INSTALLED TO 2 FEET BELOW EXISTING GRADE OR TO SOUND MATERIAL FOR PLACEMENT, WHICHEVER IS GREATER.
3. PROVIDE THRUST BLOCKS AT BENDS PER STD DETAIL C-605. EXCAVATE TO SOUND MATERIAL FOR THRUST BLOCK PLACEMENT, ASSUMED TO BE AT LEAST 2 FEET BELOW EXISTING GRADE.
4. FIELD LOCATE PIPE ROUTING TO AVOID EXISTING WALKWAY SUPPORTS AND FOOTINGS.





A SECTION

SCALE: 1" = 10'

1 PIPE COLLAR

SCALE: 1" = 10'

0 Revision	By	Appd	2022.12.02 YYYY.MM.DD
FINAL DESIGN Issued	MCM By	DEW Appd	2026.02.26 YYYY.MM.DD

Permit/Seal

DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Whitbeck
Date: 2026.04.09 11:00:08-07'00'

WARNING
0 ½ 1
IF THIS BAR DOES
NOT MEASURE 1"
THEN DRAWING IS
NOT TO SCALE

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Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267 1C-15 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
PIPING DETAILS

Project No. 25-128
Revision
Scale AS NOTED
Drawing No. 1C-15

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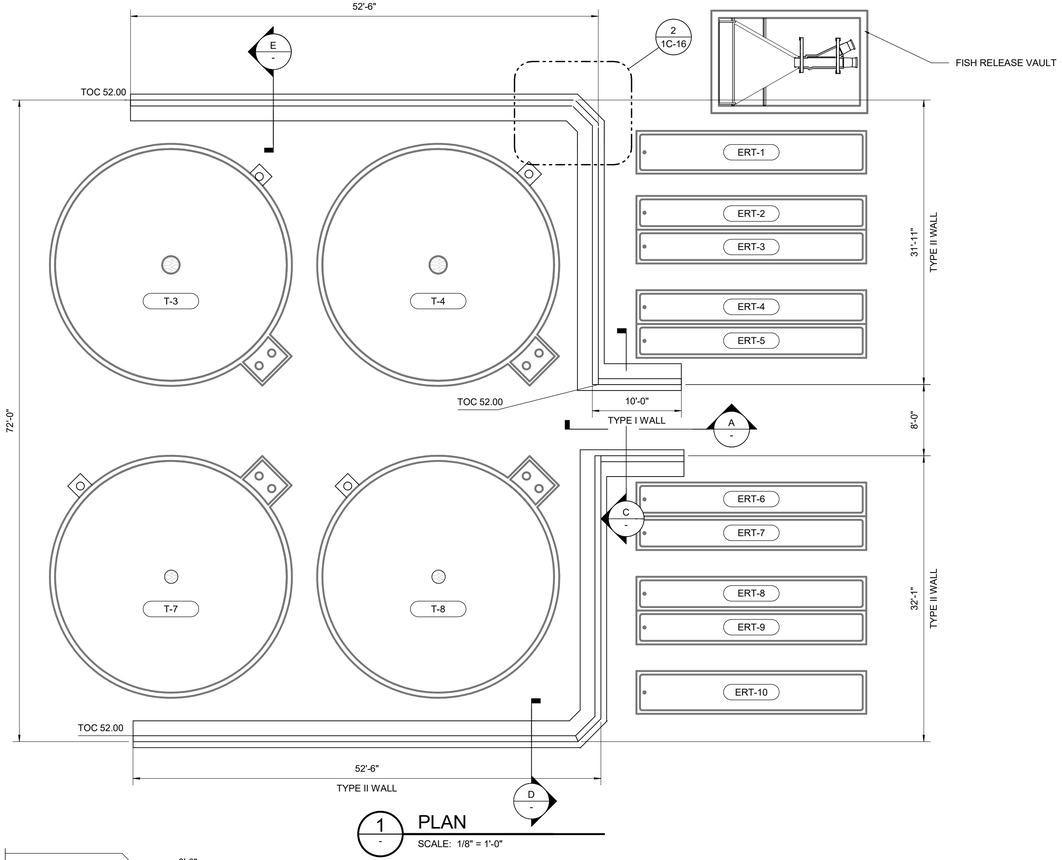
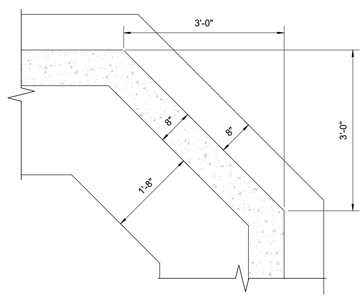
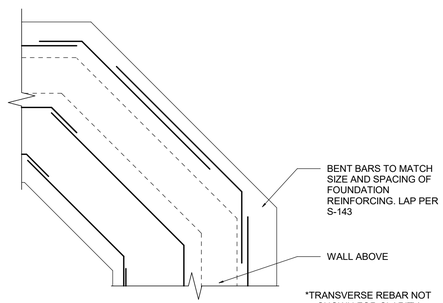
ORIGINAL SHEET - ANSI D



1 - PLAN
SCALE: 1/8" = 1'-0"



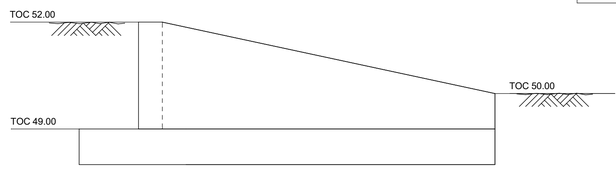
2 - DETAIL
SCALE: 3/4" = 1'-0"



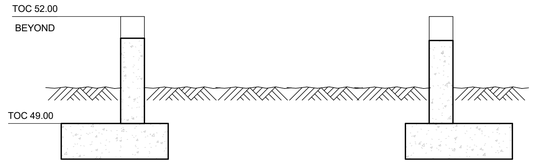
3 - DETAIL
SCALE: 3/4" = 1'-0"

GENERAL SHEET NOTES:

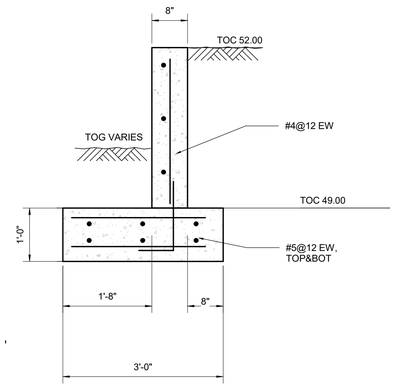
1. ALL PIPES WITHING 1'-0" BENEATH THE RETAINING WALL FOOTINGS SHALL BE CONCRETE ENCASED.



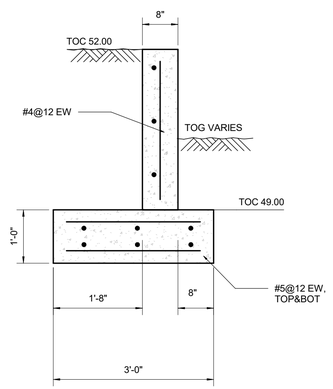
A - SECTION
SCALE: 1/2" = 1'-0"



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



D - SECTION - TYPE I WALL
SCALE: 3/4" = 1'-0"



E - SECTION - TYPE II WALL
SCALE: 3/4" = 1'-0"

Revision	By	Appd	YYYY.MM.DD

Issued			
A FINAL DESIGN	MCM	DEW	2026.02.26
	By	Appd	YYYY.MM.DD

Permit/Seal

DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Whitbeck
Date: 2026.04.09 11:00:09-07'00'

Consultant

McMillen
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Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A	MCM	MDV	DEW	2026-02-26
	Dwn.	Dsgn.	Ckd.	YYYY.MM.DD

Title
RETAINING WALL PLAN, SECTIONS AND DETAILS

Project No.
25-128

Scale
As indicated

Revision

Drawing No.
1C-16

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ORIGINAL SHEET - ANSI D

02/11/2025

ABBREVIATIONS

& - And
< - Angle
@ - At
C - Center Line
Ø - Diameter
- Pound
± - Tolerance Dimension

A/E - Architect / Engineer
AB - Anchor Bolt
AC - Air Conditioning
ACT - Acoustic Ceiling Tile
AD - Access Door
ADA - The Americans with Disabilities Act
ADDL - Additional
ADH - Adhesive
ADJ - Adjustable
ADJC - Adjacent
AFF - Above Finished Floor
AH - Air Handler
AL - Aluminum
ALT - Alternate
ANOD - Anodized
AP - Access Panel
APPROX - Approximately
ARCH - Architect
ARGWB - Abuse Resistant GWB
ASC - Above Suspended Ceiling
ASPH - Asphalt

BD - Board
BETW - Between
BLDG - Building
BLKG - Blocking
BM - Beam
BO - Bottom Of
BOT - Bottom
BR - Brass
BRZ - Bronze
BUR - Built-Up Roofing

CEM - Cement
CEMTS - Cementitious
CFCI - Contractor Furnished/Contractor Installed
CFOI - Contractor Furnished/Owner Installed
CHAN - Channel
CHFR - Chamfer
CI - Cast Iron
CJ - Construction Joint
CLG - Ceiling
CLR - Clear
CMU - Concrete Masonry Unit
COL - Column
COMP - Compressible
CONC - Concrete
CONN - Connection
CONSTR - Construction
CONT - Continuous
CONTR - Contractor
COPP - Copper
CSK - Countersunk

DBL - Double
DEMO - Demolition
DEPT - Department
DIA - Diameter
DIM - Dimension
DIV - Division
DN - Down
DR - Door
DTL - Detail
DWG - Drawing

(e) - Existing
E - East
EA - Each
EB - Expansion Bolt
EF - Exhaust Fan
EIFS - Exterior Insulation Finish System
EJ - Expansion Joint
EL - Elevation
ELAST - Elastomeric
ELEC - Electrical
ELEV - Elevator
EMER - Emergency
ENCL - Enclosure
ENGR - Engineer
ENTR - Entrance
EP - Electrical Panel
EPDM - Ethylene Propylene Diene Monomer
EQ - Equal
EQUIP - Equipment
ETR - Existing to Remain
EW - Each Way
EXIST - Existing
EXH - Exhaust
EXP - Expansion
EXT - Exterior

F/F - Face to Face
FA - Fire Alarm
FACP - Fire Alarm Control Panel
FB - Flat Bar
FCO - Floor Clean Out
FD - Floor Drain
FDC - Fire Department Connection
FDN - Foundation
FE - Fire Extinguisher
FEC - Fire Extinguisher Cabinet
FHC - Fire Hose Cabinet
FHP - Full Height Partition
FIN - Finish
FL - Flashing
FLR - Floor
FLUOR - Fluorescent
FOC - Face of Concrete
FOF - Face of Finish
FOM - Face of Masonry
FOS - Face of Stud
FPRF - Fireproofing
FR - Fire Resistant
FRT - Fire Retardant Treated
FS - Full Size
FSH - Fire Sprinkler Head
FSTP - Firestopping
FT - Foot or Feet
FTG - Footing
FTR - Fin Tube Radiation
FURR - Furring
FUT - Future

G - Gas
GA - Gauge
GALV - Galvanized
GB - Grab Bar
GC - General Contractor
GEN - Generator
GFRC - Glass Fiber Reinforced Concrete
GFRG - Glass Fiber Reinforced Gypsum
GL - Glass
GND - Ground
GR - Grade
GRL - Grille
GRTG - Grating
GSKT - Gasket
GT - Grout
GVL - Gravel
GWB - Gypsum Wall Board

HB - Hose Bibb
HDW - Hardware
HGR - Hanger
HT - Height
HORIZ - Horizontal
HP - High Point
HVAC - Heat, Ventilation & Air Conditioning

ID - Inside Diameter
IF - Inside Face
IN - Inch or Inches
INSUL - Insulation
INT - Interior
IRGWB - Impact Resistant GWB

JAN - Janitor
JST - Joist
JT - Joint

L - Length or Left
LAD - Ladder
LB - Pound
LF - Linear Foot or Feet
LIN - Linear
LNTL - Lintel
LP - Low Point
LT - Light
LTG - Lighting
LTWT - Lightweight
LVR - Louver

MACH - Machine
MAINT - Maintenance
MAS - Masonry
MATL - Material
MAX - Maximum
MDF - Medium Density Fiberboard
MECH - Mechanical
MED - Medium
MEMB - Membrane
MF - Metal Flashing
MFR - Manufacturer
MIN - Minimum
MISC - Miscellaneous
MO - Masonry Opening
MRGWB - Moisture Resistant GWB
MTD - Mounted
MTR - Mortar
MTL - Metal
MVBL - Movable

N - North
NA - Not Applicable
NAT - Natural
NIC - Not In Contract
NO - Number
NOM - Nominal
NTS - Not To Scale

OA - Overall
OC - On Center
OD - Outside Diameter
OF - Outside Face
OFCI - Owner Furnished/Contractor Installed
OFOI - Owner Furnished/Owner Installed
OH - Overhead
OPNG - Opening
OPP - Opposite
ORD - Overflow Roof Drain

PAR - Parallel
PERF - Perforated
PERIM - Perimeter
PERP - Perpendicular
PL - Plate
PLAS - Plaster
PLBG - Plumbing
PLYWD - Plywood
PNL - Panel
POLY - Polyethelene
PR - Pair
PREFAB - Prefabricated
PREFIN - Prefinished
PT - Pressure Treated
PTD - Painted
PTN - Partition
PVC - Polyvinyl Chloride
PV - Paver

QTY - Quantity
QUAL - Quality

R - Radius
RA - Return Air
RBR - Rubber
RCP - Reflected Ceiling Plan
RD - Roof Drain
REC - Recessed
REF - Reference
REG - Regular
REINF - Reinforced or Reinforcing
REM - Removable
REQD - Required
REQMTS - Requirements
RFG - Roofing
RH - Roof Hatch
RLG - Railing
RM - Room
RO - Rough Opening
RV - Roof Vent
RWL - Rain Water Leade

S - South
SA - Supply Air
SAM - Self Adhered Membrane Flashing
SCHED - Schedule
SCR - Screw
SCRN - Screen
SECT - Section
SF - Square Foot or Feet
SHT - Sheet
SHTG - Sheathing
SIM - Similar
SM - Sheet Metal
SPEC - Specifications
SQ - Square
SS - Stainless Steel
ST - Street
STAG - Stagger
STC - Sound Transmission Class
STD - Standard
STL - Steel
STN - Stone
STR - Structural
SUSP - Suspended
SYM - Symbol
SYMM - Symmetrical
S4S - Surface Four Sides
SYS - System

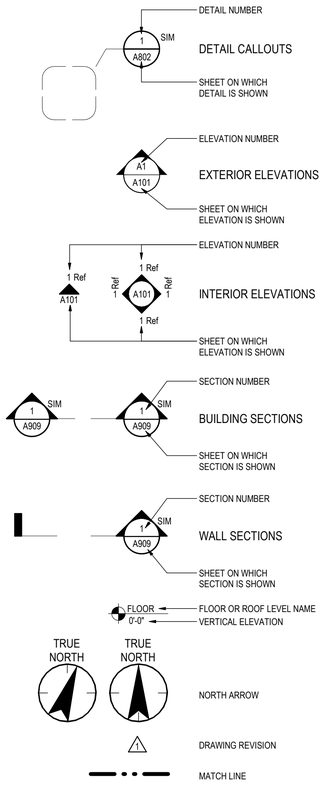
T&B - Top and Bottom
T&G - Tongue and Groove
TBD - To Be Determined
TBM - Top of Beam
TC - Top of Concrete
TEMP - Temporary
TFF - Top of Finished Floor
THK - Thickness
THRES - Threshold
THRU - Through
T.O. - Top Of
TOC - Top Of Concrete
TOL - Tolerance
TOM - Top Of Masonry
TOP - Top of Parapet
TOS - Top Of Steel
TOSL - Top of Slab
TOW - Top Of Wall
TRANS - Translucent
TYP - Typical

UL - Underwriters Laboratory
UON - Unless Otherwise Noted
UNO - Unless Noted Otherwise
UV - Ultraviolet

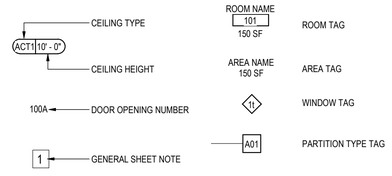
VB - Vapor Barrier
VER - Verify
VERT - Vertical
VEST - Vestibule
VIF - Contractor to Verify In Field
VNR - Veneer
VR - Vapor Retarder
VTR - Vent to Roof
VWC - Vinyl Wall Covering

W - West
W/ - With
W/O - Without
WB - Weather Barrier
WD - Wood
WLD - Welded
WP - Working Point
WT - Weight
WTH - Width
WTPRF - Waterproofing

GENERAL SYMBOLS



ARCHITECTURAL SYMBOLS



PROJECT DESCRIPTION

DESCRIPTION:
THE PROJECT INCLUDES CONSTRUCTION OF ONE PRE-ENGINEERED METAL BUILDING.

AREA 5 INCUBATION BUILDING: 5,092 GSF (CALCULATED PER IBC)
THE INCUBATION BUILDING IS USED FOR FOR THE COLLECTION AND INCUBATION OF FISH EGGS AND STAFF SUPPORT AREAS. THE BUILDING IS OCCUPIED DURING FISH SPAWNING SEASONS FROM OCTOBER TO JUNE ANNUALLY. THE BUILDING CONSTRUCTION IS A CONCRETE SLAB ON GRADE, STEEL FRAME, INSULATED METAL WALL PANELS, AND INSULATED METAL ROOF PANELS.

GENERAL PROJECT NOTES

1. CONSTRUCTION SHALL COMPLY WITH APPLICABLE CODES & LOCAL AMENDMENTS. REFER TO CODE NARRATIVE AND CODE PLAN SHEET FOR FURTHER INFORMATION.
2. THE CONTRACTOR SHALL FIELD VERIFY ALL CONDITIONS AND DIMENSIONS PRIOR TO ANY WORK AND SHALL BE RESPONSIBLE FOR ALL WORK AND MATERIALS INCLUDING THOSE FURNISHED BY SUBCONTRACTORS.
3. DIMENSIONS TAKE PRECEDENCE OVER DRAWINGS. DO NOT SCALE DRAWINGS TO DETERMINE ANY LOCATIONS. THE OWNER SHALL BE NOTIFIED IF ANY DISCREPANCY OCCURS PRIOR TO CONTINUING WITH WORK.
4. FURNITURE, INCLUDING BUT NOT LIMITED TO CHAIRS, WORKSTATIONS, AND TABLES IS SHOWN FOR REFERENCE ONLY AND IS NOT INCLUDED IN THE CONTRACT.
5. WORK SHALL BE ACCOMPLISHED WITH QUALITY WORKMANSHIP OF THE HIGHEST INDUSTRY STANDARDS. ALL MATERIALS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS AND RECOMMENDATIONS AND NATIONAL TRADE GROUP STANDARDS INCLUDING BUT NOT LIMITED TO: DIRECTIONS ON USE OF ACCESSORIES, EXECUTION, SURFACE PREPARATION, TEMPERATURES, HUMIDITY, TOLERANCES, AND PROTECTION.
6. DOORS ARE LOCATED 4" OFF ADJACENT WALL, UNLESS OTHERWISE NOTED. MAINTAIN MIN. ADA CLEARANCE PER ICC-ANSI-117.1-2009.
7. CASEWORK: FIELD VERIFY ALL CONDITIONS TO DETERMINE DIMENSIONS PRIOR TO FABRICATION. PROVIDE CASEWORK FILLERS AS REQUIRED, 1 1/2" WIDE MAXIMUM.
8. PROVIDE BLOCKING AS REQUIRED AT ALL WALLS TO RECEIVE CASEWORK, EQUIPMENT, ACCESSORIES, INCLUDING OFOI AND OFCI ITEMS. COORDINATE OFOI ITEMS WITH OWNER.
9. REFER TO CODE PLAN FOR SMOKE/FIRE RATED PARTITIONS.
10. REFER TO ENLARGED PLANS FOR ADDITIONAL INFORMATION INCLUDING BUT NOT LIMITED TO ACCESSORIES, WALL TYPES, AND DIMENSIONS.
11. COORDINATE PLUMBING WALL CLEARANCE WITH PLUMBING FIXTURE MANUFACTURERS' DATA, INSTALLATION INSTRUCTIONS, AND PIPING REQUIREMENTS, TYP.

Revision	By	Appd	YYYY.MM.DD

PACKAGE A	By	Appd	YYYY.MM.D
Issued			

Permit/Seal

20105228
REGISTERED ARCHITECT
CAREL L. K. NAGATA
STATE OF WASHINGTON

Digitally signed by Nagata, Carel
Date: 2025.02.11 22:49:40-09'00'

Consultant

Stantec

Stantec Consulting Services Inc.
2353 130th Avenue NE Suite 200
Bellevue, 98005-1759
Tel: (425) 896-6900 • www.stantec.com

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Client/Project Logo

TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip- Utility Wells ESDC and Battle Creek Design

6731 Totem Beach Rd. Tulalip, WA 98271

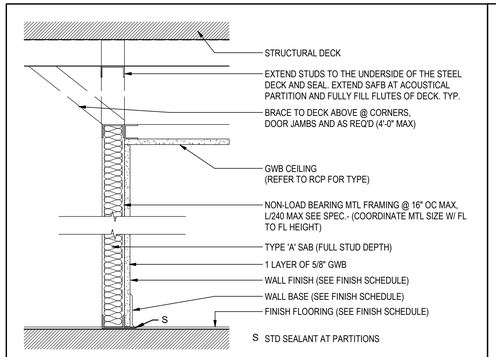
File Name: N/A	SW	CN	RT	2024.12.13
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
LEGEND, SYMBOLS, GENERAL NOTES

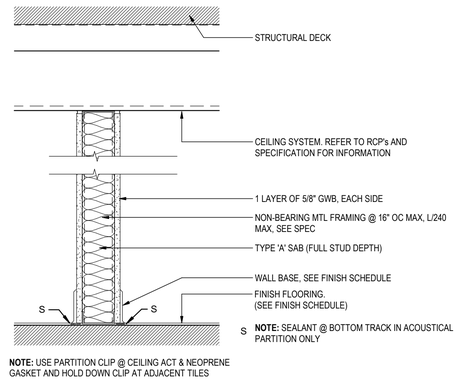
Project No. 224202267
Scale As indicated
Revision
Drawing No. **5A-1**

<Plot Update to Project Information>
12/28/2024 11:24:17 PM

ORIGINAL SHEET - ANSI D

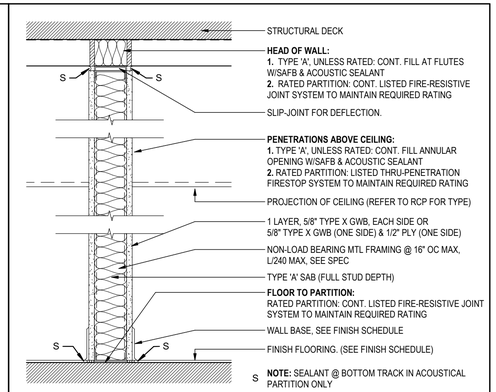


27	SINGLE 2 1/2" STUD PTN @ GWB CLG.	
28	SINGLE 3 5/8" STUD PARTITION	
28A	WITH SAB (SOUND ATTENUATION BATT INSULATION)	

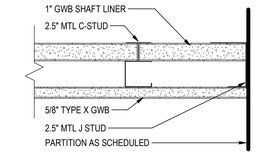


NOTE: USE PARTITION CLIP @ CEILING ACT & NEOPRENE GASKET AND HOLD DOWN CLIP AT ADJACENT TILES

11	SINGLE 2 1/2" STUD PARTITION TO CEILING	
11A	WITH SAB (SOUND ATTENUATION BATT INSULATION)	

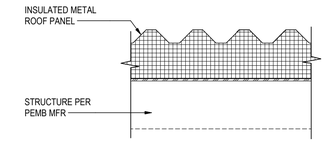


1A	SINGLE 3 5/8" STUD PARTITION W/ SAB	43-48 STC
3A	SINGLE 6" STUD PARTITION SAB	
3S	W/ SAB, 5/8" GWB ONE SIDE, 1/2" PLY ON MECH/INC. SIDE	



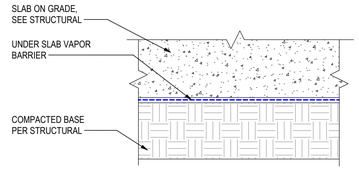
SECTION VIEW
REPORT NUMBER: AER-09038

CEILING TYPE - GWB2 - 1 HR FIRE RATED



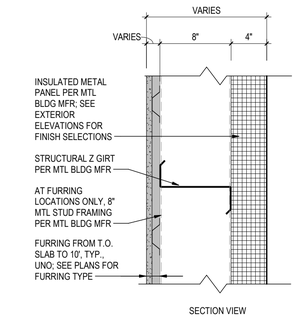
SECTION VIEW

ROOF TYPE IMRP-1



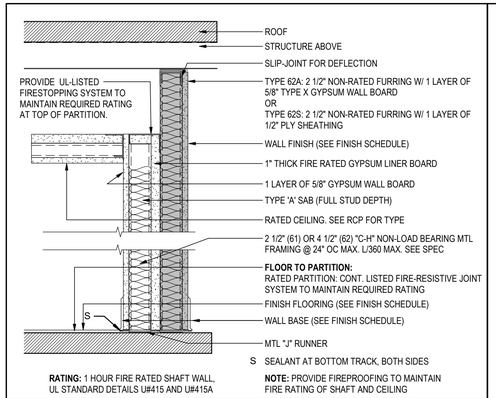
SECTION VIEW

SLAB ON GRADE, TYPICAL



SECTION VIEW

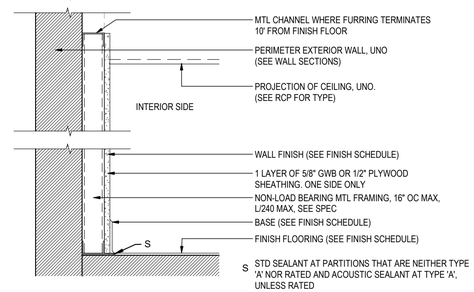
EXTERIOR WALL TYPE IMWP



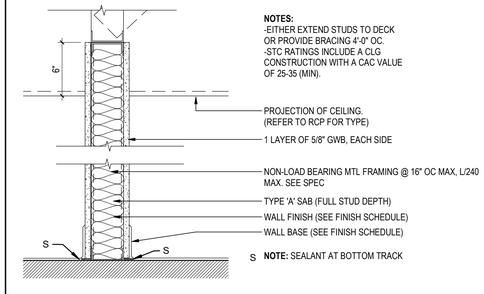
RATING: 1 HOUR FIRE RATED SHAFT WALL, UL STANDARD DETAILS U#415 AND U#415A

NOTE: PROVIDE FIREPROOFING TO MAINTAIN FIRE RATING OF SHAFT AND CEILING

61A	1 HR SHAFT WALL, 2 1/2 " C-H, GWB FURRING	47-53 STC
	WITH SAB	
62A	1 HR SHAFT WALL, 4 1/2 " C-H, SAB, GWB FURR.	
62S	WITH SAB, 1/2" PLY FURRING	



21	SING. 7/8" HAT CHANNEL FURRING, FF TO 10'	
21S	WITH 1/2" PLYWOOD SHEATHING	
23	SING. 2 1/2" STUD FURRING, FF TO 10'	
23S	WITH 1/2" PLYWOOD SHEATHING	



9A	SINGLE 3 5/8" STUD PARTITION 6" ABOVE CLG.	43-48 STC
	WITH SAB (SOUND ATTENUATION BATT INSULATION)	
10	SINGLE 6" STUD PARTITION 6" ABOVE CLG.	
10A	WITH SAB (SOUND ATTENUATION BATT INSULATION)	

LABEL	DESCRIPTION
ROOF FINISHES:	
IMRP-1	INSULATED METAL ROOF PANEL
RP-1	ROOF PANEL-CANOPY-OPAQUE
RP-2	ROOF PANEL-CANOPY-SEMI TRANSPARENT
EXTERIOR WALL FINISHES:	
IMWP-1	INSULATED METAL WALL PANEL
IMWP-2	INSULATED METAL WALL PANEL

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
PACKAGE A			

Permit/Seal

20105228 REGISTERED ARCHITECT CAREL L. K. NAGATA STATE OF WASHINGTON

Digitally signed by Nagata, Carel DN: CN=Nagata, Carel, C=US Date: 2025.07.11 20:52:22 -07'00'

Consultant

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Client/Project Logo

TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip- Utility Wells ESDC and Battle Creek Design

6731 Totem Beach Rd. Tulalip, WA 98271

File Name: N/A	SW Dwn.	CN Dsgn.	RT Chkd.	2024.12.13 YYYY.MM.DD

Title
ASSEMBLIES

Project No. 224202267

Scale As indicated

Revision

Drawing No. **5A-3**

<Plot location in Project Information>
12/26/2024 11:24:19 PM
ORIGINAL SHEET - ANSI D

DOOR SCHEDULE - INCUBATION

NO.	FROM ROOM	TO ROOM	DOOR WIDTH	DOOR HEIGHT	DOOR TYPE	DOOR MAT'L	DOOR HDWR FUNCTION	CLOSER	DOOR PROTECTION	STOP	WEATHER-SEAL PACKAGE	THRESHOLD	TRANSITION & TYPE SEE 3/5A-17	FRAME TYPE	FRAME MAT'L	FRAME DETAIL HEAD	FRAME DETAIL JAMB	SIGNAGE	COMMENTS
500A	INCUBATION		3'-0"	7'-0"	F	IHM	ENTRY	YES W/ STOP	KICK	-	Yes	Yes	EXT	1	IHM	3/A-14	2/5A-14	EXT SP-D, SP-L	EXT
500B			8'-0"	10'-0"	OHSD-1		PADLOCK	-	-	-	Yes	Yes	EXT		IHM			-	EXT, MOTORIZED, TWO CHAMFERED EDGE TRACK GUARDS AT INTERIOR
500C	INCUBATION		6'-0"	8'-0"	F	IHM	STOREROOM	YES W/ STOP	KICK	-	Yes	Yes	EXT	1	IHM	3/A-14	2/5A-14	EXT SP-D, SP-L	EXT
501A	EGG PROCESSING		6'-0"	8'-0"	F	IHM	STOREROOM	YES W/ STOP	KICK	-	Yes	Yes	EXT, FT-3	1	IHM	3/A-14	2/5A-14	EXT SP-D, SP-L	EXT
501B	EGG PROCESSING	INCUBATION	6'-0"	7'-0"	BD		NON LOCKING	-	-	PER MFR	No	No	-		HM			SP-D	HM DOORS, POWDER COATED STAINLESS STEEL HARDWARE
502A	FEED STORAGE		3'-0"	7'-0"	F	IHM	STOREROOM	YES W/ STOP	KICK	-	Yes	Yes	EXT	1	IHM	3/A-14	2/5A-14	EXT SP-D	EXT
502B			8'-0"	10'-0"	OHSD-2		PADLOCK	-	-	-	Yes	Yes	EXT		IHM			-	EXT, MOTORIZED, TWO CHAMFERED EDGE TRACK GUARDS AT INTERIOR
503	MECH		6'-0"	8'-0"	F	IHM	STOREROOM	YES W/ HOLD	30" KICK/ARMOR	-	Yes	Yes	EXT	1	IHM	3/A-14	2/5A-14	EXT SP-D	EXT
504	FORMALIN ROOM		6'-0"	7'-0"	F	IHM	STOREROOM	YES W/ STOP	30" KICK/ARMOR	-	Yes	Yes	EXT	1	IHM	3/A-14	2/5A-14	EXT S-A1, SP-D, SP-K	EXT, 45 MIN FIRE RATED DOOR AND FRAME
505	STORAGE	EGG PROCESSING	6'-0"	8'-0"	F	HM	STOREROOM	-	30" KICK/ARMOR	FLOOR	No	No	-	1	HM	2/5A-17	2/5A-17	SP-D	
506A	HALL A		3'-0"	7'-0"	HL	IHM	ENTRY	YES W/ HOLD	KICK	-	Yes	Yes	EXT, FT-3	2	IHM	3/A-14	2/5A-14	EXT S-A2, SP-K; INT SP-L	EXT
506B	HALL A	INCUBATION	3'-0"	7'-0"	F	HM	ENTRY	YES W/ HOLD	KICK	-	Yes	Yes	FT-3	1	HM	2/5A-17	2/5A-17	SP-D	
507	HALL B	TOILET A	3'-0"	7'-0"	F	HM	PRIVACY	YES	KICK/MOP	FLOOR	No	No	FT-2	1	HM	2/5A-17	2/5A-17	SP-E	INCLUDE OCC INDICATOR AND EMERGENCY KEY
508	HALL B	TOILET B	3'-0"	7'-0"	F	HM	PRIVACY	YES	KICK/MOP	FLOOR	No	No	FT-2	1	HM	2/5A-17	2/5A-17	SP-E	INCLUDE OCC INDICATOR AND EMERGENCY KEY
509	HALL B	JANITOR	3'-0"	7'-0"	F	HM	STOREROOM	-	KICK/MOP	FLOOR	No	No	-	1	HM	2/5A-17	2/5A-17	SP-D	
510	HALL B	SHOWER	3'-0"	7'-0"	F	HM	PRIVACY	YES	KICK/MOP	FLOOR	No	No	FT-2	1	HM	2/5A-17	2/5A-17	SP-D	INCLUDE OCC INDICATOR AND EMERGENCY KEY
511	HALL A	BOOT	3'-0"	7'-0"	-	HM	-	-	-	-	No	No	-	-	HM	1/5A-17	1/5A-17	SP-D	END CLOSURE PER DETAIL
512A	HALL C	BOOT	3'-0"	7'-0"	-	HM	-	-	-	-	No	No	-	-	HM	1/5A-17	1/5A-17	SP-D	END CLOSURE PER DETAIL
512B	HALL C	LOCKER	3'-0"	7'-0"	-	HM	-	-	-	-	No	No	-	-	HM	1/5A-17	1/5A-17	-	END CLOSURE PER DETAIL
513	HALL C	OFFICE 1	3'-0"	7'-0"	NL	HM	PASSAGE	-	-	WALL	No	No	FT-1	1	HM	2/5A-17	2/5A-17	SP-D	
514	HALL C	OFFICE 2	3'-0"	7'-0"	NL	HM	PASSAGE	-	-	WALL	No	No	FT-1	1	HM	2/5A-17	2/5A-17	SP-D	
515	BREAK		3'-0"	7'-0"	F	IHM	STOREROOM	YES W/ STOP	KICK	-	Yes	Yes	EXT, FT-3	2	IHM	3/A-14	2/5A-14	SP-F, SP-K, SP-L	EXT

ROOM FINISH SCHEDULE

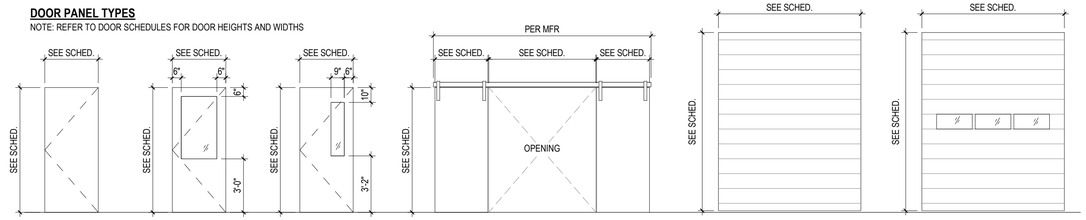
NO.	NAME	FLOOR FIN.	BASE FIN.	NORTH WALL	EAST WALL	SOUTH WALL	WEST WALL	CEIL FIN.	COMMENTS
500	INCUBATION	SC-1	RB-2	P-1 / FRP-1	P-1 / FRP-1	P-1 / FRP-1	P-1 / FRP-1	EXP-1	MOISTURE RES. GWB, FRP UP TO 8-0"
501	EGG PROCESSING	SC-1	RB-2	P-1 / FRP-1	P-1 / FRP-1	P-1 / FRP-1	P-1 / FRP-1	EXP-1	MOISTURE RES. GWB, FRP UP TO 8-0"
502	FEED STORAGE	SC-1	RB-2	P-1 / FRP-1	P-1 / FRP-1	P-1 / FRP-1	P-1 / FRP-1	EXP-1	FRP UP TO 8'-0"
503	MECH	SC-1	RB-2	P-1	P-1	P-1	P-1	EXP-1	
504	FORMALIN ROOM	SC-1	RB-2	FRP-3	FRP-3	FRP-3	FRP-3	GWB-2 / CP-1	1 HR CEILING, WALLS, FIXTURES; MOISTURE RES. GWB, FRP UP TO 8-0"
505	STORAGE	SC-1	RB-2	P-1	P-1	P-1	P-1	EXP-1	
506A	HALL A	SC-1 / WM-1	RB-1	P-2/ WC-1	P-2/ WC-1	P-2 / WC-1	P-2/ WC-1	ACT-1	WALL COVERING EXTEND 5'-6" FROM FF
506B	HALL B	SC-1	RB-1	P-2/ WC-1	P-2/ WC-1	P-2 / WC-1	P-2/ WC-1	ACT-1	WALL COVERING EXTEND 5'-6" FROM FF
506C	HALL C	SC-1	RB-1	P-2/ WC-1	P-2/ WC-1	P-2 / WC-1	P-2/ WC-1	ACT-1	WALL COVERING EXTEND 5'-6" FROM FF
507	TOILET A	RSF-1	RB-2	P-1/ FRP-2	P-1/ FRP-2	P-1/ FRP-2	P-1/ FRP-2	GWB-1 / CP-1	MOISTURE RES. GWB, FRP UP TO 4-0"
508	TOILET B	RSF-1	RB-2	P-1/ FRP-2	P-1/ FRP-2	P-1/ FRP-2	P-1/ FRP-2	GWB-1 / CP-1	MOISTURE RES. GWB, FRP UP TO 4-0"
509	JANITOR	SC-1	RB-2	P-1 / FRP-1	P-1 / FRP-1	P-1 / FRP-1	P-1 / FRP-1	EXP-1	MOISTURE RES. GWB, FRP UP TO 4-0"
510	SHOWER	RSF-1	RB-1	FRP-2	FRP-2	FRP-2	FRP-2	GWB-1 / CP-1	MOISTURE RES. GWB, FRP UP TO 8-0"
511	BOOT	RSF-1	RB-2	FRP-1	FRP-1	FRP-1	FRP-1	ACT-1	MOISTURE RES. GWB, FRP UP TO 8-0"
512	LOCKER	SC-1	RB-1	FRP-1	FRP-1	FRP-1	FRP-1	ACT-1	MOISTURE RES. GWB, FRP UP TO 8-0" UNO
513	OFFICE 1	CPT-1	RB-1	P-2	P-2	P-2	P-2	ACT-1	WT-1 AT WINDOWS
514	OFFICE 2	CPT-1	RB-1	P-2	P-2	P-2	P-2	ACT-1	WT-1 AT WINDOWS
515	BREAK	SC-1 / WM-1	RB-1	P-3 / WC-1	P-3	P-2	-	ACT-1	WT-1 AT WINDOWS
516	KITCHEN	SC-1	RB-1	P-2	-	P-2	P-2	ACT-1	MOISTURE RES. GWB ON WET WALLS

INTERIOR FINISH LEGEND

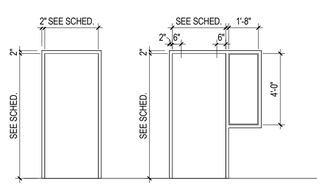
LABEL	DESCRIPTION	DETAILS	SPEC SECTION
FLOORING:			
CPT-1	TILE CARPETING	3/5A-17	09 6813
RSF-1	RESILIENT SHEET FLOORING	3/5A-17	09 6516
SC-1	SEALED CONCRETE	3/5A-17	09 9600
WM-1	ENRANCE FLOOR MATS & FRAMES	3/5A-17	12 4813
BASE:			
RB-1	RESILIENT BASE (4")		09 6513
RB-2	RESILIENT BASE (6")		09 6513
WALLS:			
CG-1	CORNER GUARD	5/5A-17	09 7200
FRP-1	FIBERGLASS REINF. PANEL-TEXTURED	8-10/5A-17	06 6400
FRP-2	FIBERGLASS REINF. PANEL-SMOOTH	8-10/5A-17	06 6400
FRP-3	FIBERGLASS REINF. PANEL-RATED	8-10/5A-17	06 6400
P-1	PAINT-MAIN SW 7008 ALABASTER-SATIN		09 9123
P-2	PAINT-ACCENT SW 6178 CLARY SAGE-EGGSHELL		09 9123
P-3	PAINT-ACCENT TBD-EGGSHELL		09 9123
P-4	PAINT-DOOR FRAME TBD-SEMI GLOSS		09 9123
VDB-1	VISUAL DISPLAY CORK-BOARD (OFCI)	1/5A-16	10 1100
VDB-2	VISUAL DISPLAY WHITE-BOARD (OFCI)	1/5A-16	10 1100
WC-1	WALL COVERING P3TEC-TBD	8-10/5A-17	09 7200
CEILING:			
ACT1	ACOUSTIC CEILING TILE		09 5113
CP-1	PAINT-CEILING GWB SW 7008 ALABASTER-EGGSHELL		09 9123
EXP	PAINT-EXPOSED STRUCTURE SW 7008 ALABASTER-SEMI GLOSS		09 9123
GWB1	GYP. CLG, MOIST. RES., PAINT CP-1		09 9123
GWB2	GYP. CLG, 1 HR RATED, MOIST. RES. PAINT CP-1	5A-3	09 9123
MILLWORK:			
PL-1	PLASTIC LAMINATE, VERTICAL	5A-18	12 3623.13
PL-2	PLASTIC LAMINATE, HORIZONTAL	5A-18	12 3623.13
WINDOW:			
WT-1	ROLLER WINDOW SHADES	6/5A-14	12 2413
SIGNAGE:			
S-A1	SIGNAGE-ADDRESS NUMBER ID	3/5A-29	10 1423
S-A2	SIGNAGE-BUILDING NAME/ADDRESS	3/5A-29	10 1423
SP-D	SIGNAGE PLAQUE-ROOM ID	2/5A-29	10 1423
SP-E	SIGNAGE PLAQUE-RESTRDOM ID	1/5A-29	10 1423
SP-F	SIGNAGE PLAQUE-MAXIMUM OCC	5/5A-29	10 1423
SP-G	SIGNAGE PLAQUE-DIRECTIONAL	3/5A-29	10 1423
SP-K	SIGNAGE PLAQUE-NO SMOKING	4/5A-29	10 1423
SP-L	SIGNAGE PLAQUE-EMERGENCY EXIT		10 1423
SP-M	SIGNAGE PLAQUE-FIRE EXTINGUISHER PLACE ABOVE ALL FIRE EXTINGUISHERS		10 1423

DOOR PANEL TYPES

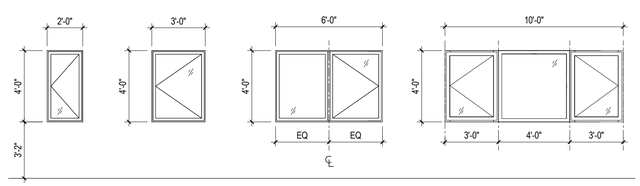
NOTE: REFER TO DOOR SCHEDULES FOR DOOR HEIGHTS AND WIDTHS



DOOR FRAME TYPES



WINDOW TYPE



WINDOW ROLLER SHADE LOCATIONS:

NOTE: SEE SHEET 5A-14 FOR WINDOW ROLLER SHADE DETAIL.

DOOR 515 - INCLUDE (1) SURFACE MOUNTED ROLLER SHADE (WT-1) AT SIDELITE
W1 - NO WINDOW SHADE
W2 - INCLUDE (1) SURFACE MOUNTED ROLLER SHADE (WT-1)
W3 - INCLUDE (2) SURFACE MOUNTED ROLLER SHADES (WT-1) AT EA UNIT
W4 - INCLUDE (3) SURFACE MOUNTED ROLLER SHADES (WT-1) AT EA UNIT

Revision | By | Appd | YYYY.MM.DD

PACKAGE A
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20105228 REGISTERED ARCHITECT
CAREL L. K. NAGATA
STATE OF WASHINGTON

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Client/Project Logo

TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip- Utility Wells ESDC and Battle Creek Design

6731 Totem Beach Rd. Tulalip, WA 98271

File Name: N/A | SW Dwn. | CN Dsgn. | RT Chkd. | 2024.12.13 YYYY.MM.DD

Title
DOOR, WINDOW, FINISH SCHEDULES AND LEGENDS

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5A-4**

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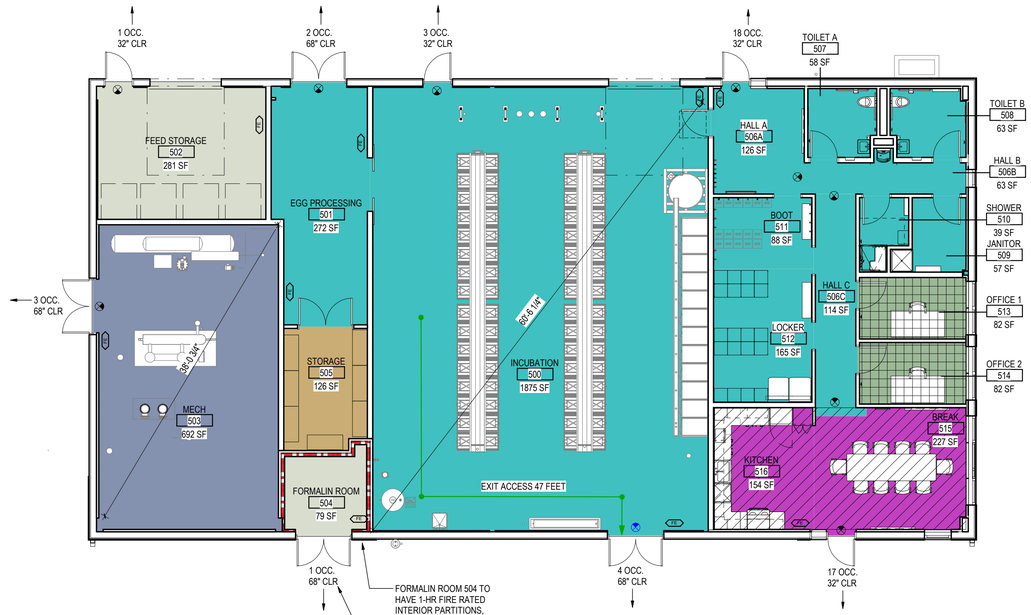

IBC OCCUPANCY CLASSIFICATION AND USE

- A ASSEMBLY
- B BUSINESS
- S-1 MODERATE HAZARD STORAGE
- S-2 LOW HAZARD STORAGE
- U AGRICULTURAL
- U UTILITY AND MISCELLANEOUS

CODE PLAN LEGEND

- EXIT SIGN
- FIRE EXTINGUISHER
- PATH OF TRAVEL

1 / 5A-11 **CODE PLAN**

1/8" = 1'-0"

OCCUPANT LOAD

NUMBER	NAME	OCCUPANCY	FUNCTION OF SPACE	AREA	LOAD FACTOR	OCCUPANT LOAD
500	INCUBATION	U AGRICULTURAL	AGRICULTUAL BUILDING	1875 SF	300 SF	6.3
501	EGG PROCESSING	U AGRICULTURAL	AGRICULTURAL BUILDING	272 SF	300 SF	0.9
502	FEED STORAGE	S-1 MODERATE HAZARD STORAGE	STORAGE	281 SF	300 SF	0.9
503	MECH	U UTILITY AND MISCELLANEOUS	MECHANICAL	692 SF	300 SF	2.3
504	FORMALIN ROOM	S-1 MODERATE HAZARD STORAGE	STORAGE	79 SF	300 SF	0.3
505	STORAGE	S-2 LOW HAZARD STORAGE	STORAGE	126 SF	300 SF	0.4
506A	HALL A	U AGRICULTURAL	-	126 SF	0 SF	0
506B	HALL B	U AGRICULTURAL	-	63 SF	0 SF	0
506C	HALL C	U AGRICULTURAL	-	114 SF	0 SF	0
507	TOILET A	U AGRICULTURAL	-	58 SF	0 SF	0
508	TOILET B	U AGRICULTURAL	-	63 SF	0 SF	0
509	JANITOR	U AGRICULTURAL	-	57 SF	0 SF	0
510	SHOWER	U AGRICULTURAL	-	39 SF	0 SF	0
511	BOOT	U AGRICULTURAL	LOCKER ROOM	88 SF	50 SF	1.8
512	LOCKER	U AGRICULTURAL	LOCKER ROOM	165 SF	50 SF	3.3
513	OFFICE 1	B BUSINESS	BUSINESS	82 SF	150 SF	0.5
514	OFFICE 2	B BUSINESS	BUSINESS	82 SF	150 SF	0.5
515	BREAK	A ASSEMBLY	UNCONCENTRATED TABLES CHAIRS	227 SF	15 SF	15.1
516	KITCHEN	A ASSEMBLY	UNCONCENTRATED TABLES CHAIRS	154 SF	15 SF	10.2
						42.6

BUILDING CODE SUMMARY

AUTHORITY HAVING JURISDICTION
TULALIP TRIBE

CODE SUMMARY:
APPLICABLE CODES PER TULALIP TRIBAL CODES, TITLE 7 LAND USE CODES, CH. 7.14 DEVELOPMENT STANDARDS, SEC. 7.14.100 BUILDING CODE:
- 2015 INTERNATIONAL BUILDING CODE (IBC), APPENDIX J, WA STATE AMENDMENTS AND REF TO NFPA
- 2015 INTERNATIONAL FIRE CODE (IFC), APPENDIX A-G, WA STATE AMENDMENTS
- 2015 INTERNATIONAL FUEL GAS CODE
- 2015 MECHANICAL CODE (IMC)
- 2015 UNIFORM PLUMBING CODE (UPC), APPENDIX I, WA STATE AMENDMENTS
- 2015 NATIONAL ELECTRICAL CODE (NEC)

ICC-ANSI A117.1-2009 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES, IBC APPENDIX E SUPPLEMENTARY ACCESSIBILITY STANDARDS

CHAPTER 2 DEFINITIONS

COMBUSTIBLE LIQUID- A LIQUID HAVING A CLOSED CUP FLASH POINT AT OR ABOVE 100 DEG FAHRENHEIT. COMBUSTIBLE LIQUIDS SHALL BE SUBDIVIDED AS FOLLOWS: CLASS IIIA- LIQUIDS HAVING A CLOSED CUP FLASH POINT AT OR ABOVE 140 DEG FAHRENHEIT AND BELOW 200 DEG FAHRENHEIT.

TOXIC- A CHEMICAL FALLING WITHIN ANY OF THE FOLLOWING CATEGORIES:
1. A CHEMICAL THAT HAS A MEDIAN LETHAL DOSE 50-500mg PER KG BODY WEIGHT WHEN ADMINISTERED ORALLY...200-300 GRAM RAT.
2. A CHEMICAL THAT HAS MEDIAN LETHAL DOSE 200-1000mg PER KG BODY WEIGHT WHEN ADMINISTERED BY CONTINUOUS CONTACT FOR 24 HOURS OR LESS...2-3KG RABBIT.
3. A CHEMICAL THAT HAS MEDIAN LETHAL DOSE 200-2,000ppm VOLUME GAS/VAPOR WHEN ADMINISTERED BY CONTINUOUS INHALATION FOR 1 HOUR OR LESS... 200-300 GRAM RAT.

CHAPTER 3 USE AND OCCUPANCY

U AGRICULTURAL

CHEMICAL BEING STORED AND USED IN CLOSED SYSTEM:
WESTERN CHEMICAL INC- PARASITE-S
37% FORMALDEHYDE SOLUTION, 13% METHANOL
CLOSED CUP FLASHPOINT= 145 DEG FAHRENHEIT
BOILING POINT 210 DEG FAHRENHEIT
ACUTE TOXICITY: SEE MFR SAFETY DATA SHEET

307.1(1) MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIAL POSING PHYSICAL HAZARD
COMBUSTIBLE LIQUID CLASS IIIA: 330 GALLONS

307.1(2) MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA OF HAZARDOUS MATERIAL POSING HEALTH HAZARD
TOXIC STORAGE- LIQUID (POUNDS): 500 POUNDS (50 GALLONS) OR PROVIDE WEIGHT PER GALLON TO FIRE CODE OFFICIAL
TOXIC USE- CLOSED SYSTEM: 500 POUNDS (50 GALLONS) OR PROVIDE WEIGHT PER GALLON TO FIRE CODE OFFICIAL

FOOTNOTE b- THE AGGREGATE QUANTITY IN USE AND STORAGE SHALL NOT EXCEED THE QUANTITY LISTED IN STORAGE.
FOOTNOTE e- MAX ALLOWABLE QUANTITY MAY BE INCREASED 100 PERCENT WHERE STORED IN APPROVED STORAGE CABINETS, GAS CABINETS OR EXHAUSTED ENCLOSURES AS SPECIFIED IN IFC.
FOOTNOTE i- FOR GALLONS OF LIQUIDS, DIVIDE THE AMOUNT IN POUNDS BY 10 IN ACCORDANCE WITH IFC 5003.1.2.

CHAPTER 4 SPECIAL OCCUPANCIES

414.2.1 CONTROL AREA CONSTRUCTION- SEPARATE FROM EACH AREA WITH FIRE BARRIERS PER 707 OR HORIZONTAL ASSEMBLIES PER 717.

414.2.2 PERCENTAGE OF MAXIMUM ALLOWABLE QUANTITIES PER TABLE 414.2.2
1 STORY ABOVE GRADE PLANE:
PERCENTAGE OF THE MAXIMUM ALLOWABLE QUANTITY PER CONTROL AREA: 100%
CONTROL AREAS PER STORY: 4
FIRE RESISTANCE RATING: 1-HR

CHAPTER 5 BUILDING HEIGHTS AND AREA

504.3 ALLOWABLE BUILDING HEIGHT
U OCCUPANCY, NS, TYPE VB: 40 FT
ACTUAL HEIGHT: 18 FT

504.4 NUMBER OF STORIES
U OCCUPANCY, NS, TYPE V-B: 2 STORIES
ACTUAL NUMBER OF STORIES: 1 STORY

506.2 ALLOWABLE AREA
U OCCUPANCY: 5,500 SF PER STORY
ACTUAL AREA: 6,041 SF

506.3 FRONTAGE INCREASE:
If = [F/P - 0.25] W / 30
If = [0.50 - 0.25] 30 / 30
If = .25
ALLOWABLE AREA 5,500 x 1.25 = 6,875 SF

CHAPTER 6 CONSTRUCTION TYPE
TABLE 601 FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS:
TYPE V-B
PRIMARY STRUCTURAL FRAME: 0
BEARING WALLS- EXTERIOR: 0
BEARING WALLS- INTERIOR: 0
NON BEARING WALLS- EXTERIOR:
NON BEARING WALLS AND PARTITIONS INTERIOR: 0
FLOOR CONSTRUCTION AND ASSOCIATED SECONDARY MEMBERS: 0
ROOF CONSTRUCTION AND ASSOCIATED SECONDARY MEMBERS: 0

TABLE 602 FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE
TYPE V, > 30 FEET, U OCCUPANCY: 0

CHAPTER 7 FIRE RATED CONSTRUCTION

707 FIRE BARRIER- EXTEND TO UNDERSIDE OF ROOF SHEATHING OR RATED WALL ASSEMBLY

714.4.1 THROUGH PENETRATIONS- MATERIAL TO FILL ANNULAR SPACE SHALL PREVENT FLAME AND GASES WHEN SUBJECT TO ASTME119 OR UL 263 TIME-TEMP FIRE CONDITIONS UNDER MIN. POSITIVE PRESSURE DIFF OF 0.01 INCH OF WATER AT LOCATION OF PENETRATION

714.4.2 MEMBRANE PENETRATIONS- MEET 714.3.1.

715.3 FIRE RESISTIVE JOINT SYSTEMS- TESTED IN ACCORDANCE WITH ASTM E1966 OR UL 2079.

CHAPTER 8 INTERIOR FINISHES

803.13 INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY
NON SPRINKLERED: U OCCUPANCY- NO RESTRICTIONS

CHAPTER 9 FIRE PROTECTION

903.2 FIRE SPRINKLERS- WHERE REQUIRED- BUILDING IS NOT SPRINKLERED

903.2.11.4 DUCTS WITH HAZARDOUS EXHAUST

906.1 PORTABLE FIRE EXTINGUISHERS WHERE REQUIRED-
3. IN AREAS WHERE FLAMMABLE OR COMBUSTIBLE LIQUIDS ARE STORED
5. WHERE REQUIRED BY IFC TABLE 906.1.

CHAPTER 10 EGRESS

1004.1 DESIGN OCCUPANT LOAD
(SEE TABLE BELOW)

1006.3.3(2) SPACES WITH ONE EXIT / MAXIMUM COMMON PATH OF EGRESS TRAVEL DISTANCE: FIRST STORY, U OCCUPANCY, < 49 OCCUPANTS, NON SPRINKLERED: 75 FT MAX

CHAPTER 11 ACCESSIBILITY

1103.2.4 UTILITY BUILDINGS- GROUP U OCCUPANCIES ARE NOT REQUIRED TO COMPLY WITH THIS CHAPTER OTHER THAN AGRICULTURAL BUILDINGS, ACCESS IS REQUIRED TO PAVED WORK AREAS AND AREAS OPEN TO GENERAL PUBLIC.

1104.3.1 EMPLOYEE WORK AREAS- COMMON USE CIRCULATION PATHS WITHIN EMPLOYEE WORK AREAS SHALL BE ACCESSIBLE ROUTES.
EXCEPTION 1- COMMON USE CIRCULATION PATHS, LOCATED WITHIN EMPLOYEE WORK AREAS THAT ARE LESS THAN 1,000 SF IN SIZE AND DEFINED BY PERMANENT PARTITIONS....SHALL NOT BE REQUIRED TO BE ACCESSIBLE ROUTES.

CHAPTER 12 INTERIOR ENVIRONMENT

1207.2 MINIMUM CEILING HEIGHTS: NO LESS THAN 7'-6"

1209.2.1 TOILET FINISH MATERIALS- MATERIALS SHOULD HAVE SMOOTH, HARD NON-ABSORBENT SURFACE. INTERSECTIONS OF FLOORS AT WALLS SHALL HAVE BASE THAT EXTENDS UPWARD ONTO WALLS NOT LESS THAN 4 INCHES.

1209.2.2 WALLS WITHIN 2 FEET OF SERVICE SINKS, URINALS AND WATER CLOSETS SHALL HAVE SMOOTH HARD SURFACE TO HEIGHT OF NO LESS THAN 4 FEET ABOVE FLOOR.

CHAPTER 29 PLUMBING

2902 PLUMBING FIXTURES:

CLASSIFICATION: BUSINESS 32 (16 FEMALE / 16 MALE)
TOILET PER 25 FOR FIRST 50: 2 REQUIRED / 2 PROVIDED
LAV 1 PER 40 FOR FIRST 80: 2 REQUIRED / 2 PROVIDED
SHOWER: NOT REQUIRED
DRINKING FOUNTAIN 1 PER 100: 1 REQUIRED / 1 PROVIDED
SERVICE SINK: 1 REQUIRED / 1 PROVIDED

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Title
INCUBATION CODE PLAN

Project No. 224202267
Scale As indicated
Revision
Drawing No. 5A-5

Revision	By	Appd	YYYY.MM.DD

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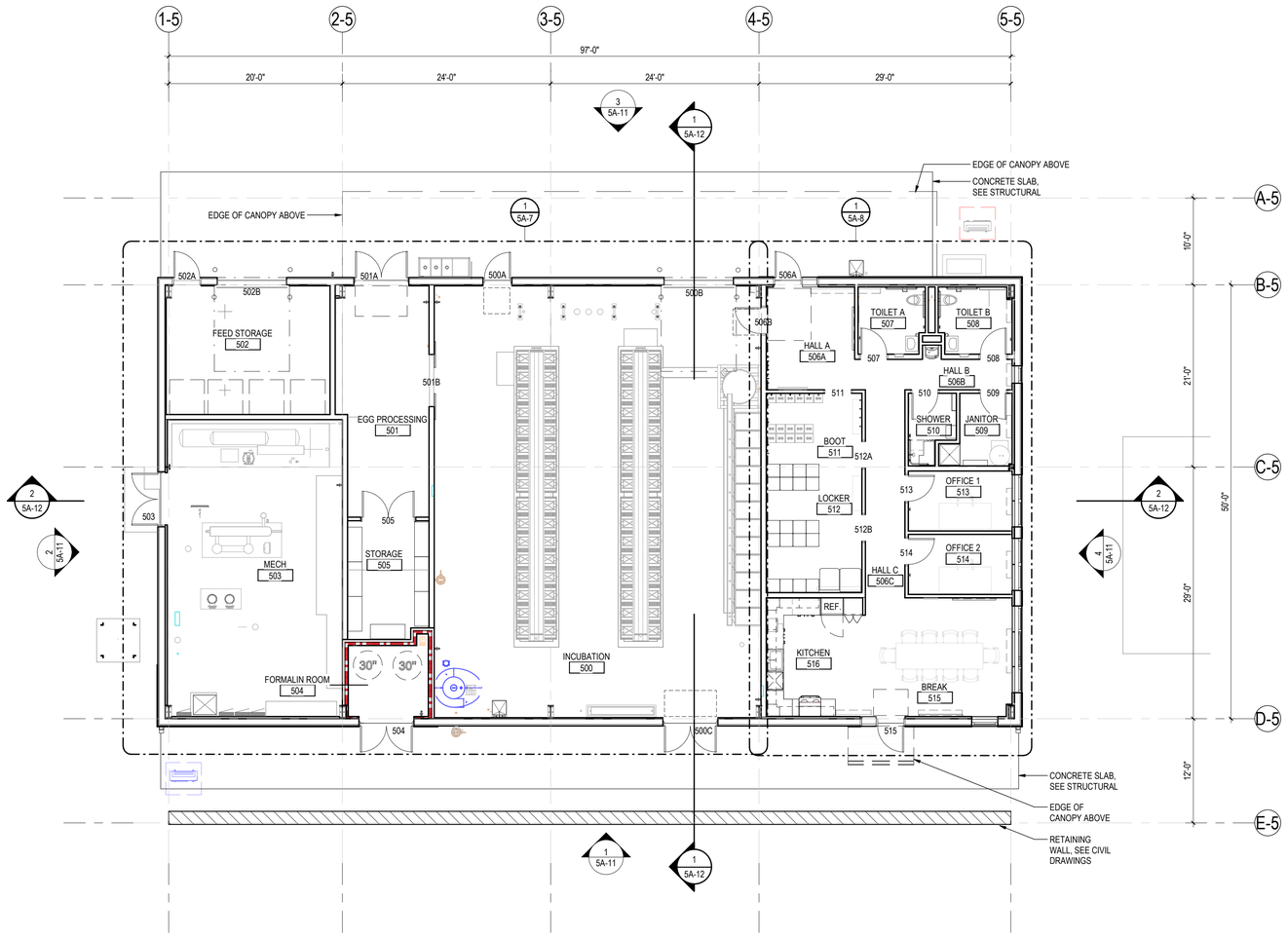

1 OVERALL FLOOR PLAN
1/8" = 1'-0"

5A-6

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GENERAL NOTES - FLOOR PLAN

1 ALL PARTITIONS TO BE TYPE X, UON.
2 THE SCOPE OF EACH PARTITION TYPE EXTENDS THE FULL LENGTH OF EACH PARTITION TO THE INTERSECTION WITH OTHER IDENTIFIED PARTITION TYPES.
3 ALL DIMENSIONS ARE MEASURED FROM THE FACE OF THE FINISHED PARTITION OR CENTERLINE OF COLUMN GRID, UON.
4 ALL INTERIOR PARITION PENETRATIONS AND OTHER OPENINGS AT THE BUILDING SHELL SHALL BE SEALED, GASKETED, OR WEATHER STRIPPED. PATCH, FILL, AND FINISH ALL PENETRATIONS AT PARTITIONS AND FLOORS AS REQUIRED TO PRESERVE RATING/ACOUSTICAL CONTINUITY.
5 PATCH, FILL, AND FINISH ALL PENETRATIONS AT PARTITIONS AND FLOORS NOT REQUIRED BY ARCHITECTURAL AND MEP DESIGN, UON.
6 PROVIDE PARTITION ANCHOR BRACKETS/BLOCKING AT ALL CASEWORK/MILLWORK, FIXTURES, EQUIPMENT, AND DEVICES MOUNTED ON, OR ATTACHED TO, PARTITIONS.
7 COORDINATE ALL ACCESS PANEL LOCATIONS WITH MEP LOCATIONS AND SUBMIT TO ARCHITECT PRIOR TO INSTALLATION FOR APPROVAL.
8 PROVIDE CONTINUOUS UL RATED JOINT SYSTEM ASSEMBLIES AT ALL RATED PARTITIONS HEAD, BASE AND JAMB TERMINATIONS. FILL HEAD DEFLECTION VOID AND DECK FLUTES WITH FIRESTOPPING.
9 PROVIDE MOISTURE RESISTANT GWB FOR ALL TOILETS, SHOWERS, JANITOR'S CLOSETS, AND AT ALL PLUMBING FIXTURE WALLS. PROVIDE CEMENT BOARD AT ALL TILE LOCATIONS. PROVIDE IMPACT/ABUSE RESISTANT GWB AT ALL MEP ROOMS, SERVICE CORRIDORS, AND AS INDICATED.
10 ALL WOOD BLOCKING TO BE FIRE RETARDANT TREATED.
11 IN CASE OF DISCREPANCY BETWEEN CONTRACT DOCUMENTS, CONTACT ARCHITECT PRIOR TO INSTALLATION.
12 WHERE DIMENSIONS INDICATE ("MIN" OR "MAX") NOTIFY ARCHITECT IF ACTUAL DIMENSION VARIES MORE THAN ½" FROM WHAT IS INDICATED.
13 FURNISH FLOOR, WALL, AND CEILING EXPANSION ASSEMBLIES WHERE EXPANSION JOINTS ARE EXPOSED.
14 ALIGN THE EXPOSED FACE OF THE WALL WHERE WALL TYPES OF DIFFERENT THICKNESS ADJOIN IN THE SAME LOCATIONS.
15 ALL DIMENSIONS INDICATED FOR HOUSEKEEPING PADS ARE FOR REFERENCE AND BASED ON BASIS OF DESIGN EQUIPMENT. COORDINATE ACTUAL SIZES WITH SELECTED EQUIPMENT.
16 IN ORDER TO MAINTAIN ACOUSTICAL PERFORMANCE IN SOUND TREATED OR TESTED PARTITIONS, SEPARATE OUTLETS, SWITCHES AND JUNCTION BOXES ON OPPOSITE SIDES OF A PARTITION TO ALLOW ACCOUSTICAL INSULATION TO FULLY FILL THE SPACE BETWEEN. FULLY SEAL AROUND THE PERIMETER OF ALL DEVICES, THE PERIMETER OF THE PARTITION AND ALL PENETRATIONS WITH ACOUSTICAL SEALANT. BED THE BOTTOM TRACK OF GYPSUM BOARD PARTITTIONS IN TWO CONTINUOUS BEADS OF ACOUSTICAL SEALANT. SEE PARTITION DETAILS FOR ADDITIONAL INFORMATION.
17 CONTROL JOINTS IN GYPSUM BOARD ASSEMBLIES SHALL NOT EXCEED 30'-0" O.C. AND SHALL BE INSTALLED AT DOORS AND WINDOWS.
18 FILL ALL VOIDS AROUND GLAZING SYSTEM PERIMETER WITH MINERAL WOOL OR FOAMED IN PLACE INSULATION.
19 GALVANIZE ALL EXTERIOR STEEL (I. E. RELIEF ANGLES, PLATES, LINTELS, ETC).

GENERAL NOTES - FINISHES

1 ALL MATERIALS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
2 ALL FLOORING MATERIAL CHANGES TO OCCUR UNDER THE CENTERLINE OF DOORS IN THE CLOSED POSITION, UON.
3 FINAL COAT OF PAINT TO BE EXECUTED UNDER FINAL LIGHTING CONDITIONS.
4 DO NOT TERMINATE WALL BASE AT OUTSIDE CORNER, UON. INSTALL TIGHT AGAINST PARTITION AND FLOOR. ENSURE THAT PARTITIONS AND FLOORING ARE FREE OF DEBRIS TO ENSURE WALL BASE INSTALLS FLAT.
5 PRIOR TO FLOORING INSTALLATION, VERIFY THAT SLAB MEETS FLATNESS AND LEVELNESS REQUIREMENTS. PROVIDE SELF-LEVELING UNDERLAYMENT COMPOUND AS REQUIRED TO MEET FLOOR FINISH REQUIREMENTS. REMOVE ALL DEBRIS FROM SLAB PRIOR TO FLOOR FINISH INSTALLATION. FLASH PATCH FLOOR TO LEVEL AREAS WHERE TWO DIFFERENT HEIGHT FINISHES MEET. SEE (FT#) TYPICAL FLOOR TRANSITION DETAILS FOR ADDITIONAL INFORMATION.
6 FLOOR FINISHES TO EXTEND BELOW CASEWORK/MILLWORK, FURNITURE, AND PLUMBING FIXTURES.
7 PROVIDE PROTECTION FOR ALL FLOOR FINISHES IMMEDIATELY AFTER INSTALLATION.
8 BETWEEN GL 4-5 AND GL 5-5, FINISH ALL ELECTRICAL PANELS TO MATCH AS ADJACENT WALL.
9 PAINT ANY GRILLES, PIPING, AND EXPOSED CONDUIT SAME COLOR AS THE ADJACENT WALL OR CEILING UON.
10 IF ITEM SCHEDULED OR SPECIFIED HAS BEEN DISCONTINUED, NOTIFY ARCHITECT FOR SELECTION OF ALTERNATE.
11 SUBMIT SAMPLES OF FINISH MATERIALS FOR APPROVAL BEFORE MATERIALS ARE APPLIED ON THE JOB.
12 ALL COLOR SELECTIONS ARE FOR BIDDING PURPOSES ONLY. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND MANUFACTURER'S COLOR CHARTS FOR FINAL SELECTION BY ARCHITECT.
13 WALL AND CEILING FINISHES SHALL INCLUDE ALL PROJECTIONS, BEAM ENCLOSURES, RECESSES, BULKHEADS, MATERIAL CHANGES, OR OTHER ENCLOSURES.
14 FURNITURE IS SHOWN FOR REFERENCE AND INFORMATION PURPOSES ONLY. FURNITURE TO BE PROVIDED BY OTHERS.

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Tulalip Tribes

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File Name: N/A	SW Dwn.	CN Dsgn.	RT Chkd.	2024.12.28 YYYY.MM.DD

Title
INCUBATION FLOOR PLAN

Project No.	Scale
224202267	1/8" = 1'-0"
Revision	Drawing No.
	5A-6

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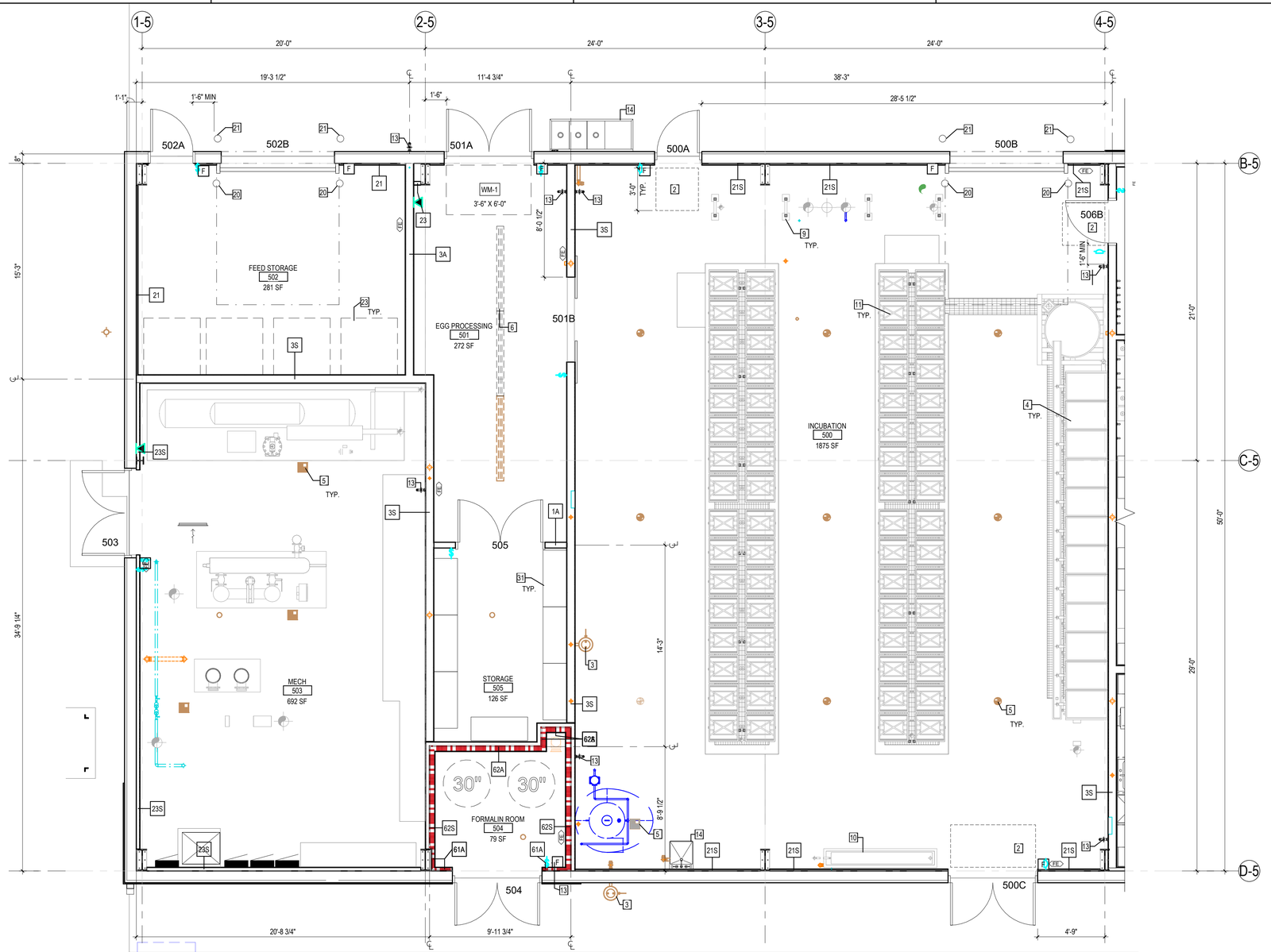

SHEET NOTES:

1. SEE SHEET 5A-6 FOR FLOOR PLAN AND FINISH GENERAL NOTES.
2. VERIFY WALL TYPES, SEE SHEET 5A-3

INCUBATION KEY NOTES	
Key Value	Keynote Text
2	WET WELL FOR OFOI BIO-SECURITY RUBBER MAT
3	EYEWASH STATION, TYP.; SEE MECHANICAL
4	KIOTI BOX,TYP.; SEE PROCESS MECHANICAL
5	FLOOR DRAIN, TYP.; SEE MECHANICAL
6	DRAINAGE TRENCH, TYP.; SEE PROCESS MECHANICAL
9	FEED CONTROL BOX AND MAIN TROUGH ABOVE, TYP.; SEE PROCESS MECHANICAL
10	EGG PICKING TRAY, TYP.; SEE PROCESS MECHANICAL
11	INCUBATOR STACK AND VAULT BELOW, TYP.; SEE PROCESS MECHANICAL
13	HOSE BIB, TYP.; SEE MECHANICAL
14	SINK; SEE MECHANICAL
20	INTERIOR BOLLARD, TYP.; SEE STRUCTURAL
21	SITE BOLLARD, TYP.; SEE CIVIL
23	WOOD PALLET CLEARANCE, 48" X 48"
31	SHELF/SHELVES, OFOI; CONTRACTOR TO PROVIDE BLOCKING, TYP.

1 ENLARGED FLOOR PLAN - WEST
5A-7 1/4" = 1'-0"

TRUE NORTH

PROJECT NORTH

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Title
INCUBATION ENLARGED FLOOR PLAN - WEST

Project No.	Scale
224202267	1/4" = 1'-0"
Revision	Drawing No.
	5A-7

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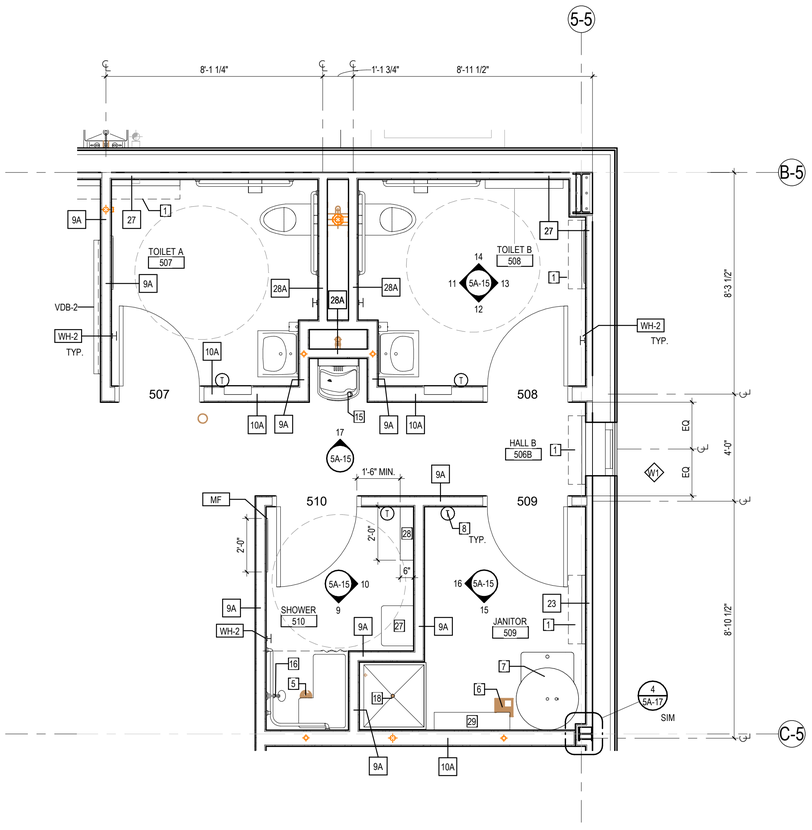
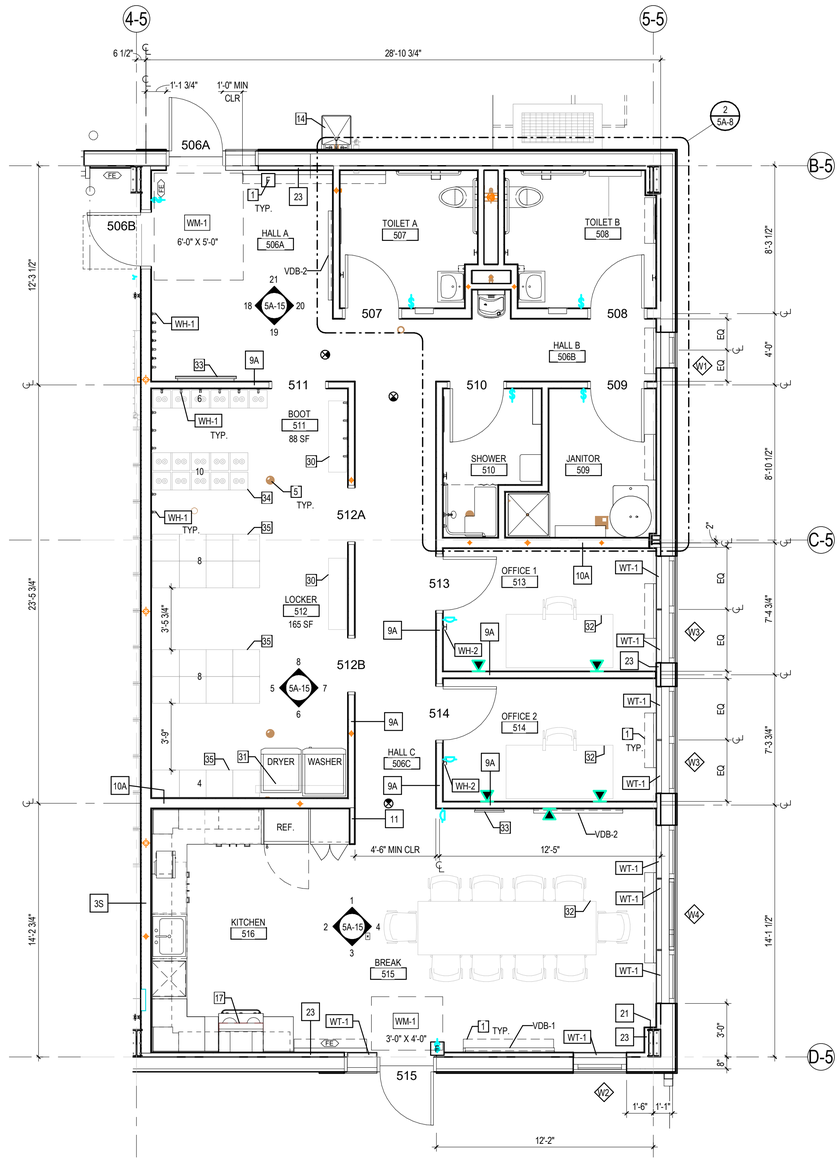


2 5A-8 ENLARGED FLOOR PLAN - TOILET, SHOWER, JANITOR

3/8" = 1'-0"



1 5A-8 ENLARGED FLOOR PLAN - EAST

1/4" = 1'-0"

SHEET NOTES:

1. SEE SHEET 5A-6 FOR FLOOR PLAN AND FINISH GENERAL NOTES.
2. VERIFY WALL TYPES, SEE SHEET 5A-3

INCUBATION KEY NOTES	
Key Value	Keynote Text
1	BASEBOARD HEATER, TYP.; SEE MECHANICAL
5	FLOOR DRAIN, TYP.; SEE MECHANICAL
6	DRAINAGE TRENCH, TYP.; SEE PROCESS MECHANICAL
7	HOT WATER HEATER, SEE MECHANICAL
8	THERMOSTAT, TYP.; SEE MECHANICAL
14	SINK; SEE MECHANICAL
15	ADA DRINKING FOUNTAIN AND BOTTLE FILLER; SEE MECHANICAL. APPROVAL FOR SINGLE UNIT WILL BE REQUIRED FROM THE AUTHORITY HAVING JURISDICTION.
16	SHOWER INSERT AND PLUMBING; SEE MECHANICAL.
17	STOVE HOOD ABOVE; SEE MECHANICAL
18	JANITOR MOP SINK; SEE MECHANICAL.
27	SMALL ADA FOLDING BENCH, 18" WIDE; PROVIDE BLOCKING
28	STAINLESS STEEL SHELVES (3), 6" X 24"; PROVIDE BLOCKING
29	MOP RACK AND SHELF; PROVIDE BLOCKING
30	BENCH, OFOI
32	FURNITURE, OFOI
33	HMI INTERACTIVE TOUCHSCREEN, OFOI, CONTRACTOR TO PROVIDE BLOCKING, TYP.; SEE ELECTRICAL FOR ADDITIONAL REQUIREMENTS
34	16 BOOT DRYERS, OFOI
35	20 LOCKERS, 18Wx18Dx72H (SEE SPEC 10 5113)

GENERAL NOTES - TOILET & SHOWER

1. SEE SHEET 5A-16 FOR TYPICAL MOUNTING HEIGHTS AND TOILET ACCESSORY IDENTIFICATION.
2. COORDINATE INSTALLATION OF REQUIRED BLOCKING AND STABILIZING FOR FIXTURES.
3. VERIFY FLOOR DRAIN STRAINER ELEV FOR ACCESSIBLE SHOWERS ARE 1" BELOW ADJACENT FINISH FLOOR ELEV.
4. DIMENSIONS INDICATED ARE FINISH TO FINISH INCLUDING ANY FINISH THICKNESS. WHERE ACCESSORIES (INCLUDING GRAB BARS) ARE SCHEDULED FOR WALL ATTACHMENT, PROVIDE SOLID 2X FRT WOOD BLOCKING.
5. ALL HANDRAIL MOUNTING SHALL COMPLY W/ ADA REQUIREMENTS.

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Tulalip Tribes

Tulalip- Utility Wells ESDC and Battle Creek Design

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File Name: N/A	SW Dwn.	CN Dsgn.	RT Chkd.	2024.12.28 YYYY.MM.DD

Title
INCUBATION ENLARGED FLOOR PLAN - EAST

Project No.	Scale
224202267	As indicated
Revision	Drawing No.
	5A-8

<File location in Project Information>
12/29/2024 1:04:29 PM

ORIGINAL SHEET - ANSI D

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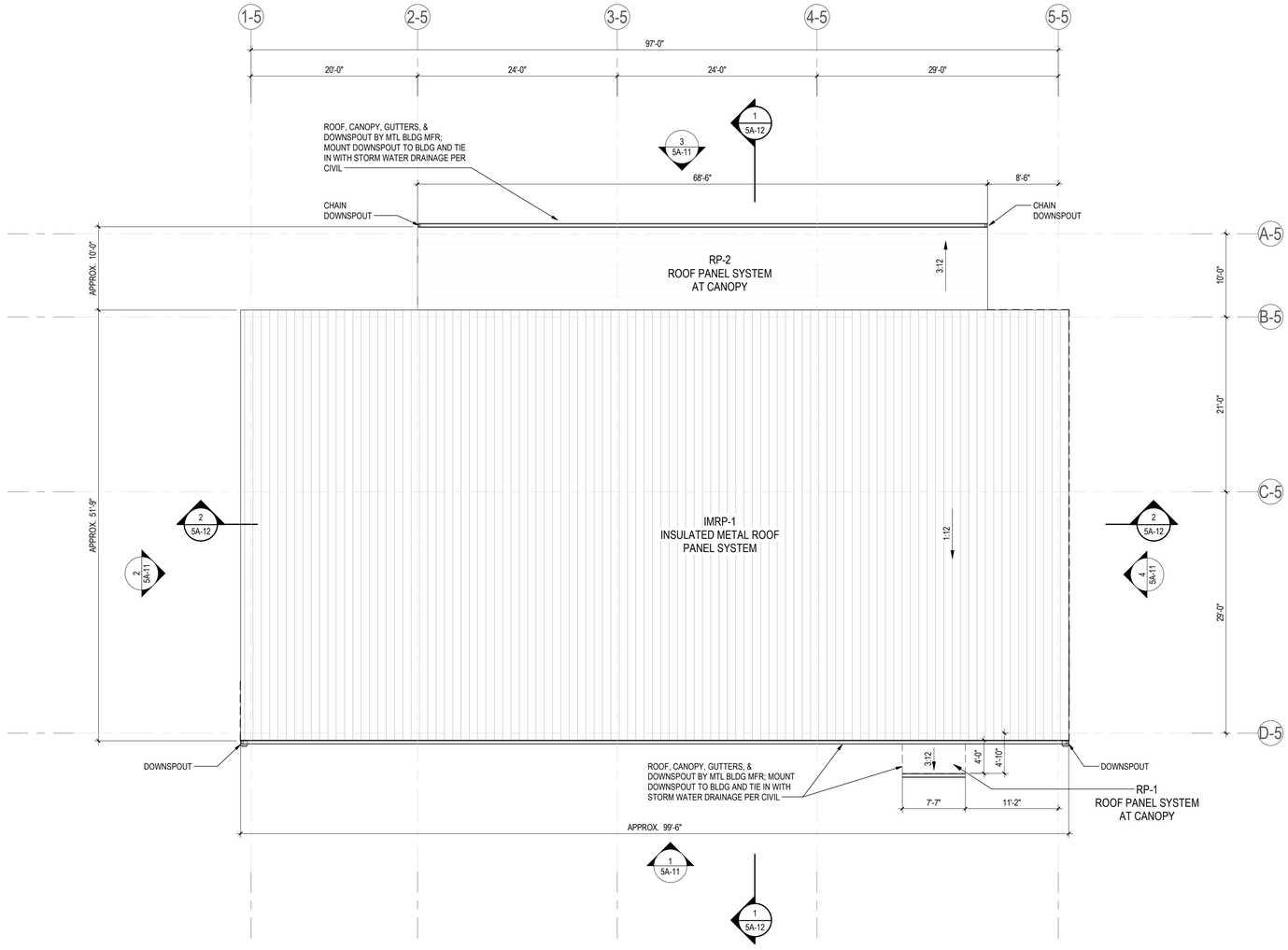

1 5A-9 OVERALL ROOF PLAN

1/8" = 1'-0"

GENERAL NOTES - ROOF PLAN

1. PROVIDE NEW ROOF PENETRATIONS AS REQUIRED FOR NEW MECHANICAL SYSTEMS AND EQUIPMENT AND ALL OTHER ROOF TOP MOUNTED ITEMS. INSTALL PER MTL BLDG MFR STANDARD DETAILS AND RECOMMENDATIONS.
2. ALL DIMENSIONS ARE FROM COLUMN / REFERENCE LINE TO CENTERLINE OF ROOF OPENING, UON. ROOF OPENING SIZES INDICATED ARE BASED ON A SPECIFIC MANUFACTURER'S EQUIPMENT, COORDINATE TO OBTAIN PURCHASED EQUIPMENT'S OPENING REQUIREMENTS.
3. PROVIDE A MINIMUM 12" CLEARANCE ON ALL SIDES OF VENT STACKS AND OTHER PENETRATIONS FROM WALLS, CURBS, AND OTHER PROJECTIONS TO FACILITATE PROPER FLASHING.
4. SEE MEP DRAWINGS FOR ROOF TOP EQUIPMENT NOT SHOWN. MEP EQUIPMENT DEPICTED ON THESE DRAWINGS ARE FOR GENERAL ARCHITECTURAL INFORMATION ONLY AND MAY NOT BE COMPLETE. SEE MEP DRAWINGS FOR ADDITIONAL REQUIREMENTS AND COORDINATION. SEE STRUCTURAL DOCUMENTS FOR EQUIPMENT SUPPORTS.
5. ALL ROOF PENETRATIONS AND ACCESSORIES (GUTTERS, VENTS, ETC.) ARE TO BE INSTALLED AND FLASHED IN COMPLIANCE WITH THE SMACNA ARCHITECTURAL SHEET METAL MANUAL.
6. FIELD PAINT ALL ROOF TOP EQUIPMENT, EXCLUDING PREFINISHED ITEMS.
7. ROOF AND CANOPY DETAILS (EAVE, RAKE, GUTTER, ETC) PER PEMB AND IMP MFR STANDARD DETAILS.
8. SEE SHEET 5A-3 FOR ASSEMBLIES.

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Title
INCUBATION ROOF PLAN

Project No. 224202267	Scale 1/8" = 1'-0"
Revision	Drawing No. 5A-9

<Plot location in Project Information>
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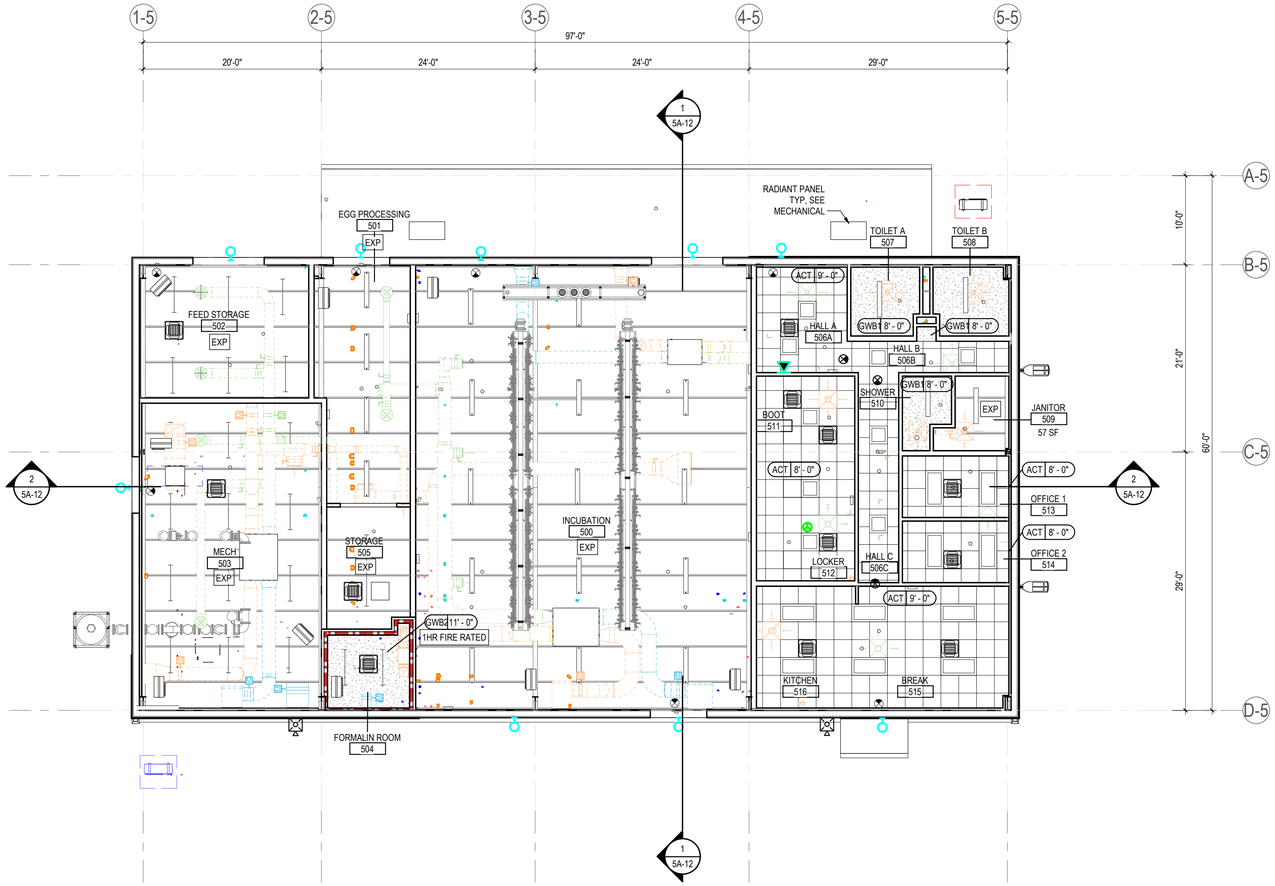

GENERAL NOTES - RCP

1. CUT CEILING TILES SHALL NOT BE LESS THAN 3"; COORDINATE PRIOR TO FINAL CEILING LAYOUT. CUT TILES SHALL BE FIELD REVEALED, PAINTED, AND SEALED.
2. COORDINATE LOCATION, ALIGNMENT, AND MOUNTING OF ALL VISIBLE CEILING, PARTITION, AND FLOOR MOUNTED DEVICES WITH ARCHITECT PRIOR TO INSTALLATION IF NOT SHOWN IN ARCHITECTURAL DWGS.
3. ALL CEILING DEVICES, INCLUDING BUT NOT LIMITED TO LIGHT FIXTURES, FIRE ALARM DEVICES, MOTION SENSORS, SPRINKLER HEADS, HVAC SUPPLY, AND HVAC RETURNS SHALL BE CENTERED WITHIN CEILING TILE, UON.
4. PROVIDE COORDINATION DWGS FOR LIGHT FIXTURE LAYOUT PRIOR TO INSTALLATION. ARCHITECT TO APPROVE LAYOUT / ALIGNMENT. CONTRACTOR REMAINS RESPOSIBLE FOR COORDINATION.
5. ALL SWITCHES WITHIN AREA TO BE GANGED UNDER ONE PLATE.
6. ALL ACCESS PANEL LOCATIONS SHALL BE COORDINATED WITH MEP LOCATIONS AND APPROVED BY ARCHITECT PRIOR TO INSTALLATION.
7. IN CASE OF DISCREPANCY BETWEEN MEP DRAWINGS AND ARCHITECTURAL DRAWINGS, CONTACT ARCHITECT PRIOR TO INSTALLATION OF MEP ITEMS.
8. PROTECT LIGHT FIXTURES AND OTHER CEILING MOUNTED FIXTURES FROM STAINS AND DAMAGE FOLLOWING INSTALLATION. CEILINGS TO BE FINISHED PRIOR TO INSTALLATION OF VISIBLE LIGHT FIXTURE PARTS. ALL LIGHT FIXTURE LENSES/COVERS TO BE CLEANED PRIOR TO TURNING OVER THE SPACE.
9. IN OPEN CEILING CONDITIONS, ALL CONDUCTORS SHALL BE IN CONDUIT, INCLUDING DATA AND LIFE SAFETY. LAY-OUT CONDUIT RUNS ON THE FLOOR FOR APPROVAL BY ARCHITECT PRIOR TO INSTALLATION.
10. CLEAN ALL EXPOSED CEILING AREAS OF ALL DEBRIS AND UNUSED MATERIAL/DEVICES. PAINT DECK, STRUCTURE, DUCT WORK AND EXPOSED PIPING X, UNO.
11. THE ZONE ABOVE ALL HARD CEILING AREAS, FROM THE CEILING ELEVATION UP TO THE FLOOR OR ROOF ABOVE, SHALL CONTAIN NO BUILDING SUPPORT ITEMS. BUILDING SUPPORT ITEMS SUCH AS DUCTS, CONDUITS, PIPES, ETC MAY PASS THRU THE ABOVE-CEILING ZONE PROVIDED NONE OF THE ITEMS THAT REQUIRE MAINTENANCE, ADJUSTMENT, OR INSPECTION.
12. LIGHT FIXTURE LAYOUT IN ARCHITECTURAL RCP'S ARE SHOWN FOR ALIGNMENT AND DESIGN INTENT PURPOSES. SEE ELECTRICAL DRAWINGS FOR LIGHT FIXTURES TYPES.
13. PROVIDE HORIZONTAL AND VERTICAL CONTROL JOINTS AT 30' - 0" OC MAXIMUM AT ALL GYPSUM BOARD BULKHEADS.
14. SECURE AND BRACE GYPSUM BULKHEADS TO STRUCTURE WITH METAL STUD KICKERS AT 48" O.C. MIN.

REFLECTED CEILING PLAN LEGEND

- EXP — EXPOSED CEILING, PAINTED ABOVE; SEE FINISH LEGEND
- GYPSUM CEILING, UNRATED (GWB1) & 1 HR FIRE RATED (GWB2); SEE 5A-3 FOR GWB2 DETAIL
- 2' X 2' ACOUSTICAL CEILING TILES & GRID (ACT)
- 2' X 4' LIGHT FIXTURE, SEE ELECTRICAL
- 2' X 2' LIGHT FIXTURE, SEE ELECTRICAL
- LINEAR LIGHT FIXTURES, SEE ELECTRICAL
- CAN LIGHT FIXTURE, SEE ELECTRICAL
- EMERGENCY LIGHT FIXTURES, SEE ELECTRICAL
- WALL MOUNTED DOWNLIGHT, SEE ELECTRICAL
- SUPPLY DIFFUSER, SEE MECHANICAL
- RETURN DIFFUSER, SEE MECHANICAL
- SPLIT HEAT PUMP FAN, SEE MECHANICAL
- OS — OCCUPANCY SENSOR, SEE ELECTRICAL
- P S — SMOKE DETECTOR, SEE ELECTRICAL
- H — HEAT DETECTOR, SEE MECHANICAL
- UNIT HEAT, SEE MECHANICAL

1 REFLECTED CEILING PLAN

1 / 5A-10 — 1/8" = 1'-0"

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Tulalip Tribes

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Title
INCUBATION REFLECTED CEILING PLAN

Project No.	Scale
224202267	1/8" = 1'-0"
Revision	Drawing No.
	5A-10

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12/26/2024 11:24:31 PM
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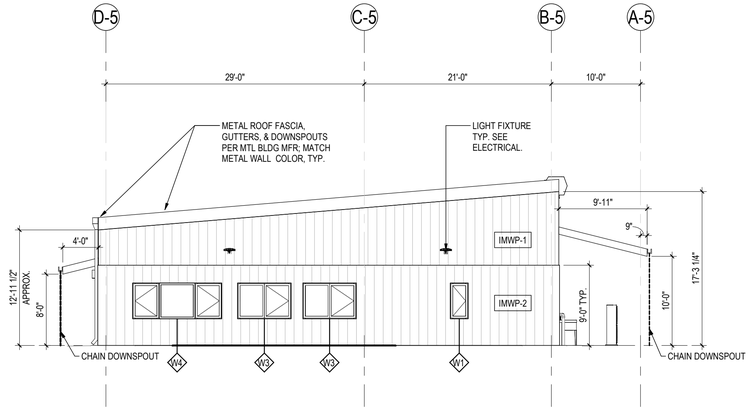
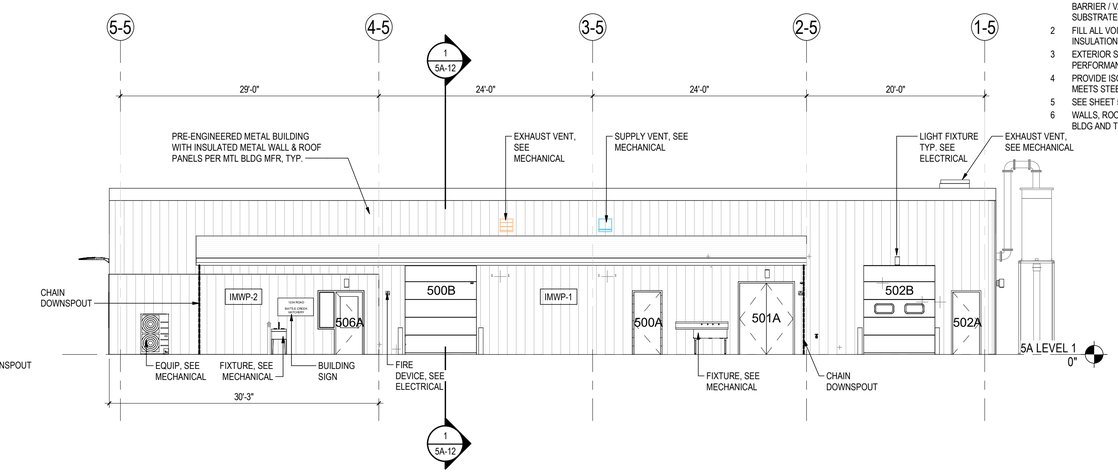
GENERAL NOTES - EXTERIOR ELEVATIONS

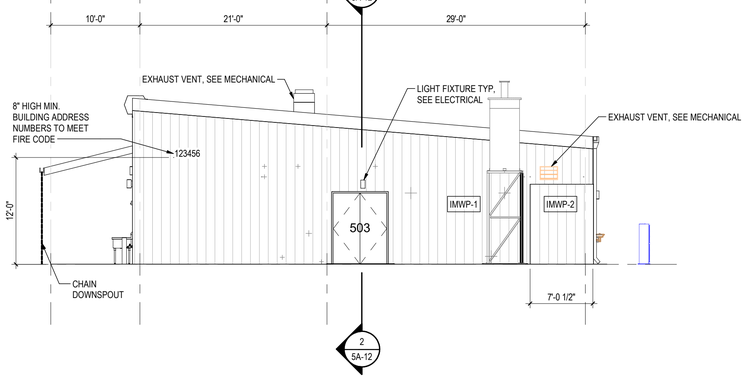
1. MAINTAIN AIR / VAPOR BARRIER CONTINUITY THROUGHOUT EXTERIOR ENVELOPE. SEAL ALL AIR BARRIER / VAPOR RETARDER SEAMS, JOINTS, PENETRATIONS & TERMINATIONS TO OTHER SUBSTRATES & OR OTHER AIR / BARRIER / VAPOR RETARDER SYSTEM.
2. FILL ALL VOIDS AROUND GLAZING SYSTEM PERIMETER WITH MINERAL WOOL OR FOAMED IN-PLACE INSULATION.
3. EXTERIOR STEEL (I. E. RELIEF ANGLES, PLATES, LINTELS, ETC), ARE TO BE GALVANIZED WITH HIGH PERFORMANCE COATING, UON.
4. PROVIDE ISOLATION MEMBRANE WHERE TREATED WOOD BLOCKING OR TREATED PLYWOOD MEETS STEEL CONSTRUCTION.
5. SEE SHEET 5A-3 FOR ASSEMBLIES.
6. WALLS, ROOF, CANOPY, GUTTERS, & DOWNSPOUTS BY MTL BLDG MFR; MOUNT DOWNSPOUT TO BLDG AND TIE IN WITH STORM WATER DRAINAGE PER CIVIL



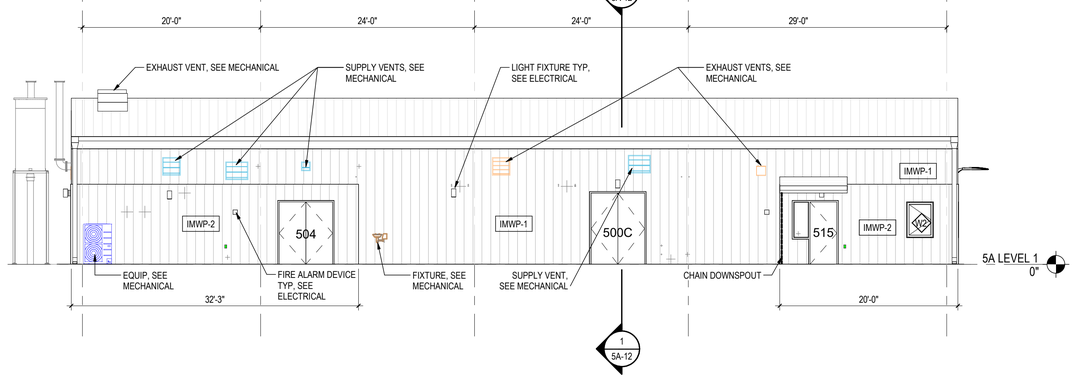
4 EXTERIOR ELEVATION- EAST
5A-11 1/8" = 1'-0"



3 EXTERIOR ELEVATION- NORTH
5A-11 1/8" = 1'-0"



2 EXTERIOR ELEVATION- WEST
5A-11 1/8" = 1'-0"



1 EXTERIOR ELEVATION- SOUTH
5A-11 1/8" = 1'-0"

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Tulalip Tribes

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File Name: N/A	SW	CN	RT	2024.12.28
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Title
INCUBATION EXTERIOR ELEVATIONS

Project No.	Scale
224202267	1/8" = 1'-0"
Revision	Drawing No.
	5A-11

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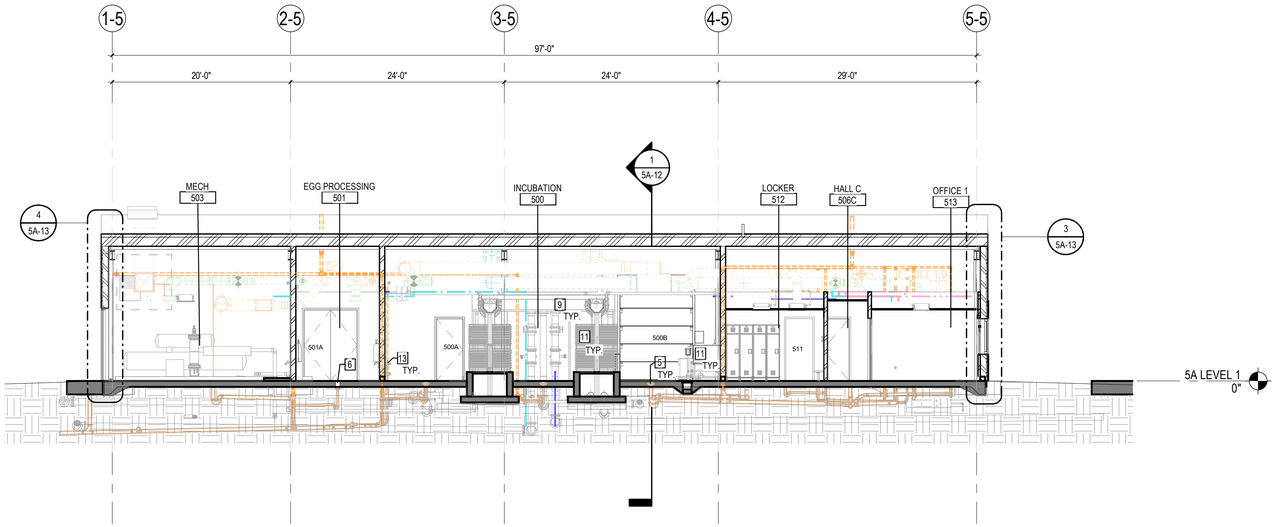
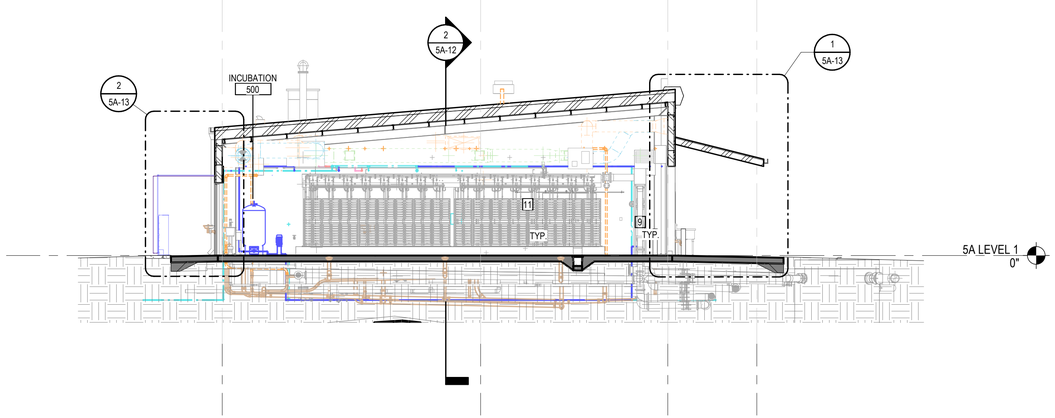


2 5A-12 BUILDING SECTION INCUBATION NORTH

1/8" = 1'-0"



1 5A-12 BUILDING SECTION INCUBATION WEST

1/8" = 1'-0"

GENERAL NOTES - SECTION & DETAIL

1. EXPOSED EXTERIOR STEEL MEMBERS SHALL BE GALVANIZED.
2. WHERE TREATED WOOD BLOCKING OR TREATED PLYWOOD MEETS STEEL CONSTRUCTION, PROVIDE ISOLATION MEMBRANE.
3. WHERE INS METAL WALL PANEL HEAD TRIM IS CALLED TO HAVE WEEPS, FIELD PAINT WITH RUST INHIBITIVE PAINT WEEP HOLES TO MATCH METAL WALL PANEL FINISH.
4. METAL ROOF, SOFFIT, AND WALL PANELS SHALL BE TRIMMED OUT WITH PRE-FINISHED TRIM TO MATCH ADJACENT FINISH.
5. MAINTAIN AIR / VAPOR BARRIER CONTINUITY THROUGHOUT EXTERIOR ENVELOPE. SEAL ALL SEAMS, JOINTS, PENETRATIONS & TERMINATIONS TO OTHER SUBSTRATES & / OR OTHER AIR / BARRIER / VAPOR RETARDER SYSTEM.
6. FILL ALL VOIDS AROUND GLAZING SYSTEM PERIMETER WITH MINERAL WOOL OR FOAMED IN-PLACE INSULATION.
7. SEE SHEET 5A-3 FOR ASSEMBLIES.

INCUBATION KEY NOTES	
Key Value	Keynote Text
5	FLOOR DRAIN, TYP.; SEE MECHANICAL
6	DRAINAGE TRENCH, TYP.; SEE PROCESS MECHANICAL
9	FEED CONTROL BOX AND MAIN TROUGH ABOVE, TYP.; SEE PROCESS MECHANICAL
11	INCUBATOR STACK AND VAULT BELOW, TYP.; SEE PROCESS MECHANICAL
13	HOSE BIB, TYP.; SEE MECHANICAL

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Title
INCUBATION BUILDING SECTIONS

Project No.	Scale
224202267	1/8" = 1'-0"
Revision	Drawing No.
	5A-12

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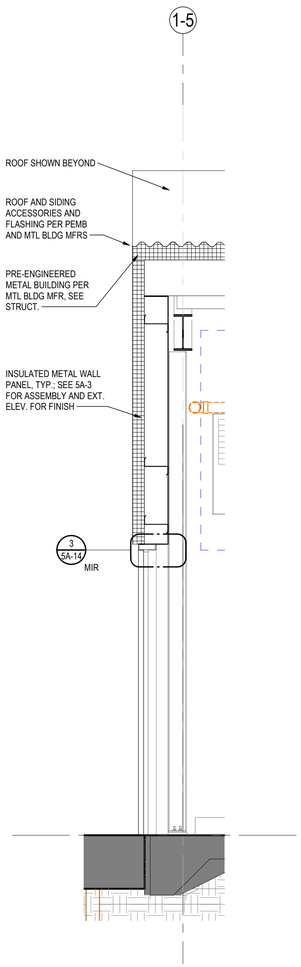
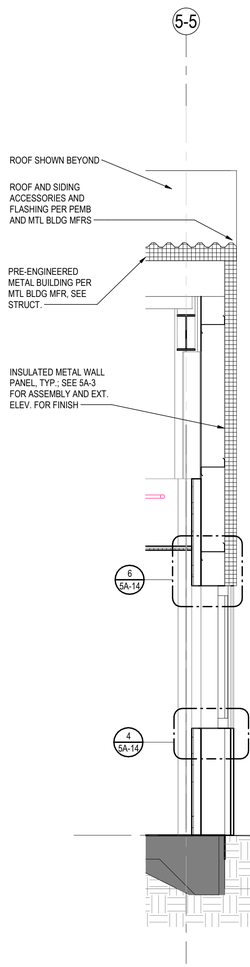
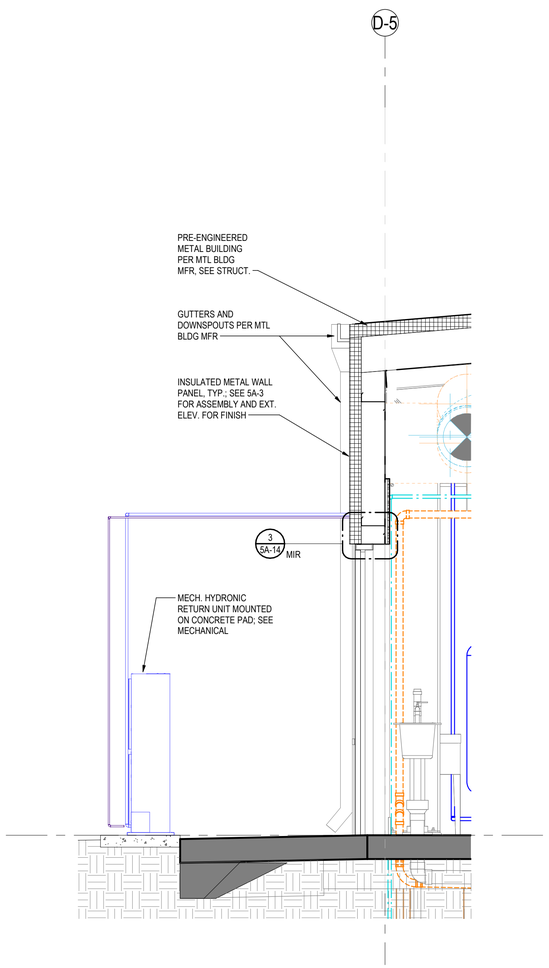
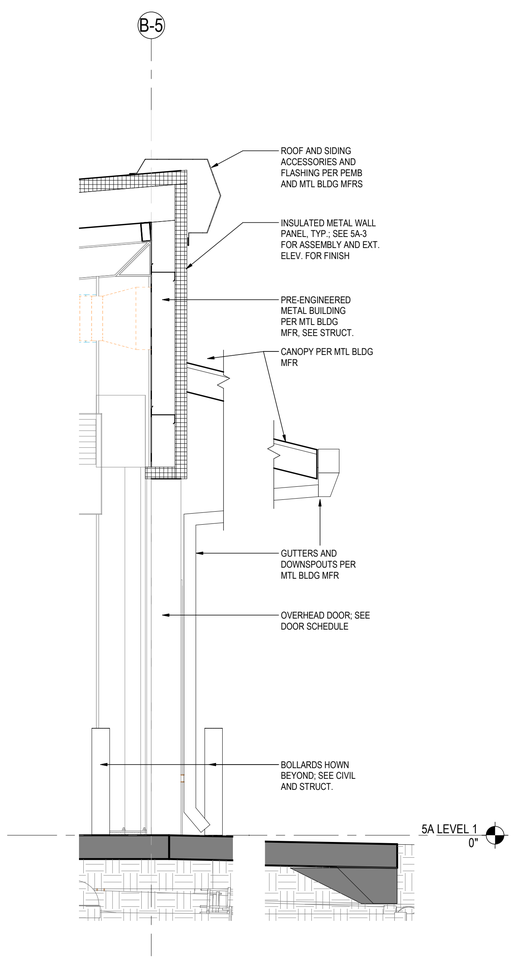
NOTE: SEE PEMB MFR AND IMP MFR FOR RECOMMENDED STANDARD EXTERIOR WALL AND ROOF DETAILS. OPENING DETAILS SHOWN HERE ARE INTENDED TO PROVIDE ADDITIONAL INFORMATION/DIRECTION NOT INCLUDED IN MFR STANDARD DETAILS.









4 5A-12 WALL SECTION - RAKE - WEST
1/2" = 1'-0"

3 5A-13 WALL SECTION - RAKE - EAST
1/2" = 1'-0"

2 5A-12 WALL SECTION - LOW EAVE
1/2" = 1'-0"

1 5A-13 WALL SECTION - OHSD, HIGH EAVE
1/2" = 1'-0"

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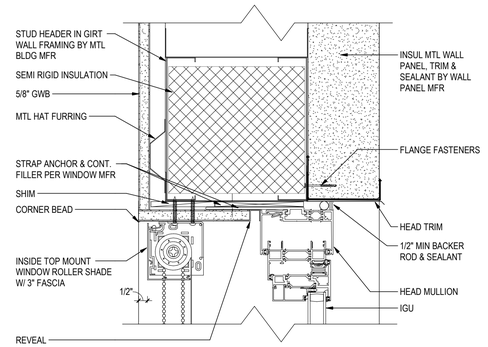
Title
INCUBATION WALL SECTIONS

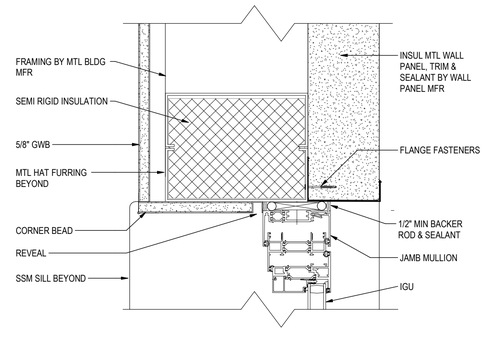
Project No.	Scale
224202267	1/2" = 1'-0"
Revision	Drawing No.
	5A-13

02/11/2025



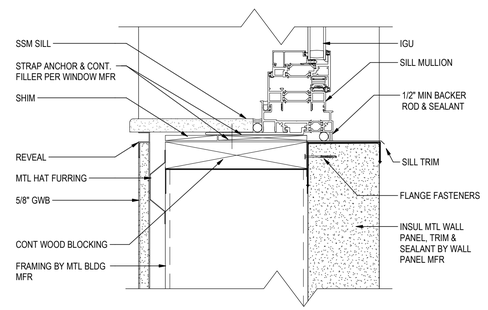
6 5A-14 WINDOW_EXT._IMP - HEAD

3" = 1'-0"



5 5A-14 WINDOW_EXT._IMP - JAMB

3" = 1'-0"



4 5A-14 WINDOW_EXT._IMP - SILL

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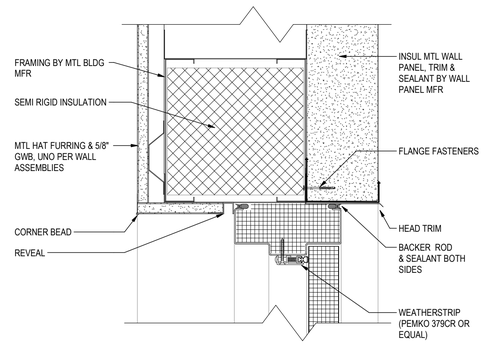
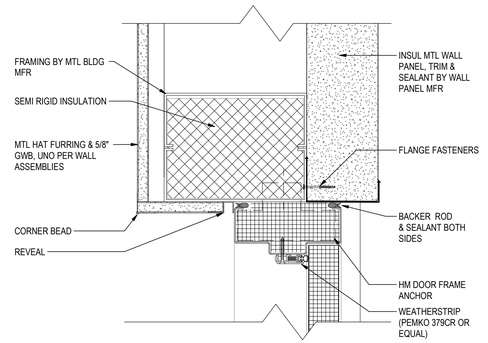


3 5A-14 DOOR_EXT._IHM - HEAD

3" = 1'-0"



2 5A-14 DOOR_EXT._IHM - JAMB

3" = 1'-0"

NOTE: SEE PEMB MFR AND IMP MFR FOR RECOMMENDED STANDARD EXTERIOR WALL AND ROOF DETAILS AS WELL AS ADDITIONAL OPENINGS AND PENETRATION DETAILS. OPENING DETAILS SHOWN HERE ARE INTENDED TO PROVIDE ADDITIONAL INFORMATION/DIRECTION NOT INCLUDED IN MFR STANDARD DETAILS.

Revision	By	Appd	YYYY.MM.DD

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ORIGINAL SHEET - ANSI D

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20105228 REGISTERED ARCHITECT
CAREL L. K. NAGATA
STATE OF WASHINGTON

Digitally signed by Nagata, Carel
Date: 2025.02.11 22:49:45-09'00'

Consultant

Stantec

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2353 130th Avenue NE Suite 200
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Client/Project Logo

Client/Project
Tulalip Tribes

Tulalip- Utility Wells ESDC and Battle Creek Design

6731 Totem Beach Rd. Tulalip, WA 98271

File Name: N/A	SW Dwn.	CN Dsgn.	RT Chkd.	2024.12.13 YYYY.MM.DD

Title
INCUBATION EXTERIOR DETAILS

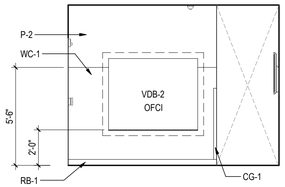
Project No.	Scale
224202267	3" = 1'-0"

Revision

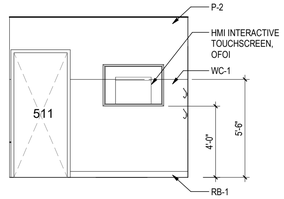
Drawing No.
5A-14

02/11/2025

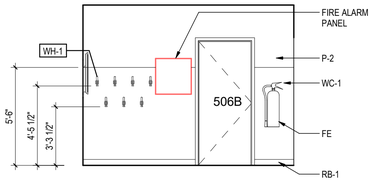
21 5A-15 **INT. ELEV. HALL A - N**
1/4" = 1'-0"



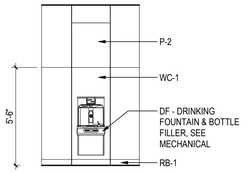
20 5A-15 **INT. ELEV. HALL A - E**
1/4" = 1'-0"



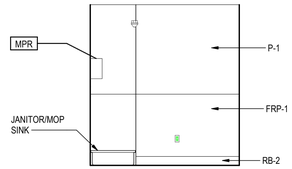
19 5A-15 **INT. ELEV. HALL A - S**
1/4" = 1'-0"



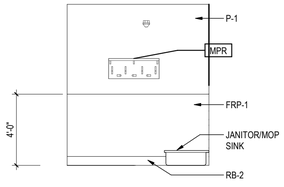
18 5A-15 **INT. ELEV. HALL A - W**
1/4" = 1'-0"



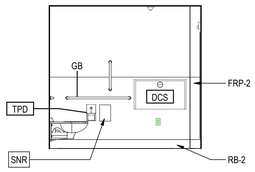
17 5A-15 **INT. ELEV. HALL B - N**
1/4" = 1'-0"



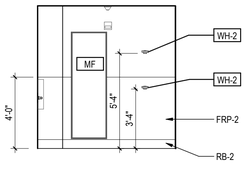
16 5A-15 **INT. ELEV. JAN. - W**
1/4" = 1'-0"



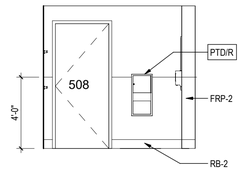
15 5A-15 **INT. ELEV. JAN - S**
1/4" = 1'-0"



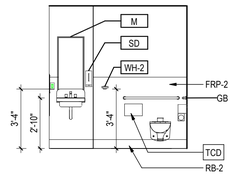
14 5A-15 **INT. ELEV. TOILET B - N**
1/4" = 1'-0"



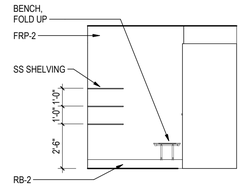
13 5A-15 **INT. ELEV. TOILET B - E**
1/4" = 1'-0"



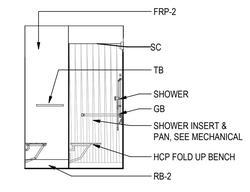
12 5A-15 **INT. ELEV. TOILET B - S**
1/4" = 1'-0"



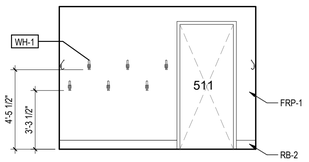
11 5A-15 **INT. ELEV. TOILET B - W**
1/4" = 1'-0"



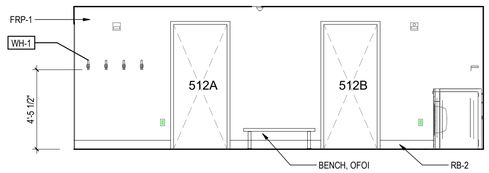
10 5A-15 **INT. ELEV. SHOWER-E**
1/4" = 1'-0"



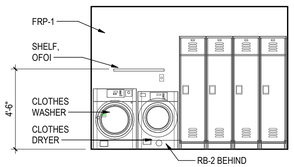
9 5A-15 **INT. ELEV. SHOWER-S**
1/4" = 1'-0"



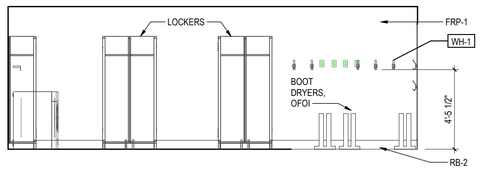
8 5A-15 **INT. ELEV. BOOT ROOM - N**
1/4" = 1'-0"



7 5A-15 **INT. ELEV. BOOT ROOM - E**
1/4" = 1'-0"



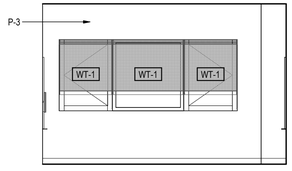
6 5A-15 **INT. ELEV. BOOT ROOM - S**
1/4" = 1'-0"



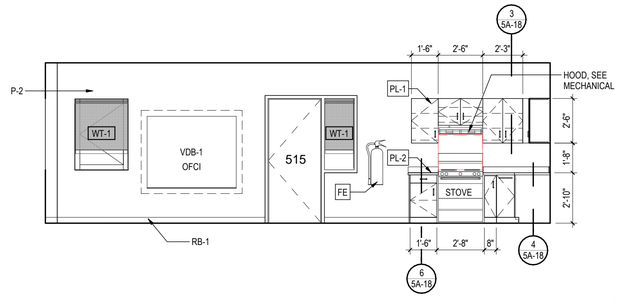
5 5A-15 **INT. ELEV. BOOT ROOM - W**
1/4" = 1'-0"

GENERAL NOTES - TOILET & SHOWER

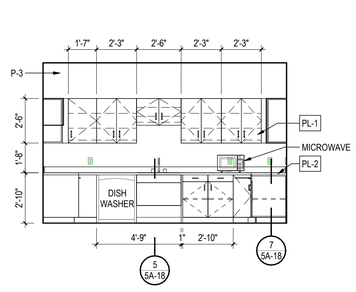
1. SEE SHEET 5A-16 FOR TYPICAL MOUNTING HEIGHTS AND TOILET ACCESSORY IDENTIFICATION.
2. COORDINATE INSTALLATION OF REQUIRED BLOCKING AND STABILIZING FOR FIXTURES.
3. VERIFY FLOOR DRAIN STRAINER ELEV FOR ACCESSIBLE SHOWERS ARE 1" BELOW ADJACENT FINISH FLOOR ELEV.
4. DIMENSIONS INDICATED ARE FINISH TO FINISH INCLUDING ANY FINISH THICKNESS. WHERE ACCESSORIES (INCLUDING GRAB BARS) ARE SCHEDULED FOR WALL ATTACHMENT, PROVIDE SOLID 2X FRT WOOD BLOCKING.
5. ALL HANDRAIL MOUNTING SHALL COMPLY W/ ADA REQUIREMENTS.



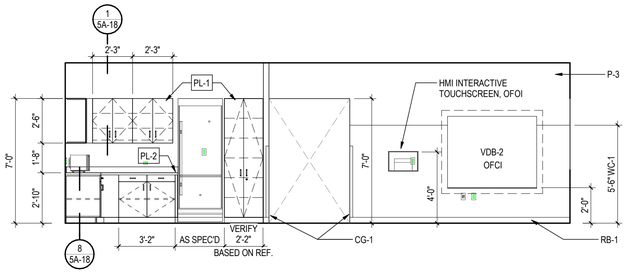
4 5A-15 **INT. ELEV. BREAK ROOM - E**
1/4" = 1'-0"



3 5A-15 **INT. ELEV. BREAK ROOM - S**
1/4" = 1'-0"



2 5A-15 **INT. ELEV. BREAK ROOM - W**
1/4" = 1'-0"



1 5A-15 **INT. ELEV. BREAK ROOM - N**
1/4" = 1'-0"

TOILET ACCESSORIES - ABBREVIATIONS

AFF	ABOVE FINISH FLOOR
DF	DRINKING FOUNTAIN/BOTTLE FILLER
DCS	DIAPER CHANGING STATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
GB	GRAB BAR(S)
HCP	HANDICAP ACCESSIBLE
M	MIRROR 18"X36"
MF	MIRROR FULL 24"X72"
MPR	MOP RACK/SHELF
PTD/R	PAPER TOWEL DISPENSER / RECEPTACLE
SC	SHOWER CURTAIN AND ROD
SD	SOAP DISPENSER
SNR	SANITARY NAPKIN RECEPTACLE
TB	TOWEL BAR
TCD	TOILET SEAT COVER DISPENSER
T.O.	TOP OF
TPD	TOILET PAPER DISPENSER
WH	WALL HOOK

Revision	By	Appd	YYYY.MM.DD

ORIGINAL SHEET - ANSI D

<Plot Location in Project Information>
12/28/2024 11:24:48 PM

PACKAGE A Issued	By	Appd	YYYY.MM.D

Permit/Seal

20105228
REGISTERED ARCHITECT
CAREL L. K. NAGATA
STATE OF WASHINGTON

Digitally signed by Nagata, Carel
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Client/Project Logo

TULALIP TRIBES

Client/Project
Tulalip Tribes

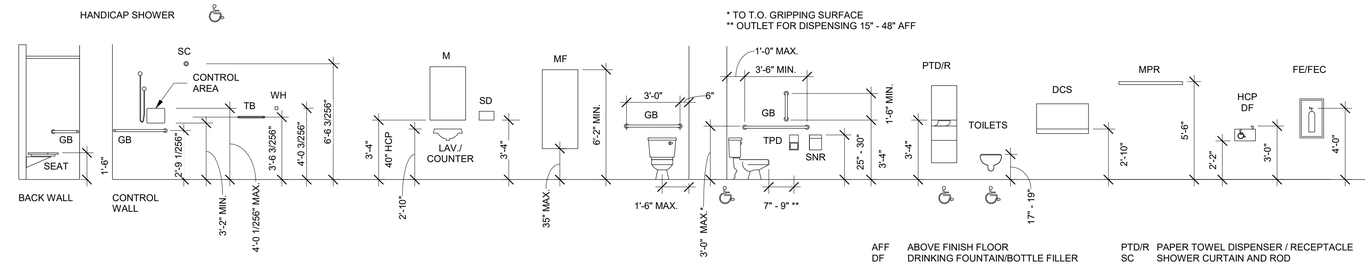
Tulalip- Utility Wells ESDC and Battle Creek Design

6731 Totem Beach Rd. Tulalip, WA 98271

File Name: N/A	SA Dwn.	CN Dsgn.	RT Chkd.	2024.12.28 YYYY.MM.DD

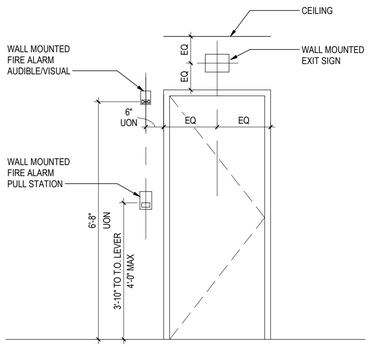
Title
INCUBATION INTERIOR ELEVATIONS

Project No. 224202267	Scale 1/4" = 1'-0"
Revision	Drawing No. **5A-15**

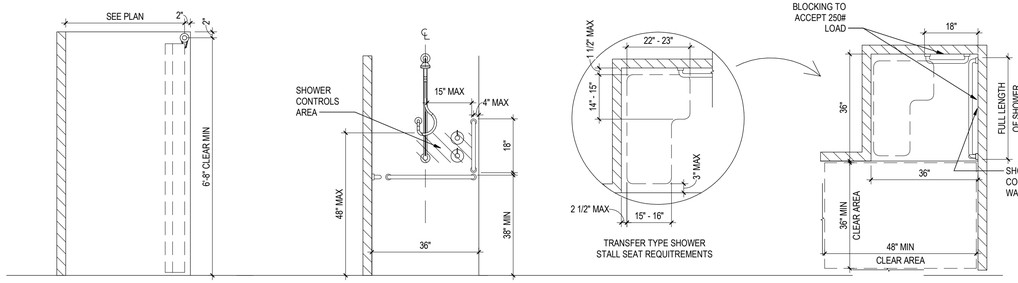


AFF	ABOVE FINISH FLOOR	PTD/R	PAPER TOWEL DISPENSER / RECEPTACLE
DF	DRINKING FOUNTAIN/BOTTLE FILLER	SC	SHOWER CURTAIN AND ROD
DCS	DIAPER CHANGING STATION	SD	SOAP DISPENSER
FE	FIRE EXTINGUISHER	SNR	SANITARY NAPKIN RECEPTACLE
FEC	FIRE EXTINGUISHER CABINET	TB	TOWEL BAR
GB	GRAB BAR(S)	TCD	TOILET SEAT COVER DISPENSER
HCP	HANDICAP ACCESSIBLE	T.O.	TOP OF
M	MIRROR 18"X36"	TPD	TOILET PAPER DISPENSER
MF	MIRROR FULL 24"X72"	WH	WALL HOOK
MPR	MOP RACK/SHELF		

4 TYPICAL MOUNTING HEIGHTS
5A-16 — 1/4" = 1'-0"



LIFE SAFETY DEVICES



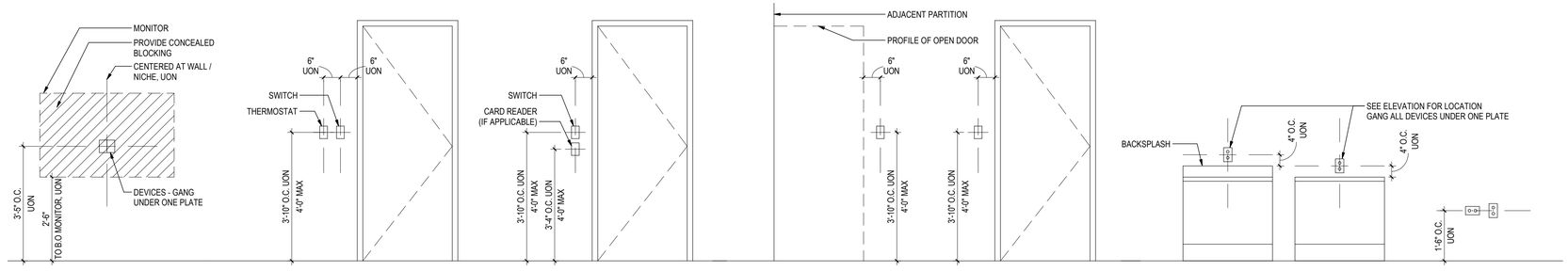
STANDARD ROLL-IN SHOWER COMPARTMENT CURTAIN MOUNTING HEIGHT

STANDARD TRANSFER TYPE SHOWER COMPARTMENT - CONTROLS AND GRAB BARS MOUNTING HEIGHT AND ADA CLEARANCES

TRANSFER TYPE SHOWER STALL SEAT REQUITREMENTS

3 TYPICAL MOUNTING HEIGHTS - LIFE SAFETY DEVICES
5A-16 — 1/2" = 1'-0"

2 TYPICAL MOUNTING HEIGHTS - ADA PLUMBING FIXTURE CLEARANCES - SHOWER STALLS
5A-16 — 1/2" = 1'-0"



TOUCHSCREEN MONITOR MOUNTING HEIGHT & DEVICE LOCATIONS

TYPICAL DEVICE RELATIONSHIPS

TYPICAL DEVICE MOUNTING HEIGHT / LOCATIONS SWITCH / CARD READER (IF APPLICABLE) / THERMOSTAT

ELECTRICAL / LOW VOLTAGE DEVICES @ MILLWORK

ELECTRICAL / LOW VOLTAGE DEVICES

1 TYPICAL MOUNTING HEIGHTS - TYPICAL DEVICES
5A-16 — 1/2" = 1'-0"

Revision	By	Appd	YYYY.MM.DD

PACKAGE A Issued	By	Appd	YYYY.MM.D

Permit/Seal

20105228 REGISTERED ARCHITECT — CAREL L. K. NAGATA — STATE OF WASHINGTON

Digitally signed by Nagata, Carel
Date: 2025.02.11 22:49:46-09'00'

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Client/Project
Tulalip Tribes

Tulalip- Utility Wells ESDC and Battle Creek Design

6731 Totem Beach Rd. Tulalip, WA 98271

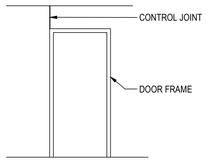
File Name: N/A	SW Dwn.	CN Dsgn.	RT Chkd.	2024.12.13 YYYY.MM.DD

Title
INCUBATION TYP MOUNTING HEIGHTS

Project No.	Scale
224202267	As indicated
Revision	Drawing No.
	5A-16

<File location in Project Information>
12/29/2024 1:24:47 PM
ORIGINAL SHEET - ANSI D

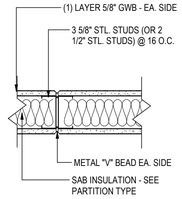
02/11/2025



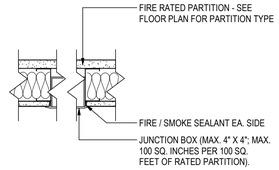
CONTRACTOR SHALL LOCATE CONTROL JOINTS AT 30'-0" O.C. (MAX.) FOR HORIZONTAL RUN OF PARTITION. JOINTS SHALL BE LOCATED AS SHOWN ABOVE DOOR HEADS, UNLESS NO DOORS EXIST WITHIN THE MAXIMUM 30'-0" SPACING.

TYPICAL JOINT LOCATION

NOT TO SCALE



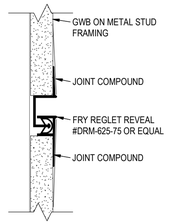
TYP. NON-RATED CONTROL JOINT DETAIL



JUNCTION BOXES INSIDE FIRE RATED WALLS

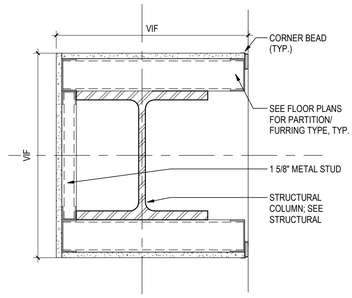
11 5A-17 GWB CONTROL JOINT & FIRE RATED DETAILS

1 1/2" = 1'-0"



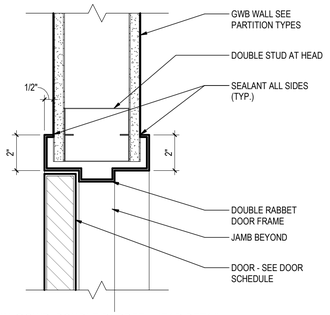
7 5A-17 DRYWALL JOINT DTL

6" = 1'-0"



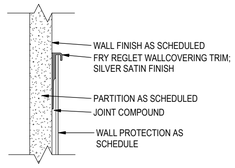
4 5A-17 COLUMN ENCLOSURE

1 1/2" = 1'-0"



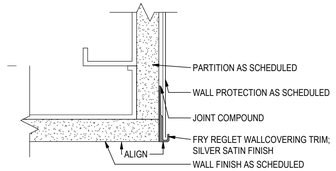
HM 2.2 HM @GWB: DOUBLE RABBET - HEAD DETAIL

SCALE: 3"=1'-0"



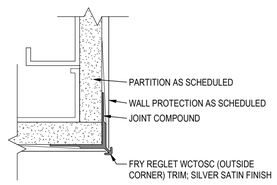
10 5A-17 WALLCOVERING_TERMINATION

6" = 1'-0"



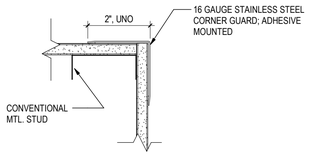
9 5A-17 WALLCOVERING_OUTSIDE CORNER TERMINATION

6" = 1'-0"



8 5A-17 WALLCOVERING_OUTSIDE CORNER

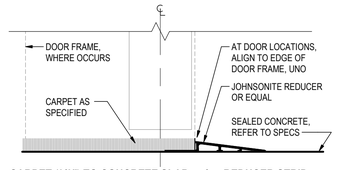
6" = 1'-0"



INSTALL DIRECTLY ABOVE BASE, TO RUN FULL-HEIGHT TO UNDERSIDE OF CEILING.
SEE FLOOR PLANS AND INTERIOR ELEVATIONS FOR LOCATIONS

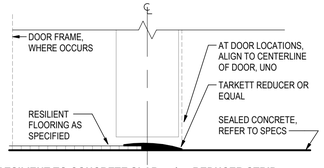
5 5A-17 CORNER GUARD_SS 2"

3" = 1'-0"



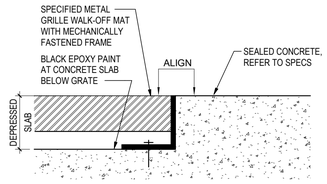
CARPET (3/8") TO CONCRETE SLAB | REDUCER STRIP

FLOOR TRANSITION FT-1



RESILIENT TO CONCRETE SLAB | REDUCER STRIP

FLOOR TRANSITION FT-2

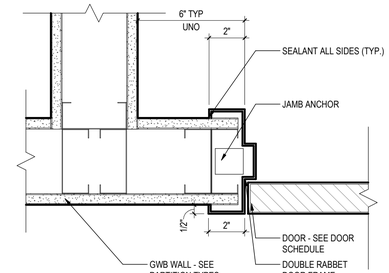


WALK-OFF MAT TO CONCRETE SLAB TRANSITION AT DEPRESSED SLAB

FLOOR TRANSITION FT-3

3 5A-17 FLOOR TRANSITION DETAILS

6" = 1'-0"

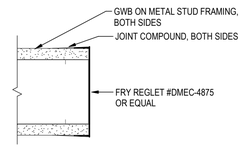


HM 2.1 HM @GWB: DOUBLE RABBET - JAMB DETAIL

SCALE: 3"=1'-0"

2 5A-17 HOLLOW METAL DOOR & FRAME

3" = 1'-0"



1 5A-17 DRYWALL END ENCLOSURE

3" = 1'-0"

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Digitally signed by Nagata, Carel
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TULALIP TRIBES

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Tulalip Tribes

Tulalip- Utility Wells ESDC and Battle Creek Design

6731 Totem Beach Rd. Tulalip, WA 98271

File Name: N/A | SW Dwn. | SW Dsgn. | RT Chkd. | 2024.12.13 YYYY.MM.DD

Title
INCUBATION INTERIOR DETAILS

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5A-17**

Revision	By	Appd	YYYY.MM.DD
PACKAGE A Issued	By	Appd	YYYY.MM.D

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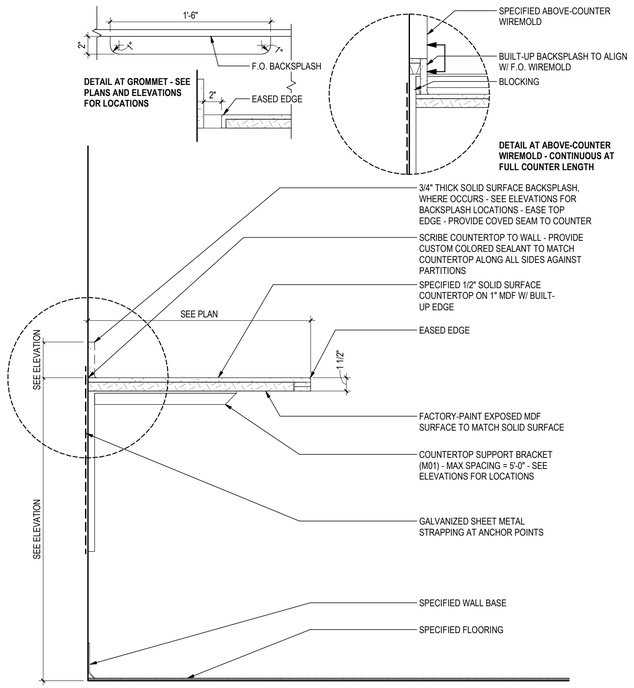
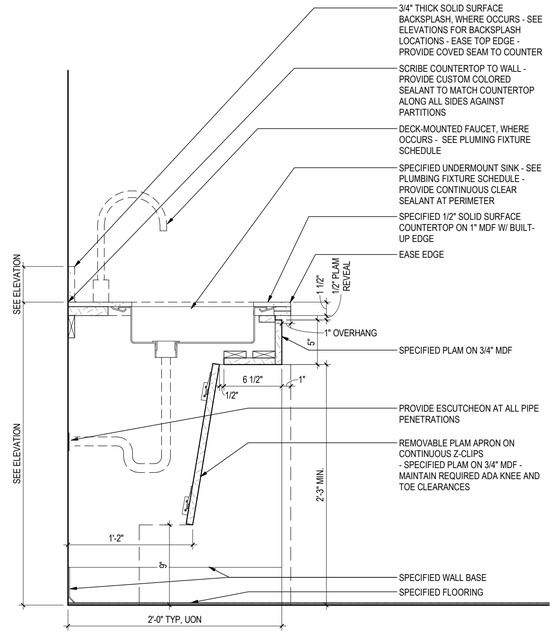
ORIGINAL SHEET - ANSI D

02/11/2025



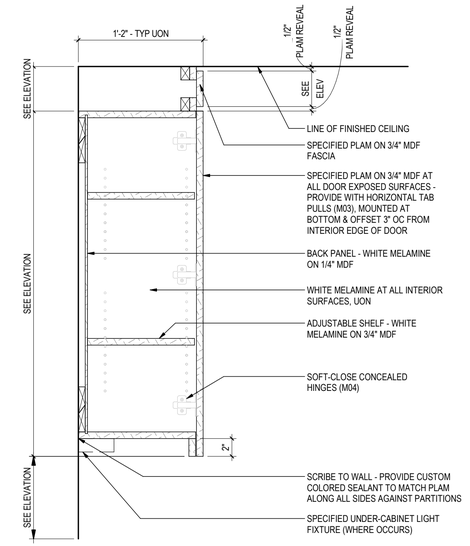
8 COUNTER - SOLID SURFACE W/ BRACKETS

8 / 5A-18 — 1 1/2" = 1'-0"



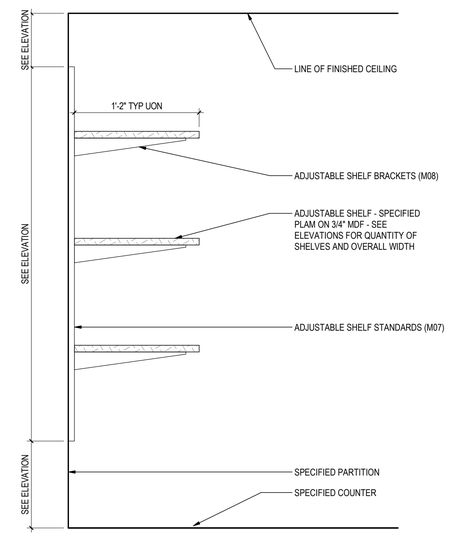
5 BASE CABINET - SSM TOP - ADA SINK - UNDERMOUNT - PLAM APRON

5 / 5A-18 — 1 1/2" = 1'-0"



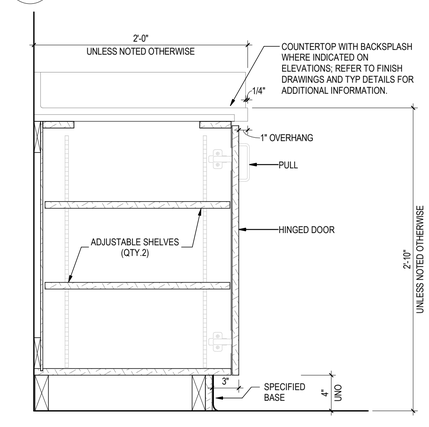
3 UPPER CABINET - PLAM - DOOR / ADJUSTABLE SHELVES

3 / 5A-18 — 1 1/2" = 1'-0"



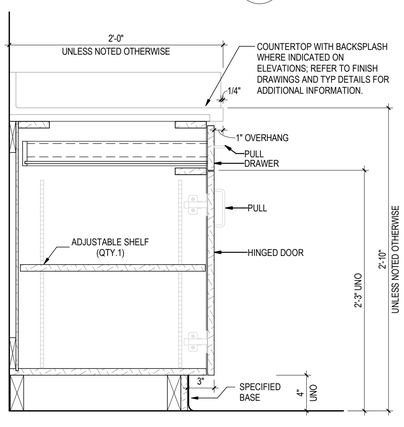
1 UPPER CABINET - PLAM - OPEN SHELVES ON BRACKETS

1 / 5A-18 — 1 1/2" = 1'-0"



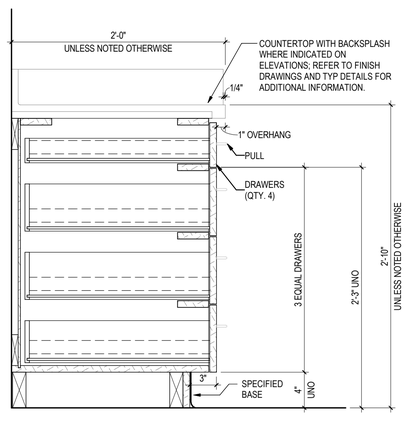
7 BASE CABINET W/ DOOR(S) AND ADJUSTABLE SHELVES

7 / 5A-18 — 1 1/2" = 1'-0"



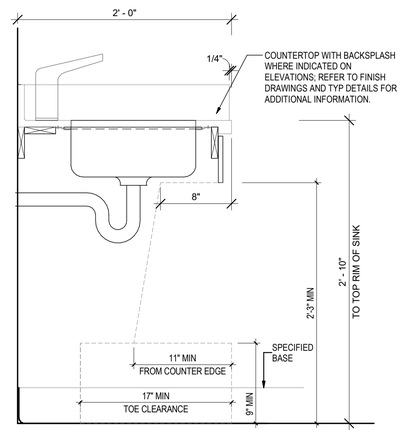
6 BASE CABINET W/ TOP DRAWER(S), DOOR(S) AND ADJUSTABLE SHELF

6 / 5A-18 — 1 1/2" = 1'-0"



4 BASE CABINET W/ 4 DRAWERS

4 / 5A-18 — 1 1/2" = 1'-0"



2 UNDERMOUNT SECTION W/O PANEL

2 / 5A-18 — 1 1/2" = 1'-0"

GENERAL NOTES - MILLWORK

1. SHELVES IN CABINETS SHALL BE ADJUSTABLE, UON.
2. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS PRIOR TO FABRICATING MILLWORK TO ASSURE PROPER FIT WITH AS-BUILT CONDITIONS.
3. CONTRACTOR SHALL COORDINATE SIZE OF EQUIPMENT AND APPLIANCES WITH NEW MILLWORK PRIOR TO FABRICATION.
4. WHERE TELEPHONE, DATA, AND POWER RECEPTACLES ARE INSTALLED BELOW COUNTERS, 2" GROMMETS SHALL BE PROVIDED THROUGH COUNTER AT EACH LOCATION. VERIFY WITH ARCHITECT PRIOR TO FABRICATION.
5. DIVISIONS IN MILLWORK ARE SHOWN FOR CLARITY AND DO NOT REPRESENT BREAKS IN THE COUNTERTOP.
6. PROVIDE CONTINUOUS COUNTERTOP OVER ALL SIMILAR HEIGHT MILLWORK, UON.
7. ALL EXPOSED SURFACES (EXPOSED TO VIEW FROM ANY PERSPECTIVE) TO BE COVERED WITH LAMINATED FINISHED ENDS.
8. ALL MILLWORK WHICH MEETS A WALL AT ONE OR BOTH ENDS, TO BE PROVIDED WITH FILLER PANELS AND SCRIBED TO THE WALL(S).
9. PROVIDE SIDE, TOP, AND BOTTOM MILLWORK FILLER PIECES AS REQUIRED.
10. ALL FLOOR MOUNTED MILLWORK/ CASEWORK TO HAVE THE SAME FINISH BASE MATERIAL AS THE ROOM. UNLESS BASE IS PROVIDED AS PART OF THE UNIT.
11. COORDINATE ALL MECHANICAL, PLUMBING & ELECTRICAL ROUGH-INS AND CONNECTIONS WITH MILLWORK PRIOR TO FABRICATION.
12. PROVIDE SEALANT AT ALL VERTICAL AND HORIZONTAL JOINTS WHERE MILLWORK ABUTS A WALL.
13. CASEWORK MAY REQUIRE MODIFICATION IN ORDER TO CONFORM WITH PROTRUDING COLUMN WRAPS. FIELD VERIFY AS-BUILT CONDITIONS.

Revision	By	Appd	YYYY.MM.DD
PACKAGE A			
Issued	By	Appd	YYYY.MM.DD

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Tulalip Tribes

Tulalip- Utility Wells ESDC and Battle Creek Design

6731 Totem Beach Rd. Tulalip, WA 98271

File Name: N/A	SW Dwn.	SW Dsgn.	RT Chkd.	2024.12.13 YYYY.MM.DD

Title
INCUBATION INTERIOR DETAILS

Project No.	Scale
224202267	1 1/2" = 1'-0"
Revision	Drawing No.
	5A-18

*Pick location in Project Information
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ORIGINAL SHEET - ANSI D

02/11/2025

- **PLAQUE:** 1/2" THICK ACRYLIC WITH SQUARE EDGES AND APPLIED PHOTO POLYMER FACE; PLAQUES PERMANENTLY MOUNT ON WALL WITH
- DOUBLE-SIDED FOAM AND SILICONE
- **COLOR:** FACE AND RETURN TO BE COLOR 1, COPY RULE LINE AND SYMBOL TO BE COLOR 2; BRAILLE TO BE COLOR 1 TO MATCH BACKGROUND
- **TYPE STYLE:** ARIAL, ALL CAPS, SIZE AND FORMAT AS ILLUSTRATED; ALL TEXT TO BE "TACTILE CHARACTERS" PER ANSI A117.1-703.3, AND TO BE DUPLICATED IN "BRAILLE" PER ANSI A111.7.1-703.4
- **PHOTOLUMINESCENT:** PLAQUES SHALL BE IN COMPLIANCE WITH "SELF-LUMINOUS AND PHOTOLUMINESCENT" PER IBC 1024.4 AS APPLICABLE

6 5A-19 SIGNAGE PLAQUE GENERAL NOTES

1" = 1'-0"

1. **ADDRESS IDENTIFICATION** IS TO BE PROVIDED; ADDRESS NUMBERS ARE TO BE LEGIBLE FROM THE STREET FRONTING THE PROPERTY, AND HAVE A MINIMUM HEIGHT OF 4" AND A MINIMUM STROKE WIDTH OF 0.5"; CONTRACTOR TO VERIFY ADDRESS IDENTIFICATION REQUIREMENTS WITH LOCAL JURISDICTION PRIOR TO SIGNAGE ACQUISITION
2. WHERE KEY OPERATED LOCKING DEVICES ARE SPECIFIED, PROVIDE A SIGN THAT READS, **"THIS DOOR TO REMAIN UNLOCKED WHEN THE BUILDING IS OCCUPIED";** LETTERS TO BE MIN 1" ON CONTRASTING BACKGROUND; LOCATE ON THE EGRESS SIDE OF THE DOOR
3. PROVIDE **DIRECTIONAL SIGNS** AT INACCESSIBLE BUILDING ENTRANCES, INACCESSIBLE PUBLIC TOILETS, AND ELEVATORS NOT SERVING AN ACCESSIBLE ROUTE; SEE SIGNAGE TYPE "G"
4. FIRE EXTINGUISHERS AND CABINETS CONTAINING FIRE HOSES (IF APPLICABLE) ARE TO HAVE SIGNS IDENTIFYING THE EQUIPMENT; LETTERS TO BE CONTRASTING AND 2" HIGH MINIMUM
5. SIGNS SAYING **"FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS"** IS REQUIRED AT ANY FIRE RATED WALL OR SMOKE BARRIER THAT REQUIRES PROTECTED OPENINGS OR PENETRATIONS; SIGNS ARE TO BE LOCATED IN AN ACCESSIBLE CONCEALED FLOOR OR FLOOR-CEILING SPACE; SIGNS ARE TO BE LOCATED WITHIN 15' OF END OF EACH WALL; LETTERING IS TO BE HIGH CONTRASTING AND 3" MINIMUM HIGH

RELEVANT CODES:

DOOR TO REMAIN UNLOCKED
"LOCKS AND LATCHES"
IBC 2012-1008.1.9.3
"KEY OPERATED LOCKS"
NFPA 2009-7.2.1.5.4.1

RATED CONSTRUCTION
"MARKING AND IDENTIFICATION"
IBC 2012-703.7
"SIGNS"
IFC 2012-703.2.1

FIRE FIGHTING EQUIPMENT
"CABINET EQPT IDENTIFICATION"
IFC 2012-905.7.1

ADDRESS IDENTIFICATION
"ADDRESS IDENTIFICATION"
IFC 2012-505.1

DIRECTIONAL SIGNS
"SIGNAGE"
IBC 2012-1007.9
"DIRECTIONAL SIGNAGE"
IBC 2012-1007.10

"TACTILE CHARACTERS"
ANSI A117.1 2009-703.3
"BRAILLE"
ANSI A117.1 2009-703.4

"DIRECTIONAL SIGNS"
ADAAG 2010-216.4.3
"ENTRANCES"
ADAAG 2010-216.6
"TOILET AND BATHING ROOMS"
ADAAG 2010-216.7

3 5A-19 MISCELLANEOUS SIGNS

1" = 1'-0"

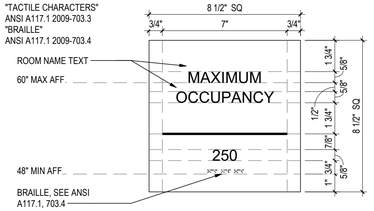
RELEVANT CODES:
"POSTING OF OCCUPANT LOAD"
IBC 2012-1004.3

"OCCUPANT LOAD POSTING"
NFPA 2009-12.7.9.3

"...INFORMATIONAL SIGNS"
ADAAG 2010-216.3

"TACTILE CHARACTERS"
ANSI A117.1 2009-703.3
"BRAILLE"
ANSI A117.1 2009-703.4

1. **LOCATION:** PROVIDE MAXIMUM OCCUPANCY PLAQUES IN ASSEMBLY USE AREA(S) NOT HAVING FIXED SEATS; LOCATE IN A CONSPICUOUS PLACE NEAR THE MAIN EXIT FROM THE ROOM; LOWER EDGE OF PLAQUE TO BE LOCATED 4' ABOVE FLOOR LANDING
2. SEE "SIGNAGE PLAQUE GENERAL NOTES" FOR ADDITIONAL INFORMATION



5 5A-19 TYPE "F" MAXIMUM OCCUPANCY

3" = 1'-0"

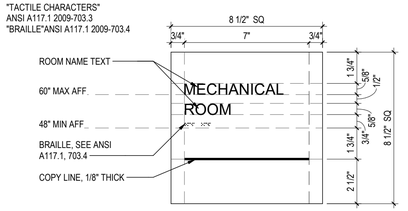
RELEVANT CODES:
"FP & UTILITY EQPT IDENTIFICATION"
IFC 2012-509

"[ELECTRICAL EQPT] LABELING"
IFC 2012-605.3.1

"DESIGNATIONS"
ADAAG 2010-216.2

"TACTILE CHARACTERS"
ANSI A117.1 2009-703.3
"BRAILLE"ANSI A117.1 2009-703.4

1. **LOCATION:** PROVIDE ROOM IDENTIFICATION PLAQUES AT ALL FIRE PROTECTION, UTILITY, AND ELECTRICAL CONTROL PANEL ROOMS; LOWER EDGE OF PLAQUE TO BE LOCATED 4' ABOVE FLOOR LANDING, 3" ADJACENT TO DOOR JAMB ON LATCH SIDE OF DOOR
2. **TYPE STYLE:** IF THIRD LINE OF TEXT IS REQUIRED, ADD 3/8" SPACE AND 5/8" TEXT BEFORE BRAILLE
3. SEE "SIGNAGE PLAQUE GENERAL NOTES" FOR ADDITIONAL INFORMATION



2 5A-19 TYPE "D" ROOM IDENTIFICATION

3" = 1'-0"

RELEVANT CODES:
"...NO SMOKING SIGN"
IFC 2012-310.3

"ENVIRONMENTAL TOBACCO SMOKE"
ASHRAE 189.1 2011-8.3.1.4

NOTES:
- CONTRACTOR TO VERIFY SIGN REQUIREMENTS WITH LOCAL JURISDICTION PRIOR TO SIGNAGE ACQUISITION
- PROVIDE "NO SMOKING" SIGNS WHERE REQUIRED BY THE FIRE CODE OFFICIAL
- PROVIDE "NO SMOKING WITHIN 25 FEET OF ALL BUILDING ENTRANCES" SIGN PER LOCATION SHOWN ON PLANS AND DRAWINGS

4 5A-19 TYPE "K" NO SMOKING AT ENTRANCES

3" = 1'-0"

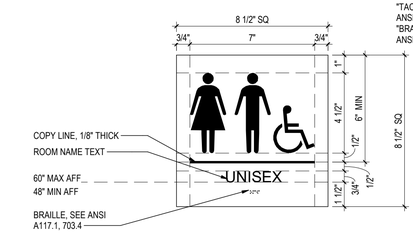
1. **LOCATION:** PROVIDE ROOM IDENTIFICATION PLAQUES AT ALL PUBLIC TOILET, BATHING, AND/OR LOCKER ROOMS; LOWER EDGE OF PLAQUE TO BE LOCATED 4' ABOVE FLOOR LANDING, 3" ADJACENT TO DOOR JAMB ON LATCH SIDE OF DOOR
2. **SYMBOL:** PROVIDE THE ACCESSIBLE SYMBOL WHERE MULTIPLE SINGLE-USER TOILET OR BATHING ROOMS ARE CLUSTERED AT A SINGLE LOCATION, AT FAMILY OR ASSISTED-USE TOILET AND BATHING ROOMS, AND AT LOCKER ROOMS WHERE NOT ALL ROOMS ARE ACCESSIBLE
3. SEE "SIGNAGE PLAQUE GENERAL NOTES" FOR ADDITIONAL INFORMATION

RELEVANT CODES:
"SIGNAGE"
IBC 2012-2902.4

"SIGNAGE"
IBC 2012-1110

"DESIGNATIONS"
ADAAG 2010-216.2
"IDENTIFICATION"
ADAAG 2010-216.8

"TACTILE CHARACTERS"
ANSI A117.1 2009-703.3
"BRAILLE"
ANSI A117.1 2009-703.4



1 5A-19 TYPE "E" RESTROOM IDENTIFICATION

3" = 1'-0"

Revision	By	Appd	YYYY.MM.DD	
PACKAGE A				
Issued	By	Appd	YYYY.MM.DD	

ORIGINAL SHEET - ANSI D

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CAREL L. K. NAGATA
STATE OF WASHINGTON

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Tulalip- Utility Wells ESDC and Battle Creek Design

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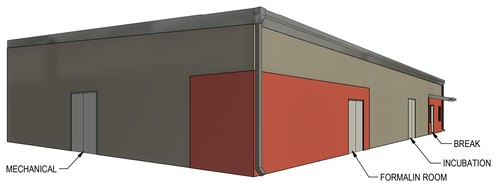
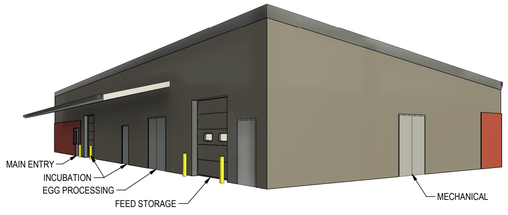
File Name: N/A	SW Dwn.	SW Dsgn.	RT Chkd.	2024.12.13 YYYY.MM.DD

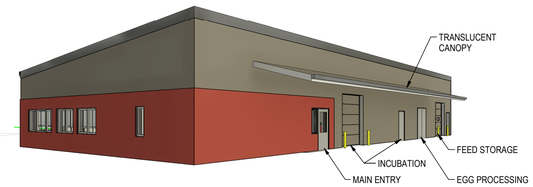
Title
INCUBATION INTERIOR DETAILS

Project No.	Scale
224202267	As indicated
Revision	Drawing No.
	5A-19

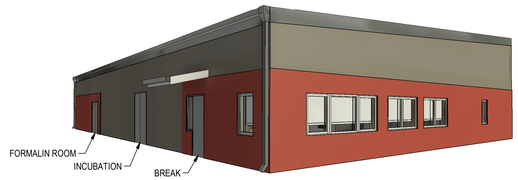
02/11/2025



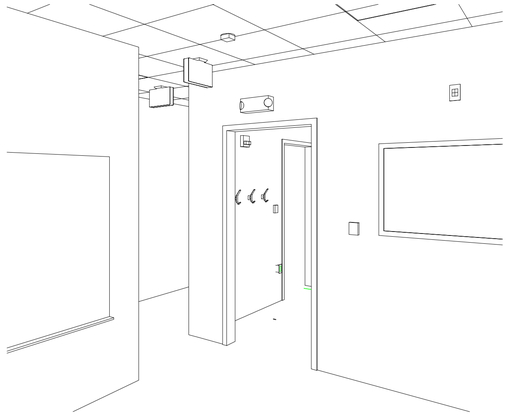




SIDING: KINGSPAN COLONIAL RED
SIDING: KINGSPAN ZINC GREY
ROOF: KINGSPAN SLATE GREY
SMALL CANOPY: KINGSPAN SLATE GREY
LARGE CANOPY: TRANSLUCENT



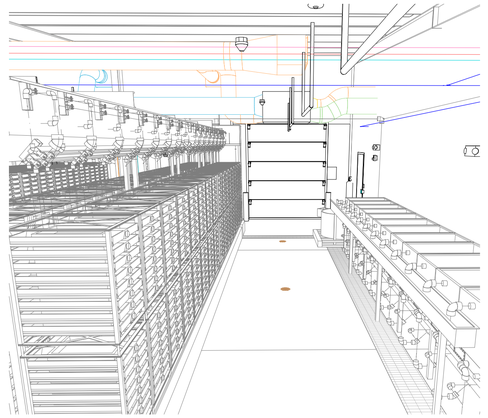
8 5A-20 LOOKING NORTHEAST VIEW



7 5A-20 LOOKING SOUTHEAST VIEW

6 5A-20 LOOKING SOUTHWEST VIEW

5 5A-20 LOOKING NORTHWEST VIEW



4 5A-20 ENTRY

3 5A-20 BOOT ROOM

2 5A-20 BREAK ROOM

1 5A-20 INCUBATION

ENTRY:
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BOOT ROOM:
https://api2.enscape3d.com/v3/view/link/cf0f0d50-3cd0-4a68-98a6-f8231ef511a0/a26300af-4ab1-49e4-be78-1cc355756482

BREAKROOM:
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INCUBATION ROOM:
https://api2.enscape3d.com/v3/view/link/70788762-a2d1-4479-845a-ed438304cd9d/75208a49-acd2-468c-8531-023b854dec11

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Issued | By | Appd | YYYY.MM.DD

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TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip- Utility Wells ESDC and Battle Creek Design

6731 Totem Beach Rd. Tulalip, WA 98271

File Name: N/A | SA Dwn. | CN Dsgn. | CN Chkd. | 2024.12.28 YYYY.MM.DD

Title
3D VIEWS

Project No.
224202267

Scale

Revision

Drawing No.
5A-20

GENERAL NOTES

GENERAL

THESE NOTES ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE.

STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL OR ELECTRICAL EQUIPMENT SHALL BE COORDINATED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. BOLT SIZES, TYPES, AND PATTERNS SHALL BE VERIFIED WITH THE MANUFACTURER. ALL BOLT PATTERNS SHALL BE TEMPLATED TO ENSURE ACCURACY OF PLACEMENT.

MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED FOR PRIOR TO PLACING CONCRETE.

STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH MECHANICAL, ELECTRICAL, ARCHITECTURAL, CIVIL DRAWINGS AND SHOP DRAWINGS PROVIDED BY MANUFACTURERS OF EQUIPMENT.

STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL, HYDROSTATIC, AND BACKFILL LOADS ON THE COMPLETED STRUCTURES. THE STRUCTURES HAVE NOT BEEN DESIGNED TO RESIST THESE LOADS WHILE ONLY PARTIALLY CONSTRUCTED. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED FROM ALL CONSTRUCTION LOADS BY BRACING AND BALANCING UNTIL ALL STRUCTURAL ELEMENTS ARE IN PLACE, AND ALL CONCRETE HAS REACHED THE SPECIFIED 28 DAY COMPRESSIVE STRENGTH. OVERLOADING OF ANY STRUCTURAL ELEMENT IS PROHIBITED.

UNLESS OTHERWISE SHOWN, ON ALL STRUCTURAL DRAWINGS THE FINISHED GRADE AROUND STRUCTURES IS SHOWN THUS, ////////// INDICATING EITHER GROUND SURFACE, TOP OF CONCRETE SLAB, OR AC PAVEMENT. FOR DETAILS OF FINISH SURFACES, SEE CIVIL AND ARCHITECTURAL DRAWINGS.

STRUCTURAL STEEL

STEEL CONSTRUCTION SHALL CONFORM TO THE SPECIFICATIONS AND STANDARDS AS CONTAINED IN THE FIFTEENTH EDITION OF THE AISC STEEL CONSTRUCTION MANUAL.

STRUCTURAL WIDE FLANGE SHAPES AND CHANNELS SHALL BE STEEL MEETING ASTM A-992 SPECIFICATIONS.

ANGLES SHALL BE OF STEEL MEETING ASTM A-572 GRADE 50 SPECIFICATIONS.

OTHER SHAPES, BARS, PLATES AND SHEETS SHALL BE OF STEEL MEETING ASTM-A572 GR 50 SPECIFICATIONS.

PIPE, PIPE COLUMNS, AND BOLLARDS SHALL BE OF STEEL MEETING ASTM A-53, TYPE E OR S, GRADE B STANDARD WEIGHT, UNO

HSS SHALL BE OF STEEL MEETING ASTM A-500 GRADE B.

STEEL JOISTS, BEAMS, AND GIRDERS SHALL NOT BE RELOCATED WITHOUT APPROVAL BY THE ENGINEER.

ALL WELDING SHALL BE BY THE SHIELDED ARC METHOD AND SHALL CONFORM TO AWS CODE FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION. QUALIFICATIONS OF WELDERS SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS FOR STANDARD QUALIFICATION PROCEDURE OF THE AWS.

CONCRETE (EXCEPT PRECAST CONCRETE)

UNLESS OTHERWISE NOTED OR SPECIFIED, ALL STRUCTURAL CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4500 PSI IN 28 DAYS.

REINFORCEMENT STEEL SHALL BE DEFORMED BARS CONFORMING IN QUALITY TO THE REQUIREMENTS OF ASTM A-615, "STANDARD SPECIFICATION FOR DEFORMED AND PLAIN CARBON-STEEL BARS FOR CONCRETE REINFORCEMENT," GRADE 60

COLUMN SPIRALS SHALL CONFORM TO ASTM A-615, "DEFORMED AND PLAIN BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT, GRADE 60 OR ASTM A-82 "STEEL WIRE, PLAIN, FOR CONCRETE REINFORCEMENT".

ALL DETAILING, FABRICATION AND PLACING OF REINFORCING BARS, UNLESS OTHERWISE INDICATED, SHALL BE IN ACCORDANCE WITH ACI-315, "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES", LATEST EDITION.

TOLERANCES IN PLACING REINFORCEMENT SHALL BE:

+/- 3/8 INCH FOR MEMBERS WITH DEPTH D <= 8 INCHES

+/- 1/2 INCH FOR MEMBERS WITH DEPTH D > 8 INCHES

ALL CONSTRUCTION JOINTS, SHALL BE ROUGH AND THOROUGHLY CLEANED FOR BOND.

LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS OR APPROVED BY THE ENGINEER. ALL CONSTRUCTION JOINTS LOCATED ON THE DRAWINGS, OR REQUIRED FOR CONSTRUCTION BUT NOT SHOWN ON THE DRAWINGS, SHALL HAVE A 6" FLATSTRIP WATERSTOP IF IN CONTACT WITH WATER. IN ADDITION, JOINTS IN ALL SLABS COVERED WITH WATER SHALL HAVE BOTH A 6" FLATSTRIP WATERSTOP AND A SEALANT GROOVE.

DOWELS, PIPE, WATERSTOPS AND OTHER INSTALLED MATERIALS AND ACCESSORIES SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.

UNLESS OTHERWISE INDICATED, ASIDE FROM NORMAL ACCESSORIES USED TO HOLD REINFORCING BARS FIRMLY IN POSITION, THE FOLLOWING SHALL BE ADDED:

A) IN SLABS #5 RISER BARS AT 36 INCHES OC MAXIMUM TO SUPPORT TOP REINFORCING BARS.

B) IN WALLS WITH 2 CURTAINS #3 U OR Z SHAPE SPACERS AT 6 FEET OC EACH WAY.

VERTICAL REINFORCEMENT FOR CONCRETE OR MASONRY SHALL BE SPLICED WITH DOWEL BARS OF THE SAME SIZE AND SPACING FROM THE FOUNDATION USING A STANDARD SPLICE LENGTH UNLESS INDICATED OTHERWISE.

SEALANT SHALL BE PLACED AT THE TOP OF ALL JOINTS RECEIVING EXPANSION JOINT FILLER. SEALANT DEPTH SHALL BE THE JOINT FILL THICKNESS OR 1/2", WHICHEVER IS LESS.

ALL GROUT SHALL BE NON-SHRINK GROUT, UNLESS INDICATED OTHERWISE.

UNLESS OTHERWISE SHOWN CONCRETE WALLS AND SLABS SHALL BE REINFORCED AS FOLLOWS: #4@12" EW , CENTER OF 6" SECTIONS; #5@12" EW, CENTER OF 8" SECTIONS; #4 @ 12" EW EF OF 10" SECTIONS; #5@12" EW EF OF 12" AND THICKER SECTIONS.

METAL CLIPS OR SUPPORTS SHALL NOT BE PLACED IN CONTACT WITH THE FORMS OR THE SUBGRADE. CONCRETE BLOCKS (OR DOBIES) SUPPORTING BARS ON SUBGRADE SHALL BE IN SUFFICIENT NUMBERS TO SUPPORT THE BARS WITHOUT SETTLEMENT, BUT IN NO CASE SHALL SUCH SUPPORT BE CONTINUOUS.

DOWELS SHALL BE WIRED OR OTHERWISE HELD IN POSITION. THEY SHALL NOT BE SHOVED INTO FRESHLY PLACED CONCRETE.

UNLESS OTHERWISE INDICATED ON THE DRAWINGS, LAPS OF REINFORCEMENT SHALL BE AS SHOWN ON DETAIL S-143.

LOCATE TWO 3/4 INCH GALVANIZED RICHMOND ROCKET INSERTS, HOHMANN & BARNARD OR EQUAL, STRADDLING CENTERLINE OF EQUIPMENT OVER ALL PUMPS, METERS OR OTHER MECHANICAL UNITS OF MORE THAN 100 LBS, FOR INSERTING LIFTING EYES IF NOT OTHERWISE INDICATED.

REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY PIPE, PIPE FLANGE OR METAL PARTS EMBEDDED IN CONCRETE, A MINIMUM OF 2 INCHES CLEARANCE SHALL BE PROVIDED AT ALL TIMES.

ALL ITEMS EMBEDDED IN CONCRETE SHALL BE SPACED ON CENTER AT LEAST 3 TIMES THEIR OUTSIDE DIMENSION. THE OUTSIDE DIMENSION SHALL NOT EXCEED ONE THIRD OF THE MEMBER THICKNESS

UNLESS OTHERWISE SHOWN ON THE DRAWINGS CONCRETE COVER FOR REINFORCING BARS SHALL BE AS FOLLOWS:

FOR CONCRETE PLACED AGAINST EARTH (SEE CONSTRUCTION JOINT DETAILS FOR THIN SLABS-ON-GRADE, BOTTOM COVER MAY BE LESS THAN 3" IF SO INDICATED)	3"
FOR SURFACES IN CONTACT WITH WATER OR WEATHER AND FORMED SURFACES IN CONTACT WITH EARTH	2"
FOR CONCRETE NOT EXPOSED TO WEATHER, OR IN CONTACT WITH WATER OR EARTH	1 1/2"

UNLESS OTHERWISE NOTED, WALLS AND SLABS SHOWN WITH A SINGLE LAYER OF REINFORCEMENT SHALL HAVE THAT REINFORCEMENT CENTERED

SLABS WITH SLOPING SURFACES SHALL HAVE THE INDICATED SLAB THICKNESS MAINTAINED AS THE MINIMUM. SLAB-ON-GRADE BOTTOMS MAY EITHER SLOPE WITH THE TOP SURFACE OR BE LEVEL. REINFORCING IN SLABS WITH SLOPING SURFACES SHALL BE PLACED AT THE REQUIRED CLEARANCE FROM THE SLAB SURFACES.

UNLESS OTHERWISE NOTED WALL, WALLS AND SLABS SHOWN WITH A SINGLE LAYER OF REINFORCEMENT SHALL HAVE THAT REINFORCEMENT CENTERED.

TESTING HYDRAULIC STRUCTURES

WHEN FILLING THE STRUCTURES WITH WATER FOR THE TEST REQUIRED IN THE SPECIFICATIONS, ALL VARIOUS BASINS LOCATED IN THE SAME STRUCTURE SHALL BE FILLED SIMULTANEOUSLY AT THE SAME RATE IN ORDER TO KEEP THE SAME LEVEL IN EACH BASIN.

STRUCTURAL STANDARD DETAILS

DETAILS ON GS SHEETS ARE PART OF STANTEC'S STRUCTURAL STANDARD DETAILS.

THESE DETAILS ARE TO BE USED WHEN REFERRED TO OR WHEN NO OTHER MORE RESTRICTIVE OR DIFFERENT DETAILS ARE INDICATED ON THE DRAWINGS.

DETAILS NOT PERTAINING TO THE PROJECT ARE MARKED THUS ▨

CONDUIT COORDINATION NOTES

REFER TO THE NOTES BELOW, AND ELECTRICAL AND STRUCTURAL DRAWINGS AND SPECIFICATIONS, FOR CONDUIT PLACEMENT REQUIREMENTS. CONDUIT NOT IN CONFORMANCE WITH THESE REQUIREMENTS SHALL NOT BE INSTALLED WITHOUT WRITTEN APPROVAL FROM THE STRUCTURAL ENGINEER OF RECORD.

FOR CONDUIT RUNNING IN THE PLANE OF CONCRETE SLABS OR WALLS:

THE OUTSIDE DIAMETER OF THE CONDUIT SHALL NOT EXCEED ONE-THIRD OF MEMBER THICKNESS;

CONDUIT SHALL NOT BE SPACED CLOSER THAN 3 OUTSIDE DIAMETERS ON CENTER;

CONDUIT SHALL BE LOCATED ONLY WITHIN THE MIDDLE THIRD OF THE MEMBER ;

CONDUIT SHALL NOT BE SUPPORTED DIRECTLY ON REBAR.

FOR CONDUIT RUNNING THROUGH THE PLANE OF CONCRETE SLABS OR WALLS:

COORDINATE CONDUIT PLACEMENT TO AVOID OR MINIMIZE IMPACT TO REBAR PLACEMENT.

CONDUIT SHALL BE 2 INCHES MINIMUM CLEAR OF REBAR.

REBAR MAY BE SHIFTED 2 INCHES MAXIMUM TO AVOID CONDUIT.

WHERE REBAR MUST BE CUT TO ACCOMMODATE CONDUIT PLACEMENT, PROVIDE ADDITIONAL REINFORCEMENT PER DETAIL S-144 OR S-148, CONSIDERING THE CONDUIT PENETRATION(S) AS AN EQUIVALENT CIRCULAR OR RECTANGULAR OPENING, RESPECTIVELY.

CONDUIT SHALL NOT BE RUN IN OR THROUGH GRADE BEAMS.

GENERAL DESIGN CRITERIA

DESIGN IN ACCORDANCE WITH THE 2015 EDITION OF THE INTERNATIONAL BUILDING CODE, EXCEPT WHERE OTHER APPLICABLE CODES OR THE FOLLOWING NOTES ARE MORE RESTRICTIVE.

LOADINGS:

SOIL LOADS :

ALLOWABLE BEARING PRESSURE (PSF)	
WATER TANK MAT FOUNDATION:	1,500
INCUBATION BUILDING (ISOLATED PADS):	2,000
INCUBATION BUILDING (CONT. STRIP FOOTINGS):	2,000
HEAD BOX STRUCTURE (ISOLATED PADS):	2,000
HEAD BOX MAT FOUNDATION:	1,500
REUSE TREATMENT STRUCTURE MAT FOUNDATION:	1,500
WASHWATER CLARIFIER MAT FOUNDATION:	1,200

FLOOR LIVE LOADS:

UNIFORM LIVE LOAD (PSF):	100
CONCENTRATED LOAD (PSF):	300
IMPACT LOAD (% OF LOAD):	20

ROOF LIVE LOADS:

ROOF LIVE LOAD (PSF):	20

WIND LOADS:

BASIC WIND SPEED (3 SEC - MPH):	110
WIND EXPOSURE:	B
RISK CATEGORY:	II
INTERNAL PRESSURE COEFFICIENT:	+/-0.18
COMPONENTS AND CLADDING (PSF):	16
WIND IMPORTANCE FACTOR (Iw):	1.0

SEISMIC LOADS:

RISK CATEGORY:	II
SEISMIC IMPORTANCE FACTOR (Ie):	1.0
MAPPED SPECTRAL RESPONSE COEFFICIENT (Ss):	1.205
MAPPED SPECTRAL RESPONSE COEFFICIENT (S1):	0.43
DESIGN SPECTRAL RESPONSE COEFFICIENT (Sds):	0.818
DESIGN SPECTRAL RESPONSE COEFFICIENT (Sd1):	0.536
SITE CLASS:	D
SEISMIC DESIGN CATEGORY:	D

SNOW LOADS:

FLAT ROOF SNOW LOAD (Pf) (PSF):	12.6
SNOW EXPOSURE FACTOR(Ce):	0.9
SNOW IMPORTANCE FACTOR (Is):	1.0
THERMAL FACTOR (Ct):	1.0
GROUND SNOW LOAD(Pg)(PSF):	20

STRUCTURAL OBSERVATIONS:

1. STRUCTURAL OBSERVATIONS WILL BE PROVIDED IN ACCORDANCE WITH THE 2015 IBC.
   THE OWNER WILL EMPLOY THE ENGINEER OF RECORD, HIS/HER DESIGNEE, OR A WASHINGTON STATE REGISTERED DESIGN PROFESSIONAL TO PERFORM STRUCTURAL OBSERVATIONS, AND
   WHO WILL PROVIDE ALL SERVICES NECESSARY TO MEET THE IBC STRUCTURAL OBSERVATIONS REQUIREMENTS.
2. STRUCTURAL OBSERVATIONS WILL BE PROVIDED DURING ALL FABRICATION AND CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH THE NOTES AND SCHEDULES ON THIS DRAWING.
3. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE STRUCTURAL OBSERVER AT LEAST 3 BUSINESS DAYS PRIOR TO EACH REQUIRED STRUCTURAL OBSERVATION.

SCHEDULE OF STRUCTURAL OBSERVATIONS

MASONRY CONSTRUCTION	WHAT TO OBSERVE
FOUNDATIONS - PRIOR TO THE FIRST CONCRETE POUR, BUT AFTER SUBSTANTIAL PLACEMENT OF REINFORCING STEEL, ANCHORS, AND OTHER EMBEDDED ITEMS	REVIEW FOUNDATION REINFORCEMENT, INCLUDING ADDITIONAL REINFORCEMENT AT PENETRATIONS REVIEW WALL DOWELS; ENSURE ADDITIONAL DOWELS ASSOCIATED WITH OPENINGS IN WALL AND JAMB STEEL ARE IN PLACE REVIEW ANCHOR BOLT PLACEMENT, HOLD-DOWN ANCHORS, AND OTHER STEEL EMBEDS. REVIEW PIPING AND CONDUIT PLACEMENT
MASONRY CONSTRUCTION	WHAT TO OBSERVE
WALLS - PRIOR TO THE FIRST WALL POUR, BUT AFTER SUBSTANTIAL PLACEMENT OF REINFORCING STEEL, ANCHORS, AND OTHER EMBEDDED ITEMS	REVIEW WALL REINFORCEMENT, INCLUDING ADDITIONAL REINFORCEMENT AT PENETRATIONS REVIEW JAMB STEEL, CHORD STEEL, AND WALL-TO-DIAPHRAGM CONNECTION DETAILS REVIEW ANCHOR BOLT PLACEMENT, HOLD-DOWN ANCHORS, AND OTHER STEEL EMBEDS. REVIEW PIPING AND CONDUIT PLACEMENT
ROOFS - PRIOR TO APPLICATION OF NON-STRUCTURAL COVERINGS, BUT AFTER PLACEMENT OF STRUCTURAL FRAMING AND SHEATHING/DECKING	REVIEW ROOF FRAMING REVIEW DIAPHRAGM-TO-WALL CONNECTIONS REVIEW DIAPHRAGM NAILING/WELDING REVIEW FRAMING AROUND OPENINGS
CONCRETE CONSTRUCTION	WHAT TO OBSERVE
FOUNDATIONS - PRIOR TO THE FIRST CONCRETE POUR, BUT AFTER SUBSTANTIAL PLACEMENT OF REINFORCING STEEL, WATERSTOPS, ANCHORS, AND OTHER EMBEDDED ITEMS	REVIEW FOUNDATION REINFORCEMENT, INCLUDING ADDITIONAL REINFORCEMENT AT PENETRATIONS REVIEW WALL DOWELS; ENSURE ADDITIONAL DOWELS ASSOCIATED WITH OPENINGS IN WALL AND JAMB STEEL ARE IN PLACE REVIEW WATERSTOP INSTALLATION, TIE-OFFS, AND JOINTS REVIEW ANCHOR BOLT PLACEMENT, HOLD-DOWN ANCHORS, AND OTHER STEEL EMBEDS. REVIEW PIPING AND CONDUIT PLACEMENT
WALLS - PRIOR TO THE FIRST CONCRETE POUR, BUT AFTER SUBSTANTIAL PLACEMENT OF REINFORCING STEEL, WATERSTOPS, ANCHORS, AND OTHER EMBEDDED ITEMS	REVIEW WALL REINFORCEMENT, INCLUDING ADDITIONAL REINFORCEMENT AT PENETRATIONS REVIEW JAMB STEEL, CHORD STEEL, AND WALL-TO-DIAPHRAGM CONNECTION DETAILS REVIEW WATERSTOP INSTALLATION, TIE-OFFS, AND JOINTS REVIEW ANCHOR BOLT PLACEMENT, HOLD-DOWN ANCHORS, AND OTHER STEEL EMBEDS. REVIEW PIPING AND CONDUIT PLACEMENT
ELEVATED SLABS - PRIOR TO THE FIRST CONCRETE POUR, BUT AFTER SUBSTANTIAL PLACEMENT OF REINFORCING STEEL, WATERSTOPS, ANCHORS, AND OTHER EMBEDDED ITEMS	REVIEW SLAB REINFORCEMENT, INCLUDING ADDITIONAL REINFORCEMENT AT PENETRATIONS REVIEW WALL DOWELS; ENSURE ADDITIONAL DOWELS ASSOCIATED WITH OPENINGS IN WALL AND JAMB STEEL ARE IN PLACE REVIEW CHORD STEEL AND WALL-TO-DIAPHRAGM CONNECTION DETAILS REVIEW WATERSTOP INSTALLATION, TIE-OFFS, AND JOINTS REVIEW ANCHOR BOLT PLACEMENT, HOLD-DOWN ANCHORS, AND OTHER STEEL EMBEDS. REVIEW PIPING AND CONDUIT PLACEMENT

ALUMINUM

ALUMINUM CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALUMINUM ASSOCIATION ASM 35 - SPECIFICATION FOR ALUMINUM SHEET METAL WORK IN BUILDING CONSTRUCTION. ALUMINUM SURFACES SHALL BE PREVENTED FROM COMING IN DIRECT CONTACT WITH CONCRETE OR WITH METALS NOT COMPATIBLE WITH ALUMINUM, USING METHODS DESCRIBED IN THE SPECIFICATIONS.

STAINLESS STEEL

REFER TO SPECIFICATIONS FOR STAINLESS STEEL GRADES REQUIRED.

STATEMENT OF SPECIAL INSPECTIONS

1. SPECIAL INSPECTIONS ARE REQUIRED IN ACCORDANCE WITH THE 2015 IBC CHAPTER 17. THE OWNER WILL ENGAGE THE SERVICES OF A QUALIFIED SPECIAL INSPECTOR, WHO WILL PROVIDE ALL SERVICES NECESSARY TO MEET THE IBC SPECIAL INSPECTION REQUIREMENTS.
2. SPECIAL INSPECTIONS WILL BE PROVIDED DURING ALL FABRICATION AND CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH THE NOTES AND SCHEDULES ON THIS DRAWING.
3. SPECIAL INSPECTION FOR THE MAIN WIND-FORCE-RESISTING SYSTEM AND EXTERIOR CLADDING WILL BE PROVIDED AS INDICATED BELOW:
   A. WIND FORCE RESISTING SYSTEM:
      1. STEEL FRAME: SPECIAL INSPECTION IS REQUIRED IN ACCORDANCE WITH TABLE 1704.3.
      2. STEEL ROOF DIAPHRAGM: PERIODIC SPECIAL INSPECTION IS REQUIRED DURING WELDING, SCREW ATTACHMENT, BOLTING, ANCHORING AND OTHER FASTENING OF COMPONENTS.
      3. EXTERIOR WALLS: PERIODIC SPECIAL INSPECTION IS REQUIRED FOR NAILING, SCREW ATTACHMENT, BOLTING, ANCHORING AND OTHER FASTENING OF COMPONENTS.
      4. WALL CONNECTIONS TO STEEL FRAMES: PERIODIC SPECIAL INSPECTION IS REQUIRED FOR BOLTING, WELDING, ANCHORING AND OTHER FASTENING OF WALLS TO STEEL FRAMES.
      5. WALL CONNECTIONS TO THE FOUNDATION: SPECIAL INSPECTION FOR ALL CONCRETE ANCHOR INSTALLATION IS REQUIRED IN ACCORDANCE WITH THE APPLICABLE ICC OR IAPMO EVALUATION REPORT. PERIODIC SPECIAL INSPECTION IS REQUIRED FOR SCREW ATTACHMENT, BOLTING, ANCHORING AND OTHER FASTENING OF THE HOLD-DOWNS TO THE ANCHOR BOLTS AND TO THE WALL STUDS.
   B. ROOF, WALL, AND SOFFIT CLADDING:
      1. PERIODIC SPECIAL INSPECTION IS REQUIRED DURING WELDING, NAILING, SCREW ATTACHMENT, BOLTING, ANCHORING AND OTHER FASTENING OF COMPONENTS.
4. SPECIAL INSPECTION FOR THE SEISMIC FORCE RESISTING SYSTEM AND MECHANICAL AND ELECTRICAL EQUIPMENT WILL BE PROVIDED AS INDICATED BELOW:
   A. SEISMIC FORCE RESISTING SYSTEM:
      1. WALL CONNECTIONS TO THE FOUNDATION: SPECIAL INSPECTION OF WALL DOWELS INTO THE FOUNDATION, SPECIAL INSPECTION FOR ALL CONCRETE ANCHOR INSTALLATION WHERE REQUIRED IN ACCORDANCE WITH IBC TABLE 1705.3.
      2. WALLS: SPECIAL INSPECTION OF REINFORCED MASONRY WALLS IS REQUIRED IN ACCORDANCE WITH TMS 402/ACI 530 TABLE [3.1.1, 3.1.2, 3.1.3].
      3. WALL CONNECTION TO ROOF TRUSS & RAFTERS: SPECIAL INSPECTION AS REQUIRED FOR BOLTING, WELDING, ANCHORING AND OTHER FASTENING OF WALLS TO STEEL FRAMES. SPECIAL INSPECTION REQUIRED FOR WELDING, AND ANCHORAGE AT COLLECTOR PER AISC 360.
      4. STEEL ROOF DIAPHRAGM: PERIODIC SPECIAL INSPECTION IS REQUIRED FOR SCREW ATTACHMENT, BOLTING, ANCHORING, WELDING AND OTHER FASTENING OF COMPONENTS.
   B. MECHANICAL AND ELECTRICAL COMPONENTS AS NOTED BELOW:
      1. PERIODIC SPECIAL INSPECTION IS REQUIRED DURING THE ANCHORAGE OF ELECTRICAL EQUIPMENT FOR EMERGENCY OR STANDBY POWER SYSTEMS
      2. PERIODIC SPECIAL INSPECTION IS REQUIRED DURING THE INSTALLATION OF ANCHORAGE OF OTHER ELECTRICAL EQUIPMENT.
      3. PERIODIC SPECIAL INSPECTION IS REQUIRED DURING THE INSTALLATION OF VIBRATION ISOLATION SYSTEMS.
5. ADDITIONAL SPECIAL INSPECTIONS WILL BE PROVIDED WHERE REQUIRED BY IBC CHAPTER 17.

DEFINITIONS

1. REFER TO SECTION 1702 AND CHAPTER 2 OF THE 2015 IBC FOR DEFINITION OF TERMS APPLICABLE TO SPECIAL INSPECTIONS AND STRUCTURAL OBSERVATIONS.
   A. SPECIFIC DEFINITIONS

HIGH STRENGTH BOLT	AN ASTM F3125 GR A325 OR A490 BOLT, AN ASTM F1852 TWIST-OFF-TYPE TENSION-CONTROL BOLT OF AN ALTERNATIVE-DESIGN FASTENER THAT MEETS THE REQUIREMENTS IN AISC 360 SECTION 2.8.

CONTRACTOR RESPONSIBILITY

1. EACH CONTRACTOR RESPONSIBLE FOR THE FABRICATION OR CONSTRUCTION OF A MAIN WIND-FORCE-RESISTING SYSTEM OR MAIN SEISMIC-FORCE RESISTING SYSTEM OR COMPONENT LISTED ABOVE SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS.

Revision | By | Appd | YYYY.MM.DD
Issued | By | Appd | YYYY.MM.DD

ORIGINAL SHEET - ANSI D

Permit/Seal

PRELIMINARY
NOT FOR

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Digitally signed by Charles Williams
Date: 2025.02.21 15:38:05 -05'00'

WARNING
0 ½ 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267015-MD | Dwn. | Dsgn. | Chkd. | 2022.12.02 YYYY.MM.DD

Title
STRUCTURAL NOTES-1

Project No. 224202267 | Scale
Revision | Sheet of | Drawing No. GS-1

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OTHER STRUCTURAL STEEL INSPECTION TASKS

ADDITIONAL INSPECTION REQUIREMENTS OF THE QUALITY ASSURANCE PROCEDURES ARE AS FOLLOWS:

A) INSPECTION SHALL BE PERFORMED DURING THE PLACEMENT OF THE ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. AS A MINIMUM, THE DIAMETER, GRADE, TYPE AND LENGTH OF THE ANCHOR ROD OR EMBEDDED ITEM, AND THE EXTENT OF THE EMBEDMENT INTO THE CONCRETE, SHALL BE VERIFIED PRIOR TO THE PLACEMENT OF CONCRETE.

B) INSPECT THE FABRICATED STEEL OR ERECTED STEEL FRAME, AS APPROPRIATE, TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE CONSTRUCTION DOCUMENTS, SUCH AS BRACES, STIFFENERS, MEMBER LOCATIONS AND PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION.

C) MATERIAL VERIFICATION OF STRUCTURAL STEEL:

I) IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.

II) MANUFACTURERS' VERTIFIED MILL TEST REPORTS.

D) INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS:

I) DETAILS SUCH AS BRACING AND STIFFENING.

II) MEMBERS LOCATIONS

III) APPLICATION OF JOINT DETAILS AT EACH CONNECTION.

STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL (IBC SECTION 1705.2.2)

VERIFICATION AND INSPECTION	INSPECTION		REFERENCED STANDARDS
	CONTINUOUS	PERIODIC	
MATERIAL VERIFICATION OF COLD-FORMED STEEL DECK:			
IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	APPLICABLE ASTM MATERIAL STANDARDS
MANUFACTURER'S CERTIFIED TEST REPORTS.	-	X	
INSPECTION OF WELDING:			
COLD-FORMED STEEL DECK			
FLOOR AND ROOF DECK WELDS	-	X	AWS D1.3
REINFORCING STEEL:			
VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706.	-	X	AWS D1.4 ACI 318: SECTION 26.6.4
REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORMENT.	X	-	
SHEAR REINFORCEMENT	X	-	
OTHER REINFORCING STEEL	-	X	

INSPECTION OF SOILS

1. SPECIAL INSPECTION FOR SOIL WILL BE IN ACCORDANCE WITH IBC SECTION 1705.6 AND THE FOLLOWING TABLE.

VERIFICATION AND INSPECTION	INSPECTION	
	CONTINUOUS	PERIODIC
VERIFY MATERIALS BELOW FOOTINGS AND SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	-	X
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X
PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS.	-	X
VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL.	X	-
PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X

INSPECTION OF CONCRETE CONSTRUCTION

1. SPECIAL INSPECTION FOR CONCRETE CONSTRUCTION WILL BE IN ACCORDANCE WITH 2015 IBC SECTION 1705.3 AND THE FOLLOWING TABLE.

VERIFICATION AND INSPECTION	INSPECTION		REFERENCED STANDARD (A)	IBC REFERENCE
	CONTINUOUS	PERIODIC		
INSPECTION OF REINFORCING STEEL, INCLUDING PRESTRESSING STEEL, AND PLACEMENT.	-	X	ACI 318: 3.5, 7.1 - 7.7	1910.4
INSPECTION OF REINFORCING STEEL WELDING IN ACCORDANCE WITH TABLE 1705.2.2 ITEM 2b.	-	-	AWS D1.4 ACI 318: 3.5.2	-
INSPECTION OF ANCHORS CAST IN CONCRETE WHERE ALLOWABLE LOADS HAVE BEEN INCREASED OR WHERE STRENGTH DESIGN IS USED.	-	X	ACI 318 - 8.1.3, 21.2.8	1908.5, 1909.1
INSPECTION OF ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS (B).	-	X	ACI 318- 3.8.6, 8.1.3, 21.2.8	1909.1
VERIFYING USE OF REQUIRED DESIGN MIX.	-	X	ACI 318: CH. 4, 5.2 - 5.4	1904.2, 1910.2, 1910.3
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	-	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1910.10
INSPECTION OF CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	-	ACI 318: 5.9, 5.10	1910.6, 1910.7, 1910.8
INSPECTION FOR MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	-	X	ACI 318: 5.11 - 5.13	1910.9
ERECTION OF PRECAST CONCRETE MEMBERS	-	X	ACI 318: CH. 16	-
INSPECTION OF PRESTRESSED CONCRETE:				
A. APPLICATION OF PRESTRESSING FORCES.	X		ACI 318: 18.20	-
B. GROUTING OF BONDED PRESTRESSING TENDONS IN THE SEISMIC FORECE-RESISTING SYSTEM.	X	-	ACI 318: 18.18.4	
VERIFICATION OF IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	-	X	ACI 318: 6.2	-
INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	-	X	ACI 318: 6.1.1	-

(A) WHERE APPLICABLE, SEE ALSO IBC SECTION 1705.12, SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE.

(B) SPECIFIC REQUIREMENTS FOR SPECIAL INSPECTION SHALL BE INCLUDED IN THE RESEARCH REPORT FOR THE ANCHOR ISSUED BY AN APPROVED SOURCE IN ACCORDANCE WITH ACI 355.2 OR OTHER QUALIFICATION PROCEDURES. WHERE SPECIFIC REQUIREMENTS ARE NOT PROVIDED, SPECIAL INSPECTION REQUIREMENTS WILL BE AS SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL AND WILL BE APPROVED BY THE BUILDING OFFICIAL PRIOR TO COMMENCEMENT OF THE WORK.

DEFERRED SUBMITTALS:

DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN WHICH ARE PROVIDED BY THE CONTRACTOR AND THEREFORE WERE NOT SUBMITTED AT THE TIME OF THE PERMIT APPLICATION, AND WHICH ARE TO BE SUBMITTED TO THE PERMITTING AGENCY PRIOR TO FABRICATION OR INSTALLATION OF THAT PORTION OF THE WORK.

NO WORK SHALL BE PERFORMED FOR DEFERRED SUBMITTAL ITEMS UNTIL THE PLANS FOR SUCH WORK HAVE BEEN REVIEWED AND FOUND ACCEPTABLE BY THE STRUCTURAL ENGINEER OF RECORD AND APPROVED BY THE BUILDING OFFICIAL.

DRAWINGS AND CALCULATIONS FOR THESE ITEMS SHALL BE SIGNED AND SEALED BY A LICENSED [CALIFORNIA] PROFESSIONAL ENGINEER. NO FABRICATION SHALL COMMENCE UNTIL THE FINAL APPROVAL HAS BEEN ISSUED BY THE BUILDING OFFICIAL AND THE STRUCTURAL ENGINEER OF RECORD.

THE DEFERRED SUBMITTALS SHALL INCLUDE AS A MINIMUM, BUT NOT BE LIMITED TO, THE FOLLOWING ITEMS:

SPECIFICATION SECTION	ITEM
[013317]	[EQUIPMENT ANCHORAGE]
[052119]	[STEEL OPEN WEB JOISTS]
[055200]	[HANDRAIL SYSTEM]
[330516]	[PRECAST MANHOLE TYPE STRUCTURES]
[434010]	[FRP & OTHER PREFABRICATED STORAGE TANKS]
[435200]	[MONORAIL AND BRIDGE CRANE SYSTEMS]

INSPECTION OF HIGH STRENGTH BOLTS PER AISC 360

AS A MINIMUM BOLTING INSPECTION TASKS SHALL BE IN ACCORDANCE WITH TABLES N5.6-1, N5.6-2 AND N5.6-3. INSPECTION TASKS ARE AS FOLLOWS:

O- OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.

P- PERFORM THESE TASKS FOR EACH BOLTED CONNECTION.

INSPECTION TASKS PRIOR TO BOLTING (AISC 360 TABLE N5.6-1)

INSPECTIN TASKS PRIOR TO BOLTING	INSPECTION	
	QUALITY CONTROL	QUALITY ASSURANCE
MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	O	P
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	O	O
PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	O	O
PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	O	O
CONNECTED ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	O
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	P	O
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	O	O

INSPECTION TASKS DURING BOLTING (AISC 360 TABLE N5.6-2)

INSPECTION TASKS DURING BOLTING	INSPECTION	
	QUALITY CONTROL	QUALITY ASSURANCE
FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	O	O
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	O	O
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	O
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	O	O

INSPECTION TASKS AFTER BOLTING (AISC 360 TABLE N5.6-3)

VERIFICATION AND INSPECTION	INSPECTION	
	QUALITY CONTROL	QUALITY ASSURANCE
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	P	P

INSPECTION OF STRUCTURAL STEEL CONSTRUCTION

1. SPECIAL INSPECTION FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE AND QUALITY CONTROL INSPECTION REQUIREMENTS OF AISC 360 AND AISC 341.
2. THE CONTRACTOR IS RESPONSIBLE FOR QUALITY CONTROL PROCEDURES IN ACCORDANCE WITH THE REQUIREMENTS OF AISC 360 CHAPTER N AND AISC 341 CHAPTER J.
3. THE OWNER IS RESPONSIBLE FOR QUALITY ASSURANCE PROCEDURES IN ACCORDANCE WITH THE REQUIREMENTS OF AISC 360 CHAPTER N AND AISC 341 CHAPTER J.
4. THE INSPECTION TABLES AND NOTES PROVIDED ON THIS SHEET ARE INTENDED ONLY TO ASSIST THE CONSTRUCTION PERSONNEL IN IDENTIFYING QUALITY CONTROL AND QUALITY ASSURANCE INSPECTION REQUIREMENTS. THE REQUIREMENTS OF AISC 360 CHAPTER N AND AISC 341 CHAPTER J ARE MINIMUM REQUIREMENTS, AND THE QUALITY CONTROL INSPECTOR(S) AND QUALITY ASSURANCE INSPECTOR(S) ARE RESPONSIBLE FOR MEETING ALL REQUIREMENTS OF AISC 360 CHAPTER N AND AISC 341 CHAPTER J, WHETHER INDICATED ON THIS SHEET OR NOT. IF ANY INSPECTIONS ARE REQUIRED IN ADDITION TO THE AISC 360 CHAPTER N AND AISC 341 CHAPTER J INSPECTIONS, SUCH INSPECTIONS ARE INDICATED ON THIS SHEET. IF A DISCREPANCY EXISTS BETWEEN THE REQUIREMENTS OF AISC 360 CHAPTER N AND AISC 341 CHAPTER J AND THE REQUIREMENTS OF THIS DRAWING, THE MORE STRINGENT REQUIREMENT SHALL APPLY, UNLESS OTHERWISE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.

INSPECTION OF WELDING PER AISC 360

AS A MINIMUM WELDING INSPECTION TASKS SHALL BE IN ACCORDANCE WITH TABLES N5.4-1, N5.4-2 AND N5.4-3. INSPECTION TASKS ARE AS FOLLOWS:

O- OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.

P- PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER.

INSPECTION TASKS PRIOR TO WELDING (AISC 360 TABLE N5.4-1)

INSPECTION TASK PRIOR TO WELDING	INSPECTION		AWS D1.1/D1.1M REFERENCES
	QUALITY CONTROL	QUALITY ASSURANCE	
WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	P	O	6.4
WELDING PROCEDURE SPECIFICATIONS (WPSs) AVAILABLE	P	P	6.3
MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	P	P	6.2
MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O	6.2
WELDER IDENTIFICATION SYSTEM*	O	O	6.4
FIT-UP GROOVE WELDS (INCLUDING JOINT GEOMETRY) -JOINT PREPARATION -DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL) -CLEANLINESS (CONDITION OF SURFACES) -TACKING (QUALITY AND LOCATION) -BACKING TYPE AND FIT (IF APPLICABLE)	O	O	6.5.2 5.22 5.15 5.18 5.10, 5.22.1.1
CONFIGURATION AND FINISH OF ACCESS HOLES	O	O	6.5.2, 5.17, AISC J1.6
FIT-UP OF FILLET WELDS -DIMENSIONS (ALIGNMENT, GAPS AT ROOT) -CLEANLINESS (CONDITION OF SURFACES) -TACKING (QUALITY AND LOCATION)	O	O	5.22.1 5.15 5.18
CHECK WELDING EQUIPMENT	O	-	6.2, 5.11

*THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.

INSPECTION TASKS DURING WELDING (AISC 360 TABLE N5.4-2)

INSPECTION TASK DURING WELDING	INSPECTION		AWS D1.1/D1.1M REFERENCES
	QUALITY CONTROL	QUALITY ASSURANCE	
CONTROL AND HANDLING OF WELDING CONSUMABLES -PACKAGING -EXPOSURE CONTROL	O	O	6.2 5.3.1 5.3.2 (FOR SMAW), 5.3.3 (FOR SAW)
NO WELDING OVER CRACKED TACK WELDS	O	O	5.18
ENVIRONMENTAL CONDITIONS -WIND SPEED WITHIN LIMITS -PRECIPITATION AND TEMP	O	O	5.12.1 5.12.2
WPS FOLLOWED: -SETTINGS ON WELDING EQUIP. -TRAVEL SPEED -SELECTED WELDING MATERIALS -SHIELDED GAS TYPE/FLOW RATE -PREHEAT APPLIED -INTERPASS TEMPERATURE (MIN/MAX) -PROPER POSITION (F, V, H, OH)	O	O	6.3.3, 6.5.2, 5.5, 5.21 5.6, 5.7
WELDING TECHNIQUES -INTERPASS AND FINAL CLEANING -EACH PASS WITHIN PROFILE LIMITATIONS -EACH PASS MEETS QUALITY REQUIREMENTS	O	O	6.5.2, 6.5.3, 5.24 5.30.1
PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	P	P	7.8

INSPECTION TASKS AFTER WELDING (AISC 360 TABLE N5.4-3)

INSPECTION TASKS AFTER WELDING	INSPECTION		AWS D1.1/D1.1M REFERENCES
	QUALITY CONTROL	QUALITY ASSURANCE	
WELDS CLEANED	O	O	5.30.1
SIZE, LENGTH AND LOCATION OF WELDS	P	P	6.5.1
WELDS MEET VISUAL ACCEPTANCE CRITERIA -CRACK PROHIBITION -WELD/BASE METAL FUSION -CRATER CROSS SECTION -WELD PROFILES -WELD SIZE -UNDERCUT -POROSITY	P	P	6.5.3 TABLE 6.1(1) TABLE 6.1(2) TABLE 6.1(3) TABLE 6.1(4), 5.24 TABLE 6.1(6) TABLE 6.1(7) TABLE 6.1(8)
ARC STRIKES	P	P	5.29
K-AREA*	P	P	-
WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES**	P	P	5.16
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	P	P	5.10, 5.31
REPAIR ACTIVITIES	P	P	6.5.3, 5.26
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P	6.5.4, 6.5.5
NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR	O	O	-

*WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PREFORMED IN THE K-AREA, VISUALLY INSPECT THE WED K-AREA FOR CRACKS WITHIN 3 INCHES OF THE WELD.

Revision | By | Appd | YYYY.MM.DD
Issued | By | Appd | YYYY.MM.DD
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File Name: 02267025-MD | Dwn. | Dsgn. | Chkd. | 2022.12.02 YYYY.MM.DD

Title
STRUCTURAL NOTES-2

Project No. 224202267
Scale
Revision
Sheet of
Drawing No. GS-2

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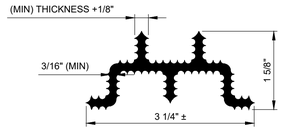
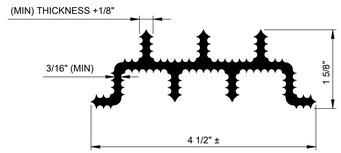
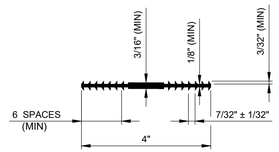


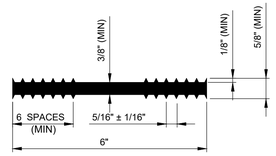
S-101 **2 - RIB WATERSTOP**
REV 010119



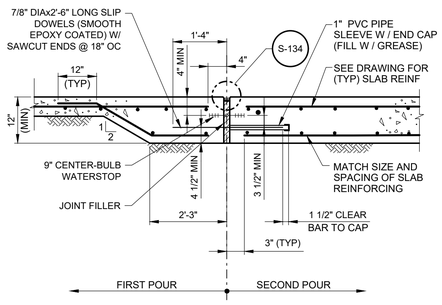
S-102 **3 - RIB WATERSTOP**
REV 010119



S-105 **4" FLATSTRIP WATERSTOP**

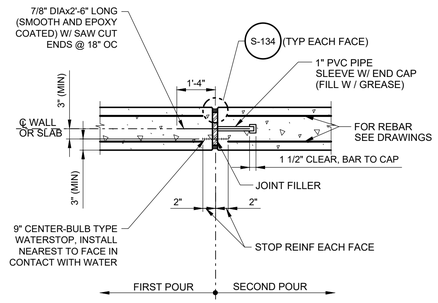


S-106 **6" FLATSTRIP WATERSTOP**

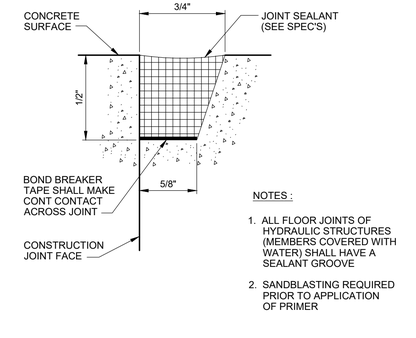


S-109 **SLAB-ON-GRADE EXPANSION JOINT**
REV 081419

NOTE:
FOR ELEVATED SLABS WITH WATER ON BOTH SIDES, LOCATE WATER STOP ABOVE SLIP DOWEL.



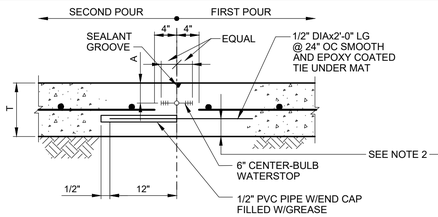
S-116 **EXPANSION JOINT**
REV 081419



NOTES :

1. ALL FLOOR JOINTS OF HYDRAULIC STRUCTURES (MEMBERS COVERED WITH WATER) SHALL HAVE A SEALANT GROOVE
2. SANDBLASTING REQUIRED PRIOR TO APPLICATION OF PRIMER

S-131 **SEALANT GROOVE**
REV 010119



SINGLE MAT REINF - SLEEVE - TYPE JOINT
(TYP CONSTRUCTION JOINT UNLESS OTHERWISE NOTED)

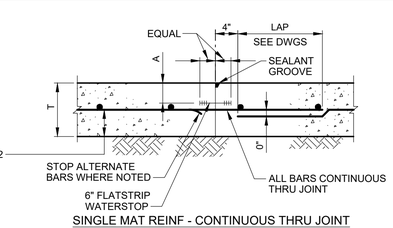
S-110 **WITH WATERSTOP AND SEALANT GROOVE**
REV 010119

S-111 **NO WATERSTOP OR SEALANT GROOVE**
REV 010119

T	A
6"	2"
7"	2 1/2"
8"	2 1/2"

NOTES:

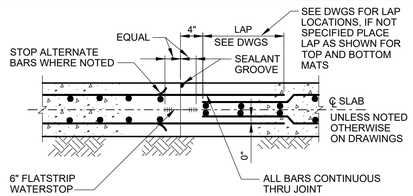
1. WATERSTOPS AND SEALANT GROOVES TO BE PROVIDED IN ALL WATER RETAINING SLABS, SEE DRAWINGS, FOR OTHER LOCATIONS WHERE THEY MAY BE REQUIRED.
2. DIMENSIONS INDICATED ON DETAIL CONTROL MINIMUM COVER. FOR THIN SLABS, THE BOTTOM COVER MAY BE LESS THAN 3".
3. STAGGER SPLICES UNLESS NOTED OTHERWISE.



SINGLE MAT REINF - CONTINUOUS THRU JOINT
(ONLY WHEN SPECIFIED ON DRAWINGS)

S-112 **WITH WATERSTOP AND SEALANT GROOVE**
REV 010119

S-113 **NO WATERSTOP OR SEALANT GROOVE**
REV 010119

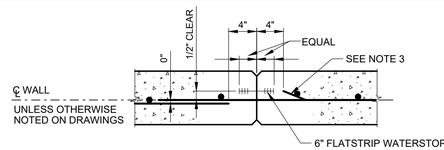


DOUBLE MAT REINF

S-114 **WITH WATERSTOP AND SEALANT GROOVE**
REV 010119

S-115 **NO WATERSTOP OR SEALANT GROOVE**
REV 010119

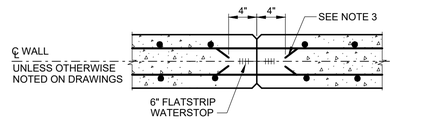
SLAB-ON-GRADE CONSTRUCTION JOINTS



SINGLE CURTAIN REINF

S-121 **WITH WATERSTOP**
REV 010119

S-122 **NO WATERSTOP**
REV 010119



DOUBLE CURTAIN REINF

S-123 **WITH WATERSTOP**
REV 010119

S-124 **NO WATERSTOP**
REV 010119

VERTICAL WALL CONSTRUCTION JOINT

NOTES:

1. WHERE WATERSTOP IS REQUIRED IN SINGLE CURTAIN WALL REINFORCEMENT, PLACE WATERSTOP ON WATER SIDE OF WALL.
2. UNLESS OTHERWISE NOTED 3/4" CHAMFERS SHALL BE OMITTED IN SURFACES TO RECEIVE ARCHITECTURAL TREATMENT.
3. UNLESS SPECIFICALLY NOTED OTHERWISE #5 AND LARGER BARS SHALL BE CONTINUOUS THRU JOINT. #4 AND SMALLER BARS SHALL STOP ALTERNATE BARS AT JOINT.
4. STAGGER SPLICES UNLESS NOTED OTHERWISE.

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BATTLE CREEK HATCHERY

File Name: 02267035-MD | Dwn. | Dsgn. | Chkd. | 2022.12.02 YYYY.MM.DD

Title
STRUCTURAL STANDARD DETAIL-1

Project No. 224202267
Scale
Revision
Sheet of
Drawing No. GS-3

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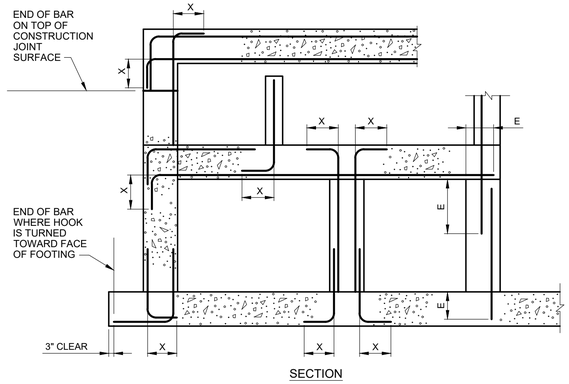
Exhibit E-1 Page 59 of 220



SECTION

LENGTH (*)			
BAR SIZE	HOOK X	LAP	EMBEDMENT E
#3	6"	16" (21")	12" (16")
#4	8"	16" (21")	12" (16")
#5	10"	20" (26")	15" (20")
#6	12"	28" (37")	22" (28")
#7	14"	48" (62")	37" (48")
#8	16"	62" (81")	48" (62")
#9	19"	79" (102")	61" (79")
#10	22"	100" (130")	77" (100")
#11	24"	123" (160")	95" (123")

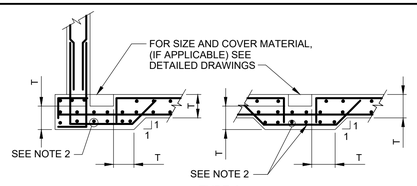
* USE LENGTH IN PARENTHESIS FOR WALL HORIZONTAL REBARS AND SLAB BARS WITH 12" OR MORE OF FRESH CONCRETE UNDERNEATH

NOTES:

1. USE LAP LENGTHS AS DETERMINED FROM THESE TABLES UNLESS SHOWN OTHERWISE.
2. THE TABLES SHOWN ARE FOR f'c=4000psi, fy=60,000psi, 1.5" MIN CONCRETE COVER AND 3" MIN BAR SPACING.
3. MULTIPLY THE LAP AND E SHOWN IN THESE TABLES BY 1.5 FOR EPOXY COATED REINFORCING.
4. WHEN BARS OF DIFFERENT SIZES ARE LAP SPLICED, LAP LENGTH SHALL BE THE LARGER OF: EMBEDMENT LENGTH OF LARGER BAR OR LAP LENGTH OF SMALLER BAR
5. USE REINFORCING BAR COUPLERS FOR SPLICES OF #11 AND LARGER BARS UNLESS DRAWINGS INDICATE LAP SPLICES SHOWN IN TABLE ARE ACCEPTABLE.
6. ALL DOWEL BARS SHALL EXTEND AN EMBEDMENT LENGTH E INTO ANOTHER MEMBER OR ACROSS A CONSTRUCTION JOINT UNLESS SHOWN TO SPLICE WITH OTHER BARS OR TO EXTEND TO THE FAR FACE OF THE MEMBER AND END WITH A STANDARD HOOK.

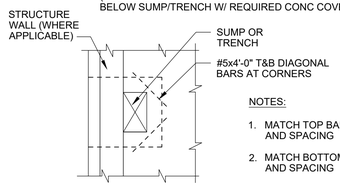
S-143 STANDARD 90° BAR HOOKS, EMBEDMENT LENGTHS AND LAP LENGTHS

REV 010119



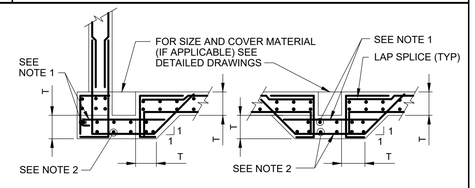
TYPE A

(USE WHERE TYP BOTTOM REINF CAN CONTINUE BELOW SUMP/TRENCH W/ REQUIRED CONC COVER)



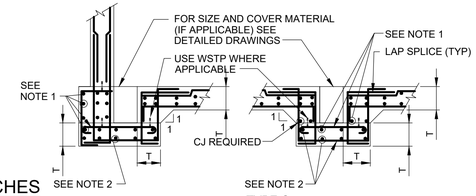
NOTES:

1. MATCH TOP BAR SIZE AND SPACING
2. MATCH BOTTOM BAR SIZE AND SPACING



TYPE B

(USE WHERE SUMP/TRENCH IS LESS THAN T AND TYP BOTTOM REINF CANNOT CONTINUE BELOW SUMP/TRENCH W/ REQUIRED CONC COVER)

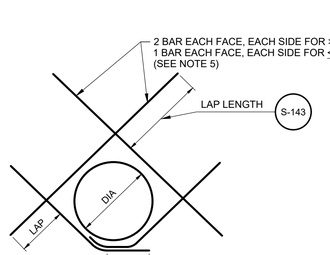


TYPE C

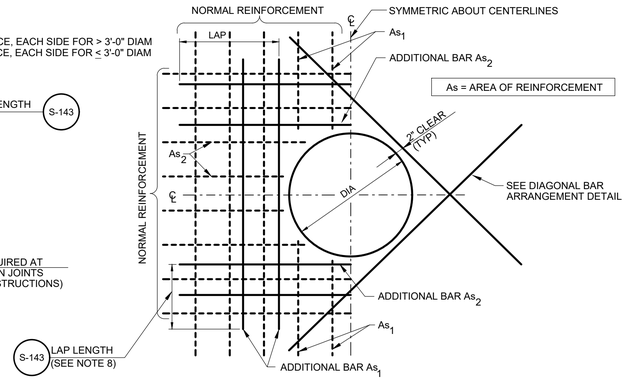
(USE WHERE SUMP/TRENCH DEPTH IS GREATER THAN OR EQUAL TO T)

S-177 REINFORCING AT SUMPS AND TRENCHES

REV 101719



DIAGONAL BAR ARRANGEMENT

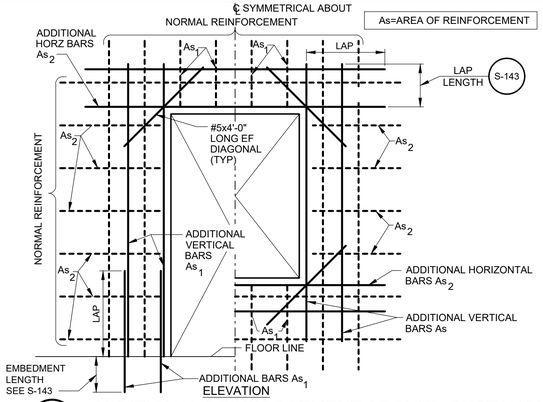


NOTES:

1. THIS DETAIL TO BE USED AT ALL CIRCULAR OPENINGS EXCEPT WHEN OTHER DETAILING IS INDICATED ON THE DRAWINGS.
2. CUT NORMAL REINFORCEMENT 2" CLEAR OF OPENING.
3. CUT NORMAL REINFORCEMENT AT OPENINGS:
   A. AS_1 AND AS_2= 1/2 AREA OF TOTAL CUT BARS TO BE ADDED ON EACH SIDE OF OPENING.
4. DIAGONAL AND ADDITIONAL BARS AS_1 AND AS_2 TO BE PLACED.
   A. AT CENTERLINE OF WALLS OR SLABS WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED.
   B. AT EACH FACE OF WALLS OR SLABS WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED.
5. UNLESS OTHERWISE NOTED, SIZE OF DIAGONAL BARS SHALL BE THE SIZE OF THE LARGEST NORMAL REINFORCING BAR CUT.
6. INCREASE SIZE OF ADDITIONAL BARS AS NEEDED TO FIT WITHIN A DISTANCE OF 2X WALL/ SLAB THICKNESS FROM OPENING, PROVIDE 2" MIN CLEAR BETWEEN BARS.
7. WHERE A SLAB OR INTERSECTING WALL CONNECTS WITHIN ONE WALL THICKNESS OF THE OPENING, ADDITIONAL BARS ON THAT SIDE OF THE OPENING MAY BE OMITTED.
8. WHEN THE LAP LENGTH OF THE ADDITIONAL BARS CANNOT BE ACHIEVED DUE TO AN ADJACENT WALL OR SLAB, ADDITIONAL CORNER BARS OR SLAB DOWELS, REPECTIVELY, MATCHING THE CUT BARS, ARE TO BE INCLUDED IN THE ADJACENT WALL OR SLAB TO LAP WITH THE ADDITIONAL BARS.

S-144 ADDITIONAL REINFORCEMENT AT CIRCULAR OPENINGS

REV 010119



NOTES:

1. CUT NORMAL REINFORCEMENT AT OPENING: As_1 AND As_2 = 1/2 AREA OF CUT BARS TO BE ADDED ON EACH SIDE OF OPENING.
2. DIAGONAL AND ADDITIONAL BARS As_1 AND As_2 TO BE PLACED:
   A) AT CENTERLINE OF WALLS OR SLABS WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED.
   B) AT EACH FACE OF WALLS OR SLABS WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED.
3. INCREASE SIZE OF ADDITIONAL BARS AS NEEDED TO FIT WITHIN A DISTANCE OF 2 X WALL / SLAB THICKNESS FROM OPENING. PROVIDE 2" MIN CLEAR BETWEEN BARS.
4. THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS.
5. WHERE A SLAB OR INTERSECTING WALL CONNECTS WITHIN ONE WALL THICKNESS OF THE OPENINGS, ADDITIONAL BARS ON THAT SIDE MAY BE OMITTED.
6. THIS DETAIL APPLIES TO BELOW GRADE OPENINGS AND WHEN SPECIFICALLY REFERENCED. REFER TO DETAIL S-147 FOR ABOVE GRADE OPENINGS.

S-148 ADDITIONAL REINFORCEMENT AROUND RECTANGULAR OPENING

REV 010119

Revision	By	Appd	YYYY.MM.DD
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: 02267045-MD | Dwn. | Dsgn. | Chkd. | 2022.12.02 YYYY.MM.DD

Title
STRUCTURAL STANDARD DETAIL-2

Project No. 224202267
Scale
Revision
Sheet of
Drawing No. GS-4

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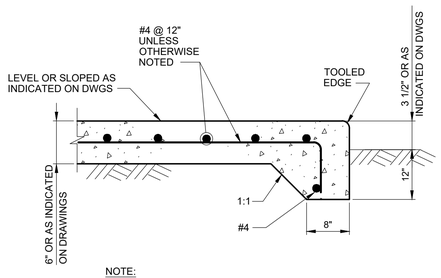
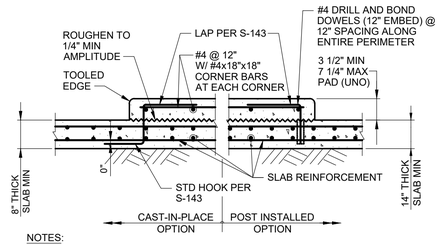


NOTE:

USE 2 MATS OF #5 @ 12" EW EF FOR SLABS 10" AND THICKER

S-190 SLAB-ON-GRADE

REV 010119

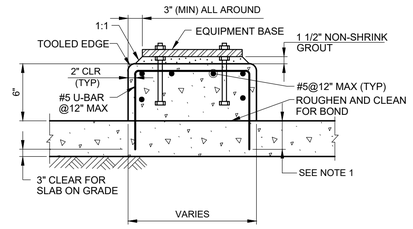


NOTES:

1. WHERE SLAB THICKNESS IS LESS THAN REQUIRED FOR POST-INSTALLED ANCHOR EMBEDMENT, USE CAST-IN-PLACE OPTION.
2. LOCATE AND AVOID ALL REINFORCEMENT PRIOR TO DRILLING INTO CONCRETE.
3. THIS DETAIL APPLIES TO REINFORCEMENT WITH fy = 60KSI AND CONCRETE WITH A COMPRESSIVE STRENGTH f'c = 4000 PSI AT 28 DAYS.
4. THE DETAIL APPLIES WHERE EQUIPMENT PADS OR HOUSEKEEPING PADS ARE CALLED OUT ON THE CONSTRUCTION DOCUMENTS.

S-191 EQUIPMENT PAD

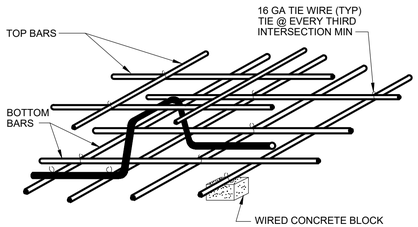
REV 021219



NOTE:

1. MINIMUM EMBEDMENT PER DETAIL S-143.

S-192 EQUIPMENT BASE

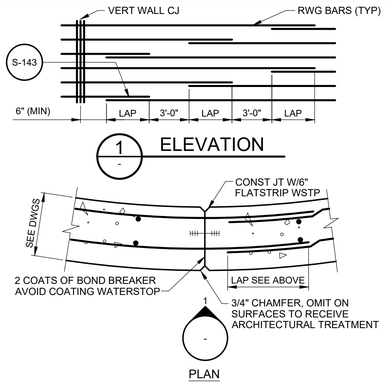


NOTE:

METAL BAR SUPPORTS, IF USED IN SLABS NOT ON GROUND, SHALL NOT MAKE CONTACT WITH FORMS

S-204 REINFORCEMENT SUPPORT

REV 010119

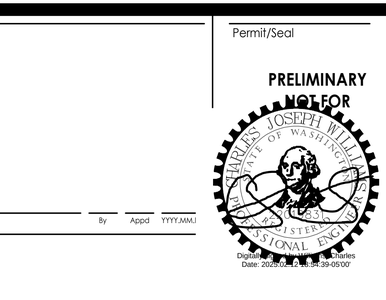


S-235 VERTICAL CONSTRUCTION JOINT FOR CIRCULAR WALLS

REV 010119

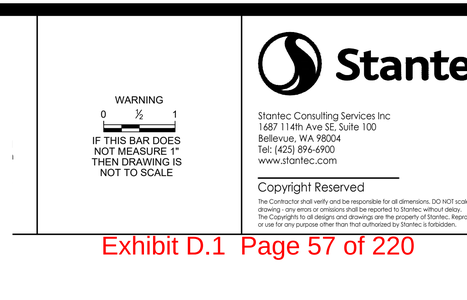
S-310 FRP WEIR

REV 010119



GRATING FRAME TABLE SIZED TO MATCH GRATING (FOR FIBERGLASS USE CONTINUOUS PULTRUDED FIBERGLASS SEAT AND ANCHOR)			
GRATING DEPTH T	ANGLE FRAME	GRATING DEPTH T	ANGLE FRAME
1"	1 3/4"x1 1/4"x1/4" (1 1/4"x1 1/4"x1/4")	2"	*2 1/2"x2 1/2"x1/2"
1 1/4"	2"x1 1/2"x1/4" (1 1/2"x1 1/2"x1/4")	2 1/4"	2 1/2"x2 1/2"x1/4"
1 1/2"	1 3/4"x1 3/4"x1/4"	2 1/2"	3"x3"x1/2"
1 3/4"	2"x2"x1/4"		

* OR USE 2 1/2"x2 1/2"x1/4" W/ 1/4" SHIM PLATE WELDED TO BOTTOM



GRATING CLIP DETAIL

GRATING STOP DETAIL

S-501 GRATING

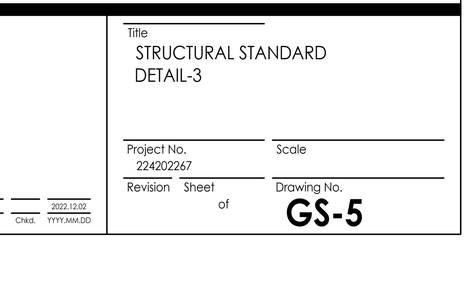
REV 010119

NOTES:

1. UNLESS INDICATED OTHERWISE, ALL GRATING SHALL BE ALUMINUM.
2. GRATING DEPTH TO BE DETERMINED BY MANUFACTURER AND APPROVED BY ENGINEER (UNO).
3. ALL ENDS AND OPENINGS SHALL BE BANDED.
4. WEIGHT OF GRATING SECTION SHALL NOT EXCEED 80 LBS.
5. METAL BEARING BARS SHALL BE DEPTH 1 1/2"x3/16" @1 3/16" OC CROSS BARS SHALL BE @ 4" OC.
6. PROVIDE A MINIMUM OF 4 CLIPS PER GRATING PANEL, APPROX 4" FROM PANEL CORNERS. MAXIMUM CLIP SPACING AT 36" OC.
7. MATERIALS:

GRATING MATERIAL	SUPPORT ANGLE	ANGLE FRAME	WELDED STUDS	GRATING CLIPS AND STUDS	ADHESIVE ANCHORS
ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM PER S-504	ALUMINUM	TYPE 316 SS
GALV STEEL	GALV STEEL	GALV STEEL	GALV STEEL, 1/2" DIAx4" @12" OC MAX	GALV STEEL	ASTM F1554 GR 36, GALV
STAINLESS STEEL	TYPE 316L SS	TYPE 316L SS	TYPE 316L SS, 1/2" DIAx4" @12" OC MAX	TYPE 316 SS	TYPE 316 SS
FIBERGLASS	FIBERGLASS	FIBERGLASS	FIBERGLASS	FIBERGLASS	TYPE 316 SS

8. ALL GALVANIZED MATERIAL TO BE GALVANIZED AFTER FABRICATION.
9. SEE S-504 FOR ALUMINUM WELDED STUD DETAIL.
10. ALUMINUM IN CONTACT WITH CONCRETE SHALL BE COATED PER THE PROTECTIVE COATING SPECIFICATIONS.
11. FIBERGLASS GRATING - ALL CUT EDGES SHALL BE SEALED WITH RESIN. FOR BONDING, USE AN EPOXY ADHESIVE BONDING AGENT.
12. NOT ALL MATERIAL TYPES MAY BE USED ON A SINGLE PROJECT.
13. PROVIDE ANGLE FRAME OR SUPPORT ANGLES AT ALL SIDES OF OPENINGS (UNO).



NOTES:

1. PROVIDE 1/2" PREMOLDED EXPANSION JOINT FILLER BETWEEN SLAB AND ADJACENT STRUCTURE.
2. WHERE EQUIPMENT IS ANCHORED TO SLAB, SLAB SIZE SHALL BE ADEQUATE TO MEET THE EMBED LENGTH AND EDGE DISTANCE REQUIREMENTS FROM THE ANCHOR BOLT CALCULATIONS. THE MINIMUM SLAB THICKNESS SHALL BE 1.5 TIMES THE ANCHOR BOLT EMBED DEPTH.
3. ANCHORS SHALL BE CAST-IN-PLACE HEADED ANCHORS OR POST INSTALLED UNDERCUT ANCHORS SUITABLE FOR DYNAMIC FATIGUE LOADING.
4. FOUNDATION THICKNESS SHALL BE ADJUSTED TO PROVIDE A FOUNDATION WEIGHT EQUAL TO AT LEAST 3 TIMES THE WEIGHT OF THE EQUIPMENT.

S-194 GENERATOR FOUNDATION

REV 010119

Revision | By | Appd | YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: 022670SS-MD | Dwn. | Dsgn. | Chkd. | 2022.12.02 YYYY.MM.DD

Title
STRUCTURAL STANDARD DETAIL-3

Project No. 224202267 | Scale

Revision | Sheet of | Drawing No. GS-5

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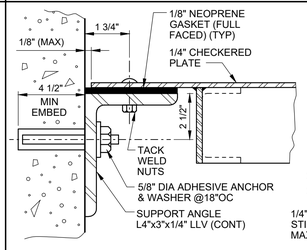
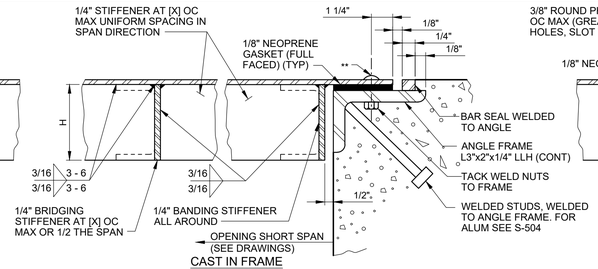


WALL MOUNTED SUPPORT ANGLE

(USE ONLY WHERE CAST-IN FRAME CANNOT BE USED)



CAST IN FRAME

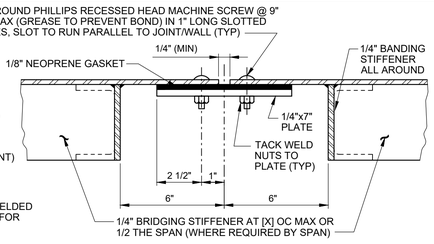


PLATE JOINT DETAIL

MATERIAL	LOADING (PSF)	X MAX (IN)	MAXIMUM SPAN OF OPENING (FEET)			
			STIFFENER SIZE 1/4"xH			
			2"	3"	4"	5"
STEEL	100	40	4.5	6	7	8.5
	150	35	4	5	6	7.5
	200	30	3.5	4.5	5.5	7
	250	30	3	4	5	6
	300	30	3	4	4.5	5.5

NOTES:

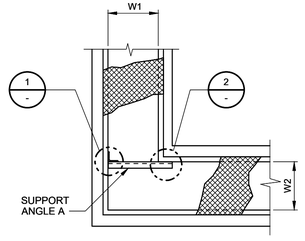
1. CHKD PLATE COVERS SHALL BE ALUMINUM UNLESS INDICATED OTHERWISE.
2. MAX WEIGHT OF PLATE COVER = 80 LBS.
3. MATERIALS:

PLATE COVER MATERIAL	SUPPORT ANGLE	ANGLE FRAME	WELDED STUDS	ADHESIVE ANCHORS	SPLICE PLATE	NUTS AND BOLTS
GALV STEEL	GALV STEEL	GALV STEEL	GALV STEEL, 1/2" DIA x4" @12" OC MAX	ASTM F1554 GR 36, GALV	GALV STEEL	GALV STEEL

4. ALL GALVANIZED MATERIAL TO BE GALVANIZED AFTER FABRICATION.
5. SEE X#/GS-# FOR ALUMINUM WELDED STUD DETAIL.
6. ALUMINUM IN CONTACT WITH CONCRETE SHALL BE COATED PER THE PROTECTIVE COATING SPECIFICATIONS.
7. NOT ALL MATERIAL TYPES MAY BE USED ON A SINGLE PROJECT.
8. [X] = MAXIMUM SPAN OF UNSTIFFENED PLATE COVER.

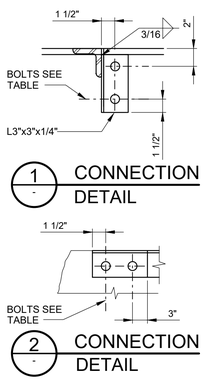
S-502 PLATE COVERED OPENING

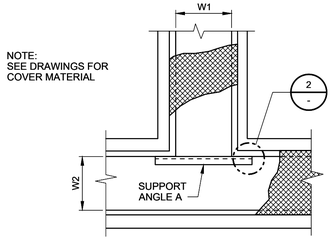
REV 010119



PLAN

TYPICAL COVER SUPPORT AT CORNER





PLAN

TYPICAL COVER SUPPORT AT INTERSECTION

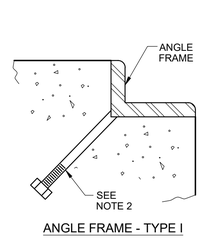
TRENCH WIDTH (FT)		SUPPORT ANGLE A (IN) (LLV)	BOLT SIZE (IN) & SPACING
W1	W2		
< 3	< 3	3x3x1/4	5/8@4 1/2"
3 TO 4 1/2	< 3	4x3x1/4	5/8@4 1/2"
4 1/2 TO 6	< 3	4x3x3/8	5/8@4 1/2"
< 3	3 TO 4 1/2	4x3x1/4	5/8@4 1/2"
3 TO 4 1/2	3 TO 4 1/2	4x3x3/8	5/8@4 1/2"
4 1/2 TO 6	3 TO 4 1/2	5x3x3/8	5/8@6"
< 3	4 1/2 TO 6	4x3x1/4	5/8@4 1/2"
3 TO 4 1/2	4 1/2 TO 6	5x3x3/8	5/8@6"
4 1/2 TO 6	4 1/2 TO 6	6x4x3/8	5/8@6"

NOTES:

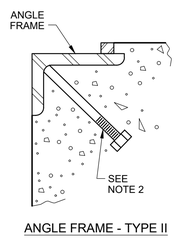
1. SUPPORT ANGLES SHALL MATCH COVER MATERIAL UNO.
2. TOP OF SUPPORT ANGLE SHALL BE ALIGNED WITH COVER SEAT.
3. WHERE EMBEDDED COVER SEAT REQUIRES A NEOPRENE GASKET A MATCHING GASKET SHALL BE PROVIDED AT THE SUPPORT ANGLE AND SHALL EXTEND THE FULL WIDTH OF THE ANGLE.
4. THIS DETAIL SHALL APPLY TO METAL GRATING, METAL PLATE COVERS AND PRECAST CONCRETE COVERS NOT THICKER THAN 4 INCHES. THE COVER LIVE LOAD SHALL NOT EXCEED 150 PSF AND THE COVER SPAN SHALL NOT EXCEED 6 FEET.
5. FOR FRP GRATING, THE GRATING SPAN SHALL NOT EXCEED 4.5 FEET AND THE SUPPORT AND CONNECTION ANGLES SHALL BE 4"x4"x3 3/8" FRP. CONNECTION BETWEEN FRP ANGLES SHALL BE BY EPOXY BONDING.
6. BOLTS SHALL BE SS CAST-IN-PLACE AB OR ADHESIVE ANCHORS.

S-503 COVER SUPPORTS AT INTERSECTIONS

REV 010119



ANGLE FRAME - TYPE I



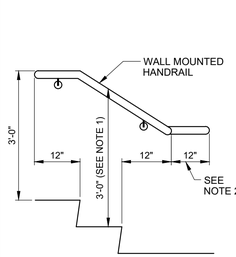
ANGLE FRAME - TYPE II

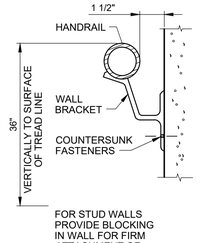
NOTES:

1. SEE STANDARD DETAILS S-501 AND S-502 FOR ANGLE FRAME INFO.
2. NELSON 3/8"DIAx4" LONG HBA ALUMINUM STUD @ 18" MAX, STUD WELDING ASSOCIATES 3/8"DIAx4" LONG NON-FLANGED CD ALUMINUM STUD (OR EQUAL) @ 18" MAX WELDED TO ANGLE FRAME WITH 3/8-16 ALUMINUM HEX NUT. TACK WELD NUT TO HEADED STUD.
3. USE MIN OF 2 STUDS PER ANGLE FRAME SECTION.
4. ALUMINUM IN CONTACT WITH CONCRETE SHALL BE COATED PER THE PROTECTIVE COATING SPECIFICATIONS.

S-504 ALUMINUM WELDED STUD

REV 010119





NOTES:

1. VERTICAL DIMENSIONS IS FROM LEADING EDGE OF TREAD TO TOP OF RAIL (PARALLEL TO STAIR SLOPE).
2. ADDITIONAL 1'-0" HORIZONTAL LENGTH (ONLY REQUIRED AT HANDICAP ACCESSIBLE STAIR).

S-510 STAIR HANDRAIL

REV 010119

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Issued		By	Appd	YYYY.MM.D

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BATTLE CREEK HATCHERY

File Name: 02267065-MD | Dwn. | Dsgn. | Chkd. | 2022.12.02 YYYY.MM.DD

Title
STRUCTURAL STANDARD DETAIL-4

Project No. 224202267 | Scale

Revision | Sheet of | Drawing No. GS-6

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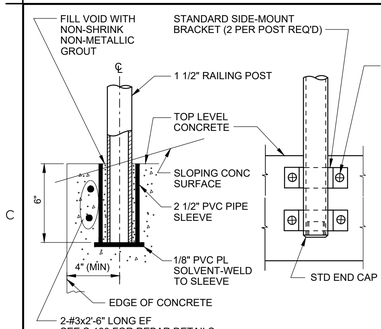
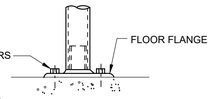


1 POST INSERT IN CONCRETE (SEE NOTE 2)

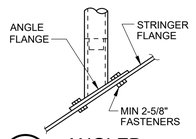


3 FLOOR FLANGE (WHEN REQUIRED)

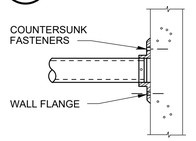
2 SIDE-MOUNTING BRACKET

NOTES:

1. IF FASTENING INTO CONCRETE, FASTENERS SHALL BE ADHESIVE ANCHORS.
2. POST INSERTS NOT ALLOWED IN APPLICATIONS SUBJECT TO FREQUENT FREEZING.
3. USE POST INSERT UNLESS INDICATED OTHERWISE.
4. USE DETAIL C IN LUE OF POST INSERT WHERE WALL/CURB THICKNESS IS LESS THAN 8"
5. CONTRACTOR REQUIRED TO DESIGN RAILING SYSTEM PER SPECIFICATIONS.



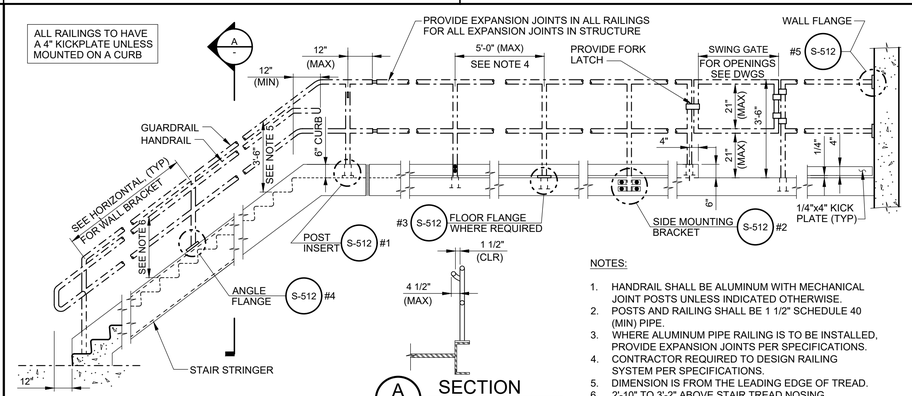
4 ANGLED FLANGE



5 WALL FLANGE

S-512 RAILING, GUARDRAIL AND HANDRAIL SUPPORT

REV 010119



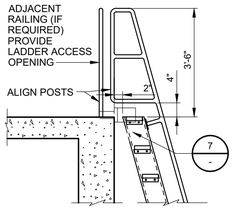
A SECTION

NOTES:

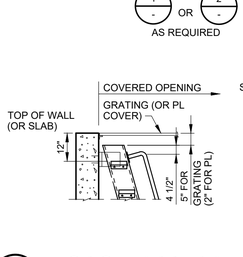
1. HANDRAIL SHALL BE ALUMINUM WITH MECHANICAL JOINT POSTS UNLESS INDICATED OTHERWISE.
2. POSTS AND RAILING SHALL BE 1 1/2" SCHEDULE 40 (MIN) PIPE.
3. WHERE ALUMINUM PIPE RAILING IS TO BE INSTALLED, PROVIDE EXPANSION JOINTS PER SPECIFICATIONS.
4. CONTRACTOR REQUIRED TO DESIGN RAILING SYSTEM PER SPECIFICATIONS.
5. DIMENSION IS FROM THE LEADING EDGE OF TREAD.
6. 2'-10" TO 3'-2" ABOVE STAIR TREAD NOSING.

S-515 TWO-RAIL RAILING

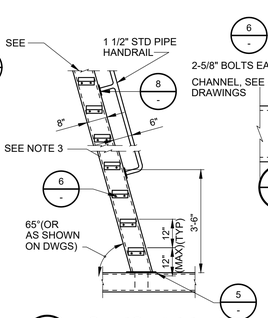
REV 010119



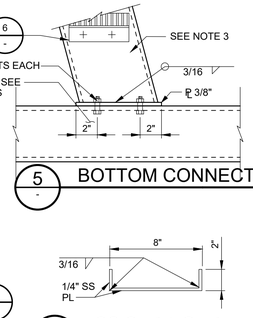
1 TOP OF LADDER



2 TOP OF LADDER AT COVERED OPENING

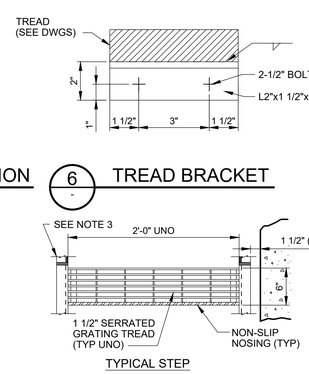


3 SHIPS LADDER



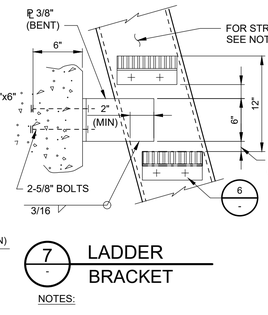
5 BOTTOM CONNECTION

4 SS STRINGER

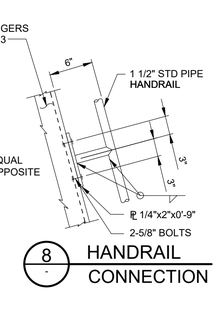


6 TREAD BRACKET

TYPICAL STEP



7 LADDER BRACKET



8 HANDRAIL CONNECTION

NOTES:

1. LADDERS SHALL BE ALUMINUM UNLESS OTHERWISE INDICATED.
2. ANCHORS AND FASTENERS SHALL BE STAINLESS STEEL EXCEPT FASTENERS. FOR GALVANIZED STEEL LADDERS SHALL BE GALVANIZED STEEL.
3. STRINGERS SHALL BE:
   ALUMINUM SHALL BE C8x6.48
   GALV STL SHALL BE C8x11.5
   STAINLESS STEEL SHALL BE PER DETAIL 4/-.

S-530 SHIPS LADDER WITH SS FASTENERS

REV 010119

Revision | By | Appd | YYYY.MM.DD

Issued | By | Appd | YYYY.MM.

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Title
STRUCTURAL STANDARD DETAIL-5

Project No. 224202267
Scale
Revision
Sheet of
Drawing No. GS-7

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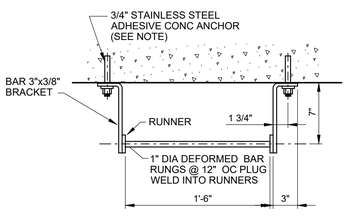
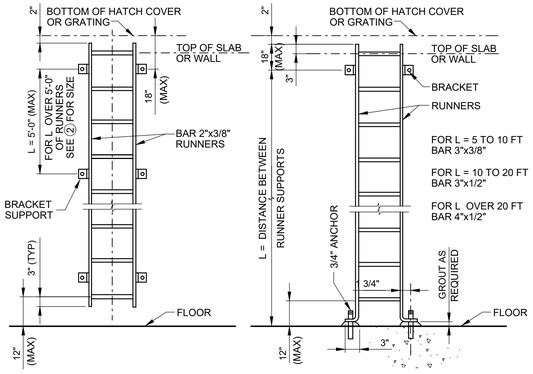


PLAN

NOTES:

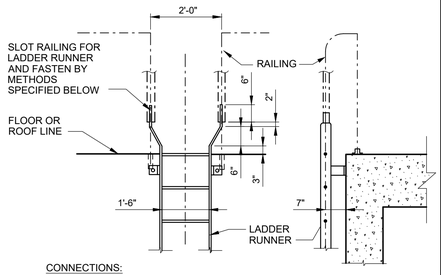
1. LADDERS SHALL BE ALUMINUM UNLESS INDICATED OTHERWISE.
2. ANCHORS AND FASTENERS SHALL BE STAINLESS STEEL, EXCEPT FASTENERS FOR GALVANIZED STEEL LADDERS SHALL BE GALVANIZED STEEL.
3. PROVIDE ANCHOR BOLT INSERTS FOR PRESTRESSED TANK WALLS.
4. LADDERS SHALL BE OSHA AND ANSI APPROVED.
5. FRP LADDER MEMBERS SHALL BE SIZED BY THE MANUFACTURER PER THE SPECIFICATIONS.



① STANDARD LADDER WITH RUNNER SUPPORTS AT 5'-0" OC MAX

② LADDER WITH RUNNER SUPPORTS OVER 5'-0" OC

S-531 FIXED LADDER
REV 010119

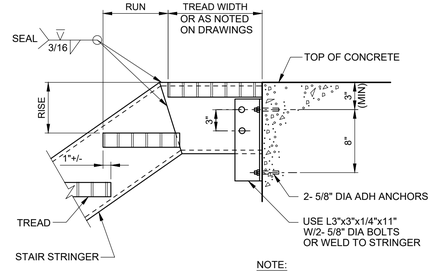


CONNECTIONS:

STEEL TO STEEL OR ALUMINUM TO ALUMINUM:
WELDED CONNECTION, GRIND SMOOTH

STEEL TO ALUMINUM:
DRILL HOLE THRU LADDER RUNNER AND RAILING FOR 1/2 " PIN. INSERT PIN AND WELD BOTH ENDS AND GRIND SMOOTH, PIN SHALL BE THE SAME MATERIAL AS RAILING

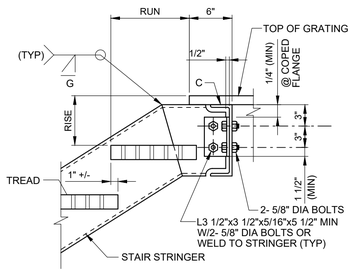
S-534 LADDER TO RAILING CONNECTIONS
REV 010119



NOTE:

HANDRAIL NOT SHOWN

S-541 STAIR TOP CONNECTION TO CONCRETE
REV 010119



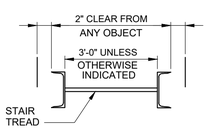
NOTES:

1. FOR CHANNEL SIZES SEE PLAN.
2. HANDRAIL NOT SHOWN.
3. COPE STRINGER MIN AS REQ'D.

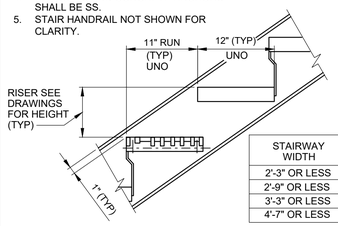
S-542 STAIR TOP TO CHANNEL CONNECTION
REV 010119

NOTES:

1. UNLESS OTHERWISE INDICATED, STAIRS SHALL CONSIST OF ALUMINUM C10x6.136 STRINGERS AND SERRATED ALUM GRATING TREADS.
2. STEEL STAIRS SHALL CONSIST OF STEEL C10x15.3 STRINGERS AND SERRATED ALUM GRATING TREADS.
3. FRP STAIRS SHALL CONSIST OF ALUM C10x6.136 STRINGERS WITH FRP GRATING TREADS.
4. ALL BOLTS AND CONCRETE ANCHORS SHALL BE SS.
5. STAIR HANDRAIL NOT SHOWN FOR CLARITY.

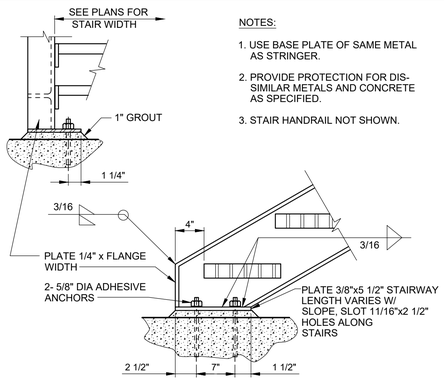


CROSS SECTION



STAIRWAY WIDTH	BEARING BARS ALUMINUM TREAD
2'-3" OR LESS	1 1/4"x3/16"
2'-9" OR LESS	1 1/2"x3/16"
3'-3" OR LESS	1 3/4"x3/16"
4'-7" OR LESS	2"x3/16"

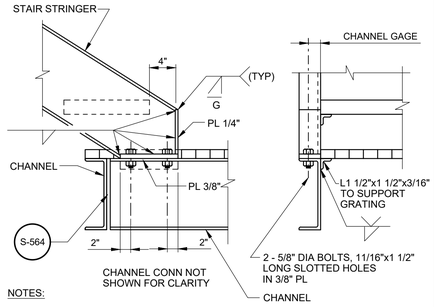
S-544 METAL STAIR OPEN RISER
REV 010119



NOTES:

1. USE BASE PLATE OF SAME METAL AS STRINGER.
2. PROVIDE PROTECTION FOR DISSIMILAR METALS AND CONCRETE AS SPECIFIED.
3. STAIR HANDRAIL NOT SHOWN.

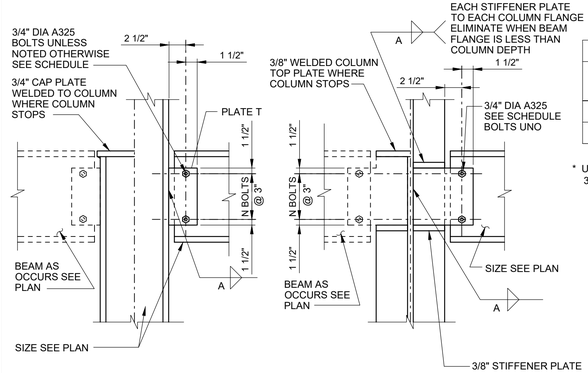
S-545 STAIR BOTTOM TO CONCRETE CONNECTION
S-545 REV 010118



NOTES:

1. FOR CHANNEL SIZES SEE PLAN.
2. HANDRAIL NOT SHOWN.
3. USE PLATES OF SAME METAL AS STRINGER.

S-546 STAIR BOTTOM TO CHANNEL CONNECTION
REV 010119



BEAM TO BEAM CONNECTION SCHEDULE				
TYPICAL BEAM	NO OF BOLTS N	PLATE THICKNESS T	WELD SIZE A	COMMENTS
C9	2	1/2"	5/16"	
W12	3	1/2"	5/16"	

* USE A DOUBLE ROW OF BOLTS - 5 PER ROW 3" BETWEEN ROWS AND 1 1/2" EDGE DISTANCE

S-561 BEAM TO COLUMN CONNECTION
REV 010119

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Title
STRUCTURAL STANDARD DETAIL-6

Project No. 224202267
Scale
Revision
Sheet of
Drawing No. **GS-8**

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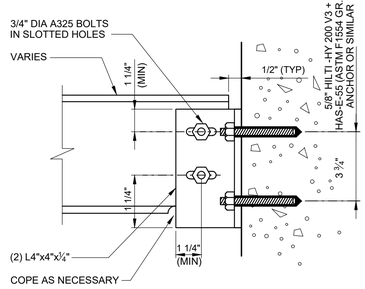
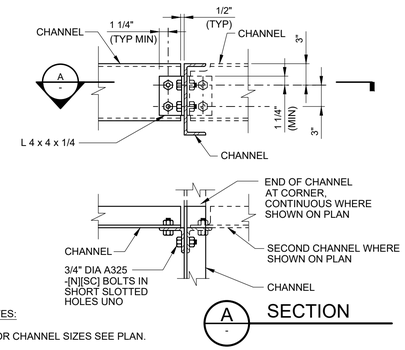


S-563 BEAM TO CONCRETE CONNECTION

(FOR SS OR ALUM BEAMS USE SS BOLTS AND ANCHORS)

REV 010119

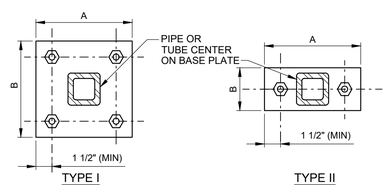


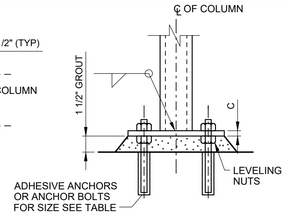
NOTES:

1. FOR CHANNEL SIZES SEE PLAN.
2. COPE STRINGER MINIMUM AS NEEDED.
3. STANDARD SIZE HOLES UNLESS NOTED OTHERWISE.

S-564 BEAM TO BEAM CONNECTION

REV 010119



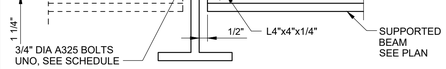


BASE PLATE TYPE	BASE PLATE AxBxC	BOLTS	COMMENTS
III	9"x13"x½"	5/8" HILTI - HY 200 V3+ HAS-E-55	ASTM F1554 GR. 55

S-567 COLUMN BASEPLATE

REV 010119

BEAM TO BEAM CONNECTION SCHEDULE			
SUPPORTED BEAM SIZE	C9	C10	C12
NO OF BOLTS N	2	2	2



S-568 BEAM TO BEAM CONNECTION

(ANGLE CONNECTION)

REV 010119

S-900 STOPLOG GUIDE

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File Name: 02267095-MD	Dwn.	Dsgn.	Chkd.	2022.12.02 YYYY.MM.DD

Title
STRUCTURAL STANDARD
DETAIL-7

Project No.
224202267

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of

Drawing No.
GS-9

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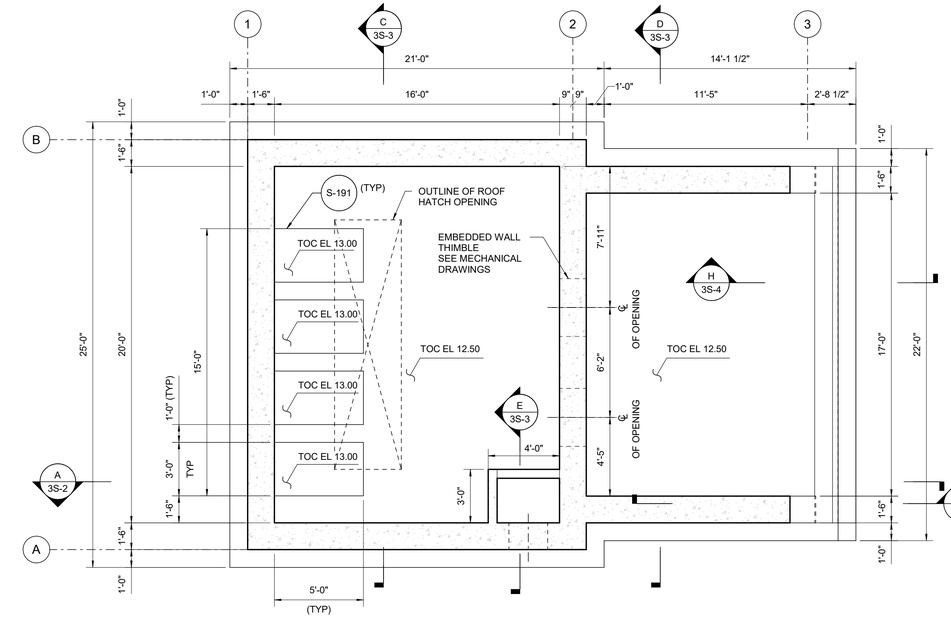
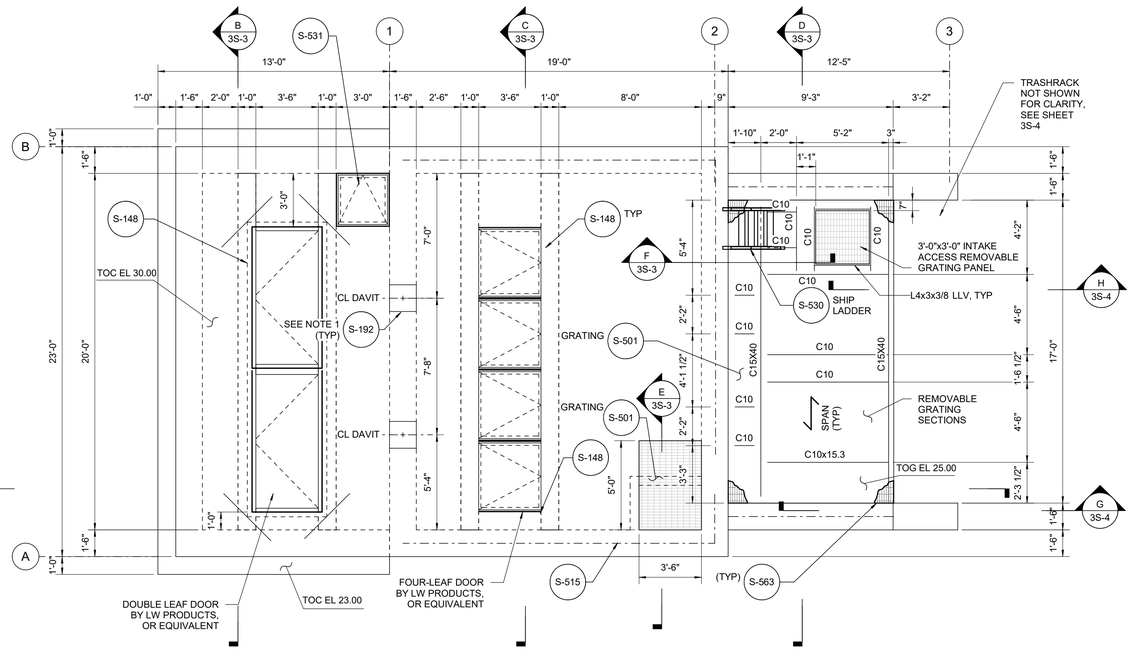
GENERAL SHEET NOTES

1. DAVIT CRANE BASE CONNECTION TO BE PROVIDED BY CRANE MANUFACTURER AND SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
2. LATERAL BEAMS FOR KNIFE GATE VALVES. CONTRACTOR TO COORDINATE CONNECTION OF KNIFE GATE VALVE TO SUPPORT BEAM WITH VALVE MANUFACTURER. FINAL CONFIGURATION TO BE COORDINATED WITH ENGINEER PRIOR TO INSTALLATION.
3. THE INTAKE STRUCTURE FOOTPRINT SHALL BE EXCAVATED TO DEPTH OF EXISTING GLACIAL TILL, INCLUDING REMOVAL OF EXISTING VEGETATION, TOPSOIL, ORGANIC SOIL, LOOSE OR SOFT SOIL, AND OTHER DELETERIOUS MATERIALS.
4. FOOTPRINT SHALL BE BACKFILLED WITH GRANULAR STRUCTURAL FILL IN ACCORDANCE WITH PROJECT SPECIFICATIONS. THE STRUCTURE SHALL BE PLACED ON A MINIMUM 6-INCH LAYER OF CRUSHED STONE TO PROVIDE A UNIFORM BEARING SURFACE. GEOGRID SHALL BE PLACED BETWEEN THE CRUSHED STONE AND STRUCTURAL FILL TO PROVIDE ENHANCED SUBGRADE STABILIZATION.
5. GRADATION, PLACEMENT, AND COMPACTION OF THE CRUSHED STONE SHALL SATISFY REQUIREMENTS OUTLINED IN THE PROJECT SPECIFICATIONS.
6. THE PREPARED SUBGRADE MUST BE INSPECTED AND REVIEWED BY THE GEOTECHNICAL ENGINEER, OR THEIR DELEGATED REPRESENTATIVE, PRIOR TO PLACEMENT OF STRUCTURAL FILL, CRUSHED STONE, FOUNDATION FORMS, OR CONCRETE.



FOUNDATION PLAN - EL 12.50

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



TOP PLAN - EL 30.00

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

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

2/4/2025 4:07:27 PM

ORIGINAL SHEET - ANSI D

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PRELIMINARY

CHARLES JOSEPH WILLIAMS — STATE OF WASHINGTON — 22633 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Charles
Date: 2025.02.04 16:04:41-05'00'

Consultant

Stantec

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TULALIP TRIBES

Client/Project

TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A | STN Dwn. | Dsgn. | Chkd. | 05/12/20 YYYY.MM.DD

Title

PUMPED INTAKE STRUCTURE PLANS

Project No. 224202267

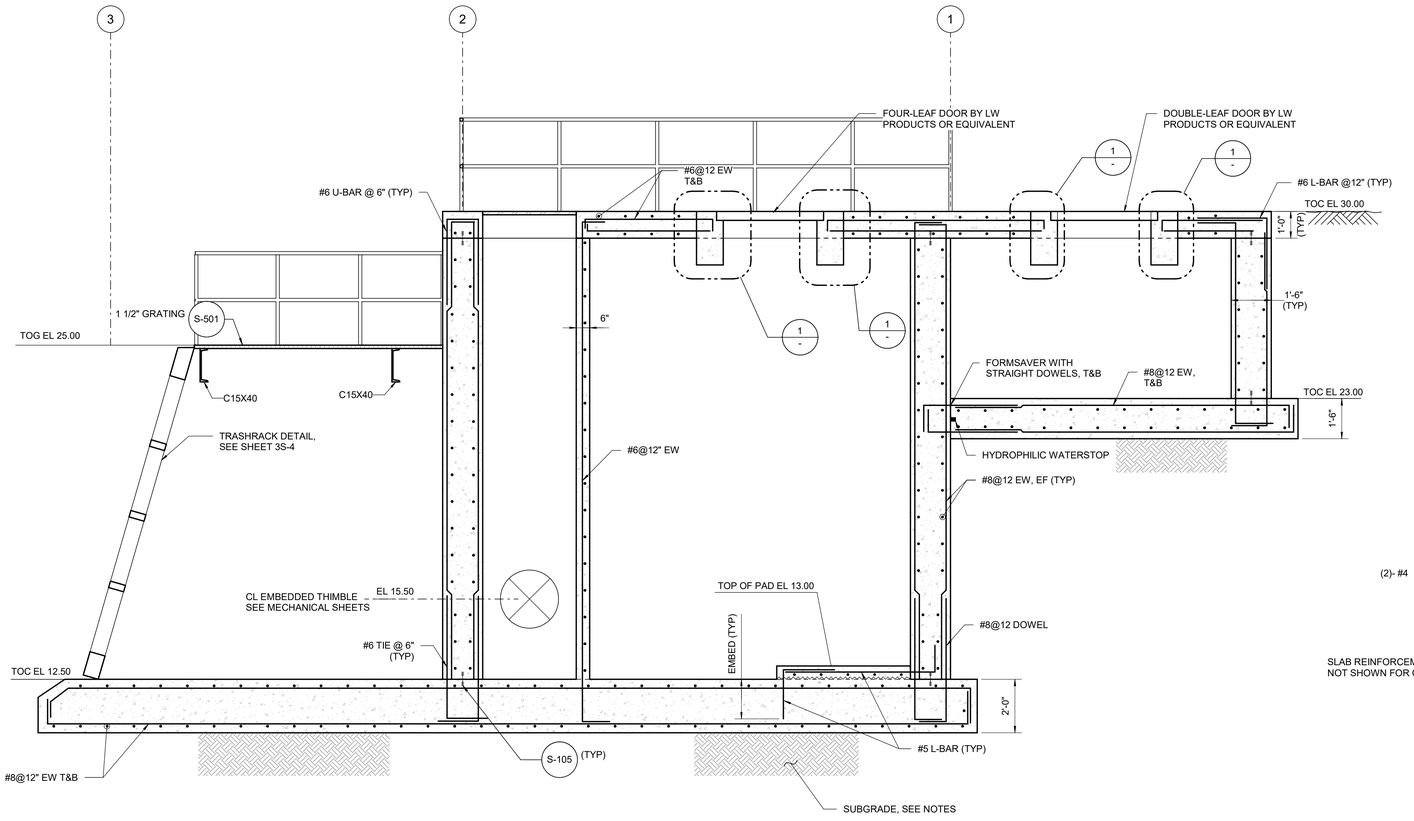
Scale 1/4" = 1'-0"

Revision

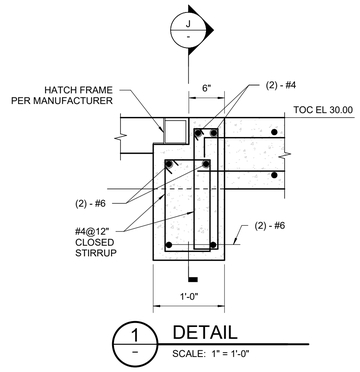
Drawing No. **3S-1**

GENERAL SHEET NOTES

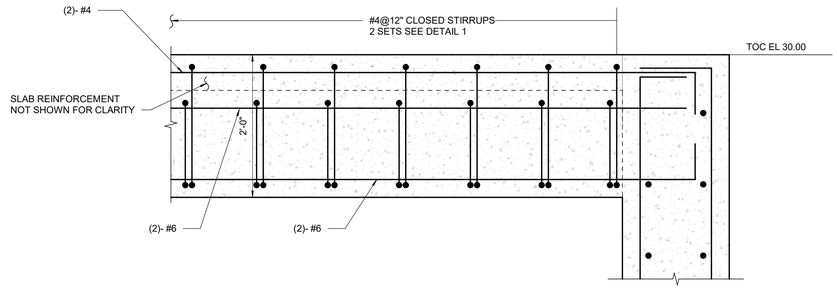
1. DAVIT CRANE BASE CONNECTION TO BE PROVIDED BY CRANE MANUFACTURER AND SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
2. LATERAL BEAMS FOR KNIFE GATE VALVES. CONTRACTOR TO COORDINATE CONNECTION OF KNIFE GATE VALVE TO SUPPORT BEAM WITH VALVE MANUFACTURER. FINAL CONFIGURATION TO BE COORDINATED WITH ENGINEER PRIOR TO INSTALLATION.
3. THE INTAKE STRUCTURE FOOTPRINT SHALL BE EXCAVATED TO DEPTH OF EXISTING GLACIAL TILL, INCLUDING REMOVAL OF EXISTING VEGETATION, TOPSOIL, ORGANIC SOIL, LOOSE OR SOFT SOIL, AND OTHER DELETERIOUS MATERIALS.
4. FOOTPRINT SHALL BE BACKFILLED WITH GRANULAR STRUCTURAL FILL IN ACCORDANCE WITH PROJECT SPECIFICATIONS. THE STRUCTURE SHALL BE PLACED ON A MINIMUM 6-INCH LAYER OF CRUSHED STONE TO PROVIDE A UNIFORM BEARING SURFACE. GEOGRID SHALL BE PLACED BETWEEN THE CRUSHED STONE AND STRUCTURAL FILL TO PROVIDE ENHANCED SUBGRADE STABILIZATION.
5. GRADATION, PLACEMENT, AND COMPACTION OF THE CRUSHED STONE SHALL SATISFY REQUIREMENTS OUTLINED IN THE PROJECT SPECIFICATIONS.
6. THE PREPARED SUBGRADE MUST BE INSPECTED AND REVIEWED BY THE GEOTECHNICAL ENGINEER, OR THEIR DELEGATED REPRESENTATIVE, PRIOR TO PLACEMENT OF STRUCTURAL FILL, CRUSHED STONE, FOUNDATION FORMS, OR CONCRETE.



A 3S-1 SECTION
SCALE: 3/8" = 1'-0"



1 – DETAIL
SCALE: 1" = 1'-0"



J – SECTION
SCALE: 1" = 1'-0"

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

Permit/Seal

PRELIMINARY
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CHARLES JOSEPH WILLIAMS
STATE OF WASHINGTON
22883
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Joseph Charles
Date: 2025.02.24 14:38:41-05'00'

Consultant

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A	STN Dwn.	Dsgn.	Chkd.	08/02/24 YYYY.MM.DD

Title
PUMPED INTAKE STRUCTURE SECTIONS

Project No. 224202267
Scale As indicated
Revision
Drawing No. **3S-2**

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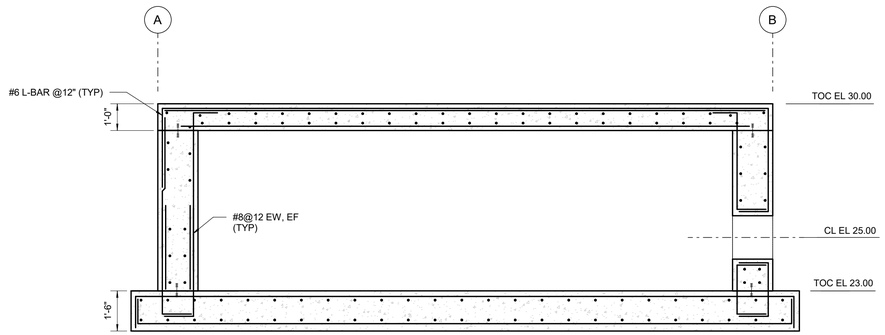
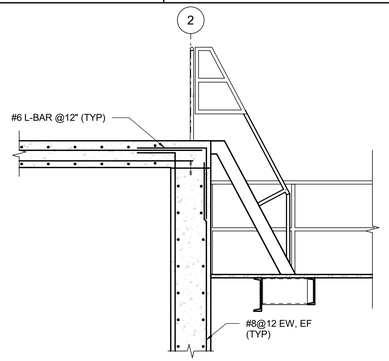
ORIGINAL SHEET - ANSI D



B 3S-1 SECTION
SCALE: 3/8" = 1'-0"



GENERAL SHEET NOTES

1. DAVIT CRANE BASE CONNECTION TO BE PROVIDED BY CRANE MANUFACTURER AND SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
2. LATERAL BEAMS FOR KNIFE GATE VALVES. CONTRACTOR TO COORDINATE CONNECTION OF KNIFE GATE VALVE TO SUPPORT BEAM WITH VALVE MANUFACTURER. FINAL CONFIGURATION TO BE COORDINATED WITH ENGINEER PRIOR TO INSTALLATION.
3. THE INTAKE STRUCTURE FOOTPRINT SHALL BE EXCAVATED TO DEPTH OF EXISTING GLACIAL TILL, INCLUDING REMOVAL OF EXISTING VEGETATION, TOPSOIL, ORGANIC SOIL, LOOSE OR SOFT SOIL, AND OTHER DELETERIOUS MATERIALS.
4. FOOTPRINT SHALL BE BACKFILLED WITH GRANULAR STRUCTURAL FILL IN ACCORDANCE WITH PROJECT SPECIFICATIONS. THE STRUCTURE SHALL BE PLACED ON A MINIMUM 6-INCH LAYER OF CRUSHED STONE TO PROVIDE A UNIFORM BEARING SURFACE. GEOGRID SHALL BE PLACED BETWEEN THE CRUSHED STONE AND STRUCTURAL FILL TO PROVIDE ENHANCED SUBGRADE STABILIZATION.
5. GRADATION, PLACEMENT, AND COMPACTION OF THE CRUSHED STONE SHALL SATISFY REQUIREMENTS OUTLINED IN THE PROJECT SPECIFICATIONS.
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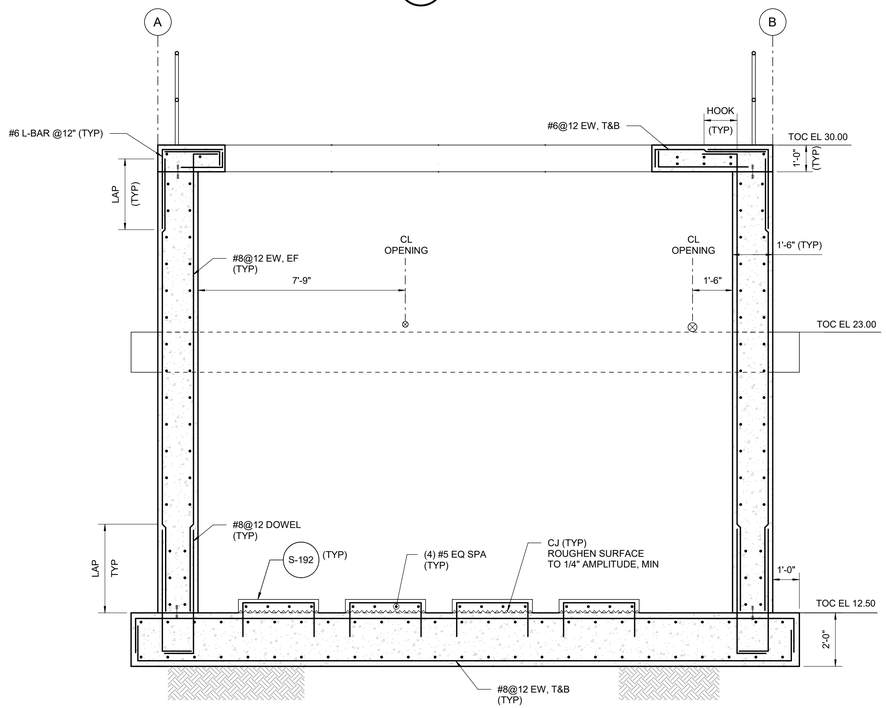
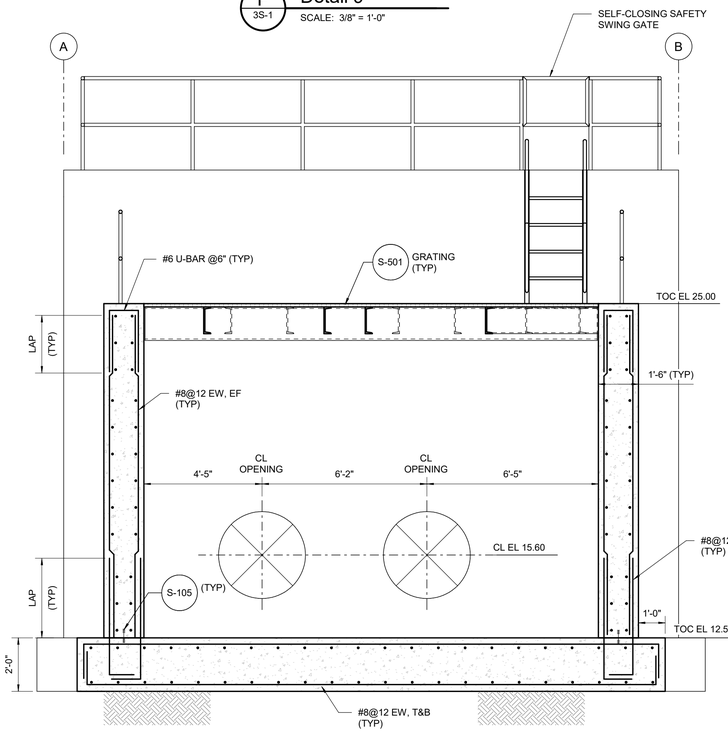


C 3S-1 SECTION
SCALE: 3/8" = 1'-0"

F 3S-1 Detail 9
SCALE: 3/8" = 1'-0"



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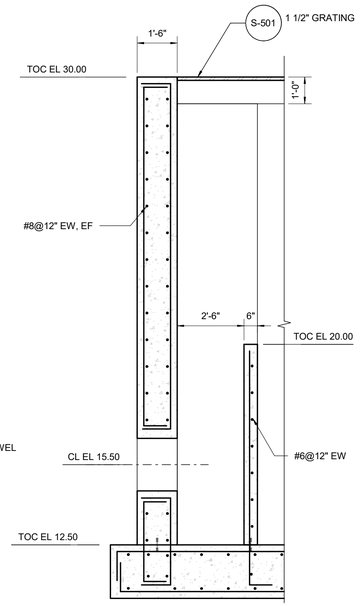

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SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.D

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ORIGINAL SHEET - ANSI D

Permit/Seal

PRELIMINARY

CHARLES JOSEPH WILLIAMS
STATE OF WASHINGTON
23683
REGISTERED
PROFESSIONAL ENGINEER

Digitally signed by Charles Williams
Date: 2025.02.24 14:34:41-05'00'

Consultant

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

STN			08/02/24
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
PUMPED INTAKE STRUCTURE SECTIONS

Project No.
224202267

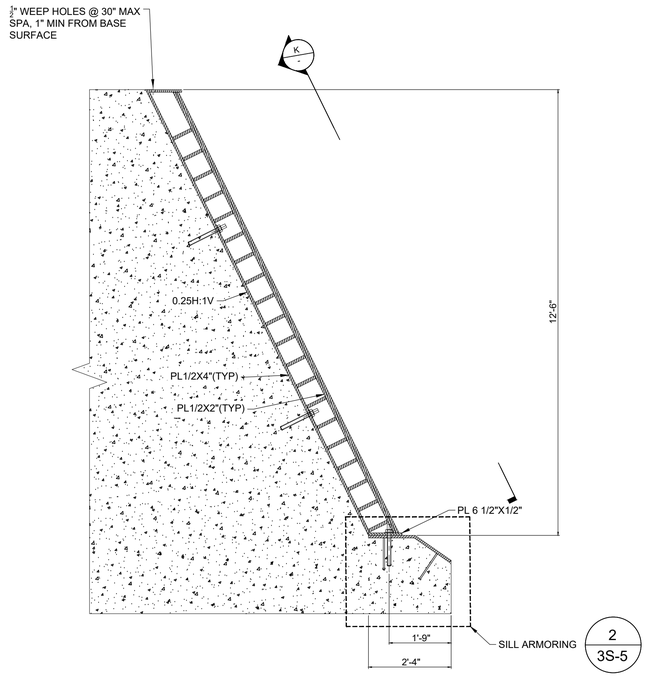
Scale
3/8" = 1'-0"

Revision

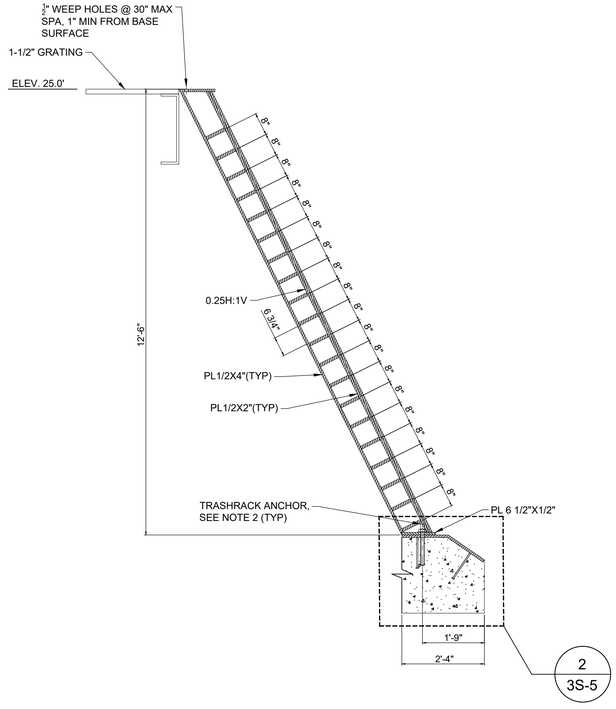
Drawing No.
3S-3

GENERAL SHEET NOTES

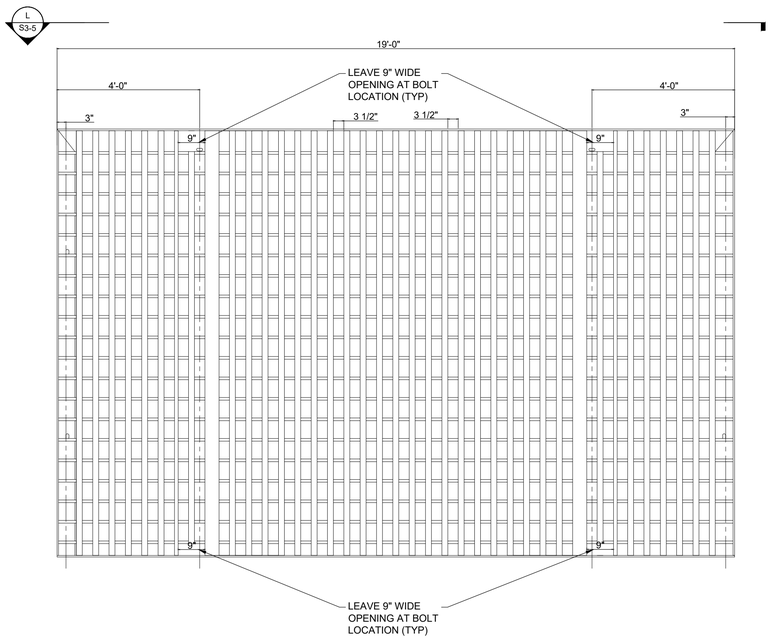
1. ALL STEEL TRASHRACK, ANCHORS BOLTS AND ASSOCIATED HARDWARE SHALL BE HOT DIPPED GALVANIZED PER ASTM A123, A153
2. ANCHORS SHALL BE 1" DIA THREADED ANCHOR RODS (ASTM F1554, GR 105), 9" MINIMUM EMBEDMENT. INSTALL WITH ADHESIVE GROUT SYSTEM HIT-RE 500 V3 OR APPROVED EQUAL.
3. STEEL REQUIREMENTS:
   STEEL PLATES: ASTM A529, GRADE 50
   L-SHAPES: ASTM A529, GRADE 50
   NUTS AND WASHERS: ASTM A563 AND F436 RESPECTIVELY



G 3S-1 SECTION
SCALE: 1/2" = 1'-0"



H 3S-1 SECTION
SCALE: 1/2" = 1'-0"



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

Revision	By	Appd	YYYY.MM.DD
Issued	By	Appd	YYYY.MM.DD

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NOT FOR

CHARLES JOSEPH WILLIAM FISH
STATE OF WASHINGTON
22633
REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Charles
Date: 2020.12.22 14:46:41-05'00'

WARNING
0 ½ 1
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Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: DTL_TRASHRACK_TYPE1-2_CO

Dwn.	Dsgn.	Chkd.	2022.12.02
			YYYY.MM.DD

Title
PUMPED INTAKE STRUCTURE
TRASHRACK SECTIONS AND DETAILS

Project No.	Scale
224202267	AS INDICATED
Revision Sheet of	Drawing No.
	3S-4

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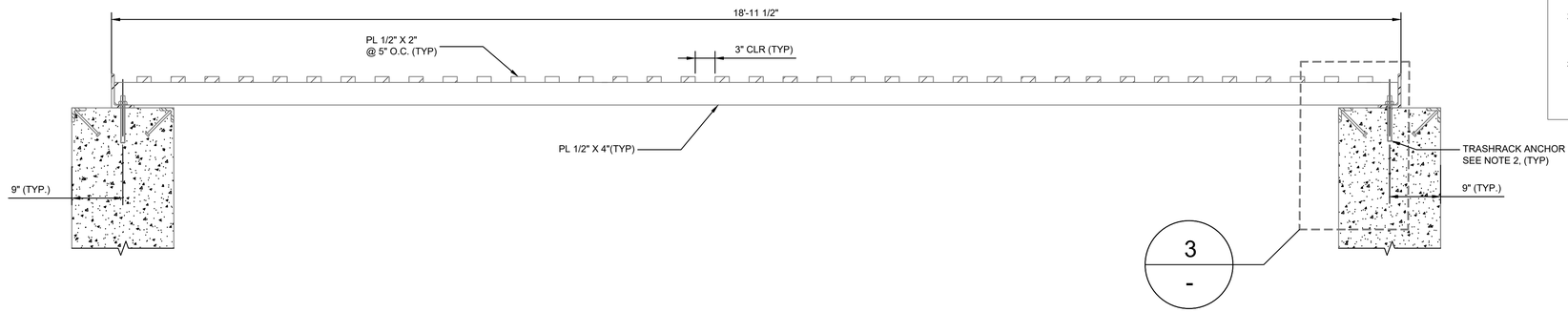
2020.12.22 2:27:43 PM

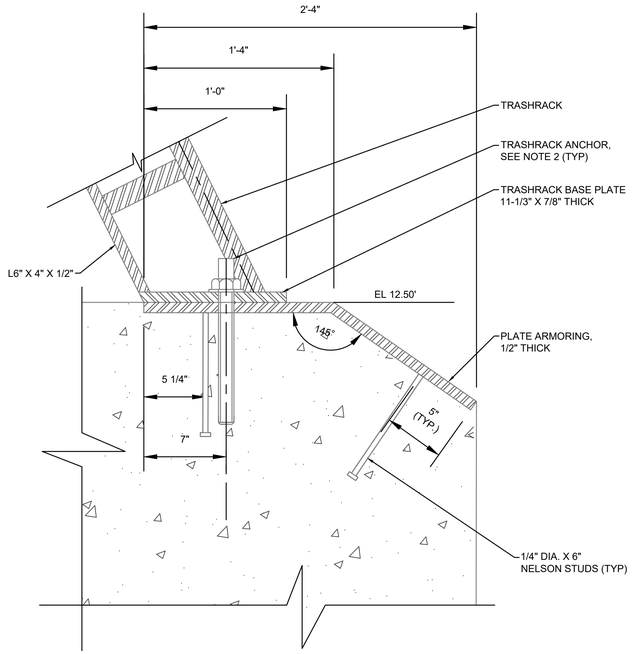
ORIGINAL SHEET - ANSI D

GENERAL SHEET NOTES

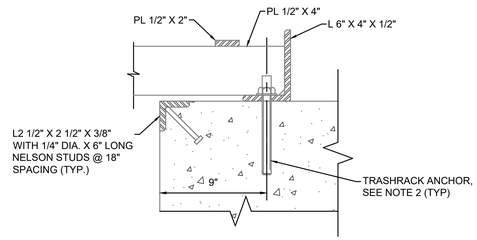
1. ALL STEEL TRASHRACK, ANCHOR BOLTS AND ASSOCIATED HARDWARE SHALL BE HOT DIPPED GALVANIZED PER ASTM A123, A153
2. ANCHORS SHALL BE 1" DIA THREADED ANCHOR RODS (ASTM F1554, GR 105), 9" MINIMUM EMBEDMENT. INSTALL WITH ADHESIVE GROUT SYSTEM HIT-RE 500 V3 OR APPROVED EQUAL.
3. STEEL REQUIREMENTS:
   STEEL PLATES: ASTM A572
   L-SHAPES: ASTM A529, GRADE 50
   NUTS AND WASHERS: ASTM A563 AND F436 RESPECTIVELY



L 3S-4 SECTION
SCALE: 1" = 1'-0"



2 3S-4 DETAIL
SCALE: 1 ½" = 1'-0"



3 - DETAIL
SCALE: 1 ½" = 1'-0"

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

ORIGINAL SHEET - ANSI D

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NOT FOR

CHARLES JOSEPH WILLIAMS — STATE OF WASHINGTON — 22683 — REGISTERED PROFESSIONAL ENGINEER
Digitally signed by Joseph Williams Charles
Date: 2025.02.21 11:54:42-05'00'

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: DTL_OUTLET_XS_F_CO	Dwn.	Dsgn.	Chkd.	2022.12.02 YYYY.MM.DD

Title
PUMPED INTAKE STRUCTURE
TRASHRACK SECTIONS AND DETAILS

Project No.	Scale
224202267	AS INDICATED
Revision Sheet of	Drawing No. 3S-5

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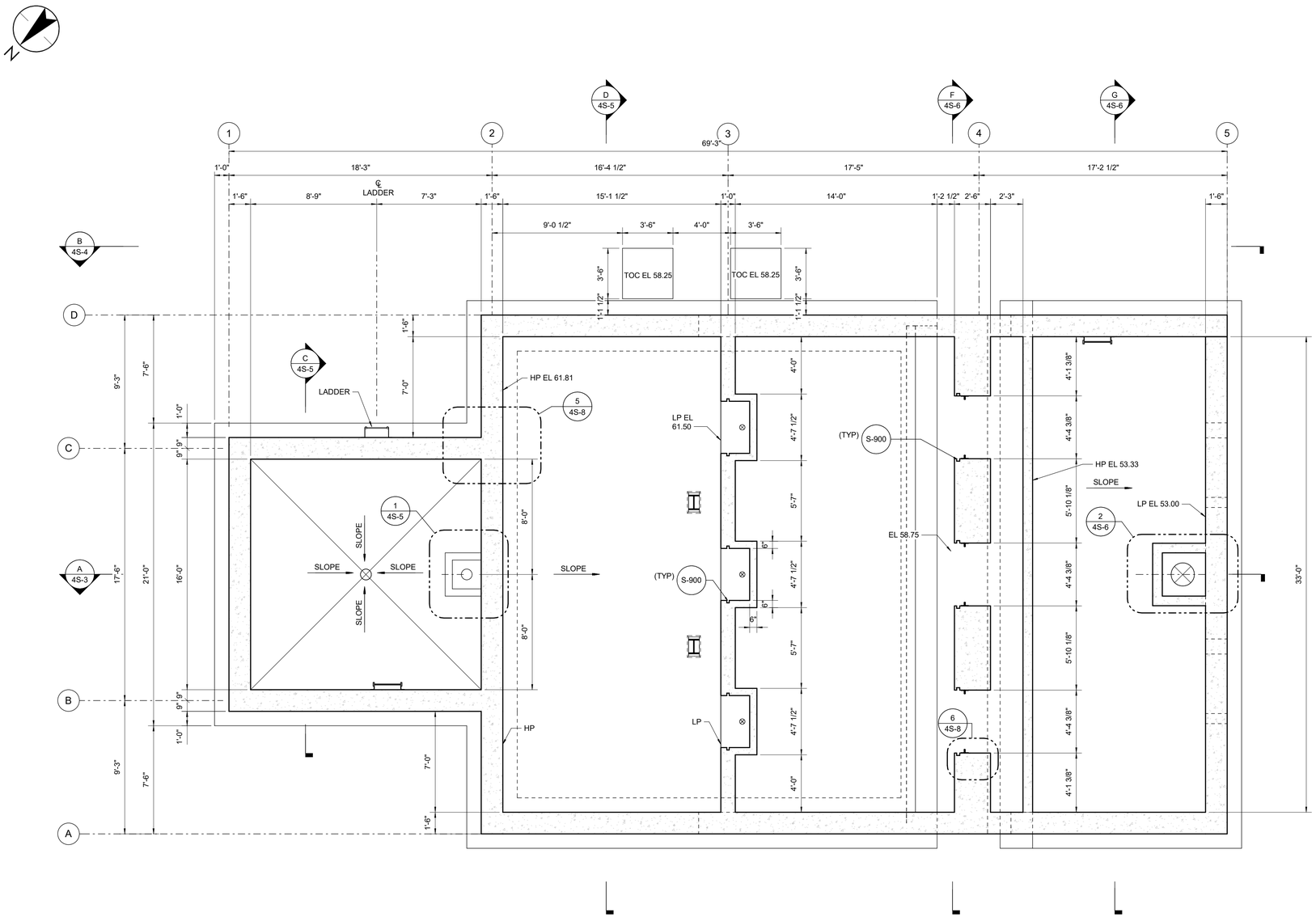
2024.12.23 3:39:01 PM

GENERAL SHEET NOTES

1. ROOF AND HATCH LIVE LOAD - 300 PSF
2. ALL REINFORCEMENT SHOWN SHALL BE SPACED AT 12" O.C. UNLESS NOTED OTHERWISE. ADDITIONAL REINFORCEMENT IN ACCORDANCE WITH STANDARD DETAILS S-144 AND S-148 SHALL BE PROVIDED AT ALL OPENINGS.



PLAN AT EL 63.00

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

Revision	By	Appd	YYYY.MM.DD

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ORIGINAL SHEET - ANS D

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PRELIMINARY

CHARLES JOSEPH WILLIAMS — STATE OF WASHINGTON — 22553 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Charles Williams
Date: 2025.01.09 20:38:42-05'00'

Consultant

Stantec

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

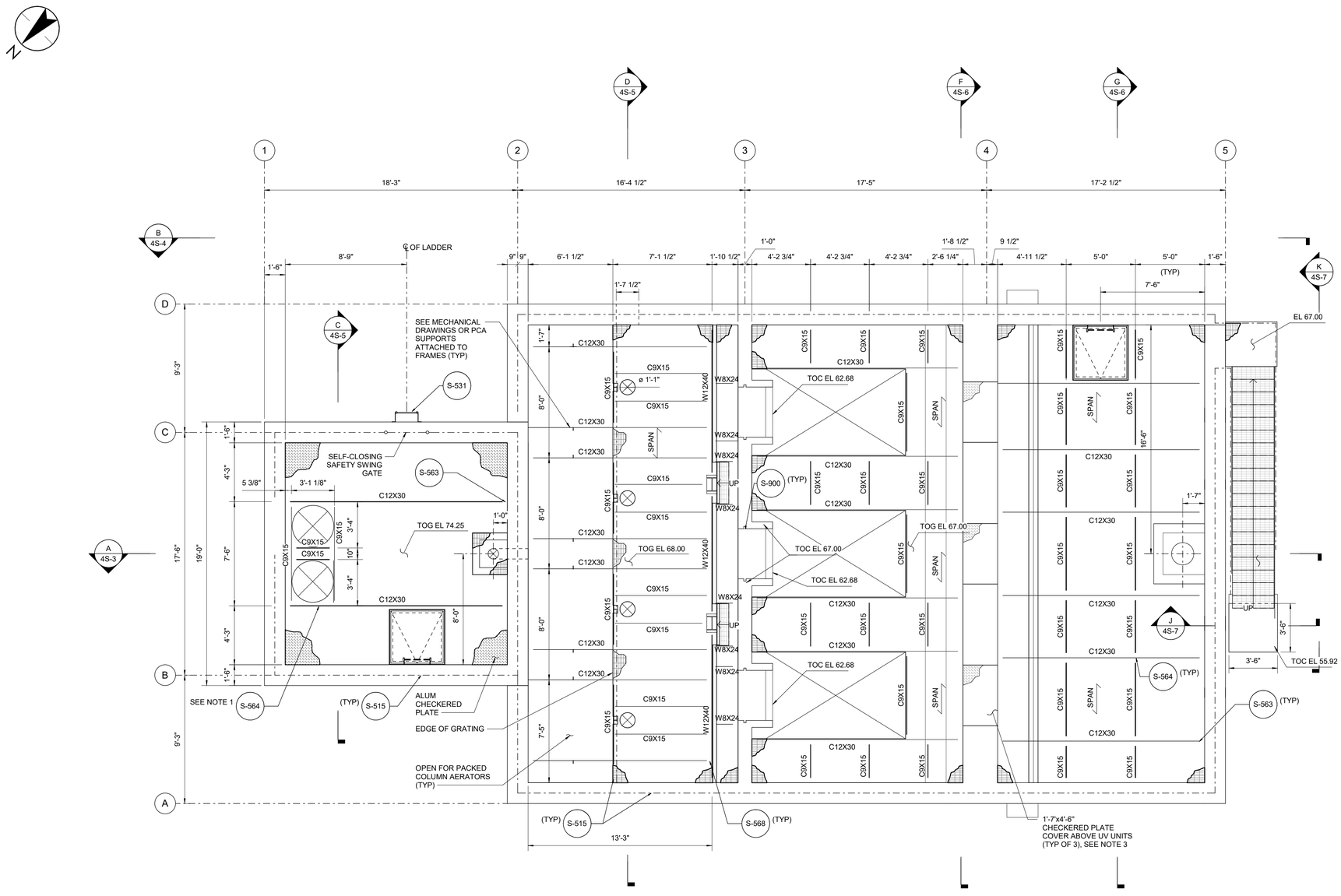
File Name: N/A	Author	Designer	Checker	07/30/24
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
WATER SUPPLY HEADBOX STRUCTURE INTERMEDIATE PLAN

Project No.	Scale
224202267	1/4" = 1'-0"
Revision	Drawing No.
	4S-1

GENERAL SHEET NOTES

1. STANDARD DETAIL S-502 SHALL BE USED IN CONJUNCTION WITH THE SIZING AND SPACING OF CHANNELS SHOWN FOR SUPPORTED THE PACK COLUMN AERATORS.
2. ALL REINFORCEMENT SHOWN SHALL BE SPACED AT 12" O.C. UNLESS NOTED OTHERWISE. ADDITIONAL REINFORCEMENT IN ACCORDANCE WITH STANDARD DETAILS S-144 AND S-148 SHALL BE PROVIDED AT ALL OPENINGS.
3. COORDINATE AND PROVIDE CHECKERED PLATE COVERS ABOVE UV UNITS LOCATED TO ALLOW FULL ACCESS TO UNITS BELOW WHEN REMOVED. PROVIDE EACH COVER WITH FINGER HOLES AND WELDED UNDERSIDE STIFFENER BARS PER STANDARD DETAIL S-502.



PLAN AT EL 74.25

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

Revision	By	Appd	Date
0 Revision 1			YYYY.MM.DD

Issued	By	Appd	
A			YYYY.MM

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ORIGINAL SHEET - ANSI D

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PRELIMINARY NOT FOR CONSTRUCTION

CHARLES JOSEPH WILLIAMS — STATE OF WASHINGTON — 23683 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Charles Williams
Date: 2025.06.23 14:34:42-05'00'

Consultant

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Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

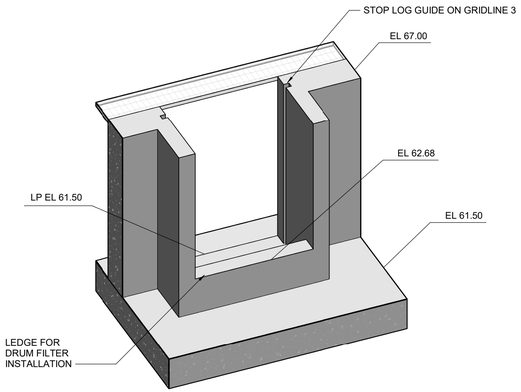
File Name: N/A	Author	Designer	Checker	06/23/20
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
WATER SUPPLY HEADBOX STRUCTURE UPPER PLAN

Project No.	Scale
224202267	1/4" = 1'-0"
Revision	**Drawing No.**
0	**4S-2**

GENERAL SHEET NOTES

1. STANDARD DETAIL S-502 SHALL BE USED IN CONJUNCTION WITH THE SIZING AND SPACING OF CHANNELS SHOWN FOR SUPPORTING THE PACK COLUMN AERATORS.
2. ALL REINFORCEMENT SHOWN SHALL BE SPACED AT 12" O.C. UNLESS NOTED OTHERWISE. ADDITIONAL REINFORCEMENT IN ACCORDANCE WITH STANDARD DETAILS S-144 AND S-148 SHALL BE PROVIDED AT ALL OPENINGS.
3. AT CONTRACTOR'S OPINION, HORIZONTAL CONSTRUCTION WALL JOINTS MAY BE ADDED. LOCATIONS SHALL BE SUBMITTED FOR APPROVAL.



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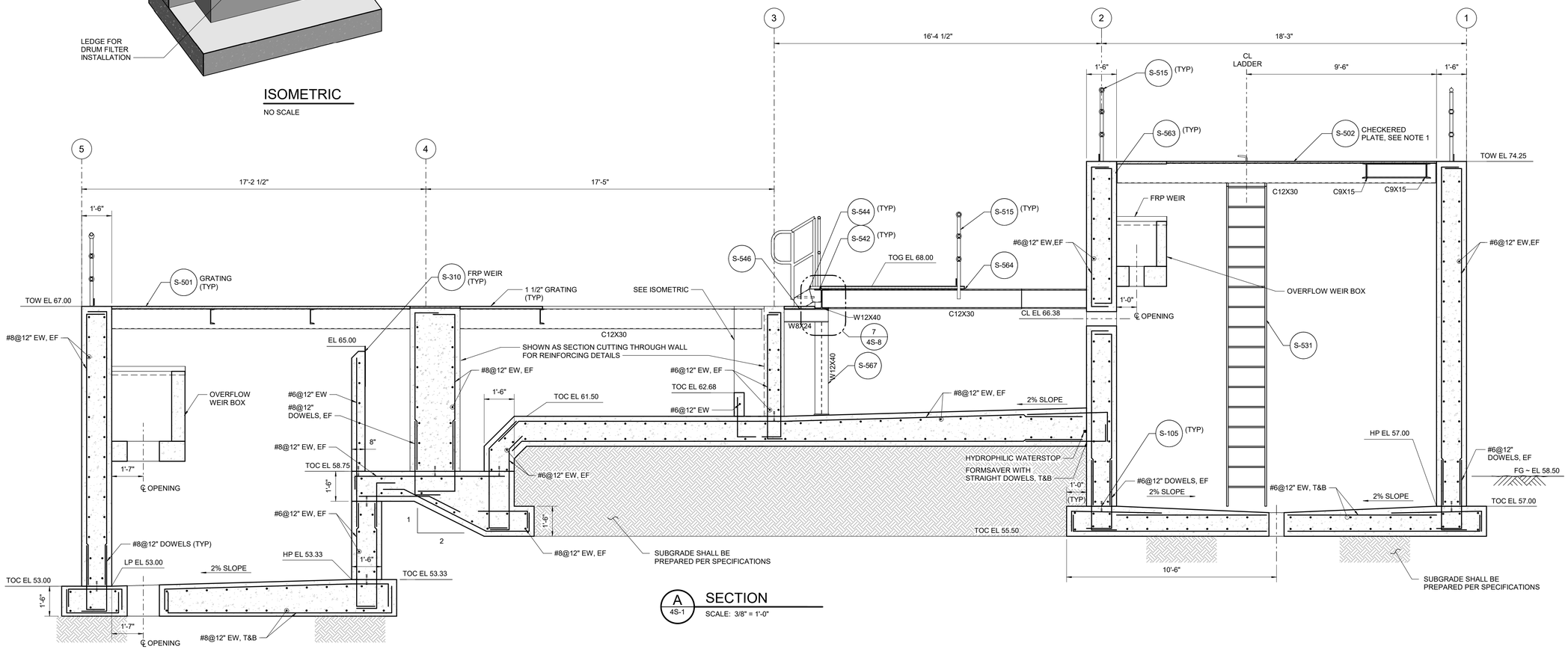

A / 4S-1 SECTION

SCALE: 3/8" = 1'-0"

Revision	By	Appd	Date
0 Revision 1			YYYY.MM.DD

Issued	By	Appd	
A			YYYY.MM.DD

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

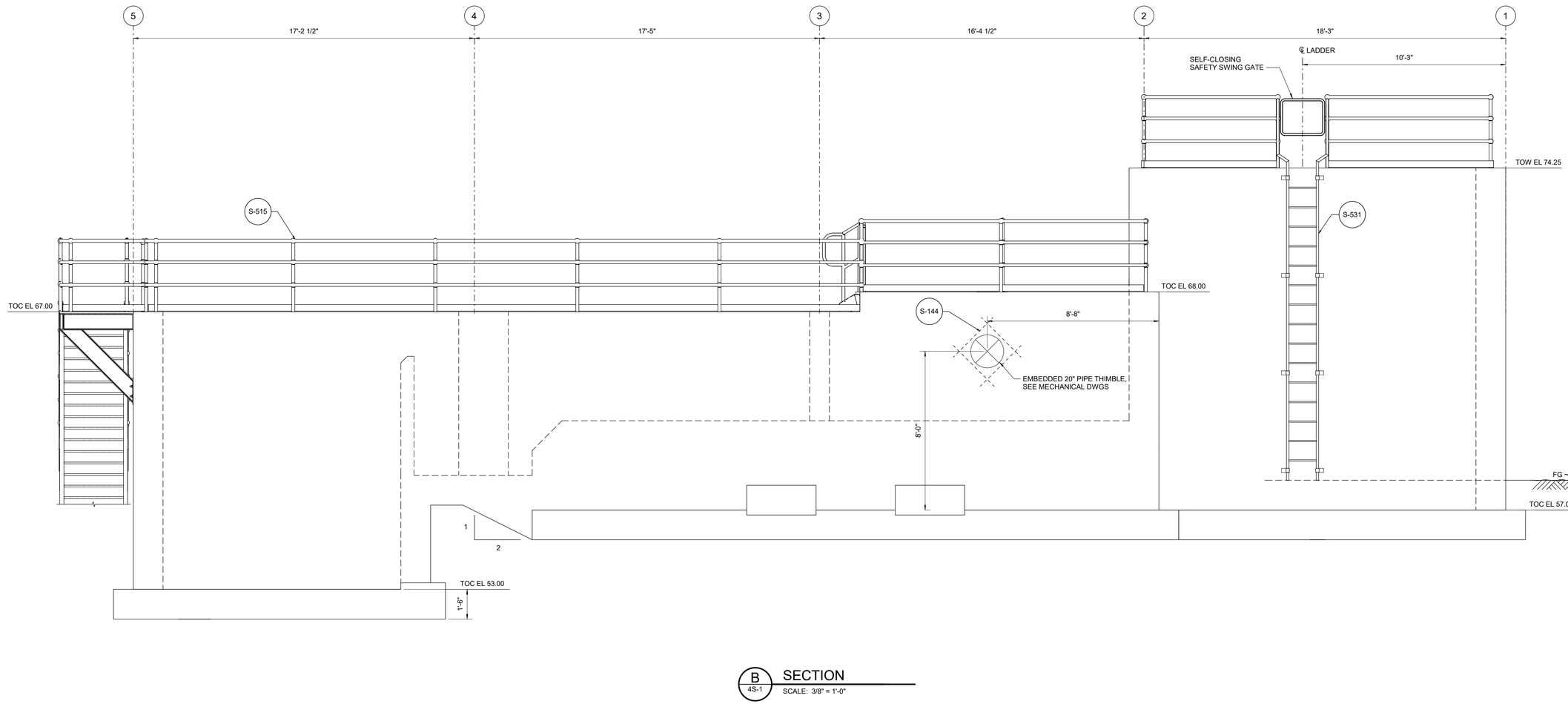
File Name: N/A	Author	Designer	Checker	06/23/20
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
WATER SUPPLY HEADBOX STRUCTURE SECTION 1

Project No.	Scale
224202267	3/8" = 1'-0"
Revision	Drawing No.
0	4S-3

1/17/2023 12:47:40 PM

ORIGINAL SHEET - ANSI D



B 4S-1 SECTION

SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

Author	Designer	Checker	05/12/20
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

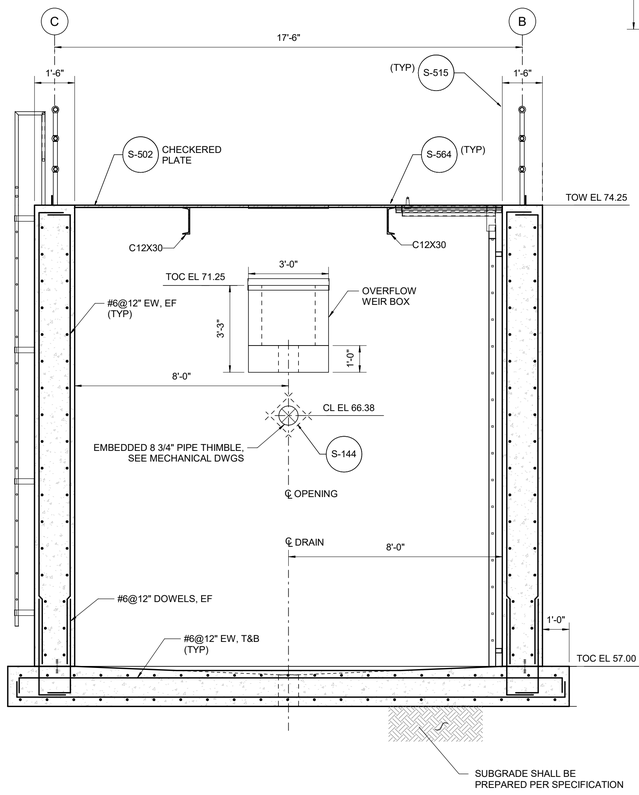
Title

WATER SUPPLY HEADBOX STRUCTURE SECTION II

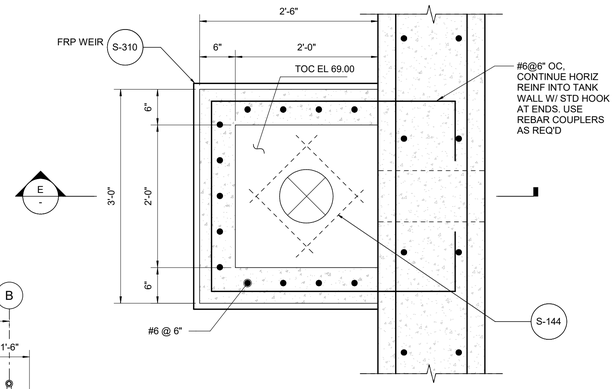
Project No.	Scale
224202267	3/8" = 1'-0"
Revision	Drawing No.
	4S-4

GENERAL SHEET NOTES

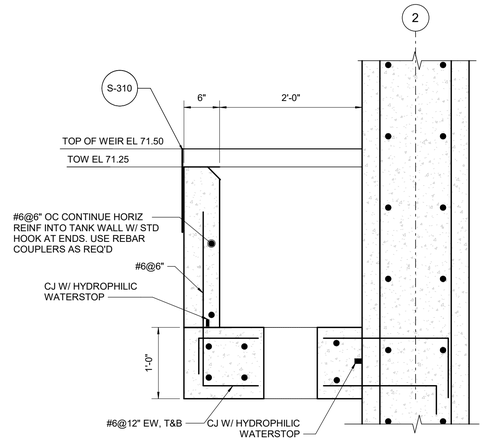
1. ALL REINFORCEMENT SHOWN SHALL BE SPACED AT 12" O.C. UNLESS NOTED OTHERWISE. ADDITIONAL REINFORCEMENT IN ACCORDANCE WITH STANDARD DETAILS S-144 AND S-148 SHALL BE PROVIDED AT ALL OPENINGS.
2. AT CONTRACTOR'S OPINION, HORIZONTAL CONSTRUCTION WALL JOINTS MAY BE ADDED. LOCATIONS SHALL BE SUBMITTED FOR APPROVAL.



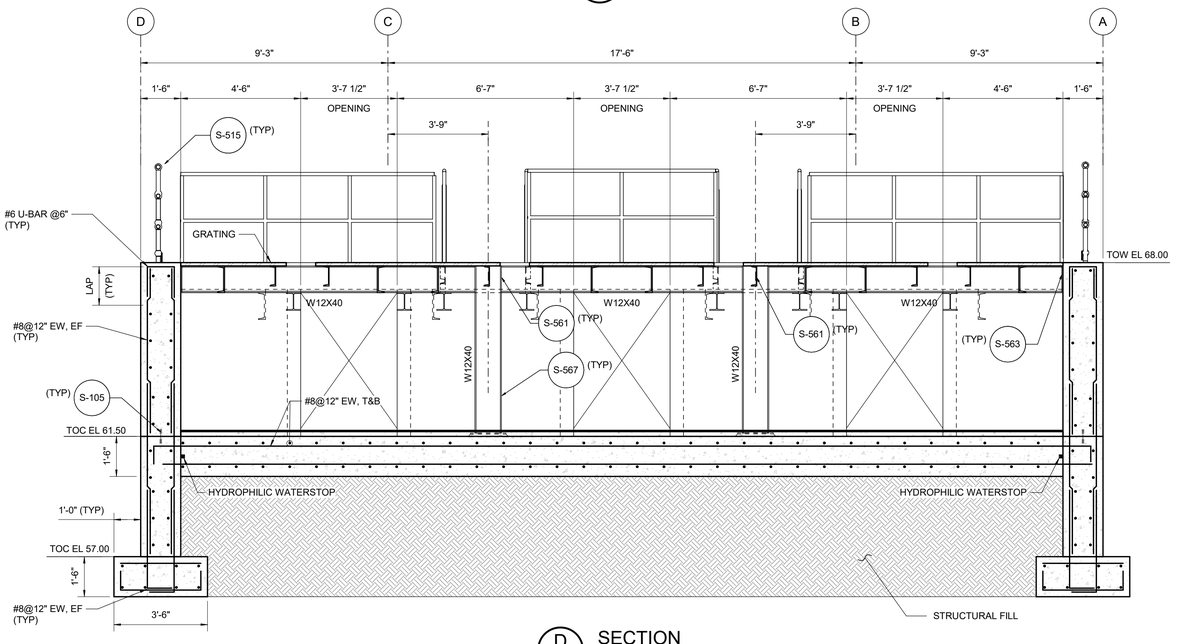
C 4S-1 SECTION
SCALE: 3/8" = 1'-0"



1 4S-1 DETAIL
SCALE: 1" = 1'-0"



E - SECTION
SCALE: 1" = 1'-0"



D 4S-1 SECTION
SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
A Issued	By	Appd	YYYY.MM

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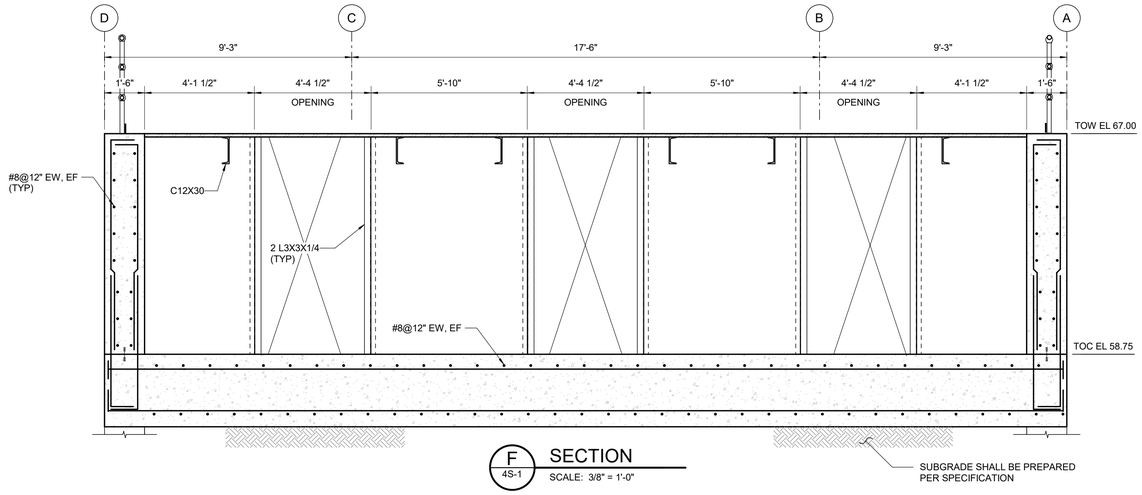
TULALIP TRIBES
BATTLE CREEK HATCHERY
Tulalip, WA

File Name: N/A | Author: Dwn. | Designer: Dsgn. | Checker: Chkd. | 07/30/24 YYYY.MM.DD

Title
WATER SUPPLY HEADBOX STRUCTURE SECTION II

Project No. 224202267
Scale As indicated
Revision
Drawing No. 4S-5



F 4S-1 SECTION
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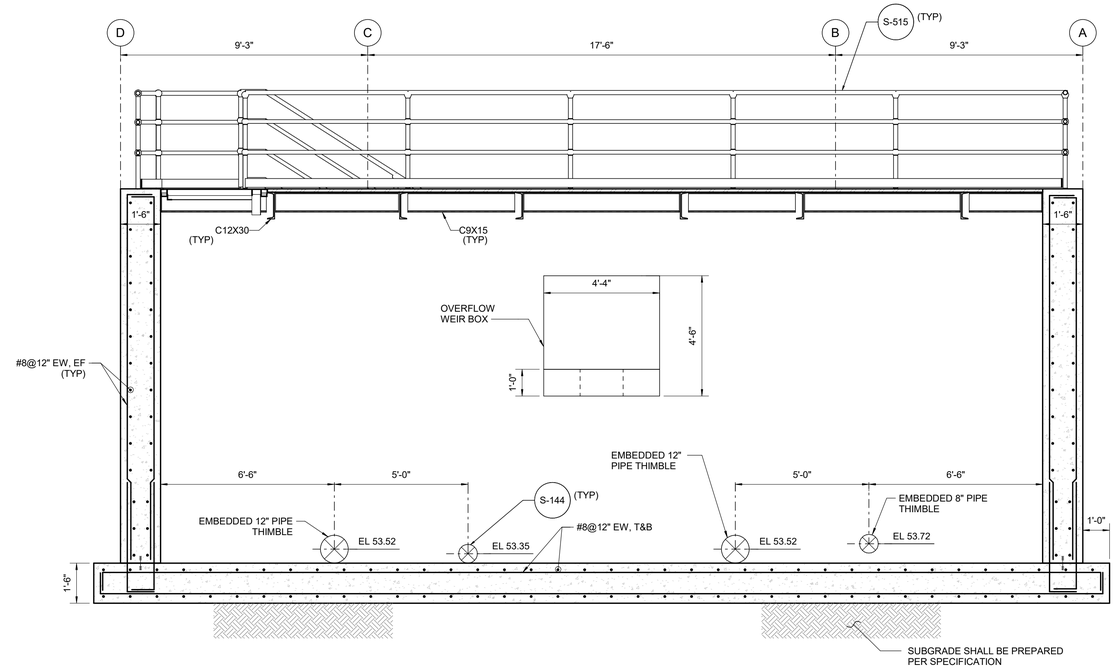
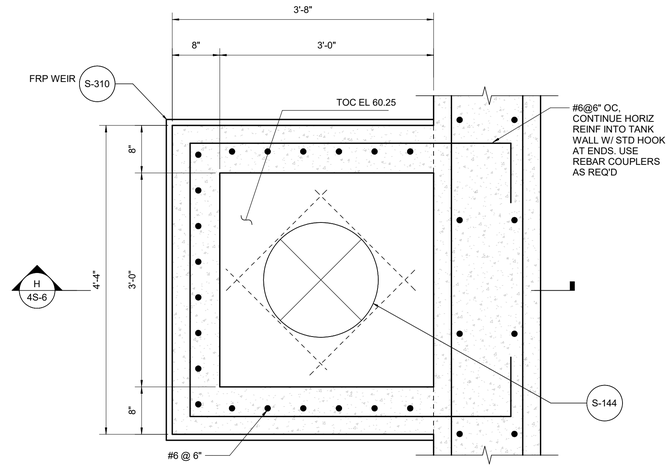


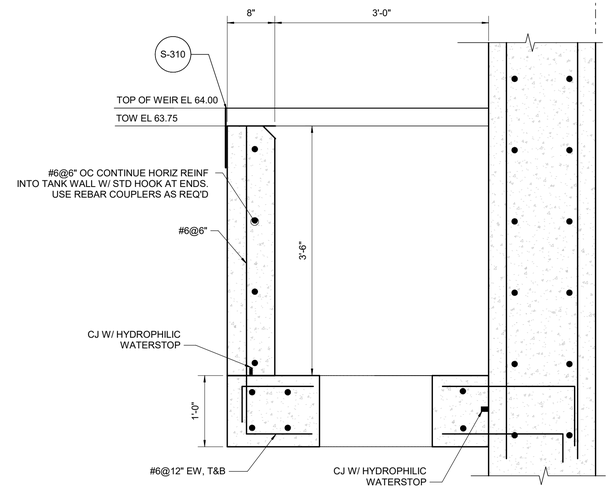
G 4S-1 SECTION
SCALE: 3/8" = 1'-0"

GENERAL SHEET NOTES

1. ALL REINFORCEMENT SHOWN SHALL BE SPACED AT 12" O.C. UNLESS NOTED OTHERWISE. ADDITIONAL REINFORCEMENT IN ACCORDANCE WITH STANDARD DETAILS S-144 AND S-148 SHALL BE PROVIDED AT ALL OPENINGS.



2 4S-1 DETAIL
SCALE: 1" = 1'-0"



H 4S-6 SECTION
SCALE: 1" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
A. Issued	By	Appd	YYYY.MM.D

1/9/2025 8:37:49 PM
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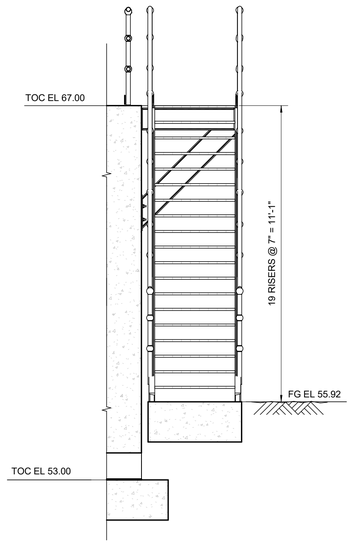
BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A | Author: Dwn. | Designer: Dsgn. | Checker: Chkd. | 07/25/24 YYYY.MM.DD

Title
WATER SUPPLY HEADBOX STRUCTURE
SECTION IV

Project No. 224202267
Scale As indicated
Revision
Drawing No. 4S-6



J 4S-2 SECTION
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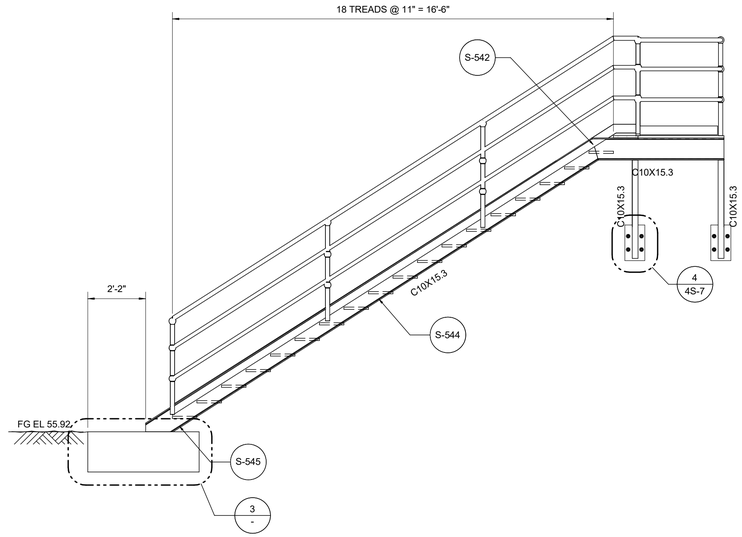

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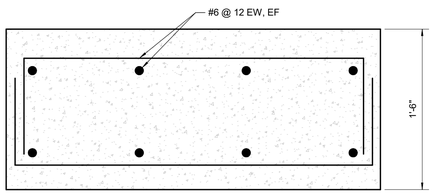

3 - DETAIL - STAIRWAY LANDING
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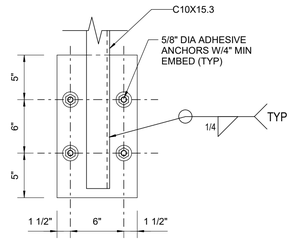

4 - DETAIL
SCALE: 1 1/2" = 1'-0"

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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

Author	Designer	Checker	08/26/24
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

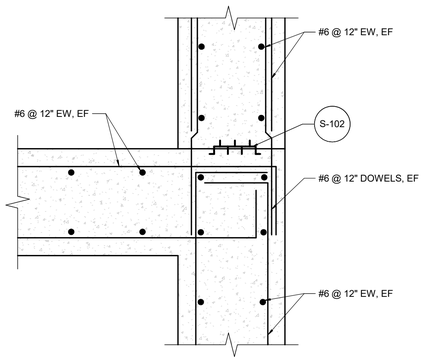
Title
WATER SUPPLY HEADBOX
STRUCTURE
SECTION V

Project No.
224202267

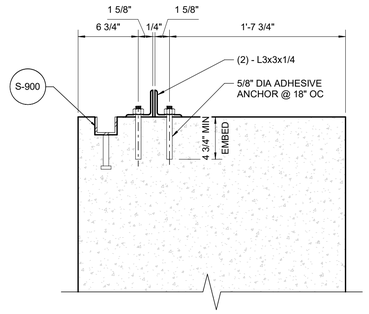
Scale
As indicated

Revision

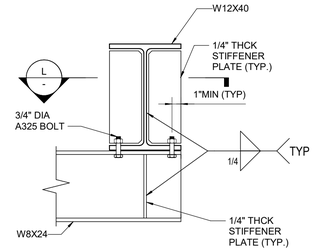
Drawing No.
4S-7



5 / 4S-1 DETAIL
SCALE: 1" = 1'-0"



6 / 4S-1 DETAIL
SCALE: 1 1/2" = 1'-0"



7 / 4S-3 DETAIL
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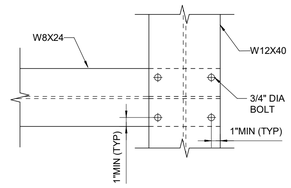

L / - SECTION
SCALE: 1 1/2" = 1'-0"

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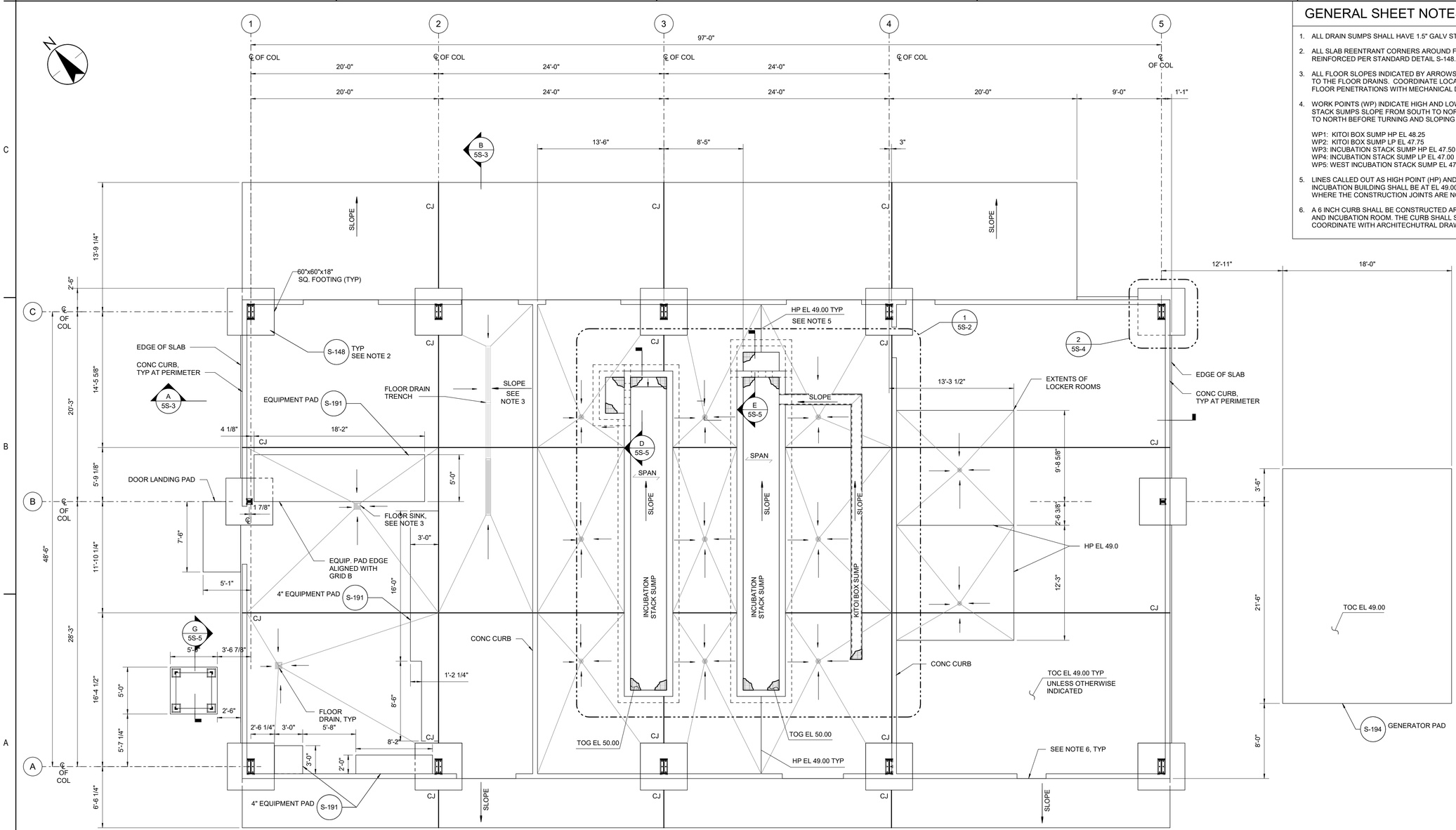
BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A	Author	Designer	Checker	09/02/24
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
WATER SUPPLY HEADBOX STRUCTURE DETAILS

Project No.	Scale
224202267	As indicated
Revision	Drawing No.
	4S-8



GENERAL SHEET NOTES

1. ALL DRAIN SUMPS SHALL HAVE 1.5" GALV STEEL GRATING PER STANDARD DETAIL S-501.
2. ALL SLAB REENTRANT CORNERS AROUND FOOTINGS AND SUMPS SHALL BE REINFORCED PER STANDARD DETAIL S-148.
3. ALL FLOOR SLOPES INDICATED BY ARROWS ON THIS DRAWING SHALL HAVE A 2% SLOPE TO THE FLOOR DRAINS. COORDINATE LOCATIONS OF FLOOR DRAINS AND ADDITIONAL FLOOR PENETRATIONS WITH MECHANICAL DRAWINGS BEFORE PLACEMENT OF SLAB.
4. WORK POINTS (WP) INDICATE HIGH AND LOW POINTS IN SUMP SLABS. THE INCUBATION STACK SUMPS SLOPE FROM SOUTH TO NORTH. THE KITOI BOX SUMP SLOPES SOUTH TO NORTH BEFORE TURNING AND SLOPING EAST TO WEST.

   WP1: KITOI BOX SUMP HP EL 48.25
   WP2: KITOI BOX SUMP LP EL 47.75
   WP3: INCUBATION STACK SUMP HP EL 47.50
   WP4: INCUBATION STACK SUMP LP EL 47.00
   WP5: WEST INCUBATION STACK SUMP EL 47.02
5. LINES CALLED OUT AS HIGH POINT (HP) AND CONSTRUCTION JOINTS INSIDE THE INCUBATION BUILDING SHALL BE AT EL 49.00, EXCEPT INSIDE THE LOCKER ROOMS WHERE THE CONSTRUCTION JOINTS ARE NOT THE HIGH POINTS OF THE SLOPED SLAB.
6. A 6 INCH CURB SHALL BE CONSTRUCTED AROUND THE PERIMETER OF THE BUILDING AND INCUBATION ROOM. THE CURB SHALL STOP AT ALL DOORS AND OPENINGS. COORDINATE WITH ARCHITECHUTRAL DRAWINGS.

FOUNDATION PLAN

SCALE: 3/16" = 1'-0"

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Issued	By	Appd	YYYY.MM
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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

Author	Designer	Checker	06/16/20
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
INCUBATION BUILDING
FOUNDATION PLAN

Project No.
224202267

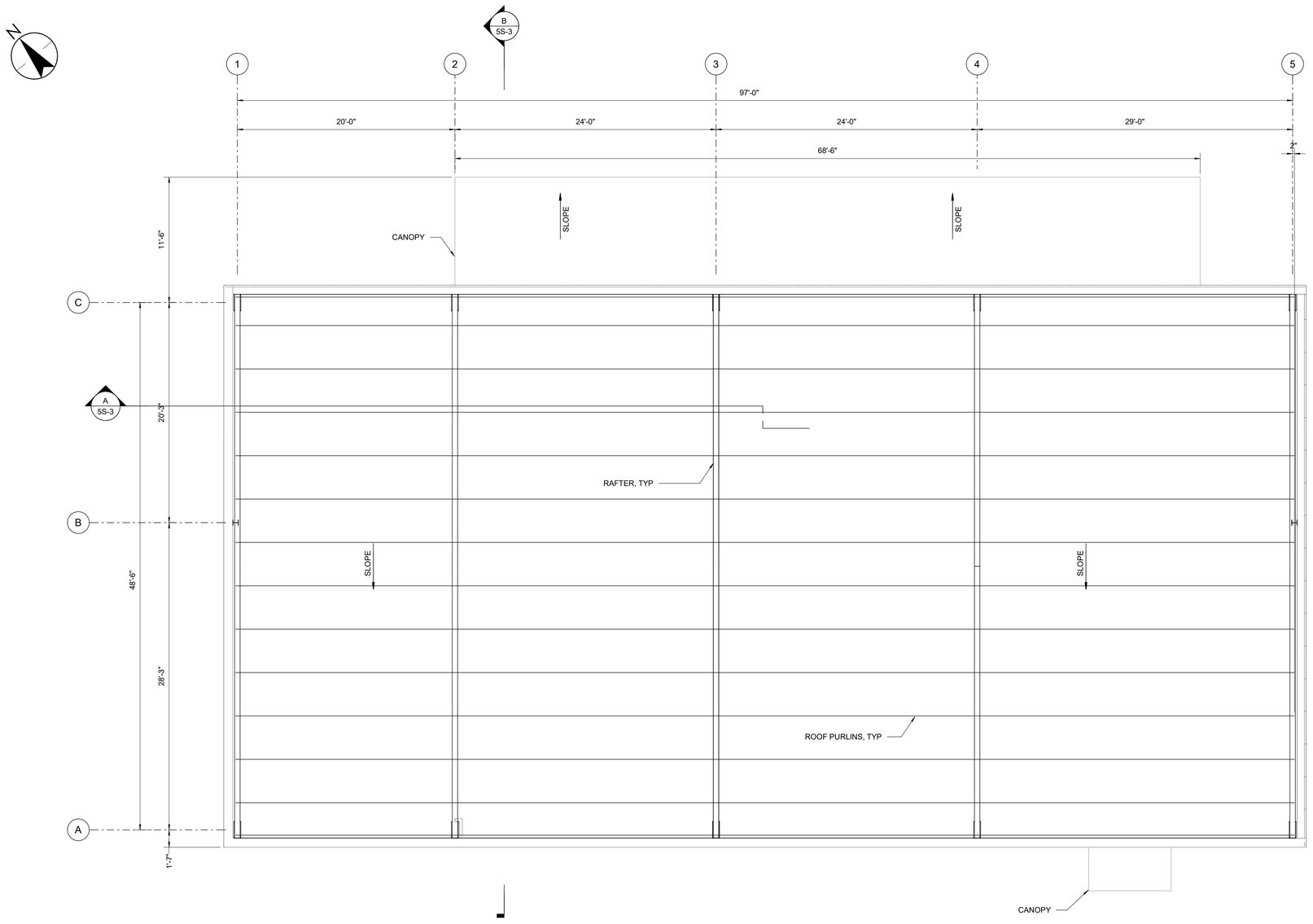
Scale
3/16" = 1'-0"

Revision

Drawing No.
5S-1

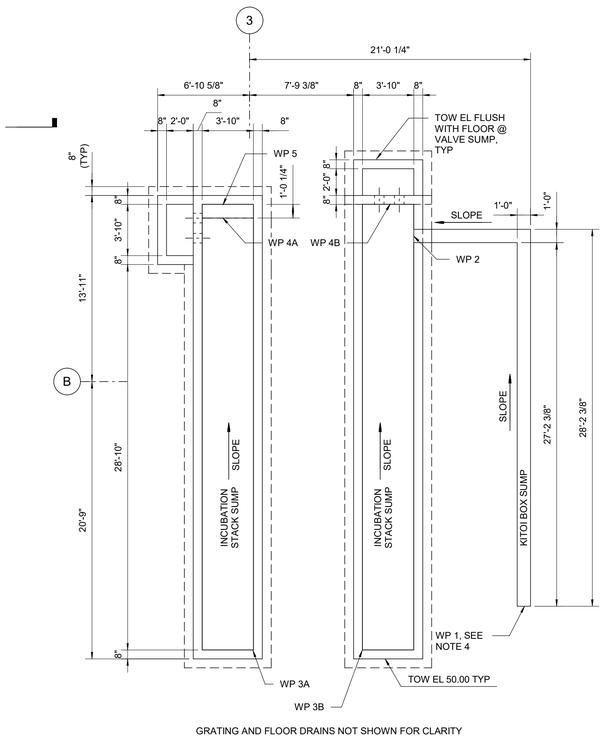
GENERAL SHEET NOTES

1. PROVIDE COMPLETE ERECTION DRAWINGS FOR THE PROPER IDENTIFICATION AND ASSEMBLY OF ALL BUILDING COMPONENTS. DRAWINGS SHALL SHOW ANCHOR BOLT SETTINGS, TRANSVERSE CROSS-SECTIONS, SIDEWALL, ENDWALL, AND ROOF FRAMING, FLASHING, AND SHEETING, AND ACCESSORY INSTALLATION DETAILS.
2. DRAWINGS AND DESIGN ANALYSIS SHALL BEAR THE SEAL OF A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF WASHINGTON. DESIGN ANALYSIS SHALL BE ON FILE AND FURNISHED BY THE MANUFACTURER UPON REQUEST.
3. STEEL FOR PRIMARY FRAMING HOT ROLLED SHAPES SHALL CONFORM TO THE REQUIREMENTS OF ASTM A36, A572, OR A992, WITH MINIMUM YIELD OF 36 OR 50 KSI, RESPECTIVELY.
4. SECONDARY FRAMING STEEL SHALL BE PRE-GALVANIZED. DESIGN THICKNESS SHALL BE DETERMINED BY DESIGN TO MEET SPECIFIED LOADING CONDITIONS.



TOP PLAN

SCALE: 3/16" = 1'-0"



GRATING AND FLOOR DRAINS NOT SHOWN FOR CLARITY

1 / 5S-1 SUMP PLAN

SCALE: 3/16" = 1'-0"

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TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

Author	Designer	Checker	07/30/24
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

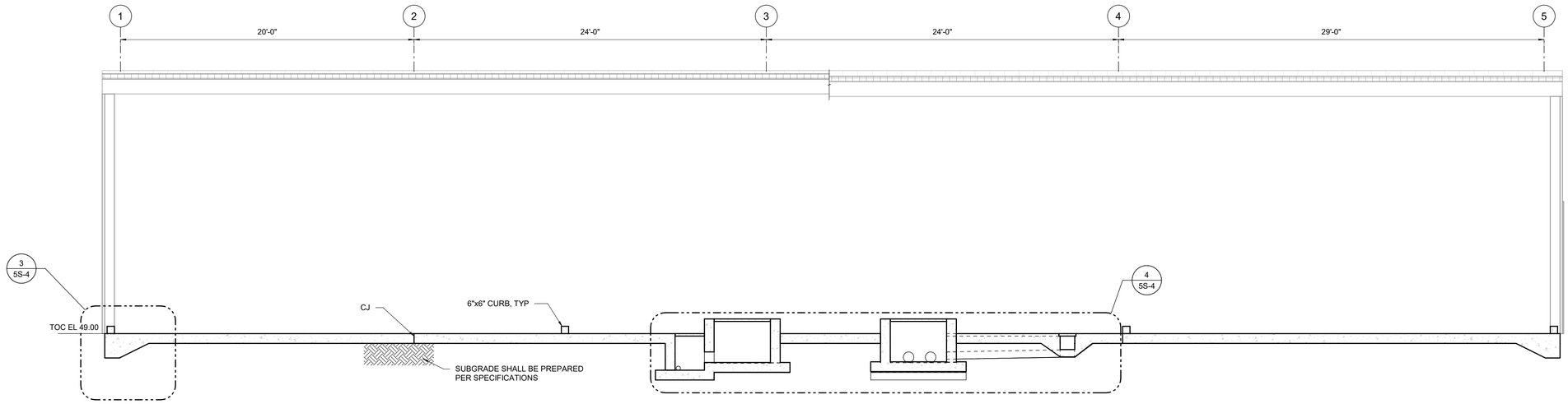
Title
INCUBATION BUILDING
ROOF PLAN

Project No.
224202267

Scale
3/16" = 1'-0"

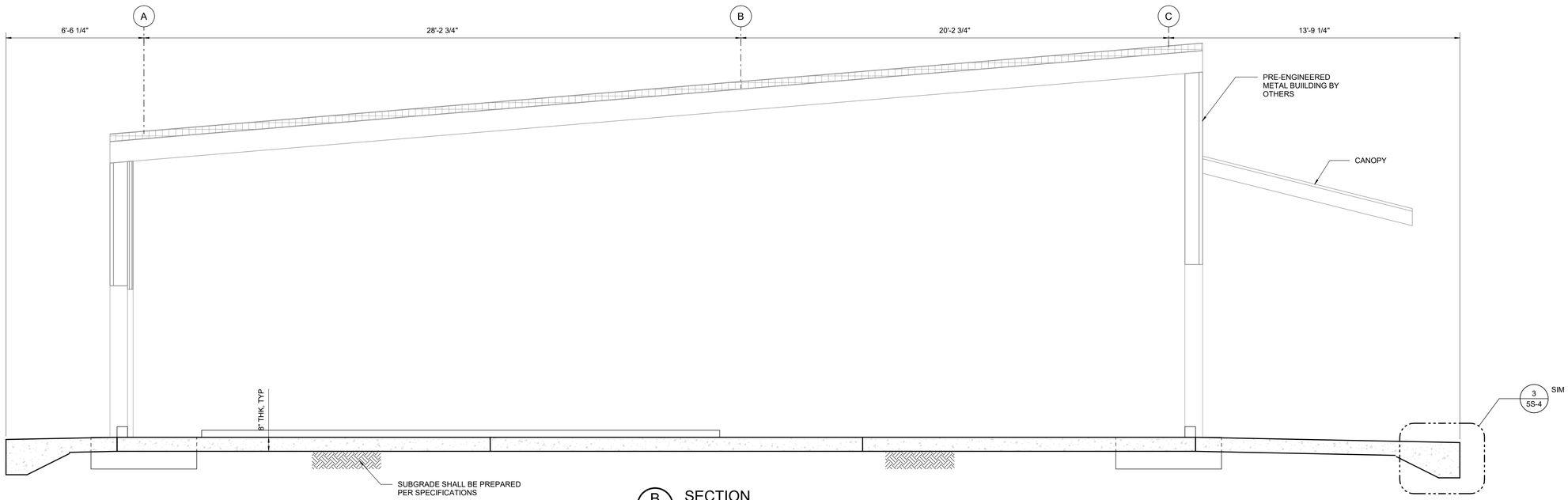
Revision

Drawing No.
5S-2



A 5S-1 SECTION

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



B 5S-1 SECTION

SCALE: 3/8" = 1'-0"

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A Issued	By	Appd	YYYY.MM.DD

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Digitally signed by CHARLES JOSEPH WILLIAMS
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TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

Author	Designer	Checker	07/30/24
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title

INCUBATION BUILDING
SECTION

Project No. 224202267

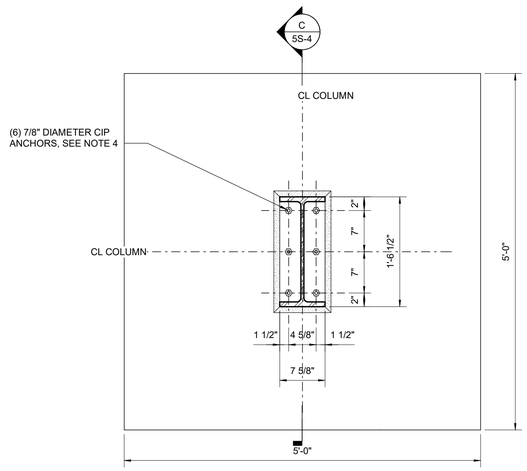
Scale As indicated

Revision

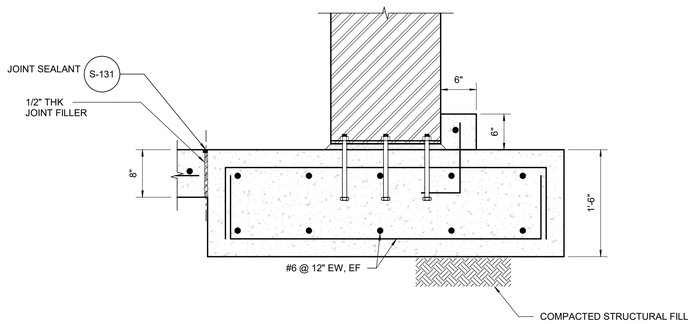
Drawing No. **5S-3**

GENERAL SHEET NOTES

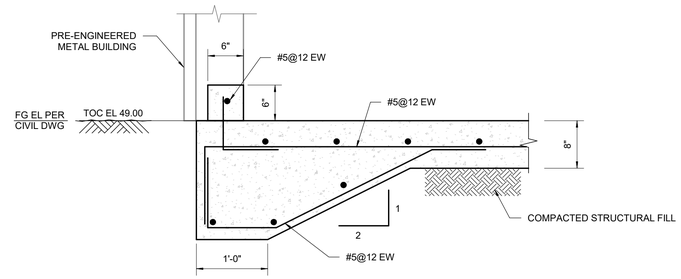
1. ALL STEEL TRASHRACK, ANCHORS BOLTS AND ASSOCIATED HARDWARE SHALL BE HOT DIPPED GALVANIZED PER ASTM A123, A153
2. ANCHORS SHALL BE 1" DIA THREADED ANCHOR RODS (ASTM F1554, GR 105), 9" MINIMUM EMBEDMENT. INSTALL WITH ADHESIVE GROUT SYSTEM HIT-RE 500 V3 OR APPROVED EQUAL.
3. STEEL REQUIREMENTS:
   STEEL PLATES: ASTM A529, GRADE 50
   L-SHAPES: ASTM A529, GRADE 50
   NUTS AND WASHERS: ASTM A563 AND F436 RESPECTIVELY
4. CAST-IN-PLACE ANCHORS SHALL BE POSITIONED IN COORDINATION WITH PEMB MANUFACTURER. BASED ON PRELIMINARY REACTIONS, ANCHORS SHALL BE 7/8" DIAMETER HEAVY HEX HEAD ASTM F 1554 GRADE 105 WITH 6" MIN EMBED. ANCHORS AND FOOTINGS SHALL BE VERIFIED OR REDESIGNED BY THE ENGINEER FOR FINAL REACTIONS.



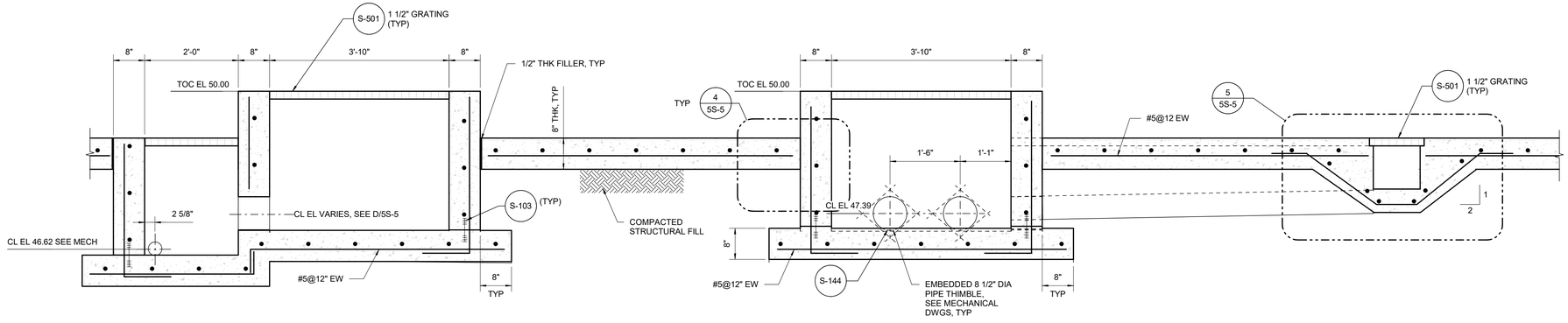
2 / 5S-1 DETAIL
SCALE: 1" = 1'-0"



C / 5S-4 SECTION
SCALE: 1" = 1'-0"



3 / 5S-3 DETAIL
SCALE: 1" = 1'-0"



4 / 5S-3 DETAIL
SCALE: 3/4" = 1'-0"

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Revision	By	Appd	YYYY.MM.DD

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PRELIMINARY

CHARLES JOSEPH WILLIAMS — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Charles Williams
Date: 2025.02.12 16:34:46-05'00'

Consultant

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Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

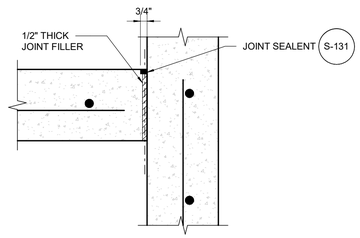
File Name: N/A	Author	Designer	Checker	05/19/20
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
INCUBATION BUILDING
SECTION & DETAILS

Project No.	Scale
224202267	As indicated
Revision	Drawing No.
	5S-4

GENERAL SHEET NOTES

1. ELEVATION SLOPES FROM HIGH POINT TO LOW POINT IN SUMP. SEE 5S-1 FOR ELEVATIONS.



4 / 5S-4 DETAIL
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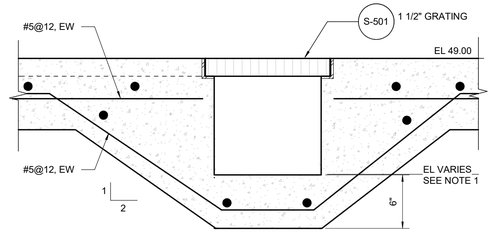

5 / 5S-4 DETAIL
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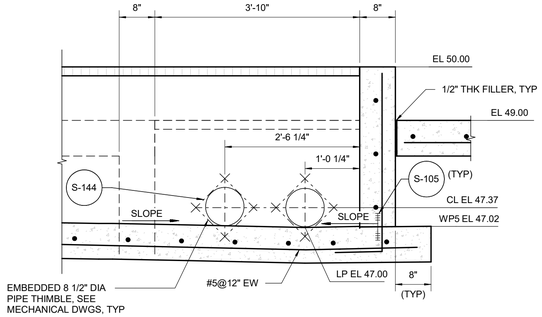

D / 5S-1 SECTION
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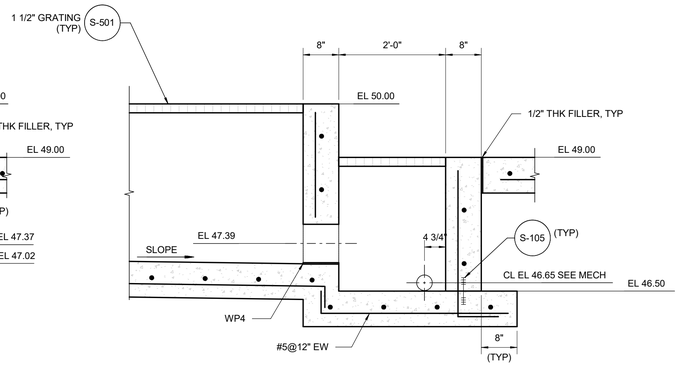

E / 5S-1 SECTION
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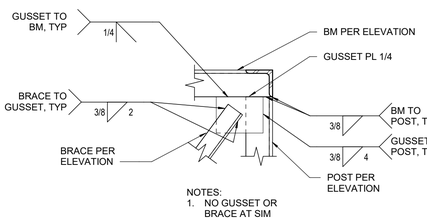

6 / – DETAIL
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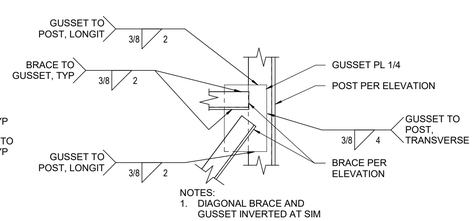
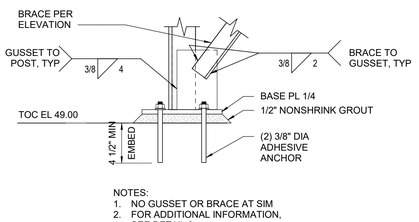
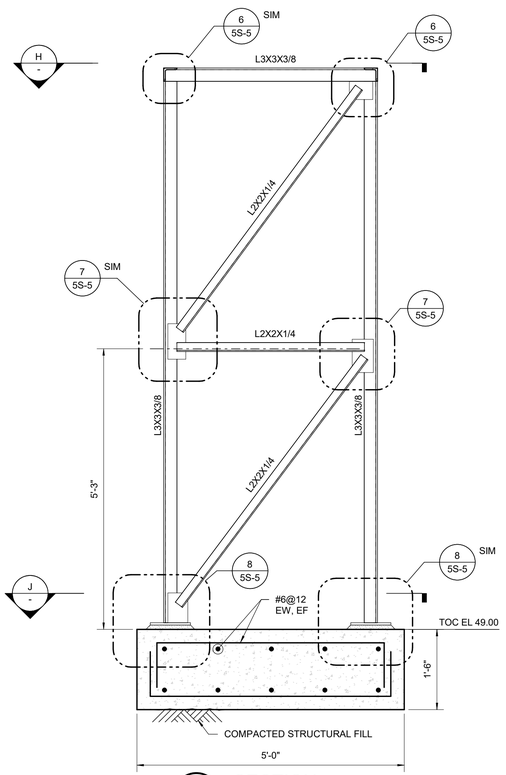


7 / – DETAIL
SCALE: 1 1/2" = 1'-0"

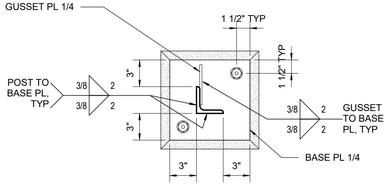


8 / – DETAIL
SCALE: 1 1/2" = 1'-0"

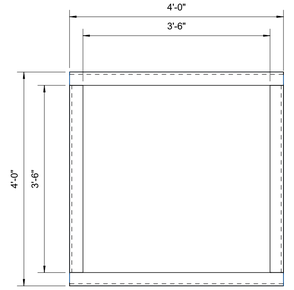
H / –



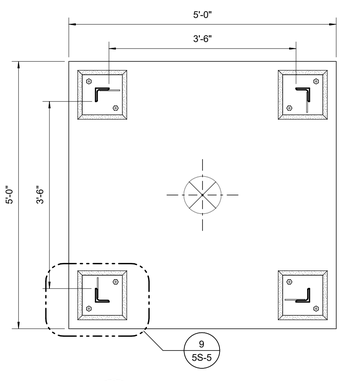
G / 5S-1 SECTION
SCALE: 3/4" = 1'-0"



9 / – DETAIL
SCALE: 1 1/2" = 1'-0"



H / – SECTION
SCALE: 3/4" = 1'-0"



J / – SECTION
SCALE: 3/4" = 1'-0"

Revision	By	Appd	YYYY.MM.DD

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ORIGINAL SHEET - ANSI D

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PRELIMINARY

CHARLES JOSEPH WILLIAMS
STATE OF WASHINGTON
23
REGISTERED
PROFESSIONAL ENGINEER

Digitally signed by Charles Williams
Date: 2023.01.10 15:31:46-05'00'

Consultant

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Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

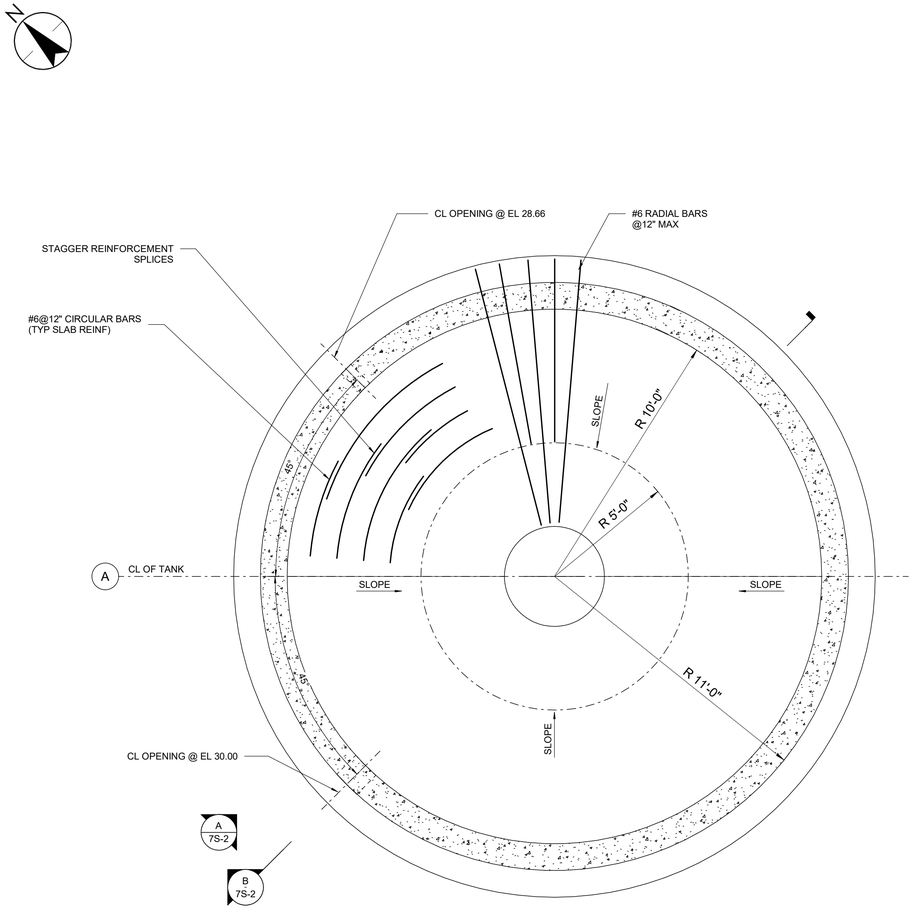
File Name: N/A	Author	Designer	Checker	05/12/20
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
INCUBATION BUILDING
SECTION & DETAILS

Project No.	Scale
224202267	As indicated
Revision	Drawing No.
	5S-5

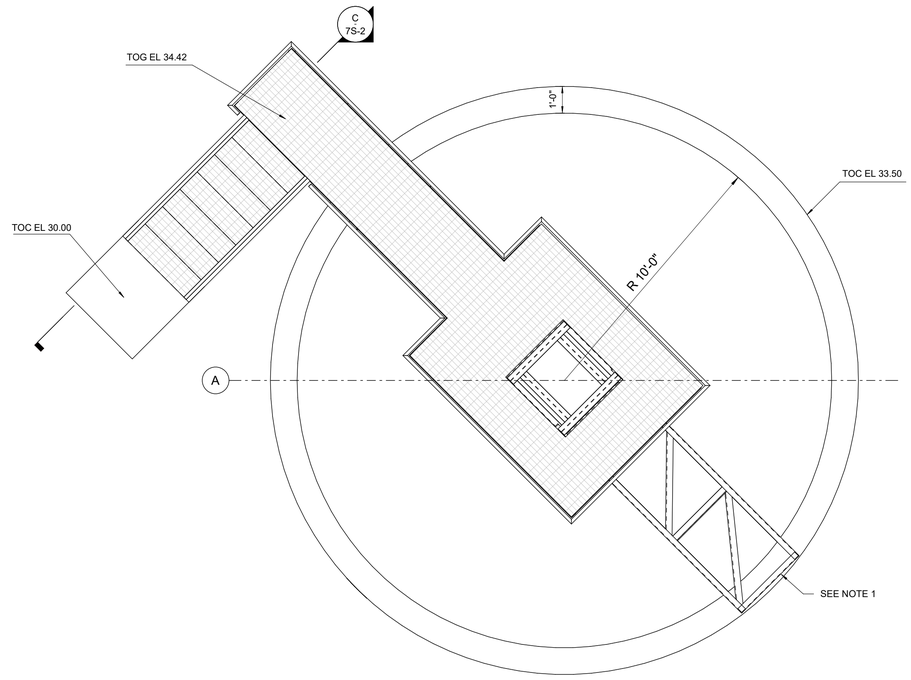
GENERAL SHEET NOTES

1. COORDINATE CONNECTION OF CLARIFIER WALKWAY WITH MANUFACTURER.



FOUNDATION PLAN

SCALE: 3/8" = 1'-0"



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SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
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CHARLES JOSEPH WILLIAMS — STATE OF WASHINGTON — 23630 — REGISTERED PROFESSIONAL ENGINEER

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Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

Author	Designer	Checker	06/02/20
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
WASTEWATER CLARIFIER STRUCTURAL PLAN AND ELEVATION

Project No.
224202267

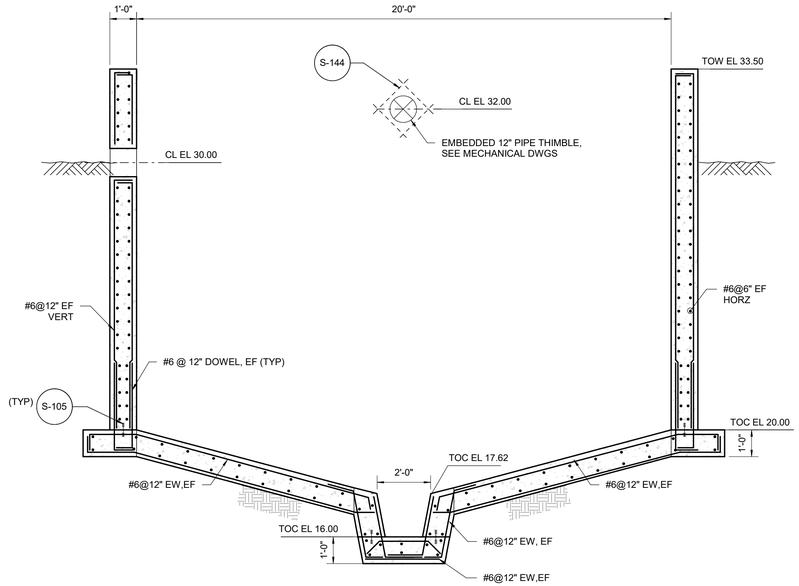
Scale
3/8" = 1'-0"

Revision
0

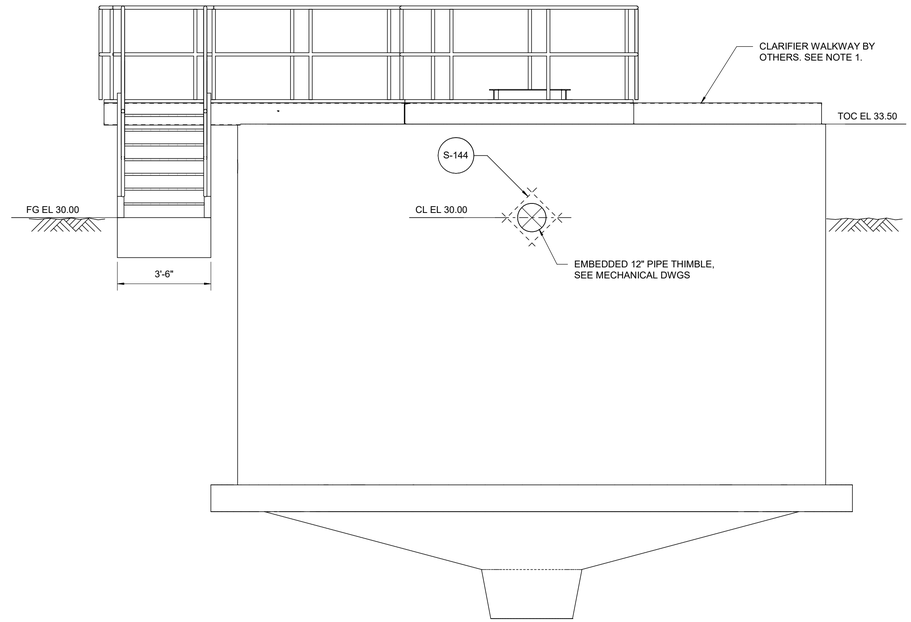
Drawing No.
7S-1

GENERAL SHEET NOTES

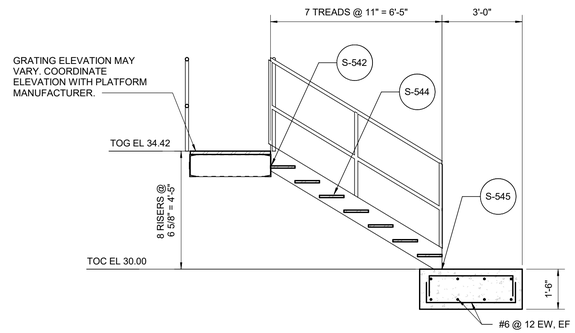
1. COORDINATE CONNECTION OF CLARIFIER WALKWAY WITH MANUFACTURER.



B 7S-1 **SECTION**
SCALE: 3/8" = 1'-0"



A 7S-1 **ELEVATION**
SCALE: 3/8" = 1'-0"



C 7S-1 **SECTION**
SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD

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Client/Project
TULALIP TRIBES

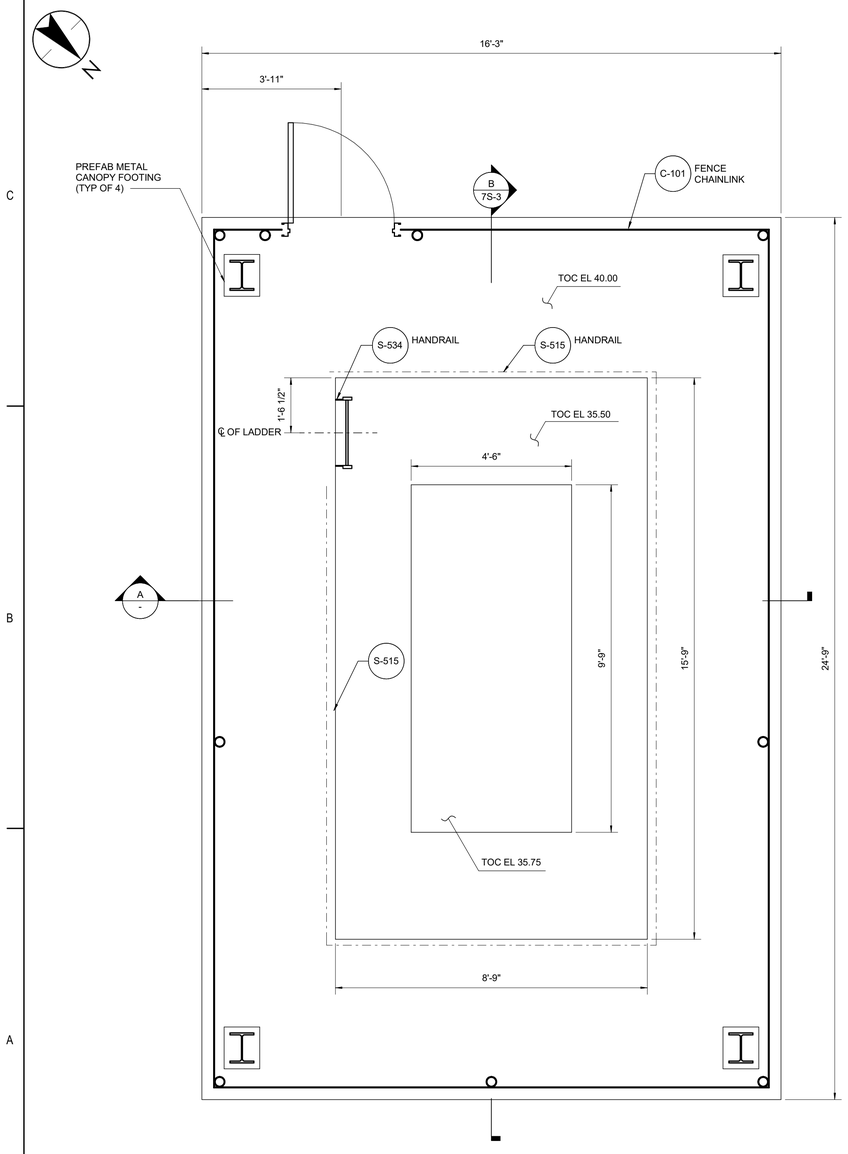
BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A	Author	Designer	Checker	09/06/24
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

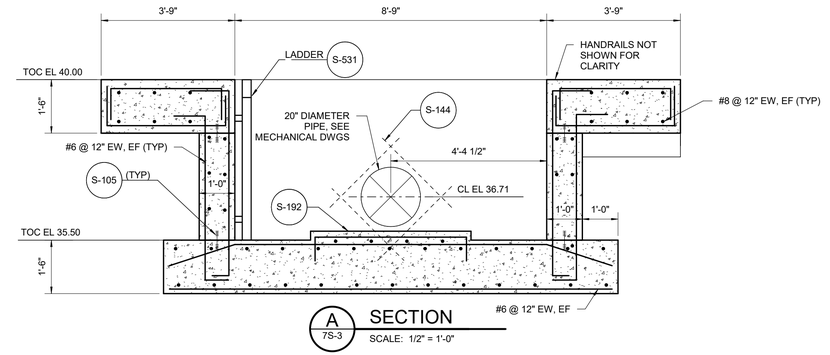
Title
WASTEWATER CLARIFIER STRUCTURAL SECTION

Project No.	Scale
224202267	3/8" = 1'-0"
Revision	Drawing No.
	7S-2



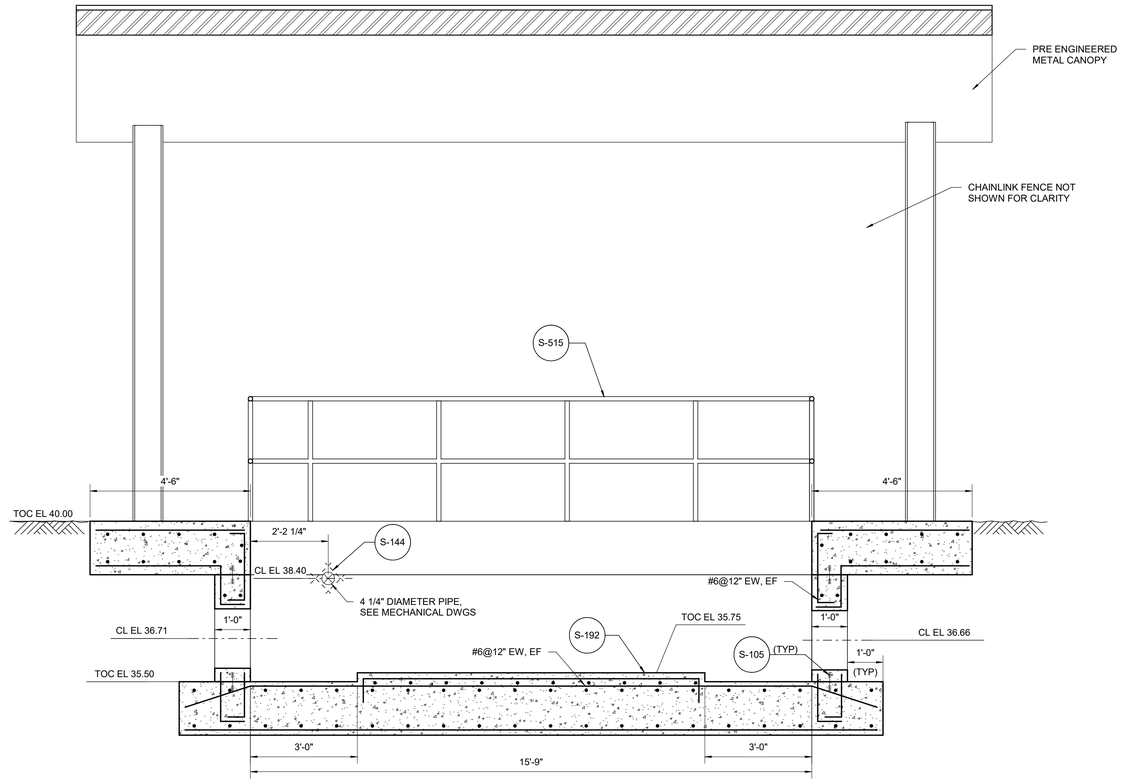
PLAN

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



A 7S-3 SECTION

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



B 7S-3 SECTION

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

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Issued	By	Appd	YYYY.MM.DD

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CHARLES JOSEPH WILLIAMS — STATE OF WASHINGTON — 22511 — REGISTERED PROFESSIONAL ENGINEER

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Client/Project Logo

TULALIP TRIBES

Client/Project

TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

Dl				
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD	

Title

EFFLUENT TREATMENT PLAN AND SECTION

Project No.	Scale
224202267	1/2" = 1'-0"
Revision	Drawing No.
	7S-3

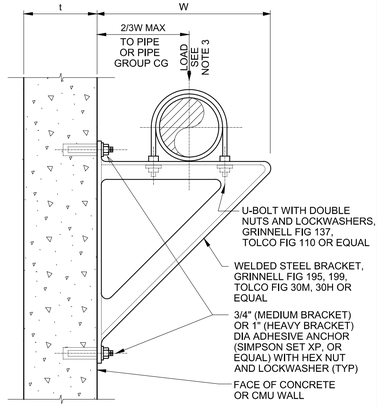
WALL TYPE	ANVIL FIG	TOLCO FIG	THREADED ROD DIA	MIN EDGE DISTANCE	EMBED	WALL THICK MIN (t)	Sds≤0.5 MAX LOAD (LB)	NOTES
CONC	195	30M	3/4"	12"	7.5"	10"	1500	
CONC	199 NO 2-5	30H NO 3-6	1"	12"	9.5"	12"	2100	
CMU	195	30M	3/4"	12"	6 3/4"	8"	900	NO ANCHOR PLACED WITHIN 1/2" OF HEAD JOINT

NOTES :

1. HOT DIP GALVANIZE BRACKET AND PARTS AFTER FABRICATION, UNO, PROVIDE 316 SS BRACKET AND PARTS IN SUBMERGED OR CORROSIVE CONDITIONS (VERIFY CHEMICAL COMPATIBILITY WITH STAINLESS STEEL).
2. THIS PIPE BRACKET IS LIMITED TO A SINGLE PIPE OF 16" DIAMETER OR A GROUP OF PIPES 16" WIDE, INCLUSIVE.
3. REFER TO TABLE FOR MAXIMUM ALLOWED SERVICE LOAD ON EACH BRACKET. IN NO CASE, SHALL THE LOAD ON THE BRACKET EXCEED THE LOADS SHOWN IN THE TABLE.
4. PROVIDE ANCHORS AT MANUFACTURER'S BRACKET HOLE LOCATIONS.
5. FOR TOLCO 30H BRACKETS WITH 1 1/8"Ø HOLES, PROVIDE 1/4" THICK PLATE WASHER WITH STANDARD 1 1/16"Ø HOLE FOR 1"Ø THREADED ROD. WELD PLATE WASHER ALL AROUND WITH 3/16" FILLET WELD.
6. DEVIATIONS FROM THIS DETAIL MUST BE VERIFIED WITH CALCULATIONS AND SUBMITTED TO ENGINEER FOR REVIEW.

SEISMIC AND WIND COMPLIANT DESIGN CRITERIA

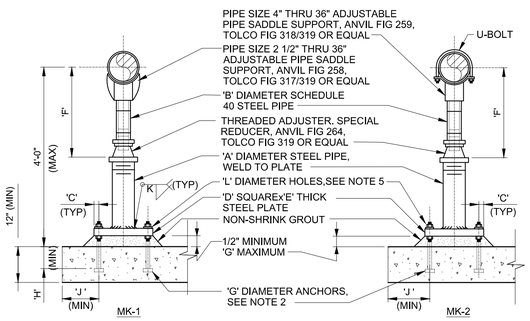
1. THE SUPPORT IS ADEQUATE FOR SEISMIC RESPONSE COEFFICIENT (SDS) GIVEN IN THE TABLE. SEISMIC FORCE ASSUMPTIONS (ASCE 7-10, EQN 13.3-1): ap=2.5, Rp=3.0, Ωo=2.5, Ip=1.0, z/h=1.0.
2. THE SUPPORT, DESIGNED FOR SEISMIC LOADS ARE ALSO ADEQUATE FOR A DESIGN WIND SPEED (Vult) OF UP TO 180 MPH WITH A MAXIMUM HEIGHT ABOVE GRADE OF 40'. WIND FORCE ASSUMPTIONS: EXPOSURE CATEGORY C, Kzt=1.0, Kz=1.04, Kd=0.85, G=0.85, Gcp=1.4,Cf=1.1 (DESIGNED PER ASCE 7-10 SECTION 29.5 - OTHER STRUCTURES).



D-104 PIPE BRACKET

(FOR PIPE 16" DIAMETER AND SMALLER)

REV 010119



D-108 ADJ PIPE SUPPORT W OR W/O 'U' BOLT

(FOR PIPE 36" DIAMETER AND SMALLER)

REV 010119

NOMINAL PIPE DIAMETER	'A' (SCH 40 UNO)	'B'	'C'	'D'	'E'	'F' (APPROX) (MINIMUM)	'F' (APPROX) (MAXIMUM)	'G'	'H'	'J'	'K'	'L'	Sds<0.5 LOAD MAX (LBS)	'M'
2 1/2	* 2 / 2 1/2	1 1/2	1	8	7/16	7	11 1/2	1/2	4	6	3/8	13/16	1400	500
3	* 2 / 2 1/2	1 1/2	1	8	7/16	7 5/16	11 13/16	1/2	4	6	3/8	13/16	1400	500
3 1/2	* 2 / 2 1/2	1 1/2	1	8	7/16	7 9/16	12 1/16	1/2	4	6	3/8	13/16	1400	500
4	3	* 2 1/2 / 3	1 1/4	10	5/8	10 1/4	14 3/4	5/8	5	8	7/16	1 1/16	2650	1100
6	3	* 2 1/2 / 3	1 1/4	10	5/8	11 9/16	16 1/16	5/8	5	8	7/16	1 1/16	2650	1100
8	3	* 2 1/2 / 3	1 1/4	10	5/8	13 9/16	18 1/16	5/8	5	8	7/16	1 1/16	2650	1100
10	3	* 2 1/2 / 3	1 1/4	10	5/8	14 5/8	19 1/8	5/8	5	8	7/16	1 1/16	2650	1100
12	3	* 2 1/2 / 3	1 1/4	10	5/8	15 5/8	20 1/8	5/8	5	8	7/16	1 1/16	2650	1100
14	4	3	1 3/8	12	3/4	18 7/8	23 3/8	3/4	7	10.5	1/2	1 5/16	4200	2200
16	4	3	1 3/8	12	3/4	19 7/8	24 3/8	3/4	7	10.5	1/2	1 5/16	4200	2200
18	6 (SCH 80)	* 4 / 3 1/2	1 5/8	14	1 1/4	22 1/4	26 3/4	7/8	8	12	11/16	1 9/16	6050	2775
20	6 (SCH 80)	* 4 / 3 1/2	1 5/8	14	1 1/4	23 1/4	27 3/4	7/8	8	12	11/16	1 9/16	6050	2775
24	6 (SCH 80)	4	1 5/8	14	1 1/4	26 1/2	31	7/8	8	12	11/16	1 9/16	6050	2775
30	6 (SCH 80)	4	1 7/8	16	1 1/4	29 5/8	34 1/8	1	8	12	11/16	1 13/16	8150	3100
32	6 (SCH 80)	4	1 7/8	16	1 1/4	30 5/8	35 1/8	1	8	12	11/16	1 13/16	8150	3100
36	6 (SCH 80)	4	1 7/8	16	1 1/4	32 5/8	37 1/8	1	8	12	11/16	1 13/16	8150	3100

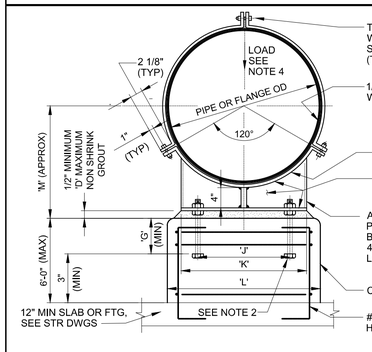
* SEE MANUFACTURER

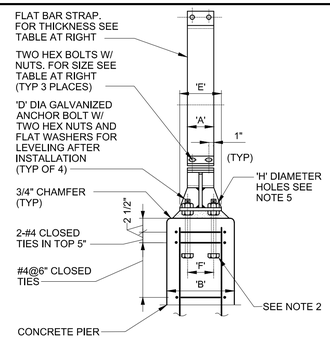
NOTES:

1. HOT DIP GALVANIZE PARTS AFTER FABRICATION, UNO. PROVIDE 316 SS PARTS AND BOLTS IN SUBMERGED OR CORROSIVE CONDITIONS.
2. PROVIDE CAST-IN-PLACE HEAVY HEX HEAD ASTM F1554 GR 36 ANCHORS, UNO.
3. REFER TO TABLE FOR MAXIMUM ALLOWABLE SERVICE LOAD ON EACH SUPPORT.
4. USE MK-2, UNLESS OTHERWISE INDICATED.
5. FOR 3/4" ANCHORS AND LARGER, PROVIDE SQUARE WASHERS PER AISC MANUAL OF STEEL CONSTRUCTION TABLE 14-2 WITH STD HOLES WELDED TO PLATE WITH 3/16" FILLETS. USE 1 3/4" SQx3/16" THICK WASHERS FOR 5/8" ANCHORS.
6. IF ADHESIVE ANCHORS ARE USED (SIMPSON SET XP, OR EQUAL), USE REDUCED MAX LOADS IN COLUMN 'M'. OVERSIZED HOLES AND WASHERS ARE NOT REQUIRED.

SEISMIC AND WIND COMPLIANT DESIGN CRITERIA

1. THE SUPPORTS ARE ADEQUATE FOR SEISMIC RESPONSE COEFFICIENT (SDS) GIVEN IN THE TABLE. SEISMIC FORCE ASSUMPTIONS (ASCE 7-10, EQN 13.3-1): ap=2.5, Rp=6, Ωo=2.5, Ip=1.0, z/h=1.0.
2. THE SUPPORTS, DESIGNED FOR SEISMIC LOADS, ARE ALSO ADEQUATE FOR A DESIGN WIND SPEED (Vult) OF UP TO 165 MPH WITH A MAXIMUM HEIGHT ABOVE GRADE OF 40'. WIND FORCE ASSUMPTIONS: EXPOSURE CATEGORY C, Kzt=1.0, Kz=1.04, Kd=0.95, G=0.85, Cf=1.2 (DESIGNED PER ASCE 7-10 SECTION 29.5 - OTHER STRUCTURES).





NOMINAL PIPE DIAMETER	A	B	C	D	E	F	G	H	STRAP BOLT SIZE	STRAP FLAT BAR	SUPPORTING PIPE J	PIPE K	PIPE L	PIPE M	SUPPORTING FLANGE J	FLANGE K	FLANGE L	FLANGE M	Sds≤0.5 LOAD MAX (LBS)
6	4	12	3/8	5/8	6	3 3/8	10	1 1/16	1/2	1/4	4	7	12	10	6	11	16	13	450
8	4	12	3/8	5/8	6	3 3/8	10	1 1/16	1/2	1/4	5	8	13	11	7 1/2	13	18	14	800
10	4	12	3/8	5/8	6	3 3/8	10	1 1/16	1/2	1/4	6	9	15	12	9	15	20	15	1200
12	4	12	3/8	5/8	6	3 3/8	10	1 1/16	1/2	1/4	8	11	17	13	11	17	22	16	1600
14	4	12	3/8	5/8	6	3 3/8	10	1 1/16	1/2	1/4	9	12	18	14	12	18	24	17	2300
16	4	12	3/8	5/8	6	3 3/8	10	1 1/16	1/2	1/4	10	13	19	15	13	20	25	18	3000
18	4	12	3/8	5/8	6	3 3/8	10	1 1/16	1/2	1/4	11	14	22	16	14	21	28	19	3700
20	5	12	3/8	5/8	6	3 3/8	10	1 1/16	5/8	3/8	11	15	23	17	15	23	30	21	5050
22	5	12	3/8	5/8	6	3 3/8	10	1 1/16	5/8	3/8	11	18	24	18	15	25	31	22	6400
24	5	14	3/8	5/8	6	3 3/8	10	1 1/16	5/8	3/8	11	19	24	19	15	26	32	23	7750
26	5	14	3/8	3/4	7	3 3/4	10	1 5/16	5/8	3/8	13	21	27	20	17	28	35	24	9200
30	5	14	3/8	3/4	7	3 3/4	10	1 5/16	5/8	3/8	15	23	29	22	19	31	37	26	10650
34	5	16	3/8	3/4	7	3 3/4	11	1 5/16	5/8	3/8	16	26	32	24	20	35	41	29	13050
36	5	18	3/8	3/4	7	3 3/4	11	1 5/16	5/8	3/8	17	27	34	25	21	36	44	30	15500
42	6	22	3/8	1	10	5	14	1 13/16	3/4	3/8	18	31	39	28	23	41	49	33	21850
48	6	26	3/8	1	12	8	14	1 13/16	3/4	3/8	19	36	46	31	25	46	56	37	28200
54	6	32	3/8	1 1/4	15	10	17	2 1/16	3/4	3/8	24	40	54	34	30	50	64	40	36550
60	6	36	1/2	1 1/4	16	11	17	2 1/16	3/4	3/8	28	45	60	37	35	56	70	44	44900
66	6	40	1/2	1 1/4	17	12	17	2 1/16	3/4	3/8	31	49	64	40	38	61	76	47	50600
72	6	42	1/2	1 1/4	17	12	17	2 1/16	3/4	3/8	33	53	68	43	43	65	80	50	56350

NOTES:

1. HOT DIP GALVANIZE PARTS AFTER FABRICATION, UNO. PROVIDE 316SS PARTS AND BOLTS IN SUBMERGED OR CORROSIVE CONDITIONS.
2. PROVIDE CAST-IN PLACE HEAVY HEX HEAD ASTM F1554 GR 36 ANCHORS, UNO.
3. WHEN SUPPORTING PIPE AND FLANGE ALTERNATIVELY ON THE SAME LINE, CONCRETE PIERS FOR PIPE SUPPORTS SHALL ALL HAVE THE SAME DIMENSION 'L' FOR FLANGE SUPPORT.
4. REFER TO TABLE FOR MAXIMUM ALLOWABLE UNFACTORED LOAD ON EACH SUPPORT.
5. FOR 3/4" ANCHORS AND LARGER, PROVIDE SQUARE WASHERS PER AISC MANUAL OF STEEL CONSTRUCTION TABLE 14-2 WITH STD HOLES WELDED TO PLATE WITH 3/16" FILLETS. USE 1 3/4" SQ x3/16" THICK WASHERS FOR 5/8" ANCHORS.
6. IF ADHESIVE ANCHORS ARE USED (SIMPSON SET XP, OR EQUAL), MULTIPLY MAX LOADS BY 75%. OVERSIZED HOLES AND WASHERS ARE NOT REQUIRED.

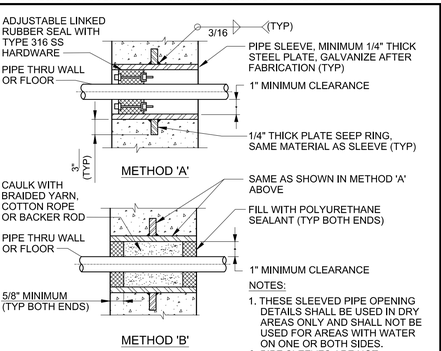
SEISMIC AND WIND COMPLIANT DESIGN CRITERIA

1. THE SUPPORTS ARE ADEQUATE FOR SEISMIC RESPONSE COEFFICIENT (SDS) GIVEN IN THE TABLE. SEISMIC FORCE ASSUMPTIONS (ASCE 7-10, EQN 13.3-1): ap=2.5, Rp=6, Ωo=2.5, Ip=1.0, z/h=1.0 FOR 6" TO 18" PIPES, z/h=0.4 FOR PIPES LARGER THAN 18".
2. THE SUPPORTS, DESIGNED FOR SEISMIC LOADS, ARE ALSO ADEQUATE FOR A DESIGN WIND SPEED (Vult) OF UP TO 160 MPH WITH A MAXIMUM HEIGHT ABOVE GRADE OF 40'. WIND FORCE ASSUMPTIONS: EXPOSURE CATEGORY C, Kzt=1.0, Kz=1.04, Kd=0.95, G=0.85, Cf=1.2 (DESIGNED PER ASCE 7-10 SECTION 29.5 - OTHER STRUCTURES).

D-110 PIPE SUPPORT WITH STRAP

(FOR PIPE 72" DIAMETER AND SMALLER)

REV 010119

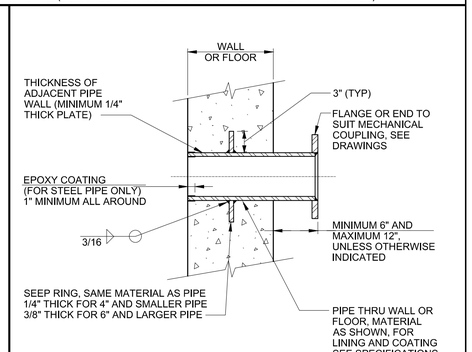


NOTES:

1. THESE SLEEVED PIPE OPENING DETAILS SHALL BE USED IN DRY AREAS ONLY AND SHALL NOT BE USED FOR AREAS WITH WATER ON ONE OR BOTH SIDES.
2. PIPE SLEEVES ARE NOT REQUIRED FOR CORE-DRILLED PENETRATIONS THROUGH EXISTING WALLS OR FLOORS.

D-111 SLEEVED PIPE OPENING

REV 010119



NOTE:

1. SEE STRUCTURAL DRAWINGS FOR WALL THICKNESS.

D-112 FABRICATED PIPE THIMBLE

REV 010119

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27
Issued	By	Appd	YYYY.MM.DD

Permit/Seal

DAVID EDWARD WHITBECK STATE OF WASHINGTON 47046 REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Whitbeck, David
Date: 2025.02.11 17:56:41 -08'00'

WARNING
0 ½ 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Stantec

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1687 114th Ave SE, Suite 100
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Client/Project Logo

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: GM-1 MECHANICAL STANDARD DETAILS-1 | PP Dwn. | DEW Dsgn. | SWW Chkd. | 2022.12.02 YYYY.MM.DD

Title
MECHANICAL STANDARD DETAILS - 1

Project No. 224202267
Scale NONE
Revision
Sheet of
Drawing No. GM-1

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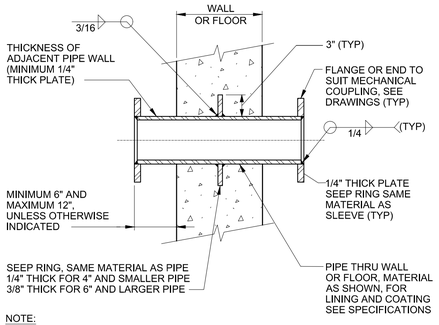
ORIGINAL SHEET - ANSI D

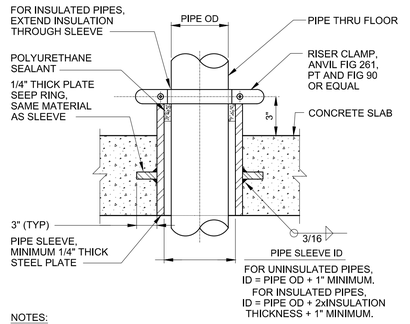


NOTE:

1. SEE STRUCTURAL DRAWINGS FOR WALL THICKNESS.

D-113 FABRICATED PIPE THIMBLE

REV 010119

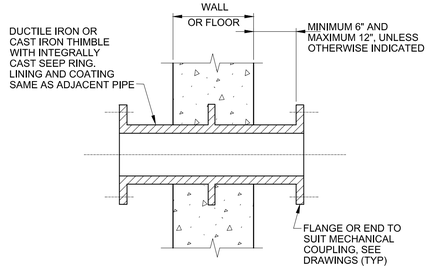


NOTES:

1. HOT DIP GALVANIZE ALL PARTS AFTER FABRICATION.
2. THIS SLEEVED PIPE OPENING DETAIL SHALL BE USED IN DRY AREAS ONLY AND SHALL NOT BE USED FOR AREAS WITH WATER ON ONE OR BOTH SIDES.

D-114 VERTICAL PIPE SUPPORT SLEEVE

REV 010119

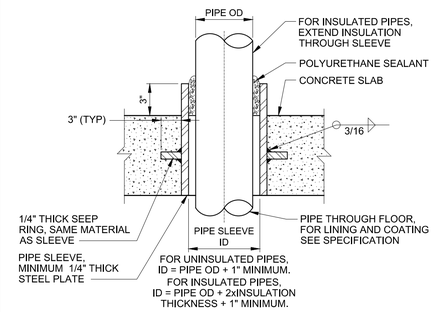


NOTE:

1. SEE STRUCTURAL DRAWINGS FOR WALL THICKNESS.

D-116 FLANGED OR GROOVED DUCTILE IRON OR CAST IRON PIPE THIMBLE

REV 010119

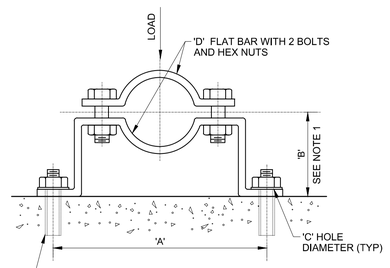


NOTES:

1. HOT DIP GALVANIZE ALL PARTS AFTER FABRICATION.
2. THIS SLEEVED PIPE OPENING DETAIL SHALL BE USED IN DRY AREAS ONLY AND SHALL NOT BE USED FOR AREAS WITH WATER ON ONE OR BOTH SIDES.

D-130 FLOOR PIPE SLEEVE

REV 010119



DIMENSIONS IN INCHES					LOAD RATING (LBS)
NOMINAL PIPE DIAMETER	'A'	'B'	'C'	'D'	
3/4	5 15/16	2 1/2	7/16	1 1/4 x 3/16	190
1	6 1/4	2 5/8	7/16	1 1/4 x 3/16	190
1 1/4	6 11/16	2 3/4	7/16	1 1/4 x 3/16	190
1 1/2	6 15/16	3	7/16	1 1/4 x 3/16	190
2	8 5/16	3 3/16	7/16	1 1/4 x 1/4	420
2 1/2	8 7/8	3 7/16	7/16	1 1/4 x 1/4	420
3	9 1/8	3 3/4	7/16	1 1/4 x 1/4	420
3 1/2	10 1/16	4	7/16	1 1/4 x 1/4	420
4	10 9/16	4 1/4	9/16	1 1/2 x 1/4	610
5	11 3/4	4 3/4	9/16	1 1/2 x 1/4	610
6	14 3/8	5 5/16	9/16	1 1/2 x 3/8	870
8	16 5/8	6 5/16	9/16	1 1/2 x 3/8	870

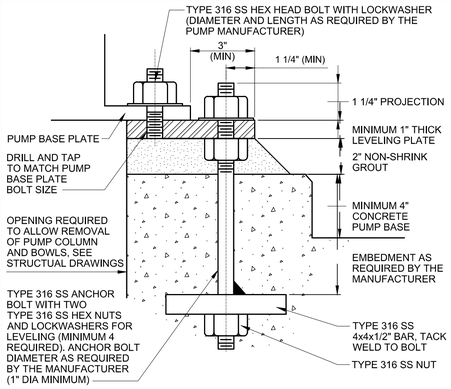
NOTES:

1. HOT DIP GALVANIZE PARTS AFTER FABRICATION.
2. WHERE SUBMERGED, PARTIALLY SUBMERGED, OR LOCATED WITHIN 24 INCHES OF A WATER SURFACE, PARTS SHALL BE TYPE 316 STAINLESS STEEL.
3. WHERE LOCATED IN CHEMICAL OR CORROSIVE AREAS, PARTS SHALL BE FRP OR TYPE 316 STAINLESS STEEL.
4. FOR FLANGED PIPING, INCREASE 'B' DIMENSION AS REQUIRED.
5. FOR PIPE DIAMETERS SMALLER THAN 3/4", SEE STANDARD DETAIL M-142.

D-131 PIPE CLAMP FOR INDIVIDUAL PIPES

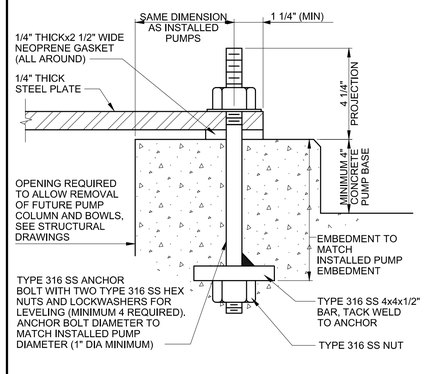
(FOR PIPE 8" DIAMETER AND SMALLER)

REV 010119



D-135 VERTICAL PUMP MOUNTING BASE

REV 010119



D-136 VERTICAL PUMP MOUNTING BASE FOR FUTURE PUMP

REV 010119

Revision	By	Appd	YYYY.MM.DD

ORIGINAL SHEET - ANSI D

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27

Permit/Seal

EDWARD WHITBECK
STATE OF WASHINGTON
47046
REGISTERED
PROFESSIONAL ENGINEER

Digitally signed by Whitbeck, David
Date: 2025.02.11 17:56:42-08'00'

WARNING

0 ½ 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

Stantec

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Client/Project Logo

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: GM-2MECHANICAL STANDARD DETAILS-2 | PP Dwn. | DEW Dsgn. | SWW Chkd. | 2022.12.27 YYYY.MM.DD

Title
MECHANICAL STANDARD DETAILS - 2

Project No. 224202267

Scale NONE

Revision | Sheet of

Drawing No. **GM-2**

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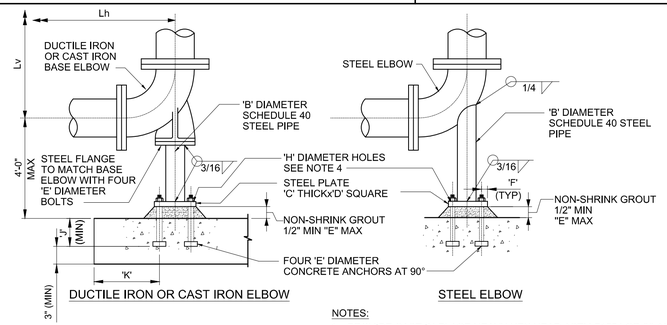


NOMINAL PIPE DIAMETER	DIMENSIONS IN INCHES (UNO)								S_{ds}≤0.5	
	'B'	'C'	'D'	'E'	'F'	'H'	'J'	'K'	'L'	'L' ADH
4	2	3/8	6	5/8	1 3/8	1 1/16	4 1/2	12	33'	17'
6	2 1/2	3/8	7	5/8	1 3/8	1 1/16	8	12	38'	19'
8	4	1/2	10	5/8	1 3/8	1 1/16	8	12	43'	22'
10	4	1/2	10	5/8	1 3/8	1 1/16	8	12	43'	22'
12	6	5/8	11	7/8	1 7/8	1 9/16	9	12	48'	18'
14	6	5/8	11	7/8	1 7/8	1 9/16	9	12	48'	18'
16	6	5/8	17	1	2 1/4	1 13/16	9	13	52'	20'
18	8	5/8	17	1	2 1/4	1 13/16	9	13	52'	20'
20	8	3/4	21	1	2 1/4	1 13/16	9	13	57'	22'
24	8	3/4	21	1	2 1/4	1 13/16	9	13	57'	22'
30	10	7/8	24	1 1/4	2 5/8	2 1/16	9	16	57'	22'
36	12	7/8	32	1 1/4	2 5/8	2 1/16	9	16	57'	22'
42	16	1	32	1 1/2	3	2 5/16	11	16	57'	NA
48	18	1 1/8	38	1 3/4	3 1/2	2 3/4	12	22	57'	NA

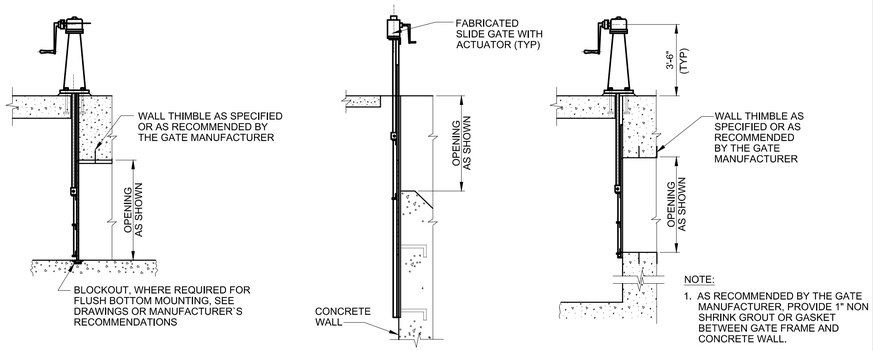
NOTES:

1. PROVIDE CAST-IN-PLACE HEAVY HEX HEAD ASTM F1554 GR 36 ANCHORS, UNO.
2. HOT DIP GALVANIZE PARTS AFTER FABRICATION, UNO. PROVIDE 316SS PARTS AND BOLTS IN SUBMERGED OR CORROSIVE CONDITIONS.
3. 'L' IS ALLOWABLE LONGITUDINAL TRIBUTARY LENGTH, DEFINED AS 1/2 THE VERTICAL DISTANCE TO THE NEXT LATERAL PIPE SUPPORT (Lv) PLUS 1/2 THE HORIZONTAL DISTANCE TO THE NEXT LONGITUDINAL PIPE SUPPORT (Lh). REFER TO TABLE FOR MAXIMUM ALLOWABLE 'L' FOR EACH SUPPORT.
4. FOR 3/4" ANCHORS AND LARGER, PROVIDE SQUARE WASHERS PER AISC MANUAL OF STEEL CONSTRUCTION TABLE 14-2 WITH STD HOLES WELDED TO PLATE WITH 3/16" FILLETS. USE 1 3/4" SQx3/16" THICK WASHERS FOR 5/8" ANCHORS.
5. IF ADHESIVE ANCHORS ARE USED (SIMPSON SET XP, OR EQUAL), USE REDUCED ALLOWABLE LONGITUDINAL TRIBUTARY LENGTH, 'L' ADH, GIVEN IN TABLE. OVERSIZED HOLES AND WASHERS ARE NOT REQUIRED. DO NOT USE ADHESIVE ANCHORS FOR PIPES LARGER THAN 36" DIAMETER.

SEISMIC AND WIND COMPLIANT - DESIGN CRITERIA

1. THE SUPPORTS ARE ADEQUATE FOR SEISMIC RESPONSE COEFFICIENT (SDS) GIVEN IN THE TABLE. SEISMIC FORCE ASSUMPTIONS (ASCE 7-10, EQN 13.3-1): ap=2.5, Rp=6, Ωo=2.5, Ip=1.0, z/h=1.0 FOR 4" TO 18" PIPES, z/h=0.4 FOR PIPES LARGER THAN 18".
2. THE SUPPORTS, DESIGNED FOR SEISMIC LOADS, ARE ALSO ADEQUATE FOR A DESIGN WIND SPEED (Vult) OF UP TO 200 MPH WITH A MAXIMUM HEIGHT ABOVE GRADE OF 40', EXCEPT FOR 4" AND 6" PIPE DIAMETERS, WHICH ARE ADEQUATE FOR Vult OF UP TO 175 MPH. WIND FORCE ASSUMPTIONS: EXPOSURE CATEGORY C, Kzt=1.0, Kz=1.04, Kd=0.95, G=0.85, Cf=1.2 (DESIGNED PER ASCE 7-10, SECTION 29.5).

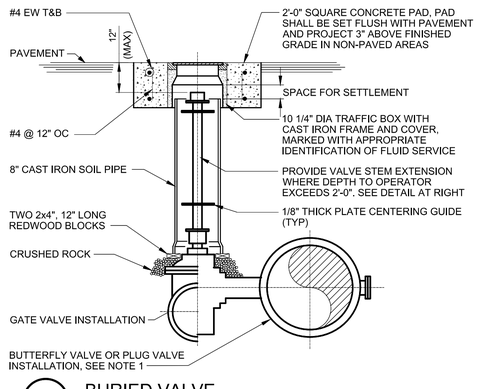
D-140 ELBOW SUPPORT
(FOR PIPE 48" DIAMETER AND SMALLER)
REV 010119

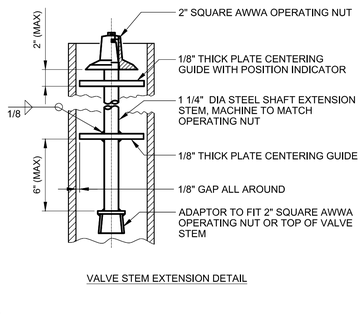


NOTE:

1. AS RECOMMENDED BY THE GATE MANUFACTURER, PROVIDE 1" NON SHRINK GROUT OR GASKET BETWEEN GATE FRAME AND CONCRETE WALL.

D-205 FABRICATED SLIDE GATE
REV 010119



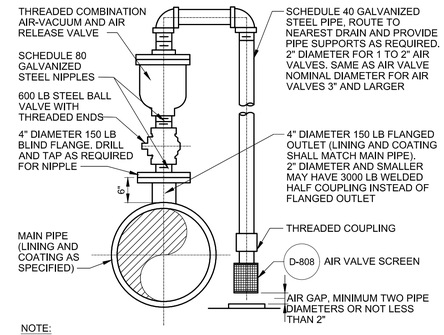


VALVE STEM EXTENSION DETAIL

NOTE:

1. FOR LUBRICATED PLUG VALVES, EXTEND LUBRICATION LINE TO GRADE PER MANUFACTURER'S INSTRUCTIONS.

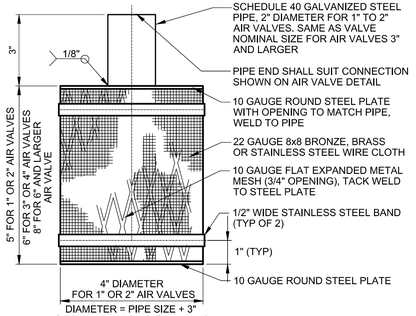
D-803 BURIED VALVE
REV 010119



NOTE:

1. ALL COMPONENTS FOR PIPING SYSTEMS WITH SERVICE PRESSURE CLASS GREATER THAN 150 PSI SHALL BE SUITABLE FOR THE HIGHER PRESSURE.

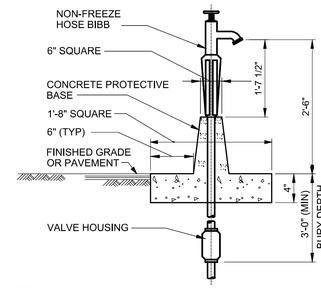
D-804 AIR-VAC AND A/R VALVE ASSEMBLY
REV 010119



NOTE :

1. AIR VALVE SCREEN ASSEMBLY (EXCEPT WIRE CLOTH AND STAINLESS STEEL BANDS) SHALL BE COATED PER THE REQUIREMENTS OF THE SPECIFICATION 'PROTECTIVE COATING'.

D-808 AIR VALVE SCREEN
REV 010119



NOTES:

1. PROVIDE WARNING SIGN PER STANDARD DETAIL M-832 WHEN USED FOR NON-POTABLE WATER
2. WHERE NOT LOCATED NEXT TO A PAVED AREA, CONCRETE BASE SHALL BE 3" ABOVE FINISHED GRADE

D-822 NON-FREEZE HOSE BIBB SURFACE MOUNTED
REV 010119

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27
Issued	By	Appd	YYYY.MM.DD

ORIGINAL SHEET - ANSI D

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Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

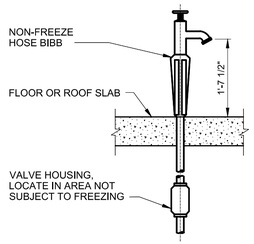
File Name: GM-3 MECHANICAL STANDARD DETAILS-3

PP	DEW	SWW	2022.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
MECHANICAL STANDARD DETAILS - 3

Project No. 224202267
Scale NONE
Revision
Sheet of
Drawing No. GM-3

C:\Users\jfarquharson\AppData\Local\Temp\AcPublish_22420\Dsd_Audit_bonita_jfarquharson_files\13 - process\gm-3 mechanical standard details-3 2025.02.27 10:24:27 AM

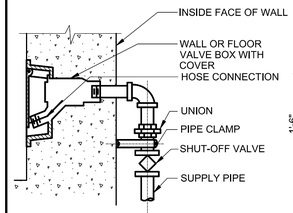


NOTE:

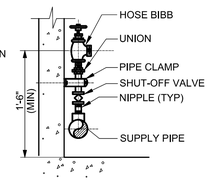
1. PROVIDE WARNING SIGN PER STANDARD DETAIL M-832 WHEN USED FOR NON-POTABLE WATER.

D-823 NON-FREEZE HOSE BIBB FLOOR OR SLAB MOUNTED

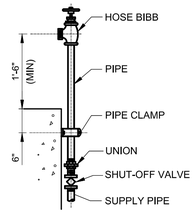
REV 010119



HB-2
NON-FREEZE WALL HYDRANT



HB-3
HOSE HYDRANT INSTALLATION METHOD A



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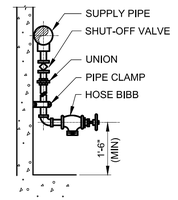
HOSE HYDRANT INSTALLATION METHOD B



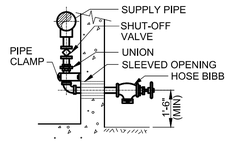
HB-3
HOSE HYDRANT INSTALLATION METHOD C

NOTES:

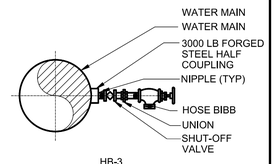
1. FOR SIZE AND LOCATION SEE DRAWINGS.
2. PROVIDE WARNING SIGN PER STANDARD DETAIL M-832 WHEN USED FOR NON-POTABLE WATER.

D-824 HOSE BIBBS

REV 010119

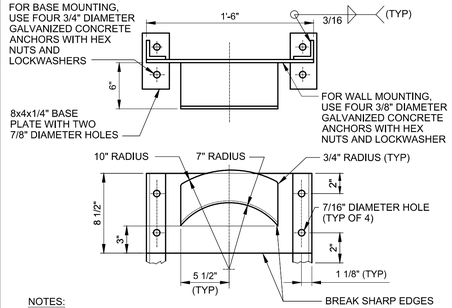


HB-3
HOSE HYDRANT INSTALLATION METHOD D



HB-3
HOSE HYDRANT INSTALLATION METHOD E

FOR BASE MOUNTING, USE FOUR 3/4" DIAMETER GALVANIZED CONCRETE ANCHORS WITH HEX NUTS AND LOCKWASHERS

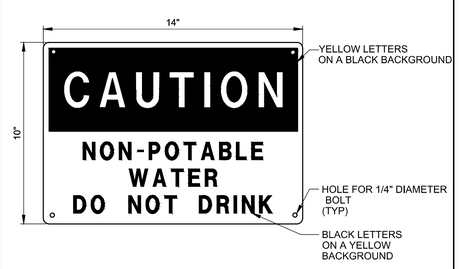


NOTES:

1. WHERE HOSE RACK IS FREE-STANDING, PROVIDE TWO 2x2x1/4" STEEL ANGLES WITH BASEPLATES. WHERE BASEPLATES ARE ATTACHED TO CONCRETE, A MINIMUM OF 1" OF NON-SHRINK GROUT SHALL BE PROVIDED BETWEEN THE BASEPLATES AND THE CONCRETE.
2. HOSE RACK SHALL BE CONSTRUCTED OF WELDED 8-GAUGE STEEL SHEET, HOT DIP GALVANIZED AFTER FABRICATION.

D-825 HOSE RACK

REV 010119

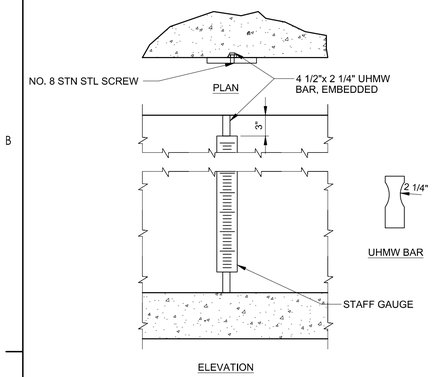


NOTES:

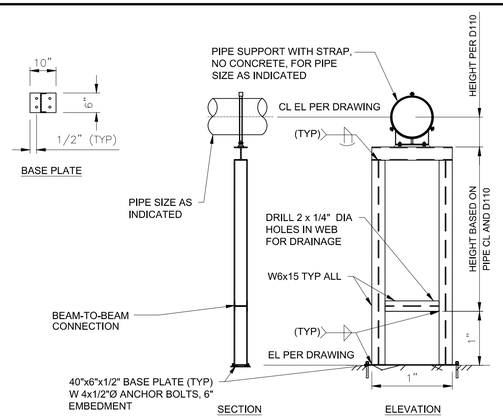
1. PROVIDE SIGN AT ALL HOSE BIBB LOCATIONS WHERE WATER IS NON-POTABLE.
2. SEE SPECIFICATIONS SECTION 'BUILDING SIGNAGE' FOR FURTHER REQUIREMENTS.

D-832 WARNING SIGN FOR NON-POTABLE WATER

REV 010119



D-901 STAFF GAUGE MOUNTING



D-902 PIPE SUPPORT

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: GM-4 MECHANICAL STANDARD DETAILS-4 | PP Dwn. | DEW Dsgn. | SWW Chkd. | 2022.12.27 YYYY.MM.DD

Title
MECHANICAL STANDARD DETAILS - 4

Project No. 224202267
Scale NONE
Revision
Sheet of
Drawing No. GM-4

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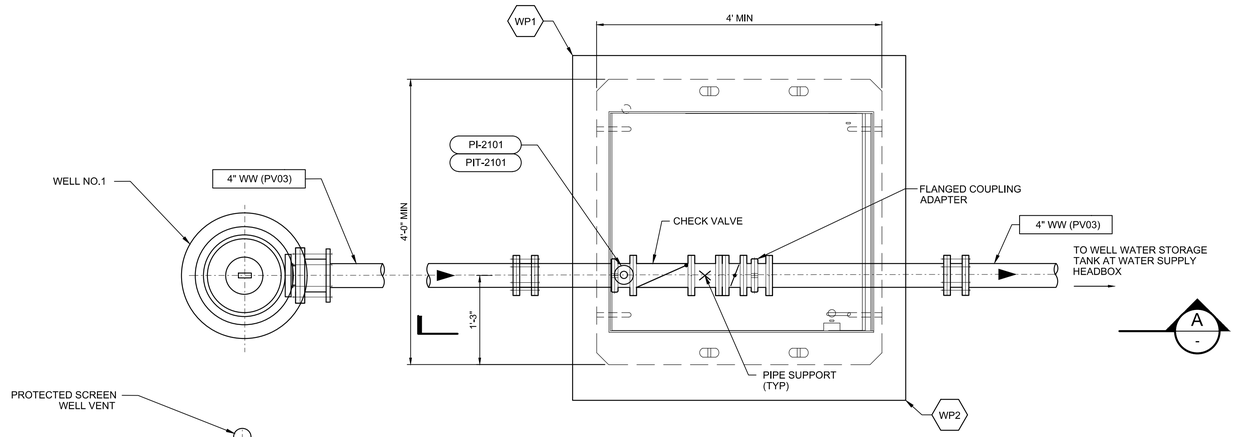
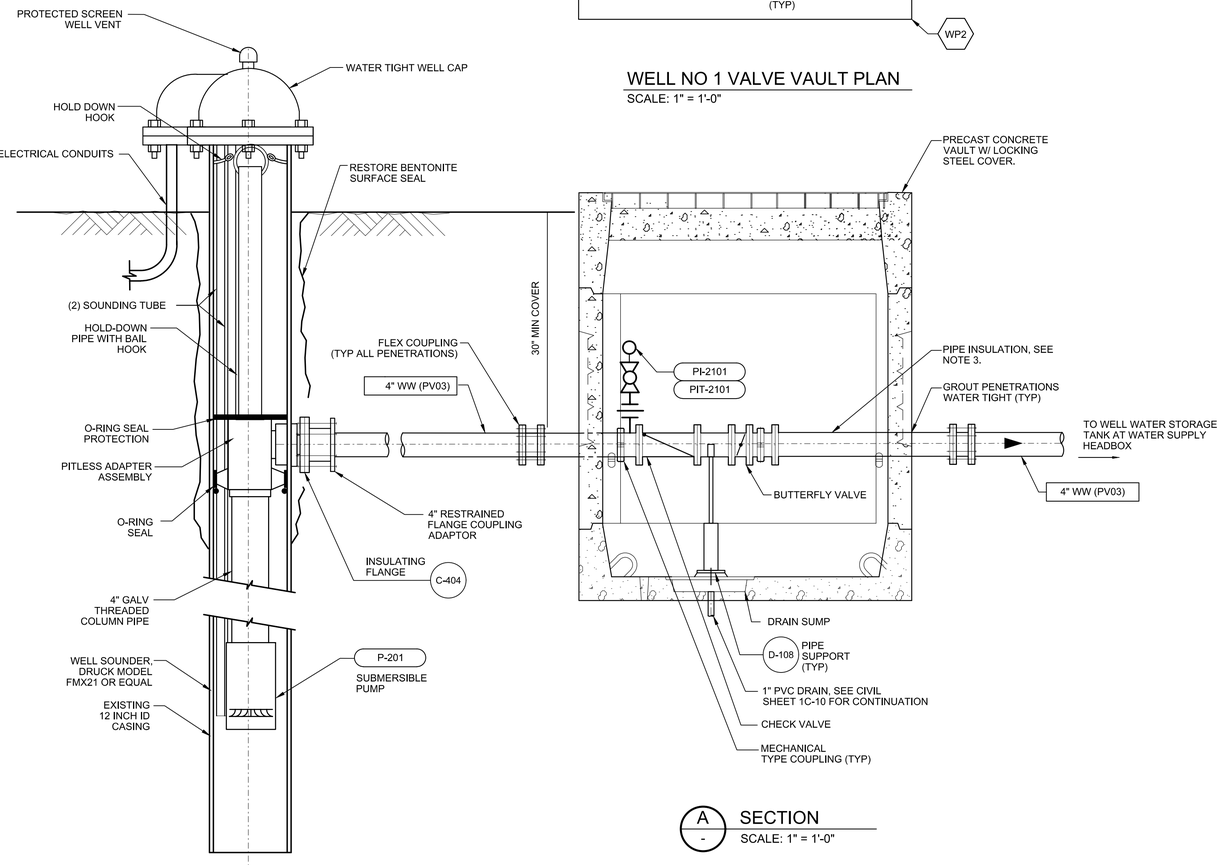


WELL NO 1 VALVE VAULT PLAN

SCALE: 1" = 1'-0"



SECTION

SCALE: 1" = 1'-0"

GENERAL SHEET NOTES

1. THE EXISTING WELL IS 178 FEET DEEP WITH 8" STAINLESS STEEL WELL SCREEN INSTALLED FROM 154-174 FEET BELOW GROUND SURFACE. THE 12" OUTER CASING IS CURRENTLY CAPPED. OWNER WILL PROVIDED WELL CONSTRUCTION LOG FOR ADDITIONAL DETAILS.
2. PROVIDE FLOW METER WITH REMOTE MOUNTED TRANSMITTER. INSTALL TRANSMITTER AT WELL WATER STORAGE TANK.
3. INSULATE ALL EXPOSED PIPING INSIDE THE VAULT.

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: 2M-1 WELL MECHANICAL PLAN | PP Dwn. | DEW Dsgn. | SWW Chkd. | 2022.12.02 YYYY.MM.DD

Title
WELL PLAN, SECTION AND DETAILS

Project No. 224202267
Scale NONE
Revision
Sheet of
Drawing No. 2M-1

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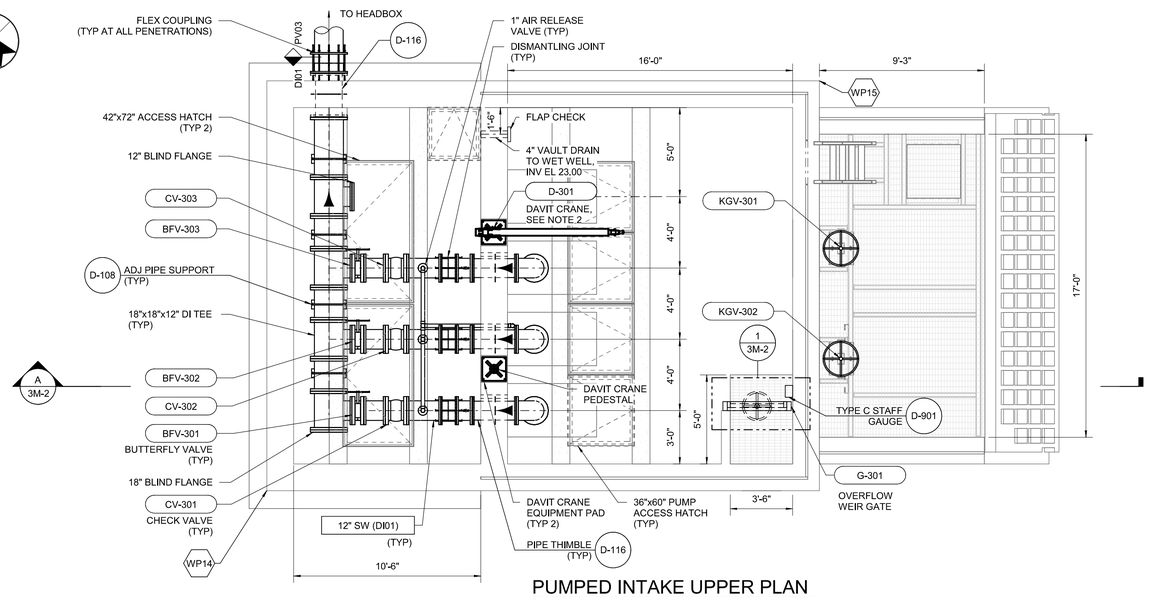
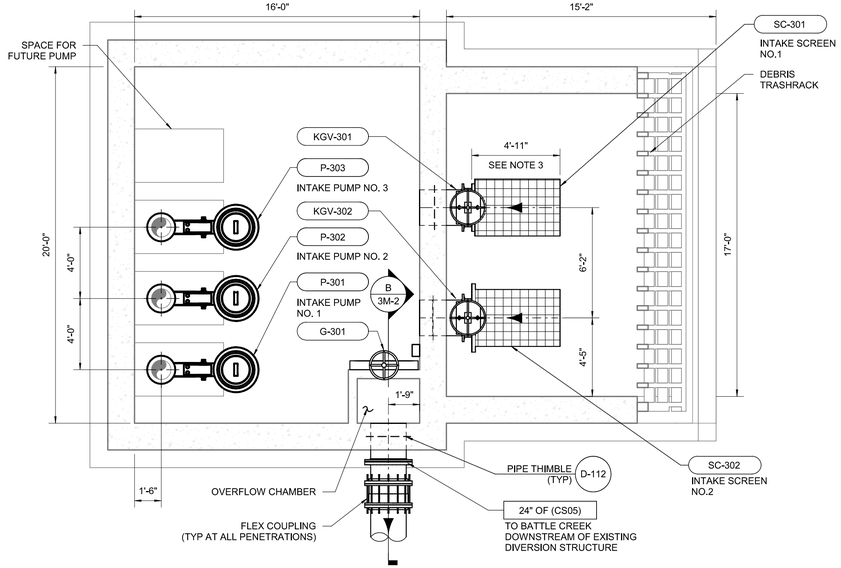


PUMPED INTAKE UPPER PLAN

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

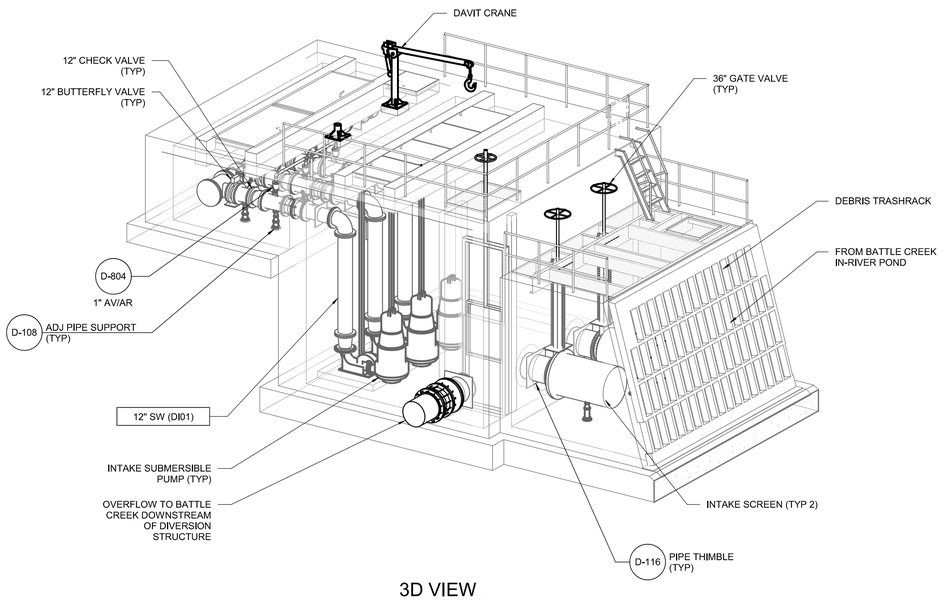


PUMPED INTAKE BOTTOM PLAN

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

GENERAL SHEET NOTES

1. ALL HATCHES SHALL BE HS-20 RATED.
2. SEE SECTION 43 52 04 FOR DAVIT CRANE REQUIREMENTS. PROVIDE EXTRA PEDESTAL BASE, TWO TOTAL, FOR MOUNTING TO EACH DAVIT CRANE EQUIPMENT PAD.
3. CONTRACTOR SHALL COORDINATE WITH EQUIPMENT SUPPLIER TO VERIFY DIMENSIONS FOR APPROVED EQUIPMENT. FISH SCREEN SHALL BE REMOVABLE FROM STRUCTURAL PLATFORM ABOVE WITH GRATING REMOVED.



3D VIEW

NO SCALE

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A | PP Dwn. | DEW Dsgn. | SWW Chkd. | 2024.12.27 YYYY.MM.DD

Title
INTAKE STRUCTURE MECHANICAL PLANS AND ISOMETRIC VIEW

Project No. 224202267
Scale 1/4" = 1'-0"
Revision
Drawing No. **3M-1**

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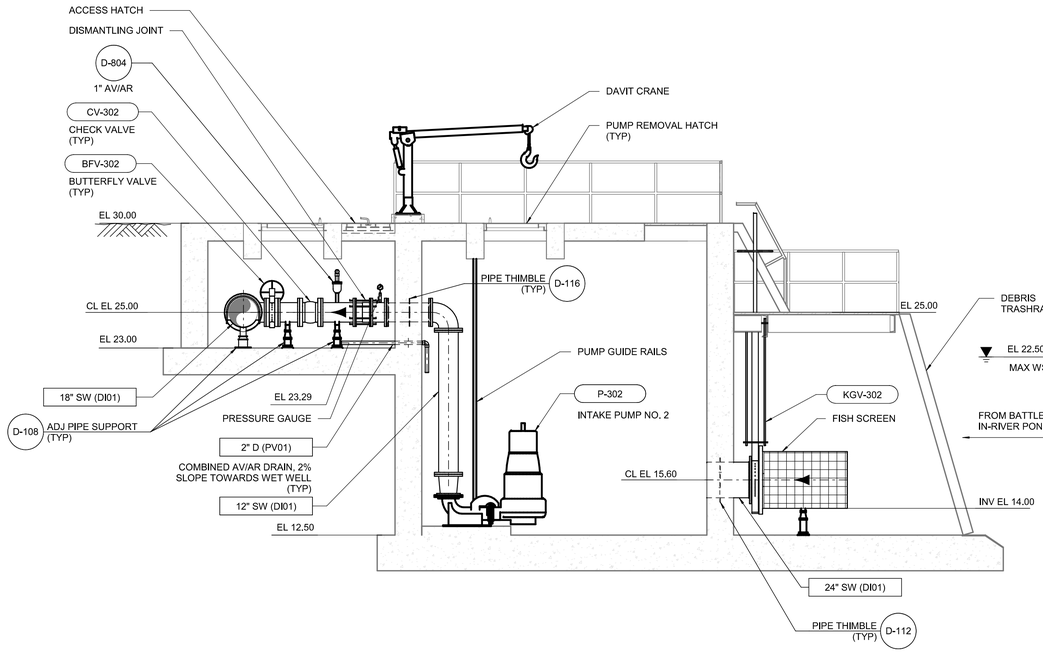
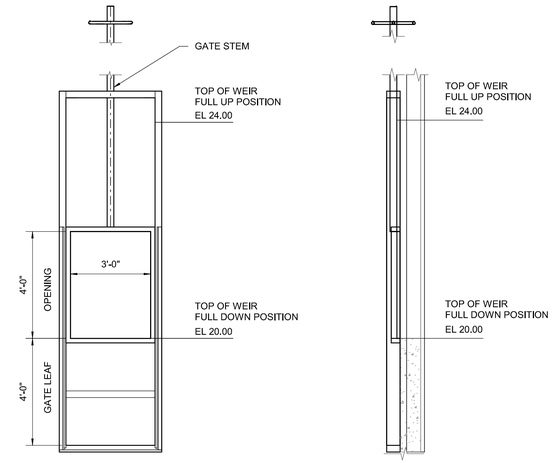


A 3M-1 SECTION
SCALE: 1/4" = 1'-0"



1 3M-1 WEIR GATE ASSEMBLY
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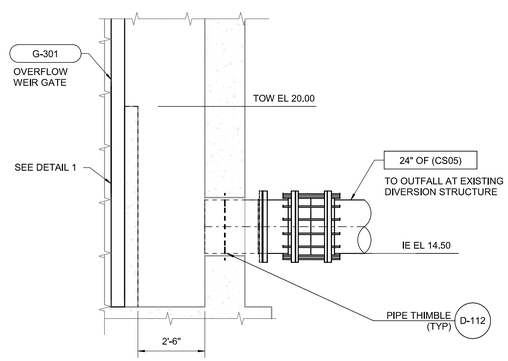

B 3M-1 SECTION
SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A	PP	DEW	SWW	2024.12.27
	Dwn.	Dsgn.	Ckkd.	YYYY.MM.DD

Title
INTAKE STRUCTURE MECHANICAL SECTIONS

Project No.
224202267

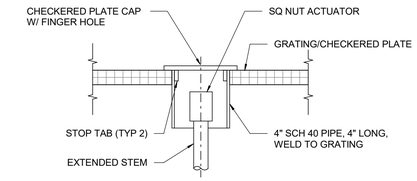
Scale
As indicated

Revision

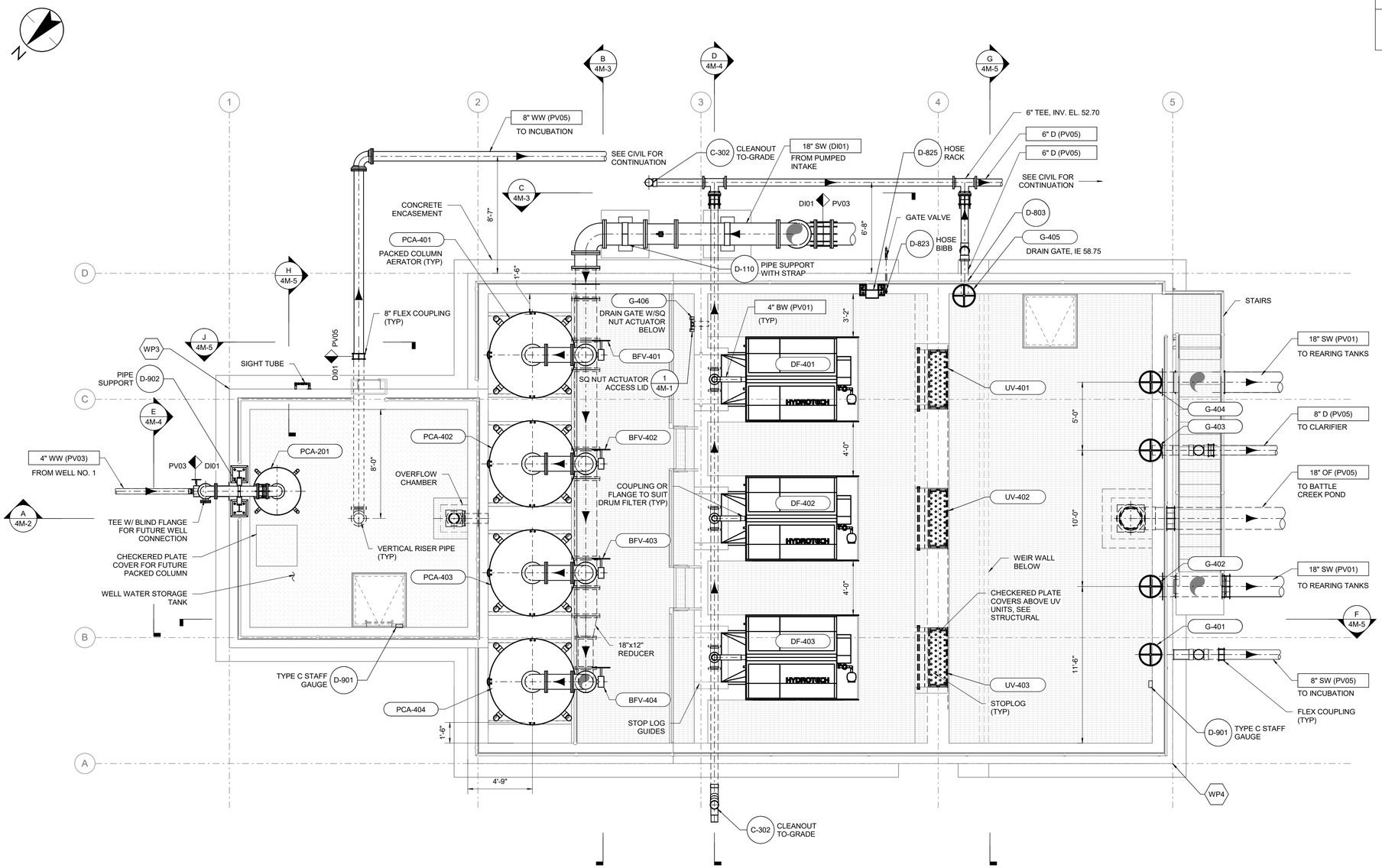
Drawing No.
3M-2

GENERAL SHEET NOTES

1. INSTALL DRUM FILTER CONTROL PANELS WITH DOOR FACING WALKWAY GRATING ALONG SIDE OF EACH UNIT.



1 / 4M-1 SQ NUT ACTUATOR ACCESS LID
SCALE: 3" = 1'-0"



WATER SUPPLY HEADBOX MECHANICAL PLAN

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

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

MCM	MDV	DEW	2026.02.26
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

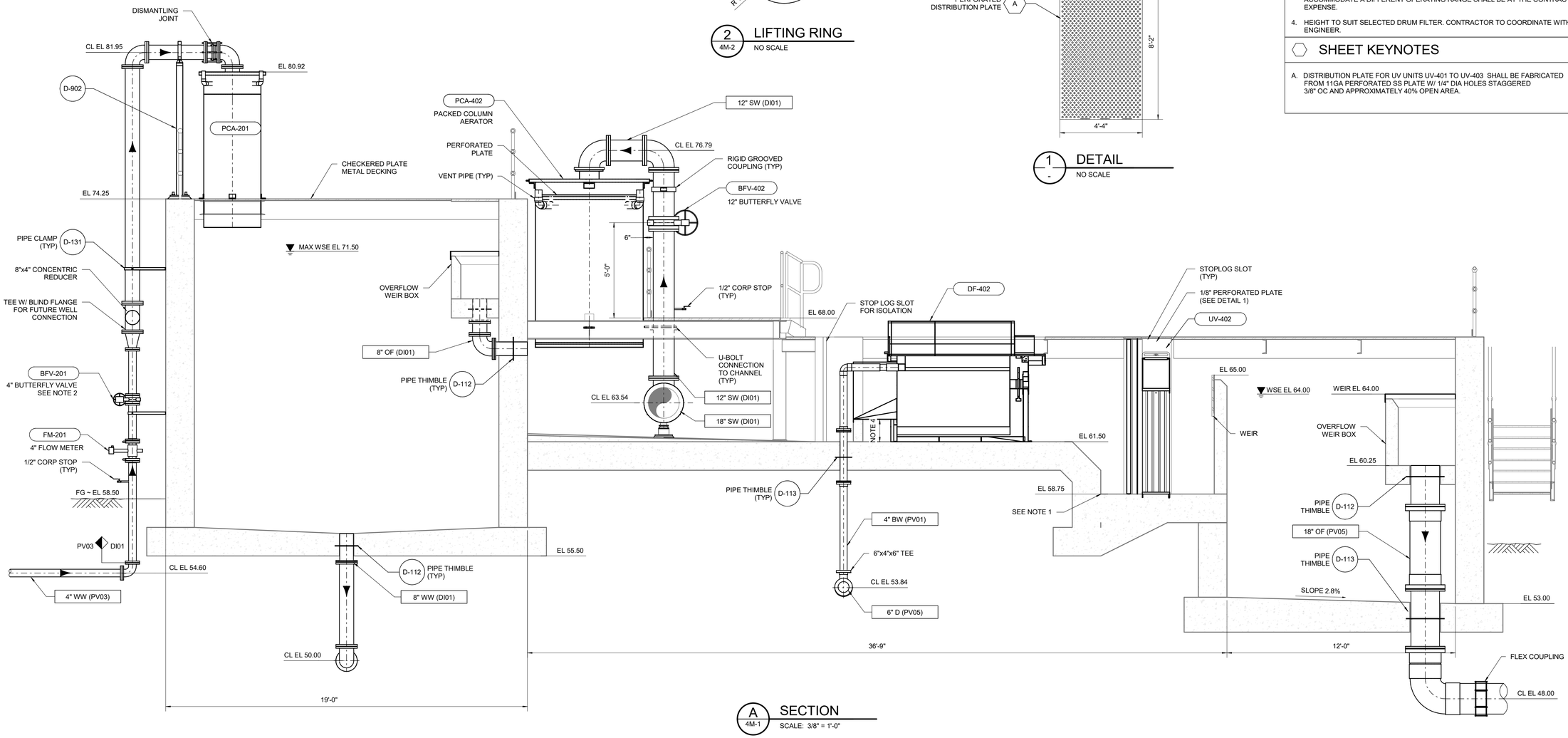
Title
WATER SUPPLY HEADBOX MECHANICAL PLAN

Project No. 25-128

Scale As indicated

Revision

Drawing No. **4M-1**



A 4M-1 SECTION
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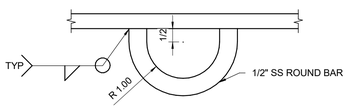

2 4M-2 LIFTING RING
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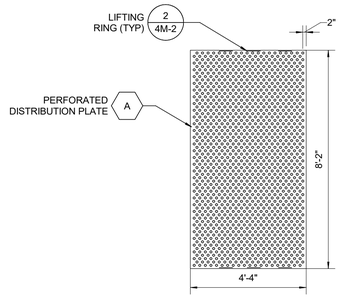

1 - DETAIL
NO SCALE

GENERAL SHEET NOTES

1. CONTRACTOR SHALL COORDINATE INSTALLATION OF THE UV UNIT SUCH THAT THE MINIMUM OPERATING WSE OF THE UV MATCHES THE TOP OF WEIR ELEVATION. MAY INCLUDE ADDING GROUT LAYER OR HOUSEKEEPING PAD TO ADJUST INSTALLED ELEVATION.
2. CONTRACTOR SHALL INSTALL FLOW METER WITH SUFFICIENT STRAIGHT, UNIMPEDED RUN UPSTREAM AND DOWNSTREAM OF THE FLOW METER IN ACCORDANCE WITH MANUFACTURER'S MANUAL.
3. ASSUMED DRUM FILTER UPSTREAM OPERATING WSE RANGE OF 65.00 TO 66.00 . CONTRACTOR SHALL COORDINATE FLOOR AND GRATING ELEVATIONS FOR SELECTED DRUM FILTER TO VERIFY PROPER OPERATIONS. ANY MODIFICATIONS REQUIRED TO ACCOMMODATE A DIFFERENT OPERATING RANGE SHALL BE AT THE CONTRACTOR'S EXPENSE.
4. HEIGHT TO SUIT SELECTED DRUM FILTER. CONTRACTOR TO COORDINATE WITH ENGINEER.

SHEET KEYNOTES

A. DISTRIBUTION PLATE FOR UV UNITS UV-401 TO UV-403. SHALL BE FABRICATED FROM 11GA PERFORATED SS PLATE W/ 1/4" DIA HOLES STAGGERED 3/8" OC AND APPROXIMATELY 40% OPEN AREA.

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

PP	DEW	SWW	2024.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

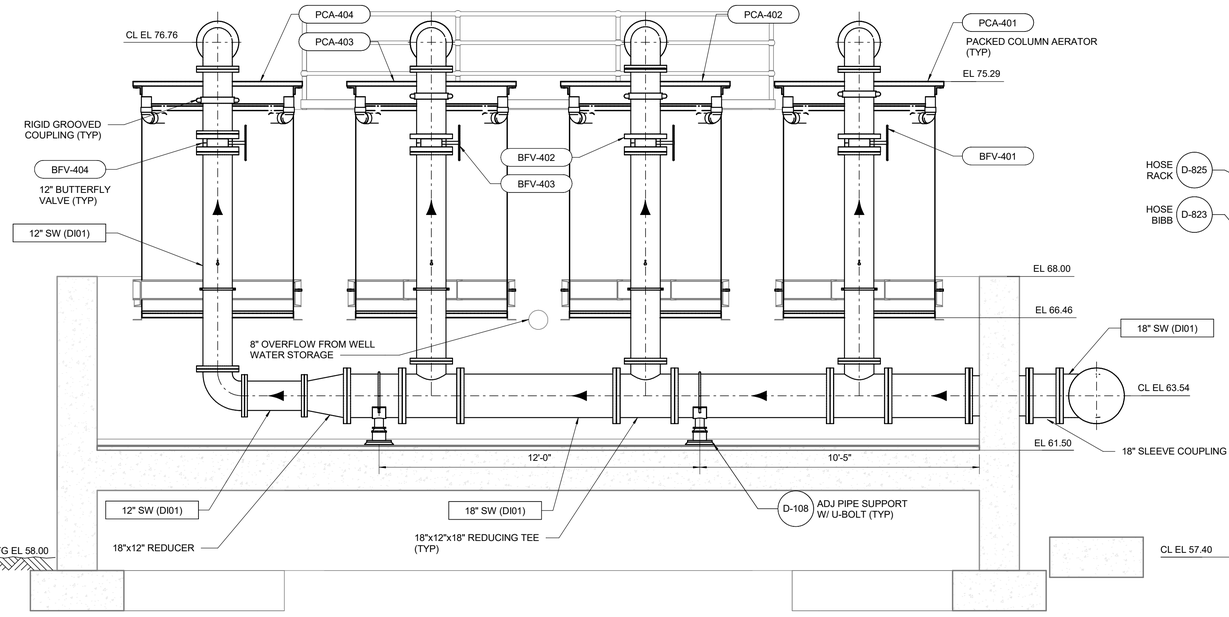
Title
WATER SUPPLY HEADBOX
MECHANICAL SECTION - I

Project No.
25-128

Scale
As indicated

Revision

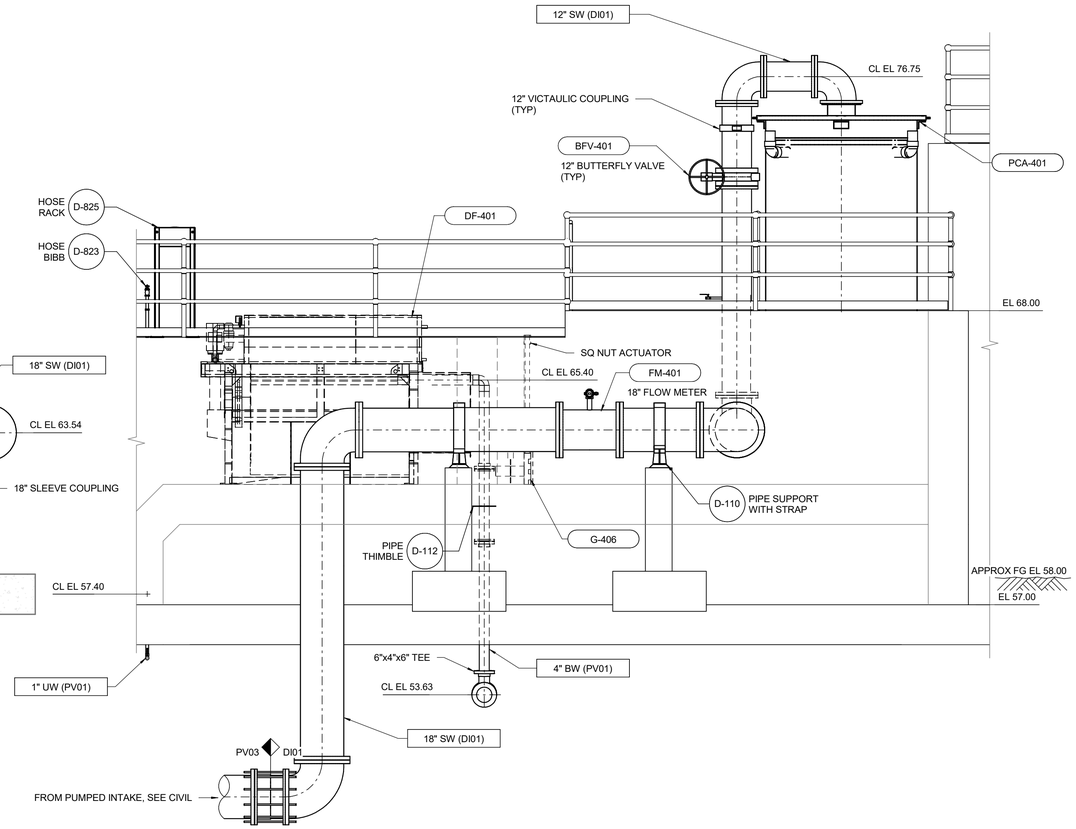
Drawing No.
4M-2



B 4M-1 SECTION

SCALE: 3/8" = 1'-0"

HANDRAILS NOT SHOWN FOR CLARITY



C 4M-1 SECTION

SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

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Digitally signed by David Whitbeck
Date: 2026.04.27 17:55:57-07'00'

Consultant

McMillen

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Client/Project Logo

TULALIP TRIBES

Client/Project

TULALIP TRIBES

BATTLE CREEK HATCHERY

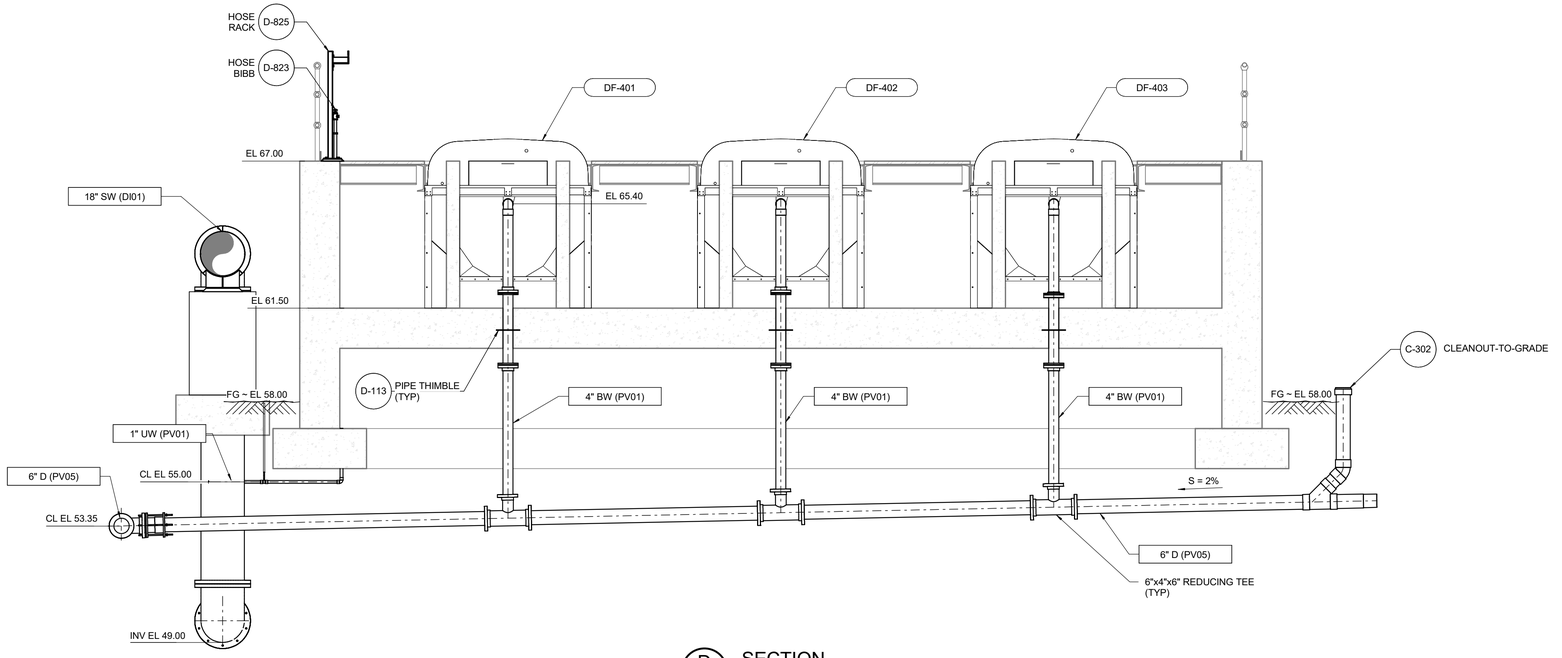
Tulalip, WA

File Name: N/A	PP Dwn.	DEW Dsgn.	SWW Chkd.	2024.12.27 YYYY.MM.DD

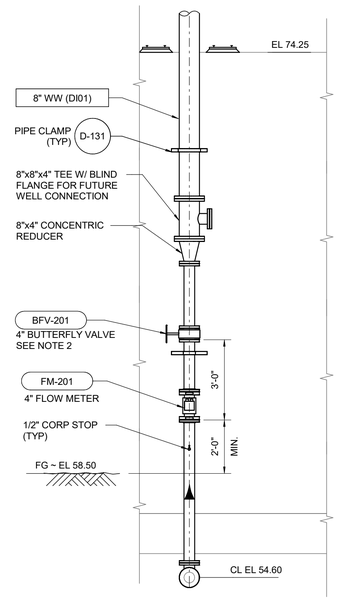
Title

WATER SUPPLY HEADBOX
MECHANICAL SECTION - II

Project No.	Scale
25-128	3/8" = 1'-0"
Revision	Drawing No.
	4M-3



D 4M-1 SECTION
SCALE: 3/8" = 1'-0"



E 4M-1 SECTION
SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

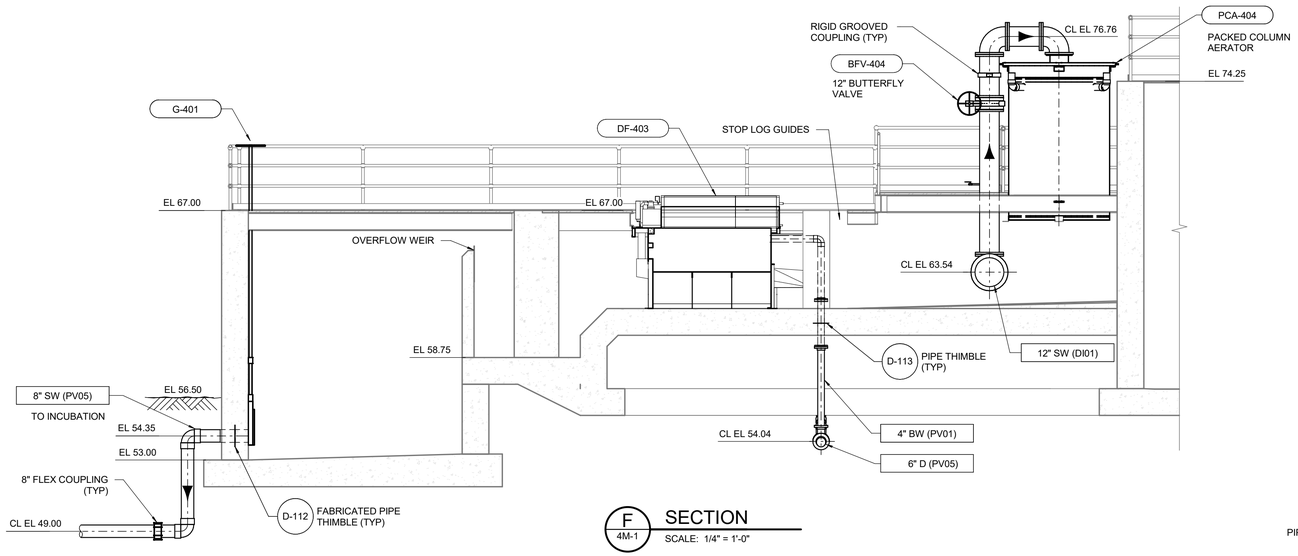
Tulalip, WA

File Name: N/A

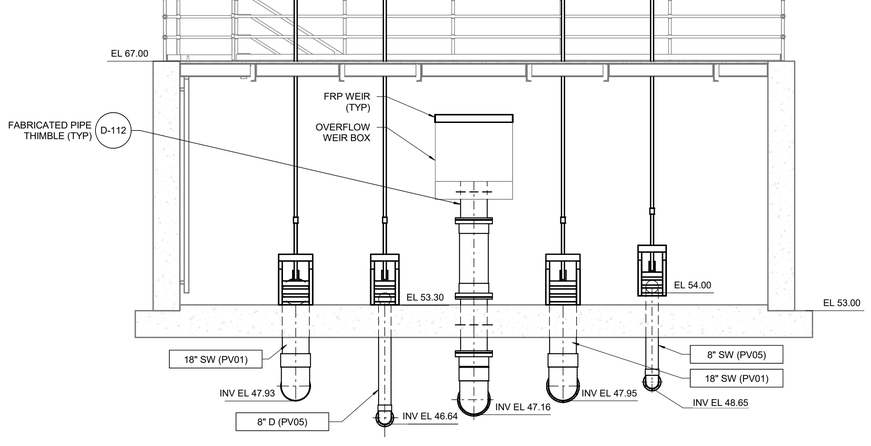
PP	DEW	SWW	2024.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
WATER SUPPLY HEADBOX
MECHANICAL SECTION - III

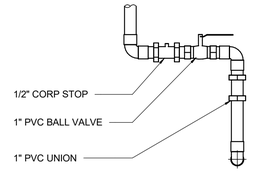
Project No. 25-128
Scale 3/8" = 1'-0"
Revision
Drawing No. **4M-4**



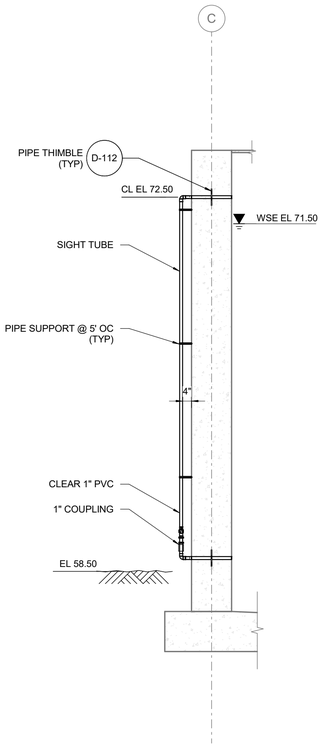
F 4M-1 **SECTION**
SCALE: 1/4" = 1'-0"



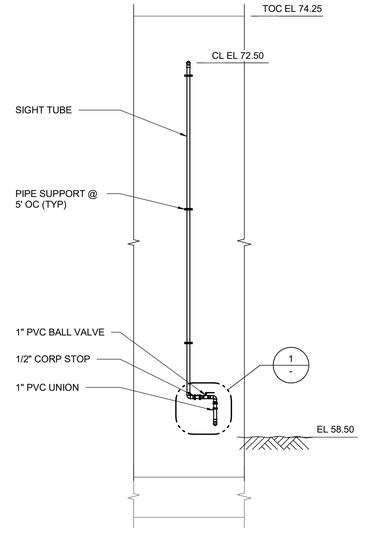
G 4M-1 **SECTION**
SCALE: 1/4" = 1'-0"



1 4M-5 **DETAIL**
SCALE: 1 1/2" = 1'-0"



H 4M-1 **SECTION**
SCALE: 3/8" = 1'-0"



J 4M-1 **SECTION**
SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26
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TULALIP TRIBES

BATTLE CREEK HATCHERY

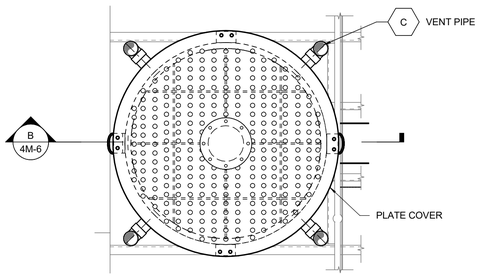
Tulalip, WA

File Name: N/A

MCM	MDV	DEW	2026.02.26
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

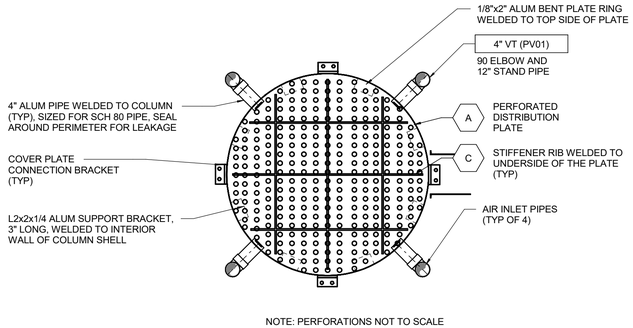
Title
WATER SUPPLY HEADBOX
MECHANICAL SECTION - IV

Project No. 25-128
Scale As indicated
Revision
Drawing No. **4M-5**



PLAN

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



NOTE: PERFORATIONS NOT TO SCALE

PERFORATED DISTRIBUTION PLATE

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

COVER NOT SHOWN FOR CLARITY

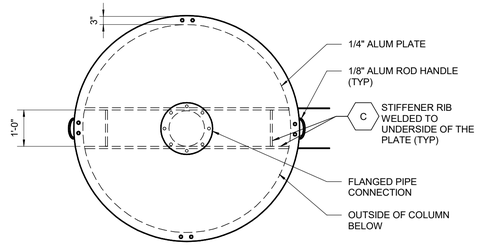


PLATE COVER

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

GENERAL SHEET NOTES

1. SEE STRUCTURAL DRAWINGS FOR SUPPORT BEAMS.
2. COLUMNS SHALL BE PROVIDED FILLED COMPLETELY WITH MEDIA BETWEEN THE RETAINER PLATE AND THE DISTRIBUTION PLATE. SEE SPECIFICATION FOR MEDIA TYPE.
3. ALL EXTERNAL CONNECTIONS TO THE AERATOR SHALL BE SEAL WELDED.
4. PROVIDE ISOLATION FOR ALL ALUMINUM IN CONTACT WITH DISSIMILAR MATERIALS, SEE SECTION 09 96 00 PROTECTIVE COATINGS.

SHEET KEYNOTES

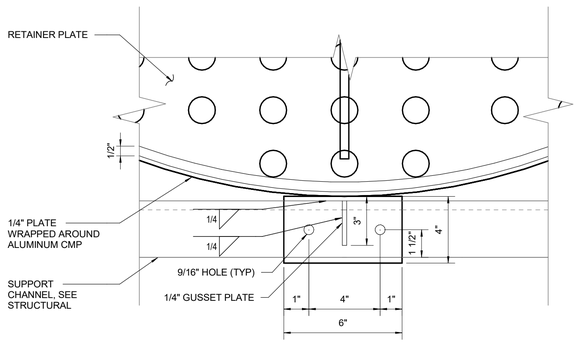
A. DISTRIBUTION PLATE FOR ALL PACKED COLUMN AERATORS SHALL BE FABRICATED FROM 11GA MIN PERFORATED STN STEEL WITH 1/4" DIA HOLES SPACED 3/4" OC AND APPROXIMATELY 8.7% OPEN AREA.

B. DISTRIBUTION PLATE FOR PACKED COLUMN AERATOR AT THE WELL WATER STORAGE TANK SHALL BE FABRICATED FROM 11GA MIN PERFORATED STN STEEL WITH 1/4" DIA HOLES SPACED 1" OC AND APPROXIMATELY 4.9% OPEN AREA

C. 1/4" X 2" STIFFENER RIB

D. SCH 40 PVC ELBOW AND PIPE. PIPE EXTENSION SHALL BE PROVIDED TO MATCH THE TOP OF THE TOWER LID.

E. RETAINER PLATE FOR ALL TOWERS SHALL BE FABRICATED FROM 11 GA MIN PERFORATED STN STEEL WITH 1/4" DIA HOLES STAGGERED 3/8" OC AND APPROXIMATELY 40% OPEN AREA

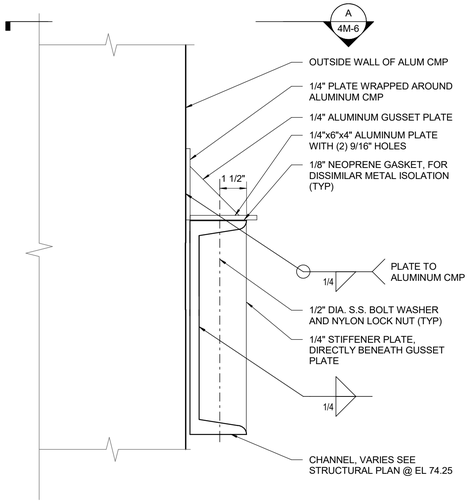


A DETAIL

A / 4M-6

NO SCALE

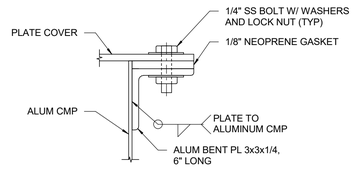
NOTE: 1/2" DIA. S.S. BOLT AT STEEL BEAM LOCATION. 1/2" DIA. S.S. CONCRETE ANCHOR WITH 9" MINIMUM EMBEDMENT AT CONCRETE WALL.



1 DETAIL

1 / 4M-6

NO SCALE



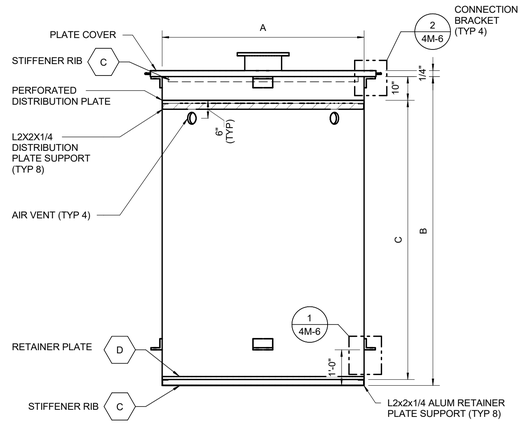
CONNECTION BRACKET

2 DETAIL

2 / 4M-6

NO SCALE

SERVICE	QUANTITY	FLOW	DIM A	DIM B	DIM C
WELL WATER	1	400 GPM	3.5 FT	8 FT	7 FT
SURFACE WATER	4	1800 GPM	5.5 FT	9 FT	8 FT



B SECTION

B / 4M-6

NO SCALE

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ORIGINAL SHEET - ANSI D

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26

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Consultant

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

ND	SEW	SWW	2024.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

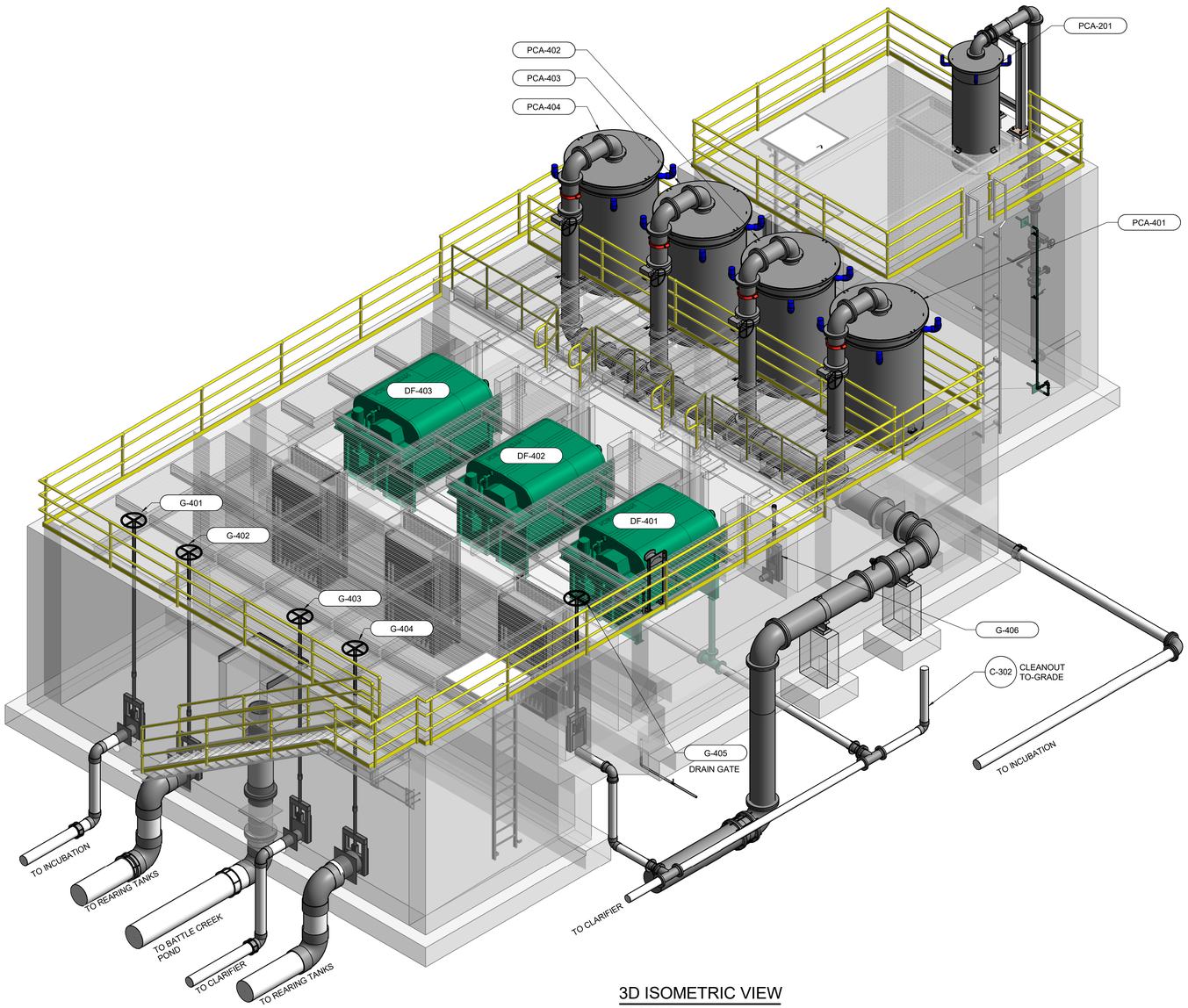
Title
WATER SUPPLY HEADBOX PACKED COLUMN AERATOR DETAILS

Project No. 25-128

Scale As indicated

Revision

Drawing No. **4M-6**



3D ISOMETRIC VIEW
NO SCALE

Revision	By	Appd	YYYY.MM.DD

Issued			
A FINAL DESIGN	MCM	DEW	2026.02.26
	By	Appd	YYYY.MM.DD

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Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

MCM	MDV	DEW	2026.02.26
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
WATER SUPPLY HEADBOX
MECHANICAL ISOMETRIC VIEW

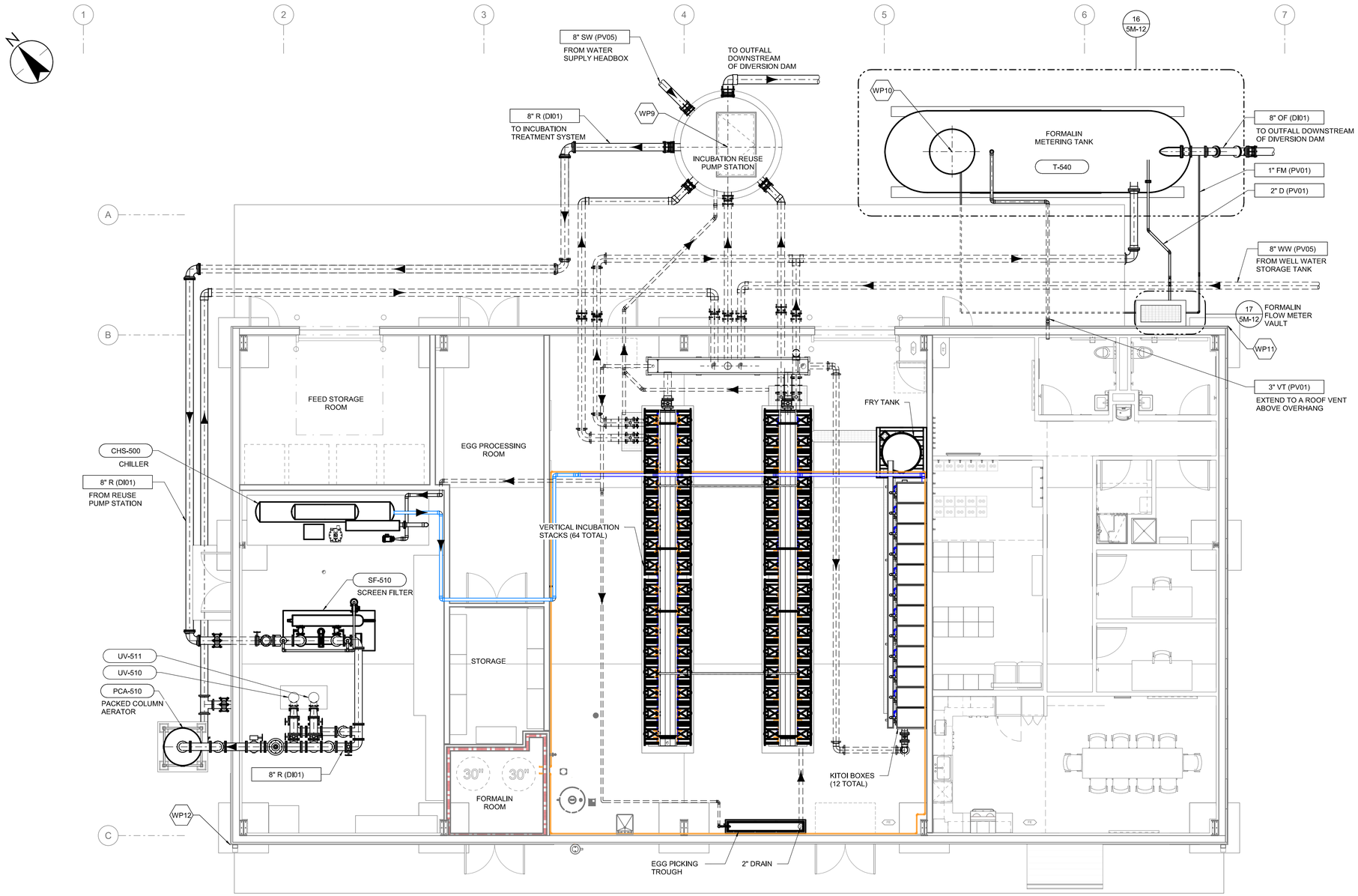
Project No.
25-128

Scale

Revision

Drawing No.
4M-7

3/11/2026 1:44:42 PM
ORIGINAL SHEET - ANSI D



PLAN

SCALE: 3/16" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

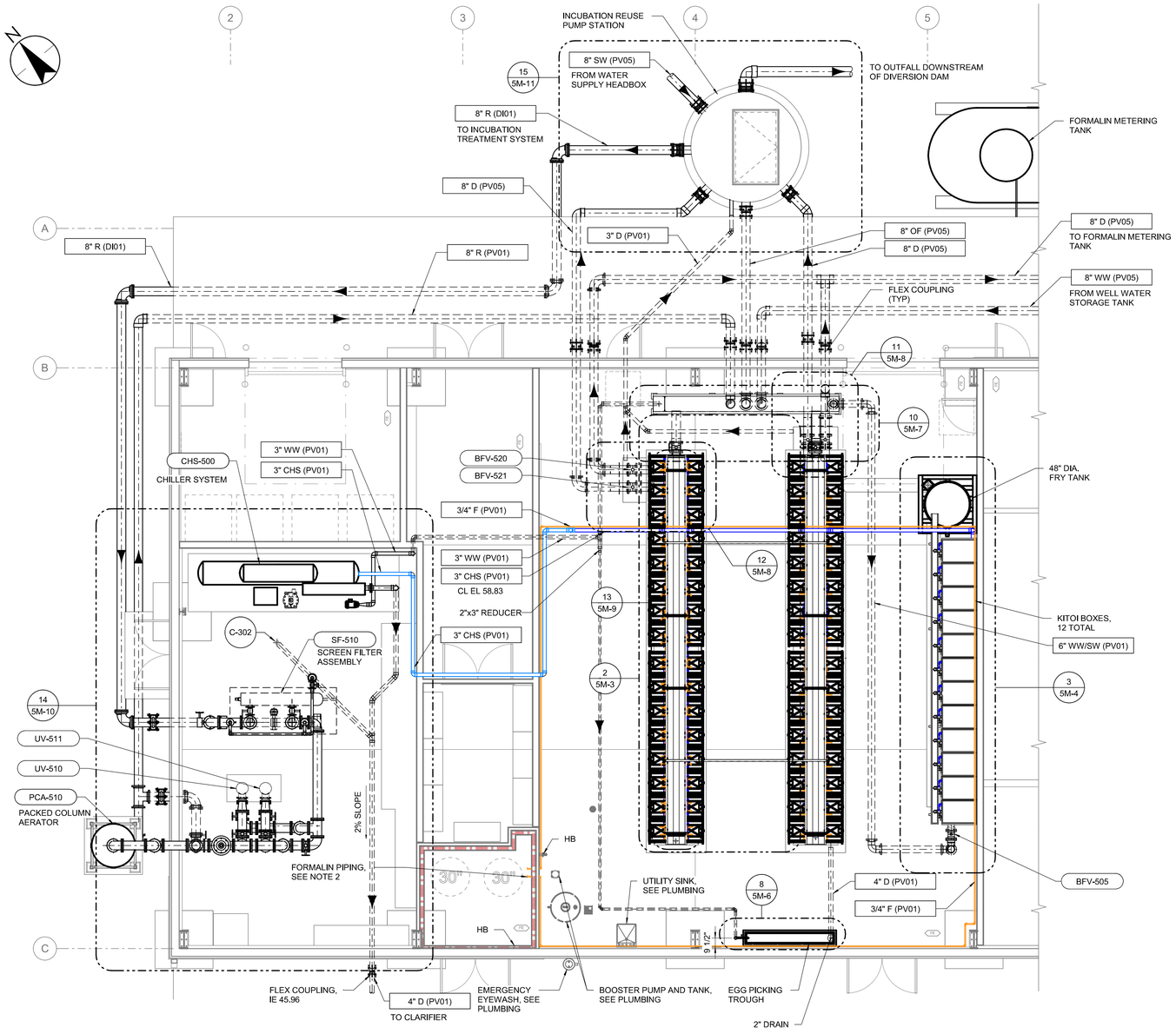
Tulalip, WA

File Name: N/A	PP Dwn.	DEW Dsgn.	SWW Chkd.	2024.12.27 YYYY.MM.DD

Title
INCUBATION BUILDING FLOOR PLAN

Project No.	Scale
224202267	3/16" = 1'-0"
Revision	Drawing No.
	5M-1

Exhibit D.1 Page 97 of 220

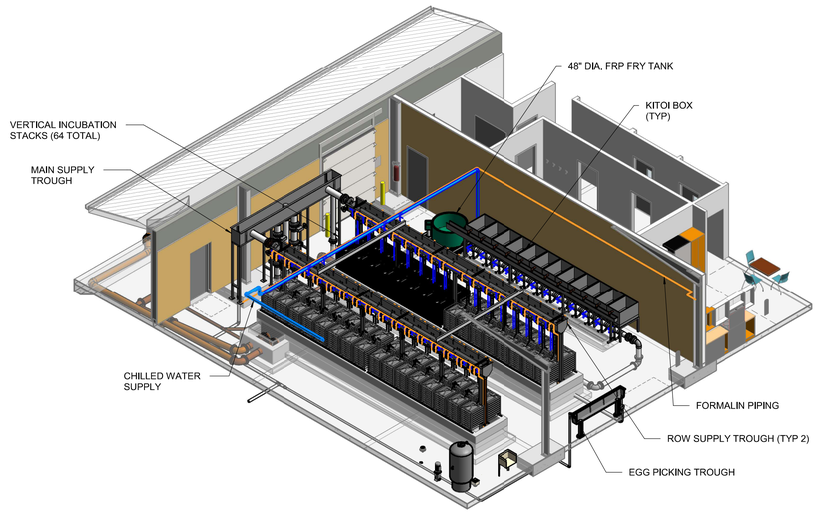


ENLARGED PLAN

SCALE: 3/16" = 1'-0"

GENERAL SHEET NOTES

1. SEE PLUMBING DRAWINGS FOR UTILITY WATER BOOSTER SYSTEM AND HOSE BIBBS.
2. CONTRACTOR SHALL TERMINATE FORMALIN PIPING IN THE FORMALIN ROOM AT BALL VALVES MOUNTED TO THE WALL. SEE 5I-5 FOR FORMALIN SYSTEM FUTURE CONNECTIONS.



INCUBATION ROOM ISOMETRIC

NO SCALE

Revision	By	Appd	YYYY.MM.DD

Issued			
A FINAL DESIGN	STN	DEW	2024.12.27
	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

Tulalip, WA

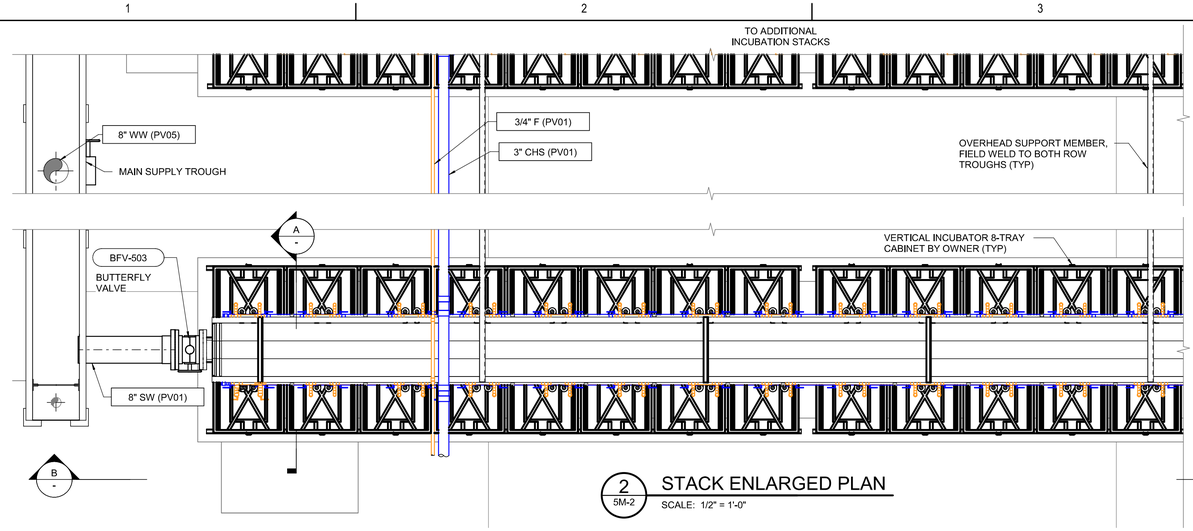
File Name: N/A	PP	DEW	SWW	2024.12.27
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
INCUBATION ROOM ENLARGED PLAN AND ISOMETRIC

Project No.	Scale
224202267	3/16" = 1'-0"
Revision	Drawing No.
	5M-2

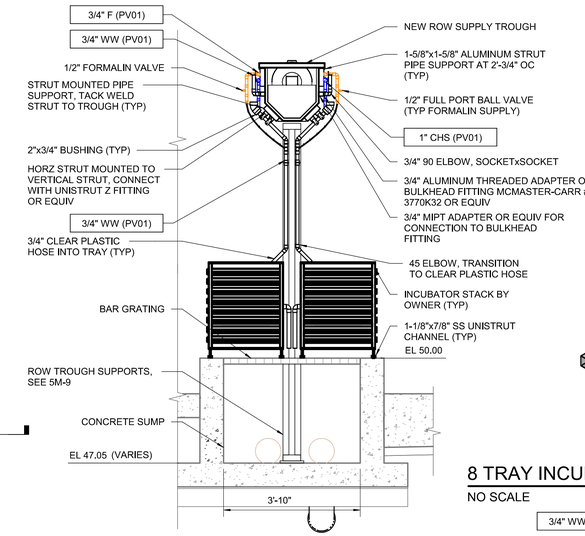
2/4/2025 4:33:56 PM

ORIGINAL SHEET - ANSI D



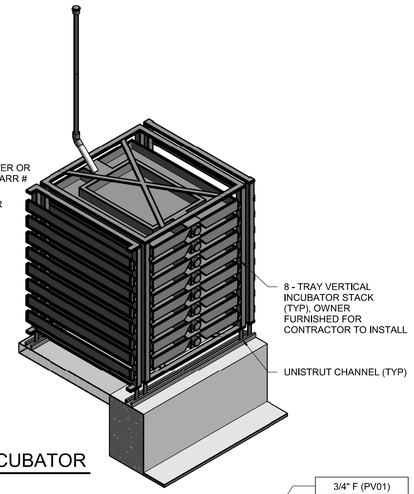
2 5M-2 **STACK ENLARGED PLAN**

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



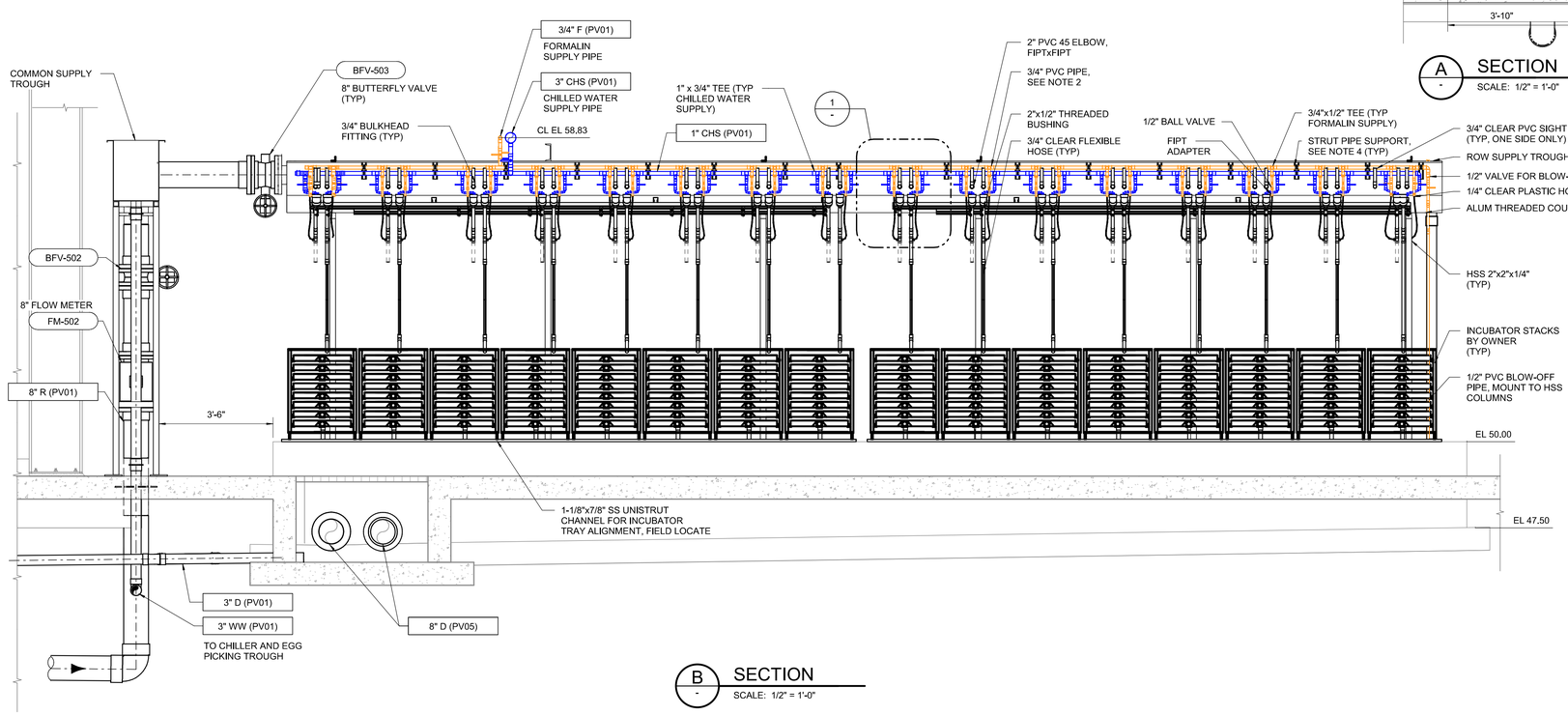
A - **SECTION**

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



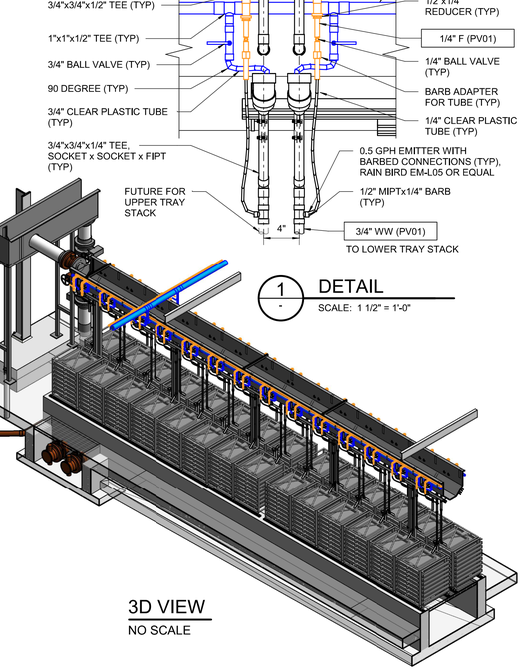
8 TRAY INCUBATOR

NO SCALE



B - **SECTION**

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



1 - **DETAIL**

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

3D VIEW

NO SCALE

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A FINAL DESIGN	STN	DEW	2024.12.27
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BATTLE CREEK HATCHERY

Tulalip, WA

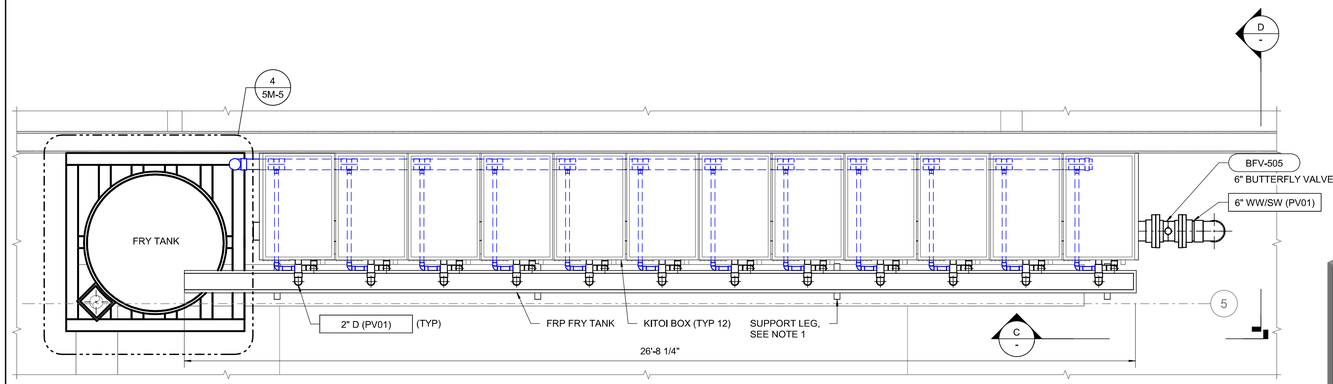
File Name: N/A | PP Dwn. | DEW Dsgn. | SWW Chkd. | 2024.12.27 YYYY.MM.DD

Title
INCUBATION BUILDING VERTICAL INCUBATOR PLAN AND SECTIONS

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5M-3**

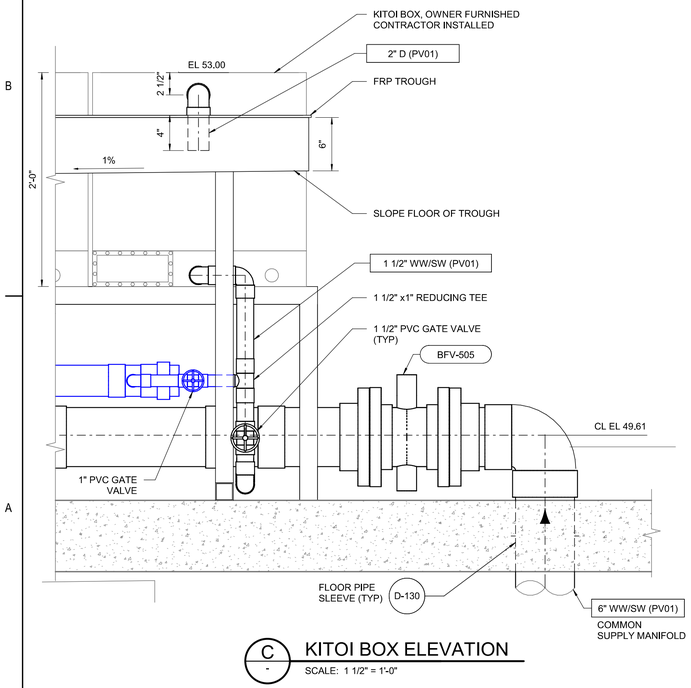
1/14/2025 11:12:02 AM

ORIGINAL SHEET - ANSI D



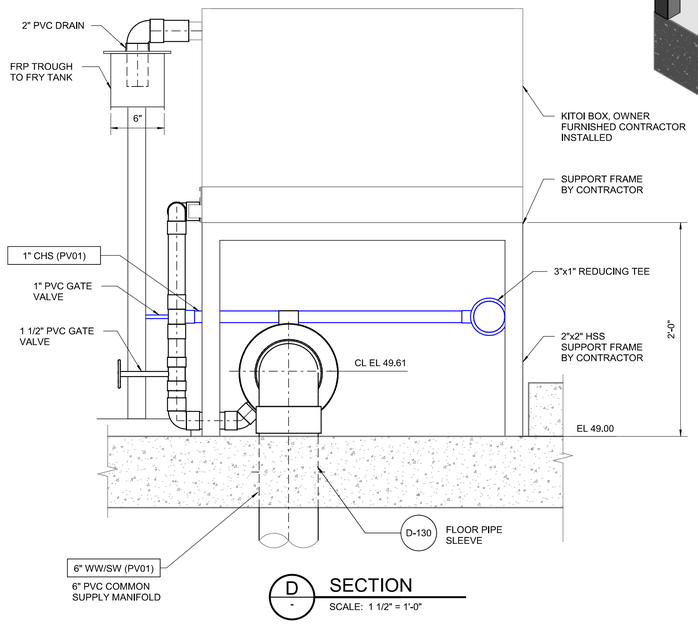
3 5M-2 INCUBATION BUILDING KITOI BOX PLAN

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



C - KITOI BOX ELEVATION

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

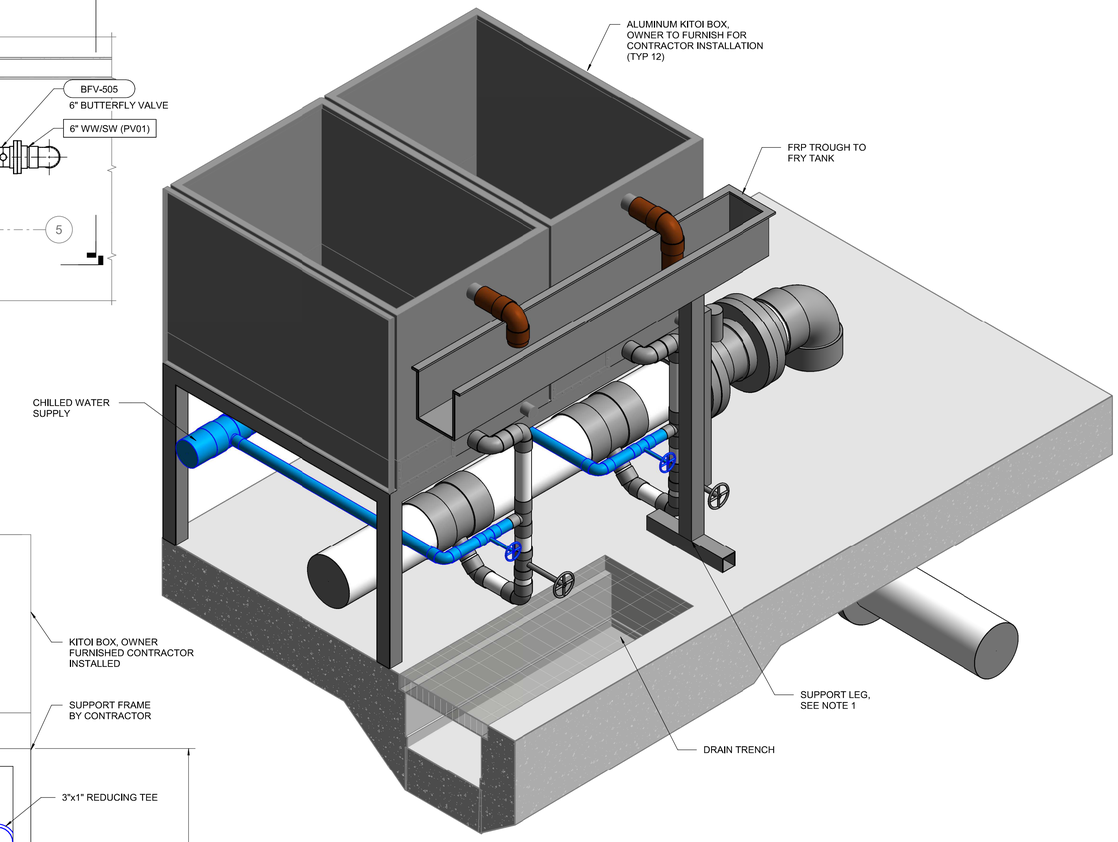


D - SECTION

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

GENERAL SHEET NOTES

1. FRP MANUFACTURER TO PROVIDE SUPPORT LEGS FOR FRP TROUGH TO FLOOR AT MAXIMUM 8' OC.



KITOI BOX

NO SCALE

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27
Issued	By	Appd	YYYY.MM.DD

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Consultant

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Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A | PP Dwn. | DEW Dsgn. | SWW Chkd. | 2024.12.27 YYYY.MM.DD

Title
INCUBATION BUILDING KITOI BOX DETAILS

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5M-4**

1/14/2025 11:20:26 AM
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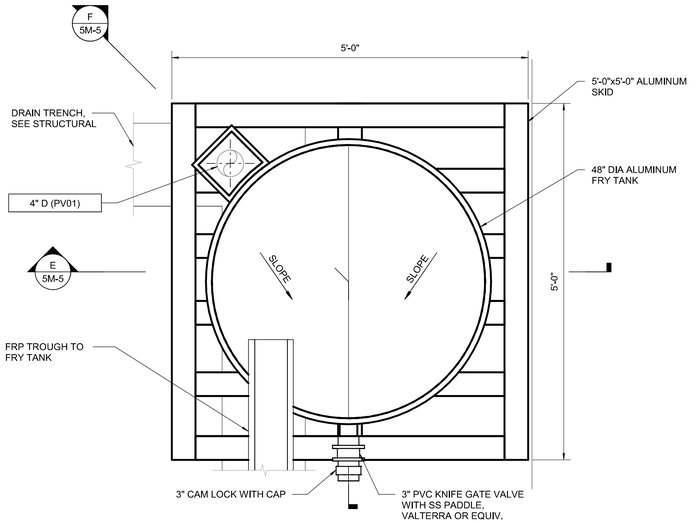
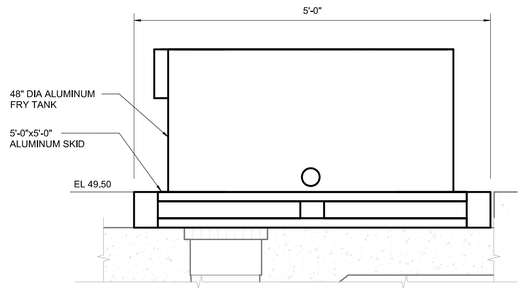


4 5M-4 **FRP TANK DETAILS**
SCALE: 1" = 1'-0"



E - **SECTION**
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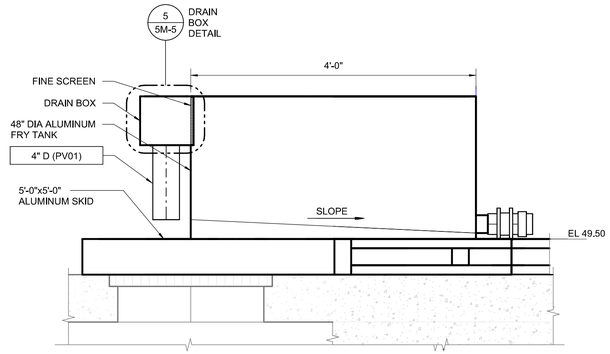

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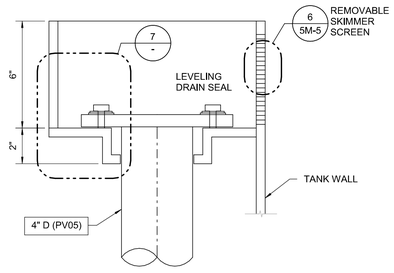
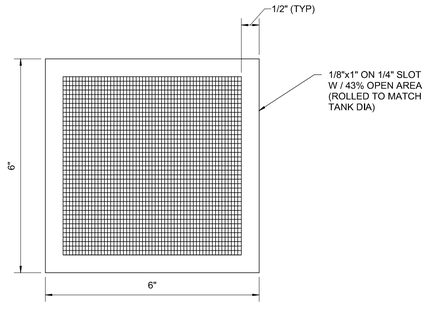


5 - **DETAIL**
SCALE: 3" = 1'-0"



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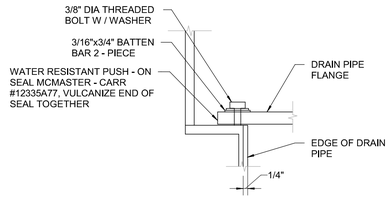

7 - **DETAIL**
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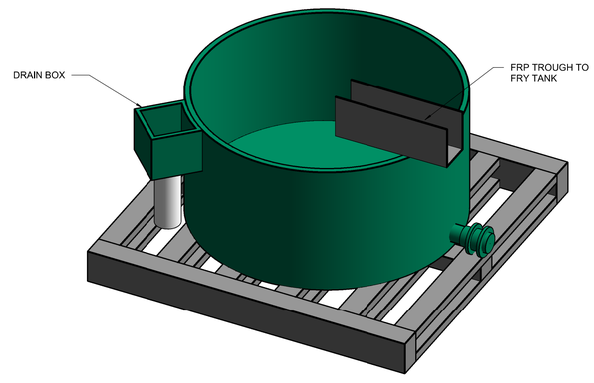

FRP TANK 3D VIEW
NO SCALE

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27

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DAVID EDWARD WELTHEER — STATE OF WASHINGTON — 21706 — REGISTERED PROFESSIONAL ENGINEER
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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A	PP Dwn.	DEW Dsgn.	SWW Chkd.	2024.12.27 YYYY.MM.DD

Title
INCUBATION BUILDING FRY TANK DETAILS

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5M-5**

2/5/2025 11:21:03 PM
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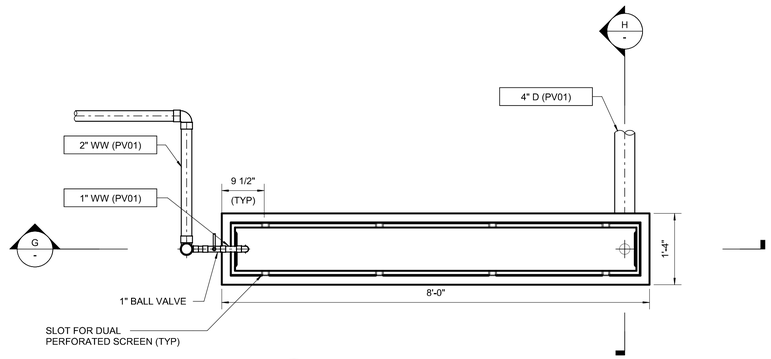
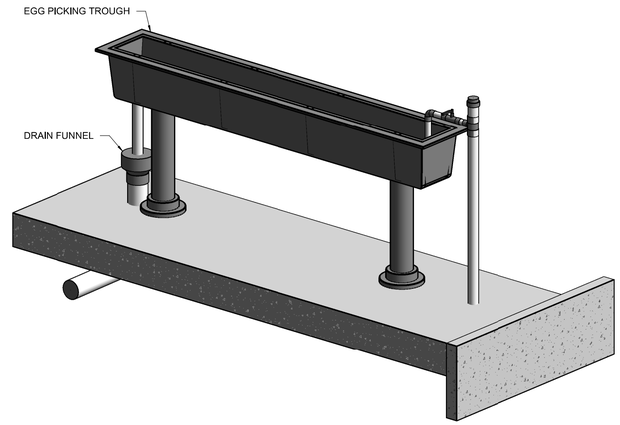


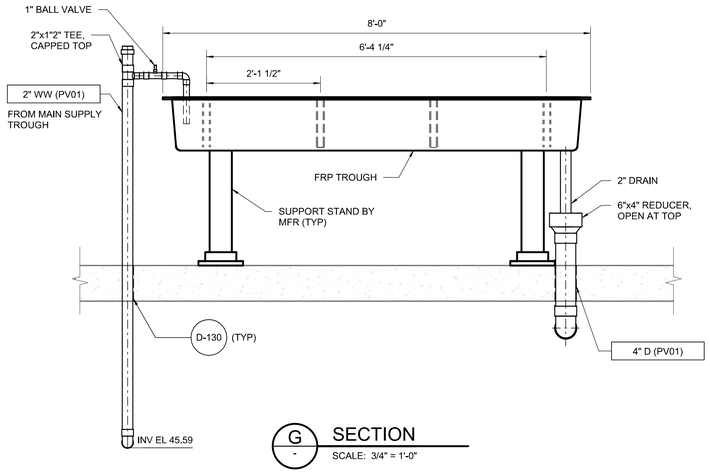
8 5M-2 **EGG PICKING TRAY PLAN**

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



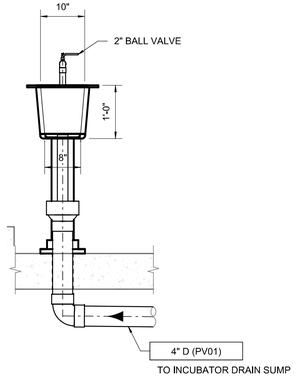
ISOMETRIC

NO SCALE



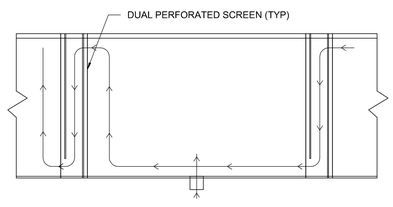
G - **SECTION**

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



H - **SECTION**

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



9 - **FLOW ILLUSTRATION**

NO SCALE

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27

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BATTLE CREEK HATCHERY

Tulalip, WA

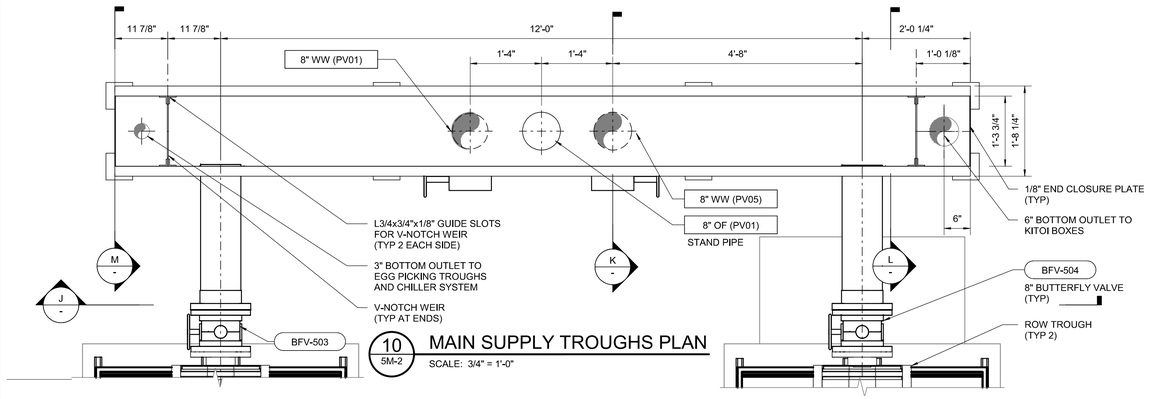
File Name: N/A | PP Dwn. | DEW Dsgn. | SWW Chkd. | 2024.12.27 YYYY.MM.DD

Title
INCUBATION BUILDING EGG PICKING TROUGH DETAILS

Project No. 224202267
Scale 3/4" = 1'-0"
Revision
Drawing No. **5M-6**

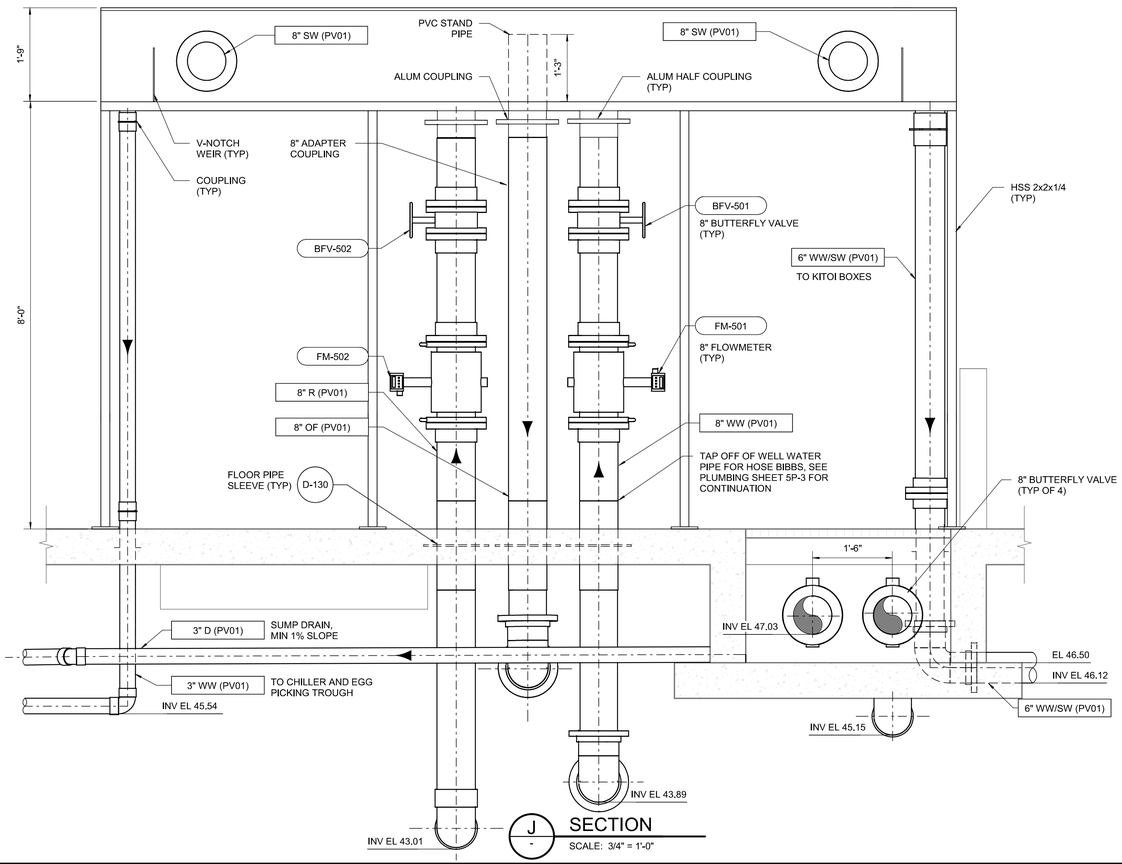
1/14/2025 11:12:10 AM

ORIGINAL SHEET - ANSI D



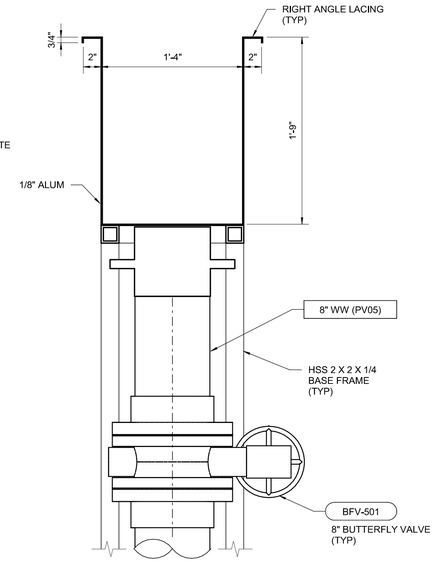
10 / 5M-2 **MAIN SUPPLY TROUGHS PLAN**

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



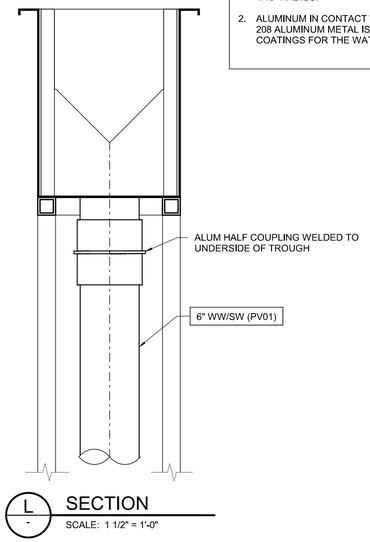
J **SECTION**

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



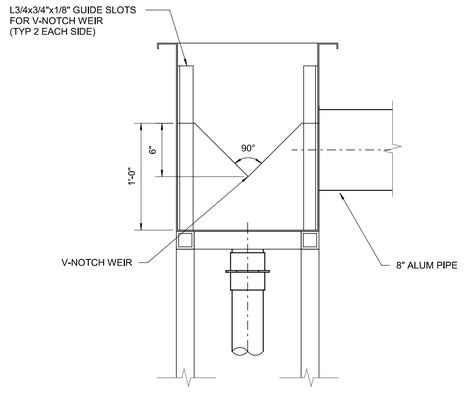
K **SECTION**

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



L **SECTION**

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



M **SECTION**

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

ISOMETRIC

NO SCALE

GENERAL SHEET NOTES

1. MAIN SUPPLY TROUGHS SHALL BE FABRICATED ENTIRELY OF ALUMINUM ALLOY 6061-T6, 1/8" THICKNESS. ALL CONNECTIONS SHALL BE SEAL WELDED. BREAK ALL CORNERS TO 1/16" RADIUS.
2. ALUMINUM IN CONTACT WITH CONCRETE SHALL HAVE SURFACES COATED WITH SYSTEM 208 ALUMINUM METAL ISOLATION. SEE SPECIFICATION SECTION 09 96 00 PROTECTIVE COATINGS FOR THE WATER REUSE PROJECT.

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27

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DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 27046 — REGISTERED PROFESSIONAL ENGINEER

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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A	DI	DEW	SWW	2024.12.27
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
INCUBATION BUILDING MAIN SUPPLY TROUGH PLANS, SECTIONS AND ISOMETRIC

Project No. 224202267

Scale As indicated

Revision

Drawing No. **5M-7**

1/14/2025 11:12:15 AM

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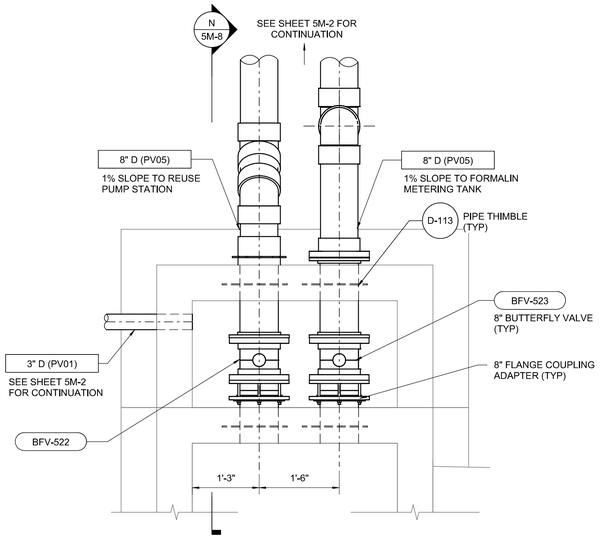
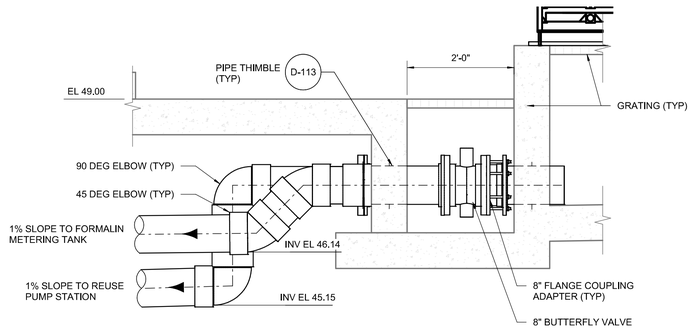


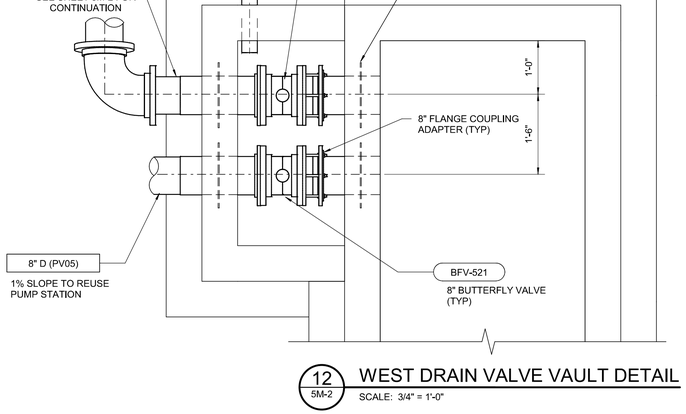
11 5M-2 EAST DRAIN VALVE VAULT DETAIL

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



N - SECTION

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



12 5M-2 WEST DRAIN VALVE VAULT DETAIL

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

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

DI	MDS	SWW	2024.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
INCUBATION BUILDING DRAIN VALVE VAULT PLAN AND SECTIONS

Project No. 224202267

Scale 3/4" = 1'-0"

Revision

Drawing No. **5M-8**

1/14/2025 11:12:17 AM

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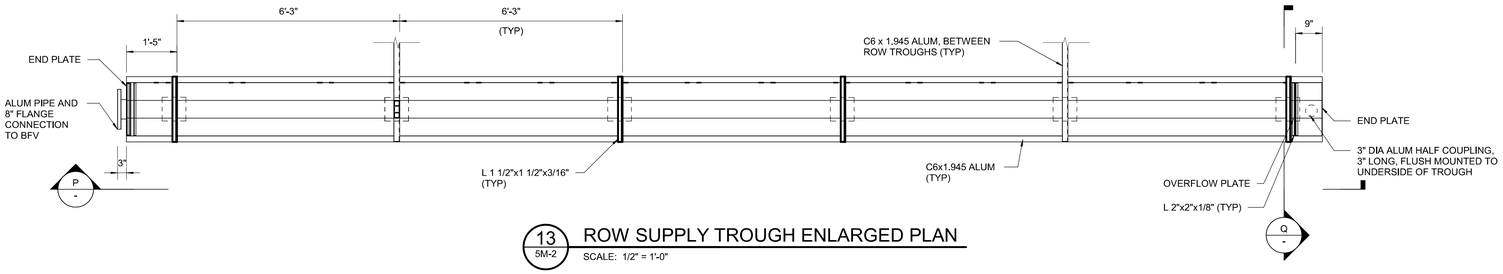
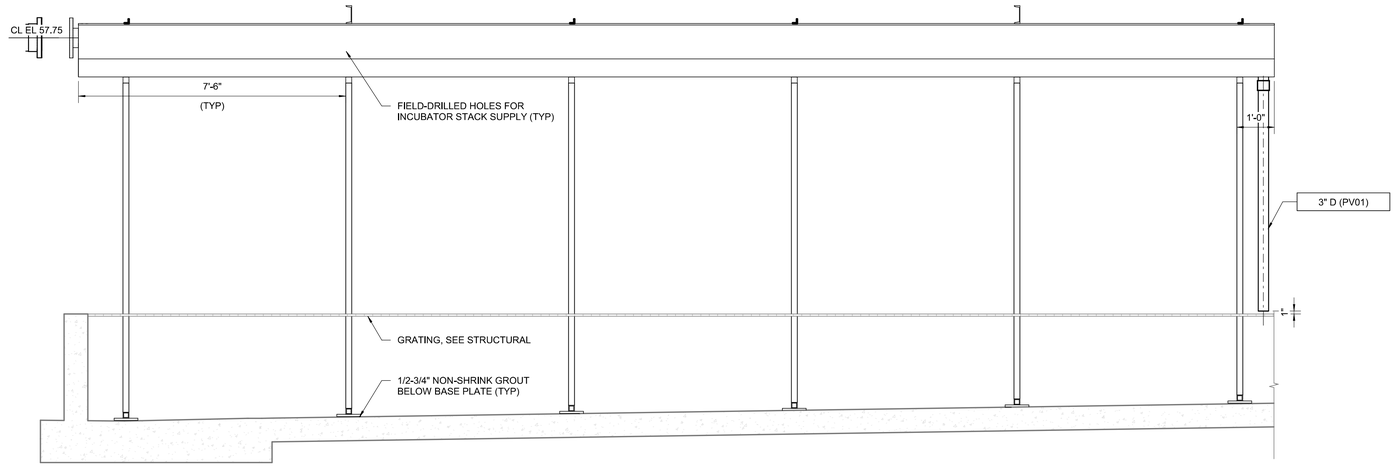


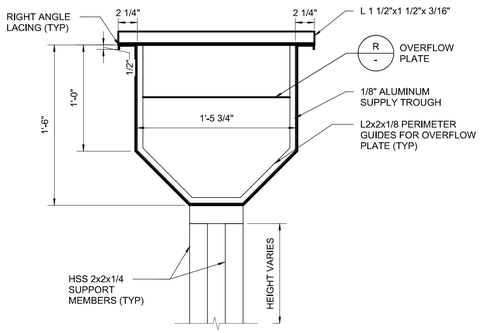
13 / 5M-2 ROW SUPPLY TROUGH ENLARGED PLAN

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



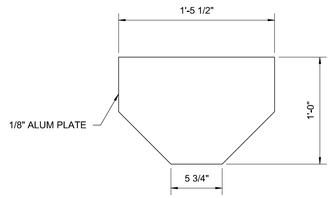
P - SECTION

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



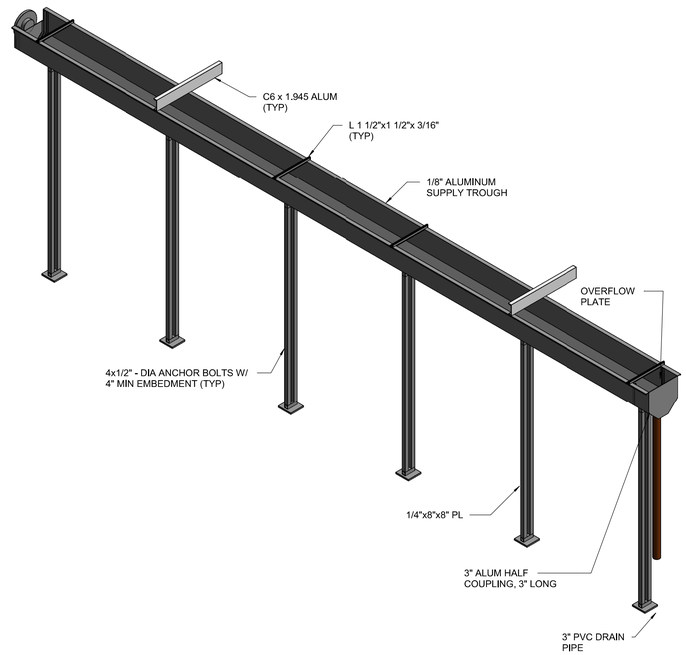
Q - SECTION

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



R - OVERFLOW PLATE DETAIL

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



ROW SUPPLY TROUGH 3D VIEW

NO SCALE

GENERAL SHEET NOTES

1. WATER SUPPLY CONNECTIONS THROUGH THE WALL OF THE ROW SUPPLY TROUGHS SHALL BE FIELD CUT AND LOCATIONS APPROVED BASED ON INSTALLED LOCATION OF VERTICAL INCUBATION STACKS. WORK WITH OWNER TO OBTAIN APPROVAL.
2. ROW SUPPLY TROUGHS SHALL BE FABRICATED ENTIRELY OF ALUMINUM ALLOY 6061-T6, 1/8" THICKNESS. ALL CONNECTIONS SHALL BE SEAL WELDED. BREAK ALL CORNERS TO 1/16" RADIUS.
3. ALUMINUM IN CONTACT WITH CONCRETE SHALL HAVE SURFACES COATED WITH SYSTEM 208 ALUMINUM METAL ISOLATION. SEE SPECIFICATION SECTION 09 96 00 PROTECTIVE COATINGS.

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27

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DAVID EDWARD WHITEBECK — STATE OF WASHINGTON — 47086 — REGISTERED PROFESSIONAL ENGINEER

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Consultant

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TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A	PP	DEW	SWW	2024.12.27
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

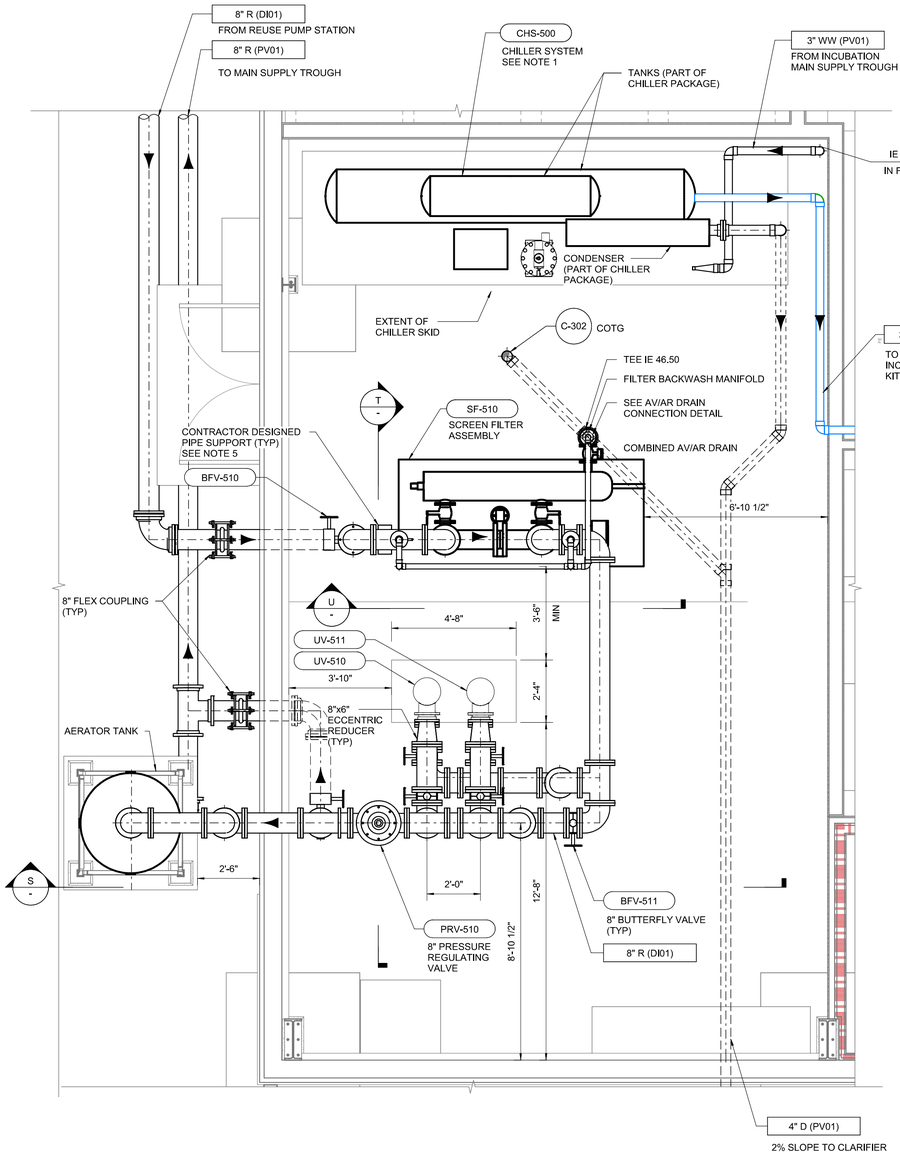
Title

INCUBATION BUILDING
NEW ROW SUPPLY TROUGH SECTIONS AND DETAIL

Project No.	Scale
224202267	As indicated
Revision	Drawing No.
	5M-9

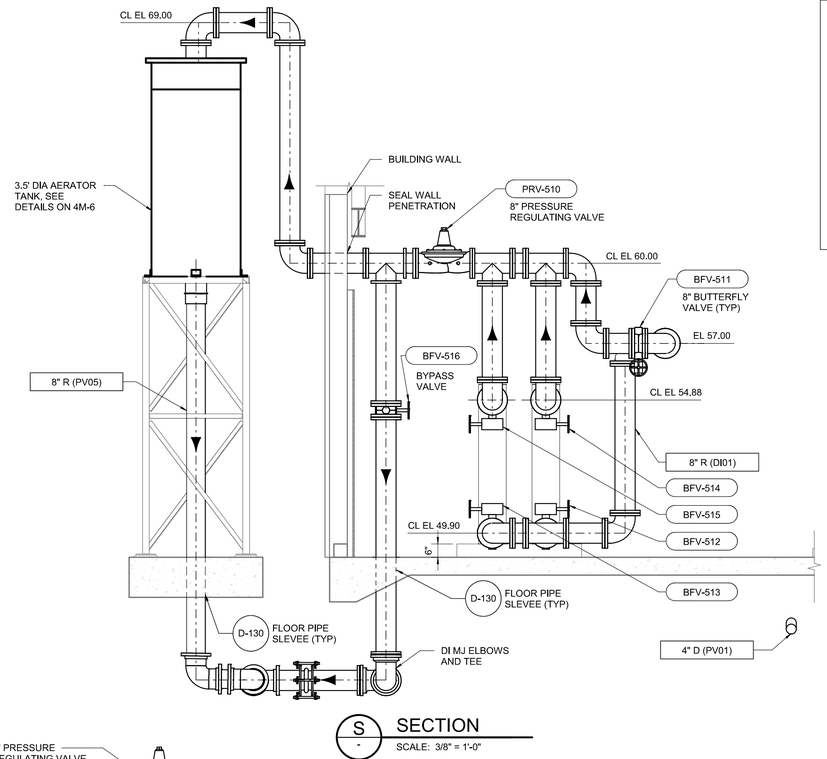
1/14/2025 11:12:19 AM

ORIGINAL SHEET - ANSI D



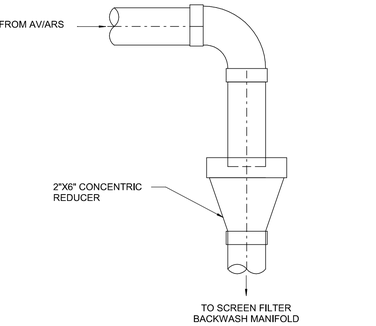
14 / 5M-2 ENLARGED PLAN

SCALE: 3/8" = 1'-0"



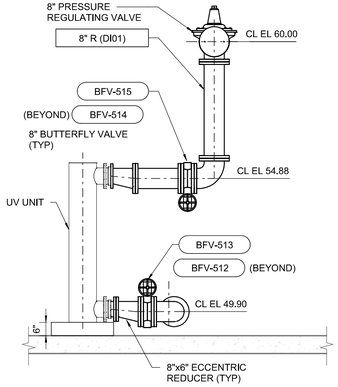
S SECTION

SCALE: 3/8" = 1'-0"



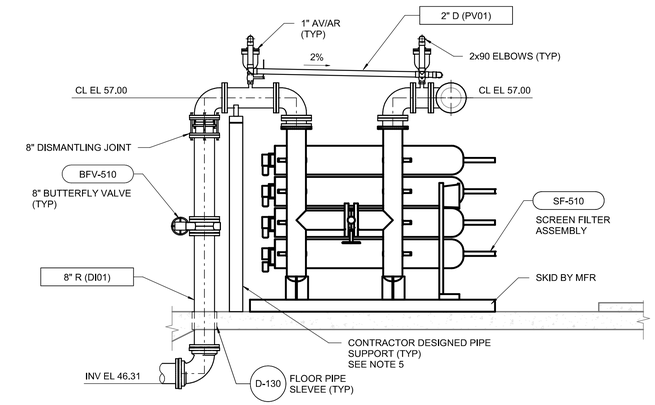
AV/AR DRAIN CONNECTION DETAIL

SCALE: 3/8" = 1'-0"



T SECTION

SCALE: 3/8" = 1'-0"



U SECTION

SCALE: 3/8" = 1'-0"

GENERAL SHEET NOTES

1. COORDINATE WITH CHILLER SYSTEM MFR TO CONFIRM SIZE OF THE SKID PACKAGE AND FOR ALL PIPING AND DRAIN CONNECTIONS FOR THE CHILLER. NOT ALL PIPING CONNECTIONS ARE SHOWN. PIPING CONNECTIONS TO BE FIELD LOCATED. CONTRACTOR SHALL PROVIDE ALL PIPING AND DRAIN CONNECTIONS AND ANCILLARY COMPONENTS NECESSARY FOR A COMPLETE AND FUNCTIONAL CHILLER SYSTEM. SEE SPECIFICATION 42 51 00 FOR ADDITIONAL REQUIREMENTS.
2. ALL CHILLED WATER SUPPLY AND CHILLED WATER RETURN PIPING SHALL BE INSULATED.
3. SCREEN FILTER LAYOUT IS BASED ON FORSTA FILTERS MODEL 180C. CONTRACTOR MAY PROPOSE SUBSTITUTE EQUIPMENT. IF LAYOUT OF SUBSTITUTE EQUIPMENT VARIES FROM WHAT IS SHOWN, ALL PIPING AND OTHER MODIFICATIONS NECESSARY FOR COMPLETE INSTALLATION SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
4. FLUSH VALVE WITH ACTUATOR PROVIDED AS PART OF SCREEN FILTER SUPPLY PACKAGING (TYP). CONTRACTOR SHALL COORDINATE WITH SUPPLIER TO PROVIDE ALL PARTS AND COMPONENTS NEEDED FOR COMPLETE INSTALLATION.
5. NOT ALL NECESSARY PIPE SUPPORTS ARE SHOWN. CONTRACTOR SHALL PROVIDE PIPE SUPPORTS FOR A COMPLETE PIPING SYSTEM. SEE SPECIFICATION 40 05 07 FOR ADDITIONAL REQUIREMENTS.

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27

Permit/Seal

DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Whitbeck, David
Date: 2025.02.11 17:57:06-08'00'

Consultant

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Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A	PP	DEW	SWW	2024.12.27
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
INCUBATION BUILDING MECHANICAL ROOM PLAN, SECTIONS AND 3D VIEW

Project No.	Scale
224202267	3/8" = 1'-0"
Revision	Drawing No.
	5M-10

1/14/2025 11:12:23 AM

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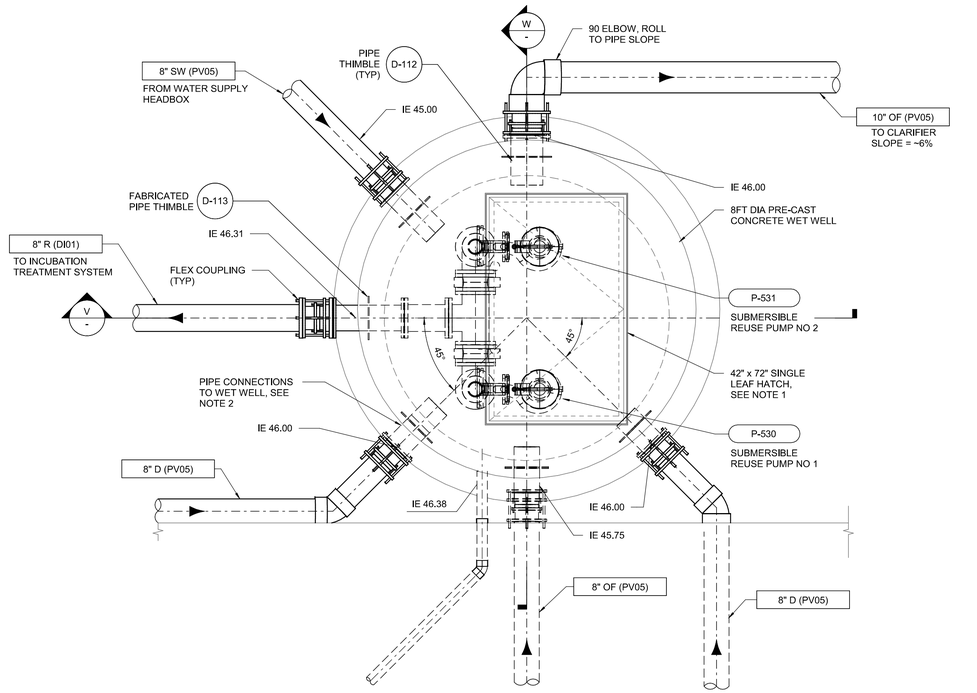
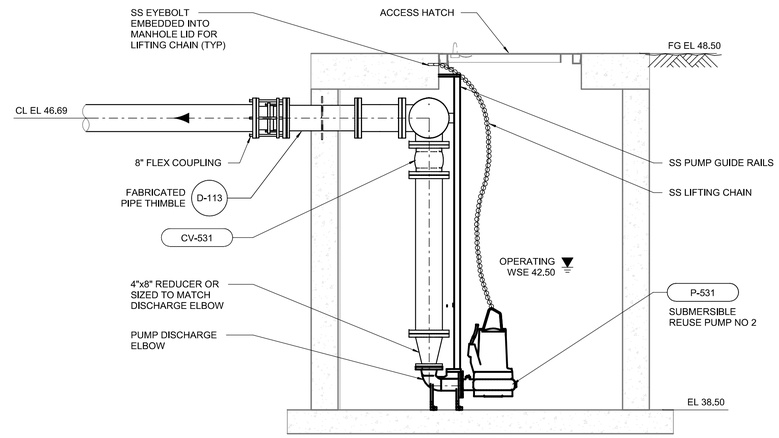


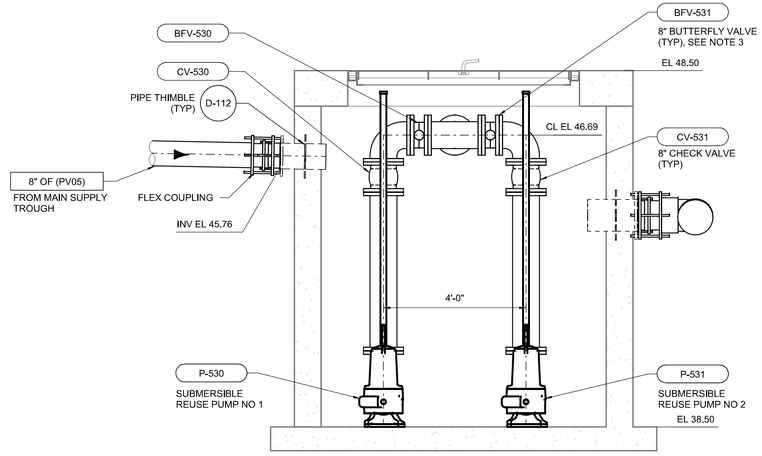
15 / 5M-2 REUSE PUMP STATION PLAN

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



V / - SECTION

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



W / - SECTION

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

GENERAL SHEET NOTES

1. PUMP STATION LID AND HATCH SHALL BE INSTALLED FLUSH WITH SURROUNDING GRADE AND HS-20 RATED.
2. FOR DRAIN PIPE CONNECTIONS TO WET WELL, CORE DRILL OPENINGS AND PROVIDE KOR-N-SEAL BOOT, OR EQUIVALENT, COMPATIBLE WITH THE PIPE.
3. PROVIDE BUTTERFLY VALVES WITH MANUAL HANDWHEEL FACING THE ACCESS HATCH.
4. MOUNT PUMP CONTROL PANEL ALONG INCUBATION BUILDING EXTERIOR WALL. SEE P&IDS FOR INSTRUMENTS AND ALARMS ASSOCIATED WITH PUMPS AND WET WELL.

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27

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TAYLOR EDWARD WHITBECK — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by Whitbeck, David
Date: 2025.02.11 17:57:07-08'00'

Consultant

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Tulalip, WA

File Name: N/A	PP Dwn.	DEW Dsgn.	SWW Chkd.	2024.12.27 YYYY.MM.DD

Title
INCUBATION BUILDING INCUBATION REUSE PUMP STATION PLAN AND SECTIONS

Project No.	Scale
224202267	1/2" = 1'-0"
Revision	Drawing No.
	5M-11

1/14/2025 11:12:24 AM

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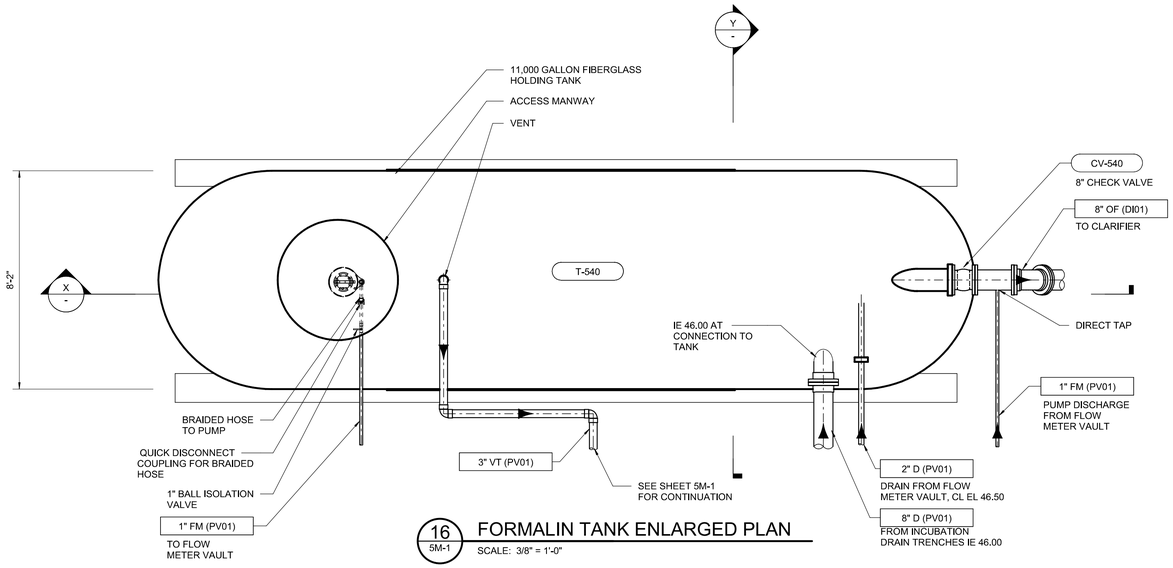
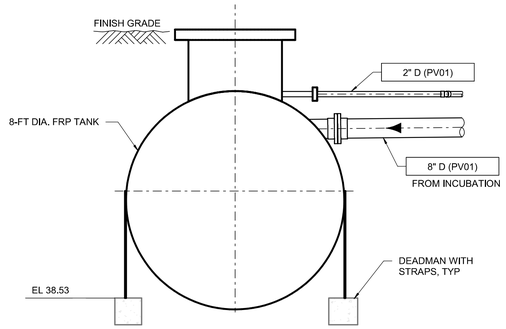


16 5M-1 **FORMALIN TANK ENLARGED PLAN**

SCALE: 3/8" = 1'-0"

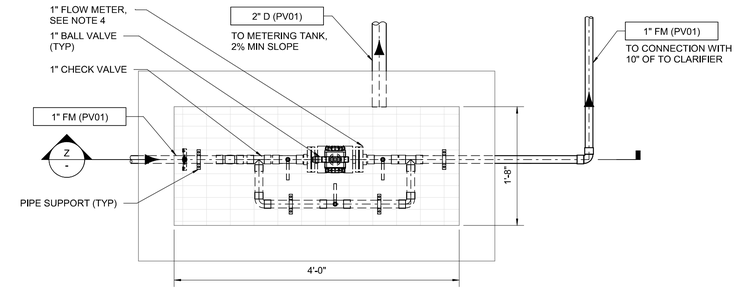


Y - **SECTION**

SCALE: 3/8" = 1'-0"

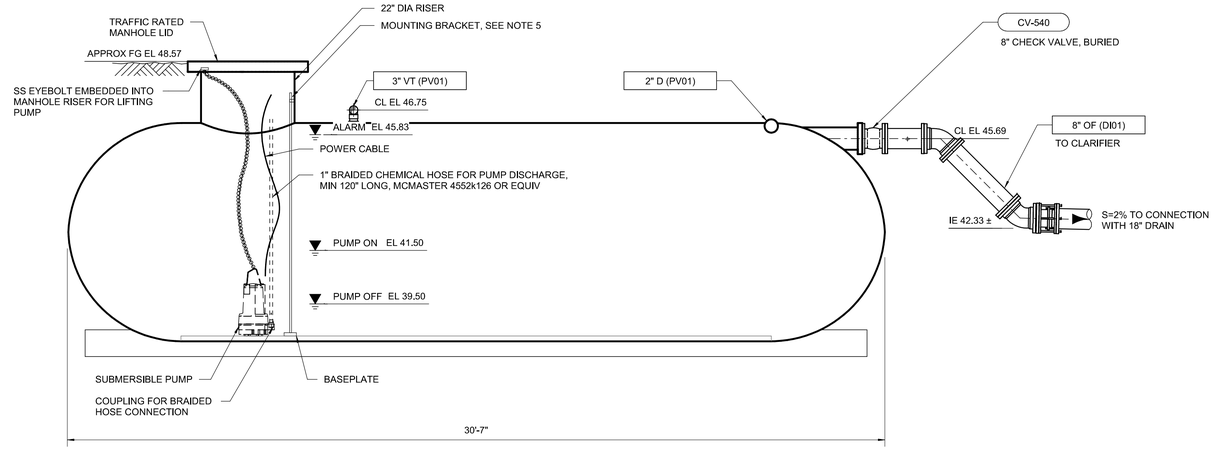
GENERAL SHEET NOTES

1. SEE SECTION 33 16 00 FRP STORAGE TANK FOR ADDITIONAL REQUIREMENTS.
2. COORDINATE ALL PIPING CONNECTIONS WITH TANK SUPPLIER.
3. THE INTENT IS FOR THE PUMP TO BE REMOVABLE THROUGH THE ACCESS MANWAY WITHOUT HAVING TO ENTER THE TANK. PROVIDE EYEBOLT FOR REMOVAL CHAIN, BRAIDED HOSE WITH COMPATIBLE FITTINGS, AND RATED RECEPTACLE FOR DISCONNECTION OF POWER CABLE.
4. PROVIDE REMOTE MOUNTED TRANSMITTER LOCATED ALONG BUILDING WALL NEAR VAULT.
5. PROVIDE STAINLESS STEEL MOUNTING BRACKET FOR LEVEL INDICATOR AND LOW LEVEL LOAT SWITCH, SEE SHEET 5I-2. COORDINATE MOUNTING LOCATIONS WITH FRP STORAGE TANK SUPPLIER.



17 5M-1 **FLOW METER VAULT**

SCALE: 1" = 1'-0"



X - **SECTION**

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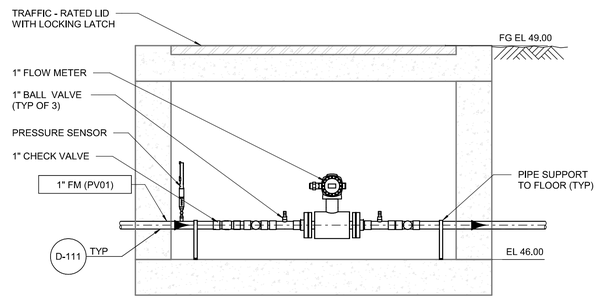

Z - **SECTION**

SCALE: 1" = 1'-0"

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27

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DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 21046 — REGISTERED PROFESSIONAL ENGINEER

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Consultant

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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

PP	DEW	SWW	2024.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
INCUBATION BUILDING
FORMALIN METERING TANK PLAN & SECTIONS

Project No. 224202267

Scale As indicated

Revision

Drawing No. **5M-12**

1/14/2025 11:12:24 AM

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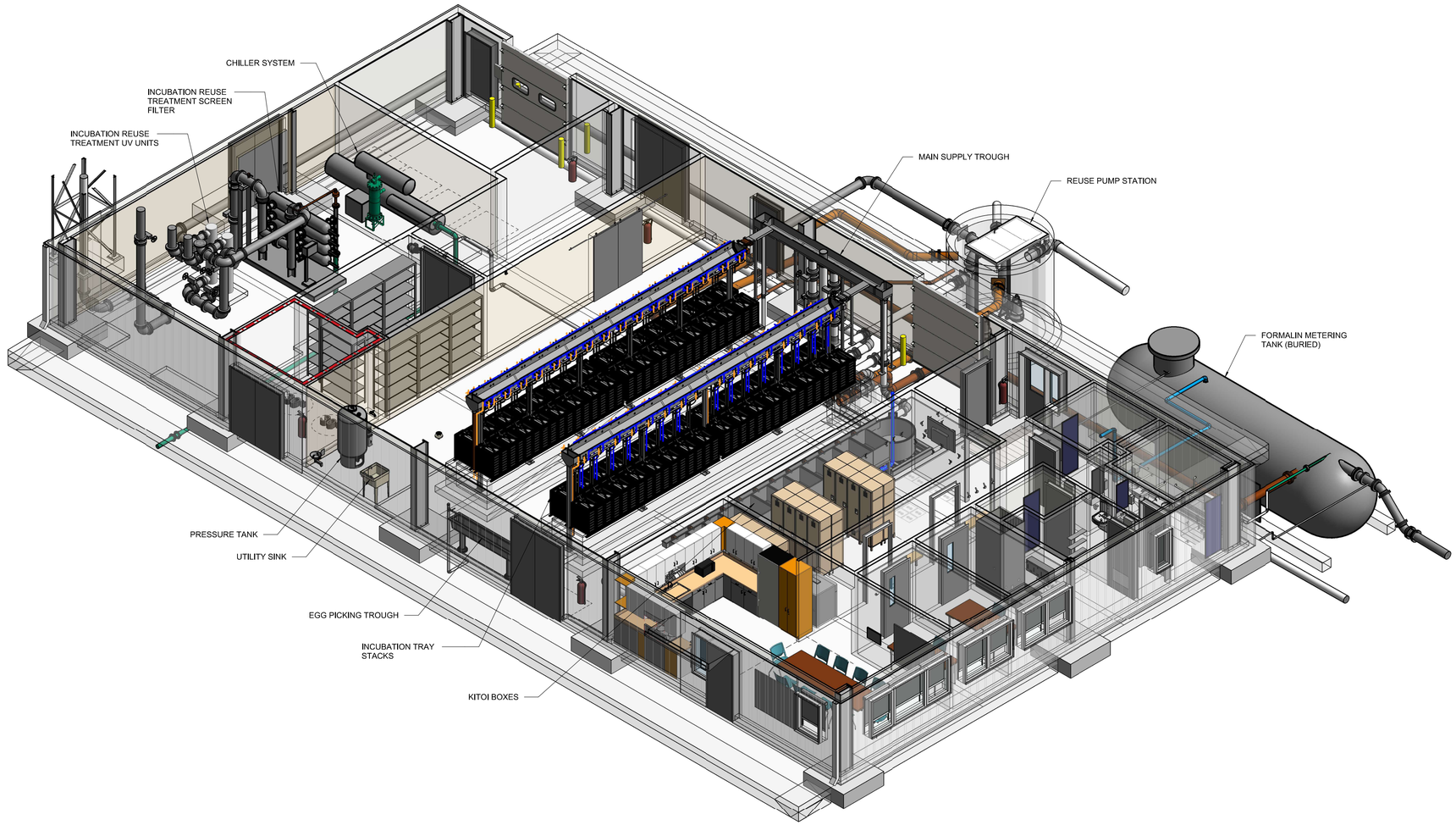

3D ISOMETRIC VIEW

NO SCALE

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27
Issued	By	Appd	YYYY.MM.DD

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Tulalip, WA

File Name: N/A

STN	DEW	SWW	2024.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title

INCUBATION BUILDING PROCESS ISOMETRIC VIEW

Project No. 224202267

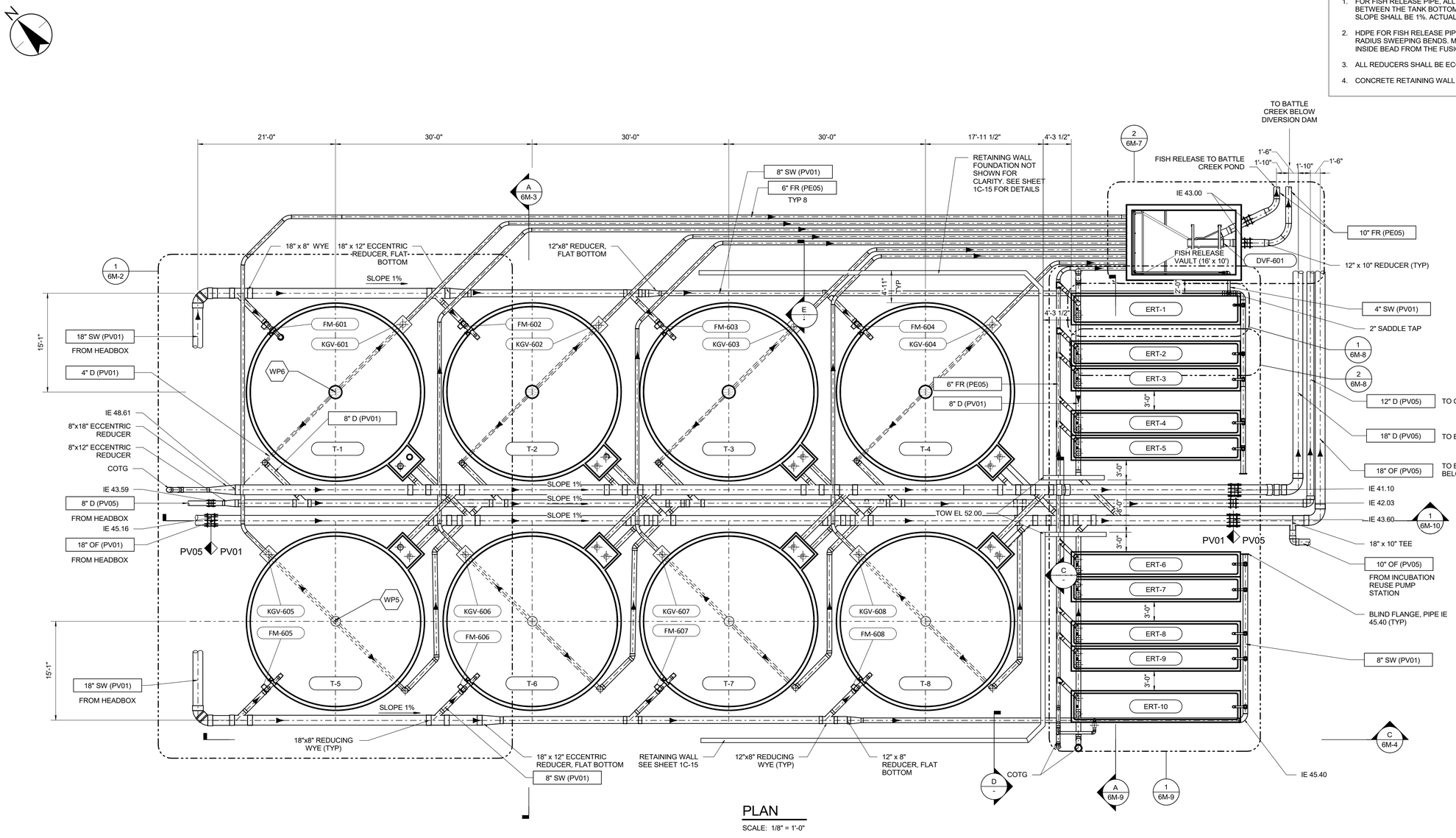
Scale NO SCALE

Revision

Drawing No. **5M-13**

GENERAL SHEET NOTES:

1. FOR FISH RELEASE PIPE, ALL PIPES SHALL BE INSTALLED WITH CONSTANT SLOPE BETWEEN THE TANK BOTTOM OUTLET AND THE FISH RELEASE VAULT. MINIMUM SLOPE SHALL BE 1%. ACTUAL SLOPE VARIES BY TANK.
2. HDPE FOR FISH RELEASE PIPE SHALL BE INSTALLED ENTIRELY WITH LONG-RADIUS SWEEPING BENDS. MITERED OR COMPACT ELBOWS ARE NOT ALLOWED. INSIDE BEAD FROM THE FUSION PROCESS SHALL BE REMOVED.
3. ALL REDUCERS SHALL BE ECCENTRIC WITH FLAT TOP UNO.
4. CONCRETE RETAINING WALL AND FOUNDATION PER DETAILS 1C-15.



PLAN

SCALE: 1/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26

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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

MCM	MDV	DEW	2026.02.26
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
REARING TANKS LAYOUT PLAN

Project No. 25-128
Scale 1/8" = 1'-0"
Revision
Drawing No. 6M-1

3/10/2026 10:45:46 PM
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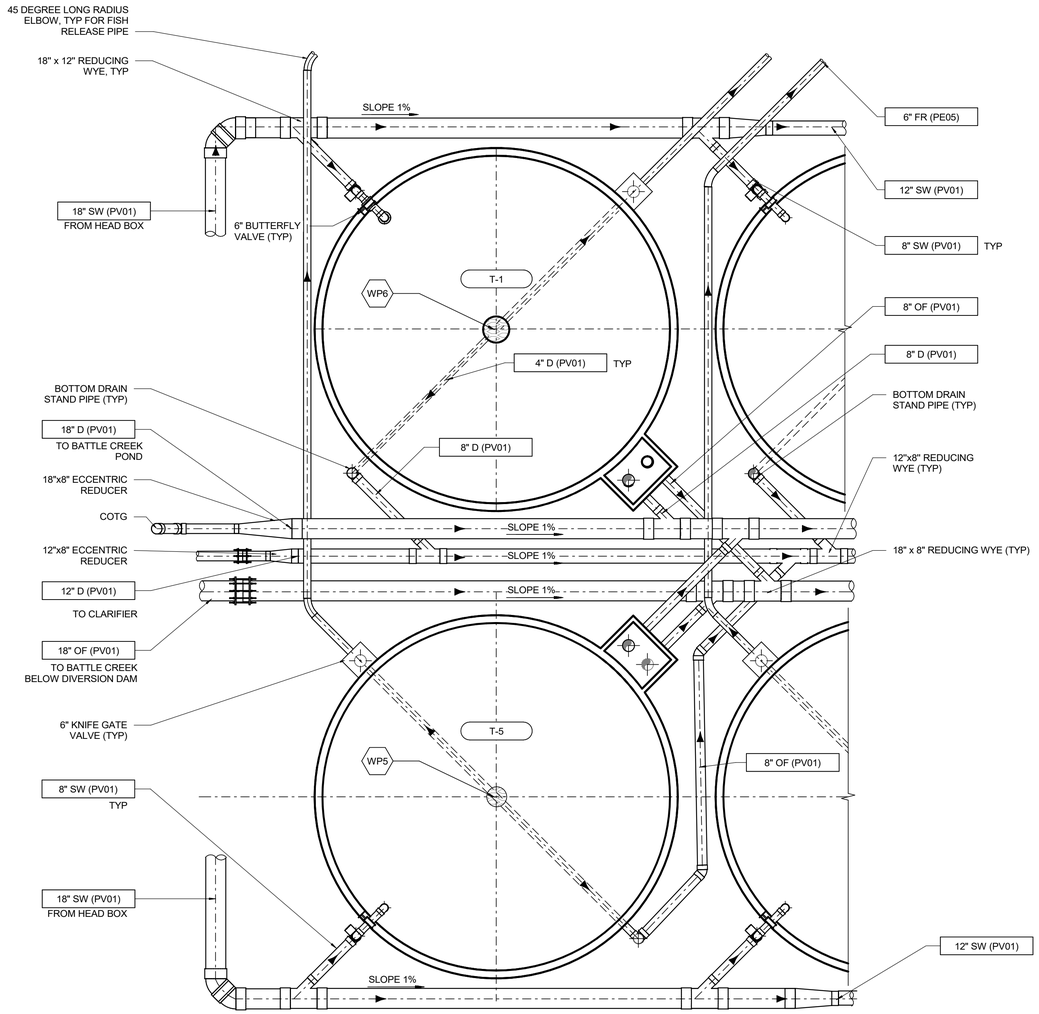
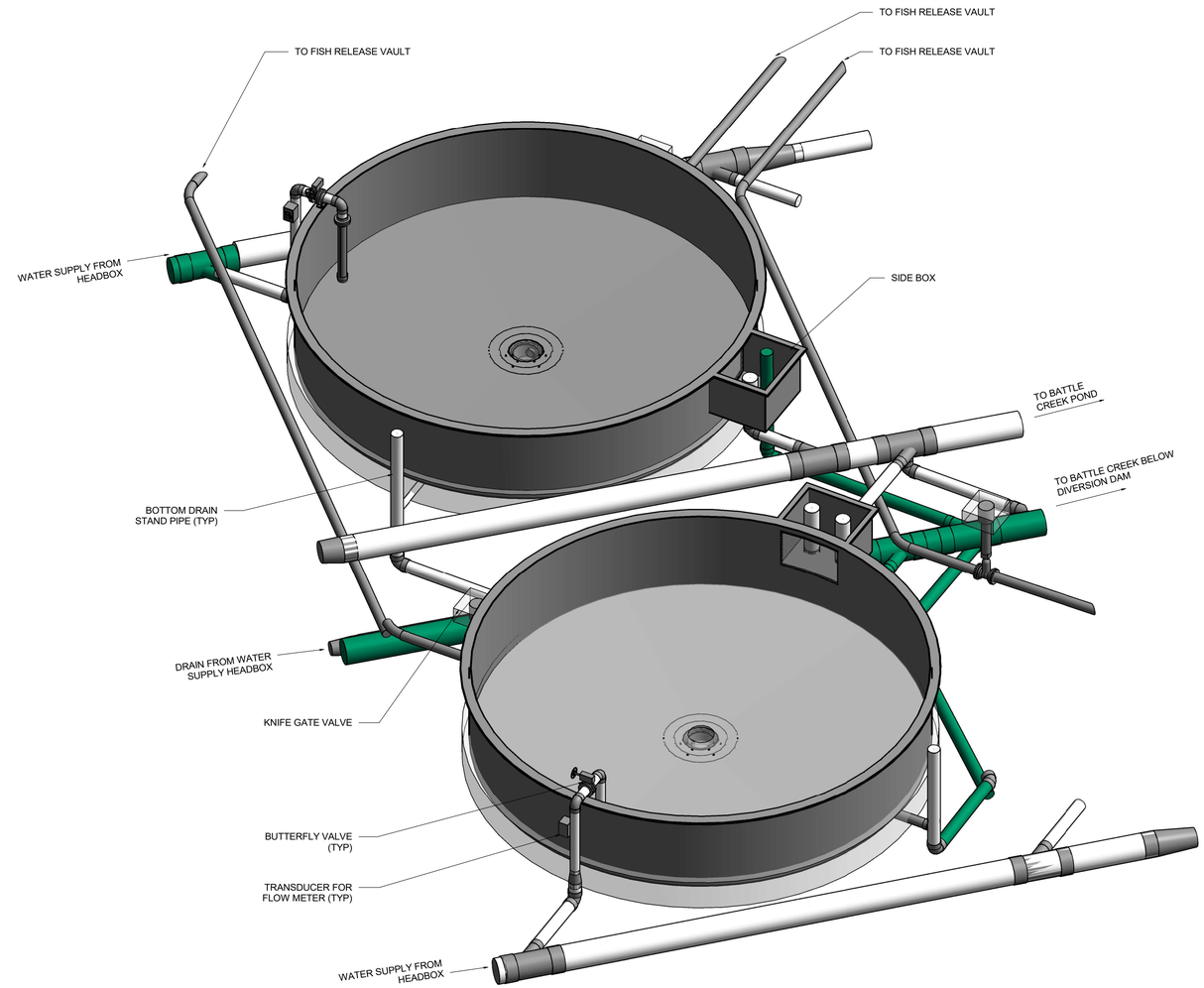


1 6M-1 ENLARGED PLAN
SCALE: 3/16" = 1'-0"



2 ISOMETRIC VIEW
SCALE:

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

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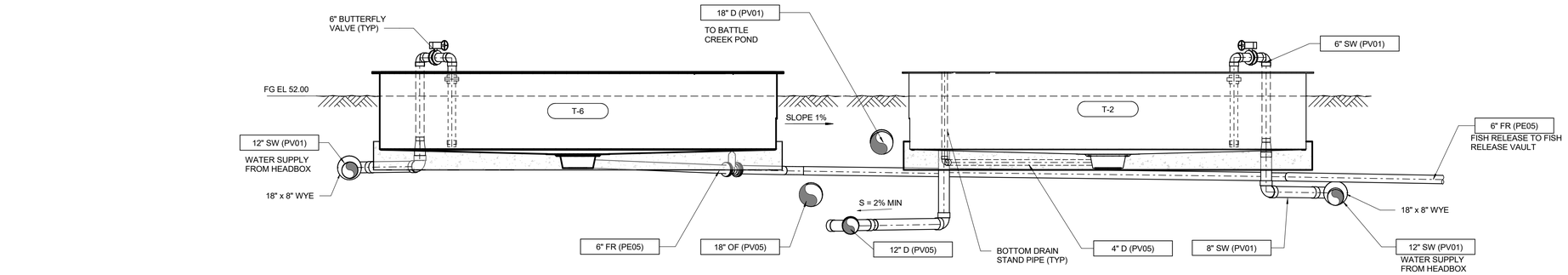
BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
REARING TANKS PIPING PLAN - I

Project No. 25-128
Scale 3/16" = 1'-0"
Revision
Drawing No. 6M-2



A 6M-1 SECTION

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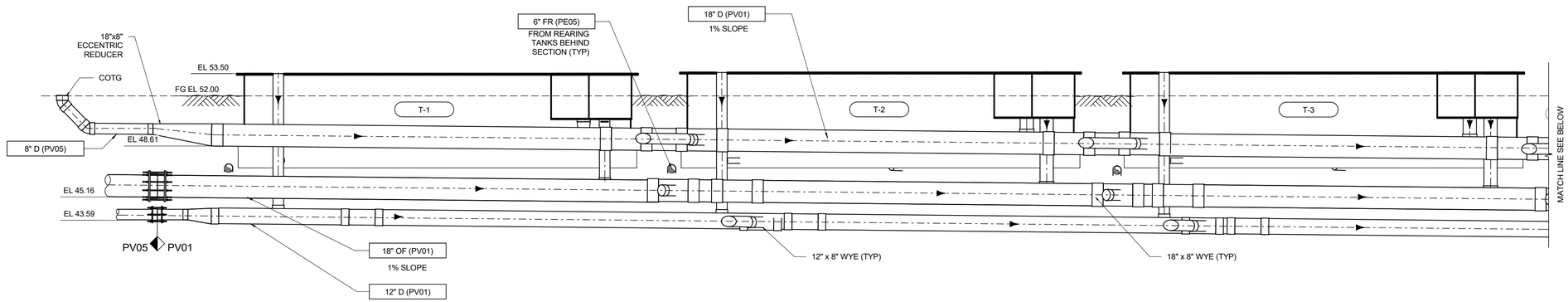

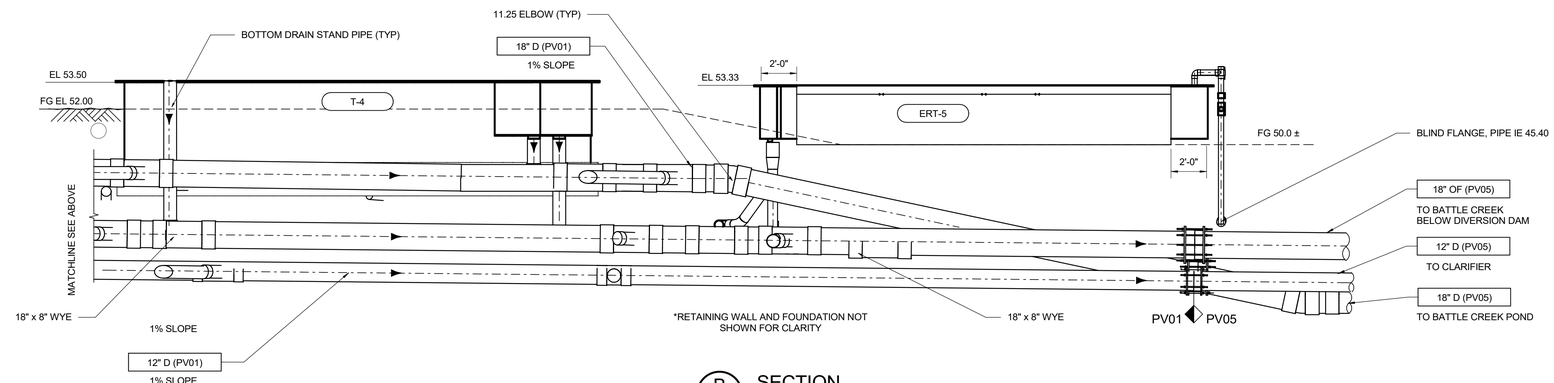

B X6M-9 SECTION

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

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

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Tulalip, WA

File Name: N/A

MCM	MDV	DEW	2026.02.26
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title

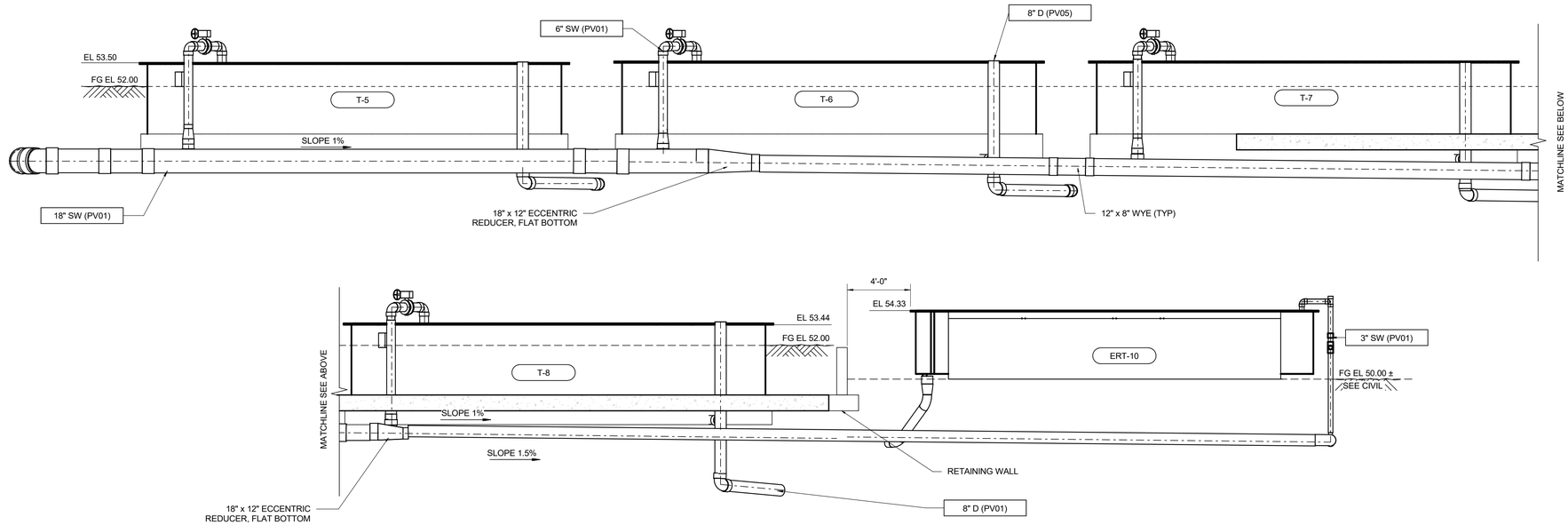
REARING TANK SECTIONS - I

Project No. 25-128

Scale 1/4" = 1'-0"

Revision

Drawing No. **6M-3**



C 6M-1 **SECTION**

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

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

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Tulalip, WA

File Name: N/A

MCM	MDV	DEW	2026.02.26
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title

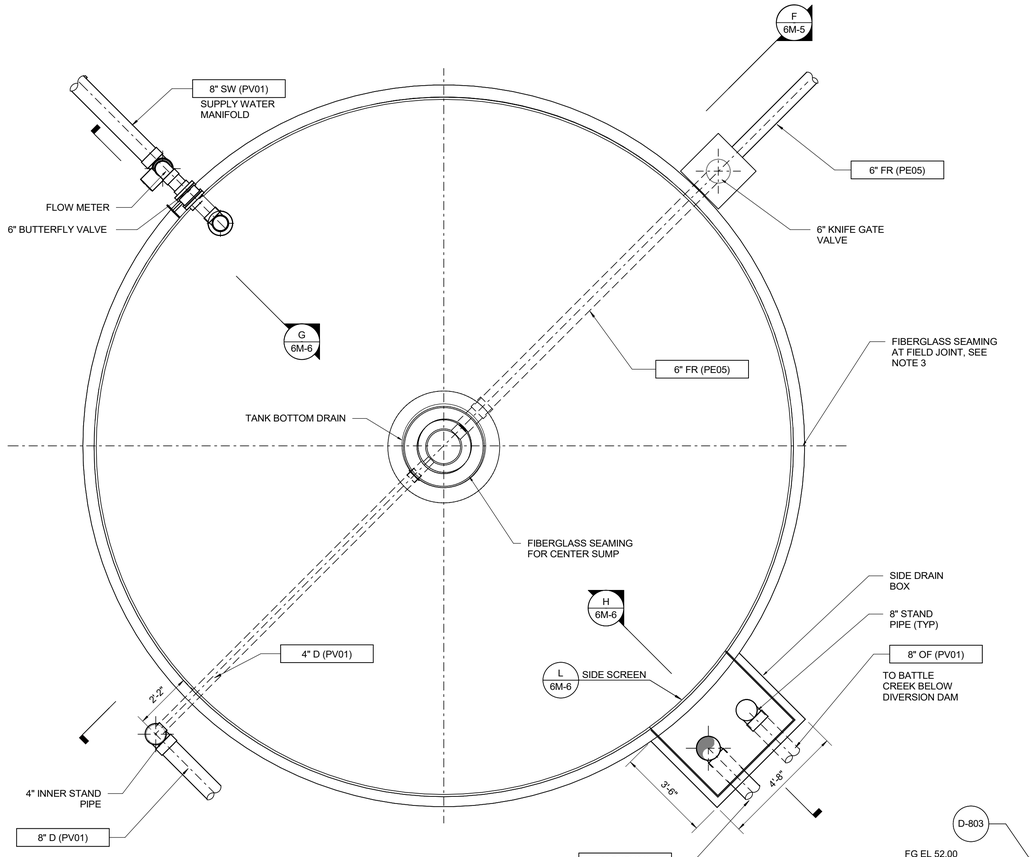
REARING TANK SECTIONS - II

Project No. 25-128

Scale 1/4" = 1'-0"

Revision

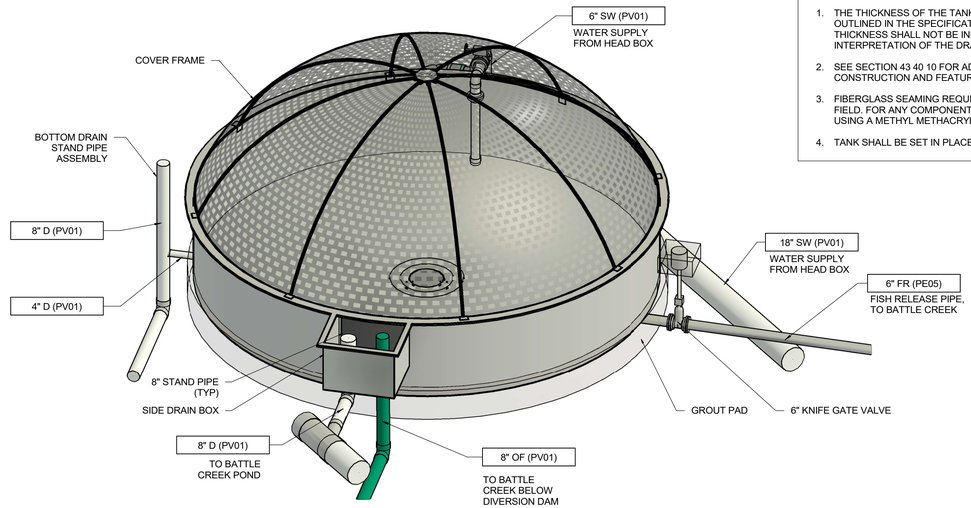
Drawing No. **6M-4**



ENLARGED PLAN

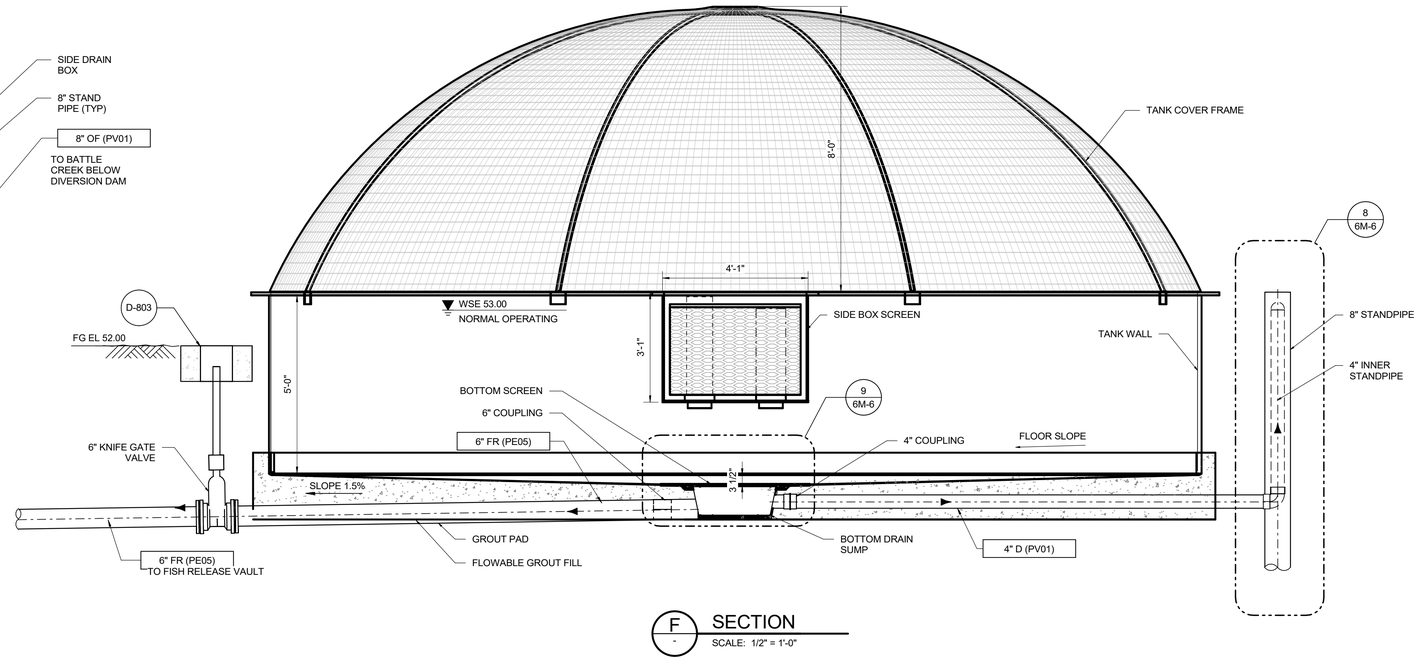
SCALE: 3/8" = 1'-0"

NOTE: TANK COVER NOT SHOWN FOR CLARITY



ISOMETRIC VIEW

NO SCALE



F SECTION

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

GENERAL SHEET NOTES:

1. THE THICKNESS OF THE TANK WALL SHALL MEET THE PERFORMANCE CRITERIA OUTLINED IN THE SPECIFICATIONS, AND SHALL BE VERIFIED BY TESTING. THE THICKNESS SHALL NOT BE INFERRED BY SCALING OR ANY OTHER INTERPRETATION OF THE DRAWINGS.
2. SEE SECTION 43 40 10 FOR ADDITIONAL REQUIREMENTS FOR TANK CONSTRUCTION AND FEATURES.
3. FIBERGLASS SEAMING REQUIRED FOR ALL COMPONENTS CONNECTED IN THE FIELD. FOR ANY COMPONENTS PERMANANTELY CONNECTED IN THE FIELD, BOND USING A METHYL METHACRYLATE ADHESIVE.
4. TANK SHALL BE SET IN PLACE AND LEVELED, THEN GROUT FILL ADDED.

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

3/10/2026 10:41:34 PM

ORIGINAL SHEET - ANSI D

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BATTLE CREEK HATCHERY

Tulalip, WA

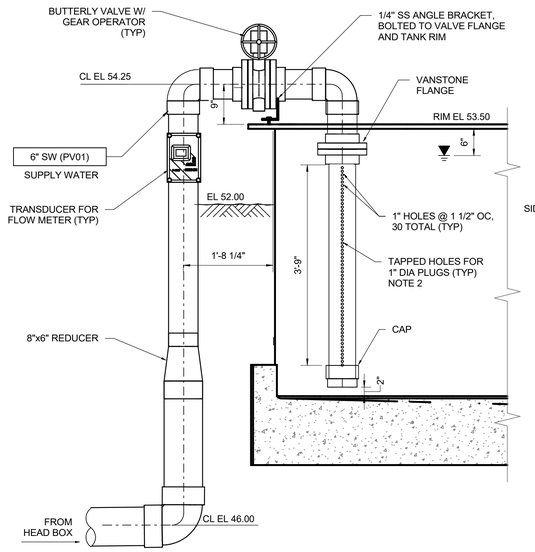
File Name: N/A | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
REARING TANK DETAILS - I

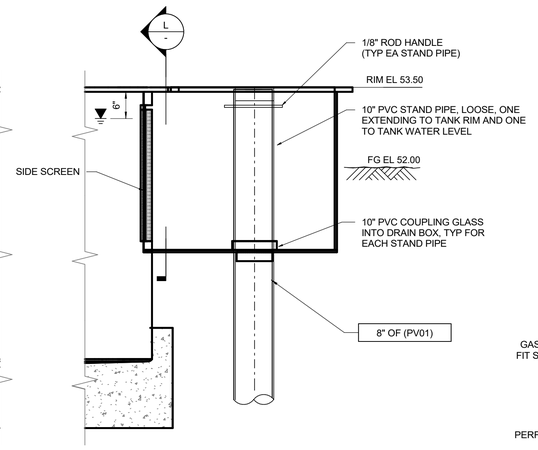
Project No. 25-128
Scale As indicated
Revision
Drawing No. 6M-5

GENERAL SHEET NOTES:

1. FOR PROPER SEALING OF THE BOTTOM SCREEN AT THE TANK FLOOR, DRAIN SUMP SHALL BE FABRICATED WITH THE BOTTOM SCEEN AS A UNIT AND ATTACHED TO THE TANK BOTTOM IN THE FIELD. TANK SUPPLIER SHALL SHOP TEST THE BOTTOM SCREEN, AND GASKET TO VERIFY FLUSH MOUNT FIT AND PROPER ALIGNMENT.
2. DRILL AND TAP SUPPLY PIPE FOR 1" PLUGS AT 1.5" O .C.
3. MESH COVERS SHALL CONSIST OF 70% SHADE CLOTH WITH 300# LEAD LINE.



G 6M-5 **SECTION**
SCALE: 3/4" = 1'-0"



H 6M-5 **SECTION**
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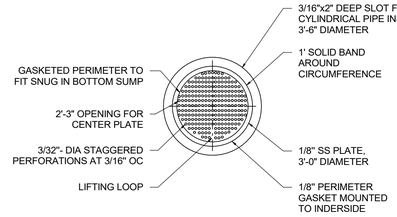

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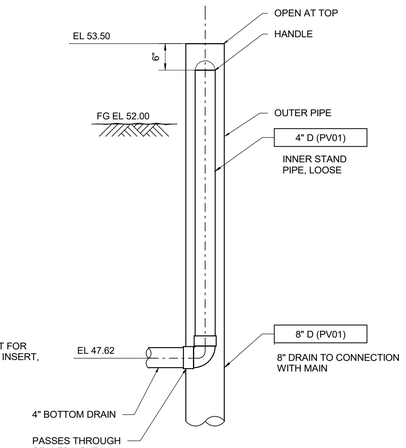

8 6M-5 **DETAIL**
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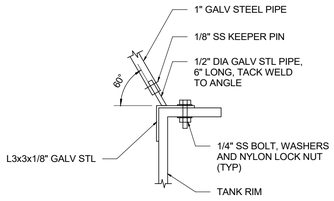
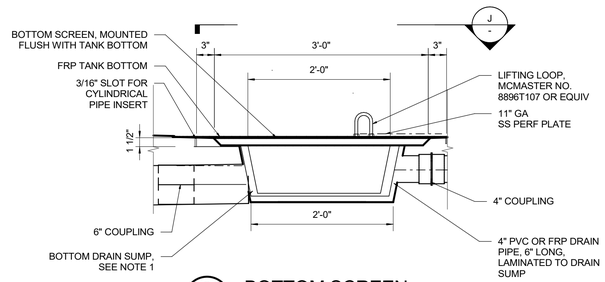
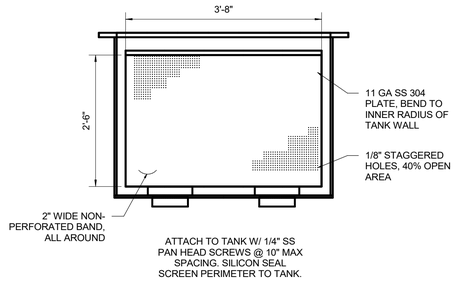


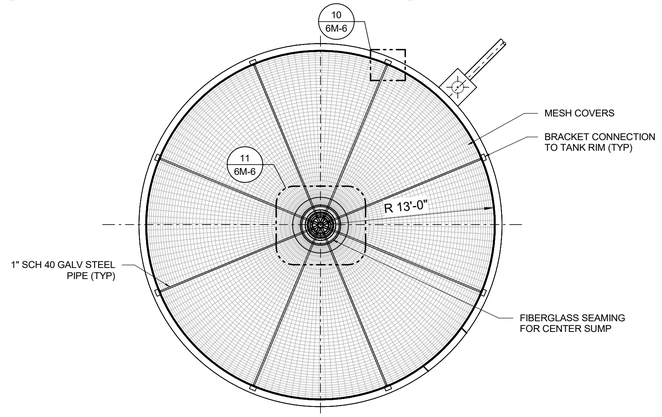
K - **SECTION**
SCALE: 1 1/2" = 1'-0"



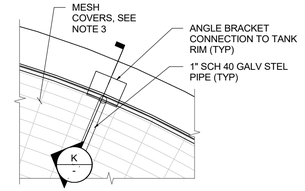
9 6M-5 **BOTTOM SCREEN**
SCALE: 1" = 1'-0"



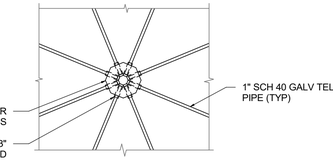
L - **SIDE SCREEN**
SCALE: 3/4" = 1'-0"



TANK COVER PLAN
SCALE: 3/16" = 1'-0"



10 6M-6 **DETAIL**
SCALE: 1" = 1'-0"



11 - **DETAIL**
SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

Permit/Seal

DAVID EDWARD WHEELER — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

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Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

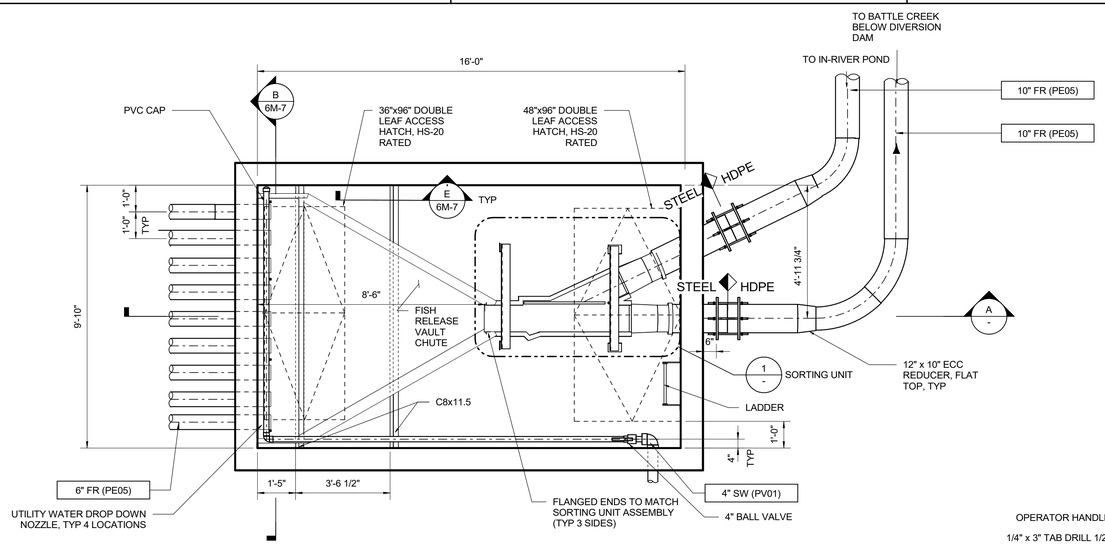
Tulalip, WA

File Name: N/A | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
REARING TANK DETAILS - II

Project No. 25-128
Scale As indicated
Revision
Drawing No. **6M-6**

3/10/2026, 10:41:45 PM
ORIGINAL SHEET - ANSI D

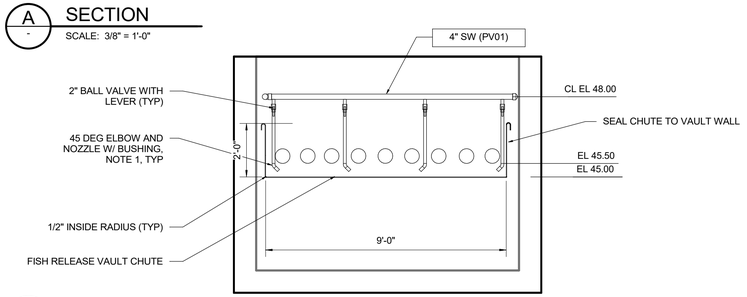


2 6M-1 FISH RELEASE VAULT PLAN

SCALE: 3/8" = 1'-0"

A - SECTION

SCALE: 3/8" = 1'-0"



B - SECTION

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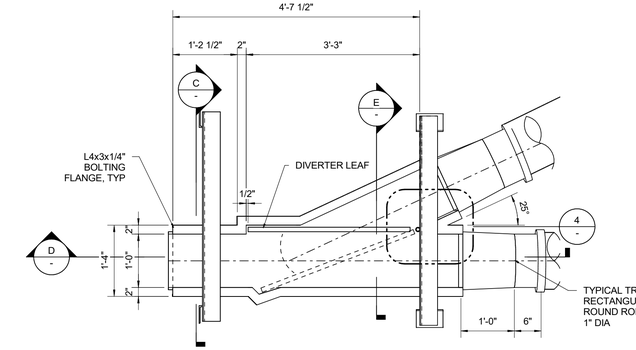
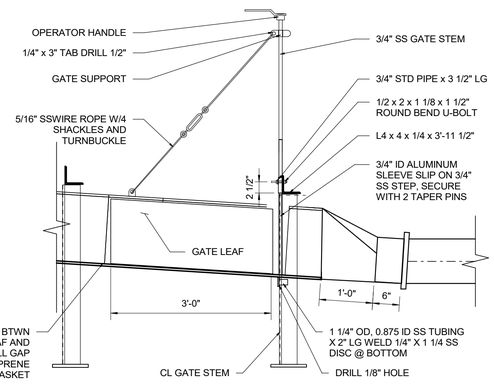


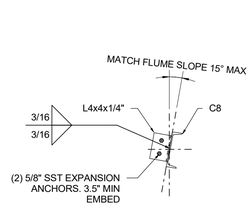
1 - SORTING UNIT (DVF-601)

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



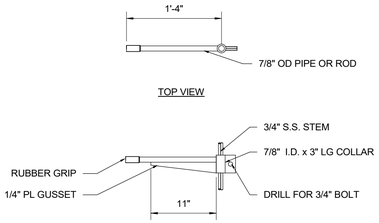
D - SECTION

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



E - SECTION

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

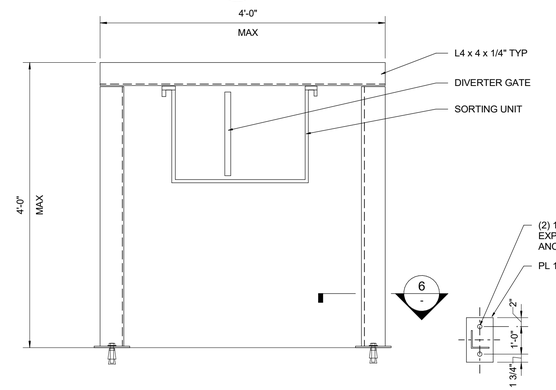


5 - OPERATING HANDLE DETAIL

SCALE: 1" = 1'-0"

3 - DETAIL

SCALE: 1" = 1'-0"

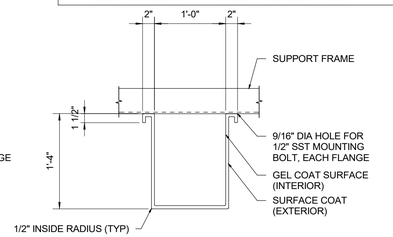


F - SECTION

SCALE: 1" = 1'-0"

4 - TOP VIEW

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



C - SECTION

SCALE: 1" = 1'-0"

6 - DETAIL

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

GENERAL SHEET NOTES:

1. NOZZLES FOR UTILITY WATER SHALL BE BRASS NOZZLES WITH 40 DEGREE SPRAY ANGLE, RATED FOR 15.0 GPM @ 40 PSI, SPRAY SYSTEMS VEEJET H-U CAPACITY SIZE 150 OR EQUIV. NOZZLES SHALL BE SCREWED INTO A PVC REDUCER BUSHING COMPATIBLE WITH BOTH NOZZLE AND THREADED 1" ELBOW.
2. FABRICATOR TO PROVIDE AN OPERATOR HANDLE EXTENSION THAT WOULD ALLOW THE DIVERTOR GATE TO BE TURNED WITHOUT HAVING TO ENTER THE VAULT.
3. FISH RELEASE VAULT SHALL BE INSTALLED FLUSH WITH SURROUNDING ASPHALT. SEE CIVIL SHEETS FOR FINISHED GRADE ELEVATIONS.

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26

Permit/Seal

DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

Digitally signed by David Whitbeck
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Consultant

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Client/Project Logo

TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A	MCM	MDV	DEW	2026.02.26
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
FISH RELEASE VAULT, PLAN, SECTIONS, AND DETAILS

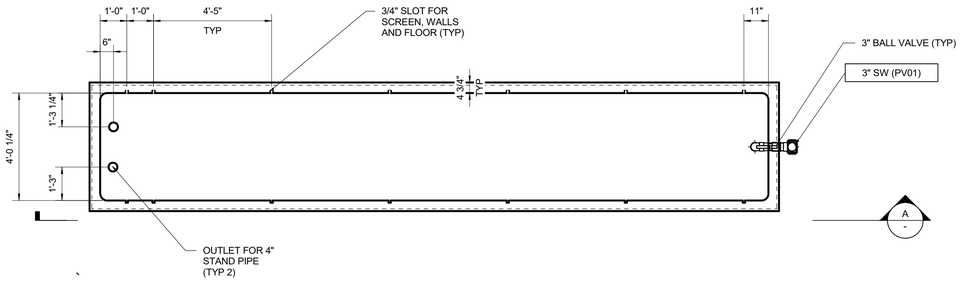
Project No.	Scale
25-128	As indicated
Revision	Drawing No.
	6M-7

4/27/2026 4:41:13 PM
ORIGINAL SHEET - ANSI D

Exhibit D.1 Page 116 of 220

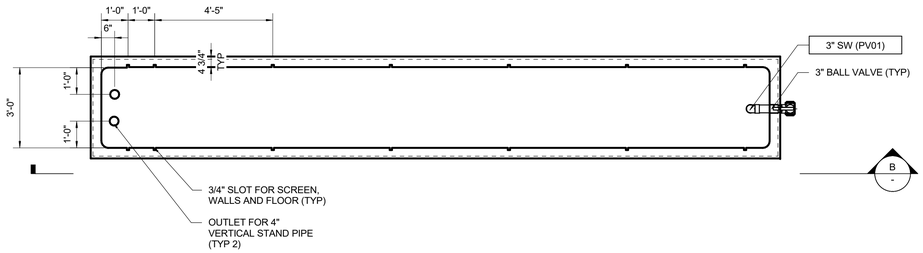
GENERAL SHEET NOTES:

1. SEE SPEC SECTION 06 80 00 FOR ADDITIONAL REQUIREMENTS FOR FRP EARLY REARING TROUGHS.
2. PROVIDE SCREENS FOR THE GUIDE SLOTS, 7 TOTAL PER TROUGH. SCREENS SHALL BE PERFORATED PLATE WITH 1/8" DIAMETER HOLES AT 3/16" OC (40% OPEN AREA). SCREENS SHALL BE FABRICATED FROM 1/8"-THICK PLATE, ALUM ALLOY NO. 5052, AND SHALL BE BANDED AROUND THE PERIMETER. ALL EDGES AND CORNERS SHALL BE GROUND SMOOTH.



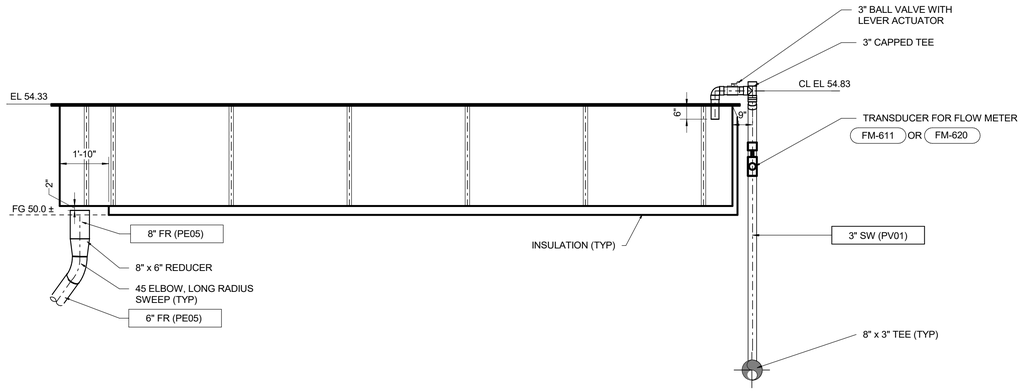
1 / 6M-1 EARLY REARING TROUGH (4' x 4' x 25'), ERT-1 AND ERT-10

SCALE: 3/8" = 1'-0"



2 / 6M-1 EARLY REARING TROUGH (3' X 3' X 25'), ERT-2 THRU ERT-9

SCALE: 3/8" = 1'-0"



A / - SECTION

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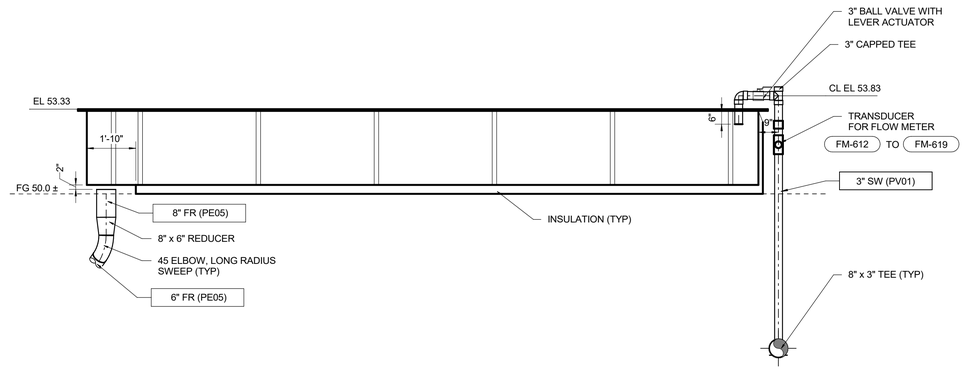

B / - SECTION

SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26

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DAVID EDWARD WILLIAMSON — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

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Client/Project

TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

MCM	MDV	DEW	2026.02.26
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title

TROUGH SECTIONS

Project No. 25-128

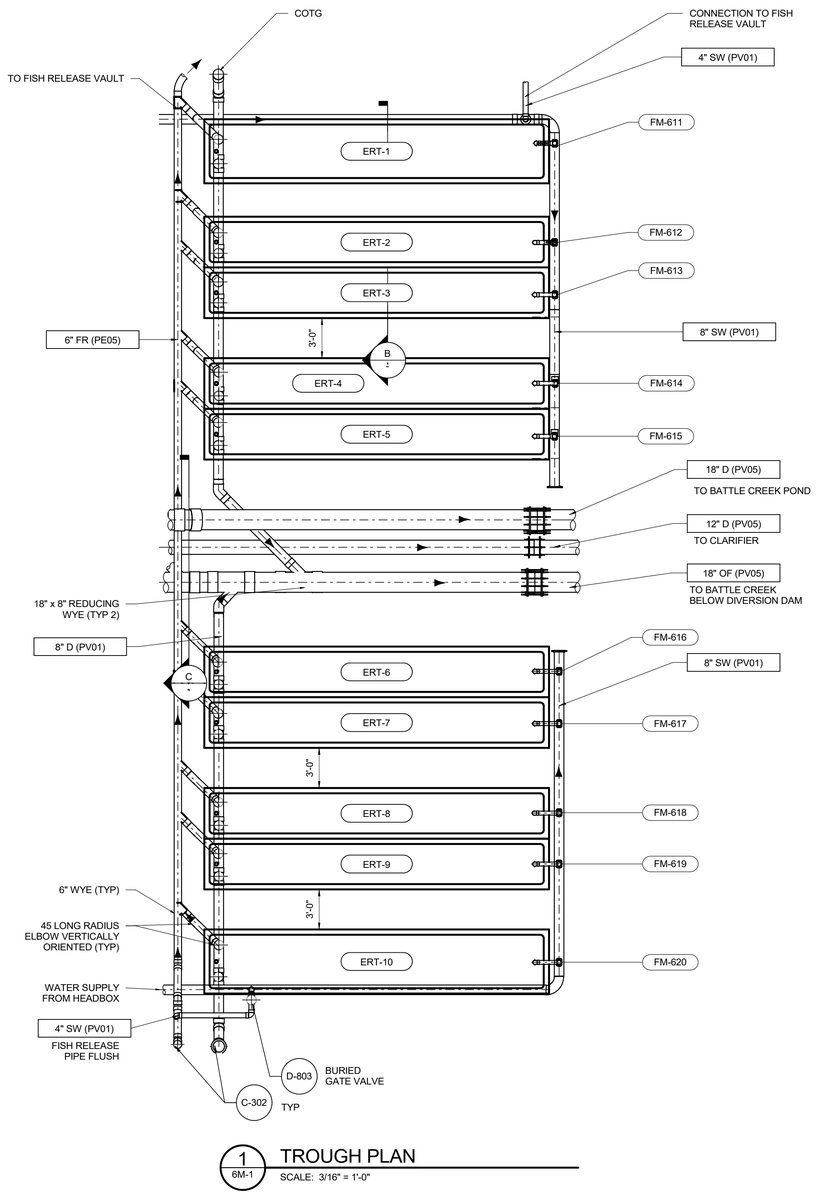
Scale 3/8" = 1'-0"

Revision

Drawing No. **6M-8**

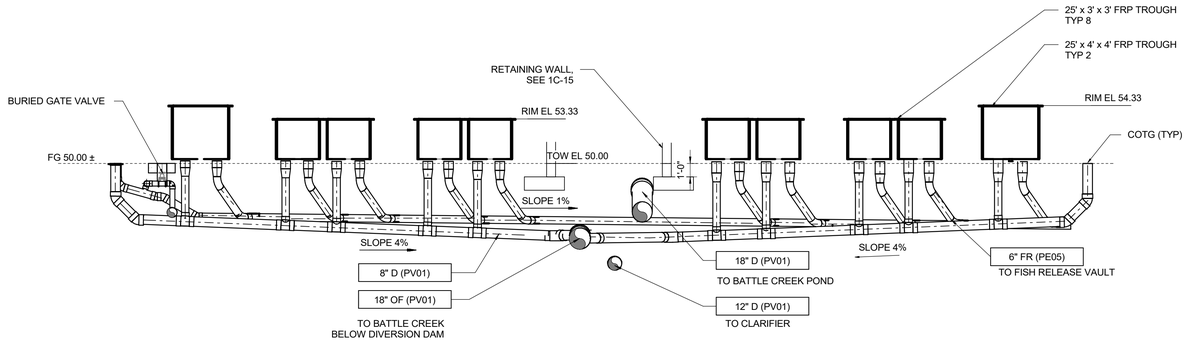
3/10/2026 10:41:42 PM

ORIGINAL SHEET - ANSI D



1 / 6M-1 **TROUGH PLAN**

SCALE: 3/16" = 1'-0"



A / 6M-1 **SECTION**

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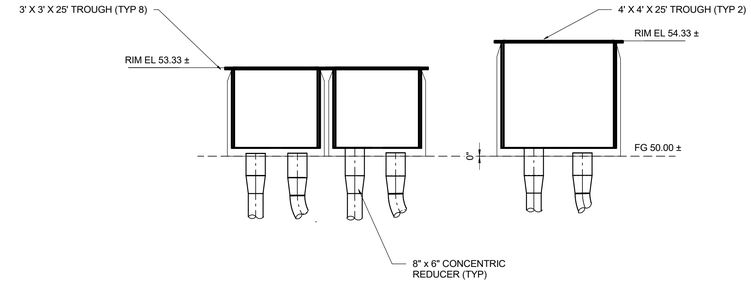

B / - **SECTION**

SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	MCM	DEW	2026.02.26
Issued	By	Appd	YYYY.MM.DD

3/10/2026 10:41:44 PM

ORIGINAL SHEET - ANSI D

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TULALIP TRIBES

BATTLE CREEK HATCHERY

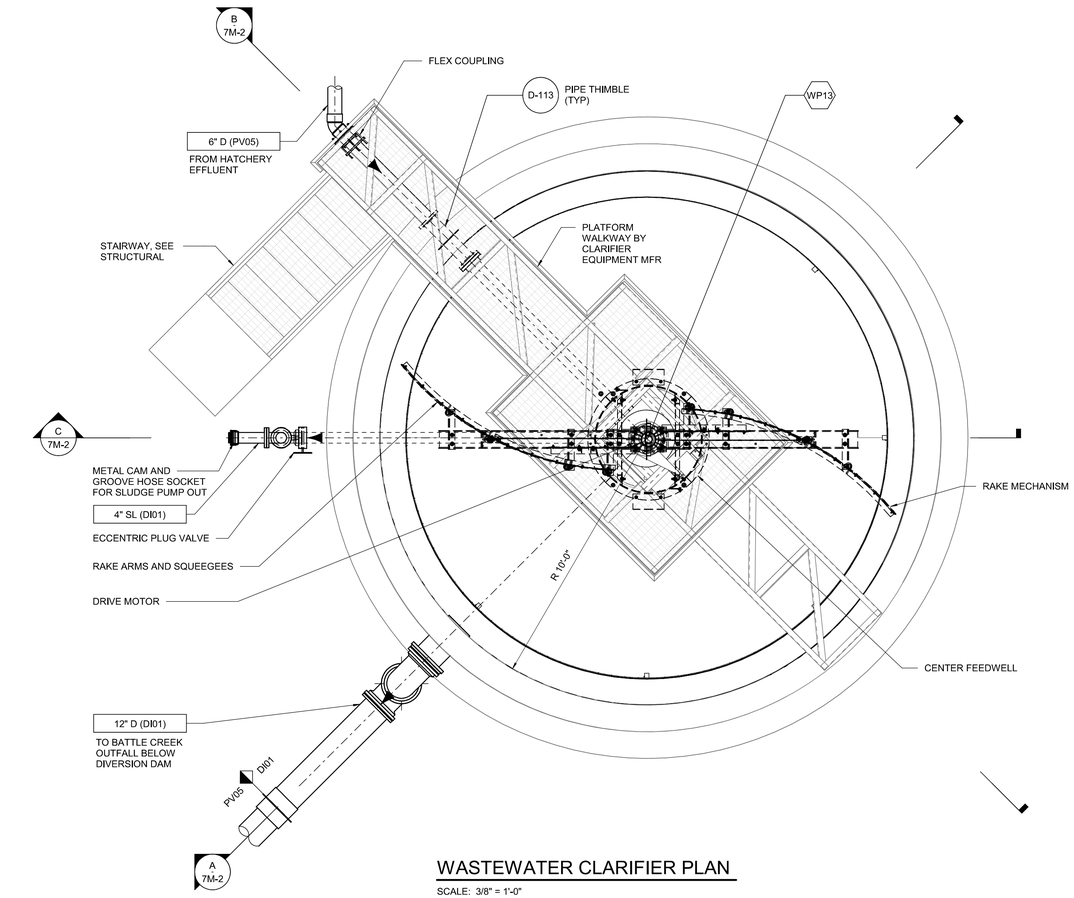
Tulalip, WA

File Name: N/A	PP	DEW	SWW	2024.12.27
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title

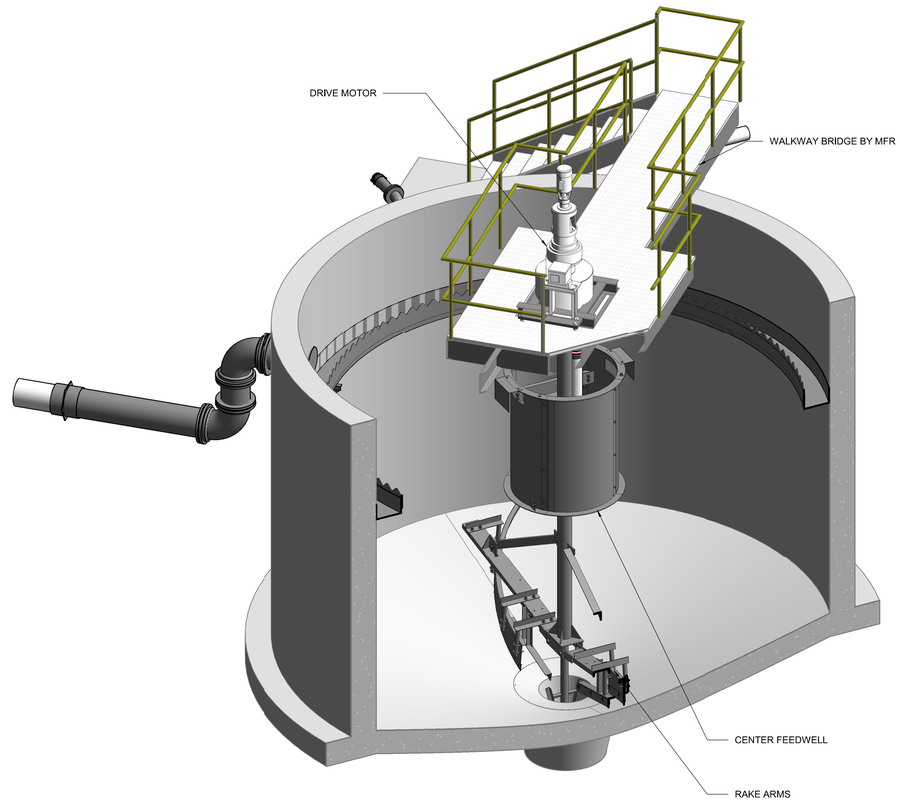
TROUGH LAYOUT

Project No.	Scale
25-128	As indicated
Revision	Drawing No.
	6M-9



WASTEWATER CLARIFIER PLAN

SCALE: 3/8" = 1'-0"



3D VIEW

NO SCALE

Revision	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27
Issued	By	Appd	YYYY.MM.DD

1/9/2025 4:53:54 PM

ORIGINAL SHEET - ANSI D

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TAYLOR EDWARD WHITBECK — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

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Consultant

Stantec

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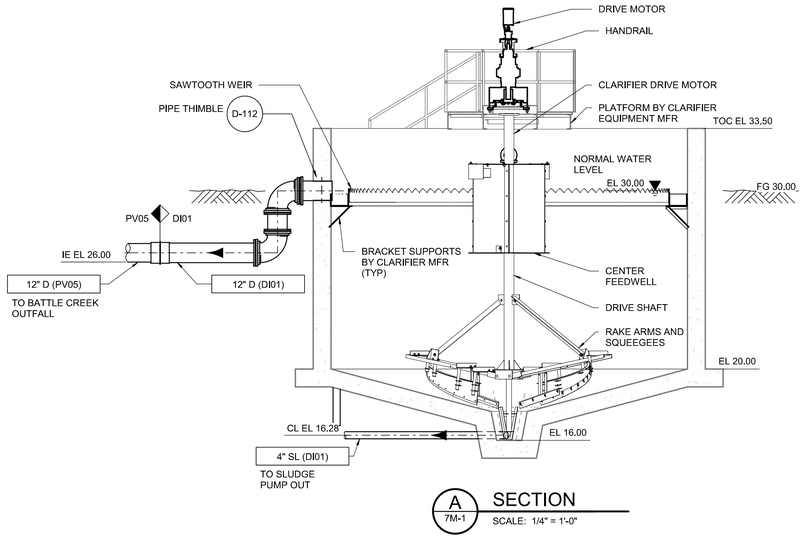
Tulalip, WA

File Name: N/A	PP	DEW	SWW	2024.12.27
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title

WASTEWATER CLARIFIER MECHANICAL PLAN

Project No.	Scale
224202267	3/8" = 1'-0"
Revision	Drawing No.
	7M-1



A 7M-1 SECTION
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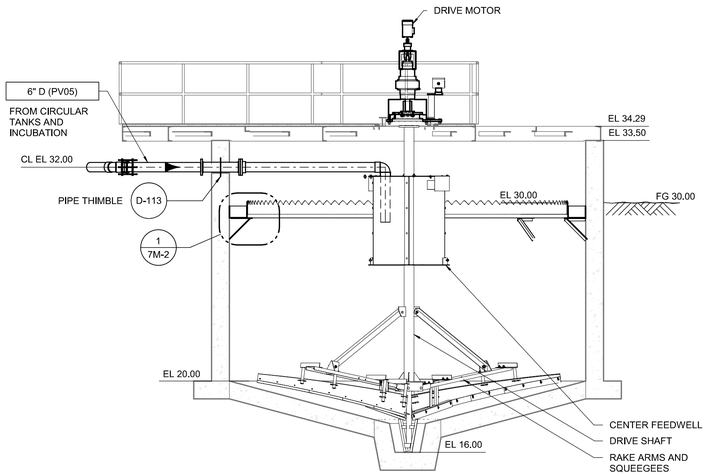

B 7M-1 SECTION
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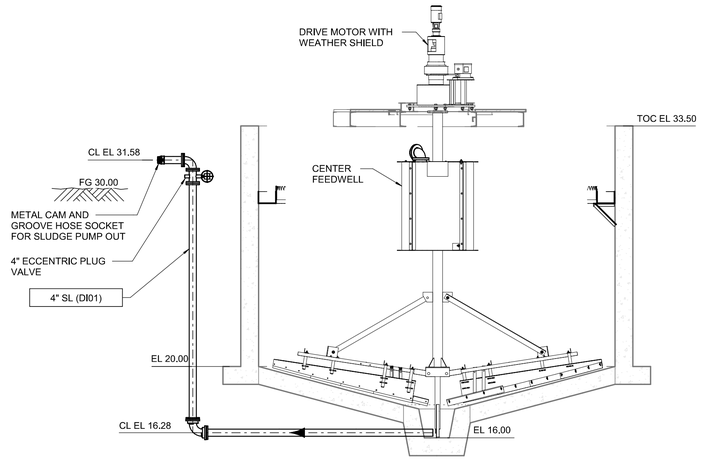

C 7M-1 SECTION
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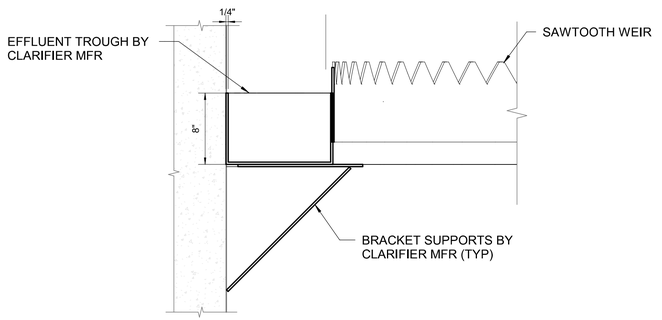

1 7M-2 DETAIL
NO SCALE

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27

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Consultant

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BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A	PP	DEW	SWW	2024.12.27
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
WASTEWATER CLARIFIER MECHANICAL SECTIONS

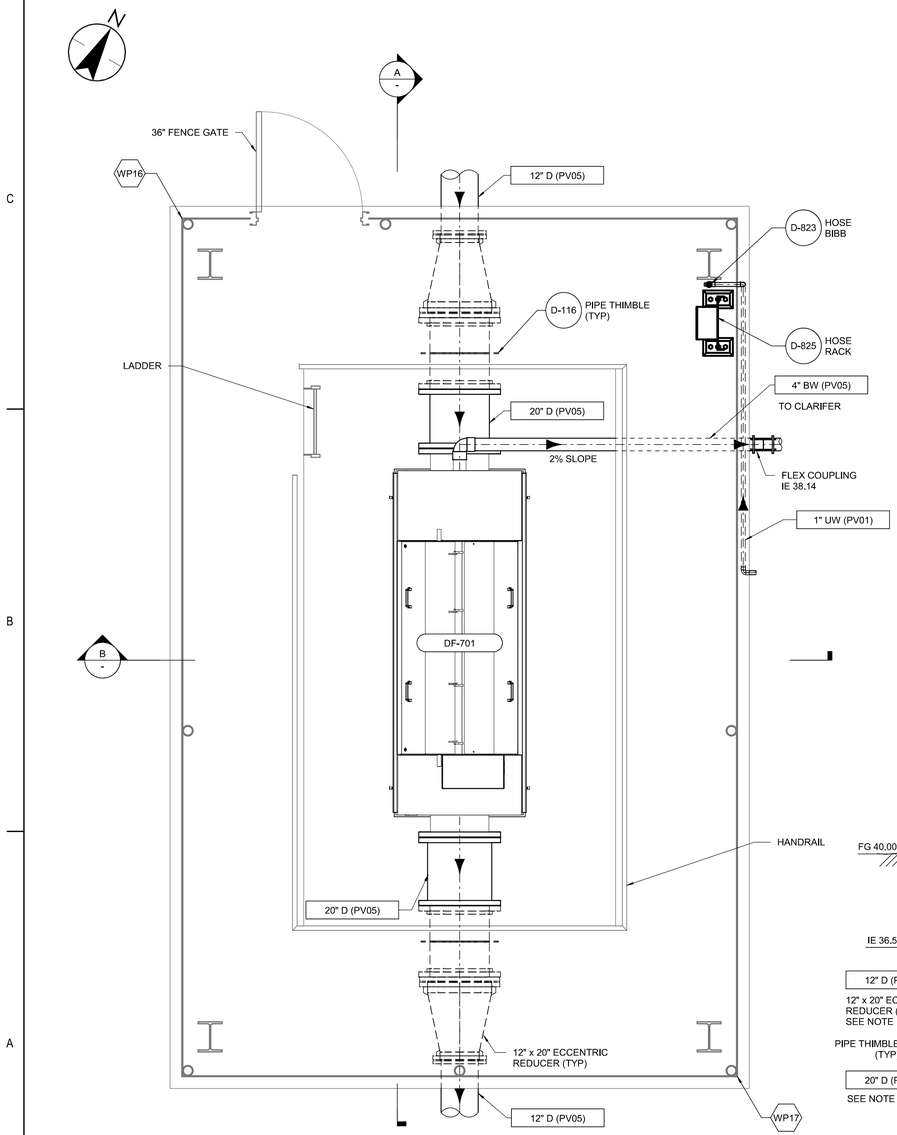
Project No.	Scale
224202267	As indicated
Revision	Drawing No.
	7M-2

1/9/2025 4:53:37 PM

ORIGINAL SHEET - ANSI D

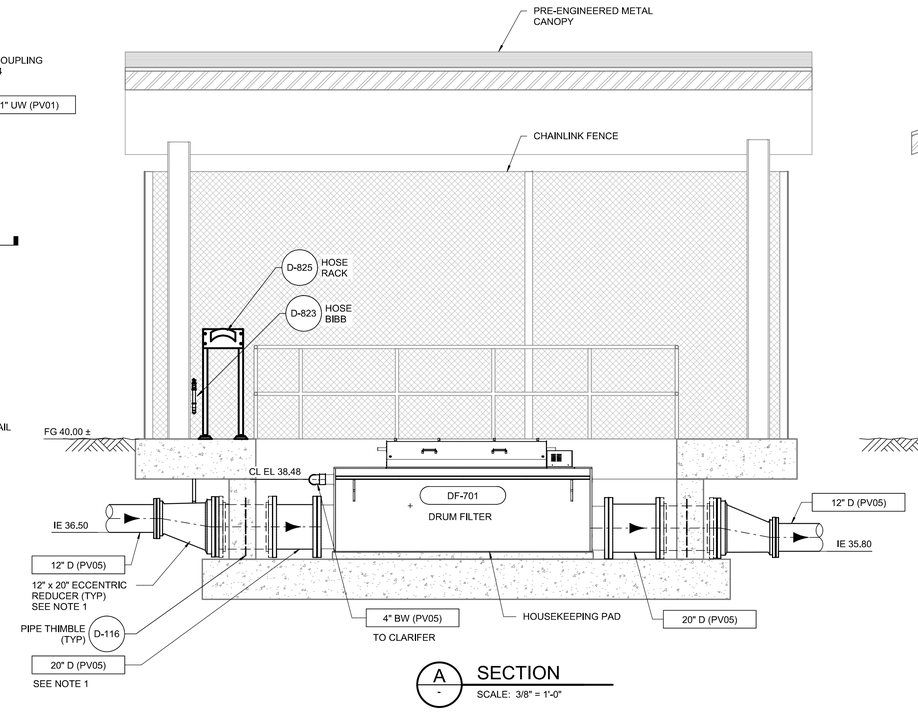
GENERAL SHEET NOTES

1. CONTRACTOR TO COORDINATE SIZE OF THE REDUCERS AND PIPING TO MATCH APPROVED DRUM FILTER.



PLAN

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



A SECTION

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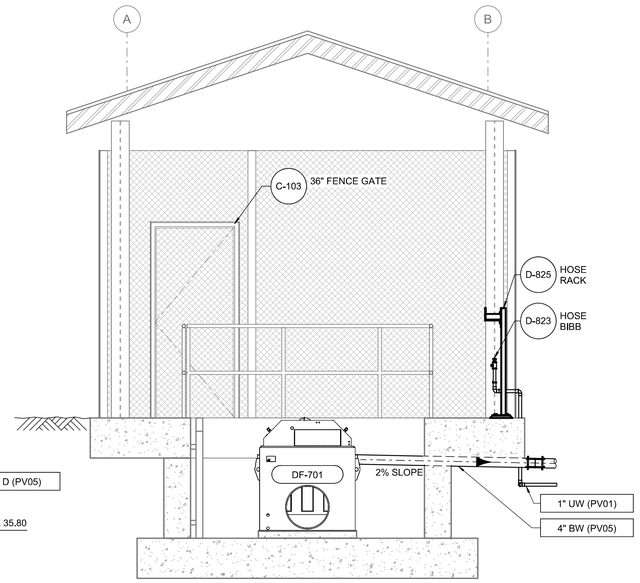

B SECTION

SCALE: 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	STN	DEW	2024.12.27

1/14/2025 11:41:28 AM

ORIGINAL SHEET - ANSI D

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DAVID EDWARD WHITLOCK — STATE OF WASHINGTON — 27046 — REGISTERED PROFESSIONAL ENGINEER

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Consultant

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TULALIP TRIBES

BATTLE CREEK HATCHERY

Tulalip, WA

File Name: N/A

Dl	MDS	SWW	2024.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title

EFFLUENT DRUM FILTER
PLAN AND SECTIONS

Project No. 224202267

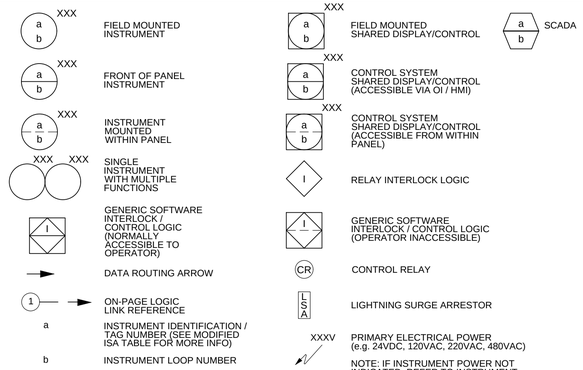
Scale: As indicated

Revision

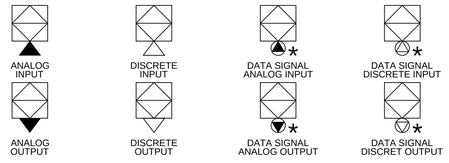
Drawing No. **7M-3**

INSTRUMENTATION CALL - OUT

INSTRUMENT SYMBOLS

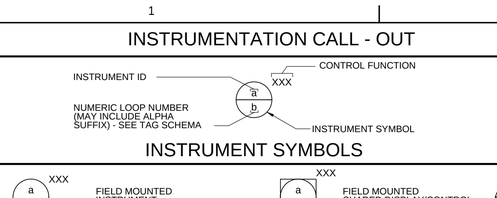


PLC / REMOTE I/O POINTS



* FIELD NETWORK INTERFACE. SEE SPECIFICATION FOR MORE INFORMATION

COMPUTING OR CONVERTING FUNCTIONS



CONTROL FUNCTION DESIGNATIONS

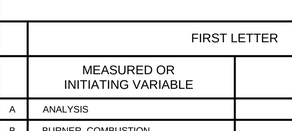
AHC	AUTO / HOLD / CLOSE	MOA	MANUAL / OFF / AUTO	RST	RESET
AM	AUTO / MANUAL	MN	MAINTENANCE / NORMAL	RTD	RESISTANCE TEMPERATURE DETECTOR
AS	AIR SUPPLY	O/C	OPEN / CLOSE	SD	SHUTDOWN
BEAR	BEARING	OCA	OPEN / CLOSE / AUTO	SEL	SELECTOR
CLSD	CLOSED	OL	OVERLOAD	SP	SET POINT
CV	CONTROL VARIABLE	OLH	OFF / LOW / HIGH	S/R	START / RESET
DEV	DEVIATION	O/O	ON / OFF	S/S	START / STOP
E-STOP	EMERGENCY STOP	O/R	OVERRIDE	STR	START
ETM	ELAPSED TIME METER	OOR	OUT OF RANGE	STP	STOP
FOR	FORWARD /OFF /REVERSE	OSC	OPEN / STOP / CLOSE	TMR	TIMER
HML	HIGH / MID / LOW	PID	PROPORTIONAL / INTEGRAL / DERIVATIVE	WIND	WINDING
HOA	HAND / OFF / AUTO	POT	POTENTIOMETER		
HOR	HAND / OFF / REMOTE	PV	PROCESS VARIABLE		
LEAK	MOISTURE INTRUSION	RDY	READY		
LOR	LOCAL / OFF / REMOTE	R/L	RAISE / LOWER		
L/R	LOCAL / REMOTE	RSL	RAISE / STOP / LOWER		
LSR	LOCAL / STOP / REMOTE				

ISA TABLE (MODIFIED)

	FIRST LETTER		SUCCEEDING LETTER(S)		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSED
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			FORWARD
G			GAUGE, GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		ISOLATE	ISOLATOR	
O			ORIFICE, RESTRICTION		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		REVERSE
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	INTRUSION	X AXIS			
Y	EVENT, STATE, OR PRESENCE	Y AXIS		COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

TAG SCHEMA

TYPICAL INSTRUMENT & CONTROL VALVE TAGGING



TYPICAL INSTRUMENT & CONTROL VALVE TAGGING

TIC-1200B – – – INSTRUMENT SCHEDULE (FULL TAG)
TIC – – – – – INSTRUMENT / VALVE ID
1 – – – – – – AREA DESIGNATORS
200 – – – TAG NUMBER
B – – SUFFIX

NOTE: REFER TO GENERAL SHEET GI-2 FOR STANDARD INSTRUMENT & CONTROL VALVE CALLOUTS, AREA DESIGNATORS.

TYPICAL EQUIPMENT TAG FORMAT

TYPICAL EQUIPMENT TAG FORMAT

P-102B – – – EQUIPMENT SCHEDULE (FULL TAG)
P– – – – – – EQUIPMENT ID
1 – – – – – AREA DESIGNATORS
02 – – TAG NUMBER
B – – SUFFIX

NOTE: REFER TO GENERAL SHEET GI-02 FOR STANDARD EQUIPMENT CALLOUTS.

TYPICAL VALVE TAG / SPEC FORMAT

TYPICAL MANUAL VALVE TAG FORMAT

BFV-102B – – – – MANUAL VALVE SCHEDULE (FULL TAG)
BFV– – – – – – VALVE TYPE (KGV, CV)
1 – – – – – AREA DESIGNATORS
02 – – – TAG NUMBER
B – – SUFFIX

NOTE: REFER TO GENERAL SHEET GI-2 FOR STANDARD VALVE CALLOUTS.

EQUIPMENT SKID TAG FORMAT

X-017 – – – SKID TAG
X – – – – – SKID
017 – – – SKID NUMBER

TYPICAL PIPE LINE TAG FORMAT

12-RW (CS08) – – – – PIPE LINE SCHEDULE (FULL TAG)
12 – – – – – – – – – – NOMINAL PIPE DIAMETER
RW – – – – – – – – FLUID CODE
(CS08) – – – – PIPE SPEC

TIE-IN POINT TAG FORMAT

TP-0123 — SPECIFICATION NUMBER
TP – – – – TIE-IN POINT
0123 — TAG NUMBER

NOTE:
1. REFER TO DRAWING GI-2 FOR ANALYTICAL INSTRUMENT DESIGNATIONS.

GENERAL INSTRUMENTATION NOTES

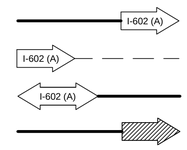
1. THE SYMBOLS AND NOMENCLATURE SHEETS ARE REPRESENTATIVE OF A GENERAL STANDARD. THEREFORE, IT SHOULD BE UNDERSTOOD THAT NOT ALL INFORMATION PRESENTED WILL BE RELEVANT TO THIS PROJECT.
2. ADDITIONAL INSTRUMENTATION AND CONTROL SYMBOLS MAY BE USED ASREQUIRED. SYMBOLS AND NOMENCLATURE WILL BE EITHER BASED ON ISA STANDARD 5.1-INSTRUMENTATION SYMBOLS AND IDENTIFICATION OR DEFINED ELSEWHERE IN THE P&ID SET.
3. SEE ELECTRICAL AND PROJECT GENERAL SHEETS FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS.
4. TO CAPTURE THE COMPLETE PROCESS CONTROL INTENT, THE P&IDS MUST TO BE REVIEWED IN CONJUNCTION WITH THE PROJECT CONTROL PHILOSOPHY (SPEC SECTION 409300), THE PROJECT I/O AND INSTRUMENT SCHEDULES AND OTHER SECTIONS REFERENCED HEREIN.

INSTRUMENTATION LINE SYMBOLOGY

INSTRUMENT LINE DEFINITIONS
(UNLESS SPECIFICALLY NOTED OTHERWISE PER DRAWING LEGEND)

COMMUNICATION LINE DEFINITIONS
(UNLESS SPECIFICALLY NOTED OTHERWISE PER DRAWING LEGEND)

SIGNAL AND PROCESS OFF-PAGE CONNECTORS



NOTE: REFER TO INSTRUMENTATION LINE SYMBOLOGY FOR PROCESS AND LOGIC LINESTYLE DEFINITION.

REV 010119

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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2/12/2025

WARNING
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Client/Project Logo

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 0226GI-1 | Dwn. JM | Dsgn. JS | Chkd. JR | 2024.09.19 YYYY.MM.DD

Title
SYMBOLS & NOMENCLATURE - I

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Sheet of
Drawing No. GI-1

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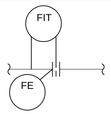
2024.12.04 2:14:19 PM

ORIGINAL SHEET - ANSI D

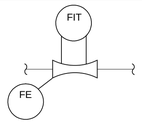
1 2 3 4 5

C B A

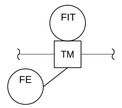
FLOW INSTRUMENTS



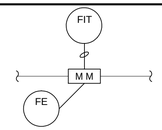
ORIFICE PLATE WITH VENA CONTRACTA, RADIUS, OR PIPE TAPS CONNECTED TO DIFFERENTIAL-PRESSURE -TYPE FLOW TRANSMITTER



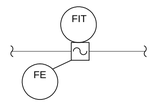
VENTURI TUBE WITH (DIFFERENTIAL PRESSURE) FLOW TRANSMITTER



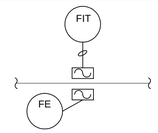
THERMAL MASS FLOW METER



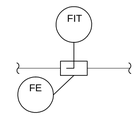
MAGNETIC FLOWMETER WITH REMOTE FLOW TRANSMITTER



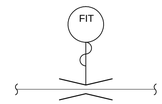
SONIC FLOWMETER DOPPLER OR TRANSIT TIME



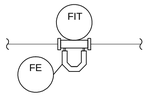
SONIC FLOWMETER CLAMP ON TYPE



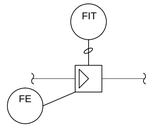
SINGLE PORT PITOT TUBE OR PITOT-VENTURI TUBE



FLUME OR VELOCITY C/W ULTRASONIC FLOW TRANSMITTER

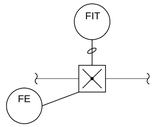


CORIOLIS FLOWMETER

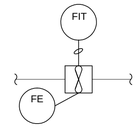


VORTEX FLOW METER

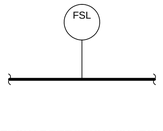
VARIABLE AREA FLOW INDICATOR (ROTAMETER)



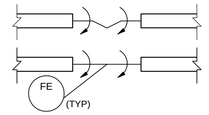
PADDLE WHEEL FLOW METER



TURBINE OR PROPELLER TYPE FLOW METER

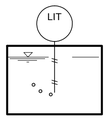


FLOW DETECTION SWITCH THERMAL TYPE

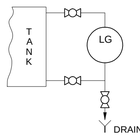


WEIR

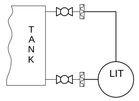
LEVEL INSTRUMENTS



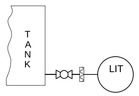
LEVEL TRANSMITTER BUBBLER TYPE



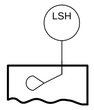
GAUGE GLASS (EXTERNALLY CONNECTED)



LEVEL TRANSMITTER, SEALED DIFFERENTIAL PRESSURE TYPE (MOUNTED ON TANK)

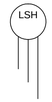


LEVEL TRANSMITTER PRESSURE ACTUATED



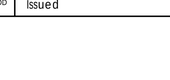
LEVEL DETECTION SWITCH FLOAT ACTUATED TYPE

LEVEL DETECTION SWITCH VIBRATING FORK TYPE



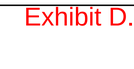
LEVEL DETECTION SWITCH CONDUCTANCE TYPE

LEVEL TRANSMITTER CAPACITANCE OR DIELECTRIC OR RF ADMITTANCE TYPE

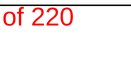


LEVEL TRANSMITTER NON-CONTACTING ULTRASONIC TYPE REMOTE MOUNTED

LEVEL TRANSMITTER HYDROSTATIC TYPE



LEVEL TRANSMITTER NON-CONTACTING RADAR TYPE



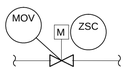
LEVEL TRANSMITTER ULTRASONIC

LEVEL TRANSMITTER RADIOACTIVE OR SONIC TYPE WITH INTEGRAL SENSOR

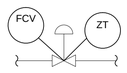
AREA DESIGNATORS

1 - SITE
2 - WELL WATER
3 - SURFACE WATER
4 - HEAD BOX
5 - INCUBATION BUILDING
6 - REARING TANKS
7 - REUSE TREATMENT
8 - ELECTRICAL & INSTRUMENTATION

POSITION INSTRUMENTS



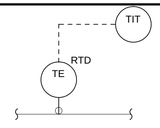
LIMIT SWITCH ON MOTORIZED VALVE INDICATING CLOSED POSITION



VALVE POSITION TRANSMITTER ON PNEUMATIC ACTUATED VALVE

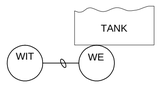
TEMPERATURE INSTRUMENTS

BIMETALLIC TYPE THERMOMETER, GLASS THERMOMETER, OR OTHER LOCAL UNCLASSIFIED TEMPERATURE INDICATOR

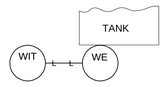


THERMOCOUPLE, RESISTANCE BULB (RTD) OR THERMISTOR (TH) TEMPERATURE TRANSMITTER WITH THERMOWELL

WEIGHT INSTRUMENTS

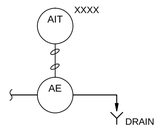


STRAIN GAUGE CONNECTED TO SEPARATE WEIGHT TRANSMITTER (TAG STRAIN GAUGE WE)



HYDRAULIC ACTUATED WEIGHT TRANSMITTER

ANALYTICAL INSTRUMENTS

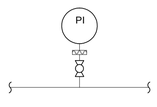


FLOW THROUGH ANALYZING ELEMENT WITH REMOTE TRANSMITTER

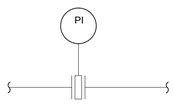
ALK	ALKALINITY
CL_2	CHLORINE CONCENTRATION
COMB	COMBUSTIBLE GAS
COND	CONDUCTIVITY
COD	CHEMICAL OXYGEN DEMAND
DO	DISSOLVED OXYGEN
HC	HYDROCARBON
H_2O_2	HYDROGEN PEROXIDE
H_2S	HYDROGEN SULFIDE
LEL	LOWER EXPLOSIVE LIMIT
NO_3 / NO_2	NITRATE / NITRITE
NH_3 / NH_4	AMMONIA / AMMONIUM
O_2	OXYGEN CONCENTRATION
O_3	OZONE
ORP	OXIDATION - REDUCTION POTENTIAL
PC	PARTICLE COUNTER
pH	HYDROGEN ION CONCENTRATION
SCU	STREAMING CURRENT UNIT
SO	SULFUR DIOXIDE
TH^2	TOTAL HARDNESS
TKN	TOTAL KJELDAHL NITROGEN
TN	TOTAL NITROGEN
TOC	TOTAL ORGANIC CARBON
TURB	TURBIDITY
TSS	TOTAL SUSPENDED SOLIDS
UVI	ULTRA VIOLET INTENSITY
UVT	ULTRA VIOLET TRANSMITTANCE

NOTE : IN THE CASE WHERE MULTIPLE SENSORS ARE TIED TO A SINGLE TRANSMITTER OR IN THE CASE OF GAS DETECTION, THE ANALYTIC CALLOUT WILL BE ASSIGNED TO THE SENSOR.

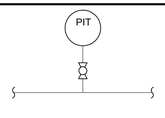
PRESSURE OR VACUUM INSTRUMENTS



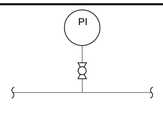
PRESSURE GAUGE WITH DIAPHRAGM SEAL



PRESSURE GAUGE WITH LIQUID FILLED ANNULAR SEAL SYSTEM



PRESSURE INDICATING TRANSMITTER



PRESSURE INDICATOR DIRECT - CONNECTED

REV 010119 REV 010119

0				2022.12.02
Revision	By	Appd		YYYY.MM.DD

0				2022.12.02
Issued	By	Appd		YYYY.MM.DD

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JOHN C. DIEDERICH — STATE OF WASHINGTON — 31294 — REGISTERED PROFESSIONAL ENGINEER

2/12/2025

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 0226GI-2	JM	JS	JR	2024.09.19
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
SYMBOLS & NOMENCLATURE - II

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Sheet of
Drawing No. GI-2

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ORIGINAL SHEET - ANS D

PROCESS ABBREVIATIONS

CHANNEL AGITATION WATER	CAW
MEMBRANE CLEANING CONCENTRATE RETURN	CCR
CHEMICAL DRAIN	CD
CONDENSER WATER RETURN	CDR
CONDENSER WATER SUPPLY	CDS
CHILLED WATER RETURN	CHR
CHILLED WATER SUPPLY	CHS
CORROSION INHIBITOR	CI
CHLORINE (GAS OR LIQUID)	CL
CHLORINE SOLUTION	CLS
CHLORINE GAS UNDER VACUUM	CLV
CENTRATE	CN
CONDENSATE DRAIN	CND
CHEMICAL CONTAINMENT	CP
MEMBRANE CLEANING PERMEATE RETURN	CPR
CIRCULATED SLUDGE	CSL
CITRIC ACID	CTA
CALCIUM THIOSULFATE	CTH
CHLORINATOR VENT AND DETECTION	CV
CHEMICAL DRAIN VENT	CVT
COAGULATED WATER	CW
COOLING WATER RETURN	CWR
COOLING WATER SUPPLY	CWS
DEFOAMING CHEMICAL	DC
DOMESTIC COLD WATER	DCW
DIESEL FUEL OIL	DFO
DEMINERALIZED WATER	DMW
DECANT	DN
DRAIN	DR
DIGESTED SLUDGE	DSL
DOMESTIC HOT WATER RETURN	DWR
DOMESTIC HOT WATER SUPPLY	DWS
ENGINE EXHAUST	EE
ENGINE COOLING WATER RETURN	EWR
ENGINE COOLING WATER SUPPLY	EWS
FOUL AIR	FA
FILTER AIR WASH	FAW
FILTER BACKWASH	FBW
FINAL EFFLUENT	FE
FERRIC CHLORIDE	FEC
FERRIC SULFATE	FES
FILTER INFLUENT	FI
FILTERED WATER	FLW
FORCE MAIN	FM
FUEL OIL RETURN	FOR
FUEL OIL SUPPLY	FOS
FIRE PROTECTION	FP
FROTH	FR
FROTH SPRAY	FS
FILTER SURFACE WASHWATER	FSW
FILTER TO WASTE	FTW
FINISHED WATER	FW
FILTER WASTE WASHWATER	FWW
GRIT	G
GRANULAR ACTIVATED CARBON	GAC
GASEOUS OXYGEN	GOX
HYDROCHLORIC ACID	HCA
HYDROGEN PEROXIDE	HDP
HYDROFLUOSILICIC ACID	HFA
HEATING WATER RETURN	HWR
HEATING WATER SUPPLY	HWS
INSTRUMENT AIR	IA
INTERMEDIATE EFFLUENT	IE
LANDFILL GAS	LFG
LUBE OIL	LO
LIQUID OXYGEN	LOX
LIQUEFIED PETROLEUM GAS	LPG
LIME SLURRY	LS
LANDSCAPING SPRINKLER SYSTEM	LSP
MEMBRANE CONCENTRATE	MC
MEMBRANE CLEANING RETURN	MCR
MEMBRANE CLEANING SUPPLY	MCS
MEMBRANE CLEANING WASTE	MCW
MECHANICAL DEWATERING POLYMER	MDP
MEMBRANE FEED	MF
METHANE GAS	MG
MIXED LIQUOR	ML
MIXED LIQUOR RECYCLE	MLR
MEMBRANE PERMEATE	MP
MURIATIC ACID	MRA
NATURAL GAS	NG
NON-LEADED GASOLINE	NLG
OVERFLOW	OF
OFFGAS	PDR
PLANT DRAIN	PE
PRIMARY EFFLUENT	PI
PLANT INFLUENT	PLE
PLANT EFFLUENT	PO
PLANT OVERFLOW	POA
ANIONIC POLYMER	POC
CATIONIC POLYMER	POF
FILTER AID POLYMER	PON
NONIONIC POLYMER	POT
THICKENER POLYMER	PRR
PRESSURIZED RECYCLE	PRS
PRESSATE	PTP
POTASSIUM PERMANGANATE	PW
POTABLE WATER	RAS
RETURN ACTIVATED SLUDGE	REW
RECLAIMED WATER	RFL
REFRIGERANT LIQUID	RFS
REFRIGERANT SUCTION	RSL
REFRIGERANT SUCTION	RSS
RETURN SECONDARY SLUDGE	RW
RAW WATER	RWL
RAINWATER LEADER	RWD
RAINWATER LEADER OVERFLOW	SDB
SANITARY DRAIN	SDH
SODIUM BISULFITE	SDR
SODIUM HYDROXIDE (CAUSTIC SODA)	SDV
STORM DRAIN	
SANITARY DRAIN VENT	

PROCESS ABBREVIATIONS

SUMP PUMP DISCHARGE	SPD
SANITARY SEWER	SS
SODIUM SILICOFLUORIDE	SSF
STEAM	STM
STRUCTURE UNDERDRAIN	SU
STRUCTURE UNDERDRAIN COLLECTOR	SUC
SETTLED WATER	SW
SCRUBBER WATER RETURN	SWR
TRICKLING FILTER EFFLUENT	TFE
TRICKLING FILTER INFLUENT	TFI
TRICKLING FILTER RECYCLE	TFR
THICKENED SLUDGE	TSL
TREATED WATER	TW
UNDERDRAIN	UD
UTILITY WATER (NON-POTABLE WATER)	UW
VACUUM	V
VENT	VT

EQUIPMENT ABBREVIATIONS

AIR HANDLING UNIT	AHU
AIR RELEASE VALVE	ARV
BACK FLOW PREVENTER	BFP
BUTTERFLY VALVE	BFV
BACK PRESSURE SUSTAINING VALVE	BPV
BEACON	BCN
CHECK VALVE	CV
EXHAUST FAN	EF
FILTER (GENERAL)	F
HEATER	HTR
HIGH SERVICE PUMP	HSP
GATE VALVE	KGV
LOUVER	LOU
MECHANICAL EQUIPMENT (GENERAL)	ME
MOTOR OPERATOR VALVE	MOV
PNEUMATIC OPERATOR VALVE	POV
PRESSURE REDUCING VALVE	PRV
PRESSURE SAFETY VALVE	PSV
PUMP (GENERAL)	P
SLIDE GATE	G
SOLENOID OPERATOR VALVE	SOV
TANK	TK

CONTROL EQUIPMENT ABBREVIATIONS

ATMOSPHERE	ATM
AUTO TRANSFER CONTROLLER	ATC
CONTACT TIME	CT
CONTROL PANEL	CP
DISTRIBUTED CONTROL SYSTEM	DCS
DIRECT ONLINE STARTER	DOL
FAIL CLOSED	FC
FIBER OPTIC CABLE	FOC
FIBER OPTIC TRANSCEIVER	FOT
FULL VOLTAGE NON-REVERSING STARTER	FVNR
HUMAN MACHINE INTERFACE	HMI
LOCKED CLOSED	LC
LOCAL CONTROL PANEL	LCP
LOCAL CONTROL STATION	LCS
LOCKED OPEN	LO
LIGHTNING SURGE ARRESTOR	LSA
MOTOR CONTROL CENTER	MCC
MAIN CONTROL PANEL	MCP
MULTIMODE FIBER	MMF
MOTOR STARTER	MS
MOTOR	MTR
NOT APPLICABLE	N/A
NORMALLY CLOSED	NC
NOT IN CONTRACT	NIC
NORMALLY OPEN	NO
OPERATOR INTERFACE	OI
OPERATOR INTERFACE TERMINAL	OIT
PERSONAL COMPUTER	PC
PROGRAMMABLE LOGIC CONTROLLER	PLC
PLANT CONTROL NETWORK	PCN
POWER DISTRIBUTION UNIT	PDU
REMOTE I/O	RIO
REDUCED VOLTAGE SOLID-STATE STARTER	RVSS
REMOTE TERMINAL UNIT	RTU
SUPERVISORY CONTROL AND DATA ACQUISITION	SCADA
SINGLE MODE FIBER	SMF
SOLID STATE METER	SSM
SHIELDED TWISTED PAIR	STP
THERMOCOUPLE	TC
UNINTERRUPTABLE POWER SUPPLY	UPS
UNSHIELDED TWISTED PAIR	UTP
VENDOR CONTROL PANEL	VCP
VARIABLE FREQUENCY DRIVE	VFD
VARIABLE SPEED DRIVE	VSD

VALVES

- AIR VACUUM, AIR RELEASE, OR COMBINATION
  AIR VACUUM AND AIR RELEASE ASSEMBLY
- ANGLE VALVE
- BACK-PRESSURE VALVE
- BACKFLOW PREVENTER VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- CONE VALVE
- DIAPHRAGM VALVE
- FLAP VALVE
- GATE VALVE
- GLOBE VALVE
- HOSE BIBB VALVE
- NEEDLE VALVE
- PINCH VALVE
- PLUG VALVE
- PRESSURE REGULATING VALVE
- PRESSURE RELIEF VALVE
- SLEEVE VALVE
- TELESCOPING VALVE
- FLOAT VALVE

VALVE AND GATE ACTUATORS

- DIAPHRAGM ACTUATOR
- E/H = ELECTROHYDRAULIC
  P = PNEUMATIC
  S = SOLENOID
- MOTOR ACTUATOR
- PISTON ACTUATOR
- WEIGHT BALANCED ACTUATOR

GATES

- SLIDE GATE
- STOP GATE OR SHEAR GATE

PIPING ACCESSORIES

- ANNULAR SEAL
- ATMOSPHERIC VENT
- BLIND FLANGE
- CAP - BREATHER
- CAP - SCREW / THREADED
- CAP - WELDED
- CAP - QUICK DISCONNECT
- CHLORINE INJECTOR OR
  CHEMICAL EDUCTOR
- DIAPHRAGM SEAL
- DRAIN
- EXPANSION CHAMBER WITH RUPTURE DISK
- EDUCTOR
- FLANGED
- OR — FLEXIBLE CONNECTION - BELLOWS TYPE
- FLAME ARRESTOR
- FCO / FCO — FLOOR CLEANOUT
- FILTER
- HUB DRAIN
- INLINE MIXER
- PIPE MATERIAL CHANGE
- PULSATION DAMPENER
- REDUCER - CONCENTRIC
- REDUCER - ECCENTRIC
- REMOVABLE SPOOL PIECE
- UNION
- RUPTURE DISK
- STRAINER - BASKET TYPE
- STRAINER - DUPLEX BASKET TYPE
- STRAINER - WYE TYPE
- TRAP
- OR / WCO / WCO — WALL CLEANOUT
- TP — TIE-IN POINT

PUMPS & COMPRESSORS

- SLUDGE DIAPHRAGM PUMP
- HORIZONTAL CENTRIFUGAL PUMP
- GENERIC PUMP
- CHEMICAL METERING PUMP
- DRUM PUMP
- ROTARY GEAR PUMP
- SPLIT-CASE PUMP
- HOSE / PERISTALTIC PUMP
- PLUNGER / PISTON PUMP
- PROGRESSIVE CAVITY PUMP
- ROTARY LOBE PUMP
- SUBMERSIBLE SUMP PUMP
- SUBMERSIBLE TURBINE PUMP
- VERTICAL TURBINE PUMP
- VERTICAL CENTRIFUGAL PUMP
- INCLINED ARCHIMEDES SCREW PUMP
- VERTICAL SUMP PUMP
- RECIPROCATING COMPRESSOR
- ROTARY SCREW COMPRESSOR

MISCELLANEOUS

- CALIBRATION COLUMN
- M — MOTOR SYMBOL
- TANK WITH CONE SHAPED ROOF
- TANK WITH DOME ROOF
- TANK WITH FLOATING COVER
- TANK, VESSEL, OR BIN
- TEMPERING TANK
- TOTE TANK
- WATER LEVEL

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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JOHN C. DEGROOT — STATE OF WASHINGTON — 31294 — REGISTERED PROFESSIONAL ENGINEER

2/12/2025

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 0226GI-3	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
	JM	JS	JR	2024.09.19

Title
SYMBOLS & NOMENCLATURE - III

Project No. 224202267
Scale NOT TO SCALE
Revision 0 Sheet of
Drawing No. GI-3

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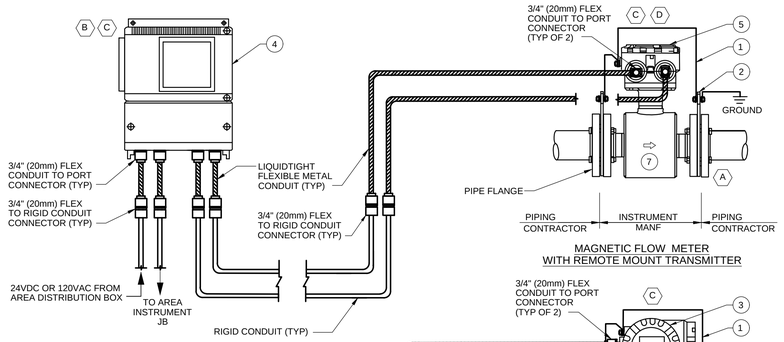
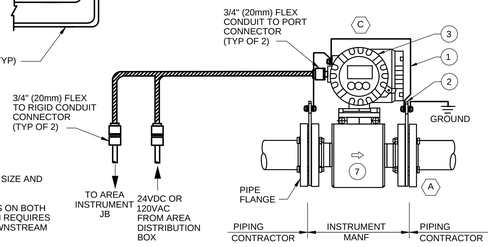


MAGNETIC FLOW METER
WITH REMOTE MOUNT TRANSMITTER



MAGNETIC FLOW METER
WITH INTEGRAL TRANSMITTER

GENERAL NOTES:

1. REFER TO P&IDS AND DATA SHEETS FOR PROCESS PIPING SIZE AND MATERIAL.
2. BIDIRECTIONAL APPLICATION REQUIRES 5 PIPE DIAMETERS ON BOTH SIDES OF METER, MINIMUM. UNIDIRECTIONAL APPLICATION REQUIRES 5 PIPE DIAMETERS UPSTREAM AND 2 PIPE DIAMETERS DOWNSTREAM WITH STABLE PROCESS CONDUCTIVITY.
3. WETTED MATERIALS SHALL BE CHEMICALLY INERT TO THE PROCESS.
4. INSTALLATION OF MATING FLANGES WITH THE FLOW METER SHALL BE CARRIED OUT IN COOPERATION WITH THE PIPING CONTRACTOR USING UPSTREAM AND DOWNSTREAM PIPE REDUCERS AS NECESSARY.
5. PROVIDE MECHANICAL SUPPORT FOR ROUTED CONDUIT.
6. REFER TO DIVISION 26 SPECIFICATIONS FOR FLEX AND RIGID CONDUIT MATERIAL AND USAGE LIMITATIONS.

KEYNOTES:

A. GROUNDING RINGS REQUIRED FOR METALLIC AND NON-METALLIC PIPE INSTALLATIONS TO SUPPORT PROPER SOLUTION GROUNDING AND / OR LINING PROTECTION.

B. WALL OR INSTRUMENT-STAND MOUNT PER DETAIL I-948.

C. CONFIGURE FOR EMPTY PIPE DETECTION.

D. WHERE TEMPORARY SUBMERGENCE IS POSSIBLE, ELECTRONIC HOUSING SHALL BE POTTED AND SEALED BY MANUFACTURER PRIOR TO SHIPPING TO SITE.

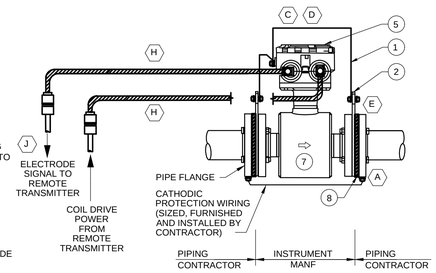
E. CONTRACTOR TO ISOLATE METER FROM THE PIPELINE USING ISOLATION WASHERS AND SLEEVES ON FLANGE BOLTS.

F. 316 SS OR HASTELLOY C PREFERRED. HOWEVER ENGINEER APPROVED FINAL SELECTION BASED ON MATERIAL CHEMICAL COMPATIBILITY.

G. SELECTED GROUNDING RING MATERIAL TO MATCH MEASURING ELECTRODE MATERIAL.

H. FOR INSTALLATION WITHIN CATHODIC PROTECTION SYSTEMS, USE NON-METALLIC LIQUIDTIGHT FLEXIBLE CONDUIT.

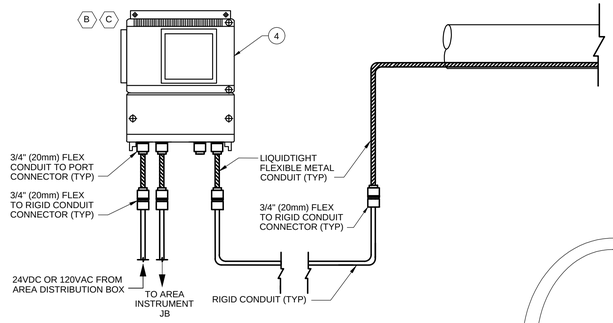
J. DISCONNECT COIL SIGNAL SHIELD WIRE AT THE REMOTE TRANSMITTER.

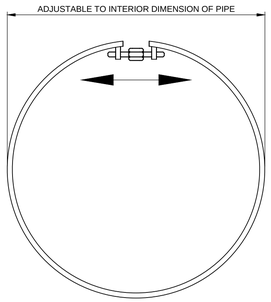


MAGNETIC FLOW METER
WITH REMOTE MOUNT TRANSMITTER
(FOR CATHODIC PIPE PROTECTION APPLICATION)

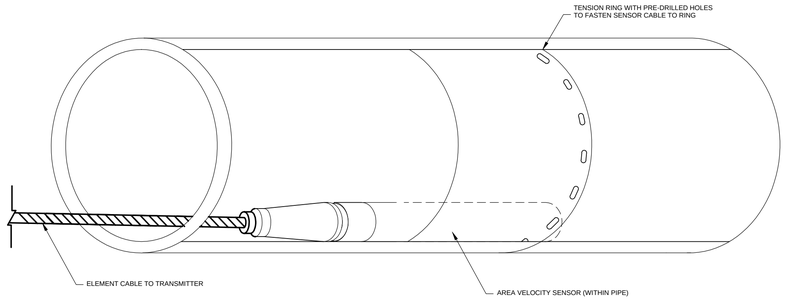
BILL OF MATERIALS					
ITEM	QTY	DESCRIPTION	SUPPLY	MATERIAL/RATING (WATER)	MATERIAL/RATING (CHEMICAL)
1	1	AWG # 8 GROUNDING CONDUCTOR TO GROUND GRID	CONT	COPPER	COPPER
2	2	GROUNDING RING	MANF	316 SS (G)	316 SS OR HASTELLOY C (G)
3	1	INTEGRAL TRANSMITTER WITH DISPLAY AND DUAL CONDUIT PORTS	MANF	POWDER COATED ALUMINUM	POWDER COATED ALUMINUM
4	1	REMOTE TRANSMITTER WITH DISPLAY	MANF	POWDER COATED ALUMINUM	POWDER COATED ALUMINUM
5	1	METER REMOTE WIRE HOUSING FOR REMOTE TRANSMITTER WITH DUAL CONDUIT PORTS	MANF	POWDER COATED ALUMINUM	POWDER COATED ALUMINUM
6	1 EACH	COIL DRIVE AND ELECTRODE SIGNAL CABLES (SEPARATE CABLES; LENGTH AS REQUIRED)	CONT	PER MANF SPEC	PER MANF SPEC
7	-	METER MEASURING TUBE / FLANGES (LINER PER MANF RECOMMENDATION)	MANF	304 SS	(F)
8	2	INSULATING GASKET	CONT	EPDM / NEOPRENE	EPDM / NEOPRENE

I-101 MAGNETIC FLOW METER
REV 010119





TENSION RING WITH PRE-DRILLED HOLES
TO FASTEN SENSOR CABLE TO THE RING



VELOCITY SENSOR INSTALLED
WITHIN PIPE COMPLETE WITH TENSION RING

GENERAL NOTES:

1. REFER TO P&IDS AND SITE LAYOUT DRAWINGS FOR EXACT LOCATION OF ELEMENT AND TRANSMITTER FOR VELOCITY FLOW METER.
2. ENSURE THE SENSOR IS INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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JOHN C. DEFRANCO — STATE OF WASHINGTON — 51294 — REGISTERED PROFESSIONAL ENGINEER

2/12/2025

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 0226GI-4	Dwn. JM	Dsgn. JS	Chkd. JR	YYYY.MM.DD 2024.09.19

Title
INSTRUMENT DETAILS - I

Project No.	Scale
224202267	NOT TO SCALE
Revision 0	Sheet of
Drawing No.	GI-4

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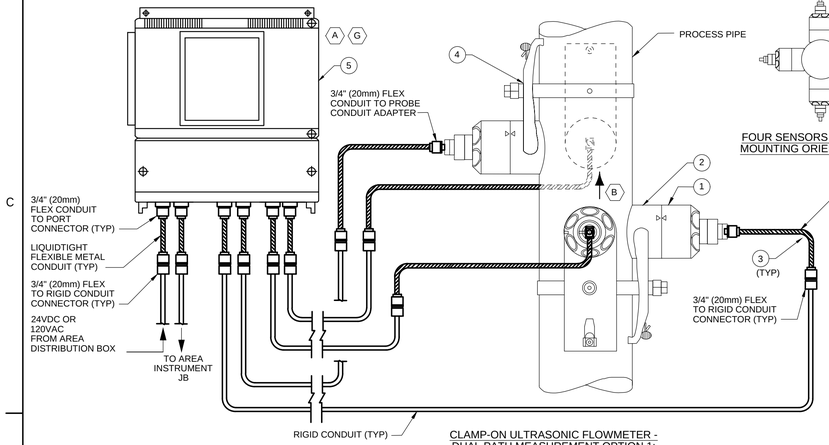
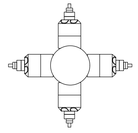
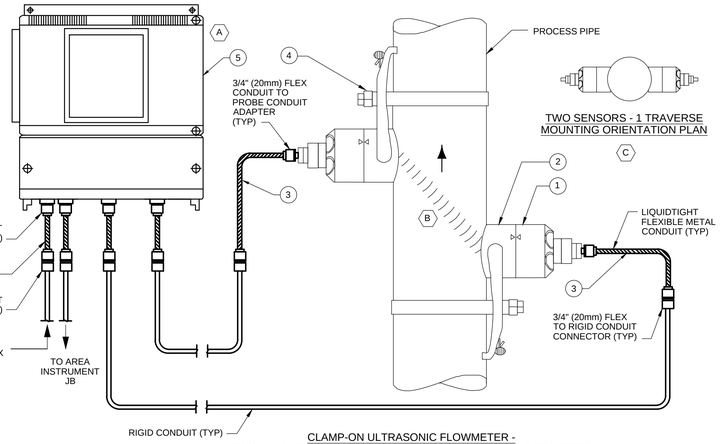


CLAMP-ON ULTRASONIC FLOWMETER - DUAL PATH MEASUREMENT OPTION 1: 4 SENSORS, 1 TRAVERSE PER PAIR (TOP VIEW)

G



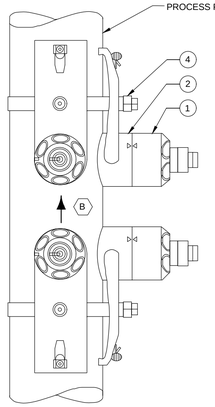
FOUR SENSORS - 1 TRAVERSE MOUNTING ORIENTATION PLAN



CLAMP-ON ULTRASONIC FLOWMETER - TWO CHANNEL MEASUREMENT OPTION 1: 2 SENSORS, 1 TRAVERSE (TOP VIEW)

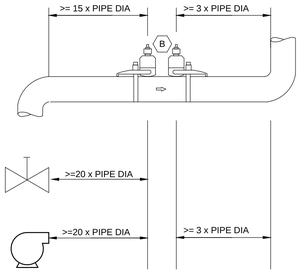
TWO SENSORS - 1 TRAVERSE MOUNTING ORIENTATION PLAN

C



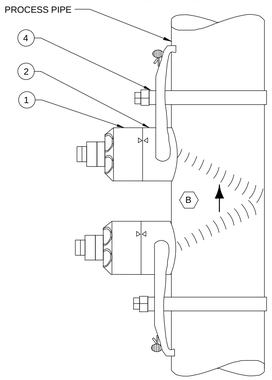
CLAMP-ON ULTRASONIC FLOWMETER - DUAL PATH MEASUREMENT OPTION 2: 4 SENSORS, 2 TRAVERSES PER PAIR (TOP VIEW)

FOUR SENSORS - 2 TRAVERSES MOUNTING ORIENTATION PLAN



INLET AND OUTLET PIPE RUNS FOR SENSOR INSTALLATION

J



CLAMP-ON ULTRASONIC FLOWMETER - TWO CHANNEL MEASUREMENT OPTION 2: 2 SENSORS, 2 TRAVERSES (TOP VIEW)

TWO SENSORS - 2 TRAVERSES MOUNTING ORIENTATION PLAN

D

GENERAL NOTES:

1. REFER TO P&IDS AND DATA SHEETS FOR PROCESS PIPING SIZE AND MATERIAL.
2. POTENTIALLY WETTED MATERIALS SHALL BE CHEMICALLY INERT TO THE PROCESS.
3. PROVIDE MECHANICAL SUPPORT FOR ROUTED CONDUIT.
4. APPLY MANUFACTURER RECOMMENDED ACOUSTIC COUPLING GELL TO SENSOR HEAD PRIOR TO INSERTION INTO SENSOR HOLDER.
5. REFER TO DIVISION 26 SPECIFICATIONS FOR FLEX AND RIGID CONDUIT MATERIAL AND USAGE LIMITATIONS.

KEYNOTES:

A. WALL OR INSTRUMENT-STAND MOUNT PER DETAIL I-701.

B. SENSOR SEPARATION AS DETERMINED BY MANUFACTURE'S TRANSMITTER LOGIC BASED ON ENTRY OF THE FOLLOWING PARAMETERS: PIPE DIAMETER, PIPE THICKNESS, PROCESS MATERIAL AND PIPE LINER MATERIAL.

C. FOR DUAL SENSOR SINGLE TRAVERSE APPLICATION: MOUNT SENSORS ON THE OPPOSITE SIDES OF THE PIPE AS SHOWN.

D. FOR DUAL SENSOR, 2 - TRAVERSE APPLICATION: MOUNT BOTH SENSORS ON ONE SIDE OF THE PIPE AS SHOWN.

E. SINGLE TRAVERSE APPLICATION REQUIRED FOR PLASTIC PIPES, LINED PIPES OR PROCESS FLUIDS WITH HIGH ACOUSTIC DAMPENING.

F. FOR PIPE DIAMETERS LESS THAN 2 1/2" (DN65), A DUAL SENSOR SINGLE TRAVERSE CONFIGURATION MAY BE REQUIRED.

G. DUAL PATH MEASUREMENT OPTION TYPICALLY APPLIED TO APPLICATIONS EXHIBITING IRREGULAR FLOW PROFILES. CONFIGURE TRANSMITTER TO CALCULATE MEAN OF THE MEASURED VALUES UNLESS SPECIFICALLY NOTED OTHERWISE.

H. SENSOR FREQUENCY - AS DICTATED BY LINE SIZE AND FLOW VELOCITY - PER MANUFACTURER RECOMMENDATION.

J. INDICATED PIPE RUNS REQUIRED TO ENSURE OPTIMUM ACCURACY.

BILL OF MATERIALS

ITEM	QTY	DESCRIPTION	SUPPLY	MATERIAL/ RATING (WATER)	MATERIAL/ RATING (CHEMICAL)
1	2 OR 4 AR	SENSOR HOUSING	MANF	304 SS / PLASTIC CONTACT SURFACE	304 SS / PLASTIC CONTACT SURFACE
2	1 PER SENSOR	SENSOR HOLDER	MANF	316 SS	316 SS
3	1 PER SENSOR	VENDOR SENSOR CABLE WITHIN CONDUIT (LENGTH AS REQ)	MANF	PVC CABLE JACKET	PTFE OR TPE-V CABLE JACKET
4	2	STRAPPING BANDS / BRACKET, MOUNTING / TIGHTENING BOLTS	MANF	316 SS	316 SS
5	1	REMOTE TRANSMITTER WITH DISPLAY	MANF	POWDER COATED ALUMINUM	POWDER COATED ALUMINUM

SENSOR MOUNTING

SENSOR TYPE	NOMINAL DIAMETER	TYPE OF MOUNTING (H)
CLAMP-ON TYPE	1/2" TO < 3" (DN15 TO < DN80)	2 TRAVERSES (F)
	3" TO 24" (DN80 TO DN600)	2 TRAVERSES (E)
	> 24" TO 160" (> DN600 TO DN4000)	1 TRAVERSE

I-104 ULTRASONIC INLINE TRANSIT TIME FLOWMETER (CLAMP-ON TYPE)
REV 010119

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

Permit/Seal

JOHN C. DEGRAZIO — STATE OF WASHINGTON — 31294 — REGISTERED PROFESSIONAL ENGINEER

2/12/2025

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 0226GI-5 | Dwn. JM | Dsgn. JS | Chkd. JR | 2024.09.19 YYYY.MM.DD

Title
INSTRUMENT DETAILS - II

Project No. 224202267
Scale NOT TO SCALE
Revision 0 Sheet of
Drawing No. GI-5

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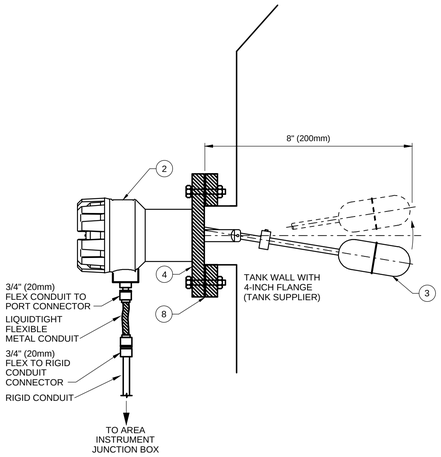
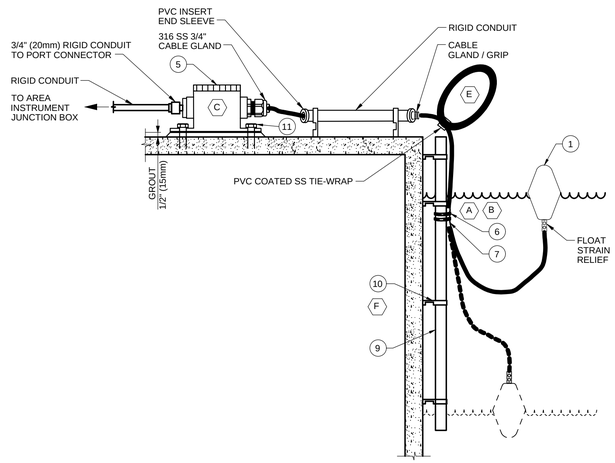


SIDE MOUNT FLANGE INSTALLATION

GENERAL NOTES:

1. PROVIDE MECHANICAL SUPPORT AND FITTINGS FOR ROUTED CONDUIT.
2. SWITCHES SHALL BE MOUNTED AND ORIENTED IN ACCORDANCE WITH THE MANUFACTURER REQUIREMENTS.
3. INSTALLATION OF ANY FLANGED UNITS SHALL BE CARRIED OUT IN COOPERATION WITH THE PIPING AND/ OR TANK SUPPLIER CONTRACTOR.
4. WETTED MATERIALS SHALL BE CHEMICALLY INERT TO THE PROCESS.
5. REFER TO DIVISION 26 SPECIFICATIONS FOR FLEX AND RIGID CONDUIT MATERIAL AND USAGE LIMITATIONS.
6. REFER TO TANK MECHANICAL DATA SHEETS OR DETAILS FOR TANK NOZZLE SIZE AND SPACING. INSTRUMENT INSTALLATION IN THE TANK MANWAY IS NOT PERMITTED.
7. USE PVC COATED SS TIE-WRAPS TO NEATLY COIL AND SECURE ANY EXCESS FLOAT CABLING AS SHOWN.



SUSPENDED FLOAT

KEYNOTES:

A. POSITION THE ADJUSTABLE STRAIN RELIEF ON THE CABLE TO ALLOW ONE HALF THE DISTANCE OF THE DIFFERENTIAL BAND BETWEEN THE END OF THE ADJUSTABLE STRAIN RELIEF AND THE END OF THE STRAIN RELIEF ON THE FLOAT.

B. FOR SUSPENDED FLOAT, PROVIDE CABLE TIE AT MIDPOINT AND TOP OF ADJUSTABLE STRAIN RELIEF AS SHOWN, PLUS ONE CABLE TIE FOR EVERY 12" (300mm) OF CABLE LENGTH.

C. TERMINAL JUNCTION BOX SHALL BE WALL OR FLOOR MOUNTED IN EASILY ACCESSED LOCATION WITHIN 30 FEET (10 METERS) OF INSTRUMENT INSTALLATION. FOR FLOOR MOUNT PROVIDE 1/2" (15mm) THICK GROUTING. FOR WALL MOUNT, LOCATE APPROXIMATELY 36" (1 METER) ABOVE GRADE. IF AREA INSTRUMENT JUNCTION BOX IS WITHIN 33 FEET (10 METERS) OF INSTRUMENT INSTALLATION, TERMINAL BOX WILL NOT BE REQUIRED AND INSTRUMENT CABLE MUST BE ROUTED WITHOUT SPLICE OF ANY KIND.

D. 316 SS OR HASTELLOY C PREFERRED. HOWEVER ENGINEER APPROVED FINAL SELECTION BASED ON MATERIAL CHEMICAL COMPATIBILITY.

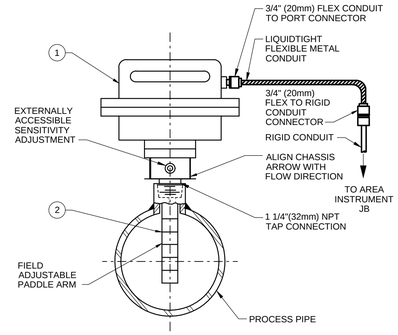
E. MAINTENANCE LOOP SHALL INCLUDE 3 FEET (1 METER) LENGTH OF CABLE SECURED WITH PVC-COATED SS TIE WRAPS, BEND RADIUS NO LESS THAN 8" (200mm).

F. PROVIDE MOUNTING BRACKET SUPPORT FOR EVERY 3FT (1M) OF PIPE LENGTH.

BILL OF MATERIALS

ITEM	QTY	DESCRIPTION	SUPPLY	MATERIAL/RATING (WATER)	MATERIAL/RATING (CHEMICAL)
1	1	SUSPENDED BALL FLOAT SWITCH WITH INTEGRAL CABLE	MANF	PVC	PVC
2	1	FLOAT SWITCH HOUSING	MANF	EPOXY COATED ALUMINUM	EPOXY COATED ALUMINUM
3	1	TIPPING FLOAT	MANF	316 SS	D
4	1	4" (DN100) DIA THREADED FLANGE AND MOUNTING HARDWARE	MANF	316 SS	D
5	AR	LOCKABLE SCREW LID TERMINAL JUNCTION BOX WITH DIN-RAIL MOUNTED TERMINAL BLOCK (MIN DIMENSIONS: 2" (53mm) (h)x4" (110mm) (Ø))	MANF	NEMA 4X / GRP	NEMA 4X / GRP
6	AR	CABLE TIES	CONT	PVC COATED 316 SS	PVC COATED 316 SS
7	1	ADJUSTABLE STRAIN RELIEF	MANF	NEOPRENE	NEOPRENE
8	AR	FLANGE GASKET	CONT	VITON	VITON
9	1	FLOAT SUPPORT PIPE	CONT	PVC (SCH 80)	PVC (SCH 80)
10	AR	MOUNTING BRACKET WITH 5/8" (16mm) SS ANCHOR BOLTS (F)	CONT	316 SS	316 SS
11	AR	SS BOLTS / ANCHORS	CONT	316 SS	316 SS

I-151 FLOAT LEVEL DETECTION SWITCH
REV 010119



GENERAL NOTES:

1. INSTALL UPRIGHT IN HORIZONTAL PIPE SECTION WITH MINIMUM OF 5 PIPE DIAMETERS UPSTREAM AND DOWNSTREAM.
2. FIELD TRIM PADDLE ARM AS NECESSARY TO MEET MANUFACTURER'S RECOMMENDED LENGTH FOR APPLICATION.
3. REFER TO DIVISION 26 SPECIFICATIONS FOR FLEX AND RIGID CONDUIT MATERIAL AND USAGE LIMITATIONS.
4. APPLY SEALANT TO MALE THREADS.

KEYNOTES:

A. 316 SS PREFERRED. HOWEVER ENGINEER APPROVED FINAL SELECTION BASED ON PROCESS TEMPERATURE, MAX FLOW VELOCITY AND MATERIAL CHEMICAL COMPATIBILITY.

BILL OF MATERIALS

ITEM	QTY	DESCRIPTION	SUPPLY	MATERIAL/RATING (WATER)	MATERIAL/RATING (CHEMICAL)
1	1	PADDLE FLOW SWITCH HOUSING	MANF	EPOXY COATED ALUMINUM	EPOXY COATED ALUMINUM
2	1	PADDLE FLOW SWITCH WETTED PARTS	MANF	316 SS	A

I-153 PADDLE FLOW DETECTION SWITCH
REV 010119

0	Revision	By	Appd	2022.12.02 YYYY.MM.DD
0	Issued	By	Appd	2022.12.02 YYYY.MM.DD

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JOHN C. DEMOSS — STATE OF WASHINGTON — 31294 — REGISTERED PROFESSIONAL ENGINEER
2/12/2025

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BATTLE CREEK HATCHERY

File Name: 0226Gi-6 | JM Dwn. | JS Dsgn. | JR Chkd. | 2024.09.19 YYYY.MM.DD

Title
INSTRUMENT DETAILS - III

Project No. 224202267
Scale NOT TO SCALE
Revision 0
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Drawing No. GI-6

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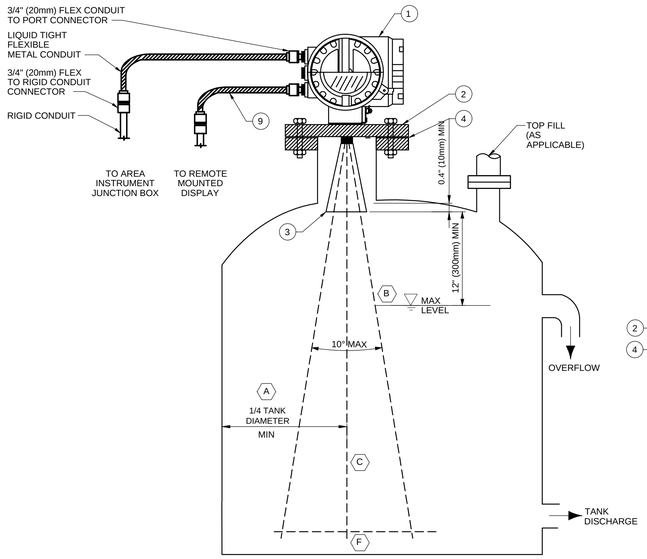
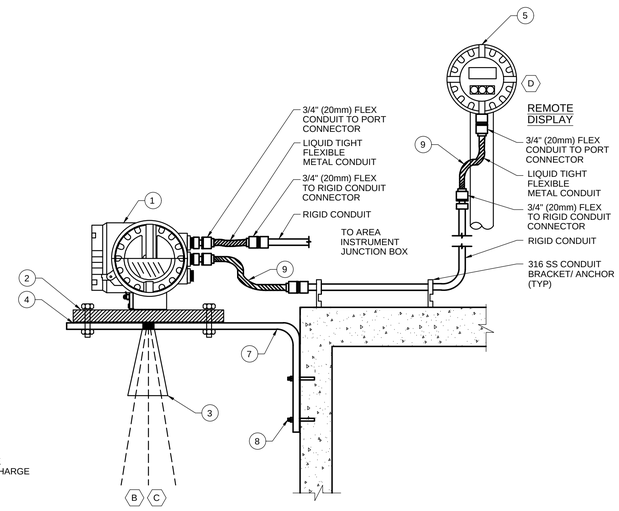


TANK INSTALLED - TOP FLANGE MOUNT WITH REMOTE DISPLAY



BRACKET INSTALLED - WALL MOUNT WITH REMOTE DISPLAY

GENERAL NOTES:

1. PROVIDE MECHANICAL SUPPORT AND FITTINGS FOR ROUTED CONDUIT.
2. IN APPLICATIONS WITH HEAVY CONDENSATION ANTICIPATED OR TURBULENT LIQUID SURFACE, EMPLOY MANUFACTURER RECOMMENDED LOW FREQUENCY MODEL. SELECTED WAVELENGTH SHOULD BE LARGER THAN ANTICIPATED RIPPLE SIZE.
3. VENDOR FURNISHED CABLING SHALL BE RATED WATERTIGHT AND FOR CONTINUOUS UV EXPOSURE WITHOUT DEGRADATION.
4. ELECTRONIC SUPPRESSION OF INTERFERENCE ECHOES USING MANF. TRANSMITTER TOOLS MAY BE REQUIRED.
5. REFER TO DIVISION 26 SPECIFICATIONS FOR FLEX AND RIGID CONDUIT MATERIAL AND USAGE LIMITATIONS.
6. REFER TO TANK MECHANICAL DATA SHEETS OR DETAILS FOR TANK NOZZLE SIZE AND SPACING. INSTRUMENT INSTALLATION IN THE TANK MANWAY IS NOT PERMITTED.
7. USE PVC COATED SS TIE-WRAPS TO NEATLY COIL AND SECURE ANY EXCESS SENSOR CABLING AS SHOWN.

KEYNOTES:

A. INSTRUMENT SHALL BE FLANGE MOUNTED, AT 0.25 TANK DIAMETER OR 10 INCHES FROM TANK WALL (WHICHEVER IS GREATER BUT SUBJECT TO MANUFACTURER REQUIREMENTS) AND OPPOSITE TO ANY TOP FILL FACILITIES. FOR TANKS CONSTRUCTED OF NON-CONDUCTIVE MATERIAL, BEAM ANGLE SHOULD BE CONTAINED WITHIN THE TANK TO AVOID INTERFERENCE FROM REFLECTIVE MATERIAL LOCATED OUTSIDE THE TANK.

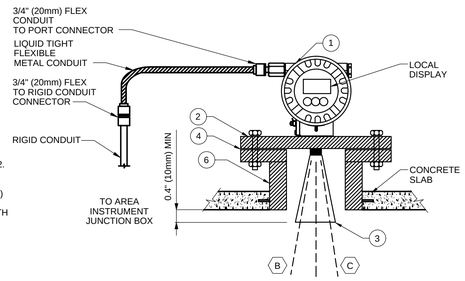
B. THE SENSOR HORN BOTTOM RIM SHALL BE INSTALLED NO LESS THAN 12" (300mm) ABOVE THE MAXIMUM TANK LEVEL AND PROPERLY ALIGNED PER THE MANUFACTURER'S REQUIREMENTS.

C. SENSOR SHALL BE INSTALLED SUCH THAT THE BEAM ANGLE DOES NOT ENCOUNTER ANY PHYSICAL DEVICE OR FLOW STREAM IN THE BEAM'S SENSING PATH.

D. MOUNT DISPLAY ON STANDARD INSTRUMENT STAND PER DETAIL I-701 / 702. SUNSHIELD REQUIRED FOR OUTDOOR INSTALLATION.

E. MANUFACTURE FURNISHED ANGLE BRACKET (WITH MOUNTING HARDWARE) SHALL BE SIZED AND TAPPED TO SUPPORT WALL-MOUNT INSTALLATION. REFER TO INSTRUMENT SCHEDULE OR DATA SHEET FOR MEASURING DEPTH REQUIREMENT.

F. IN THE CASE OF MEDIA WITH LOW DIELECTRIC CONSTANT (WHERE THE TANK BOTTOM IS VISIBLE THROUGH THE MEDIA AT LOW LEVELS) A MANUFACTURER RECOMMENDED REPOSITIONING OF ZERO LEVEL MUST BE OBSERVED.



CONCRETE TANK - TOP MOUNT WITH LOCAL DISPLAY

BILL OF MATERIALS

ITEM	QTY	DESCRIPTION	SUPPLY	MATERIAL/RATING (WATER)	MATERIAL/RATING (CHEMICAL)
1	1	TRANSMITTER ELECTRONIC HOUSING	MANF	EPOXY COATED ALUMINUM	EPOXY COATED ALUMINUM
2	1	6" (DN150) DIA FLANGE (TAPPED TO ACCOMMODATE INSTRUMENT FITTING) AND MOUNTING HARDWARE	MANF	316 SS	316 SS
3	1	3" (DN80) OR 4" (DN100) ANTENNA HORN (LENGTH TO ACHIEVE MAX BEAM ANGLE INDICATED)	MANF	316 SS	ALLOY-400 OR PTFE
4	AR	GASKET	CONT	VITON	VITON
5	1	REMOTE DISPLAY	MANF	EPOXY COATED ALUMINUM	EPOXY COATED ALUMINUM
6	1	6" (150mm) DIA SCH 80 FLANGED PIPE SLEEVE WITH SEEP RING	CONT	304 SS	316 SS OR PVC
7	1	WALL-MOUNT ANGLE BRACKET TAPPED FOR INSTRUMENT FITTING (SIZED TO MAINTAIN MINIMUM DISTANCE BETWEEN BEAM AND WALL) (E)	MANF	316 SS	316 SS
8	AR	ANCHOR BOLTS AND MOUNTING HARDWARE	MANF	316 SS	316 SS
9	1	IN-CONDUIT REMOTE DISPLAY CABLE LIMIT ROUTING TO 66 FEET (20M)	MANF	PER VENDOR	PER VENDOR

I-202 RADAR LEVEL TRANSMITTER

REV 010119

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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2/12/2025

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BATTLE CREEK HATCHERY

File Name: 0226GI-7	Dwn. JM	Dsgn. JS	Chkd. JR	YYYY.MM.DD 2024.09.19

Title
INSTRUMENT DETAILS - IV

Project No.	Scale
224202267	NOT TO SCALE

Revision	Sheet	Drawing No.
0	of	GI-7

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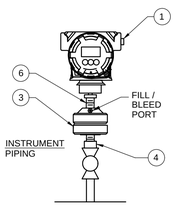
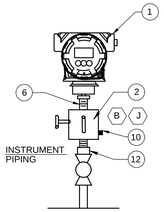
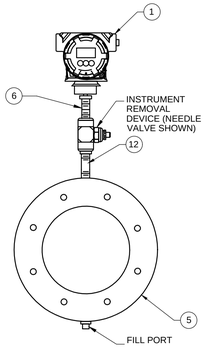


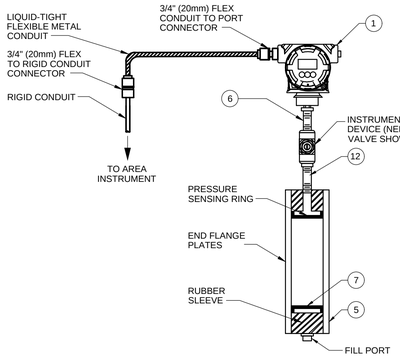
PRESSURE TRANSMITTER WITH DIAPHRAGM SEAL



PRESSURE TRANSMITTER

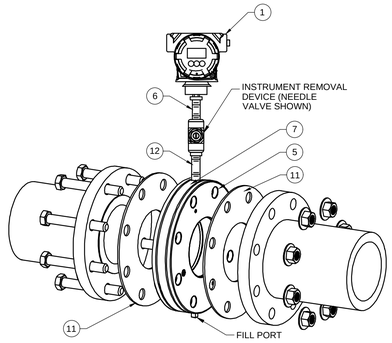


FRONT-VIEW



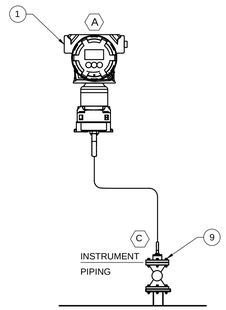
CROSS-SECTION SIDE-VIEW

PRESSURE TRANSMITTER WITH ANNULAR SEAL

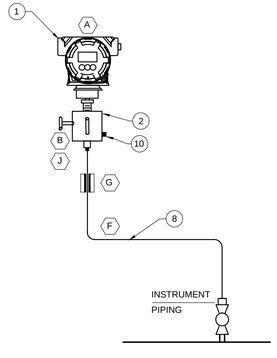


CROSS-SECTION EXPLODED-VIEW

PRESSURE TRANSMITTER WITH ANNULAR SEAL



PRESSURE TRANSMITTER WITH CAPILLARY SENSING TUBE



PRESSURE TRANSMITTER- REMOTE MOUNT

GENERAL NOTES:

1. POTENTIALLY WETTED MATERIALS SHALL BE CHEMICALLY INERT TO THE PROCESS.
2. REFER TO P&IDS AND DATA SHEETS FOR PROCESS PIPING SIZE AND MATERIAL.
3. PIPING SIDE ISOLATION VALVES FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR.
4. REFER TO DIVISION 26 SPECIFICATIONS FOR FLEX AND RIGID CONDUIT MATERIAL AND USAGE LIMITATIONS.

KEYNOTES:

A. WALL OR INSTRUMENT-STAND MOUNT PER DETAIL I-701.

B. FURNISH 1/4" (8mm) OD MALE CONNECTOR AND 1/4" OD (1.5mm WALL THICKNESS) 316SS DOWN-TURNED DRAIN TUBING FOR FIELD INSTALLATION. ENSURE VENT / DRAIN IS DIRECTED TO SAFE LOCATION.

C. CAPILLARY DIAPHRAGM SEAL SYSTEM

D. ARMORED CAPILLARIES: 316 SS.
FLANGE: 316 SS OR HASTELLOY C PREFERRED. HOWEVER ENGINEER APPROVED FINAL SELECTION BASED ON MATERIAL CHEMICAL COMPATIBILITY.

E. FOR AMBIENT TEMPERATURE APPLICATIONS LOWER THAN -10 degC, ETHYLENE GLYCOL FILL FLUID REQUIRED IN LIEU OF STANDARD SILICONE OIL.

F. IN GENERAL, FOR GAS APPLICATIONS IMPULSE TUBING SHALL BE SLOPED UP TO THE SWITCH OR GAUGE. FOR LIQUID APPLICATIONS, IMPULSE TUBING SHALL BE SLOPED DOWN TO THE SWITCH OR GAUGE. MINIMUM APPLIED SLOPE SHALL BE 1:12 TUBING LENGTHS SHALL BE APPROXIMATELY EQUALIZED AND KEPT AS SHORT AS POSSIBLE.

G. 1/2" TUBING SHALL BE SUPPORTED / BRACED EVERY 3-FT. THERMALLY INSULATING SPACER MATERIAL SHALL BE APPLIED TO SEPARATE THE TUBING FROM THE SUPPORTS. PIGTAIL LOOP REQUIRED FOR HIGH VIBRATION INSTALLATIONS ONLY.

H. 316 SS OR HASTELLOY C PREFERRED. HOWEVER ENGINEER APPROVED FINAL SELECTION BASED ON MATERIAL CHEMICAL COMPATIBILITY.

J. VENT / DRAIN TO SAFE LOCATION (GRADE / DRAIN)

BILL OF MATERIALS

ITEM	QTY	DESCRIPTION	SUPPLY	MATERIAL/ RATING (WATER)	MATERIAL/ RATING (CHEMICAL)
1	1	PRESSURE TRANSMITTER ELECTRONIC HOUSING	MANF	EPOXY COATED ALUMINUM	
2	1	2 VALVE MANIFOLD WITH INTEGRAL BLEED	MANF	316 SS	316 SS OR PVC
3	AR	ISOLATION DIAPHRAGM SEAL; SILICONE OIL FILL FLUID (E)	MANF	316 SS	HASTELLOY C OR PVC
4	1	HEX REDUCING BUSHING 1"x1/2" (25mmx15mm)	CONT	316 SS	316 SS OR PVC
5	2	END FLANGES (CLASS TO SUIT PIPING)	MANF	EPOXY COATED CARBON STEEL	316 SS OR PVC
6	AR	1/2" MALE TO MALE NIPPLE	CONT	316 SS	316 SS OR PVC
7	1	ANNULAR SEAL; SILICONE OIL FILL FLUID (E)	MANF	TEFLON COATED BUNA-N	PTFE OR TEFLON COATED VITON
8	AR	IMPULSE TUBING (1/2" (15mm) OD AND 1.5mm WALL THICKNESS) AND COMPRESSION FITTINGS (F) (G)	CONT	316 SS	(H)
9	AR	CAPILLARY DIAPHRAGM SEAL SYSTEM FLANGE (SIZED AND RATED TO MATCH ISOLATION VALVE FLANGE AND PROCESS REQUIREMENTS) WITH INTEGRAL 1/4" (8mm) ARMORED CAPILLARY TUBE (LENGTH AS REQUIRED); SILICONE OIL FILL FLUID.	MANF	316 SS (FLANGES AND CAPILLARIES)	(D) (E)
10	1	1/4" NPT VENT PIPE PLUG	MANF	316 SS	316 SS OR PVC
11	2	GASKETS	CONT	VITON	VITON
12	1	INSTRUMENT REMOVAL DEVICE AND 1/2" STEM	MANF	316 SS	316 SS OR PVC

I-303 PRESSURE TRANSMITTER
REV 010119

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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2/12/2025

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BATTLE CREEK HATCHERY

File Name: 0226Gi-8 | Dwn. JM | Dsgn. JS | Chkd. JR | 2024.09.19 YYYY.MM.DD

Title
INSTRUMENT DETAILS - V

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Sheet of
Drawing No. GI-8

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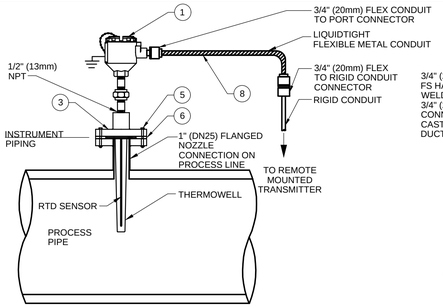
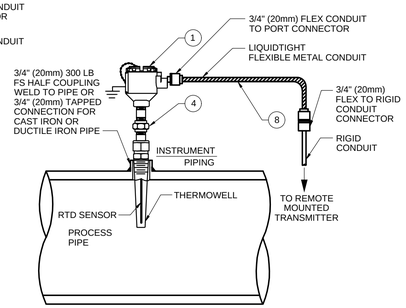
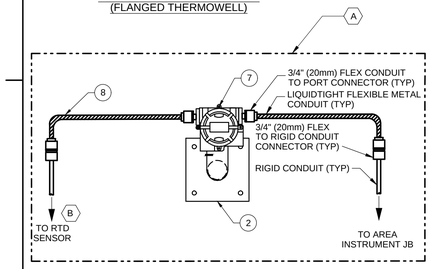


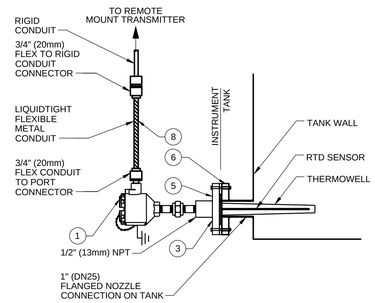
PIPE INSTALLED - INTEGRAL MOUNTED TEMPERATURE TRANSMITTER (FLANGED THERMOWELL)



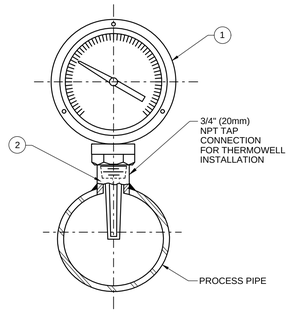
PIPE INSTALLED - INTEGRAL MOUNTED TEMPERATURE TRANSMITTER (THREADED THERMOWELL)



REMOTE MOUNTED TEMPERATURE TRANSMITTER FRONT VIEW



TANK INSTALLED - INTEGRAL MOUNTED TEMPERATURE TRANSMITTER



GENERAL NOTES:

1. FOR LIQUIDS: ENSURE PROBE IS IMMERSED A MINIMUM OF 2-INCHES OR HALF THE PIPE DIAMETER (WHICHEVER IS LESS IF PIPE IS ALWAYS FULL DURING NORMAL OPERATION).
2. FOR MOVING GAS: ENSURE PROBE IS IMMERSED A MINIMUM OF 4-INCHES OR HALF THE PIPE DIAMETER (WHICHEVER IS LESS).
3. APPLY SEALANT TO MALE THREADS.

KEYNOTES:

A. HASTELLOY C PREFERRED. HOWEVER ENGINEER APPROVED FINAL SELECTION BASED ON PRESSURE, FLOW VELOCITY AND MATERIAL CHEMICAL COMPATIBILITY.

BILL OF MATERIALS					
ITEM	QTY	DESCRIPTION	SUPPLY	MATERIAL/ RATING (WATER)	MATERIAL/ RATING (CHEMICAL)
1	1	TEMPERATURE GAUGE HOUSING	MANF	304 SS	304 SS
2	1	3/4" (20mm) NPT THERMOWELL	MANF	316 SS	A

GENERAL NOTES:

1. PROVIDE MECHANICAL SUPPORT AND FITTINGS FOR ROUTED CONDUIT.
2. REFER TO P&IDS AND DATA SHEETS FOR PROCESS PIPING SIZE AND MATERIAL.
3. REFER TO MECHANICAL SECTIONS AND TANK DATA SHEETS FOR FLANGED NOZZLE SIZE AND MATERIAL.
4. WETTED MATERIALS SHALL BE CHEMICALLY INERT TO THE PROCESS.
5. REFER TO DIVISION 26 SPECIFICATIONS FOR FLEX AND RIGID CONDUIT MATERIAL AND USAGE LIMITATIONS.
6. USE SPRING-LOADED PROBE FOR THERMOWELL INSTALLATION.
7. APPLY SEALANT TO MALE THREADS.

KEYNOTES:

A. WALL OR INSTRUMENT-STAND MOUNT PER DETAIL I-701.
B. SENSOR CABLE SPLICE OF ANY KIND SHALL NOT BE ACCEPTABLE.
C. HASTELLOY C PREFERRED. HOWEVER ENGINEER APPROVED FINAL SELECTION BASED ON PRESSURE, FLOW VELOCITY AND MATERIAL CHEMICAL COMPATIBILITY.
D. INSERTION LENGTH: HALF PIPE DIAMETER OR 4-INCHES, WHICHEVER IS SHORTER.

BILL OF MATERIALS					
ITEM	QTY	DESCRIPTION	SUPPLY	MATERIAL/ RATING (WATER)	MATERIAL/ RATING (CHEMICAL)
1	1	ELECTRONIC HOUSING	MANF	EPOXY COATED ALUMINUM	EPOXY COATED ALUMINUM
2	1	MOUNTING SUPPORT BRACKET AND HARDWARE.	CONT	316 SS	316 SS
3	1	TEMPERATURE ELEMENT ASSEMBLY, 1"(25mm) FLANGED TAPERED THERMOWELL	MANF	316 SS	C
4	1	TEMPERATURE ELEMENT ASSEMBLY, 1/2" (15mm) NPT TAPERED THERMOWELL	MANF	316 SS	C
5	4	BOLTS, WASHER + NUTS	MANF	316 SS	316 SS
6	1	GASKET	CONT	VITON	VITON
7	1	TRANSMITTER HOUSING	MANF	EPOXY COATED ALUMINUM	EPOXY COATED ALUMINUM
8	AS REQ.	TRIAD RTD EXTENSION CABLE (WITHIN CONDUIT)	CONT	PER DIV 26	-

I-401 TEMPERATURE TRANSMITTER
REV 010119

I-402 BIMETAL TEMPERATURE GAUGE
REV 010119

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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JOHN C. DEFRANCO
STATE OF WASHINGTON
22704
REGISTERED PROFESSIONAL ENGINEER
2/12/2025

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 0226GI-9 | Dwn. JM | Dsgn. JS | Chkd. JR | YYYY.MM.DD 2024.09.19

Title
INSTRUMENT DETAILS - VI

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Sheet of
Drawing No. GI-9

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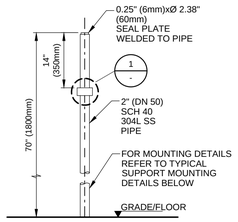
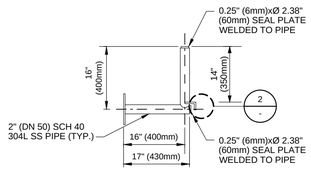
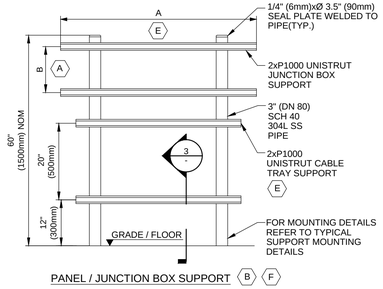


GRADE / FLOOR MOUNTED

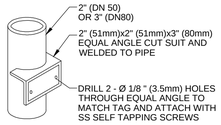


WALL / COLUMN MOUNTED

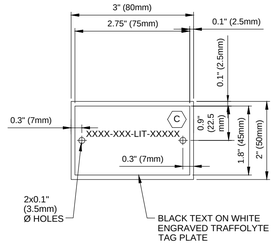
SINGLE INSTRUMENT SUPPORT (B) (F)



PANEL / JUNCTION BOX SUPPORT (B) (F)

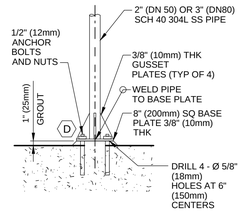


1 - DETAIL

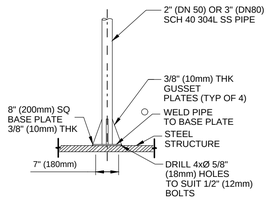


INSTRUMENT TAG AND MOUNTING PLATE (B) (F)

2 - DETAIL



CONCRETE SLAB MOUNTING



STEEL STRUCTURE MOUNTING

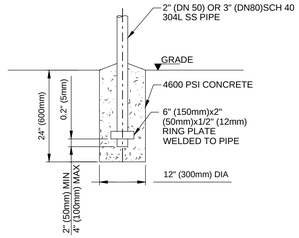
GENERAL NOTES:

1. INSTRUMENT DISPLAY SHALL BE SITUATED 48" (1220mm) ABOVE GRADE. REQUEST FOR DEVIATION SHALL BE SUBMITTED IN WRITING TO THE ENGINEER FOR APPROVAL.
2. REFER TO WEATHER SHIELD INSTALLATION DETAILS I-702 FOR WEATHER SHIELD SPECIFICS AND ADDITIONAL INSTALLATION REQUIREMENTS.
3. AFTER FABRICATION REMOVE ALL SHARP EDGES, BURRS ETC.
4. ALL WELDS SHALL BE 0.2" (6mm) CONTINUOUS FILLET WELDS FULL PERIMETER UNLESS NOTED OTHERWISE.
5. STANDS ARE TYPICAL; SITE MODIFICATION MAY BE NECESSARY TO ACCOMMODATE INSTALLATION.

KEYNOTES:

A. DIMENSION "B" TO SUIT JUNCTION BOX MOUNTING BRACKETS.
B. ALL HEAT AFFECTED WELD AREAS TO BE PAINTED WITH ZINC CHROMATE.
C. REFER TO PROJECT INSTRUMENT SCHEDULE FOR TAG NUMBERING DETAILS.
D. BASEPLATES TO BE FIXED TO CONCRETE USING 1/2" (12mm) 316 SS ANCHOR BOLTS (QTY=4) USING MULTI EPOXY ADHESIVE ANCHORS. IF CONCRETE THICKNESS IS INSUFFICIENT FOR MOUNTING VERTICAL BASE PLATES, EMPLOY A THROUGH BOLTED CONNECTION.
E. DIMENSION "A" LENGTH AND CABLE TRAY SUPPORT LENGTH AS REQUIRED TO SUIT NUMBER OF JUNCTION BOXES OR CONTROL PANELS.
F. SUPPORT ASSEMBLY SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.

I-701 INSTRUMENT STAND
REV 010119



YARD MOUNTING

TYPICAL SUPPORT MOUNTING DETAILS

3 - SECTION

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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TODD C. DEERMON — STATE OF WASHINGTON — 21728 — REGISTERED PROFESSIONAL ENGINEER

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 0226GI-10 | Dwn. JM | Dsgn. JS | Chkd. JR | 2024.09.19 YYYY.MM.DD

Title
INSTRUMENT DETAILS - VII

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Sheet of
Drawing No. GI-10

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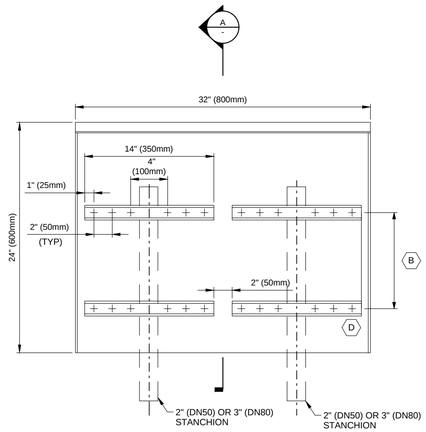
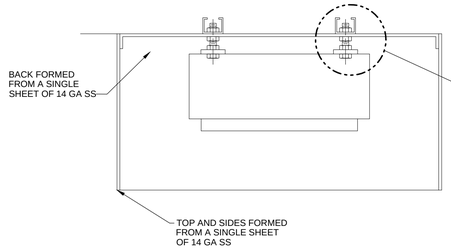
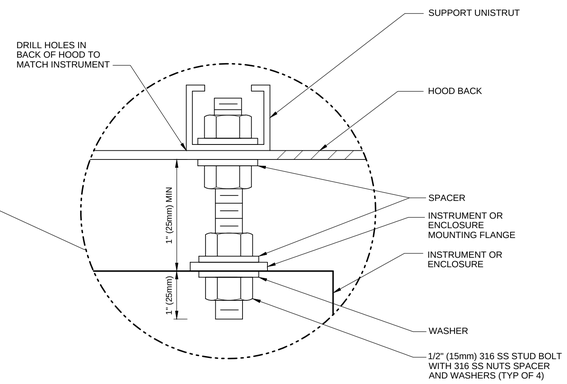
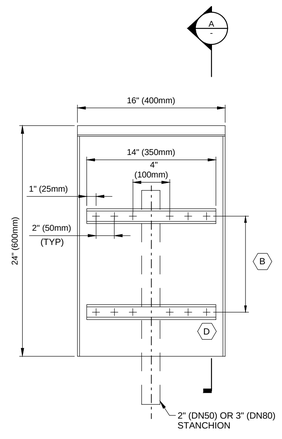


TYPE 32" (800mm) FRONT VIEW

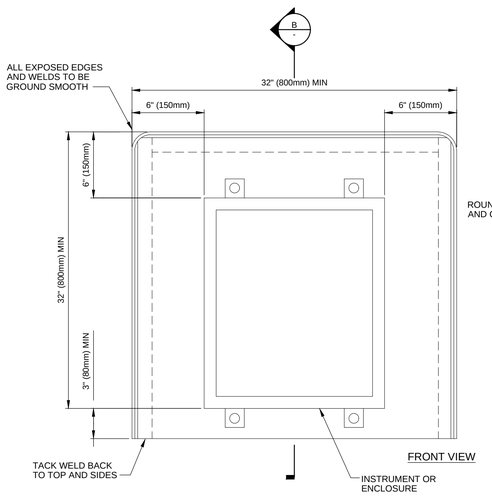


TOP VIEW WITH MOUNTED ELEMENT

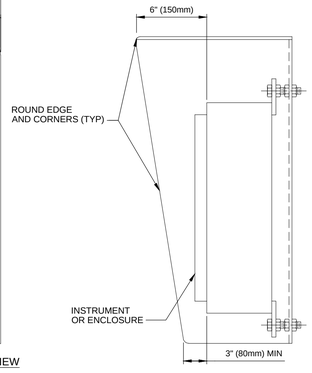




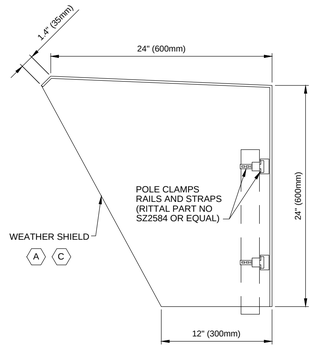
TYPE 16" (400mm) FRONT VIEW



FRONT VIEW WITH MOUNTED ELEMENT



B - SECTION



A - SECTION

GENERAL NOTES:

1. REFER TO INSTRUMENT STAND INSTALLATION DETAIL I-701 FOR STANCHION SUPPORT DETAILS.
2. CROSS RAILS TO HAVE MOUNTING HOLES DRILLED AS DETAILED.

KEYNOTES:

A. 304 STAINLESS STEEL.
B. WEATHER SHIELD MOUNTING HOLES ARE TO BE DRILLED ON SITE TO SUIT JUNCTION BOX POSITION, HOLES TO BE SMOOTH AND DEBURRED.
C. WEATHER SHIELD OPEN AT FRONT AND BOTTOM.
D. WEATHER SHIELD ATTACHED TO CROSS RAILS WITH 1/4" (6mm) DIA BY 3/4" (20mm) LONG 316SS BOLTS, 1/4" (6mm) DIA NUTS AND WASHERS.

I-702 INSTRUMENT WEATHER SHIELD

REV 010119

0 Revision	By	Appd	2022.12.02 YYYY.MM.DD	
0 Issued	By	Appd	2022.12.02 YYYY.MM.DD	

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BATTLE CREEK HATCHERY

File Name: 0226GI-11	JM Dwn.	JS Dsgn.	JR Chkd.	2024.09.19 YYYY.MM.DD

Title
INSTRUMENT DETAILS - VIII

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Sheet of
Drawing No. GI-11

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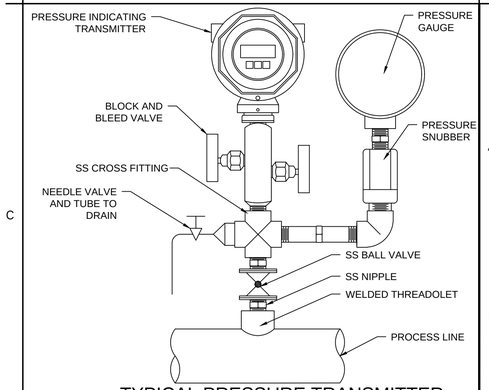
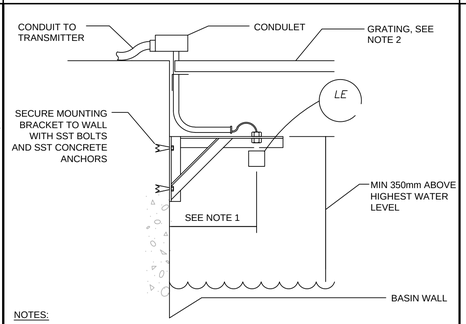


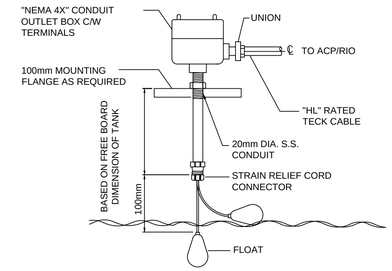
I-900 TYPICAL PRESSURE TRANSMITTER AND PRESSURE GAUGE INSTALLATION DETAIL



NOTES:

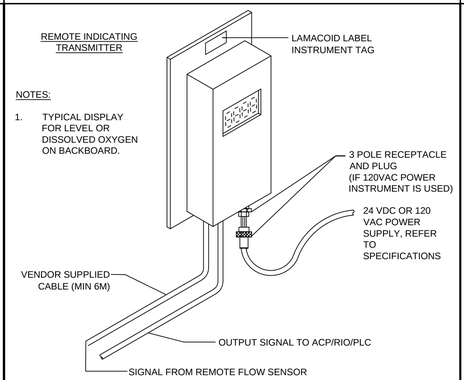
1. MOUNT TRANSDUCER AWAY FROM WALL PER MANUFACTURER'S RECOMMENDATIONS.
2. ON BASINS OR CHANNELS SO EQUIPPED, CUT OUT AND BAND GRATING TO PERMIT REMOVAL OF GRATING WITH OUT DISTURBING CABLES, SEE GRATING DETAIL.
3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

I-901 TYPICAL RADAR AND ULTRASONIC LEVEL SENSOR OPEN OR COVERED BASIN INSTALLATION



OPEN CHANNEL APPLICATION LEVEL SWITCH NON-HAZARDOUS AREA

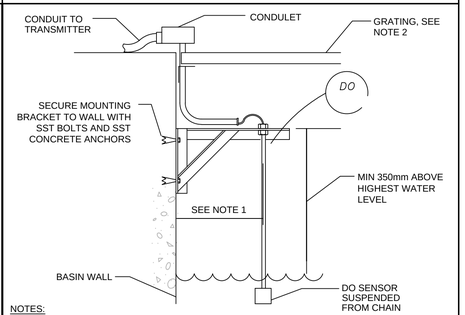
I-902 TYPICAL LEVEL FLOAT SWITCH INSTALLATION



NOTES:

1. TYPICAL DISPLAY FOR LEVEL OR DISSOLVED OXYGEN ON BACKBOARD.

I-903 TYPICAL REMOTE INDICATING TRANSMITTER



NOTES:

1. MOUNT DO SENSOR AWAY FROM WALL PER MANUFACTURER'S RECOMMENDATIONS.
2. ON BASINS OR CHANNELS SO EQUIPPED, CUT OUT AND BAND GRATING TO PERMIT REMOVAL OF GRATING WITH OUT DISTURBING CABLES, SEE GRATING DETAIL.
3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

I-904 TYPICAL DISSOLVED O2 LEVEL SENSOR OPEN OR COVERED BASIN INSTALLATION

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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BATTLE CREEK HATCHERY

File Name: 0226GI-12	JM Dwn.	JS Dsgn.	JR Chkd.	2024.09.19 YYYY.MM.DD

Title
INSTRUMENT DETAILS - IX

Project No.
224202267

Scale
NOT TO SCALE

Revision 0

Sheet of

Drawing No.
GI-12

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ORIGINAL SHEET - ANSI D

LOCAL CONTROL PANEL (LCP-300)				
DIGITAL INPUTS				
#	**1769-IQ32**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Intake Pump No 1 P-301 in Remote Status	ZL-3201	I:00/01/00	Slot 01: IN0
2	Intake Pump No 1 P-301 Run Status	YI-3201	I:00/01/01	Slot 01: IN1
3	Intake Pump No 1 P-301 Fail Alarm	YA-3201	I:00/01/02	Slot 01: IN2
4	Intake Pump No 1 P-301 Temperature Alarm High	TAH-3201	I:00/01/03	Slot 01: IN3
5	Intake Pump No 1 P-301 Moisture Alarm High	MAH-3201	I:00/01/04	Slot 01: IN4
6	Intake Pump No 1 P-301 Low Flow Alarm	FAL-3201	I:00/01/05	Slot 01: IN5
7	Intake Pump No 2 P-302 in Remote Status	ZL-3202	I:00/01/06	Slot 01: IN6
8	Intake Pump No 2 P-302 Run Status	YI-3202	I:00/01/07	Slot 01: IN7
9	Intake Pump No 2 P-302 Fail Alarm	YA-3202	I:00/01/08	Slot 01: IN8
10	Intake Pump No 2 P-302 High Temperature Alarm	TAH-3202	I:00/01/09	Slot 01: IN9
11	Intake Pump No 2 P-302 High Moisture Alarm	MAH-3202	I:00/01/10	Slot 01: IN10
12	Intake Pump No 2 P-302 Low Flow Alarm	FAL-3202	I:00/01/11	Slot 01: IN11
13	Intake Pump No 3 P-303 in Remote Status	ZL-3203	I:00/01/12	Slot 01: IN12
14	Intake Pump No 3 P-303 Run Status	YI-3203	I:00/01/13	Slot 01: IN13
15	Intake Pump No 3 P-303 Fail Alarm	YA-3203	I:00/01/14	Slot 01: IN14
16	Intake Pump No 3 P-303 High Temperature Alarm	TAH-3203	I:00/01/15	Slot 01: IN15
17	Intake Pump No 3 P-303 High Moisture Alarm	MAH-3203	I:00/01/16	Slot 01: IN16
18	Intake Pump No 3 P-303 Low Flow Alarm	FAL-3203	I:00/01/17	Slot 01: IN17
19	Vault Flow Meter FM-702 Totalized Flow Indication	FQI-7103	I:00/01/18	Slot 01: IN18
20	Intake Pump Station Level Alarm High High	LSHH-3202	I:00/01/19	Slot 01: IN19
21	Discharge Flow Switch 3301 Low Flow Alarm	FAL-3301	I:00/01/20	Slot 01: IN20
22	Discharge Flow Switch 3302 Low Flow Alarm	FAL-3302	I:00/01/21	Slot 01: IN21
23	Discharge Flow Switch 3303 Low Flow Alarm	FAL-3303	I:00/01/22	Slot 01: IN22
24	SPARE		I:00/01/23	Slot 01: IN23
25	SPARE		I:00/01/24	Slot 01: IN24
26	SPARE		I:00/01/25	Slot 01: IN25
27	SPARE		I:00/01/26	Slot 01: IN26
28	SPARE		I:00/01/27	Slot 01: IN27
29	SPARE		I:00/01/28	Slot 01: IN28
30	SPARE		I:00/01/29	Slot 01: IN29
31	SPARE		I:00/01/30	Slot 01: IN30
32	SPARE		I:00/01/31	Slot 01: IN31
DISCRETE OUTPUTS				
#	**1769-OW16**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Intake Pump No 1 P-301 Start / Stop Command	HS-3201	O:00/02/00	Slot 02: OUT0
2	Intake Pump No 2 P-302 Start / Stop Command	HS-3202	O:00/02/01	Slot 02: OUT1
3	Intake Pump No 3 P-303 Start / Stop Command	HS-3203	O:00/02/02	Slot 02: OUT2
4	SPARE		O:00/02/02	Slot 02: OUT3
5	SPARE		O:00/02/04	Slot 02: OUT4
6	SPARE		O:00/02/05	Slot 02: OUT5
7	SPARE		O:00/02/06	Slot 02: OUT6
8	SPARE		O:00/02/07	Slot 02: OUT7
9	SPARE		O:00/02/08	Slot 02: OUT8
10	SPARE		O:00/02/09	Slot 02: OUT9
11	SPARE		O:00/02/10	Slot 02: OUT10
12	SPARE		O:00/02/11	Slot 02: OUT11
13	SPARE		O:00/02/12	Slot 02: OUT12
14	SPARE		O:00/02/13	Slot 02: OUT13
15	SPARE		O:00/02/14	Slot 02: OUT14
16	SPARE		O:00/02/15	Slot 02: OUT15
ANALOG INPUTS				
#	**1769-IF8**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Intake Pump No 1 P-301 Speed Indication	SI-3201	I:00/03/00	Slot 03: AI0
2	Intake Pump No 2 P-302 Speed Indication	SI-3202	I:00/03/01	Slot 03: AI1
3	Intake Pump No 3 P-303 Speed Indication	SI-3203	I:00/03/02	Slot 03: AI2
4	Intake Pump Station Level Transmitter LIT-3201 Level Indication	LI-3201	I:00/03/03	Slot 03: AI3
5	Vault Flow Meter FM-702 Flow Indication	FI-7103	I:00/03/04	Slot 03: AI4
6	Intake Pump No 1 PIT-3301 Pressure Indication	PI-3301	I:00/03/05	Slot 03: AI5
7	Intake Pump No 1 PIT-3302 Pressure Indication	PI-3302	I:00/03/06	Slot 03: AI6
8	Intake Pump No 1 PIT-3302 Pressure Indication	PI-3303	I:00/03/07	Slot 03: AI7
#	**1769-IF8**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	SPARE		I:00/04/00	Slot 04: AI0
2	SPARE		I:00/04/01	Slot 04: AI1
3	SPARE		I:00/04/02	Slot 04: AI2
4	SPARE		I:00/04/03	Slot 04: AI3
5	SPARE		I:00/04/04	Slot 04: AI4
6	SPARE		I:00/04/05	Slot 04: AI5
7	SPARE		I:00/04/06	Slot 04: AI6
8	SPARE		I:00/04/07	Slot 04: AI7
ANALOG OUTPUTS				
#	**1769-OF4CI**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Intake Pump No 1 P-301 Speed Control	SC-3201	O:00/05/00	Slot 05: AO0
2	Intake Pump No 2 P-302 Speed Control	SC-3202	O:00/05/01	Slot 05: AO1
3	Intake Pump No 3 P-303 Speed Control	SC-3203	O:00/05/02	Slot 05: AO2
4	SPARE		O:00/05/03	Slot 05: AO3

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Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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JOHN C. DEERKOP — STATE OF WASHINGTON — 37294 — REGISTERED PROFESSIONAL ENGINEER

2/12/2025

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 0226GI-13	Dwn. JM	Dsgn. JS	Chkd. JR	2024.09.19 YYYY.MM.DD

Title
PLC I/O LIST - AREA 3/8
PUMPED INTAKE AND CLARIFIER

Project No.	Scale
224202267	NOT TO SCALE

Revision	Sheet	Drawing No.
0	of	GI-13

LOCAL CONTROL PANEL (LCP-400)				
DIGITAL INPUTS				
#	**1769-IQ32**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Submersible Well Pump P-201 in Auto Status	HSI-2101	I:00/01/00	Slot 01: IN0
2	Submersible Well Pump P-201 Run Status	YI-2101	I:00/01/01	Slot 01: IN1
3	Submersible Well Pump P-201 VFD Fault Alarm	YA-2101	I:00/01/02	Slot 01: IN2
4	Submersible Well Pump P-201 Moisture Alarm High	MAH-2101	I:00/01/03	Slot 01: IN3
5	Submersible Well Pump P-201 Temperature Alarm High	TAH-2101	I:00/01/04	Slot 01: IN4
6	Packed Column Aerator Suction Flow Meter FM-201 Totalized Flow Pulse	FQI-2101	I:00/01/05	Slot 01: IN5
7	Well Water Storage Tank Level Overflow Alarm	LAHH-2102	I:00/01/06	Slot 01: IN6
8	Radar Level Transmitter LIT-2102 Loss of Echo	YA-2102	I:00/01/07	Slot 01: IN7
9	Drum Filter DF-401 ON/OFF Status	YI-4201	I:00/01/08	Slot 01: IN8
10	Drum Filter DF-401 in Auto Status	HSI-4201A	I:00/01/09	Slot 01: IN9
11	Drum Filter DF-401 Drum Motor Fault Alarm	YA-4201A	I:00/01/10	Slot 01: IN10
12	Drum Filter DF-401 Backwash Pump Fault Alarm	YA-4201B	I:00/01/11	Slot 01: IN11
13	Drum Filter DF-401 Spraybar Motor Fault Alarm	YA-4201C	I:00/01/12	Slot 01: IN12
14	Drum Filter DF-401 Inlet Box Level Switch Level Alarm High High	LAHH-4201	I:00/01/13	Slot 01: IN13
15	Drum Filter DF-401 Inlet Box Level Switch Level Alarm Low Low	LALL-4201	I:00/01/14	Slot 01: IN14
16	Drum Filter DF-401 ESD Depressed Status	HSI-4201B	I:00/01/15	Slot 01: IN15
17	Drum Filter DF-402 ON/OFF Status	YI-4202	I:00/01/16	Slot 01: IN16
18	Drum Filter DF-402 in Auto Status	HSI-4202A	I:00/01/17	Slot 01: IN17
19	Drum Filter DF-402 Drum Motor Fault Alarm	YA-4202A	I:00/01/18	Slot 01: IN18
20	Drum Filter DF-402 Backwash Pump Fault Alarm	YA-4202B	I:00/01/19	Slot 01: IN19
21	Drum Filter DF-402 Spraybar Motor Fault Alarm	YA-4202C	I:00/01/20	Slot 01: IN20
22	Drum Filter DF-402 Inlet Box Level Switch Level Alarm High High	LAHH-4202	I:00/01/21	Slot 01: IN21
23	Drum Filter DF-402 Inlet Box Level Switch Level Alarm Low Low	LALL-4202	I:00/01/22	Slot 01: IN22
24	Drum Filter DF-402 ESD Depressed Status	HSI-4202B	I:00/01/23	Slot 01: IN23
25	Drum Filter DF-403 ON / OFF Status	YI-4203	I:00/01/24	Slot 01: IN24
26	Drum Filter DF-403 in Auto Status	HSI-4203A	I:00/01/25	Slot 01: IN25
27	Drum Filter DF-403 Drum Motor Fault Alarm	YA-4203A	I:00/01/26	Slot 01: IN26
28	Drum Filter DF-403 Backwash Pump Fault Alarm	YA-4203B	I:00/01/27	Slot 01: IN27
29	Drum Filter DF-403 Spraybar Motor Fault Alarm	YA-4203C	I:00/01/28	Slot 01: IN28
30	Drum Filter DF-403 Inlet Box Level Switch Level Alarm High High	LAHH-4203	I:00/01/29	Slot 01: IN29
31	Drum Filter DF-403 Inlet Box Level Switch Level Alarm Low Low	LALL-4203	I:00/01/30	Slot 01: IN30
32	Drum Filter DF-403 ESD Depressed Status	HSI-4203B	I:00/01/31	Slot 01: IN31
#	**1769-IQ32**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Intake Pump Discharge Flow Meter FM-401 Totalized Flow Indication	FQI-4101	I:00/02/00	Slot 02: IN0
2	UV System UV-401 ON/OFF Status	YI-4301	I:00/02/01	Slot 02: IN1
3	UV System UV-401 System Trouble Status	XA-4301	I:00/02/02	Slot 02: IN2
4	UV System UV-402 ON / OFF Status	YI-4302	I:00/02/03	Slot 02: IN3
5	UV System UV-402 System Trouble Status	XA-4302	I:00/02/04	Slot 02: IN4
6	UV System UV-403 ON/OFF Status	YI-4303	I:00/02/05	Slot 02: IN5
7	UV System UV-403 System Trouble Status	XA-4303	I:00/02/06	Slot 02: IN6
8	Headbox Level Indicating Transmitter LIT-4101 Loss of Echo	YA-4101	I:00/02/07	Slot 02: IN7
9	Headbox Level Overflow Alarm	LAHH-4401	I:00/02/08	Slot 02: IN8
10	SPARE		I:00/02/09	Slot 02: IN9
11	SPARE		I:00/02/10	Slot 02: IN10
12	SPARE		I:00/02/11	Slot 02: IN11
13	SPARE		I:00/02/12	Slot 02: IN12
14	SPARE		I:00/02/13	Slot 02: IN13
15	SPARE		I:00/02/14	Slot 02: IN14
16	SPARE		I:00/02/15	Slot 02: IN15
17	SPARE		I:00/02/16	Slot 02: IN16
18	SPARE		I:00/02/17	Slot 02: IN17
19	SPARE		I:00/02/18	Slot 02: IN18
20	SPARE		I:00/02/19	Slot 02: IN19
21	SPARE		I:00/02/20	Slot 02: IN20
22	SPARE		I:00/02/21	Slot 02: IN21
23	SPARE		I:00/02/22	Slot 02: IN22
24	SPARE		I:00/02/23	Slot 02: IN23
25	SPARE		I:00/02/24	Slot 02: IN24
26	SPARE		I:00/02/25	Slot 02: IN25
27	SPARE		I:00/02/26	Slot 02: IN26
28	SPARE		I:00/02/27	Slot 02: IN27
29	SPARE		I:00/02/28	Slot 02: IN28
30	SPARE		I:00/02/29	Slot 02: IN29
31	SPARE		I:00/02/30	Slot 02: IN30
32	SPARE		I:00/02/31	Slot 02: IN31

LOCAL CONTROL PANEL (LCP-400)				
DISCRETE OUTPUTS				
#	**1769-OW16**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Submersible Well Pump P-201 Start / Stop Command	YC-2101	O:00/03/00	Slot 03: OUT0
2	Drum Filter DF-401 System Enable/Disable Command	YC-4201	O:00/03/01	Slot 03: OUT1
3	Drum Filter DF-402 System Enable/Disable Command	YC-4202	O:00/03/02	Slot 03: OUT2
4	Drum Filter DF-403 System Enable/Disable Command	YC-4203	O:00/03/03	Slot 03: OUT3
5	UV System UV-403 System Enable/Disable Command	YC-4303	O:00/03/04	Slot 03: OUT4
6	UV System UV-402 System Enable/Disable Command	YC-4302	O:00/03/05	Slot 03: OUT5
7	UV System UV-401 System Enable/Disable Command	YC-4301	O:00/03/06	Slot 03: OUT6
8	SPARE		O:00/03/07	Slot 03: OUT7
9	SPARE		O:00/03/08	Slot 03: OUT8
10	SPARE		O:00/03/09	Slot 03: OUT9
11	SPARE		O:00/03/10	Slot 03: OUT10
12	SPARE		O:00/03/11	Slot 03: OUT11
13	SPARE		O:00/03/12	Slot 03: OUT12
14	SPARE		O:00/03/13	Slot 03: OUT13
15	SPARE		O:00/03/14	Slot 03: OUT14
16	SPARE		O:00/03/15	Slot 03: OUT15
ANALOG INPUTS				
#	**1769-IF8**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Well No 1 Level Transmitter LIT-2101 Level Indication	LI-2101	I:00/04/00	Slot 04: AI0
2	Submersible Well Pump P-201 Speed Indication	SI-2101	I:00/04/01	Slot 04: AI1
3	Submersible Well Pump Discharge Pressure Transmitter PIT-2101 Pressure Indicatio	PI-2101	I:00/04/02	Slot 04: AI2
4	Packed Column Aerator Suction Flow Meter FM-201 Flow Indication	FI-2101	I:00/04/03	Slot 04: AI3
5	Well Water Storage Tank Temperature Transmitter TIT-2101 Temperature Indication	TI-2101	I:00/04/04	Slot 04: AI4
6	Well Water Storage Tank Level Transmitter LIT-2102 Level Indication	LI-2102	I:00/04/05	Slot 04: AI5
7	Intake Pump Discharge Flow Meter FM-401 Flow Indication	FI-4101	I:00/04/06	Slot 04: AI6
8	UV System UV-401 System Feedback Indication	UI-4301	I:00/04/07	Slot 04: AI7
#	**1769-IF8**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	UV System UV-402 System Feedback Indication	UI-4302	I:00/05/00	Slot 05: AI0
2	UV System UV-403 System Feedback Indication	UI-4303	I:00/05/01	Slot 05: AI1
3	Headbox Level Indicating Transmitter LIT-4101 Level Indication	LI-4101	I:00/05/02	Slot 05: AI2
4	Well Water Storage Tank Dissolved Oxygen Level Indication	AE-2101	I:00/05/03	Slot 05: AI3
5	Water Supply Headbox Dissolved Oxygen Level Indication	AE-4401	I:00/05/04	Slot 05: AI4
6	SPARE		I:00/05/05	Slot 05: AI5
7	SPARE		I:00/05/06	Slot 05: AI6
8	SPARE		I:00/05/07	Slot 05: AI7
ANALOG OUTPUTS				
#	**1769-OF4CI**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Submersible Well Pump P-201 Speed Control	SC-2101	O:00/06/00	Slot 06: AO0
2	UV System UV-401 System Set-Point	UC-4301	O:00/06/01	Slot 06: AO1
3	UV System UV-402 System Set-Point	UC-4302	O:00/06/02	Slot 06: AO2
4	UV System UV-403 System Set-Point	UC-4303	O:00/06/03	Slot 06: AO3
#	**1769-OF4CI**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	SPARE		O:00/07/00	Slot 07: AO0
2	SPARE		O:00/07/01	Slot 07: AO1
3	SPARE		O:00/07/02	Slot 07: AO2
4	SPARE		O:00/07/03	Slot 07: AO3

0	Revision	By	Appd	2022.12.02 YYYY.MM.DD
0	Issued	By	Appd	2022.12.02 YYYY.MM.DD

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JOHN C. DEERKOSKI — STATE OF WASHINGTON — 31294 — REGISTERED PROFESSIONAL ENGINEER

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TULALIP TRIBES

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 0226GI-14 | JM Dwn. | JS Dsgn. | JR Chkd. | 2024.09.19 YYYY.MM.DD

Title
PLC I/O LIST - AREA 4
WATER TREATMENT AND STORAGE

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Sheet of
Drawing No. GI-14

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MAIN CONTROL PANEL (MCP-01)				
DIGITAL INPUTS				
#	**1769-IQ32**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Flow Meter FM-501 Totalized Flow Indication	FQI-5101	I:00/01/00	Slot 01: IN0
2	Flow Meter FM-502 Totalized Flow Indication	FQI-5102	I:00/01/01	Slot 01: IN1
3	Common Supply Trough Level Switch Level Alarm Low Low	LALL-5101	I:00/01/02	Slot 01: IN2
4	Incubation Reuse Pump Station Overflow Alarm	LAHH-5203	I:00/01/03	Slot 01: IN3
5	Reuse Pump Station Level Indicating Transmitter LIT-5203 Loss of Echo	YA-5203	I:00/01/04	Slot 01: IN4
6	Submersible Reuse Pump No 1 P-530 in Auto Status	HSI-5201	I:00/01/05	Slot 01: IN5
7	Submersible Reuse Pump No 1 P-530 Run Status	YI-5201	I:00/01/06	Slot 01: IN6
8	Submersible Reuse Pump No 1 P-530 VFD Fault Alarm	YA-5201	I:00/01/07	Slot 01: IN7
9	Submersible Reuse Pump No 1 P-530 Moisture Alarm High	MAH-5201	I:00/01/08	Slot 01: IN8
10	Submersible Reuse Pump No 1 P-530 Temperature Alarm High	TAH-5201	I:00/01/09	Slot 01: IN9
11	Submersible Reuse Pump No 2 P-531 in Auto Status	HSI-5202	I:00/01/10	Slot 01: IN10
12	Submersible Reuse Pump No 2 P-531 Run Status	YI-5202	I:00/01/11	Slot 01: IN11
13	Submersible Reuse Pump No 2 P-531 VFD Fault	YA-5202	I:00/01/12	Slot 01: IN12
14	Submersible Reuse Pump No 2 P-531 Moisture Alarm High	MAH-5202	I:00/01/13	Slot 01: IN13
15	Submersible Reuse Pump No 2 P-531 Temperature Alarm High	TAH-5202	I:00/01/14	Slot 01: IN14
16	Formalin Metering Tank Level Indicating Transmitter LIT-5205 Loss of Echo	YA-5205	I:00/01/15	Slot 01: IN15
17	Formalin Metering Tank Overflow Alarm	LAHH-5204	I:00/01/16	Slot 01: IN16
18	Formalin Dilution Pump P-520 in Auto Status	HSI-5204	I:00/01/17	Slot 01: IN17
19	Formalin Dilution Pump P-520 in VFD Fault	YA-5204	I:00/01/18	Slot 01: IN18
20	Formalin Dilution Pump P-520 in Run Status	YI-5204	I:00/01/19	Slot 01: IN19
21	Flow Meter Vault Flow Meter FM-540 Totalized Flow Indication	FQI-5404	I:00/01/20	Slot 01: IN20
22	Screen Filter SF-510 ON / OFF Status	YI-5403	I:00/01/21	Slot 01: IN21
23	Screen Filter SF-510 in Auto Status	HSI-5403A	I:00/01/22	Slot 01: IN22
24	Screen Filter SF-510 Drum Motor Fault Alarm	YA-5403A	I:00/01/23	Slot 01: IN23
25	Screen Filter SF-510 Backwash Pump Fault Alarm	YA-5403B	I:00/01/24	Slot 01: IN24
26	Screen Filter SF-510 Spraybar Motor Fault Alarm	YA-5403C	I:00/01/25	Slot 01: IN25
27	Screen Filter SF-510 Level Alarm High High	LAHH-5403	I:00/01/26	Slot 01: IN26
28	Screen Filter SF-510 Level Alarm Low Low	LALL-5403	I:00/01/27	Slot 01: IN27
29	Screen Filter SF-510 ESD Depressed	HSI-5403B	I:00/01/28	Slot 01: IN28
30	Chiller System 5-CHS-110 in Auto Status	HSI-5404	I:00/01/29	Slot 01: IN29
31	Chiller System 5-CHS-110 Run Statis	YI-5404	I:00/01/30	Slot 01: IN30
32	Chiller System 5-CHS-110 Fault Alarm	YA-5404	I:00/01/31	Slot 01: IN31
#	**1769-IQ32**		**PLC I/O**	**PLC Termination**
1	UV System UV-510 ON / OFF Status	YI-5405	I:00/02/00	Slot 02: IN0
2	UV System UV-510 System Trouble Status	XA-5405	I:00/02/01	Slot 02: IN1
3	UV System UV-511 ON / OFF Status	YI-5406	I:00/02/02	Slot 02: IN2
4	UV System UV-511 System Trouble Status	XA-5406	I:00/02/03	Slot 02: IN3
5	Effluent Drum Filter DF-701 On / Off Status	YI-7101	I:00/02/04	Slot 02: IN4
6	Effluent Drum Filter DF-701 In Auto	HSI-7101A	I:00/02/05	Slot 02: IN5
7	Effluent Drum Filter DF-701 Drum Motor Fault	YA-7101A	I:00/02/06	Slot 02: IN6
8	Effluent Drum Filter DF-701 Backwash Pump Fault	YA-7101B	I:00/02/07	Slot 02: IN7
9	Effluent Drum Filter DF-701 Spraybar Motor Fault	YA-7101C	I:00/02/08	Slot 02: IN8
10	Effluent Drum Filter DF-701 High Level Alarm	LAHH-7101	I:00/02/09	Slot 02: IN9
11	Effluent Drum Filter DF-701 Low Level Alarm	LALL-7101	I:00/02/10	Slot 02: IN10
12	Effluent Drum Filter DF-701 ESD Depressed	HSI-7101B	I:00/02/11	Slot 02: IN11
13	Clarifier Rake CFR-701 In Auto	HSI-7102	I:00/02/12	Slot 02: IN12
14	Clarifier Rake CFR-701 Forward Indication	YI-7102A	I:00/02/13	Slot 02: IN13
15	Clarifier Rake CFR-701 Reverse Indication	YI-7102B	I:00/02/14	Slot 02: IN14
16	Clarifier Rake CFR-701 Fault	YA-7102A	I:00/02/15	Slot 02: IN15
17	Clarifier Rake CFR-701 Over Torque	YA-7102B	I:00/02/16	Slot 02: IN16
18	Clarifier Rake CFR-701 Ready	YI-7102C	I:00/02/17	Slot 02: IN17
19	CP-PRV-510 Control Panel Fault	YA-5402	I:00/02/18	Slot 02: IN18
20	SPARE		I:00/02/19	Slot 02: IN19
21	SPARE		I:00/02/20	Slot 02: IN20
22	SPARE		I:00/02/21	Slot 02: IN21
23	SPARE		I:00/02/22	Slot 02: IN22
24	SPARE		I:00/02/23	Slot 02: IN23
25	SPARE		I:00/02/24	Slot 02: IN24
26	SPARE		I:00/02/25	Slot 02: IN25
27	SPARE		I:00/02/26	Slot 02: IN26
28	SPARE		I:00/02/27	Slot 02: IN27
29	SPARE		I:00/02/28	Slot 02: IN28
30	SPARE		I:00/02/29	Slot 02: IN29
31	SPARE		I:00/02/30	Slot 02: IN30
32	SPARE		I:00/02/31	Slot 02: IN31

MAIN CONTROL PANEL (MCP-01)				
DIGITAL INPUTS				
#	**1769-IQ32**		**PLC I/O**	**PLC Termination**
1	Generator 1-M-01 E-Stop Depressed Status	HSI-1101A	I:00/03/00	Slot 03: IN0
2	Generator 1-M-01 in Auto Status	HSI-1101B	I:00/03/01	Slot 03: IN1
3	Generator 1-M-01 Run Status	YL-1101	I:00/03/02	Slot 03: IN2
4	Generator 1-M-01 Common Pre-Alarm	YA-1101A	I:00/03/03	Slot 03: IN3
5	Generator 1-M-01 Common Alarm	YA-1101B	I:00/03/04	Slot 03: IN4
6	Generator 1-M-01 Fail to Start Alarm	YA-1101C	I:00/03/05	Slot 03: IN5
7	Generator 1-M-01 Battery Charger Alarm	YA-1101D	I:00/03/06	Slot 03: IN6
8	Generator Storage Tank Leak Detection	LSH-1102	I:00/03/07	Slot 03: IN7
9	Automatic Load Bank 1-LB-3 Load Bank Normal Operation Status	YI-1103A	I:00/03/08	Slot 03: IN8
10	Automatic Load Bank 1-LB-3 Load Bank Running Status	YI-1103B	I:00/03/09	Slot 03: IN9
11	Automatic Load Bank 1-LB-3 Load Bank Off Status	YI-1103C	I:00/03/10	Slot 03: IN10
12	Automatic Load Bank 1-LB-3 Load Bank Fail Alarm	YA-1103	I:00/03/11	Slot 03: IN11
13	Automatic Transfer Switch 1-ATS-02 Normal Source Available Status	EI-1102A	I:00/03/12	Slot 03: IN12
14	Automatic Transfer Switch 1-ATS-02 Standby Source Available Status	EI-1102B	I:00/03/13	Slot 03: IN13
15	Automatic Transfer Switch 1-ATS-02 Normal Position Status	ZI-1102A	I:00/03/14	Slot 03: IN14
16	Automatic Transfer Switch 1-ATS-02 Standby Position Status	ZI-1102B	I:00/03/15	Slot 03: IN15
17	Automatic Transfer Switch 1-ATS-02 Fault Alarm	YA-1102	I:00/03/16	Slot 03: IN16
18	Main Control Panel MCP-01 UPS Fault Status	XA-9001	I:00/03/17	Slot 03: IN17
19	Main Control Panel MCP-01 UPS Low Battery	EAL-9001	I:00/03/18	Slot 03: IN18
20	Main Control Panel MCP-01 UPS On Bypass	ES-9001A	I:00/03/19	Slot 03: IN19
21	Main Control Panel MCP-01 UPS On Utility	ES-9001B	I:00/03/20	Slot 03: IN20
22	Main Control Panel MCP-01 UPS Bypass Switch In Bypass Mode	ES-9001C	I:00/03/21	Slot 03: IN21
23	Main Control Panel MCP-01 Surge Protection Detected	XA-9002	I:00/03/22	Slot 03: IN22
24	Main Control Panel MCP-01 24VDC Power Supply #1 alarm Indication	XA-9003	I:00/03/23	Slot 03: IN23
25	Main Control Panel MCP-01 24VDC Power Supply #2 alarm Indication	XA-9004	I:00/03/24	Slot 03: IN24
26	Main Control Panel MCP-01 Surge Protection Device Alarm	XA-9005	I:00/03/25	Slot 03: IN25
27	SPARE		I:00/03/26	Slot 03: IN26
28	SPARE		I:00/03/27	Slot 03: IN27
29	SPARE		I:00/03/28	Slot 03: IN28
30	SPARE		I:00/03/29	Slot 03: IN29
31	SPARE		I:00/03/30	Slot 03: IN30
32	SPARE		I:00/03/31	Slot 03: IN31
DISCRETE OUTPUTS				
#	**1769-OW16**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Submersible Reuse Pump No 1 P-530 Start / Stop Command	YC-5201	O:00/04/00	Slot 04: OUT0
2	Submersible Reuse Pump No 2 P-531 Start / Stop Command	YC-5202	O:00/04/01	Slot 04: OUT1
3	Screen Filter SF-510 System Enable / Disable Command	YC-5403	O:00/04/02	Slot 04: OUT2
4	Chiller System CHS-510 Start / Stop Command	YC-5404	O:00/04/03	Slot 04: OUT3
5	UV System UV-510 System Enable / Disable Command	YC-5405	O:00/04/04	Slot 04: OUT4
6	UV System UV-511 System Enable / Disable Command	YC-5406	O:00/04/05	Slot 04: OUT5
7	Effluent Drum Filter DF-701 System Enable / Disable Command	YC-7101	O:00/04/06	Slot 04: OUT6
8	Clarifier Rake CFR-701 Run Forward Command	YC-7102A	O:00/04/07	Slot 04: OUT7
9	Clarifier Rake CFR-701 Run Reverse Command	YC-7102B	O:00/04/08	Slot 04: OUT8
10	SPARE		O:00/04/09	Slot 04: OUT9
11	SPARE		O:00/04/10	Slot 04: OUT10
12	SPARE		O:00/04/11	Slot 04: OUT11
13	SPARE		O:00/04/12	Slot 04: OUT12
14	SPARE		O:00/04/13	Slot 04: OUT13
15	SPARE		O:00/04/14	Slot 04: OUT14
16	SPARE		O:00/04/15	Slot 04: OUT15
ANALOG INPUTS				
#	**1769-IF8**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Flow Meter FM-501 Flow Indication	FI-5101	I:00/05/00	Slot 05: AI0
2	Flow Meter FM-502 Flow Indication	FI-5102	I:00/05/01	Slot 05: AI1
3	Reuse Pump Station Level Indicating Transmitter LIT-5203 Level Indication	LI-5203	I:00/05/02	Slot 05: AI2
4	Submersible Reuse Pump No 1 P-530 Speed Indication	SI-5201	I:00/05/03	Slot 05: AI3
5	Submersible Reuse Pump No 2 P-531 Speed Indication	SI-5202	I:00/05/04	Slot 05: AI4
6	Formalin Metering Tank Level Indicating Transmitter LIT-5205 Level Indication	LI-5205	I:00/05/05	Slot 05: AI5
7	Formalin Dilution Pump Discharge Pressure Transmitter PIT-5204 Pressure Indication	PI-5204	I:00/05/06	Slot 05: AI6
8	Flow Meter Vault Flow Meter FM-540 Flow Indication	FI-5404	I:00/05/07	Slot 05: AI7
#	**1769-IF8**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Temperature Transmitter TIT-5404 Temperature Indication	TI-5404	I:00/06/00	Slot 06: AI0
2	UV System UV-510 Feedback Indication	UI-5405	I:00/06/01	Slot 06: AI1
3	UV System UV-511 Feedback Indication	UI-5406	I:00/06/02	Slot 06: AI2
4	Generator Storage Tank Level Transmitter LIT-1101 Level Indication	LI-1101	I:00/06/03	Slot 06: AI3
5	Intake Screen Filter Pressure Transmitter PIT-5402 Pressure Indication	PI-5402	I:00/06/04	Slot 06: AI4
6	PRV-510 Position Indication	ZI-5402	I:00/06/05	Slot 06: AI5
7	SPARE		I:00/06/06	Slot 06: AI6
8	SPARE		I:00/06/07	Slot 06: AI7

MAIN CONTROL PANEL (MCP-01)				
ANALOG OUTPUTS				
#	**1769-OF4CI**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Submersible Reuse Pump No 1 P-530 Speed Control	SC-5201	O:00/07/00	Slot 07: AO0
2	Submersible Reuse Pump No 2 P-531 Speed Control	SC-5202	O:00/07/01	Slot 07: AO1
3	UV System UV-510 Setpoint	UC-5405	O:00/07/02	Slot 07: AO2
4	UV System UV-511 Setpoint	UC-5406	O:00/07/03	Slot 07: AO3
#	**1769-OF4CI**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	PRV-510 Postion Set-Point	ZC-5402	O:00/08/00	Slot 08: AO0
2	SPARE		O:00/08/01	Slot 08: AO1
3	SPARE		O:00/08/02	Slot 08: AO2
4	SPARE		O:00/08/03	Slot 08: AO3

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	STN	DEW	2026.12.07

Permit/Seal

JOHN C. DEFROOT — STATE OF WASHINGTON — 37294 — REGISTERED PROFESSIONAL ENGINEER

2/12/2025

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 0226GI-15 | STN Dwn. | DEW Dsgn. | CJWS Chkd. | 2024.12.27 YYYY.MM.DD

Title
PLC I/O LIST - AREA 5
INCUBATION BUILDING

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Drawing No. GI-15

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ORIGINAL SHEET - ANSI D

LOCAL CONTROL PANEL (LCP-601)				
DIGITAL INPUTS				
#	**1769-IQ32**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Rearing Tank No 1 Flow Meter FM-601 Totalized Flow Pulse	FQI-6101	I:00/01/00	Slot 01: IN0
2	Rearing Tank No 2 Flow Meter FM-602 Totalized Flow Pulse	FQI-6102	I:00/01/01	Slot 01: IN1
3	Rearing Tank No 3 Flow Meter FM-603 Totalized Flow Pulse	FQI-6103	I:00/01/02	Slot 01: IN2
4	Rearing Tank No 4 Flow Meter FM-604 Totalized Flow Pulse	FQI-6104	I:00/01/03	Slot 01: IN3
5	Rearing Tank No 5 Flow Meter FM-606 Totalized Flow Pulse	FQI-6105	I:00/01/04	Slot 01: IN4
6	Rearing Tank No 6 Flow Meter FM-606 Totalized Flow Pulse	FQI-6106	I:00/01/05	Slot 01: IN5
7	Rearing Tank No 7 Flow Meter FM-607 Totalized Flow Pulse	FQI-6107	I:00/01/06	Slot 01: IN6
8	Rearing Tank No 8 Flow Meter FM-608 Totalized Flow Pulse	FQI-6108	I:00/01/07	Slot 01: IN7
9	Rearing Trough No 1 Flow Meter FM-611 Totalized Flow Pulse	FQI-6111	I:00/01/08	Slot 01: IN8
10	Rearing Trough No 2 Flow Meter FM-612 Totalized Flow Pulse	FQI-6112	I:00/01/09	Slot 01: IN9
11	Rearing Trough No 3 Flow Meter FM-613 Totalized Flow Pulse	FQI-6113	I:00/01/10	Slot 01: IN10
12	Rearing Trough No 4 Flow Meter FM-614 Totalized Flow Pulse	FQI-6114	I:00/01/11	Slot 01: IN11
13	Rearing Trough No 5 Flow Meter FM-615 Totalized Flow Pulse	FQI-6115	I:00/01/12	Slot 01: IN12
14	Rearing Trough No 6 Flow Meter FM-616 Totalized Flow Pulse	FQI-6116	I:00/01/13	Slot 01: IN13
15	Rearing Trough No 7 Flow Meter FM-617 Totalized Flow Pulse	FQI-6117	I:00/01/14	Slot 01: IN14
16	Rearing Trough No 8 Flow Meter FM-618 Totalized Flow Pulse	FQI-6118	I:00/01/15	Slot 01: IN15
17	Rearing Trough No 9 Flow Meter FM-619 Totalized Flow Pulse	FQI-6119	I:00/01/16	Slot 01: IN16
18	Rearing Trough No 10 Flow Meter FM-620 Totalized Flow Pulse	FQI-6120	I:00/01/17	Slot 01: IN17
19	SPARE		I:00/01/18	Slot 01: IN18
20	SPARE		I:00/01/19	Slot 01: IN19
21	SPARE		I:00/01/20	Slot 01: IN20
22	SPARE		I:00/01/21	Slot 01: IN21
23	SPARE		I:00/01/22	Slot 01: IN22
24	SPARE		I:00/01/23	Slot 01: IN23
25	SPARE		I:00/01/24	Slot 01: IN24
26	SPARE		I:00/01/25	Slot 01: IN25
27	SPARE		I:00/01/26	Slot 01: IN26
28	SPARE		I:00/01/27	Slot 01: IN27
29	SPARE		I:00/01/28	Slot 01: IN28
30	SPARE		I:00/01/29	Slot 01: IN29
31	SPARE		I:00/01/30	Slot 01: IN30
32	SPARE		I:00/01/31	Slot 01: IN31
ANALOG INPUTS				
#	**1769-IF8**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Rearing Tank No 1 Flow Meter FM-601 Flow Indication	FI-6101	I:00/02/00	Slot 02: AI0
2	Rearing Tank No 2 Flow Meter FM-602 Flow Indication	FI-6102	I:00/02/01	Slot 02: AI1
3	Rearing Tank No 3 Flow Meter FM-603 Flow Indication	FI-6103	I:00/02/02	Slot 02: AI2
4	Rearing Tank No 4 Flow Meter FM-604 Flow Indication	FI-6104	I:00/02/03	Slot 02: AI3
5	Rearing Tank No 5 Flow Meter FM-606 Flow Indication	FI-6105	I:00/02/04	Slot 02: AI4
6	Rearing Tank No 6 Flow Meter FM-606 Flow Indication	FI-6106	I:00/02/05	Slot 02: AI5
7	Rearing Tank No 7 Flow Meter FM-607 Flow Indication	FI-6107	I:00/02/06	Slot 02: AI6
8	Rearing Tank No 8 Flow Meter FM-608 Flow Indication	FI-6108	I:00/02/07	Slot 02: AI7
#	**1769-IF8**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Rearing Trough No 1 Flow Meter FM-6111 Flow Indication	FI-6111	I:00/03/00	Slot 03: AI0
2	Rearing Trough No 2 Flow Meter FM-6111 Flow Indication	FI-6112	I:00/03/01	Slot 03: AI1
3	Rearing Trough No 3 Flow Meter FM-6111 Flow Indication	FI-6113	I:00/03/02	Slot 03: AI2
4	Rearing Trough No 4 Flow Meter FM-6111 Flow Indication	FI-6114	I:00/03/03	Slot 03: AI3
5	Rearing Trough No 5 Flow Meter FM-6111 Flow Indication	FI-6115	I:00/03/04	Slot 03: AI4
6	Rearing Trough No 6 Flow Meter FM-6111 Flow Indication	FI-6116	I:00/03/05	Slot 03: AI5
7	Rearing Trough No 7 Flow Meter FM-6111 Flow Indication	FI-6117	I:00/03/06	Slot 03: AI6
8	Rearing Trough No 8 Flow Meter FM-6111 Flow Indication	FI-6118	I:00/03/07	Slot 03: AI7
#	**1769-IF8**	**PLC Tag**	**PLC I/O**	**PLC Termination**
1	Rearing Trough No 9 Flow Meter FM-6111 Flow Indication	FI-6119	I:00/04/00	Slot 04: AI0
2	Rearing Trough No 10 Flow Meter FM-6111 Flow Indication	FI-6120	I:00/04/01	Slot 04: AI1
3	SPARE		I:00/04/02	Slot 04: AI2
4	SPARE		I:00/04/03	Slot 04: AI3
5	SPARE		I:00/04/04	Slot 04: AI4
6	SPARE		I:00/04/05	Slot 04: AI5
7	SPARE		I:00/04/06	Slot 04: AI6
8	SPARE		I:00/04/07	Slot 04: AI7

Revision	By	Appd	YYYY.MM.DD

FINAL DESIGN	JM	JCD	2026.04.13
Issued	By	Appd	YYYY.MM.DD

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JOHN C. DEERKOP — STATE OF WASHINGTON — 31294 — REGISTERED PROFESSIONAL ENGINEER

4/20/2026

Consultant

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Client/Project
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BATTLE CREEK HATCHERY

File Name: 0226GI-16	JM	JS	JR	2026.04.17
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
PLC I/O LIST - AREA 6
REARING TANKS

Project No.
224202267

Scale
NOT TO SCALE

Revision
0

Drawing No.
GI-16

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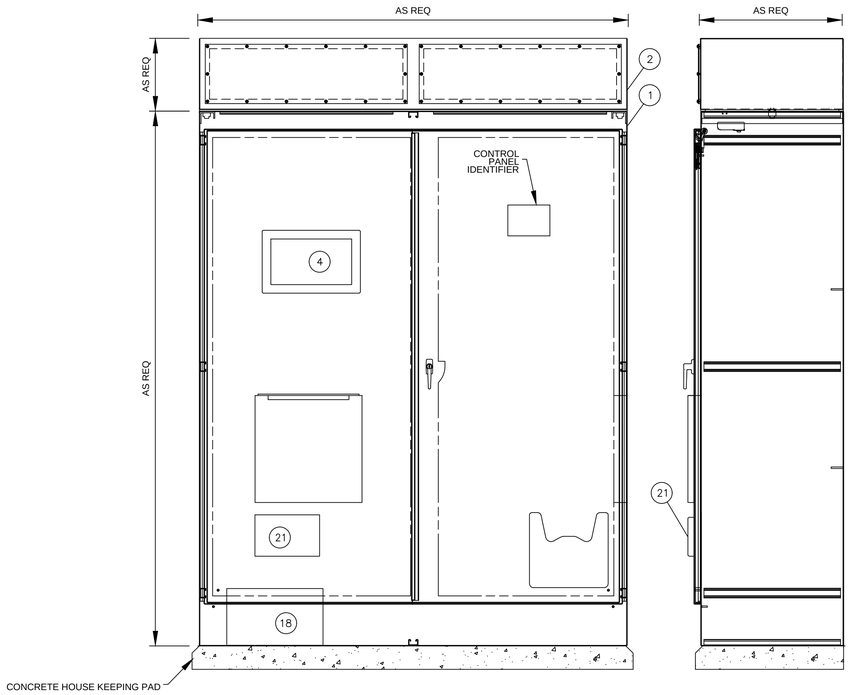

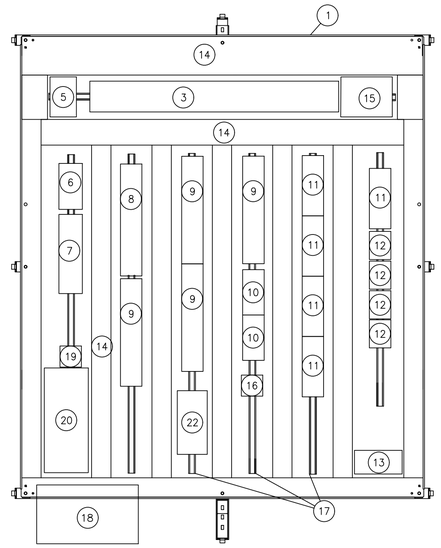

ITEM	DESCRIPTION	MANUFACTURER
1	TYPE 12 ENCLOSURE c/w FULL SIZE MOUNTING PANEL, ENCLOSURE LIGHTING, LAPTOP FOLDING SHELF, DOOR SWITCH AND DOCUMENT STORAGE POCKET	HOFFMAN
2	PANEL TOP HAT ENCLOSURE	HAMMOND
3	PLC CONTROL SYSTEM INCLUDING: POWER SUPPLY, CONTROLLER, INPUT/OUTPUT MODULES, WIRING TERMINALS AND COMMUNICATIONS CABLES	AB
4	HUMAN MACHINE INTERFACE (HMI)	ADVANTECH
5	24VDC POWER SUPPLIES c/w REDUNDANCY FUNCTIONALITY	WEIDMULLER
6	INCOMMING 120VAC POWER DISTRIBUTION INCLUDING: BREAKERS, SURGE PROTECTION DEVICE, TERMINALS AND JUMPER BARS	WEIDMULLER
7	120VAC UPS POWER DISTRIBUTION INCLUDING BREAKERS, TERMINALS AND JUMPER BARS	WEIDMULLER
8	24VDC POWER DISTRIBUTION INCLUDING BREAKERS, TERMINALS AND JUMPER BARS	WEIDMULLER
9	DIGITAL INPUT TERMINAL STRIP INCLUDING: END BRACKETS, LABEL CARRIERS AND LABELS, KNIFE SWITCHES AND FUSED TERMINALS.	WEIDMULLER
10	RELAY OUTPUT TERMNAL STRIP INCLUDING: END BRACKETS, LABEL CARRIERS AND LABELS, KNIFE SWITCHES AND FEED THROUGH TERMINALS	WEIDMULLER
11	ANALOG INTPUT TERMINAL STRIP INCLUDING: END BRACKETS, LABEL CARRIERS AND LABELS, GROUND TERMINALS, KNIFE SWTICHES AND FUSED TERMINALS	WEIDMULLER
12	ANALOG OUTPUT TERMINAL STRIP INCLUDING: END BRACKETS, LABEL CARRIERS AND LABELS, GROUND TERMINALS, KNIFE SWITCHES AND FUSED TERMINALS	WEIDMULLER
13	CONTROL ENCLOSURE GROUNDING c/w BUSSBAR, LUGS, CLAMPING SCREWS	WEIDMULLER
14	WIRE DUCT c/w COVER (VARIOUS SIZES)	PANDUIT
15	NETWORK / COMMUNICATIONS GATEWAYS INCLUDING: ETHERNET SWITCHES AND PROTOCOL CONVERTERS	VARIOUS
16	CONTROL PANEL RELAYS c/w BASE AND SOLENOID	WEIDMULLER
17	SLOTTED DIN RAIL	WEIDMULLER
18	UNINTERRUPTIBLE POWER SUPPLY (UPS) c/w RELAY OUTPUT CARD	EATON
19	120VAC RAIL MOUNT SIMPLEX RECEPTACLE	WEIDMULLER
20	UPS WRAP-AROUND BYPASS, 15A, 120VAC, c/w AUTOMATIC TRANSFER SWITCH AND FORM C OUTPUT	ALWAYS ON
21	ENCLOSURE DOOR ACCESS PORTS INCLUDING: 120VAC RECEPTACLE AND RJ45 CAT 6 ETHERNET DATA PORT	LEVITION / WEIDMULLER
22	CELLULAR OR LANDLINE BASED AUTODIALER ALARM NOTIFIER c/w POWER SUPPLY	VARIOUS

GENERAL SHEET NOTES

1. CONTROL PANEL SHOWN AS TYPICAL GENERAL ARRANGEMENT FOR MCP-01.
2. CONTRACTOR TO FOLLOW GENERAL PANEL ARRANGEMENT WHEN LAYING OUT AND FABRICATING MCP-01. MODIFY ARRANGEMENT AS REQUIRED TO MEET DESIGN INTENT.
3. DETAILED CONTROL PANEL DRAWINGS AND LOOP DRAWINGS FOR FIELD CONNECTIONS TO MCP-01 ARE THE RESPONSIBILITY OF THE CONTRACTOR.
4. BILL OF MATERIALS INCLUDES DESIGN BASIS COMPONENTS. CONTRACTOR TO PROVIDE EQUAL OR EQUIVALENT WHEN DESIGNING AND BUILDING CONTROL PANEL.
5. REFER TO THE MCP-01 I/O LIST ON GI-15 FOR REQUIRED SIGNAL CONNECTIONS TO MCP-01 WHEN LAYING OUT OF TERMINALS AND CREATING LOOP DRAWINGS.
6. MCP-01 PANEL AND LOOP DRAWINGS TO BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO FABRICATING.
7. CONTRACTOR TO ENGAGE THE OWNER'S PREFERRED CONTROLS SYSTEM INTEGRATOR TO COMPLETE THE PLC, HMI, AND SCADA PROGRAMMING. REFER TO SPECIFICATION 40 91 00 FOR ADDITIONAL INFORMATION.

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Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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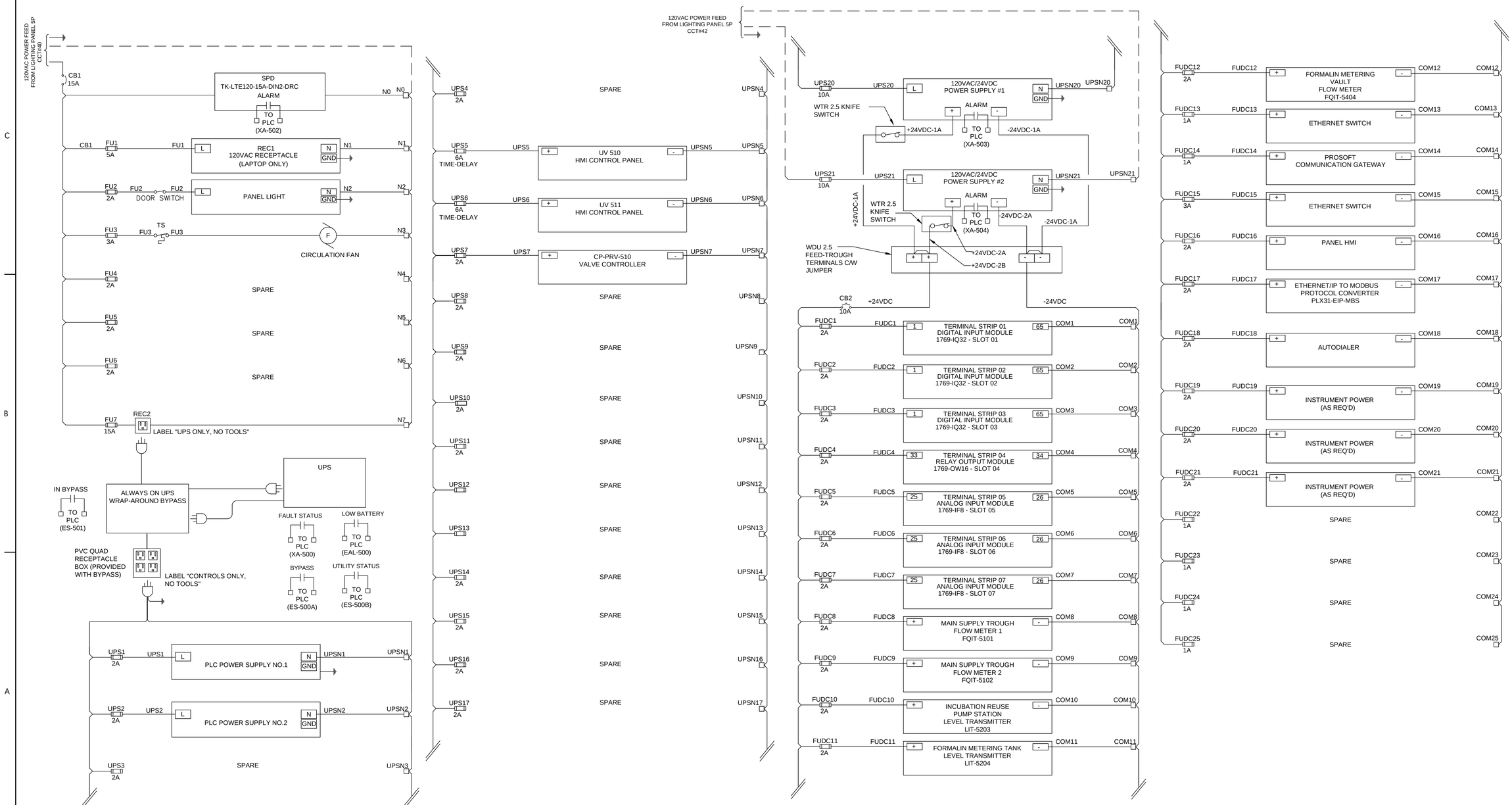
BATTLE CREEK HATCHERY

File Name: 0226Gi-17 | Dwn. JM | Dsgn. JS | Chkd. JR | YYYY.MM.DD 2024.09.19

Title
MAIN CONTROL PANEL - MCP-01
TYPICAL LAYOUT, BILL OF MATERIALS, AND GENERAL ARRANGEMENT

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Sheet of
Drawing No. GI-17



Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	STN	DEW	2026.12.07

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Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 0226GI-18

Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
STN	DEW	CWS	2024.12.27

Title
MAIN CONTROL PANEL - MCP-01
POWER DISTRIBUTION

Project No.
224202267

Scale
NOT TO SCALE

Revision
0

Drawing No.
GI-18

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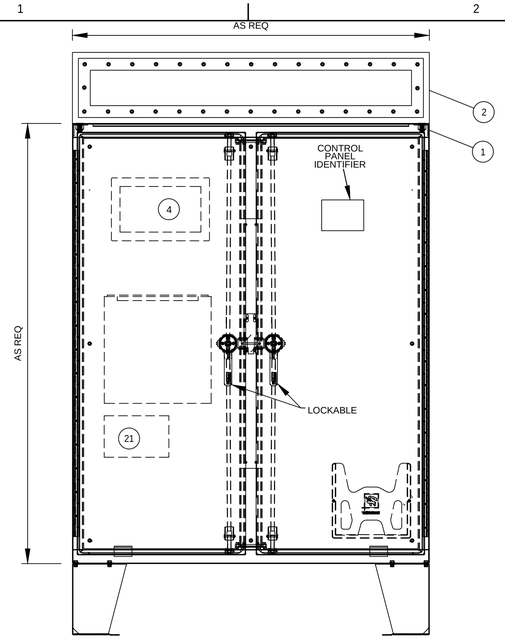

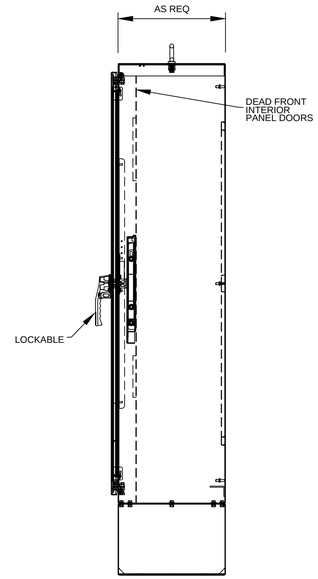

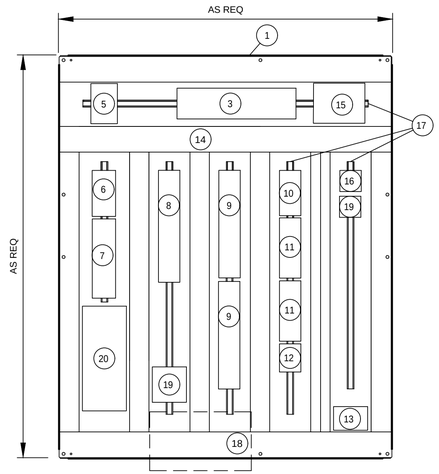

GENERAL SHEET NOTES

1. CONTROL PANEL SHOWN AS TYPICAL GENERAL ARRANGEMENT FOR LCP-300,400, AND 600.
2. CONTRACTOR TO FOLLOW GENERAL PANEL ARRANGEMENT WHEN LAYING OUT AND FABRICATING LCP-300,400, AND 600. MODIFY ARRANGEMENT AS REQUIRED TO MEET DESIGN INTENT.
3. DETAILED CONTROL PANEL DRAWINGS AND LOOP DRAWINGS FOR FIELD CONNECTIONS TO LCP-300,400,600 ARE THE RESPONSIBILITY OF THE CONTRACTOR.
4. BILL OF MATERIALS INCLUDES DESIGN BASIS COMPONENTS. CONTRACTOR TO PROVIDE EQUAL OR EQUIVALENT WHEN DESIGNING AND BUILDING CONTROL PANEL.
5. REFER TO THE LCP-300,400, AND 600 I/O LIST ON GI-13,GI-14,GI-16 FOR REQUIRED SIGNAL CONNECTIONS TO RESPECTIVE LCP'S WHEN LAYING OUT OF TERMINALS AND CREATING LOOP DRAWINGS.
6. LCP-300,400, AND 600 PANEL AND LOOP DRAWINGS TO BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO FABRICATING.
7. EXTERIOR PANEL DOORS TO BE BLANK, TYPE 4X, LOCKABLE. INTERIOR DOORS TO BE DEADFRONT WITH HMI, SELECTOR SWITCHES, AND INDICATING LIGHTS.
8. CONTRACTOR TO ENGAGE THE OWNER'S PREFERRED CONTROLS SYSTEM INTEGRATOR TO COMPLETE THE PLC, HMI, AND SCADA PROGRAMMING. REFER TO SPECIFICATION 40 91 00 FOR ADDITIONAL INFORMATION.

ITEM	DESCRIPTION	MANUFACTURER
1	TYPE 4X ENCLOSURE c/w FULL SIZE MOUNTING PANEL, ENCLOSURE LIGHTING, LAPTOP FOLDING SHELF, DOOR SWITCH, DOCUMENT STORAGE POCKET, AND DEAD FRONT INTERIOR PANEL DOORS	HOFFMAN
2	PANEL TOP HAT ENCLOSURE (3R SS/TYPE 4X)	HAMMOND
3	PLC CONTROL SYSTEM INCLUDING: POWER SUPPLY, CONTROLLER, INPUT/OUTPUT MODULES, WIRING TERMINALS AND COMMUNICATIONS CABLES	AB
4	HUMAN MACHINE INTERFACE (HMI)	ADVANTECH
5	24VDC POWER SUPPLIES c/w REDUNDANCY FUNCTIONALITY	WEIDMULLER
6	INCOMMING 120VAC POWER DISTRIBUTION INCLUDING: BREAKERS, SURGE PROTECTION DEVICE, TERMINALS AND JUMPER BARS	WEIDMULLER
7	120VAC UPS POWER DISTRIBUTION INCLUDING BREAKERS, TERMINALS AND JUMPER BARS	WEIDMULLER
8	24VDC POWER DISTRIBUTION INCLUDING BREAKERS, TERMINALS AND JUMPER BARS	WEIDMULLER
9	DIGITAL INPUT TERMINAL STRIP INCLUDING: END BRACKETS, LABEL CARRIERS AND LABELS, KNIFE SWITCHES AND FUSED TERMINALS.	WEIDMULLER
10	RELAY OUTPUT TERMNAL STRIP INCLUDING: END BRACKETS, LABEL CARRIERS AND LABELS, KNIFE SWITCHES AND FEED THROUGH TERMINALS	WEIDMULLER
11	ANALOG INTPUT TERMINAL STRIP INCLUDING: END BRACKETS, LABEL CARRIERS AND LABELS, GROUND TERMINALS, KNIFE SWTICHES AND FUSED TERMINALS	WEIDMULLER
12	ANALOG OUTPUT TERMINAL STRIP INCLUDING: END BRACKETS, LABEL CARRIERS AND LABELS, GROUND TERMINALS, KNIFE SWITCHES AND FUSED TERMINALS	WEIDMULLER
13	CONTROL ENCLOSURE GROUNDING c/w BUSSBAR, LUGS, CLAMPING SCREWS	WEIDMULLER
14	WIRE DUCT c/w COVER (VARIOUS SIZES)	PANDUIT
15	NETWORK / COMMUNICATIONS GATEWAYS INCLUDING: ETHERNET SWITCHES AND PROTOCOL CONVERTERS	VARIOUS
16	CONTROL PANEL RELAYS c/w BASE AND SOLENOID	WEIDMULLER
17	SLOTTED DIN RAIL	WEIDMULLER
18	UNINTERRUPTIBLE POWER SUPPLY (UPS) c/w RELAY OUTPUT CARD	EATON
19	120VAC RAIL MOUNT DUPLEX RECEPTACLE	WEIDMULLER
20	UPS WRAP-AROUND BYPASS, 15A, 120VAC, c/w AUTOMATIC TRANSFER SWITCH AND FORM C OUTPUT	ALWAYS ON
21	ENCLOSURE DOOR ACCESS PORTS INCLUDING: 120VAC RECEPTACLE AND RJ45 CAT 6 ETHERNET DATA PORT	LEVITION / WEIDMULLER

0				2022.12.02
Revision	By	Appd		YYYY.MM.DD
0				2022.12.02
Issued	By	Appd		YYYY.MM.DD

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 0226GI-19 | JM Dwn. | JS Dsgn. | JR Chkd. | 2024.09.19 YYYY.MM.DD

Title
GENERAL CONTROL PANEL
-LCP-300,400,600
TYPICAL LAYOUT, BILL OF MATERIALS, AND GENERAL ARRANGEMENT

Project No. 224202267
Scale NOT TO SCALE
Revision 0 Sheet of
Drawing No. GI-19

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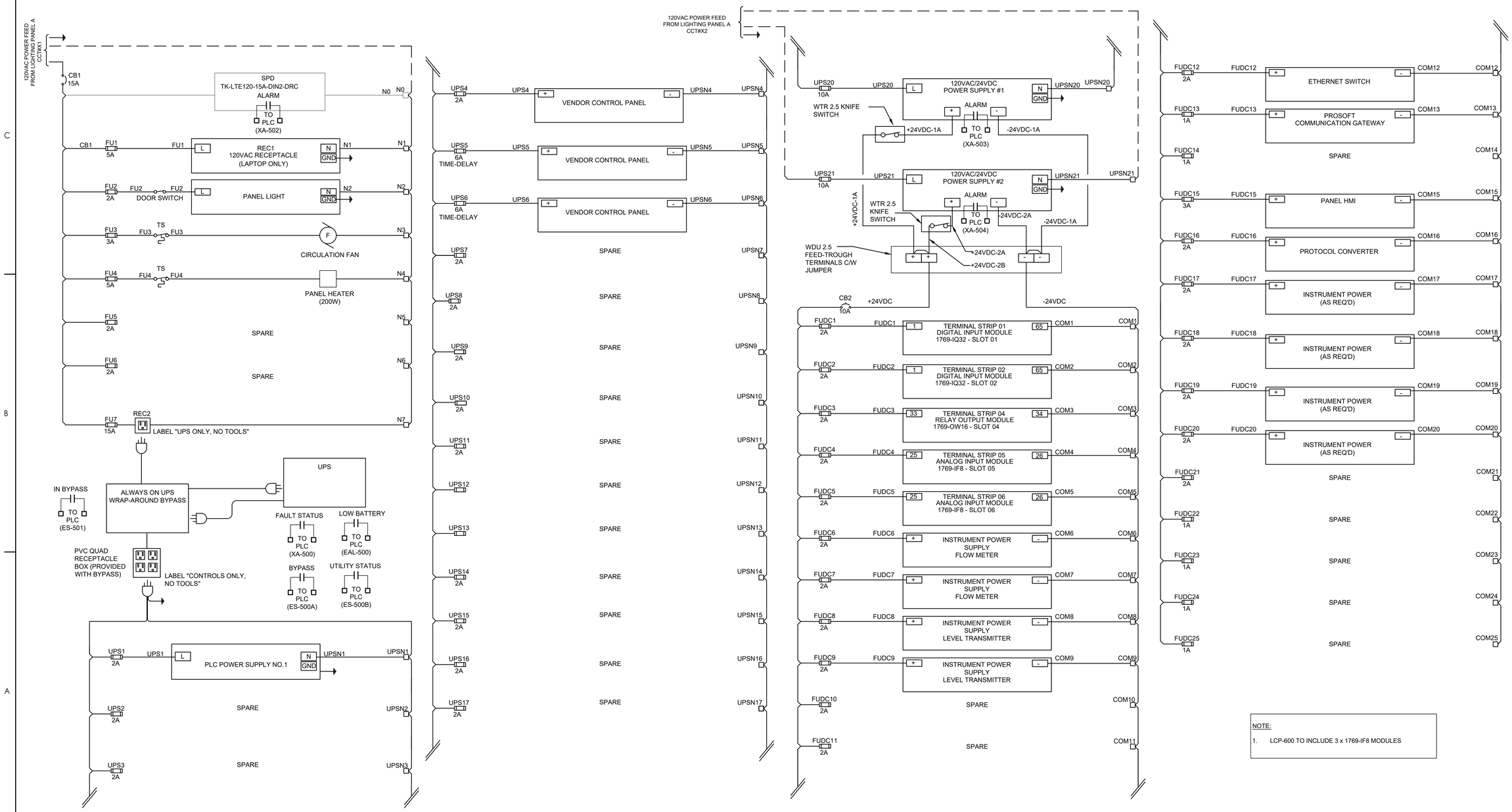

Revision	By	Appd	YYYY.MM.DD
FINAL DESIGN	JM	JCD	2026.04.13
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: 0226GI-20	JM	JS	JR	2026.04.17
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
GENERAL CONTROL PANEL - LCP-300,400,600 POWER DISTRIBUTION

Project No.
224202267

Scale
NOT TO SCALE

Revision
0

Drawing No.
GI-20

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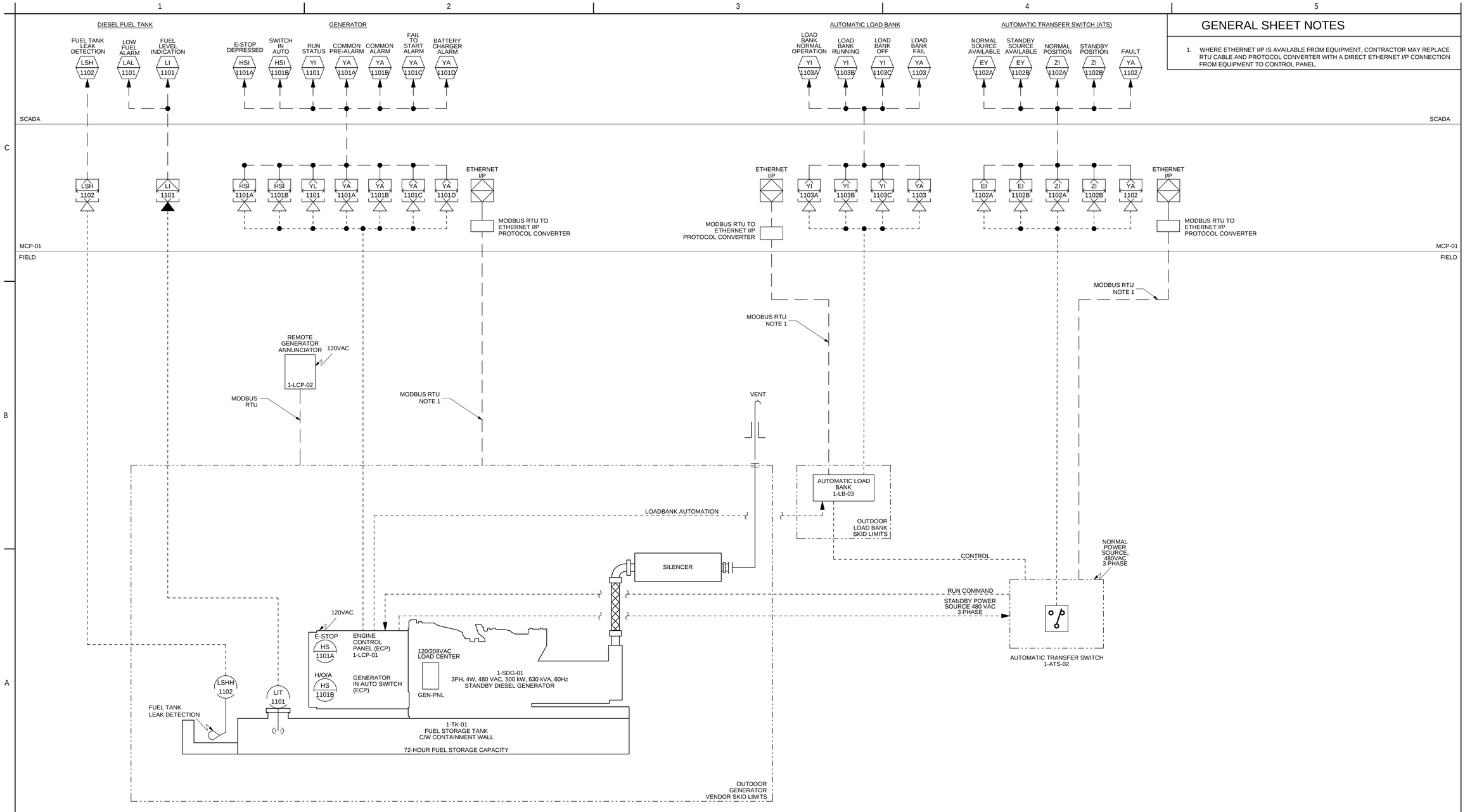

GENERAL SHEET NOTES

1. WHERE ETHERNET I/P IS AVAILABLE FROM EQUIPMENT, CONTRACTOR MAY REPLACE RTU CABLE AND PROTOCOL CONVERTER WITH A DIRECT ETHERNET I/P CONNECTION FROM EQUIPMENT TO CONTROL PANEL.

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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BATTLE CREEK HATCHERY

File Name: 022671i-1	Dwn. JM	Dsgn. JS	Chkd. JR	YYYY.MM.DD 2024.09.19

Title
STANDBY GENERATOR P&ID

Project No.	Scale
224202267	NOT TO SCALE

Revision	Sheet	Drawing No.
0	of	1I-1

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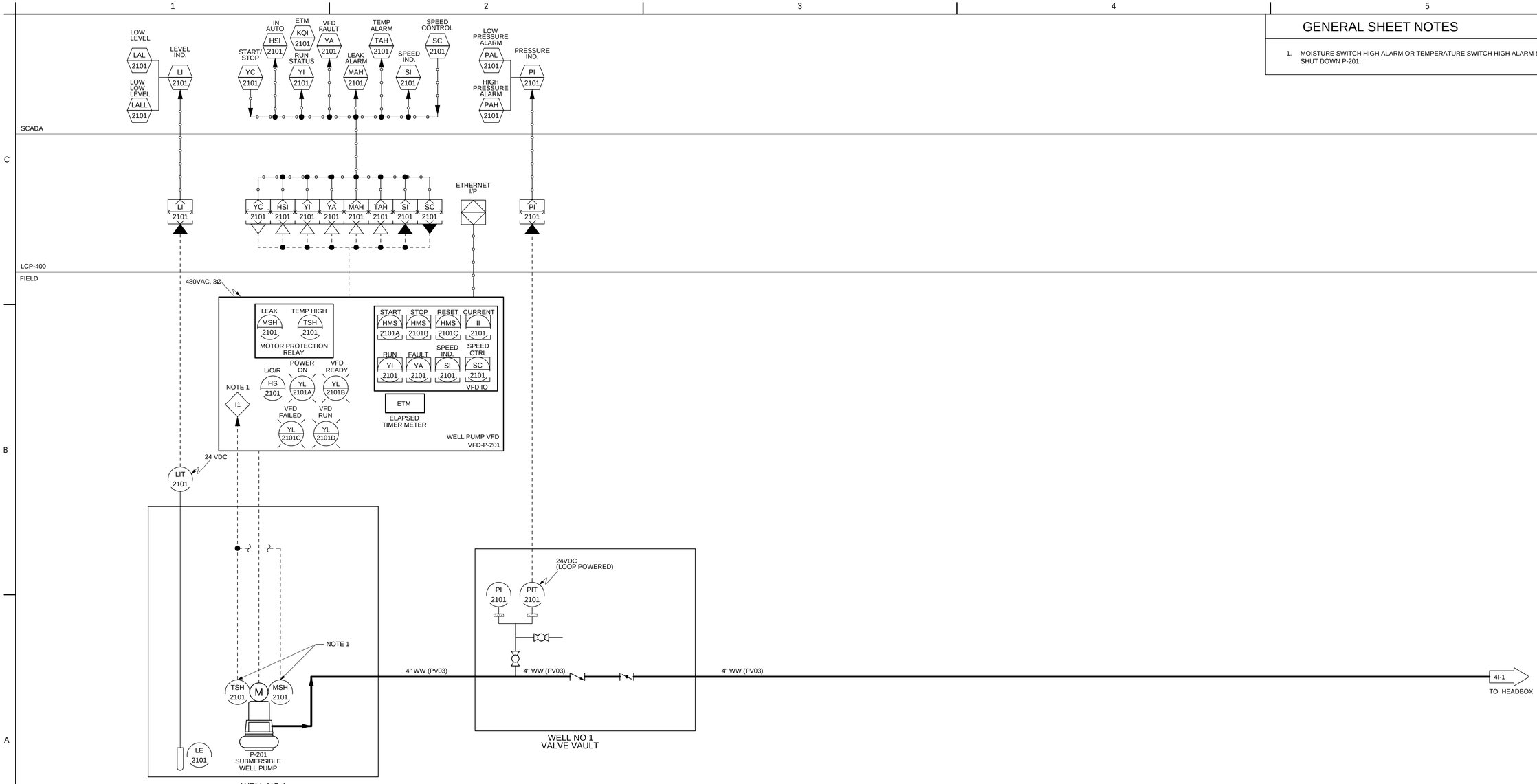
ORIGINAL SHEET - ANSI D

GENERAL SHEET NOTES

1. MOISTURE SWITCH HIGH ALARM OR TEMPERATURE SWITCH HIGH ALARM SHALL SHUT DOWN P-201.



Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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BATTLE CREEK HATCHERY

File Name: 022672I-1

Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
JM	JS	JR	2024.09.19

Title
WELL WATER P&ID

Project No.
224202267

Scale
NOT TO SCALE

Revision
0

Sheet
of

Drawing No.
2I-1

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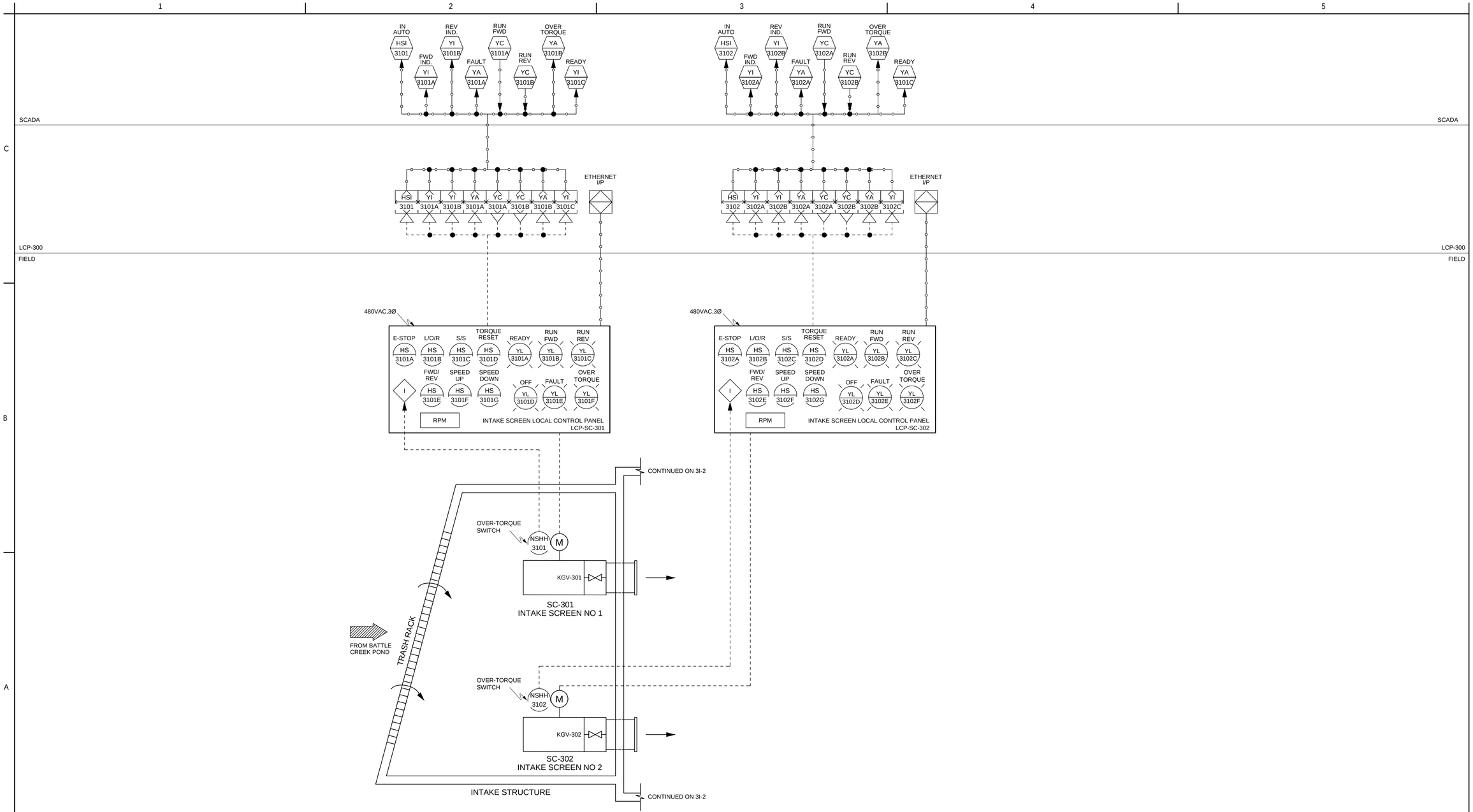

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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BATTLE CREEK HATCHERY

File Name: 022673i-1	JM Dwn.	JS Dsgn.	JR Chkd.	2024.09.19 YYYY.MM.DD

Title

INTAKE P&ID - I

Project No.	Scale
224202267	NOT TO SCALE
Revision 0	Sheet of
	Drawing No. 3I-1

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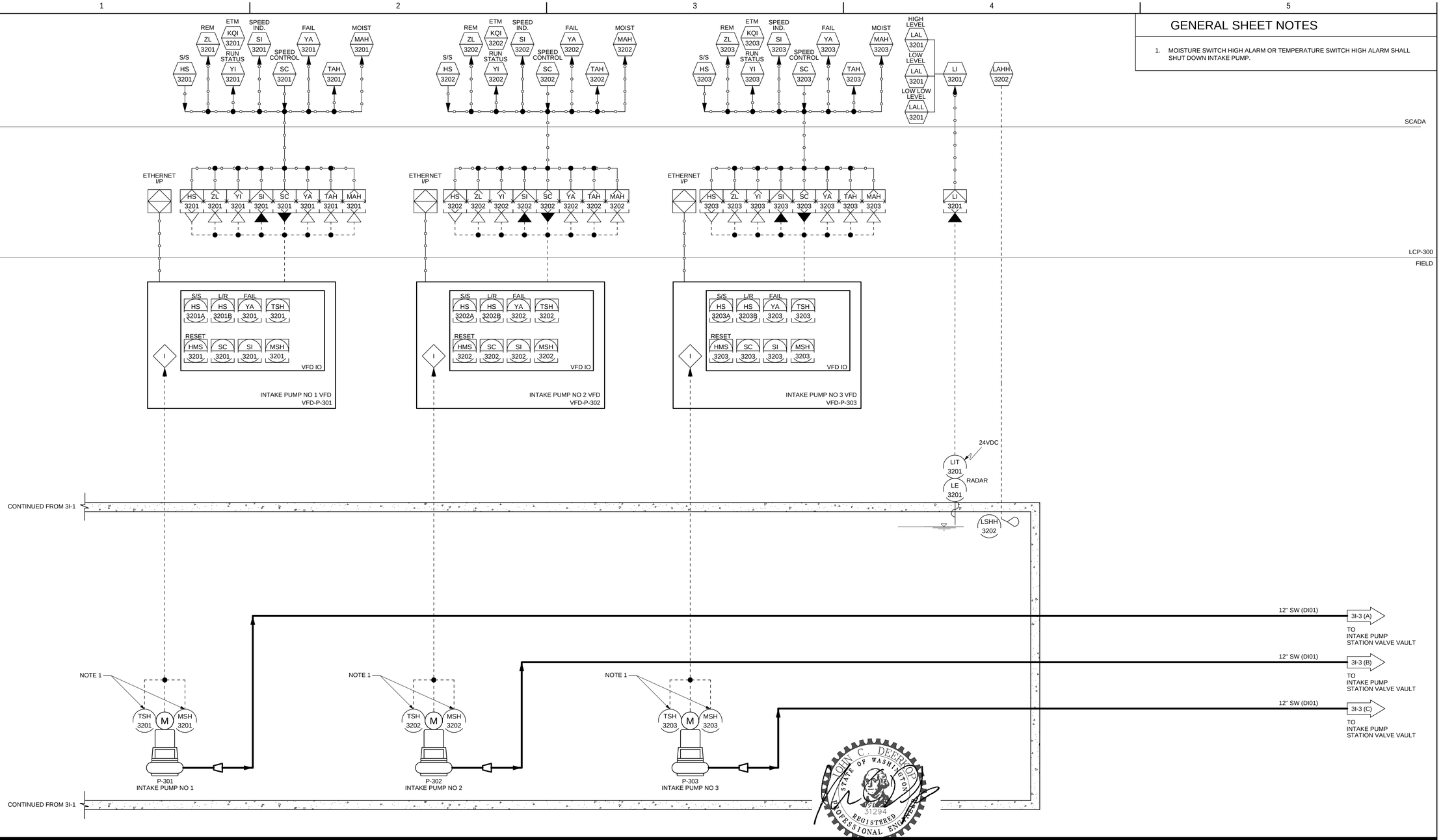
ORIGINAL SHEET - ANSI D

GENERAL SHEET NOTES

1. MOISTURE SWITCH HIGH ALARM OR TEMPERATURE SWITCH HIGH ALARM SHALL SHUT DOWN INTAKE PUMP.



Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

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BATTLE CREEK HATCHERY

File Name: 022673i-2 | JM Dwn. | JS Dsgn. | JR Chkd. | 2024.09.19 YYYY.MM.DD

Title
INTAKE P&ID - II

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Sheet of
Drawing No. 3I-2

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1 2 3 4 5

C B A

SCADA

LCP-300

FIELD

PRESSURE IND. PI 3303 — LOW PRESSURE ALARM PAL 3303 — HIGH PRESSURE ALARM PAH 3303 — PI 3303

PRESSURE IND. PI 3302 — LOW PRESSURE ALARM PAL 3302 — HIGH PRESSURE ALARM PAH 3302 — PI 3302

PRESSURE IND. PI 3301 — LOW PRESSURE ALARM PAL 3301 — HIGH PRESSURE ALARM PAH 3301 — PI 3301

DISCH FAL 3203 — FAL 3203

DISCH FAL 3202 — FAL 3202

DISCH FAL 3201 — FAL 3201

INSTANTANEOUS FLOW FI 7103 — FI 7103

TOTALIZED FLOW FQI 7103 — FQI 7103

24VDC (LOOP POWERED) PIT 3301 — PI 3301 — ARV 3301

24VDC (LOOP POWERED) PIT 3302 — PI 3302 — ARV 3302

24VDC (LOOP POWERED) PIT 3303 — PI 3303 — ARV 3303

3I-2 (A) FROM INTAKE PUMP NO 1 — 12" SW (DI01) — CV-301 — FSL 3301 — BFV-301

3I-2 (B) FROM INTAKE PUMP NO 2 — 12" SW (DI01) — CV-302 — FSL 3302 — BFV-302

3I-2 (C) FROM INTAKE PUMP NO 3 — 12" SW (DI01) — CV-303 — FSL 3303 — BFV-303

18" SW (DI01)

INTAKE PUMP STATION VALVE VAULT

G-301

24VDC (LOOP POWERED) FQIT 7103

18" SW (PV03) — 4I-3 TO HEADBOX

24" OF (CS05) — 24" OF (CS05) OVERFLOW TO BELOW DIVERSION DAM

VEN

FQI 7103

FE 7103 VELOCITY

18" D (PV05)

FM-702 FLOW METER VAULT

7I-1 12" D (PV05) FROM CLARIFIER

7I-1 12" D (PV05) FROM EFFLUENT DRUM FILTER

5I-2 10" OF (PV05) FROM FORMALIN METERING TANK

5I-2 10" OF (PV05) FROM INCUBATION REUSE PUMP STATION

6I-1 18" D (PV05) FROM CIRCULAR TANKS

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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BATTLE CREEK HATCHERY

File Name: 022673I-3 | Dwn. JM | Dsgn. JS | Chkd. JR | YYYY.MM.DD 2024.09.19

Title
INTAKE P&ID - III

Project No. 224202267

Scale NOT TO SCALE

Revision 0

Sheet of

Drawing No. 3I-3

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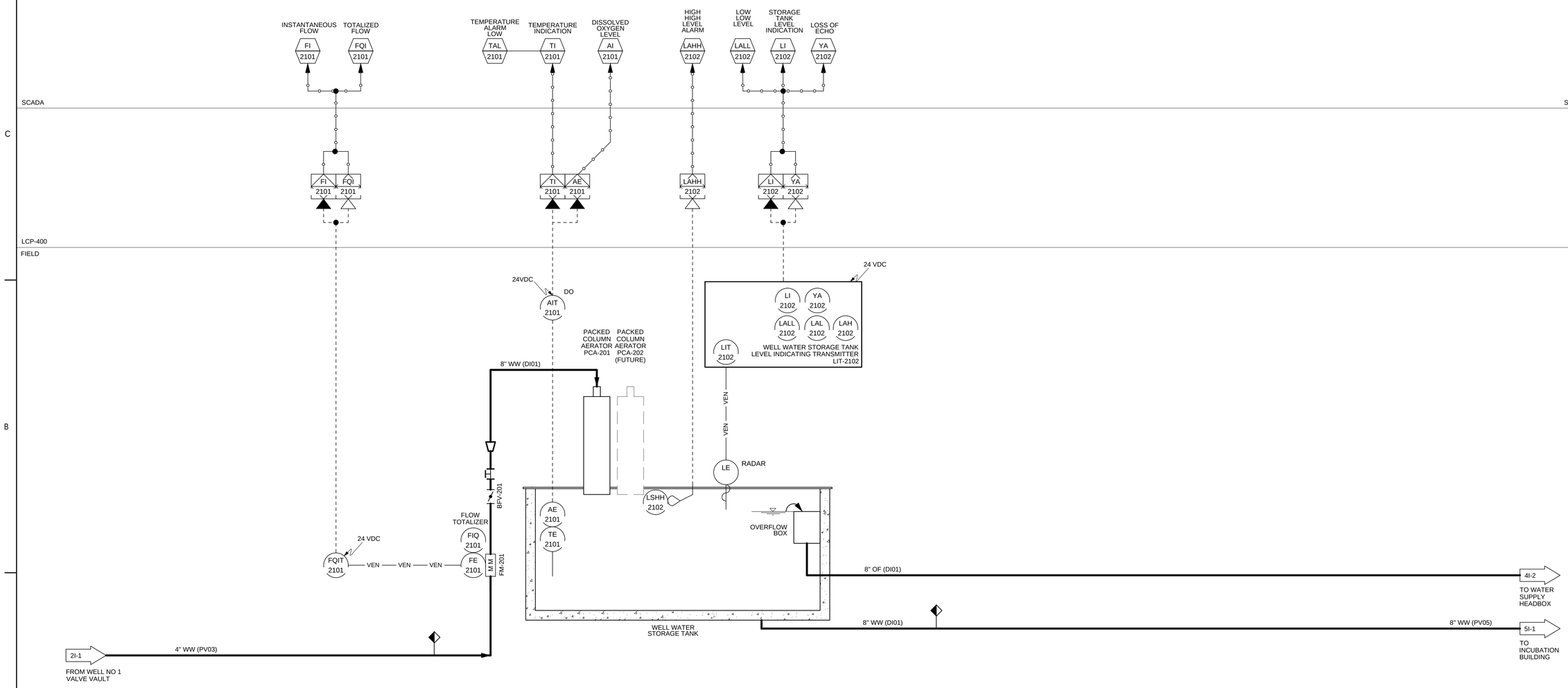

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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BATTLE CREEK HATCHERY

File Name: 022674I-1 | Dwn. JM | Dsgn. JS | Chkd. JR | 2024.09.19 YYYY.MM.DD

Title
WATER SUPPLY HEADBOX P&ID - I

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Sheet of
Drawing No. 4I-1

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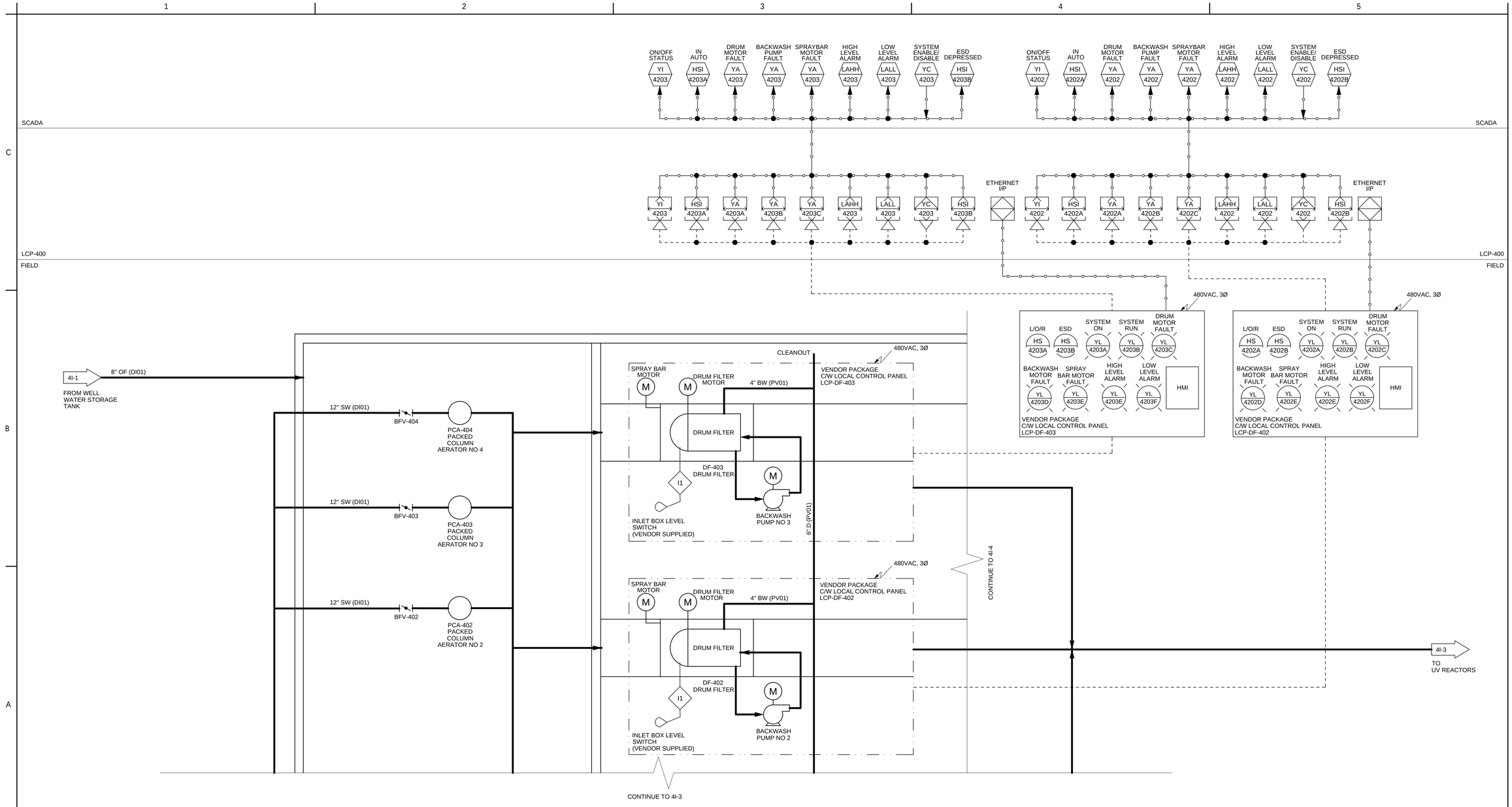

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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BATTLE CREEK HATCHERY

File Name: 0226741-2 | Dwn. JM | Dsgn. JS | Chkd. JR | 2024.09.19 YYYY.MM.DD

Title
WATER SUPPLY HEADBOX P&ID - II

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Sheet of
Drawing No. 4I-2

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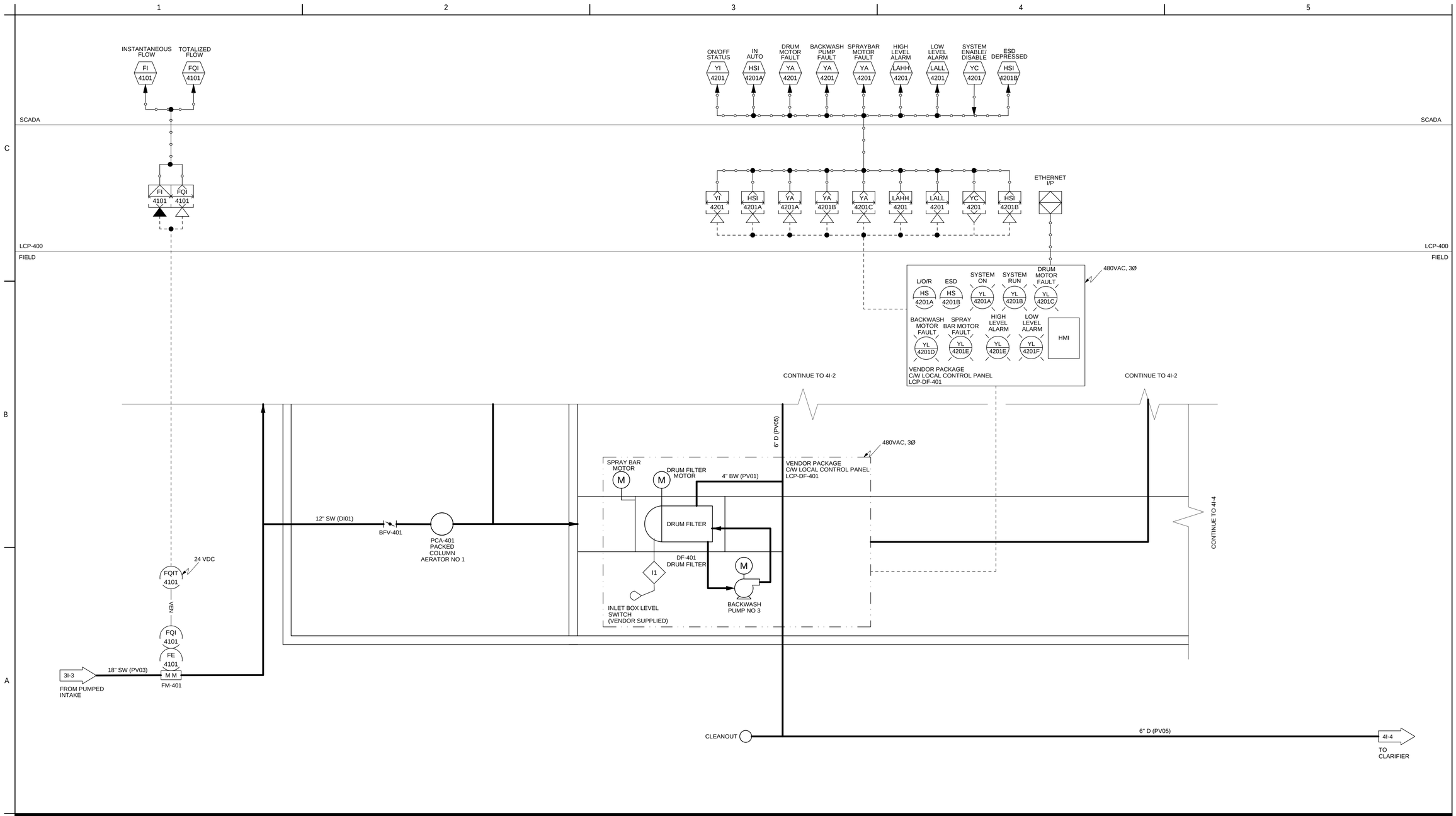

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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File Name: 022674I-3	Dwn. JM	Dsgn. JS	Chkd. JR	YYYY.MM.DD 2024.09.19

Title
WATER SUPPLY HEADBOX P&ID - III

Project No.	Scale
224202267	NOT TO SCALE

Revision	Sheet	Drawing No.
0	of	4I-3

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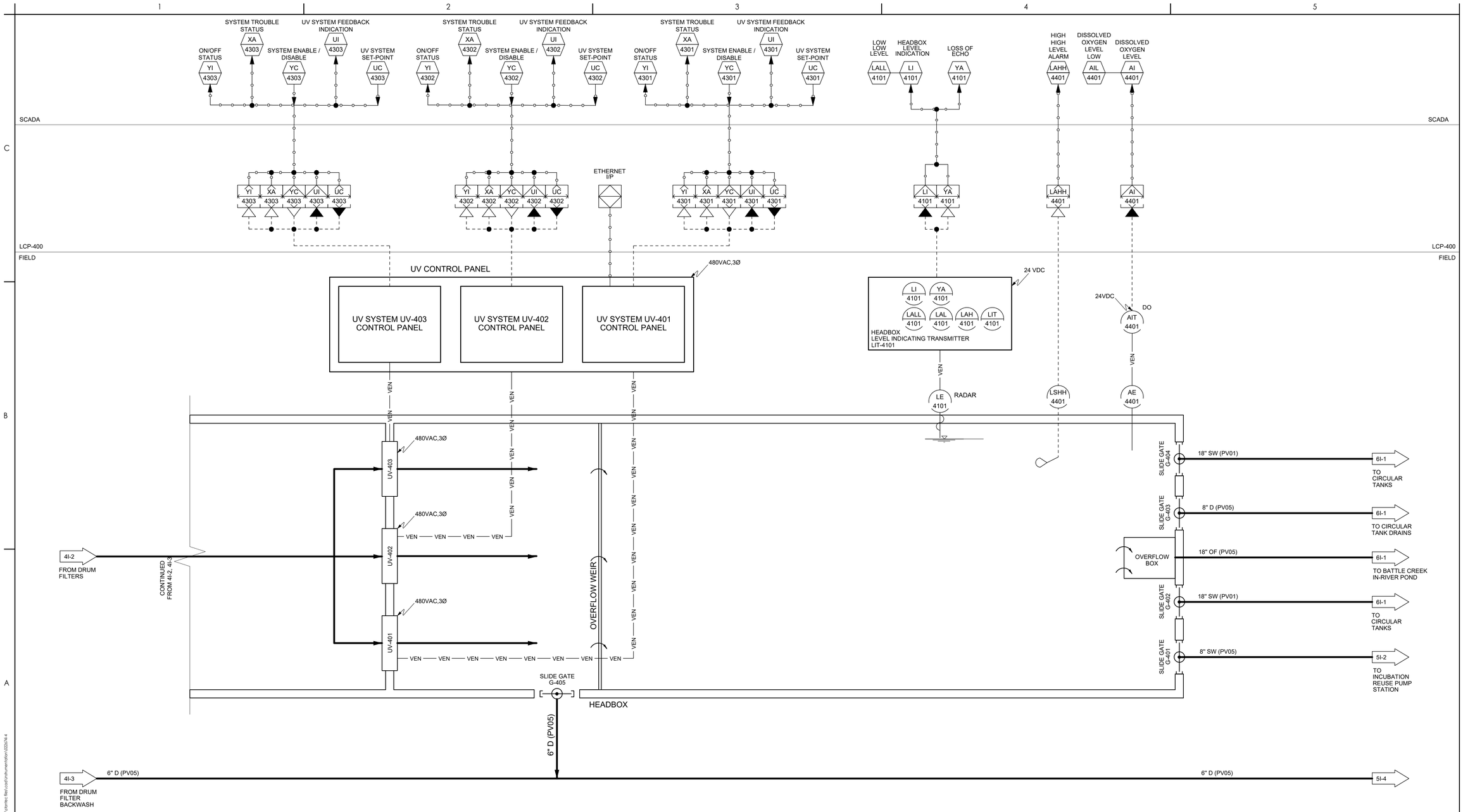

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	MCM	DEW	2026.02.26

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DAVID EDWARD WHITBECK — STATE OF WASHINGTON — 47046 — PROFESSIONAL ENGINEER

4/27/26

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File Name: 022674i-4	MCM Dwn.	MDV Dsgn.	DEW Chkd.	2026.02.26 YYYY.MM.DD

Title
WATER SUPPLY HEADBOX P&ID - IV

Project No. 25-128
Scale NOT TO SCALE
Revision 0
Drawing No. 4I-4

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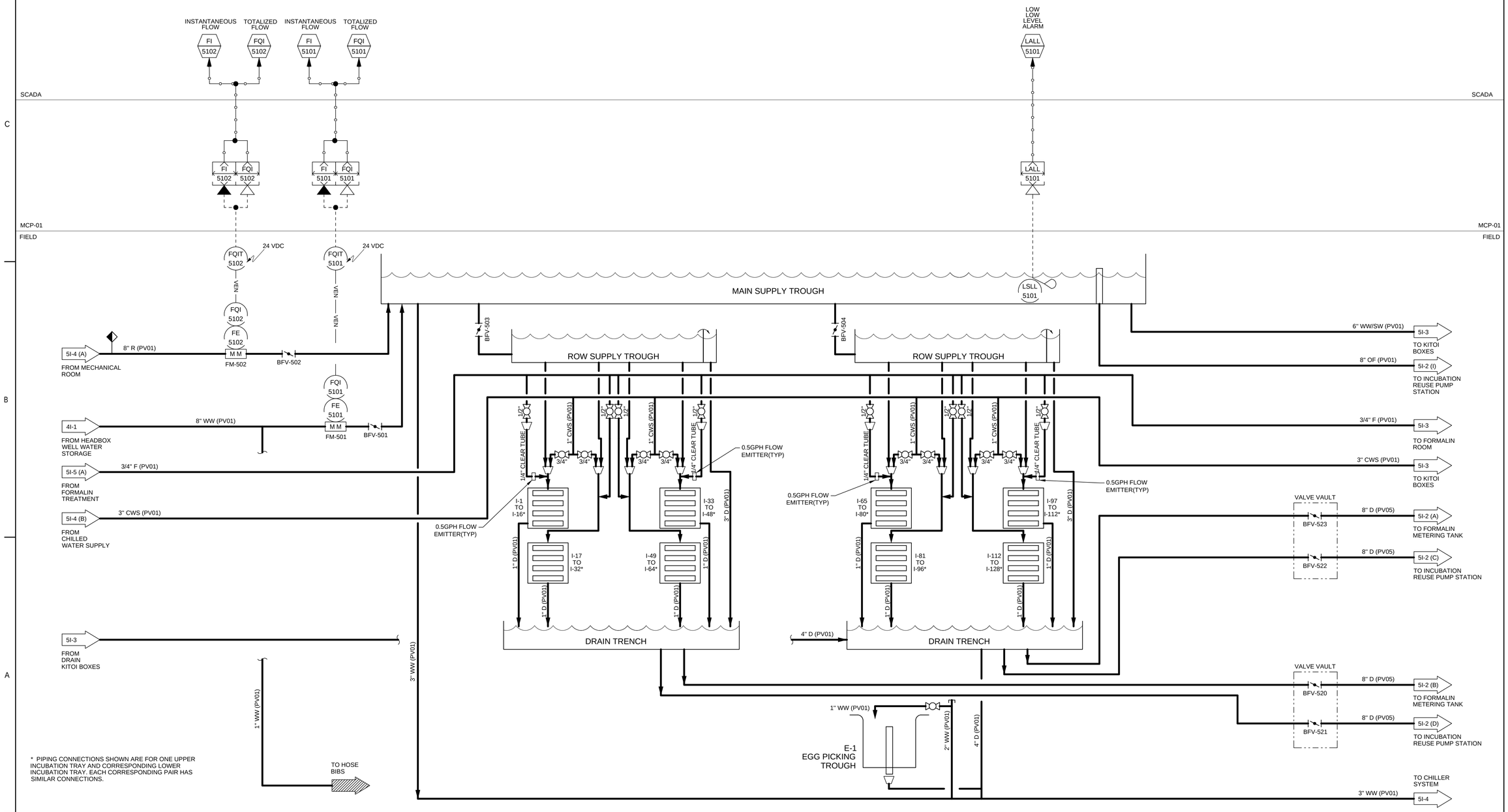

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

ORIGINAL SHEET - ANSI D

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File Name: 022675I-1 | Dwn. JM | Dsgn. JS | Chkd. JR | 2024.09.19 YYYY.MM.DD

Title
INCUBATION BUILDING P&ID - I

Project No. 224202267
Scale NOT TO SCALE
Revision 0
Sheet of
Drawing No. 5I-1

GENERAL SHEET NOTES

1. MOISTURE SWITCH HIGH ALARM OR TEMPERATURE SWITCH HIGH ALARM SHALL SHUT DOWN SUBMERSIBLE REUSE PUMP.

SCADA

MCP-01

FIELD

HIGH HIGH LEVEL ALARM LAHH 5203
LOW LOW LEVEL LALL 5203
REUSE TANK LEVEL INDICATION LI 5203
LOSS OF ECHO YA 5203
START/STOP YC 5201
IN AUTO HSI 5201
ETM KQI 5201
RUN STATUS YI 5201
VFD FAULT YA 5201
LEAK ALARM MAH 5201
TEMP ALARM TAH 5201
SPEED IND. SI 5201
SPEED CONTROL SC 5201
ETHERNET I/P
START/STOP YC 5202
IN AUTO HSI 5202
ETM KQI 5202
RUN STATUS YI 5202
VFD FAULT YA 5202
LEAK ALARM MAH 5202
TEMP ALARM TAH 5202
SPEED IND. SI 5202
SPEED CONTROL SC 5202
ETHERNET I/P
REUSE TANK LEVEL INDICATION LI 5205
LOSS OF ECHO YA 5205
HIGH HIGH LEVEL ALARM LAHH 5204
IN AUTO HSI 5204
VFD FAULT YA 5204
PUMP RUN YI 5204
PRESSURE IND. PI 5204
LOW PRESSURE ALARM PAL 5204
HIGH PRESSURE ALARM PAH 5204
INSTANTANEOUS FLOW FI 5404
TOTALIZED FLOW FQI 5404

24 VDC

REUSE PUMP STATION LEVEL INDICATING TRANSMITTER LIT-5203
LIT 5203, LI 5203, YA 5203, LALL 5203, LAL 5203, LAH 5203

480VAC, 3Ø

MOTOR PROTECTION RELAY MSH 5201, TSH 5201
LEAK, TEMP HIGH
START HMS 5201A, STOP HMS 5201B, RESET HMS 5201C, CURRENT II 5201
RUN YI 5201, FAULT YA 5201, SPEED IND. SI 5201, SPEED CTRL SC 5201
VFD IO
I, L/O/R HS 5201
POWER ON YL 5201A
VFD READY YL 5201B
VFD FAILED YL 5201C
ETM ELAPSED TIMER METER
REUSE PUMP NO 1 VFD VFD-P-530

480VAC, 3Ø

MOTOR PROTECTION RELAY MSH 5202, TSH 5202
LEAK, TEMP HIGH
START HMS 5202A, STOP HMS 5202B, RESET HMS 5202C, CURRENT II 5202
RUN YI 5202, FAULT YA 5202, SPEED IND. SI 5202, SPEED CTRL SC 5202
VFD IO
I, L/O/R HS 5202
POWER ON YL 5202A
VFD READY YL 5202B
VFD FAILED YL 5202C
ETM ELAPSED TIMER METER
REUSE PUMP NO 2 VFD VFD-P-531

24 VDC

FORMALIN METERING TANK LEVEL INDICATING TRANSMITTER LIT-5205
LIT 5205, LI 5205, YA 5205, LALL 5205, LAL 5205, LAH 5205

120/240VAC, 1Ø

FORMALIN DILUTION VENDOR CONTROL PANEL
I, L/O/R HS 5204
PUMP STOPPED YL 5204A
HIGH LEVEL ALARM YL 5204B
PUMP RUN YL 5204C

24 VDC

FQIT 5404

VEN

LE 5205

LSHH 5205

M

P-540 FORMALIN DILUTION PUMP

T-540 FORMALIN METERING TANK

1" FM (PV01)

24VDC (LOOP POWERED)

PI 5204, PIT 5204

FQI 5404

FE 5404

M M FM-540

FLOW METER VAULT

8" OF (DI01)

CV-540

3I-3

TO OUTFALL BELOW DIVERSION DAM

5I-1 (A)

8" D (PV05)

FROM INCUBATION THOUGHS (I-1 TO I-64)

5I-1 (B)

8" D (PV05)

FROM INCUBATION THOUGHS (I-65 TO I-128)

RADAR

LE 5203

LSHH 5203

4I-4

8" SW (PV05)

FROM WATER SUPPLY HEADBOX

5I-1 (C)

8" D (PV05)

FROM INCUBATION THOUGHS (I-1 TO I-64)

5I-1 (D)

8" D (PV05)

FROM INCUBATION THOUGHS (I-65 TO I-128)

5I-1(I)

8" OF (PV05)

OVERFLOW FROM COMMON SUPPLY TROUGH

NOTE 1

TSH 5201, M, MSH 5201

P-530 SUBMERSIBLE REUSE PUMP NO 1

CV-530, BFV-530

NOTE 1

TSH 5202, M, MSH 5202

P-531 SUBMERSIBLE REUSE PUMP NO 2

CV-531, BFV-531

INCUBATION REUSE PUMP STATION

8" R (DI01)

5I-4

TO INCUBATION TREATMENT IN MECHANICAL ROOM

10" OF (PV05)

6I-2

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	MCM	DEW	2026.02.26

Permit/Seal

DAVID EDWARD WEITZEL, 47046, STATE OF WASHINGTON, PROFESSIONAL ENGINEER, 4/27/26

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BATTLE CREEK HATCHERY

File Name: 022675i-2	Dwn. MCM	Dsgn. MDV	Chkd. DEW	YYYY.MM.DD 2026.02.26

Title
INCUBATION BUILDING P&ID - II

Project No. 25-128
Scale NOT TO SCALE
Revision 0
Drawing No. 5I-2

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ORIGINAL SHEET - ANSI D

1 2 3 4 5

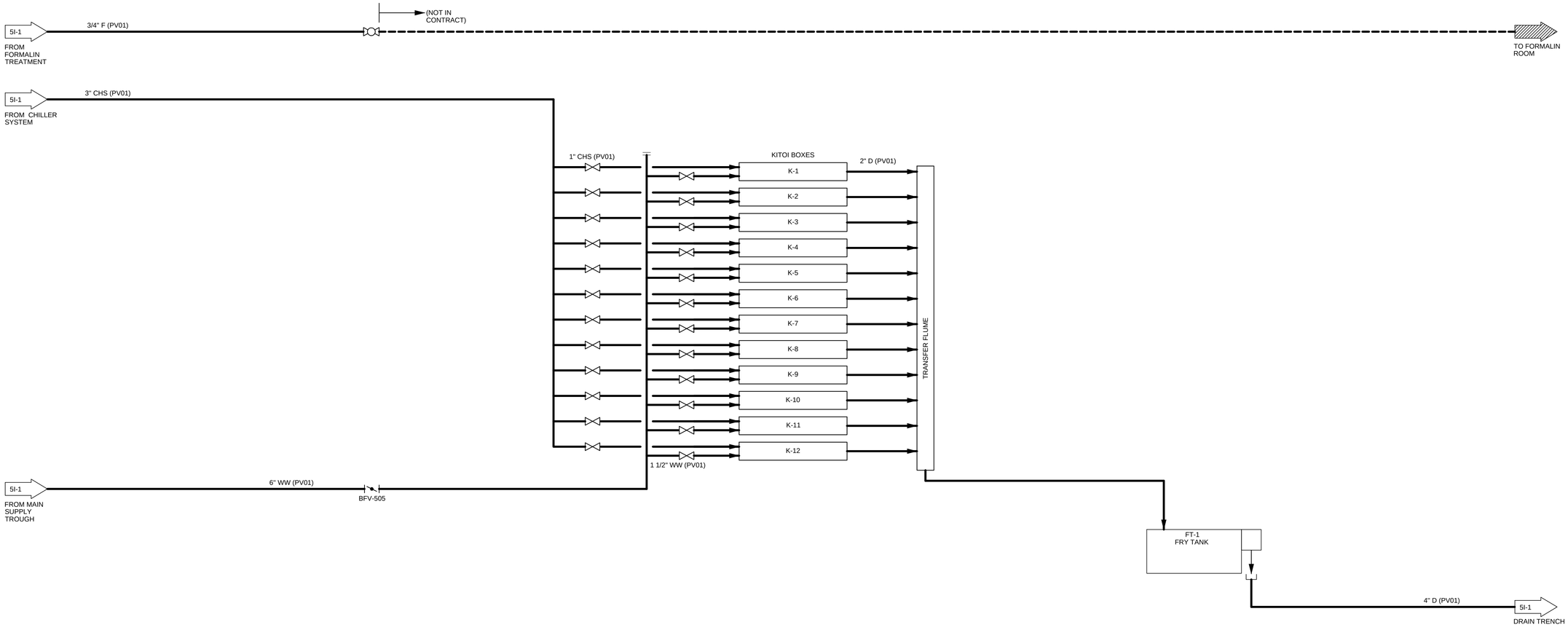
C

SCADA — SCADA

PLC — PLC

FIELD — FIELD

B



Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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JOHN C. DERRICKSON — STATE OF WASHINGTON — 31294 — REGISTERED PROFESSIONAL ENGINEER

2/12/2025

DAVID EDWARD WHITEHEAD — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER

2/19/25

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File Name: 022675I-3	Dwn. JM	Dsgn. JS	Chkd. JR	2024.09.19 YYYY.MM.DD

Title
INCUBATION BUILDING P&ID - III

Project No. 224202267

Scale NOT TO SCALE

Revision 0 Sheet of

Drawing No. 5I-3

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ORIGINAL SHEET - ANSI D

1 2 3 4 5

C B A

SCADA

MCP-01

FIELD

PRESSURE IND. PI 5402 — SCADA — LOW PRESSURE ALARM PAL 5402 — HIGH PRESSURE ALARM PAH 5402

ON/OFF STATUS YI 5403 — IN AUTO HSI 5403A — DRUM MOTOR FAULT YA 5403A — BACKWASH PUMP FAULT YA 5403B — SPRAYBAR MOTOR FAULT YA 5403C — HIGH LEVEL ALARM LAHH 5403 — LOW LEVEL ALARM LALL 5403 — SYSTEM ENABLE/ DISABLE YC 5403 — ESD DEPRESSED HSI 5403B

ON/OFF STATUS YI 5405 — SYSTEM TROUBLE STATUS XA 5405 — SYSTEM ENABLE / DISABLE YC 5405 — UV SYSTEM FEEDBACK INDICATION UI 5405 — UV SYSTEM SET-POINT UC 5405

ON/OFF STATUS YI 5406 — SYSTEM TROUBLE STATUS XA 5406 — SYSTEM ENABLE / DISABLE YC 5406 — UV SYSTEM FEEDBACK INDICATION UI 5406 — UV SYSTEM SET-POINT UC 5406

POSITION INDICATION ZI 5402 — POSITION COMMAND ZC 5402 — FAULT YA 5402

START/ STOP YC 5404 — IN AUTO HSI 5404 — ETM KQI 5404 — RUN STATUS YI 5404 — FAULT YA 5404

TEMP TI 5404

ETHERNET I/P

480VAC, 3Ø

START HMS 5403A — STOP HMS 5403B — ETM ELAPSED TIMER METER — I — START HMS 5403A — STOP HMS 5403B — RESET HMS 5403C — CURRENT II 5403 — RUN YI 5403 — FAULT YA 5403 — SPEED IND. SI 5403 — SPEED CTRL SC 5403 — VFD IO — L/O/R HS 5403 — POWER ON YL 5403A — RUN YL 5403B — FAULT YL 5403C — SCREEN FILTER ASSEMBLY VFD-SF-510

UV SYSTEM UV-510 CONTROL PANEL

UV SYSTEM UV-511 CONTROL PANEL

CP-PRV-510

OPEN — CLOSE — POS. FEEDBACK — ZS 510 — PRV-510

BFV-514 — UV-510 — BFV-511 — BFV-512

BFV-515 — UV-511 — BFV-513

PCA-510 — BFV-516

24VDC (LOOP POWERED) — PIT 5402 — PI 5402

VENDOR PACKAGE C/W LOCAL CONTROL PANEL

480VAC, 3Ø

SPRAY BAR MOTOR — M

5I-2 — FROM WATER SUPPLY HEADBOX — 8" R (DI01) — BFV-510

SCREEN FILTER ASSEMBLY — SF-510 SCREEN FILTER

8" R (DI01) — 5I-1 (A) — TO VERTICAL INCUBATORS MAIN SUPPLY TROUGH

2" D (PV01)

4" BW (PV01)

24VDC (LOOP POWERED) — TIT 5404 — TE 5404 — TI 5404

6" CWR (PV01) — 480VAC, 3Ø — CHS-510 CHILLER SYSTEM

5I-1 — 3" WW (PV01) — FROM MAIN SUPPLY TROUGH

3" CHS (PV01) — 5I-1 (B) — TO VERTICAL INCUBATORS

VENDOR PACKAGE LOCAL CONTROL PANEL

3" D (PV01) — CLEANOUT — 4" D (PV05)

4I-4 — 6" BW (PV05) — FROM WATER SUPPLY HEADBOX

7I-1 — TO CLARIFIER

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ORIGINAL SHEET - ANSI D

Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	STN	DEW	2026.12.07

Permit/Seal

JOHN C. DENTON — STATE OF WASHINGTON — 31204 — REGISTERED PROFESSIONAL ENGINEER

2/12/2025

DAVID EDWARD WHITEHEAD — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER — 2/12/25

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Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 022675I-4	STN Dwn.	DEW Dsgn.	CWS Chkd.	2024.12.27 YYYY.MM.DD

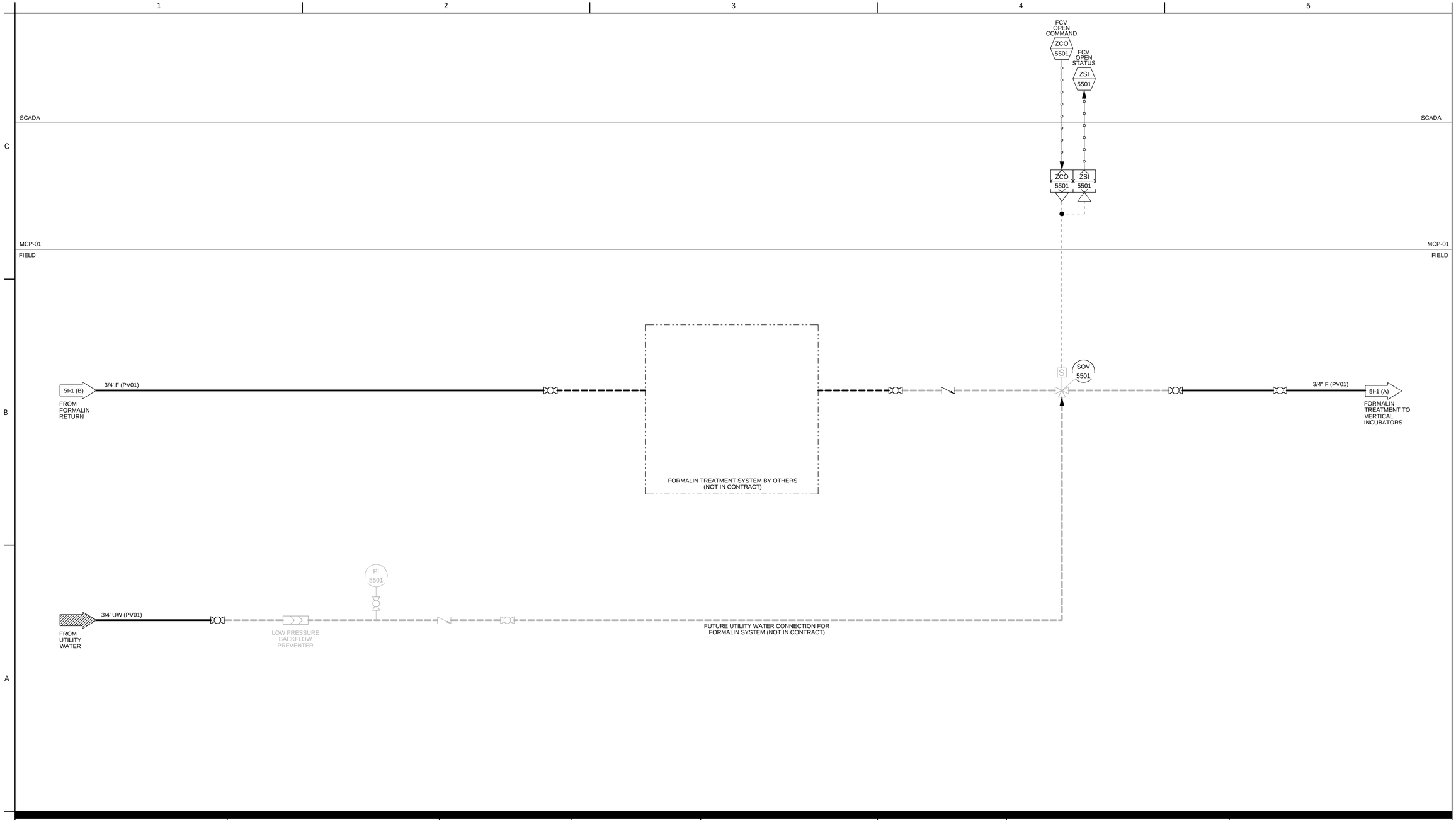
Title
INCUBATION BUILDING P&ID - IV
MECHANICAL ROOM

Project No. 224202267

Scale NOT TO SCALE

Revision 0

Drawing No. 5I-4



Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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BATTLE CREEK HATCHERY

File Name: 022675I-5 | JM Dwn. | JS Dsgn. | JR Chkd. | 2024.09.19 YYYY.MM.DD

Title
INCUBATION BUILDING P&ID - V

Project No.
224202267

Scale
NOT TO SCALE

Revision
0

Sheet
of

Drawing No.
5I-5

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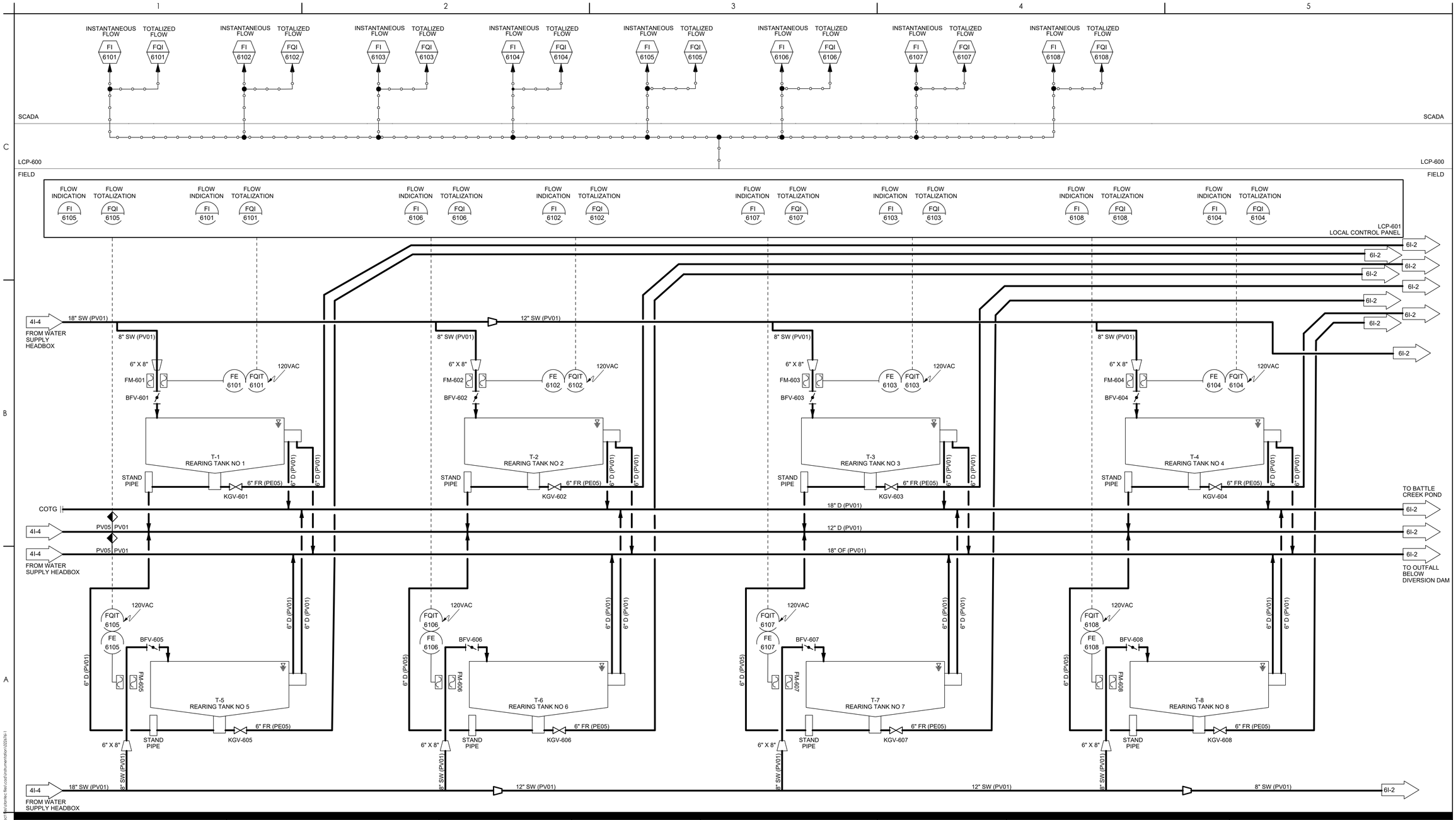

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DAVID EDWARD WHITTENBERG STATE OF WASHINGTON 47046 REGISTERED PROFESSIONAL ENGINEER
4/27/26

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BATTLE CREEK HATCHERY

File Name: 022676i-1 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
REARING TANKS P&ID - I

Project No. 25-128
Scale NOT TO SCALE
Revision 0
Drawing No. 6I-1

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	MCM	DEW	2026.02.26

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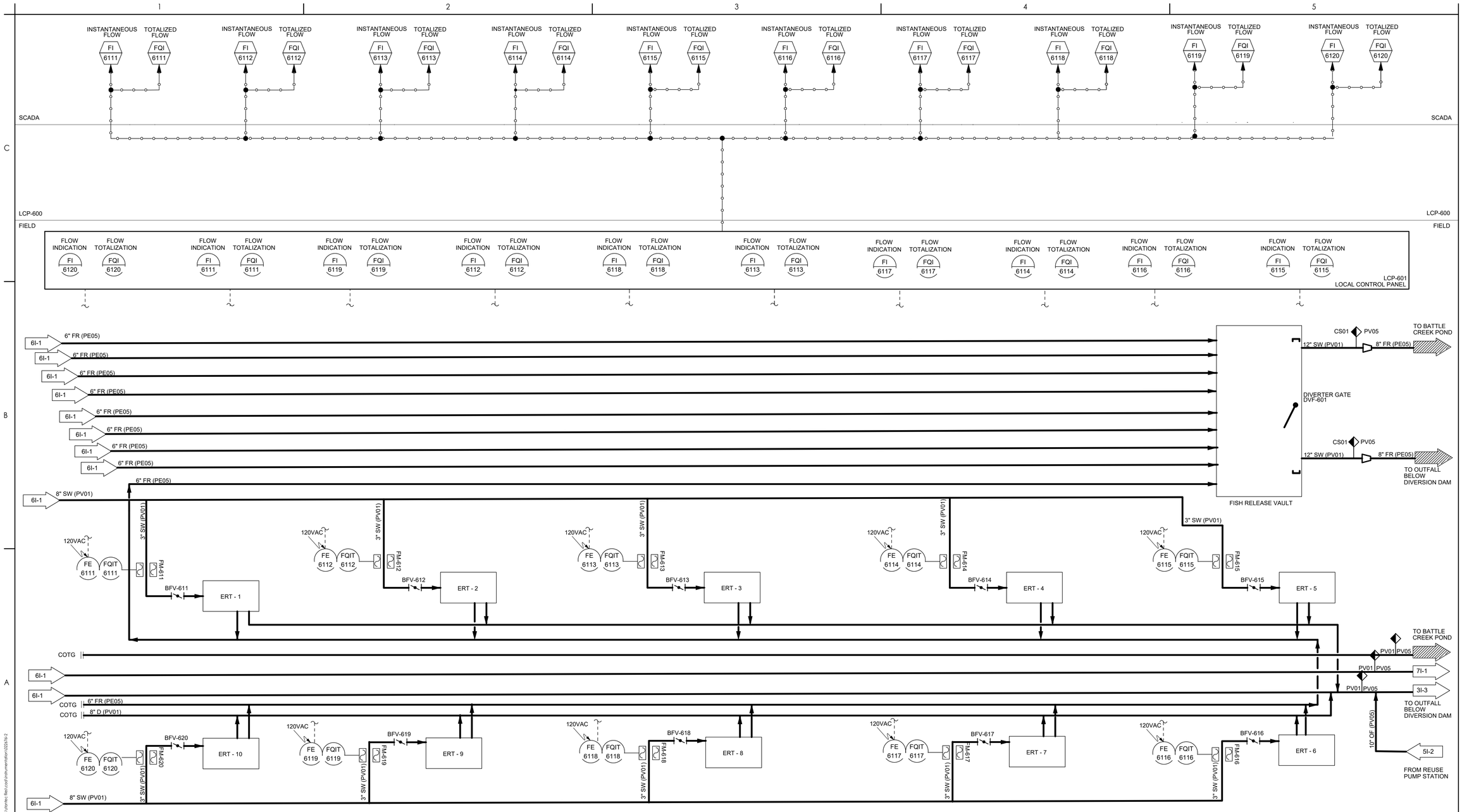

Revision	By	Appd	YYYY.MM.DD	FINAL DESIGN	MCM	DEW	2026.02.26
				Issued	By	Appd	YYYY.MM.DD

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4/27/26

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File Name: 022676I-2 | MCM Dwn. | MDV Dsgn. | DEW Chkd. | 2026.02.26 YYYY.MM.DD

Title
REARING TANKS P&ID - II

Project No. 25-128
Scale NO SCALE
Revision
Drawing No. 6I-2

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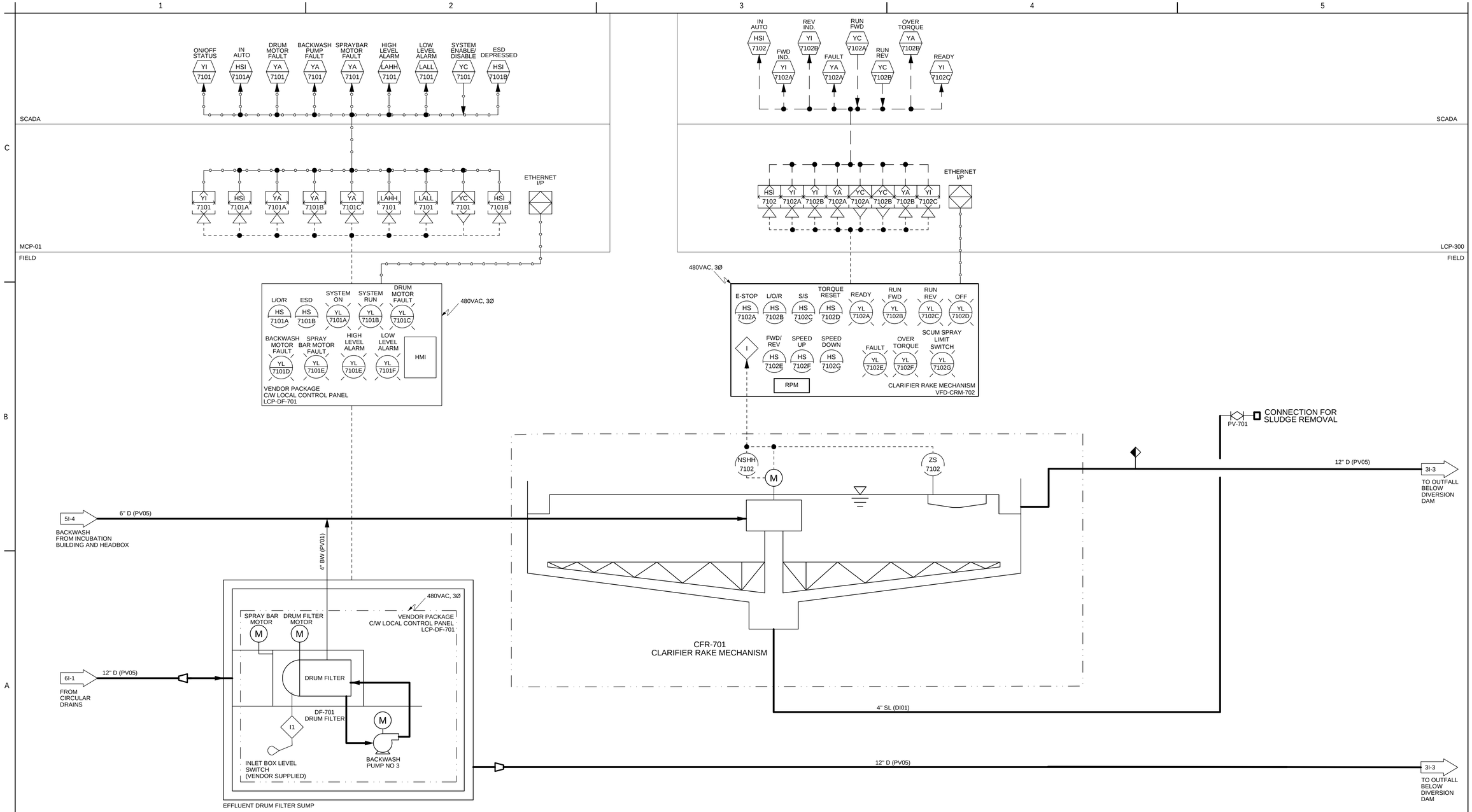

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Revision	By	Appd	YYYY.MM.DD
0			2022.12.02

Issued	By	Appd	YYYY.MM.DD
0			2022.12.02

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2/12/2025

DAVID EDWARD WEITBRECHT — STATE OF WASHINGTON — 47046 — REGISTERED PROFESSIONAL ENGINEER — 2/12/25

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BATTLE CREEK HATCHERY

File Name: 022677i-1

Dwn.	Dsgn.	Chkd.	
JM	JS	JR	2024.09.19

Title
CLARIFIER P&ID

Project No.
224202267

Scale
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Revision
0

Sheet
of

Drawing No.
7I-1

GENERAL NOTES

1. THE PLUMBING PLANS ARE DIAGRAMMATIC IN NATURE AND ARE BASED ON ONE MANUFACTURER'S EQUIPMENT. THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION, THE EXACT DIMENSIONS, OR ALL OF THE DETAILS FOR THE EQUIPMENT. THE MECHANICAL CONTRACTOR SHALL VERIFY THE ACTUAL DIMENSIONS OF THE EQUIPMENT AND ENSURE THAT IT WILL FIT IN THE AVAILABLE SPACE.
2. PLUMBING CONTRACTOR RESPONSIBLE FOR INSTALLATION OF COMPLETED AND OPERATIONAL SYSTEMS WITH DUE RESPECT TO ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.
3. COORDINATE PIPE ROUTING WITH DUCTWORK, SPRINKLER PIPING AND ELECTRICAL POWER/LIGHTING CIRCUITING AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
4. CONTRACTORS TO VERIFY ALL GRADES, DIMENSIONS AND EXISTING CONDITIONS AT THE SITE BEFORE PROCEEDING WITH WORK. NOTIFY PRIME CONSULTANT OF ANY DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL CONDITIONS BEFORE INSTALLATION.
5. ALL MATERIALS AND INSTALLATION SHALL COMPLY WITH THE PROJECT MASTER CONSTRUCTION SPECIFICATIONS.
6. COORDINATE INSTALLATION OF PIPING AND DUCTWORK WITH ELECTRICAL CONTRACTOR AND OTHER TRADES.
7. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS NEEDED TO CONSTRUCT WORK SHOULD IN THE CONSTRUCTION DOCUMENTS AND ACCOMPANYING SPECIFICATIONS.
8. IF THERE IS A CONFLICT BETWEEN THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, THE MOST STRINGENT WILL APPLY.
9. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURERS. CONTRACTOR TO PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
10. PENETRATIONS OF DUCTS, PIPES, CONDUITS,ETC IN WALLS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED, FIRE STOP MATERIAL, SHALL BE A UL/ULC-LISTED ASSEMBLY APPROPRIATE FOR FIRE OR SMOKE PENETRATIONS AS APPLICABLE AND AS APPROVED BY THE FIRE MARSHAL.
11. THE MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL FIRE, SMOKE, OR COMBINATION SMOKE/FIRE DAMPERS AND ACCESS PANELS COMMENSURATE WITH THE RATING OF THE WALL IN ALL DUCTWORK THAT PENETRATES FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTITION IN ALL DUCTWORK THAT PENETRATES A HORIZONTAL OR VERTICAL FIRE PARTITION, OR AS OTHERWISE SHOWN ON THE DRAWINGS.
12. ALL PIPE SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN A NEAT AND WORKMANLIKE MANNER. THE USE OF WIRE OR METAL STRAPS TO SUPPORT PIPES WILL NOT BE PERMITTED. REFER TO SPECIFICATIONS FOR MINUMUM SPACING OF PIPE SUPPORTS.
13. A BUILDING COMMISSIONING PROCESS AND FUNCTIONAL TESTING OF PLUMBING SYSTEMS SHALL CARRIED OUT BY A CERTIFIED COMMISSIONING PROFESSIONAL.
14. ALL EQUIPMENT TO BE INSTALLED ON MIN 6" THICK CONCRETE HOUSEKEEPING PADS.
15. ALL EQUIPMENT, DUCTS PIPING, AND OTHER DEVICES AND MATERIALS INSTALLED OUTSIDE OF THE BUILDING OR OTHERWISE EXPOSED TO THE WEATHER SHALL BE COMPLETELY WEATHERPROOFED.
16. PLUMBING EQUIPMENT, DUCTS AND PIPING ARE TO BE COORDINATED WITH STRUCTURAL JOISTS AND CROSS BRACING.
17. ALL EXPOSED PIPING IN OCCUPIED SPACES SUBJECT TO ARCHITECTURAL APPROVAL PRIOR TO INSTALLATION.

LOCATION MAP

NOTE: NOT ALL SYMBOLS, SYSTEMS, AND ABBREVIATIONS MAY BE USED ON THIS PROJECT

PIPING COMPONENTS

REAL OBJECT	SYMBOL	
		ISOLATION VALVE (GENERIC)
		GATE VALVE
		GLOBE VALVE
		BUTTERFLY VALVE NPS 6 AND LESS
		BUTTERFLY VALVE NPS 8 AND MORE
		BALL VALVE
		PLUG VALVE
		NEEDLE VALVE
		CHECK VALVE (GENERIC)
		BALANCING VALVE
		FLOW LIMITING VALVE
		PRESSURE REDUCING VALVE
2-WAY		2-WAY CONTROL VALVE (GENERIC)
2-WAY		TWO-WAY ELECTRIC CONTROL VALVE, BUTTERFLY TYPE
3-WAY		3-WAY CONTROL VALVE (GENERIC)
3-WAY		THREE-WAY ELECTRIC CONTROL VALVE, BUTTERFLY TYPE
		SOLENOID 2-WAY CONTROL VALVE
		SOLENOID 3-WAY CONTROL VALVE
		FLOAT OPERATED VALVE ACTUATOR
		SAFETY OR RELIEF VALVE
		ANGLE VALVE
		BOILER STOP AND CHECK VALVE
BFP		BACKFLOW PREVENTER (GENERIC)
		MULTI-PURPOSE VALVE (SHUTOFF, BALANCING AND CHECK)
		SUCTION DIFFUSER
		PUMP (GENERIC)
		Y STRAINER (GENERIC)
		STEAM TRAP (GENERIC)
		AUTOMATIC AIR VENT
		MANUAL AIR VENT
		VACUUM BREAKER
		SHOCK ABSORBER
		TEMPERATURE GAUGE
		PRESSURE GAUGE
		TEMPERATURE AND PRESSURE TAP
		SIGHT FLOW GLASS
		FLEXIBLE CONNECTOR
		EXPANSION JOINT
		GUIDE
		ANCHOR
		FLOW ARROW
	1%	PIPING SLOPE
		PIPE CAP
		PIPE BREAK
		PIPE CROSS
		PIPING ELBOW UP
		PIPING ELBOW DOWN
		PIPING TEE UP
		PIPING TEE DOWN
		UNION CONNECTION
		FLANGED CONNECTION
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER

PIPING COMPONENTS

CO	STANDARD CLEAN-OUT IN LINE END OF RUN
CO	STANDARD CLEAN-OUT THROUGH FLOOR END OF RUN
CO	STANDARD CLEAN-OUT THROUGH FLOOR IN LINE

PLUMBING

2 1/2"	PIPE SIZE
XX	PIPING ROUTED BELOW SLAB OR GRADE
CD	CONDENSATE DRAIN
DCW	DOMESTIC COLD WATER
WW	NON-POTABLE WELL WATER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RECIRCULATION
SAN	SANITARY DRAIN
V	VENT
	PIPE INSULATION
	FIXTURE TRAP
CB	CATCH BASIN
MH	MANHOLE
FD	FLOOR DRAIN
	PLUMBING FIXTURES
WC-1	PLUMBING FIXTURE TAG (REFER TO SCHEDULE)

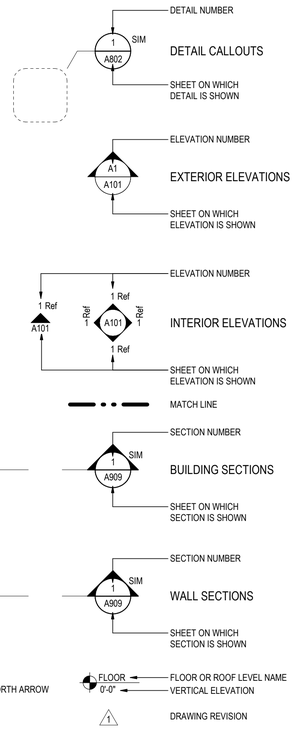
APPLICABLE CODES AND STANDARDS

- 2015 INTERNATIONAL BUILDING CODE
- 2015 INTERNATIONAL FIRE CODE
- 2015 INTERNATIONAL MECHANICAL CODE
- 2015 UNIFORM PLUMBING CODE
- 2015 WASHINGTON STATE RESIDENTIAL ENERGY CODE
- 2015 WASHINGTON STATE PLUMBING CODE

ABBREVIATIONS

A/C	AIR CONDITIONING UNIT
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJUSTABLE
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
AVG	AVERGAGE
BAS	BUILDING AUTOMATION SYSTEM
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
C/W	COMPLETE WITH
CAV	CONSTANT AIR VOLUME
CFM	CUBIC FEET PER MINUTE
COTF	CLEAN OUT THROUGH FLOOR
DB	DRY BULB TEMEPRATURE

GENERAL SYMBOLS



ABBREVIATIONS

dB	DECIBEL(S)
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DIA./Ø	DIAMETER
DIFF	DIFFERENTIAL
DIV	DIVISION
DN	DOWN
DWG	DRAWING
EA	EXHAUST AIR
EA (K)	EXHAUST AIR, KITCHEN
EA (LD)	EXHAUST AIR, LAUNDRY/DRYER
EA (W)	EXHAUST AIR, WASHROOM
EAT	ENTERING AIR TEMPERATURE
EAV	EXHAUST AIR VALVE
EER	ENERGY EFFICIENCY RATIO
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXIST / E	EXISTING (DEMOLITION PLANS)
F	FAHRENHEIT
FLA	FULL LOAD AMPERAGE
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FOOT/FEET
GA	GAUGE
GAL	GALLON (US)
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
HEPA	HIGH EFFICIENCY PARTICULATE AIR (FILTER)
HP	HORSEPOWER
HR	HOUR
HVAC	HEATING / VENTILATING / AIR CONDITIONING
HZ	HERTZ
IE	INVERT ELEVATION
IN	INCHES
IN WG	INCHES WATER GAUGE
IPLV	INTEGRATED PART LOAD VALUE
kW	KILOWATT
kWh	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LF	LINEAR FEET
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND OF BTUH
MCA	MINIMUM CIRCUIT AMPS
MFR	MANUFACTURER
MIN	MINIMUM
MOP	MAXIMUM OVERCURRENT PROTECTION
N/A	NOT APPLICABLE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPS	NOMINAL PIPE SIZE
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFE	OWNER FURNISHED EQUIPMENT
OFOI	OWNER FURNISHED / OWNER INSTALLED
PG	PROPYLENE GLYCOL
POE	POINT OF ENTRANCE
POS	POINT OF SERVICE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH, ABSOLUTE
PSIG	POUNDS PER SQUARE INCH, GAGE
PVC	POLYVINYL CHLORIDE
RA	RETURN AIR
RELA	RELIEF AIR
REQD	REQUIRED
RH	RELATIVE HUMIDITY
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SP	STATIC PRESSURE
SRV	SAFETY RELIEF VALVE
TA	TRANSFER AIR
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TYP	TYPICAL
UG	UNDERGROUND
UP	UP
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
VIF	VERIFY IN FIELD
VTR	VENT-THRU-ROOF
W/	WITH
W/O	WITHOUT
WB	WET BULB TEMPERATURE
WCO	WALL CLEAN OUT
WG	WATER GAUGE
WMS	WIRE MESH SCREEN
ZN-#	ZONE

EQUIPMENT IDENTIFICATION

ACU-#	AIR CONDITIONING UNIT
ADS-#	AIR AND DIRT SEPARATOR
AF-#	AIR FILTER
AHU-#	AIR HANDLING UNIT
AS-#	AIR SEPARATOR
ATU-#	AIR TERMINAL UNIT
B-#	BOILER
BCU-#	BLOWER COIL UNIT
BFP-#	BACKFLOW PREVENTER
BP-#	BOOSTER PUMP
CH-#	CHILLER
CP-#	RECIRCULATION PUMP
CU-#	CONDENSING UNIT
CUH-#	CABINET UNIT HEATER
CV-#	CONTROL VALVE
DAM-#	DAMPER
DF-#	DRINKING FOUNTAIN
DRC-#	DRYER ROOF CAP
DS-#	DUCT SILENCER
DU-#	DEHUMIDIFICATION UNIT
E-#	EXHAUST GRILLE / REGISTER / DIFFUSER
EBB-#	ELECTRIC FINNED TUBE
EF-#	EXHAUST FAN
ERP-#	ELECTRIC RADIANT PANEL
ERP-#	
ERV-#	ENERGY RECOVERY UNIT
ET-#	EXPANSION TANK
EUH-#	ELECTRIC UNIT HEATER
EW-#	EYE WASH STATION
F-#	FAUCET
FCU-#	FAN COIL UNIT
FD-#	FLOOR DRAIN
FS-#	FLOOR SINK
FV-#	FLUSH VALVE
H-#	HUMIDIFIER
HB-#	HOSE BIBB
HC-#	HEATING COIL
HP-#	HEAT PUMP
HRV-#	HEAT RECOVERY UNIT
HWD-#	HOT WATER DISPENSER
HX-#	HEAT EXCHANGER
IB-#	ICE MAKER OUTLET BOX
IDU-#	INDOOR AIR CONDITIONING UNIT
KH-#	KITCHEN HOOD
KWC-#	KITCHEN WALL CAP
LAV-#	LAVATORY
LV-#	LOUVER
MAU-#	MAKEUP AIR UNIT
MV-#	MIXING VALVE
ODU-#	OUTDOOR AIR CONDITIONING UNIT
P-#	PUMP
PRV-#	PRESSURE REDUCING VALVE
PT-#	PRESSURE TANK
R-#	RETURN AIR GRILLE / REGISTER / DIFFUSER
RC-#	ROOF CAP
RD-#	ROOF DRAIN
RH-#	RELIEF HOOD
RP-#	RADIANT PANEL
RTU-#	ROOFTOP UNIT
S-#	SUPPLY GRILLE / REGISTER / DIFFUSER
SF-#	SUPPLY FAN
SH-#	SHOWER
SK-#	SINK
T-#	TRANSFER AIR GRILLE
TD-#	TRENCH DRAIN
TF-#	TRANSFER FAN
TMV-#	TEMPERING VALVE
TP-#	TRAP PRIMER
UH-#	UNIT HEATER
UR-#	URINAL
VA-#	VALVE
WB-#	WASHING MACHINE OUTLET BOX
WC-#	WATER CLOSET
WH-#	WATER HEATER

PLUMBING SHEET LIST

SHEET NUMBER	SHEET NAME
P-0	PLUMBING LEGENDS & ABBREVIATIONS
5P-0	INCUBATION BUILDING PLUMBING SCHEDULES
5P-1	INCUBATION BUILDING PLUMBING SCHEDULES
5P-2	INCUBATION BUILDING UNDERGROUND PLUMBING PLAN
5P-3	INCUBATION BUILDING PLUMBING PLAN
5P-4	INCUBATION BUILDING PLUMBING ROOF PLAN
5P-5	PLUMBING DETAILS
5P-6	PLUMBING DETAILS
5P-7	PLUMBING RISER DIAGRAMS

Revision | By | Appd | YYYY.MM.DD
PACKAGE A
Issued | By | Appd | YYYY.MM.DD
Permit/Seal
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Tulalip Tribes
Tulalip - Utility Wells ESDC & Battle Creek Design
File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD
Title
PLUMBING LEGENDS & ABBREVIATIONS
Project No. 224202267
Scale As indicated
Revision
Drawing No. P-0

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ORIGINAL SHEET - ANSI D

PLUMBING FIXTURES SCHEDULE

FIXTURE TYPE :WATER CLOSET

UNIT IDENTIFICATION	CONNECTION SIZES					BOWL									TOILET SEAT	FLUSH VALVE	SUPPORT	MODEL	MANUFACTURER	NOTES
	SAN	VENT	TRAP	CW	HW	MATERIAL	TYPE	STRAINER / TRAPWAY	MOUNTING	HEIGHT (IN)	RIM CONTOUR	WATER CONSUMPTION...	SPUD LOCATION	COLOR						
WC-1	4	2	2-1/8	1	-	VITREOUS CHINA	SIPHON JET	INTEGRAL	WALL	18-5/8	ELONGATED	1.28	TOP	WHITE	BEMIS 1955CT	FV-1	ZURN Z1202-ND4	ST-2459-STG	SLOAN	1,2,3,13

FIXTURE TYPE: FLUSH VALVES

UNIT IDENTIFICATION	VALVE								MODEL	MANUFACTURER	NOTES
	OPERATOR	TYPE	PRESSURE (PSIG)	MATERIAL	EXPOSED FINISH	PANEL FINISH	STYLE	WATER CONSUMPTION (GPF)			
FV-1	INFRARED SENSOR	DIAPHRAGM	25-80	SEMI-RED BRASS	POLISHED CHROME	-	EXPOSED	1.28	ECOS 115	SLOAN	2,3,9

FIXTURE TYPE: SINK

UNIT IDENTIFICATION	CONNECTION SIZES					FIXTURE CHARACTERISTICS						INSTANT HOT WATER DISPENSER	FAUCET	MOUNT	ACCESSORIES			MODEL	MANUFACTURER	NOTES
	SAN	VENT	TRAP	CW	HW	MATERIAL	TYPE	DIMENSIONS (IN)	QUANTITY OF HOLES	HOLE SPACING (IN)	MOUNTING MATERIAL				DRAIN	TRAP GUARD	MIXING VALVE			
LAV-1	1-1/2	1-1/2	1-1/2	1/2	1/2	VITREOUS CHINA	WALL MOUNT LAVATORY	20-3/4 X 18-1/4	1	-	WALL CARRIER	-	F-1	SINK	STRAINER	YES	TMV-3	SS-3103-STG	SLOAN	1,2,3
SK-1	2	2	1-1/2	1/2	1/2	STAINLESS STEEL	DROP-IN SINK	27 X 22	3	4	COUNTER	F-5	F-2	SINK	STRAINER	YES	-	LSR2722	ELKAY	3,4,10
SK-2	3	2	3	1/2	1/2	TERRAZZO	MOP SINK	30 X 30	-	-	FLOOR	-	F-3	WALL	INTEGRAL	NO	-	SB3030	FIAT	1,3,5
SK-3	2	2	1-1/2	1/2	1/2	STAINLESS STEEL	SERVICE SINK	27 X 27-1/2	2	8	-	-	HB-2	WALL	STRAINER	YES	-	SS81242	ELKAY	3,11
SK-4	2	2	1-1/2	1/2	1/2	STAINLESS STEEL	SERVICE SINK	27 X 27-1/2	2	8	-	-	HB-1	WALL	STRAINER	YES	-	SS81242	ELKAY	3,11
SK-5	2	2	1-1/2	1/2	1/2	STAINLESS STEEL	3-COMPARTMENT SINK	70-1/2 X 27-1/2	4	8	-	-	HB-2	WALL	STRAINER	YES	-	WNSF8345R4	ELKAY	3,11,12

FIXTURE TYPE: LAVATORY FAUCET

UNIT IDENTIFICATION	TYPE	MIXING	HOT / COLD INDICATORS	BODY TYPE	CENTER SPACING (IN)	BODY MATERIAL	FINISH	WATER CONSUMPTION (GPM)	MOUNTING TYPE	VALVE HANDLE TYPE	HANDLE SIZE (IN)	VANDAL RESISTANT	SPOUT TYPE	SPOUT OUTLET	MODEL	MANUFACTURER	NOTES
F-1	SENSOR	THERMOSTATIC	-	PEDESTAL	-	ZINC	CHROME	0.5	DECK MOUNTED	-	-	-	RIGID SPOUT	MULTI-LAMINAR	EFX-300.210.0010	SLOAN	3,9
F-2	MANUAL	CERAMIC DISC CARTRIDGE	RED/BLUE ON HANDLE	PULL DOWN GOOSENECK	4	STAINESS STEEL	CHROME	1.8	DECK MOUNTED	LEVER	4-1/2	-	PULLDOWN	NON-RESTRICED	19881Z-DST	DELTA	3,4
F-3	MANUAL	CERAMIC DISC CARTRIDGE	RED/BLUE ON HANDLES	TWO HANDLE CENTER SET	8	CAST BRASS	CHROME	-	WALL	LEVER	2-3/8	YES	INTEGRAL CHECK VACUUM BREAKER	HOSE END	897-CCP	CHICAGO FAUCET	2,3,5
F-4	MANUAL	CERAMIC DISC CARTRIDGE	-	TWO HANDLE CENTER SET	8	CAST BRASS	CHROME	1.5	WALL	LEVER	3	YES	SWIVEL GOOSENECK	VANDAL RESISTANT LAMINAR	28C6923-S	DELTA	2,3
F-5	MANUAL	CERAMIC DISC CARTRIDGE	RED ON HANDLE	PEDESTAL	-	BRASS	CHROME	0.75	DECK MOUNTED	LEVER	3	-	SWIVEL GOOSENECK	NON-RESTRICED	F-H3300	INSINKERATOR	3

FIXTURE TYPE: SHOWER

UNIT IDENTIFICATION	CONNECTION SIZES					FIXTURE CHARACTERISTICS						WATER CONSUMPTION (GPF)	FAUCET	MOUNT	ACCESSORIES			MODEL	MANUFACTURER	NOTES
	SAN	VENT	TRAP	CW	HW	MATERIAL	TYPE	DIMENSIONS (IN)	QUANTITY OF HOLES	HOLE SPACING (IN)	MOUNTING TYPE				DRAIN	TRAP GUARD	MIXING VALVE			
SH-1	2	1-1/2	2	1/2	1/2	ACRYLIC	ADA SHOWER	36 X 36	1	-	FLOOR	1.8	-	WALL	STRAINER	YES	TMV-4	APFQ3838BF1PRRF	FREEDOM SHOWERS	1,2,3,7

FIXTURE TYPE: DRINKING FOUNTAIN

UNIT IDENTIFICATION	CONNECTION SIZES					FIXTURE CHARACTERISTICS						SUPPORT	FAUCET	MOUNT	ACCESSORIES			MODEL	MANUFACTURER	NOTES
	SAN	VENT	TRAP	CW	HW	MATERIAL	TYPE	DIMENSIONS (IN)	QUANTITY OF HOLES	HOLE SPACING (IN)	MOUNTING MATERIAL				DRAIN	TRAP GUARD	MIXING VALVE			
DF-1	1-1/2	1-1/2	1-1/2	1/2	1/2	STAINLESS STEEL	ADA NONREFRIGERATED	36-1/4 X 18-5/8	-	-	-	ELKAY MLP100	-	WALL	INTEGRAL	NO	-	WNSF8345L4	ELKAY	2,3,8

FIXTURE TYPE: EMERGENCY EYEWASH

UNIT IDENTIFICATION	CONNECTION SIZES					FIXTURE CHARACTERISTICS						ACCESSORIES	FAUCET	MOUNT	ACCESSORIES			MODEL	MANUFACTURER	NOTES
	SAN	VENT	TRAP	CW	HW	BODY MATERIAL	TYPE	DIMENSIONS (IN)	FINISH	BOWL MATERIAL	MOUNTING TYPE				DRAIN	TRAP GUARD	MIXING VALVE			
EW-1	2	2	1-1/2	1/2	1/2	BRASS	EYEWASH SINK	11 Ø	CHROME	ABS PLASTIC	WALL	-	-	WALL	1-1/2	-	TMV-2	7260BT-7270BT	HAWS	2,3,11,13
EW-2	2	2	1-1/4	1/2	1/2	BRASS	EYEWASH SINK	11 Ø	STAINLESS STEEL	STAINLESS STEEL	WALL	-	-	WALL	1-1/4	-	TMV-2	7433FP	HAWS	2,3,11,13

FIXTURE TYPE : WALL OUTLET BOX

UNIT IDENTIFICATION	CONNECTION SIZES					FIXTURE CHARACTERISTICS						ACCESSORIES	FAUCET	MOUNT	ACCESSORIES			MODEL	MANUFACTURER	NOTES
	SAN	VENT	TRAP	CW	HW	BODY MATERIAL	TYPE	DIMENSIONS (IN)	FINISH	VALVE MATERIAL	MOUNTING TYPE				DRAIN	TRAP GUARD	MIXING VALVE			
WB-1	2	2	2	1/2	1/2	ABS	WASHING MACHINE OUTLET BOX	11-1/2 X 7-1/4 X 3-1/2	STAINLESS STEEL	BRASS	WALL	-	-	WALL	2	YES	-	696-G2313WF	SIOUX CHIEF	1,2,6,13
IB-1	-	-	-	1/2	-	ABS	ICE MAKER OUTLET BOX	5-7/8 X 7-1/4 X 3-1/2	STAINLESS STEEL	BRASS	WALL			WALL	-	NO	-	696-G1010WF	SIOUX CHIEF	1,2,13

NOTES:
1. CONTRACTOR SHALL COORDINATE COLOR SELECTION WITH ARCHITECT PRIOR TO ORDERING.
2. CONTRACTOR TO VERIFY WALL THICKNESS AND TYPE FOR MOUNTING HARDWARE.
3. INSTALL FAUCET/VALVE PER MANUFACTURERS INSTRUCTIONS.
4. PROVIDE WITH DISHWASHER AIR-GAP FITTING.
5. REFER TO DETAIL #4 ON PLUMBING SHEET 5P-5 FOR MOP SINK INSTALLATION.
6. REFER TO DETAIL #3 ON PLUMBING SHEET 5P-5 FOR WASHING MACHINE OUTLET BOX INSTALLATION.
7. PROVIDE ADA FOLDING SEAT WITH STALL OPPOSITE TO SHOWER HEAD PER MANUFACTURER'S INSTRUCTIONS.
8. PROVIDE CANE APRON FOR DRINKING FAUCETS, ELKAY LKAPREZL OR EQUAL.
9. PROVIDE 120V POWER CONNECTION PROVIDED BY DIVISION 26.
10. PROVIDE INSTANT HOT WATER TANK HWT-F1000S OR APPROVED EQUAL.
11. PROVIDE SELF REGULATING HEAT TRACE ON OUTDOOR SINK AND FAUCET PROVIDED BY DIVISION 26, NELSON LT3 OR APPROVED EQUAL.
12. PROVIDE DRAIN BOARD ON LEFT HAND SIDE.
13. PROVIDE WITH WATER HAMMER ARRESTER.

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STATE OF WASHINGTON
42875
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PROFESSIONAL ENGINEER
2025-02-10

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TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A	BHC	MSM	JML	2/10/25
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
INCUBATION BUILDING PLUMBING SCHEDULES

Project No. 224202267
Scale
Revision
Drawing No. **5P-0**

<Plot Location in Project Information>
2/10/2025 10:03:26 PM
ORIGINAL SHEET - ANSI D

PLUMBING DRAIN SCHEDULE

DRAIN TYPE : FLOOR DRAIN

MARK	NUMBER	CONNECTION SIZES			DESCRIPTION	BODY		STRAINER		VARIATIONS	MODEL	MANUFACTURER	NOTES
		SAN	VENT	TRAP		MATERIAL	STYLE	MATERIAL	STYLE				
FD	1	2	2	2	FLOOR DRAIN	CAST IRON	ROUND	NICKEL BRONZE	VANDAL PROOF	TRAP PRIMER	2005Y	JR SMITH	1,2
FD	2	4	2	4	FLOOR DRAIN	CAST IRON	ROUND	NICKEL BRONZE	VANDAL PROOF	TRAP PRIMER	2005Y	JR SMITH	1,2
FS	1	2	1-1/2	2	FLOOR SINK	CAST IRON	SQUARE	NICKEL BRONZE	VANDAL PROOF	DOME STRAINER	3100Y	JR SMITH	1,2
FS	2	4	2	4	FLOOR SINK	CAST IRON	SQUARE	NICKEL BRONZE	VANDAL PROOF	DOME STRAINER	3100Y	JR SMITH	1,2
TD	1	2	1-1/2	2	TRENCH DRAIN	CAST IN PLACE		BLACK ACID RESISTANT EPOXY COATED DUCTILE GRATE	6" WIDTH	CLASS C	Z886HDS	ZURN	1,3

NOTES:
1. REFER TO PLUMBING PLANS FOR DRAIN, P-TRAP, SANITARY AND SANITARY VENT SIZING.
2. REFER TO DETAIL 6# ON PLUMBING SHEET 5P-5 FOR FLOOR DRAIN INSTALLATION.
3. REFER TO DETAIL 5# ON PLUMBING SHEET 5P-5 FOR TRENCH DRAIN INSTALLATION.

EXPANSION TANK SCHEDULE

UNIT IDENTIFICATION			TANK							SYSTEM					MANUFACTURER	MODEL NUMBER	NOTES
										ESTIMATED SYSTEM VOLUME...	OPERATING...		OPERATING PRESSURE				
MARK	NUMBER	AREA SERVED	TYPE	ASME CONSTRUCTION	VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	DIAMETER (IN)	HEIGHT (IN)	WEIGHT (LBS)		MIN TEMP (F)	MAX TEMP (F)	MIN PRESS (PSIG)	MAX PRESS (PSIG)			
ET	1	509 JANITOR	DIAPHRAGM	YES	6.4	3.2	12	18	79	112	40	140	80	150	AMTROL	ST-12C-DD	1
PT	1	500 INCUBATION	BLADDER	YES	158.0	158.0	30	73	1,903	---	---	---	38	60	AMTROL	WX-451C	2

NOTES:
1. REFER TO DETAIL #1 ON PLUMBING SHEET 5P-6 FOR EXPANSION TANK INSTALLATION.
2. PROVIDE DRAIN, RELIEF VALVE, PRESSURE GAUGE, AND PRESSURE SWITCH, CALIBRATED BETWEEN 38 TO 60 PSI....

MIXING VALVE SCHEDULE

MARK	NUMBER	SYSTEM SERVED	MIN FLOW (GPM)	MAX FLOW (GPM)	HOT WATER INLET TEMP (F)	HOT WATER OUTLET TEMP (F)	PRESSURE DROP AT MAX FLOW...	MANUFACTURER	MODEL NUMBER	NOTES
TMV	1	WATER HEATER	0.5	16	140	120	5	POWERS	LFIS075VL	1,2
TMV	2	EMERGENCY EYEWASH	0.5	3.6	120	80	5	POWERS	ES150	3
TMV	3	LAVATORY	0.25	0.5	120	105	4	POWERS	LFG480	
TMV	4	SHOWER	1	4	120	110	45	POWERS	E700	

NOTES:
1. REFER TO DETAIL #1 ON PLUMBING SHEET 5P-6 FOR MIXING VALVE INSTALLATION.
2. 1017 ASSE RATED.
3. 1071 ASSE RATED FOR EMERGENCY FIXTURES.

HOSE BIBB / HYDRANT SCHEDULE

MARK	NUMBER	WALL BOX	VACCUM BREAKER	PIPE SIZE	HOSE CONNECTION SIZE	HANDLE	MANUFACTURER	MODEL NUMBER	NOTES
HB	1	NO	DOUBLE CHECK	3/4"	3/4"	WHEEL	WOODFORD	26	1
HB	2	YES	INTEGRAL	3/4"	3/4"	LOOSE KEY	WOODFORD	65	2,3

NOTES:
1. PROVIDE WITH METAL WHEEL HANDLE.
2. PROVIDE WITH LOOSE "T" KEY.
3. INTEGRAL VACUUM BREAKER.

TRAP PRIMER SCHEDULE

UNIT IDENTIFICATION		TRAP PRIMER TYPE	MANIFOLD COUNT	MOUNT TYPE	MINIMUM PRESSURE (PSI)	MAXIMUM PRESSURE (PSI)	INLET CONNECTION (IN)	ELECTRICAL			MANUFACTURER	MODEL NUMBER	NOTES
MARK	NUMBER							VOLTS	AMPS	PHASE			
TP	1	ELECTRONIC	10	WALL	20	100	1/2	120	0.1	1	JR SMITH	270FM	1,2,3

NOTES:
1. INSTALL TRAP PRIMER'S BOTTOM OUTLET AT MINIMUM 42" AFF.
2. PROVIDE WITH HINGED ACCESS DOOR WITH CYLINDER LOCK.
3. PROVIDE WITH TIMER SET TO DISCHARGE ONCE PER 24 HOURS.

PUMP SCHEDULE

UNIT IDENTIFICATION				PUMP					MOTOR		ELECTRICAL		MANUFACTURER	MODEL NUMBER	NOTES
MARK	NUMBER	LOCATION	SYSTEM SERVED	TYPE	COUPLING TYPE	FLOW (GPM)	HEAD (FT)	OVERLOAD (GPM)	HP	SPEED (RPM)	VOLTS	PHASE			
CP	1	509 JANITOR	DHW	INLINE	UNION	3.6	16.67	6	0.157	3600	115	1	ARMSTRONG	ASTRO 250CI	1
BP	1	500 INCUBATION	WW	BOOSTER PUMP	SPLIT	15	138.6	22	1.5	4000	208	3	GRUNDFOS	CRE 3-6 B-B-A-E-HQQE	1,2

NOTES:
1. PROVIDE ALL LEAD FREE, BRONZE PUMP CASING.
2. PROVIDE WIRING AND RELAYS. CONTROL PUMP VFD BETWEEN 38 AND 60 PSI.

WATER HEATERS

UNIT IDENTIFICATION			WATER				ELECTRICAL				MANUFACTURER	MODEL NUMBER	NOTES
MARK	NUMBER	AREA SERVED	STORAGE (GAL)	RECOVERY RATE (GPH)	EWT (F)	LWT (F)	VOLTS	PHASE	AMPS	kW			
WH	1	509 JANITOR	100	100	40	140	480	3	28.9	24	AO SMITH	DSE-100A	1

NOTES:
1. REFER TO DETAIL #1 ON PLUMBING SHEET 5P-6 FOR WATER HEATER INSTALLATION....

BACKFLOW PREVENTER

UNIT IDENTIFICATION			BODY				MANUFACTURER	MODEL NUMBER	NOTES
MARK	NUMBER	AREA SERVED	SIZE (IN)	MATERIAL	TYPE	ACCESSORIES			
BFP	1	503 MECH	2	COPPER SILICON	DOUBLE CHECK	STRAINER	WATTS	LF007	1

NOTES:
1. PROVIDE HUB DRAIN WITH FUNNEL FOR INDIRECT DRAINAGE. REFER TO DETAIL #2 ON PLUMBING SHEET 5P-5....

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TULALIP TRIBES

Client/Project
Tulalip Tribes

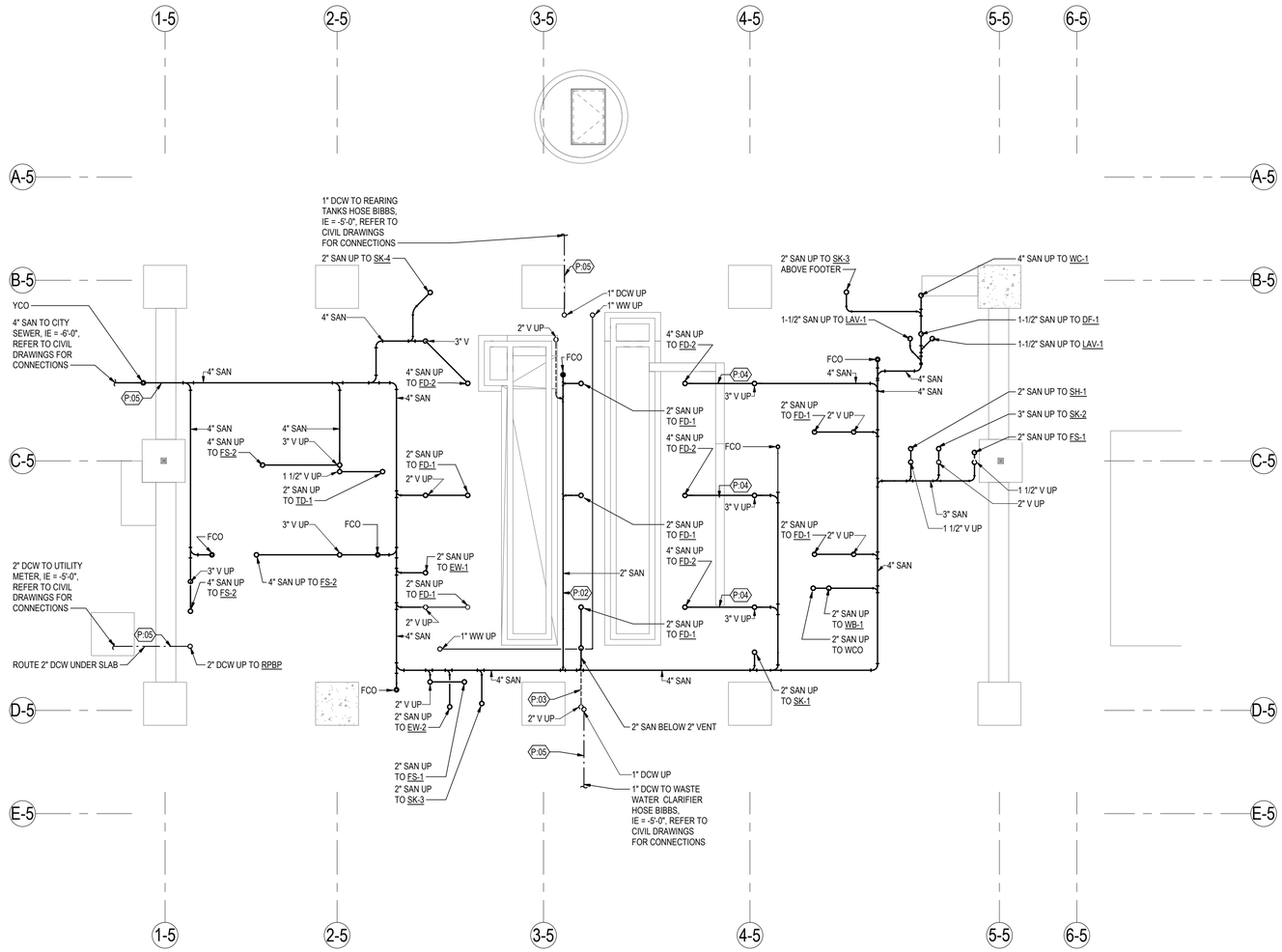
Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
INCUBATION BUILDING PLUMBING SCHEDULES

Project No. 224202267
Scale
Revision
Drawing No. **5P-1**

<Plot Location in Project Information>
2/10/2025 10:03:24 PM
ORIGINAL SHEET - ANSI D



1 INCUBATION BUILDING UNDERGROUND PLUMBING PLAN

5P-2

1/8" = 1'-0"

SHEET NOTES

1. SYSTEMS SHOWN ARE DIAGRAMMATIC AND MAY NOT INCLUDE ALL OFFSETS, FITTINGS AND REQUIRED ROUTING. PLUMBING CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF COMPLETE AND OPERATIONAL SYSTEMS WITH DUE RESPECT TO ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.
2. COORDINATE PIPE ROUTING WITH DUCTWORK, SPRINKLER/PROCESS PIPING AND ELECTRICAL POWER/LIGHTING CIRCUITING AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
3. ALL NEW PIPING ROUTING DOWN IN EXTERIOR WALLS TO SERVE NEW PLUMBING FIXTURES SHALL BE ON THE INTERIOR SIDE OF THE WALL INSULATION.
4. ALL HORIZONTAL SANITARY DRAINAGE PIPING SHALL BE SLOPED AT 1/4" PER FOOT OR 2% TOWARD THE POINT OF DISPOSAL PER UPC SECTION 708.1, UNLESS OTHERWISE NOTED & APPROVED BY LOCAL AUTHORITY HAVING JURISDICTION.
5. INSTALL ALL PLUMBING EQUIPMENT, FIXTURES AND ACCESSORIES IN ACCORDANCE WITH ALL LOCAL CODES, AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
6. PROVIDE TRAP PRIMER CONNECTION AND ROUTE TRAP PRIMER LINES TO ALL FLOOR DRAINS, FLOOR SINKS, AND TRENCH DRAINS.
7. PROVIDE CLEANOUT PLUGS ON DRAIN OR VENT FOR ALL SINKS AND EYEWASH STATIONS. SIZE AND LOCATE CLEANOUT PLUGS ACCORDING TO 2015 UPC SECTION 707.

KEYNOTE:

P:02 CIRCUIT VENT PLUMBING. INSTALL DRAIN PER 2015 UPC SECTION 911.
P:03 HORIZONTAL VENT BELOW SLAB. SLOPE VENT AT 1/4" PER FT BELOW GRADE AND USE SANITARY FITTINGS.
P:04 ROUTE HORIZONTAL DRAIN BELOW CONCRETE TRENCH. PROVIDE WITH PROTECTIVE SLEEVE.
P:05 PROVIDE WITH PROTECTIVE SLEEVE OVER CARRIER PIPE WITH MECHANICAL SEAL AND SPACERS FOR PIPING RUNNING BELOW CURBS.

Revision	By	Appd	YYYY.MM.DD
PACKAGE A Issued	By	Appd	YYYY.MM.DD

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STATE OF WASHINGTON · JEFFREY M. LYNCH · 42871 · REGISTERED PROFESSIONAL ENGINEER · 2025-02-10

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TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
INCUBATION BUILDING UNDERGROUND PLUMBING PLAN

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5P-2**

<Pick location in Project Information>
2/10/2025 10:03:31 PM
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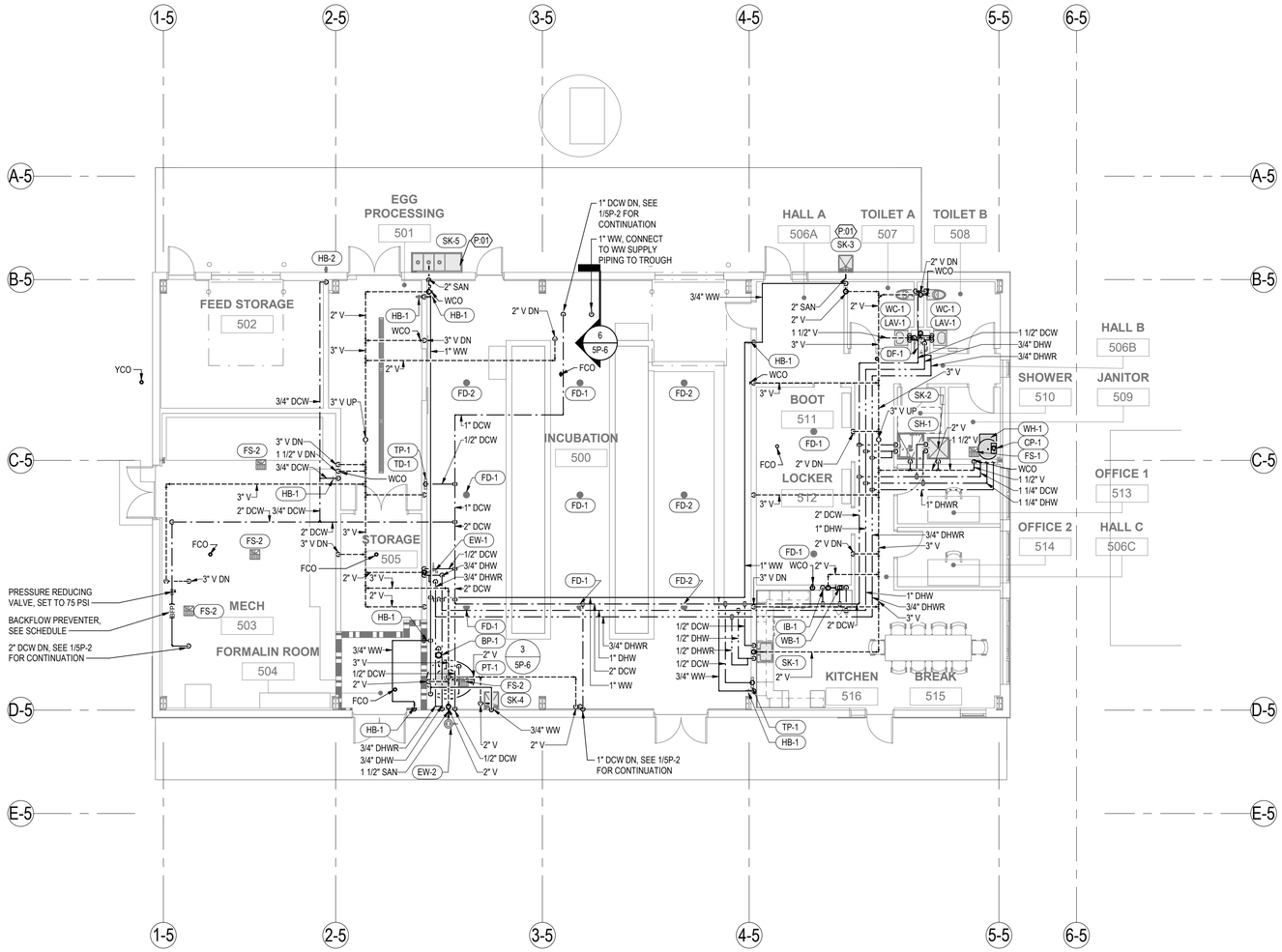

1 5P-3 **INCUBATION BUILDING PLUMBING PLAN**

1/8" = 1'-0"

TRUE NORTH

SHEET NOTES

1. SYSTEMS SHOWN ARE DIAGRAMMATIC AND MAY NOT INCLUDE ALL OFFSETS, FITTINGS AND REQUIRED ROUTING. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF COMPLETE AND OPERATIONAL SYSTEMS WITH DUE RESPECT TO ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.
2. COORDINATE PIPE ROUTING WITH DUCTWORK, SPRINKLER/PROCESS PIPING AND ELECTRICAL POWER/LIGHTING CIRCUITING AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
3. ALL NEW PIPING ROUTING DOWN IN EXTERIOR WALLS TO SERVE NEW PLUMBING FIXTURES SHALL BE ON THE INTERIOR SIDE OF THE WALL INSULATION.
4. ALL HORIZONTAL SANITARY DRAINAGE PIPING SHALL BE SLOPED AT 1/4" PER FOOT OR 2% TOWARD THE POINT OF DISPOSAL PER UPC SECTION 708.1, UNLESS OTHERWISE NOTED & APPROVED BY LOCAL AUTHORITY HAVING JURISDICTION.
5. ALL HORIZONTAL VENT PIPING SHALL BE SLOPED AT 1% GRADE, PER UPC SECTION 905.1, UNLESS OTHERWISE NOTED & APPROVED BY LOCAL AUTHORITY HAVING JURISDICTION.
6. INSTALL ALL PLUMBING EQUIPMENT, FIXTURES AND ACCESSORIES IN ACCORDANCE WITH ALL LOCAL CODES, AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
7. PROVIDE ISOLATION VALVES ON DOMESTIC HOT AND COLD WATER SUPPLY TO ROUGH IN OF EACH FIXTURE.
8. TRAP PRIMERS ARE TO BE INSTALLED AT A MINIMUM 42" AFF.
9. PROVIDE CLEANOUT PLUGS ON DRAIN OR VENT FOR ALL SINKS AND EYEWASH STATIONS. SIZE AND LOCATE CLEANOUT PLUGS ACCORDING TO 2015 UPC SECTION 707.
10. PROVIDE BALANCING VALVES ON ALL HOT WATER RECIRCULATION BRANCHES. SIZE TO MANUFACTURER'S INSTRUCTIONS.

P:01 **KEYNOTE:**
PROVIDE SELF REGULATING HEAT TRACE ON FIXTURE FAUCET AND DRAIN, NELSON LT3 OR APPROVED EQUAL. INSULATE AROUND HEAT TRACE.

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TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
INCUBATION BUILDING PLUMBING PLAN

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5P-3**

<Pick location in Project Information>
2/10/2025 10:03:39 PM
ORIGINAL SHEET - ANSI D

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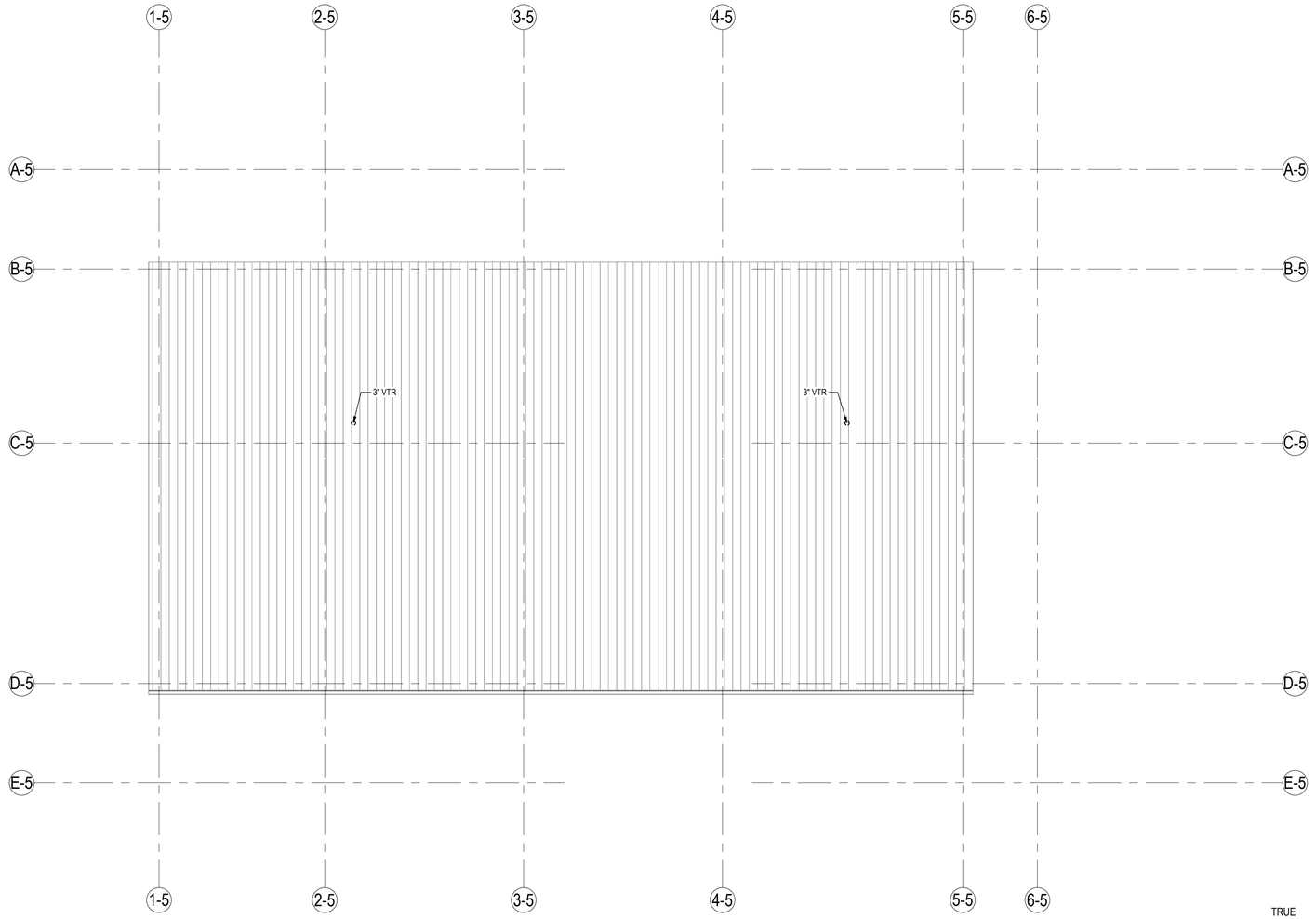
2. COORDINATE PIPE ROUTING WITH DUCTWORK, SPRINKLER PIPING AND ELECTRICAL POWER/LIGHTING CIRCUITING AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
3. INSTALL ALL PLUMBING EQUIPMENT, FIXTURES AND ACCESSORIES IN ACCORDANCE WITH ALL LOCAL CODES, AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.



1 / 5P-4 **INCUBATION BUILDING PLUMBING ROOF PLAN**
1/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
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TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
INCUBATION BUILDING PLUMBING ROOF PLAN

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5P-4**

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2/10/2025 10:53:36 PM
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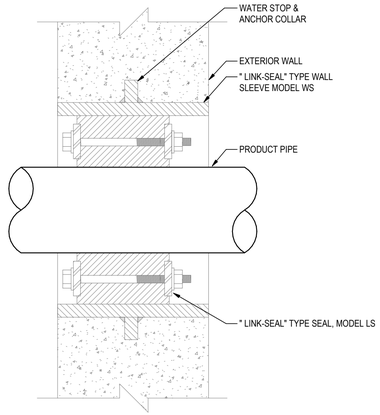
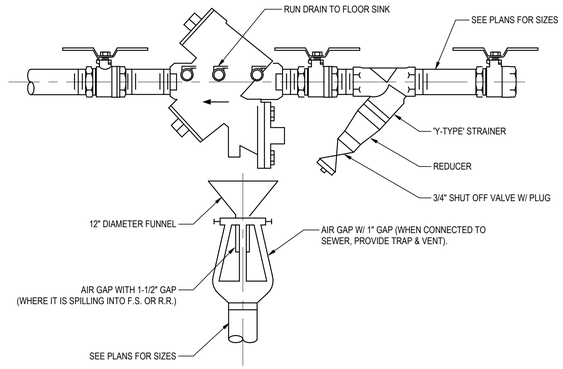
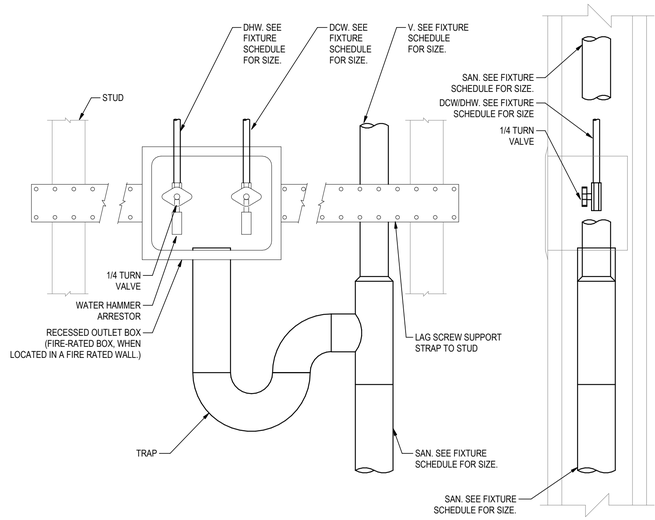


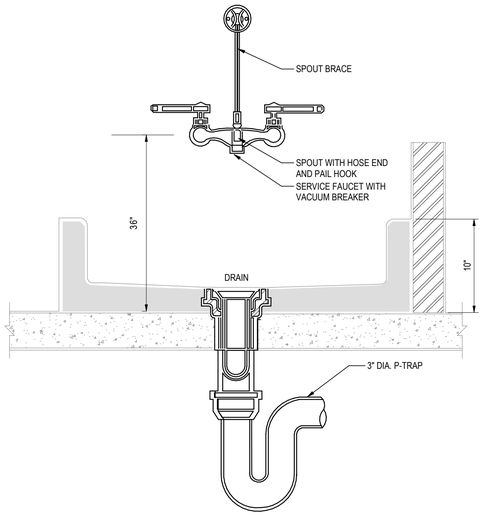
1 PIPE PENETRATION DETAIL
5P-5 NOT TO SCALE



2 BACKFLOW PREVENTER DRAIN
5P-5 NOT TO SCALE



3 WASHING MACHINE OUTLET BOX
5P-5 NOT TO SCALE



4 MOP SINK
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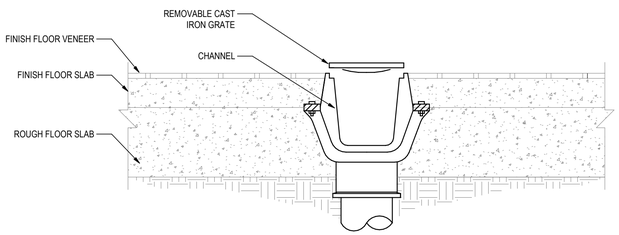
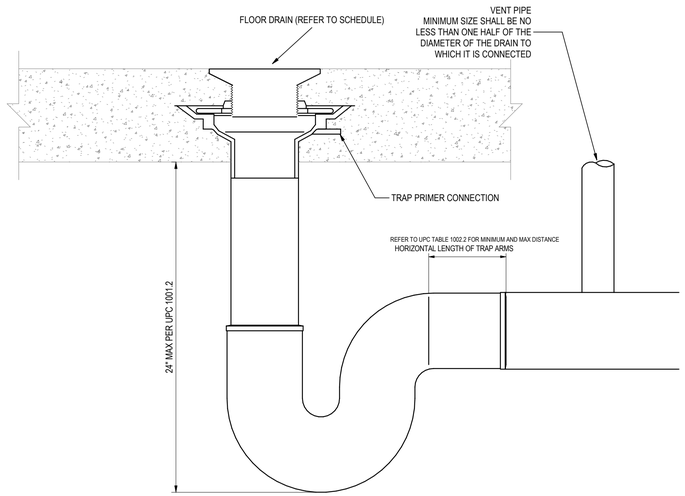


CROSS SECTION MODULAR TRENCH DRAIN

5 TRENCH DRAIN
5P-5 NOT TO SCALE



6 FLOOR DRAIN DETAIL
5P-5 NOT TO SCALE

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JEFFREY M. LYNCH
STATE OF WASHINGTON
22871
REGISTERED
PROFESSIONAL ENGINEER
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TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

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Title
PLUMBING DETAILS

Project No. 224202267
Scale NOT TO SCALE
Revision
Drawing No. **5P-5**

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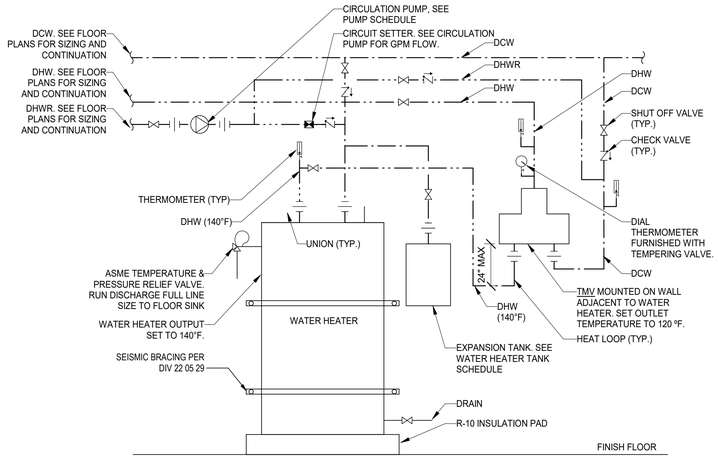
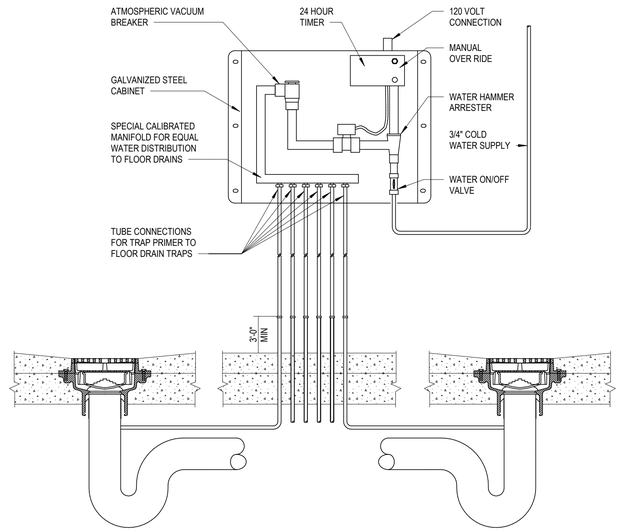
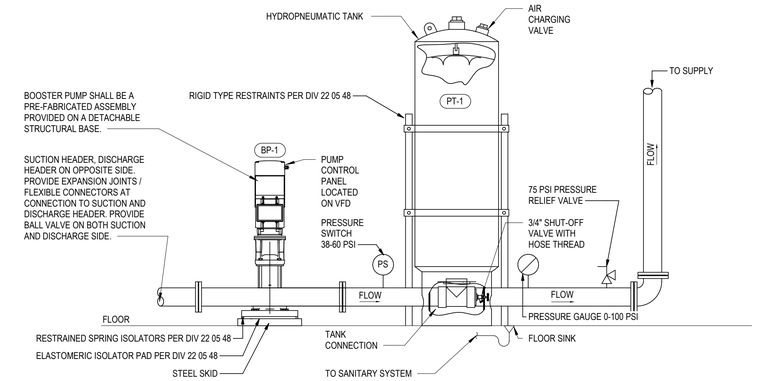


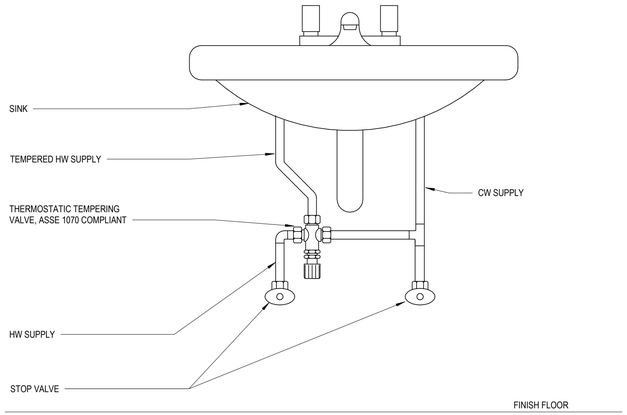
1 5P-6 **ELECTRIC WATER HEATER**
NOT TO SCALE



2 5P-6 **TRAP PRIMER DETAIL (MANIFOLD)**
NOT TO SCALE



3 5P-6 **BOOSTER PUMP ASSMEBLY SCHEMATIC - DOMESTIC WATER**
NOT TO SCALE



4 5P-6 **LAVATORY TEMPERING VALVE SCHEMATIC**
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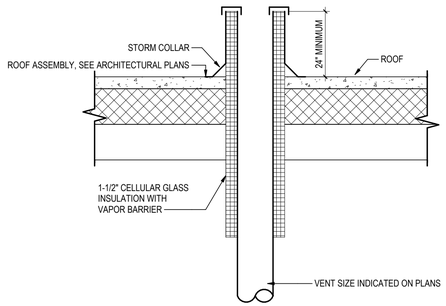
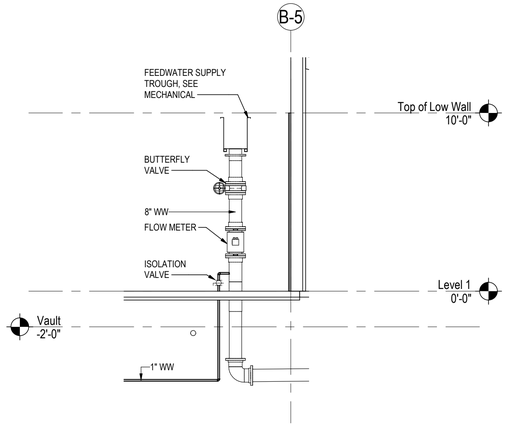


5 5P-6 **VENT THROUGH ROOF DETAIL**
NOT TO SCALE



6 5P-6 **WELL WATER ENTRY**
NOT TO SCALE

Revision	By	Appd	YYYY.MM.DD

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TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
PLUMBING DETAILS

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5P-6**

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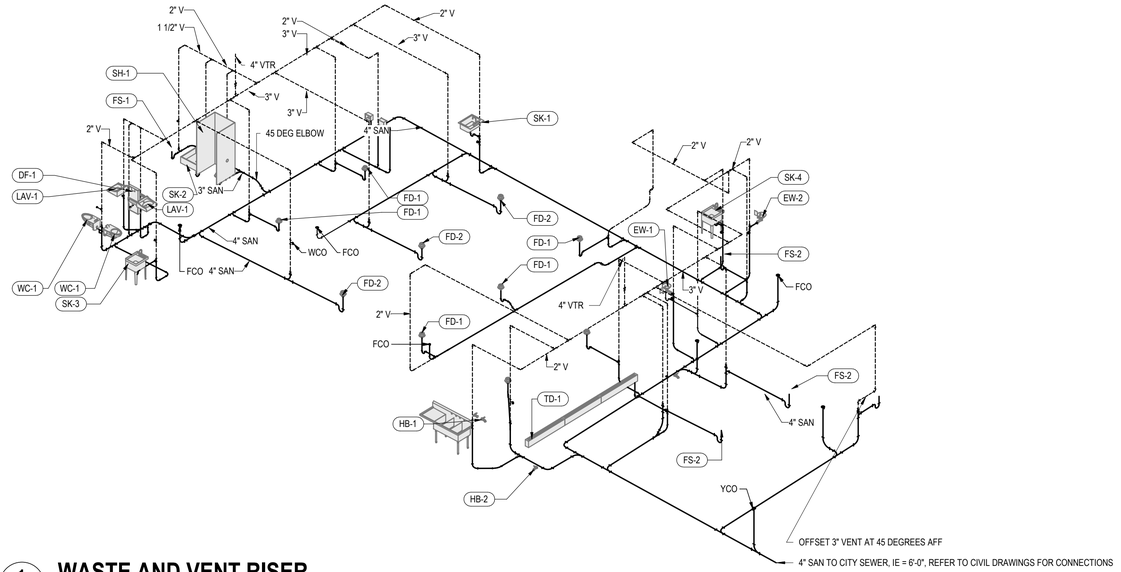
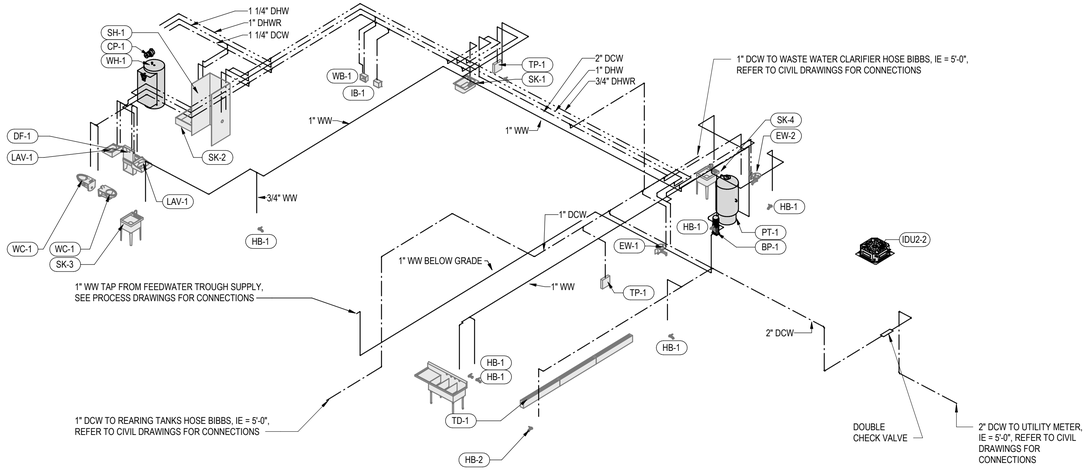
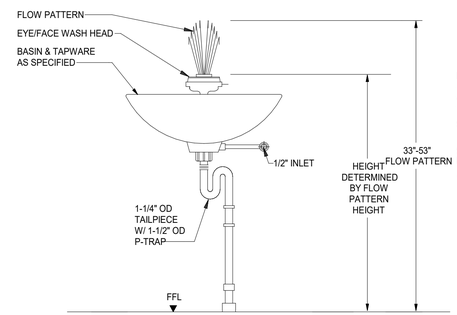


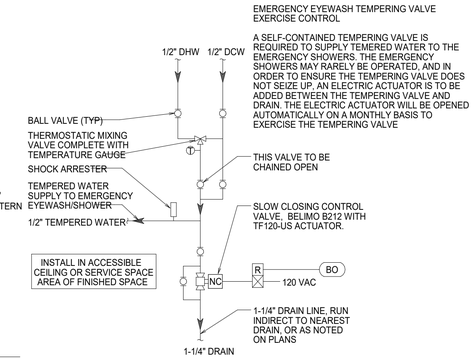
1 WASTE AND VENT RISER
5P-7

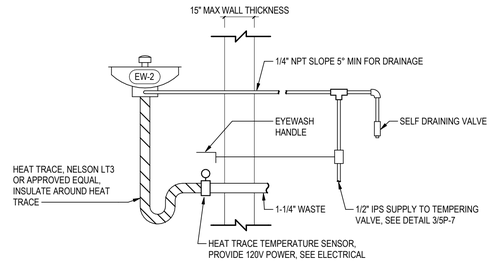


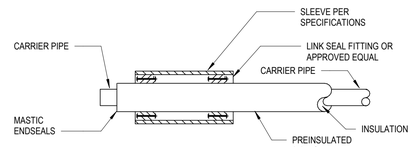
2 DOMESTIC WATER AND WELL WATER RISER
5P-7



3 EMERGENCY EYEWASH DETAIL
5P-7 NOT TO SCALE



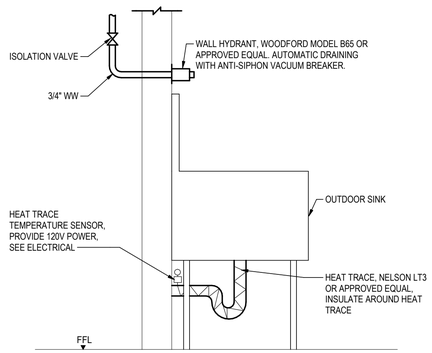




NOTES:
1. INSTALL PER THE MFR INSTALLATION REQUIREMENTS FOR SEALING THE SLEEVE
2. FOLLOW THE PREINSULATED PIPING MFRS REQUIREMENTS FOR THE INSTALLATION OF THAT SYSTEM.
3. REFER TO THE CONTRACT DOCUMENTS FOR PIPE MATERIAL AND INSULATION REQUIREMENTS.
4. EXTEND THE INSULATION / JACKET A MINIMUM OF 6 INCHES / 16 CM PAST THE WALL CURB. THE CARRIER PIPE SHALL EXTEND ANOTHER 6 INCHES / 16 CM PAST THE INSULATION / JACKET.

4 CARRIER PIPE SLEEVE DETAIL
5P-7 NOT TO SCALE

5 FREEZE RESISTANT EYEWASH DETAIL
5P-7 NOT TO SCALE



6 OUTDOOR SINK DETAIL
5P-7 NOT TO SCALE

Revision	By	Appd	YYYY.MM.DD	PACKAGE A			
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Client/Project Logo: TULALIP TRIBES

Client/Project: Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title: PLUMBING RISER DIAGRAMS

Project No. 224202267 | Scale As indicated

Revision | Drawing No. 5P-7

<Plot Location in Project Hierarchy>
2/10/2025 10:03:49 PM
ORIGINAL SHEET - ANSI D

PIPING COMPONENTS

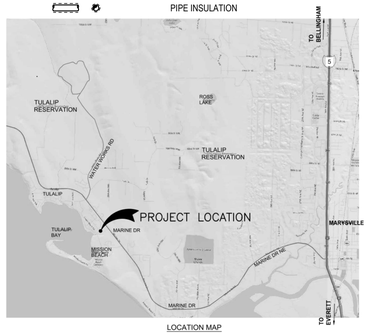
REAL OBJECT	SYMBOL	
		ISOLATION VALVE (GENERIC)
		GATE VALVE
		GLOBE VALVE
		BUTTERFLY VALVE NPS 6 AND LESS
		BUTTERFLY VALVE NPS 8 AND MORE
		BALL VALVE
		PLUG VALVE
		NEEDLE VALVE
		CHECK VALVE (GENERIC)
		BALANCING VALVE
		FLOW LIMITING VALVE
		PRESSURE REDUCING VALVE
2-WAY		2-WAY CONTROL VALVE (GENERIC)
2-WAY		TWO-WAY ELECTRIC CONTROL VALVE, BUTTERFLY TYPE
3-WAY		3-WAY CONTROL VALVE (GENERIC)
3-WAY		THREE-WAY ELECTRIC CONTROL VALVE, BUTTERFLY TYPE
		SOLENOID 2-WAY CONTROL VALVE
		SOLENOID 3-WAY CONTROL VALVE
		FLOAT OPERATED VALVE ACTUATOR
		SAFETY OR RELIEF VALVE
		ANGLE VALVE
		BOILER STOP AND CHECK VALVE
BFP		BACKFLOW PREVENTER (GENERIC)
		MULTI-PURPOSE VALVE (SHUTOFF, BALANCING AND CHECK)
		SUCTION DIFFUSER
		PUMP (GENERIC)
		Y STRAINER (GENERIC)
		STEAM TRAP (GENERIC)
		AUTOMATIC AIR VENT
		MANUAL AIR VENT
		VACUUM BREAKER
		SHOCK ABSORBER
		TEMPERATURE GAUGE
		PRESSURE GAUGE
		TEMPERATURE AND PRESSURE TAP
		SIGHT FLOW GLASS
		FLEXIBLE CONNECTOR
		EXPANSION JOINT
		GUIDE
		ANCHOR
		FLOW ARROW
1%		PIPING SLOPE
		PIPE CAP
		PIPE BREAK
		PIPE CROSS
		PIPING ELBOW UP
		PIPING ELBOW DOWN
		PIPING TEE UP
		PIPING TEE DOWN
		UNION CONNECTION
		FLANGED CONNECTION
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER

PIPING COMPONENTS

CO CO	STANDARD CLEAN-OUT IN LINE END OF RUN
CO	STANDARD CLEAN-OUT THROUGH FLOOR END OF RUN
CO	STANDARD CLEAN-OUT THROUGH FLOOR IN LINE

PIPING SYSTEMS (HVAC)

2 1/2"	PIPE SIZE
BBD	BOILER BLOWDOWN
BFW	BOILER FEED WATER
CHWR	CHILLED WATER RETURN
CHWR(G)	CHILLED WATER RETURN - GLYCOL
CHWR(P)	CHILLED WATER RETURN - PROCESS
CHWS	CHILLED WATER SUPPLY
CHWS(G)	CHILLED WATER SUPPLY - GLYCOL
CHWS(P)	CHILLED WATER SUPPLY - PROCESS
CWR	CONDENSER WATER RETURN
CWR(CT)	CONDENSER WATER RETURN (COOLING TOWER)
CWS	CONDENSER WATER SUPPLY
CWS(CT)	CONDENSER WATER SUPPLY (COOLING TOWER)
DTR	DUAL TEMPERATURE RETURN (HOT OR CHILLED)
DTS	DUAL TEMPERATURE SUPPLY (HOT OR CHILLED)
HPWR	HEAT PUMP WATER RETURN
HPWS	HEAT PUMP WATER SUPPLY
HRR	HEAT RECOVERY LOOP RETURN
HRS	HEAT RECOVERY LOOP SUPPLY
HWR	HEATING WATER RETURN
HWR(G)	HEATING WATER RETURN - GLYCOL
HWS	HEATING WATER SUPPLY
HWS(G)	HEATING WATER SUPPLY - GLYCOL
REF(HG)	REFRIGERANT HOT GAS
REF(L)	REFRIGERANT LIQUID
REF(S)	REFRIGERANT SUCTION
REF(V)	REFRIGERANT VENT
RV	RELIEF VENT
	PIPE INSULATION



LOCATION MAP

VENTILATION (HVAC)

QUANTITY TYPE LENGTH (FT) CAPACITY (MBH)	RADIATION HEATING TAG (REFER TO SCHEDULE)

VENTILATION (HVAC)

	AIR FLOW ARROW
18"x12" 18"x12"	RECTANGULAR DUCT AND SIZE*
18"ø 18"ø	ROUND DUCT AND SIZE*
18"x12"ø 18"x12"ø	FLAT OVAL DUCT AND SIZE*
18"x12"	EXTERIOR DUCT TREATMENT*
18"x12" 18"x12"	RECTANGULAR DUCT WITH ACOUSTIC LINING*
30"x12"	DUCT SECTION, SUPPLY AIR. SIZE* IS HORIZONTAL DIM. x VERTICAL DIM. APPLIES TO RECT., ROUND AND OVAL
	DUCT SECTION, OUTSIDE AIR. APPLIES TO RECT., ROUND AND OVAL
	DUCT SECTION, RETURN AIR. APPLIES TO RECT., ROUND AND OVAL
	DUCT SECTION, EXHAUST AIR. APPLIES TO RECT., ROUND AND OVAL
	FLEXIBLE DUCT
	ELBOW TURN, SUPPLY DOWN. APPLIES TO RECT., ROUND AND OVAL
	ELBOW TURN, OUTSIDE AIR DOWN. APPLIES TO RECT., ROUND AND OVAL
	ELBOW TURN, RETURN DOWN. APPLIES TO RECT., ROUND AND OVAL
	ELBOW TURN, EXHAUST DOWN. APPLIES TO RECT., ROUND AND OVAL
UP	CHANGE IN DUCT ELEVATION RISING IN DIRECTION INDICATED
DN	CHANGE IN DUCT ELEVATION DROPPING IN DIRECTION INDICATED
	END CAP
	ELBOW, RECTANGULAR, SMOOTH RADIUS WITH SPLITTER VANES (0.25 R/W DEFAULT)
	ELBOW, RECTANGULAR, SMOOTH RADIUS WITHOUT VANES (1.5 R/W DEFAULT)
	ELBOW, ROUND, SMOOTH RADIUS (1.5 R/W DEFAULT)
	MITERED ELBOW, RECTANGULAR, WITH TURNING VANES
AD	RECTANGULAR TO ROUND TRANSITION
AD AD	DUCT ACCESS DOOR (TOP, SIDE, BOTTOM)
FC	FLEXIBLE CONNECTION

* NOTE: ALL DUCT SIZES ARE INTERIOR, FREE DIMENSIONS (ALWAYS WIDTH X HEIGHT IN FLOOR PLAN AND SECTION)

BDD	BACKDRAFT DAMPER
	MANUAL DAMPER
M	MOTORIZED DAMPER
	FIRE DAMPER
	SMOKE DAMPER
	SMOKE AND FIRE DAMPER
	DUCT SILENCER
X	CONTROL DEVICE (REFER TO CONTROLS LEGEND)
	AIR FLOW MEASURING STATION (REFER TO CONTROLS LEGEND)
QUANTITY TYPE SIZE (IN.) VOLUME (CFM)	AIR OUTLET OR INLET TAG (REFER TO SCHEDULE)
	RECTANGULAR DIFFUSER, SUPPLY. OPTIONAL ARROWS SHOW THE FLOW DIRECTION.
	RECTANGULAR REGISTER OR GRILLE, RETURN
	RECTANGULAR REGISTER OR GRILLE, EXHAUST
	ROUND DIFFUSER, SUPPLY
	LINEAR DIFFUSER
	SIDEWALL REGISTER OR GRILLE, SUPPLY
	SIDEWALL GRILLE, RETURN OR EXHAUST
UC	UNDERCUT DOOR
	DOOR GRILLE OR LOUVER
	TRANSFER GRILLE OR LOUVER
	COIL (REFER TO CONTROLS LEGEND)
ID-#	EQUIPMENT TAG

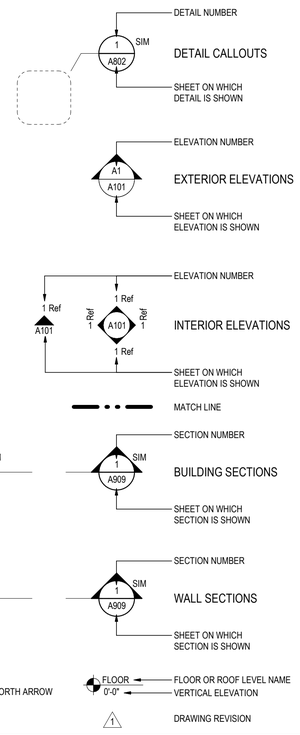
ABBREVIATIONS

A/C	AIR CONDITIONING UNIT
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJUSTABLE
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
AVG	AVERGAGE
BAS	BUILDING AUTOMATION SYSTEM
BDD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
C/W	COMPLETE WITH
CAV	CONSTANT AIR VOLUME
CFM	CUBIC FEET PER MINUTE
COTF	CLEAN OUT THROUGH FLOOR
DB	DRY BULB TEMEPRATURE

APPLICABLE CODES AND STANDARDS

- 2015 INTERNATIONAL BUILDING CODE
- 2015 INTERNATIONAL FIRE CODE
- 2015 INTERNATIONAL MECHANICAL CODE
- 2015 UNIFORM PLUMBING CODE
- 2015 WASHINGTON STATE RESIDENTIAL ENERGY CODE
- 2015 WASHINGTON STATE PLUMBING CODE

GENERAL SYMBOLS



ABBREVIATIONS

dB	DECIBEL(S)
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DIA.Ø	DIAMETER
DIFF	DIFFERENTIAL
DIV	DIVISION
DN	DOWN
DWG	DRAWING
EA	EXHAUST AIR
EA (K)	EXHAUST AIR, KITCHEN
EA (LD)	EXHAUST AIR, LAUNDRY/DRYER
EA (W)	EXHAUST AIR, WASHROOM
EAT	ENTERING AIR TEMPERATURE
EAV	EXHAUST AIR VALVE
EER	ENERGY EFFICIENCY RATIO
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXIST / E	EXISTING (DEMOLITION PLANS)
F	FAHRENHEIT
FLA	FULL LOAD AMPERAGE
FP	FIRE PROTECTION
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FOOT/FEET
GA	GAUGE
GAL	GALLON (US)
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
HEPA	HIGH EFFICIENCY PARTICULATE AIR (FILTER)
HP	HORSEPOWER
HR	HOUR
HVAC	HEATING / VENTILATING / AIR CONDITIONING
HZ	HERTZ
IE	INVERT ELEVATION
IN	INCHES
IN WG	INCHES WATER GAUGE
IPLV	INTEGRATED PART LOAD VALUE
kW	KILOWATT
kWh	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LF	LINEAR FEET
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND OF BTUH
MCA	MINIMUM CIRCUIT AMPS
MFR	MANUFACTURER
MIN	MINIMUM
MOP	MAXIMUM OVERCURRENT PROTECTION
N/A	NOT APPLICABLE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPS	NOMINAL PIPE SIZE
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFE	OWNER FURNISHED EQUIPMENT
OFOI	OWNER FURNISHED / OWNER INSTALLED
PG	PROPYLENE GLYCOL
POE	POINT OF ENTRANCE
POS	POINT OF SERVICE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH, ABSOLUTE
PSIG	POUNDS PER SQUARE INCH, GAGE
PVC	POLYVINYL CHLORIDE
RA	RETURN AIR
RELA	RELIEF AIR
REQD	REQUIRED
RH	RELATIVE HUMIDITY
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SP	STATIC PRESSURE
SRV	SAFETY RELIEF VALVE
TA	TRANSFER AIR
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TYP	TYPICAL
UG	UNDERGROUND
UP	UP
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
VIF	VERIFY IN FIELD
VTR	VENT-THRU-ROOF
W/	WITH
W/O	WITHOUT
WB	WET BULB TEMPERATURE
WCO	WALL CLEAN OUT
WG	WATER GAUGE
WMS	WIRE MESH SCREEN
ZN-#	ZONE

EQUIPMENT IDENTIFICATION

ACU-#	AIR CONDITIONING UNIT
ADS-#	AIR AND DIRT SEPARATOR
AF-#	AIR FILTER
AHU-#	AIR HANDLING UNIT
AS-#	AIR SEPARATOR
ATU-#	AIR TERMINAL UNIT
B-#	BOILER
BCU-#	BLOWER COIL UNIT
BFP-#	BACKFLOW PREVENTER
BP-#	BOOSTER PUMP
CH-#	CHILLER
CP-#	RECIRCULATION PUMP
CU-#	CONDENSING UNIT
CUH-#	CABINET UNIT HEATER
CV-#	CONTROL VALVE
DAM-#	DAMPER
DF-#	DRINKING FOUNTAIN
DRC-#	DRYER ROOF CAP
DS-#	DUCT SILENCER
DU-#	DEHUMIDIFICATION UNIT
E-#	EXHAUST GRILLE / REGISTER / DIFFUSER
EBB-#	ELECTRIC FINNED TUBE
EF-#	EXHAUST FAN
ERP-#	ELECTRIC RADIANT PANEL
ERP-#	
ERV-#	ENERGY RECOVERY UNIT
ET-#	EXPANSION TANK
EUH-#	ELECTRIC UNIT HEATER
EW-#	EYE WASH STATION
F-#	FAUCET
FCU-#	FAN COIL UNIT
FD-#	FLOOR DRAIN
FS-#	FLOOR SINK
FV-#	FLUSH VALVE
H-#	HUMIDIFIER
HB-#	HOSE BIBB
HC-#	HEATING COIL
HP-#	HEAT PUMP
HRV-#	HEAT RECOVERY UNIT
HWD-#	HOT WATER DISPENSER
HX-#	HEAT EXCHANGER
IB-#	ICE MAKER OUTLET BOX
IDU-#	INDOOR AIR CONDITIONING UNIT
KH-#	KITCHEN HOOD
KWC-#	KITCHEN WALL CAP
LAV-#	LAVATORY
LV-#	LOUVER
MAU-#	MAKEUP AIR UNIT
MV-#	MIXING VALVE
ODU-#	OUTDOOR AIR CONDITIONING UNIT
P-#	PUMP
PRV-#	PRESSURE REDUCING VALVE
PT-#	PRESSURE TANK
R-#	RETURN AIR GRILLE / REGISTER / DIFFUSER
RC-#	ROOF CAP
RD-#	ROOF DRAIN
RH-#	RELIEF HOOD
RP-#	RADIANT PANEL
RTU-#	ROOFTOP UNIT
S-#	SUPPLY GRILLE / REGISTER / DIFFUSER
SF-#	SUPPLY FAN
SH-#	SHOWER
SK-#	SINK
T-#	TRANSFER AIR GRILLE
TD-#	TRENCH DRAIN
TF-#	TRANSFER FAN
TMV-#	TEMPERING VALVE
TP-#	TRAP PRIMER
UH-#	UNIT HEATER
UR-#	URINAL
VA-#	VALVE
WB-#	WASHING MACHINE OUTLET BOX
WC-#	WATER CLOSET
WH-#	WATER HEATER

NOTE: NOT ALL SYMBOLS, SYSTEMS, AND ABBREVIATIONS MAY BE USED ON THIS PROJECT

HVAC SHEET LIST

NO.	DRAWING NAME
H-0	HVAC LEGENDS & ABBREVIATIONS
5H-0	HVAC SCHEDULES
5H-1	HVAC SCHEDULES
5H-2	INCUBATION BUILDING HVAC PLAN
5H-3	INCUBATION BUILDING HVAC ROOF PLAN
5H-4	INCUBATION BUILDING HVAC MECHANICAL PIPING PLAN
5H-5	INCUBATION BUILDING HVAC DETAILS
5H-6	INCUBATION BUILDING MECHANICAL CONTROLS 1
5H-7	INCUBATION BUILDING MECHANICAL CONTROLS 2

Revision	By	Appd	YYYY.MM.DD

PACKAGE A			
Issued	By	Appd	YYYY.MM.DD

Permit/Seal

JEFFREY M. LYNCH — STATE OF WASHINGTON — 42871 — REGISTERED PROFESSIONAL ENGINEER
2025-02-10

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Client/Project Logo

TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A	BHC	MSM	JML	2/10/25
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
HVAC LEGENDS & ABBREVIATIONS

Project No.	Scale
224202267	As indicated
Revision	Drawing No.
	H-0

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ORIGINAL SHEET - ANSI D

AIR TO AIR HEAT EXCHANGER SCHEDULE

UNIT...			WINTER																SUMMER									ELECTRICAL								
			SUPPLY									EXHAUST																							
MARK	NUMBER	TYPE	MIN EFFECTIVE (%)	TOTAL AIRFLOW (CFM)	ESP (IN WG)	TSP (IN WG)	HP	EDB (F)	EWB (F)	LDB (F)	LWB (F)	TOTAL AIRFLOW (CFM)	ESP (IN WG)	TSP (IN WG)	HP	EDB (F)	RH (%)	LDB (F)	LWB (F)	MIN EFFECTIVE (%)	EDB (F)	EWB (F)	LDB (F)	LWB (F)	EDB (F)	RH (%)	LDB (F)	LWB (F)	POINT OF CONNECTION	VOLTS	PHASE	MCA	MOP	OPERATING WEIGHT (LBS.)	MANUFACTURER	MODEL NUMBER	NOTES
ERV	1	ENERGY WHEEL	78.8	560	1.30	1.36	3/4	25.0	21.0	60.9	51.9	560	0.80	0.86	3/4	70.0	50.0	33.4	30.5	79.6	87.5	68.0	77.3	63.6	75.0	50.0	85.1	67.1	SINGLE	208	1	12.5	15	263	GREENHECK	ERV-10-20H	1,2,3,6,7,8,9,10
ERV	2	ENERGY WHEEL	81.5	880	1.00	1.17	3/4	25.4	21.3	62.1	52.8	880	0.80	0.87	1/2	70.0	50.0	32.7	29.6	82.0	87.5	68.0	77.0	63.5	75.0	50.0	85.4	67.2	SINGLE	208	3	5.9	15	665	GREENHECK	ERV-20-15L	1,2,4,6,7,8,9,10
ERV	3	ENERGY WHEEL	73.1	1,400	1.10	1.26	1-1/2	25.4	21.3	58.9	50.1	1,400	0.80	0.96	1	70.0	50.0	35.7	33.2	74.3	87.5	68.0	74.0	61.1	75.0	50.0	84.6	66.8	SINGLE	208	3	15.2	20	665	GREENHECK	ERV-20-15H	1,2,6,7,8,9,10

NOTES:
1) UNIT CONTROL - MICROPROCESSOR CONTROLLER. LOCATE CONTROLLER AT ACCESSIBLE LOCATION ON WALL WITHIN SAME ROOM AS ERV. PROVIDE EXPANSION BOARD AS NEEDED TO ENSURE ALL POINTS CAN BE SERVED THROUGH THE MICROCONTROLLER.
2) SUPPLY AND EXHAUST DIRTY FILTER SENSORS
3) SUPPLY FAN CONTROL - CONSTANT VOLUME
4) SUPPLY FAN CONTROL - IAQ
6) EXHAUST FAN CONTROL - BUILDING PRESSURE
7) REMOTE DISPLAY
8) WHEEL ROTATION SENSOR
9) ECONOMIZER CONTROL, WHEELSTOP, ENTHALPY
10) SUPPLY AND EXHAUST FAN EC MOTORS
11) PROVIDE FACTORY FURNISHED AIRFLOW SENSORS TO SUPPLY AND EXHAUST AIRSTREAMS.

DAMPER SCHEDULE

MARK	NUMBER	DIMENSION (INCH)	AIRFLOW (CFM)	CONTROL	MATERIAL	BLADE ACTION	BLADE TYPE	MODEL NUMBER	MANUFACTURER	
DAM	1	12	560	2-POS	304SS	OPPOSED	ROUND	VCDR-53	GREENHECK	1,2
DAM	2	12	560	2-POS	304SS	OPPOSED	ROUND	VCDR-53	GREENHECK	1,2
DAM	3	14	880	2-POS	304SS	OPPOSED	ROUND	VCDR-53	GREENHECK	1,2
DAM	4	14	880	2-POS	304SS	OPPOSED	ROUND	VCDR-53	GREENHECK	1,2
DAM	5	16	1400	2-POS	304SS	OPPOSED	ROUND	VCDR-53	GREENHECK	1,2
DAM	6	16	1400	2-POS	304SS	OPPOSED	ROUND	VCDR-53	GREENHECK	1,2
DAM	7	12 x 12	140	2-POS	304SS	OPPOSED	AIRFOIL	VCD-33	GREENHECK	1,2
DAM	8	12 x 12	140	2-POS	304SS	OPPOSED	AIRFOIL	VCD-33	GREENHECK	1,2
DAM	9	30 X 12	1400	2-POS	304SS	OPPOSED	AIRFOIL	VCD-33	GREENHECK	1,2
DAM	10	24 x 12	1400	2-POS	304SS	OPPOSED	AIRFOIL	VCD-33	GREENHECK	1,2
DAM	11	12	480	2-POS	304SS	OPPOSED	ROUND	VCDR-53	GREENHECK	1,3
DAM	12	12	480	2-POS	304SS	OPPOSED	ROUND	VCDR-53	GREENHECK	1,3
DAM	13	6	60	2-POS	304SS	OPPOSED	ROUND	VCDR-53	GREENHECK	1,3
DAM	14	6	60	2-POS	304SS	OPPOSED	ROUND	VCDR-53	GREENHECK	1,3

NOTES:
1. DAMPER LEAKAGE RATE PER AMCA 511 TO BE CLASS I OR GREATER.
2. PROVIDE 24V ACTUATOR WITH DAMPERS. INTERLOCK DAMPER WITH CONTROLLER FOR FAN ENABLE. SEE CONTROLS DIAGRAMS ON 5H-6 AND 5H-7.
3. PROVIDE 24V ACTUATOR WITH DAMPERS. INTERLOCK DAMPER OPERATION TO ENERGIZE WITH DAM-9 AND DAM-10.

SPLIT SYSTEM INDOOR AIR CONDITIONING UNIT SCHEDULE

UNIT IDENTIFICATION					INDOOR UNIT																	
																ELECTRICAL						
MARK	NUMBER	ROOM(S) SERVED	REFRIG TYPE	HEATING CAPACITY (BTU/H)	SENSIBLE CAPACITY (BTU/H)	LATENT CAPACITY (BTU/H)	AIRFLOW (CFM)	HEATING OUTDOOR DB (F)	HEATING INDOOR DB (F)	COOLING OUTDOOR DB (F)	COOLING INDOOR DB/WB (F)	FILTER	MOUNTING	DIRECTION	SIZE	VOLTS	PHASE	WATTS	OPERATING WEIGHT (LBS.)	MODEL NUMBER	MANUFACTURER	NOTES
IDU1	1	506A HALL	R410A	5,800	3,400	1,000	265	25	70	100.0	73 / 61	WASHABLE	CEILING	4-WAY	2' x 2'	208	1	13	29	ARNU053TRD4	LG	1,2
IDU1	2	511 BOOT RM	R410A	12,900	8,900	3,400	307	25	70	100.0	80 / 67	WASHABLE	CEILING	4-WAY	2' x 2'	208	1	17	32	ARNU123TRD4	LG	1,2
IDU1	3	511 BOOT RM	R410A	12,900	8,900	3,400	307	25	70	100.0	80 / 67	WASHABLE	CEILING	4-WAY	2' x 2'	208	1	17	32	ARNU123TRD4	LG	1,2
IDU1	4	513 OFFICE 1	R410A	5,800	3,400	1,000	265	25	70	100.0	73 / 61	WASHABLE	CEILING	4-WAY	2' x 2'	208	1	13	29	ARNU053TRD4	LG	1,2
IDU1	5	512 LOCKER	R410A	5,800	3,400	1,000	265	25	70	100.0	73 / 61	WASHABLE	CEILING	4-WAY	2' x 2'	208	1	13	29	ARNU053TRD4	LG	1,2
IDU1	6	514 OFFICE 2	R410A	5,800	3,400	1,000	265	25	70	100.0	73 / 61	WASHABLE	CEILING	4-WAY	2' x 2'	208	1	13	29	ARNU053TRD4	LG	1,2
IDU1	7	515 BREAK RM	R410A	12,900	7,900	1,900	307	25	70	100.0	73 / 61	WASHABLE	CEILING	4-WAY	2' x 2'	208	1	17	32	ARNU123TRD4	LG	1,2
IDU1	8	516 KITCHEN	R410A	8,100	4,800	1,200	265	25	70	100.0	73 / 61	WASHABLE	CEILING	4-WAY	2' x 2'	208	1	13	29	ARNU073TRD4	LG	1,2
IDU2	1	504 FORMALIN	R410A	5,800	3,400	1,000	265	25	70	100.0	73 / 61	WASHABLE	CEILING	4-WAY	2' x 2'	208	1	13	29	ARNU053TRD4	LG	1,2
IDU2	2	503 MECHANICAL	R410A	21,500	15,300	3,600	735	25	70	100.0	80 / 67	WASHABLE	CEILING	4-WAY	3' x 3'	208	1	31	60	ARNU183TAA4	LG	1,2
IDU2	3	505 STORAGE	R410A	5,800	3,400	1,000	265	25	70	100.0	73 / 61	WASHABLE	CEILING	4-WAY	2' x 2'	208	1	13	29	ARNU053TRD4	LG	1,2
IDU2	4	503 MECHANICAL	R410A	20,400	13,800	5,300	396	25	70	100.0	80 / 67	WASHABLE	CEILING	4-WAY	2' x 2'	208	1	25	35	ARNU183TQD4	LG	1,2
IDU2	5	502 FEED STORAGE	R410A	12,900	7,900	1,900	307	25	70	100.0	73 / 61	WASHABLE	CEILING	4-WAY	2' x 2'	208	1	17	32	ARNU153TQD4	LG	1,2

NOTES:
1. PROVIDE ALL INTERCONNECTING WIRING BETWEEN THE INDOOR AND OUTDOOR UNITS.
2. PROVIDE WITH FACTORY FURNISHED AND WIRED CONDENSATE PUMP AND FLOAT SWITCH. INCLUDE FACTORY FURNISHED HIGH CONDENSATE LEVEL LIMIT SWITCH TO DISABLE CONDENSATE UNIT.

LOUVER SCHEDULE

MARK	NUMBER	DIMENSION (INCH)	AIRFLOW (CFM)	FREE AREA (SQ FT)	VELOCITY (FPM)	PRESS DROP (IN-WG)	SERVICE	MODEL NUMBER	MANUFACTURER	
LV	1	18 x 18	560	0.97	577	0.070	INTAKE	ELF6375DX	RUSKIN	1
LV	2	18 x 18	560	0.97	577	0.060	EXHAUST	ELF6375DX	RUSKIN	1
LV	3	24 x 24	880	1.89	466	0.090	INTAKE	ELF6375DX	RUSKIN	1
LV	4	24 x 18	880	1.34	657	0.040	EXHAUST	ELF6375DX	RUSKIN	1
LV	5	30 x 24	1400	2.47	567	0.070	INTAKE	ELF6375DX	RUSKIN	1
LV	6	24 x 24	1400	1.94	722	0.100	EXHAUST	ELF6375DX	RUSKIN	1
LV	7	12 x 12	120	0.03	4000	0.030	INTAKE	ELF6375DX	RUSKIN	1
LV	9	30 x 24	1400	2.47	567	0.070	INTAKE	ELF6375DX	RUSKIN	1

NOTES:
1. 3/4" BIRDSCREEN.

FAN SCHEDULE

UNIT IDENTIFICATION							FAN WHEEL						ELECTRICAL				
MARK	NUMBER	UNIT/AREA SERVED	AIRFLOW (CFM)	ESP (IN-WG)	TSP (IN-WG)	CONTROL	TYPE	ARRANGEMENT	SPEED (RPM)	MIN WHEEL DIA (IN)	HP	SPEED (RPM)	DRIVE TYPE	VOLTS	PHASE	OPERATING WEIGHT (LBS.)	MANUFACTURER	MODEL NUMBER	NOTES
EF	1	504 FORMALIN	120	0.6	0.6	HOA CONTROLLER	BI	INLINE	1,415	9.7	1/4	1,725	DIRECT	208	1	47	GREENHECK	SQ-97-VG	1, 2, 3, 4, 5
EF	2	503 MECHANICAL	1,400	0.6	0.6	HOA CONTROLLER	BI	INLINE	885	16	3/4	1,726	DIRECT	208	1	118	GREENHECK	SQ-160-VG	1, 2, 3, 4, 5

NOTES:
1) 1" INSULATED HOUSING
2) INLET GUARD
3) EC MOTOR
4) PROVIDE WITH GREENHECK HOA CONTROLLER AND NEMA-1 RATED SWITCH MOUNTED TO WALL NEARBY, ADJUST CONTROLLER SETTINGS TO MAINTAIN AIRFLOW SETPOINT. DAMPER TO BE CONTROLLED THROUGH AUXILIARY CONTACT ON HOA CONTROLLER.
5) PROVIDE WITH GREENHECK REMOTE DIAL. INSTALL REMOTE DIAL IN ACCESSIBLE LOCATION.

ROOF AND WALL CAP SCHEDULE

MARK	NUMBER	RECTANGULAR NECK SIZE (INCH)	NECK DIAMETER (INCH)	AIRFLOW (CFM)	PRESS DROP (IN-WG)	SERVICE	MATERIAL	MODEL NUMBER	MANUFACTURER	
DRC	1		4	175	0.125	EXHAUST	ALUMINUM	DJK486	DRYER JACK	1
RC	1	6 x 9		140	0.030	EXHAUST	STEEL	RJ-6x9	GREENHECK	1, 2
KWC	1		8	160	0.025	EXHAUST	ALUMINUM	WC-8	GREENHECK	1, 2
RH	1	12 x 24		1400	0.083	EXHAUST	ALUMINUM	FGR-12x24	GREENHECK	2, 3

NOTES:
1. BACKDRAFT DAMPER.
2. BIRDSCREEN
3. INSULATED ROOF CURB, 1 INCH INSULATION, 8 INCH HEIGHT, SEE ARCHITECTURAL FOR ROOF SLOPE, GREENHECK MODEL GPFP-18x30-G8 OR APPROVED EQUAL

SPLIT SYSTEM OUTDOOR AIR CONDITIONING UNIT SCHEDULE

UNIT...																
												ELECTRICAL				
MARK	NUMBER	REFRIG TYPE	REFRIG CHARGE (LBS)	COOLING CAPACITY (BTU/H)	HEATING CAPACITY (BTU/H)	AIRFLOW (CFM)	NO. OF COMP	COOLING AMBIENT DESIGN TEMP (F)	COOLING INDOOR TEMP (F) DB / WB	HEATING AMBIENT DESIGN TEMP (F)	MINIMUM AMBIENT TEMP (F)	HEATING INDOOR TEMP (F) DB	VOLTS	PHASE	MCA	MOP	OPERATING WEIGHT (LBS.)	MODEL NUMBER	MANUFACTURER	NOTES
ODU	1	R410A	8	48,200	64,000	3,885	1	100	73 / 61	25	-13	70	208	1	25.4	40	260	ARUN060GSS4	LG	1,2
ODU	2	R410A	8	48,200	64,000	3,885	1	100	73 / 61	25	-13	70	208	1	25.4	40	260	ARUN060GSS4	LG	1,2

NOTES:
1. PROVIDE ALL INTERCONNECTING WIRING BETWEEN THE INDOOR AND OUTDOOR UNITS.
2. OUTDOOR UNIT TO BE MOUNTED ON 6" HOUSEKEEPING PAD.

KITCHEN HOOD SCHEDULE

UNIT IDENTIFICATION			AIRFLOW (CFM)	ESP (IN-WG)	NECK DIMENSION (INCHES)	NECK ORIENTATION	HOOD WIDTH (INCHES)	FINISH	LIGHTS	NO. OF SPEEDS	ELECTRICAL			MANUFACTURER	MODEL NUMBER	NOTES
MARK	NUMBER	UNIT/AREA SERVED									AMPS	VOLTS	PHASE			
KH-1	1	BREAKROOM	160	0.25	3-1/4 x 10	VERTICAL	30	STAINLESS	LED	2	0.65	115	1	NUTONE	AVSF130SS	1

NOTES:
1) 8" DIAMETER ROUND TRANSITION.

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42875
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TULALIP TRIBES

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Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
HVAC SCHEDULES

Project No. 224202267
Scale
Revision
Drawing No. **5H-0**

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GRILLE, REGISTER, DIFFUSER SCHEDULE

UNIT IDENTIFICATION		DIFFUSER FACE SIZE (IN)	FLOW RANGE (CFM)	DIFFUSER NECK SIZE (IN)	FLOW PATTERN	MOUNTING TYPE	COLOR	MATERIAL	ACCESSORY	MANUFACTURER	MODEL NUMBER	NOTES
MARK	NUMBER											
S	1	4 Ø	15	4	ROUND	T-GRID	WHITE	PLASTIC	-	LIFEBREATH	TECH GRILLE	1, 2, 4
S	2	21 x 21	190	8	4-WAY-A4	T-GRID	WHITE	ALUMINUM	-	PRICE	AMDA	1, 2, 3, 4, 6
S	3	21 x 21	180	8	2-WAY-S2	T-GRID	WHITE	ALUMINUM	-	PRICE	AMDA	1, 2, 3, 4, 6
S	4	6 X 6	80	5	2-WAY-S2	T-GRID	WHITE	ALUMINUM	-	PRICE	AMDA	1, 2, 3, 4, 6
S	5	SEE DWG	240 - 325	SEE DWG	2-DEFLECTION	DUCT	WHITE	ALUMINUM	-	PRICE	22	3, 6
S	6	6 x 5	60	6 x 5	2-DEFLECTION	GYP	WHITE	ALUMINUM	-	PRICE	22	1, 3, 6
S	7	SEE DWG	190 - 240	SEE DWG	ROUND	DUCT	WHITE	ALUMINUM	-	PRICE	ARCD	3, 5
E	1	24 x 24	50 - 100	24 x 24	1/2" EGGCRATE	GYP	WHITE	ALUMINUM	-	PRICE	80	1, 3
E	2	24 x 24	180	24 x 24	1/2" EGGCRATE	T-GRID	WHITE	ALUMINUM	-	PRICE	80	1, 3
E	3	18 x 12	380 - 480	18 x 12	45° - 3/4" SPACE	DUCT	WHITE	ALUMINUM	-	PRICE	630	3
E	4	6 x 6	60	6 x 6	45° - 3/4" SPACE	GYP	WHITE	ALUMINUM	-	PRICE	630	1, 3
E	5	40 x 14	950	40 x 14	1/2" EGGCRATE	DUCT	WHITE	ALUMINUM	-	PRICE	630	3
E	6	24 x 12	380 - 480	24 x 12	45° - 3/4" SPACE	DUCT	WHITE	ALUMINUM	-	PRICE	630	3

NOTES:
1. REFER TO REFLECTED CEILING PLANS EXACT LOCATION. PROVIDE ALL FRAMES AND ACCESSORIES AS REQUIRED FOR PROPER INSTALLATION.
2. FLEXIBLE DUCTWORK SHALL BE THE SAME SIZE AS THE DIFFUSER NECK OR AN EQUIVALENT ROUND DUCT. FLEXIBLE DUCTWORK SHALL BE SUPPORTED TO PREVENT KINKS OR BENDS.
3. COLOR TO BE SELECTED BY ARCHITECT FROM STANDARD COLORS.
4. T-BAR LAY IN PANEL.
5. 3 POSITION ADJUSTABLE CORE OPTION.
6. INCLUDE FULLY ADJUSTABLE DIRECTIONAL VANES.

ELECTRIC FINNED TUBE RADIATION SCHEDULE

UNIT IDENTIFICATION			ENCLOSURE										MANUFACTURER	MODEL NUMBER	NOTES
MARK	NUMBER	AREA SERVED	FIN MATERIAL	NO OF TIERS	LENGTH (FT)	W	VOLT / PH	TYPE	MATERIAL	GAGE	HEIGHT (IN)	FINISH			
EBB	1A	TOILET A 507	NICKEL CHROMIUM	1	2'-6"	500.0	208 / 1	ELEC	STEEL	18	6-3/4	WHITE	QMARK	QMKC25026W	1, 2
EBB	1B	TOILET B 508	NICKEL CHROMIUM	1	2'-6"	500.0	208 / 1	ELEC	STEEL	18	6-3/4	WHITE	QMARK	QMKC25026W	1, 2
EBB	1C	HALL 506B	NICKEL CHROMIUM	1	2'-6"	500.0	208 / 1	ELEC	STEEL	18	6-3/4	WHITE	QMARK	QMKC25026W	1, 2
EBB	1D	JANITOR 509	NICKEL CHROMIUM	1	2'-6"	500.0	208 / 1	ELEC	STEEL	18	6-3/4	WHITE	QMARK	QMKC25026W	1, 2
EBB	2A	OFFICE 1-513	NICKEL CHROMIUM	1	3'-0"	750.0	208 / 1	ELEC	STEEL	18	6-3/4	WHITE	QMARK	QMKC2503W	1, 2
EBB	2B	OFFICE 2-514	NICKEL CHROMIUM	1	3'-0"	750.0	208 / 1	ELEC	STEEL	18	6-3/4	WHITE	QMARK	QMKC2503W	1, 2
EBB	3A	KITCHEN 516	NICKEL CHROMIUM	1	4'-0"	1,000.0	208 / 1	ELEC	STEEL	18	6-3/4	WHITE	QMARK	QMKC2504W	1, 2
EBB	4A	HALL 506A	NICKEL CHROMIUM	1	5'-0"	1,250.0	208 / 1	ELEC	STEEL	18	6-3/4	WHITE	QMARK	QMKC2505W	1, 2
EBB	4B	BREAK RM 515	NICKEL CHROMIUM	1	5'-0"	1,250.0	208 / 1	ELEC	STEEL	18	6-3/4	WHITE	QMARK	QMKC2505W	1, 2
EBB	4C	BREAK RM 515	NICKEL CHROMIUM	1	5'-0"	1,250.0	208 / 1	ELEC	STEEL	18	6-3/4	WHITE	QMARK	QMKC2505W	1, 2

NOTES:
1) DP THERMOSTAT, TAMPER RESISTANT, MODEL TATPAW
2) DOUBLE POLE POWER ON/OFF, MODEL DSW2W

ASHRAE 62.1 VENTILATION AND EXHAUST SCHEDULE

1.0 Ez - Zone Air Distribution Effectiveness
0.43 Ev - System Ventilation Efficiency
13 Ps - Building Population

0.464 D = Ps/Pz
0.72 = Max Zp

ZONE	ROOM SERVED	AREA (SQ. FT.)	ZONE AIR DISTRIBUTION EFFECTIVENESS Ez	ZONE PRIMARY AIR FLOW Vpz	PRIMARY OUTDOOR AIR FRACTION Zp =	OCCUPANCY	PEOPLE OUTDOOR AIRFLOW RATE (CFM/PERSON) Rp	AREA OUTDOOR AIRFLOW RATE (CFM/SQ. FT.) Ra	OCCUPANT DENSITY (PERS./1000 SQ....	EXHAUST AIRFLOW RATE (CFM/SQ. FT.)	EXHAUST RATE	EXHAUST (CFM)	AIR CLASS	OCCUPANT LOAD (PERS.) Pz	100% O/A OUTDOOR AIRFLOW (CFM) Voz
1	500 INCUBATION	1,900	1.0	950	0.23	WAREHOUSE	10	0.06	5	0.5	MOISTURE CONTROL	950	2	10	214
2	501 EGG PROCESSING	301	1.0	450	0.13	WAREHOUSE	10	0.06	10	1.5	ODOR CONTROL	450	2	4	58
3	502 FEED STORAGE	295	1.0	440	0.06	STORAGE - DRY MTRL	5	0.06	2	1.5	ODOR CONTROL	440	1	1	23
4	503 MECHANICAL	725	1.0	380	0.00	MECHANICAL	0	0.00	0	0.5	ASHRAE 15 - 8.9.8	380	0	0	0
5	504 FORMALIN	120	1.0	120	0.00	STORAGE RM - CHEMICAL	0	0.00	0	1.5	TOXIC CONTROL AREA	120	4	0	0
6	505 STORAGE	110	1.0	60	0.20	STORAGE - DRY MTRL	5	0.06	2	0.0		60	1	1	12
7	506A HALL ENTRY	130	1.0	80	0.10	CORRIDOR	0	0.06	0	0.0		0	1	0	8
8	506B HALL	201	1.0	80	0.16	CORRIDOR	0	0.06	0	0.0		0	1	0	12
9	507 TOILET A	75	1.0	0	0.00	TOILET	0	0.00	0	0.0		75	2	0	0
10	508 TOILET B	78	1.0	0	0.00	TOILET	0	0.00	0	0.0		75	2	0	0
11	509 JANITOR RM	50	1.0	0	0.00	SHOWER	0	0.00	0	0.0		50	2	0	0
12	510 SHOWER	50	1.0	0	0.00	SHOWER	0	0.00	0	0.0		80	2	0	0
13	511 BOOT RM	99	1.0	90	0.00	LOCKER INDUSTRIAL	0	0.00	0	0.5	ASHRAE 62.1	100	2	0	0
14	512 LOCKER RM	154	1.0	90	0.00	LOCKER INDUSTRIAL	0	0.00	0	0.5	ASHRAE 62.1	80	2	0	0
15	513 OFFICE 1	93	1.0	15	0.71	OFFICE SPACES	5	0.06	5	0.0		0	1	1	11
16	514 OFFICE 2	96	1.0	15	0.72	OFFICE SPACES	5	0.06	5	0.0		0	1	1	11
17	515 BREAK RM	189	1.0	150	0.39	BREAKROOMS	5	0.12	50	0.0		0	1	10	73
18	516 KITCHEN	187	1.0	0	0.00	KITCHENETTES	0	0.00	0	0.3	ASHRAE 62.1	100	2	0	0
		4,850												28	420

ELECTRIC UNIT HEATER SCHEDULE

UNIT IDENTIFICATION			TYPE	FAN		AIR	ELECTRIC	ELECTRICAL		MANUFACTURER	MODEL NUMBER	NOTES
MARK	NUMBER	ROOM SERVED		SPEED (RPM)	HP	AIRFLOW (CFM)	KW	VOLTS	PHASE			
EUH	1A	503 MECHNICAL	VERTICAL	1,600	1/100	350	2.2	208	1	QMARK	MUH03-21	1, 2
EUH	1B	503 MECHNICAL	VERTICAL	1,600	1/100	350	2.2	208	1	QMARK	MUH03-21	1, 2
EUH	1C	504 FORMALIN	VERTICAL	1,600	1/100	350	2.2	208	1	QMARK	MUH03-21	1, 2
EUH	1D	500 INCUBATION	VERTICAL	1,600	1/100	350	2.2	208	1	QMARK	MUH03-21	1, 2
EUH	1E	500 INCUBATION	VERTICAL	1,600	1/100	350	2.2	208	1	QMARK	MUH03-21	1, 2
EUH	2A	500 INCUBATION	VERTICAL	1,600	1/100	350	3.7	208	3	QMARK	MUH05-21	1, 2
EUH	2B	500 INCUBATION	VERTICAL	1,600	1/100	350	3.7	208	3	QMARK	MUH05-21	1, 2
EUH	3A	502 FEED	VERTICAL	1,600	1/30	650	5.6	208	3	QMARK	MUH07-2	1, 2
EUH	4A	503 MECHNICAL	VERTICAL	1,530	1/20	910	15.0	208	3	QMARK	MUH15-8	1, 2
ERP	1A	OUTDOORS	QUARTZ	-	-	-	4.8	208	3	MARLEY	FRS3-29S	3, 4
ERP	1B	OUTDOORS	QUARTZ	-	-	-	4.8	208	3	MARLEY	FRS3-29S	3, 4
ERP	2A	510 SHOWER	PANEL	-	-	-	0.3	208	1	QMARK	CP258F	5
ERP	2B	511 BOOT	PANEL	-	-	-	0.3	208	1	QMARK	CP258F	5
ERP	2C	512 LOCKER	PANEL	-	-	-	0.3	208	1	QMARK	CP258F	5
ERP	2D	512 LOCKER	PANEL	-	-	-	0.3	208	1	QMARK	CP258F	5
ERP	2E	505 STORAGE	PANEL	-	-	-	0.3	208	1	QMARK	CP258F	5

NOTES:
1) 24 V CONTROL TRANSFORMER.
2) POWER DISCONNECT SWITCH (3-POLE)
3) FRSWMB WALL MOUNTING BRACKET
4) 90 DEG REFLECTIVE ANGLE
5) RECESSED MOUNTING FRAME

GENERAL NOTES

1. THE MECHANICAL PLANS ARE DIAGRAMMATIC IN NATURE AND ARE BASED ON ONE MANUFACTURER'S EQUIPMENT. THEY ARE NOT INTENDED TO SHOW EVERY ITEM IN ITS EXACT LOCATION, THE EXACT DIMENSIONS, OR ALL OF THE DETAILS FOR THE EQUIPMENT. THE MECHANICAL CONTRACTOR SHALL VERIFY THE ACTUAL DIMENSIONS OF THE EQUIPMENT AND ENSURE THAT IT WILL FIT IN THE AVAILABLE SPACE.
2. MECHANICAL CONTRACTOR RESPONSIBLE FOR INSTALLATION OF COMPLETED AND OPERATIONAL SYSTEMS WITH DUE RESPECT TO ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.
3. IT IS THE CONTRACTOR RESPONSIBILITY TO FIELD VERIFY ALL CONNECTION POINTS PRIOR TO INSTALL. NOT ALL CONNECTION SIZES ARE SHOWN, BUT THOSE THAT ARE APPROXIMATE AND TAKEN FROM EXISTING AS-BUILTS AND FIELD OBSERVATIONS.
4. COORDINATE PIPE ROUTING WITH DUCTWORK, SPRINKLER PIPING AND ELECTRICAL POWER/LIGHTING CIRCUITING AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
5. CONTRACTORS TO VERIFY ALL GRADES, DIMENSIONS AND EXISTING CONDITIONS AT THE SITE BEFORE PROCEEDING WITH WORK. NOTIFY PRIME CONSULTANT OF ANY DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL CONDITIONS BEFORE INSTALLATION.
6. ALL MATERIALS AND INSTALLATION SHALL COMPLY WITH THE <project/client> MASTER CONSTRUCTION SPECIFICATIONS.
7. COORDINATE INSTALLATION OF PIPING AND DUCTWORK WITH ELECTRICAL CONTRACTOR AND OTHER TRADES.
8. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS NEEDED TO CONSTRUCT WORK SHOULD IN THE CONSTRUCTION DOCUMENTS AND ACCOMPANYING SPECIFICATIONS.
9. IF THERE IS A CONFLICT BETWEEN THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS, THE MOST STRINGENT WILL APPLY.
10. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE EQUIPMENT MANUFACTURERS. CONTRACTOR TO PROVIDE ALL FITTINGS, TRANSITIONS, DAMPERS, VALVES, AND OTHER DEVICES REQUIRED FOR A COMPLETE WORKABLE INSTALLATION.
11. PENETRATIONS OF DUCTS, PIPES, CONDUITS,ETC IN WALLS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED, FIRE STOP MATERIAL, SHALL BE A UL/ULC-LISTED ASSEMBLY APPROPRIATE FOR FIRE OR SMOKE PENETRATIONS AS APPLICABLE AND AS APPROVED BY THE FIRE MARSHAL.
12. THE MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL FIRE, SMOKE, OR COMBINATION SMOKE/FIRE DAMPERS AND ACCESS PANELS COMMENSURATE WITH THE RATING OF THE WALL IN ALL DUCTWORK THAT PENETRATES FIRE WALLS, FIRE BARRIERS, FIRE PARTITIIONS, SMOKE BARRIERS AND SMOKE PARTITION IN ALL DUCTWORK THAT PENETRATES A HORIZONTAL OR VERTICAL FIRE PARTITION, OR AS OTHERWISE SHOWN ON THE DRAWINGS.
13. ALL BRANCH DUCTS SHALL HAVE VOLUME DAMPERS.
14. WHERE FLOW EXCEEDS 150 CFM, THE CONTRACTOR SHALL USE SMOOTH RADIUS ELBOWS OR TURNING VANES.
15. ALL DUCT JOINTS SHALL BE SEALED IN ACCORDANCE WITH SMACNA STANDARDS.
16. ALL DUCT DIMENSIONS ARE NET INSIDE VALUES. DIMENSIONS MAY BE CHANGED PROVIDED THAT THE NET FREE AREA IS MAINTAINED.
17. ALL CONCEALED DUCTWORK SHALL BE INSULATED WITH 1" FIBERGLASS INSULATING BLANKET WITH ALUMINUM FOIL FACING.
18. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE LOCAL REGULATIONS AND PROCEDURES DETAILED IN THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. (SMACNA).
19. ALL PIPE SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN A NEAT AND WORKMANLIKE MANNER. THE USE OF WIRE OR METAL STRAPS TO SUPPORT PIPES WILL NOT BE PERMITTED. REFER TO SPECIFICATIONS FOR MINUMUM SPACING OF PIPE SUPPORTS.
20. THE HVAC SYSTEMS SHALL BE TESTED AND BALANCED BY AN INDEPENDENT AGENCY, UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER. A SEALED TYPE WRITTEN REPORT SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER.
21. A BUILDING COMMISSIONING PROCESS AND FUNCTIONAL TESTING OF MECHANICAL SYSTEMS SHALL CARRIED OUT BY A CERTIFIED COMMISSIONING PROFESSIONAL.
22. ALL EQUIPMENT TO BE INSTALLED ON MIN 6" THICK CONCRETE HOUSEKEEPING PADS.
23. ALL EQUIPMENT, DUCTS PIPING, AND OTHER DEVICES AND MATERIALS INSTALLED OUTSIDE OF THE BUILDING OR OTHERWISE EXPOSED TO THE WEATHER SHALL BE COMPLETELY WEATHERPROOFED.
24. MECHANICAL EQUIPMENT, DUCTS AND PIPING ARE TO BE COORDINATED WITH STRUCTURAL JOISTS AND CROSS BRACING.
25. ALL EXPOSED PIPING IN OCCUPIED SPACES SUBJECT TO ARCHITECTURAL APPROVAL PRIOR TO INSTALLATION.

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TULALIP TRIBES

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Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
HVAC SCHEDULES

Project No. 224202267
Scale 12" = 1'-0"
Revision
Drawing No. 5H-1

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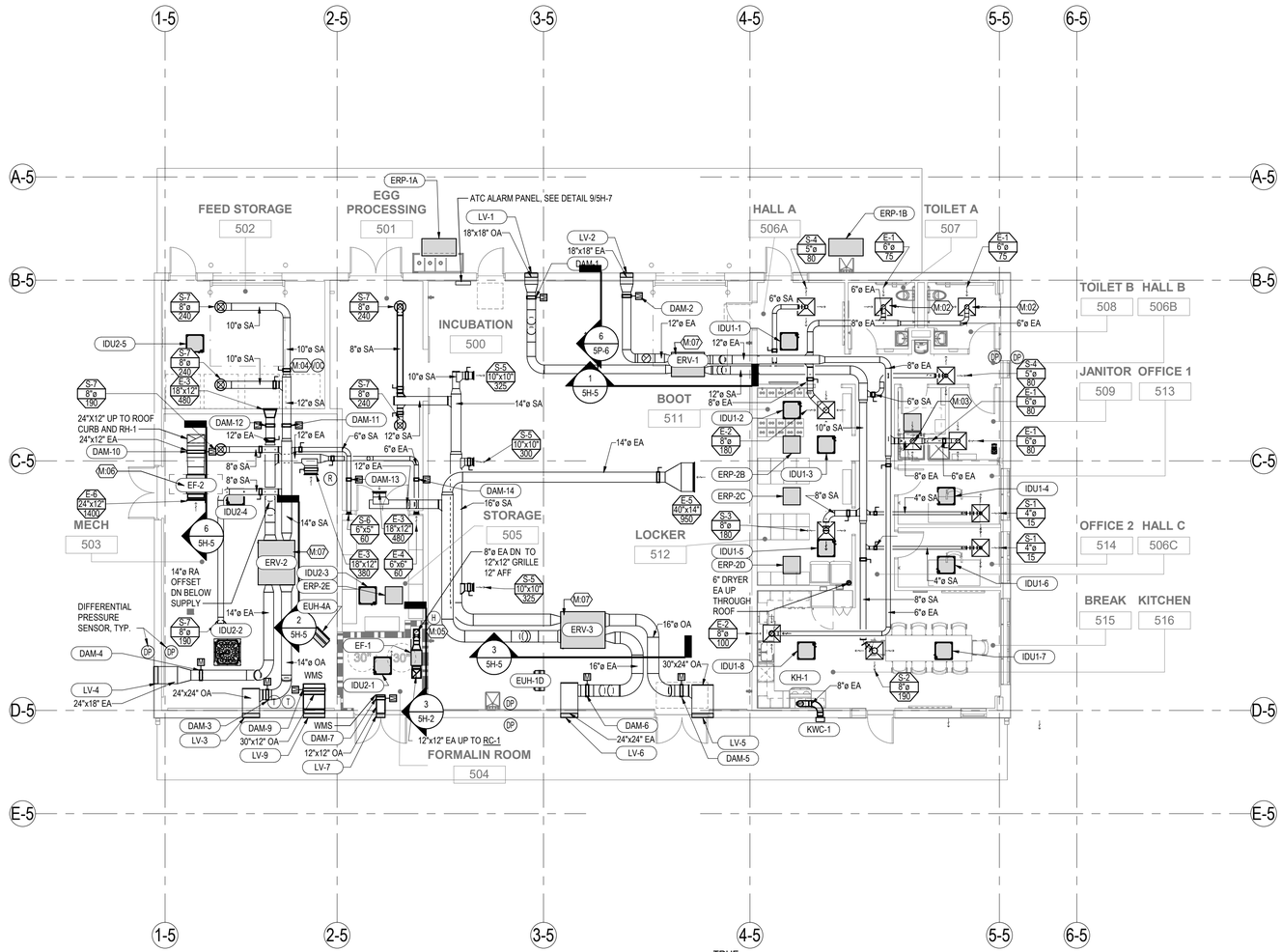


1 5H-2 **INCUBATION BUILDING HVAC PLAN**

1/8" = 1'-0"

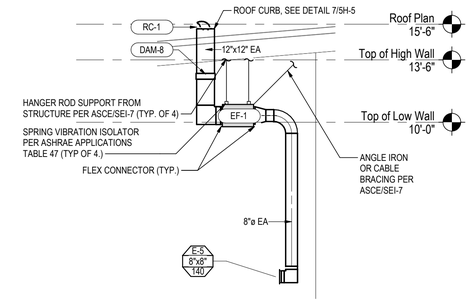
TRUE NORTH

GENERAL NOTES

1. SYSTEMS SHOWN ARE DIAGRAMMATIC AND MAY NOT INCLUDE ALL OFFSETS, FITTINGS AND REQUIRED ROUTING. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF COMPLETE AND OPERATIONAL SYSTEMS WITH DUE RESPECT TO ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.
2. COORDINATE DUCT ROUTING WITH SPRINKLER/PROCESS/PLUMBING PIPING AND ELECTRICAL POWER/LIGHTING CIRCUITING AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
3. INSTALL ALL VENTILATION EQUIPMENT, DIFFUSERS AND ACCESSORIES IN ACCORDANCE WITH ALL LOCAL CODES, AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. SEE 5H-2 FOR ASHRAE 62.1 VENTILATIONA AND EXHAUST SCHEDULE.
5. BALANCE EF-1 WITH HOA CONTROLLER TO MAINTAIN AIRFLOW OF 120 CFM. BALANCER TO FIELD VERIFY SITE CONDITIONS SUCH THAT THE AIRFLOW FOR BOTH EXHAUST AND MAKEUP AIR FOR IN 504 FORMALIN ROOM EXCEEDS 1CFM/SQFT AND OPERATES CONTINUOUSLY PER 2018 IMC 502.8.

KEYNOTE:

M:02 OPPOSED BLADE DAMPER PROVIDED WITH GRILLE.
M:03 BALANCE DAMPER INSTALLED VERTICALLY BELOW.
M:04 VOC SENSOR, TYP.
M:05 HUMIDISTAT, TYP.
M:06 EF-2 SIZED FOR 200 LBS OF REFRIGERANT IN SPACE. CONTRACTOR VERIFY AND COORDINATE IF SIGNIFICANTLY DIFFERENT.
M:07 INSTALL ERV MICROCONTROLLER AT ACCESSIBLE LOCATION ON WALL WITHIN THE SAME ROOM. PROVIDE FRONTAL CLEARANCE FOR OPERATION AND MAINTENANCE.



3 5H-2 **EF-1 HVAC SECTION**

1/4" = 1'-0"

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TULALIP TRIBES

Client/Project
Tulalip Tribes

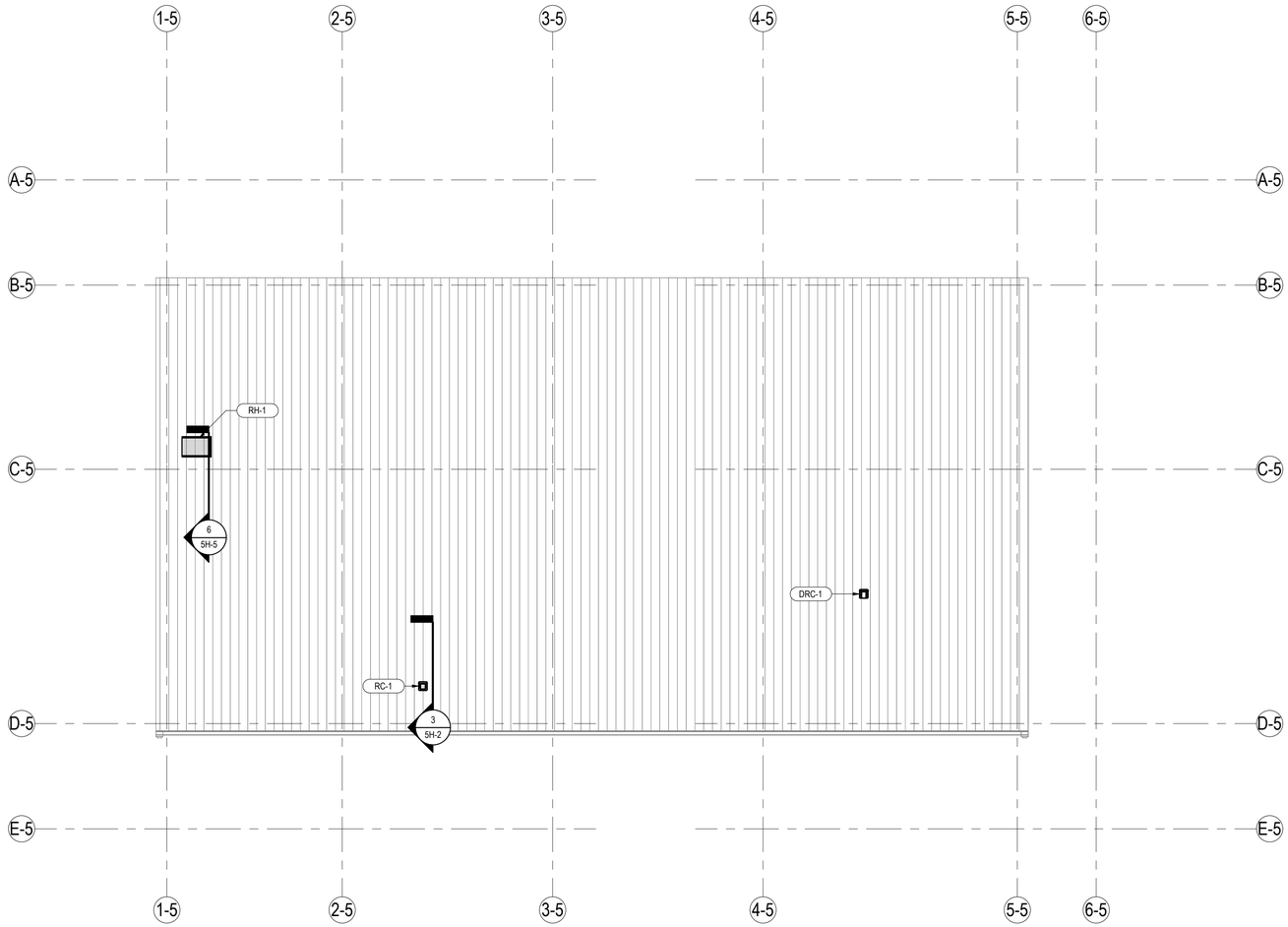
Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
INCUBATION BUILDING HVAC PLAN

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5H-2**

«Plot Location in Project Information»
2/10/2025 10:03:38 PM
ORIGINAL SHEET - ANSI D



1 5H-3 **INCUBATION BUILDING HVAC ROOF PLAN**

1/8" = 1'-0"

TRUE NORTH

GENERAL NOTES

1. SYSTEMS SHOWN ARE DIAGRAMMATIC AND MAY NOT INCLUDE ALL OFFSETS, FITTINGS AND REQUIRED ROUTING. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF COMPLETE AND OPERATIONAL SYSTEMS WITH DUE RESPECT TO ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.
2. COORDINATE DUCT ROUTING WITH SPRINKLER/PROCESS/PLUMBING PIPING AND ELECTRICAL POWER/LIGHTING CIRCUITING AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
3. INSTALL ALL VENTILATION EQUIPMENT, DIFFUSERS AND ACCESSORIES IN ACCORDANCE WITH ALL LOCAL CODES, AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
4. SEE 5H-2 FOR ASHRAE 62.1 VENTILATIONA AND EXHAUST SCHEDULE.
5. BALANCE EF-1 WITH HOA CONTROLLER TO MAINTAIN AIRFLOW OF 120 CFM. BALANCER TO FIELD VERIFY SITE CONDITIONS SUCH THAT THE AIRFLOW FOR BOTH EXHAUST AND MAKEUP AIR FOR IN 504 FORMALIN ROOM EXCEEDS 1CFM/SQFT AND OPERATES CONTINUOUSLY PER 2018 IMC 502.8.

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TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
INCUBATION BUILDING HVAC ROOF PLAN

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5H-3**

Plot location in Project Information
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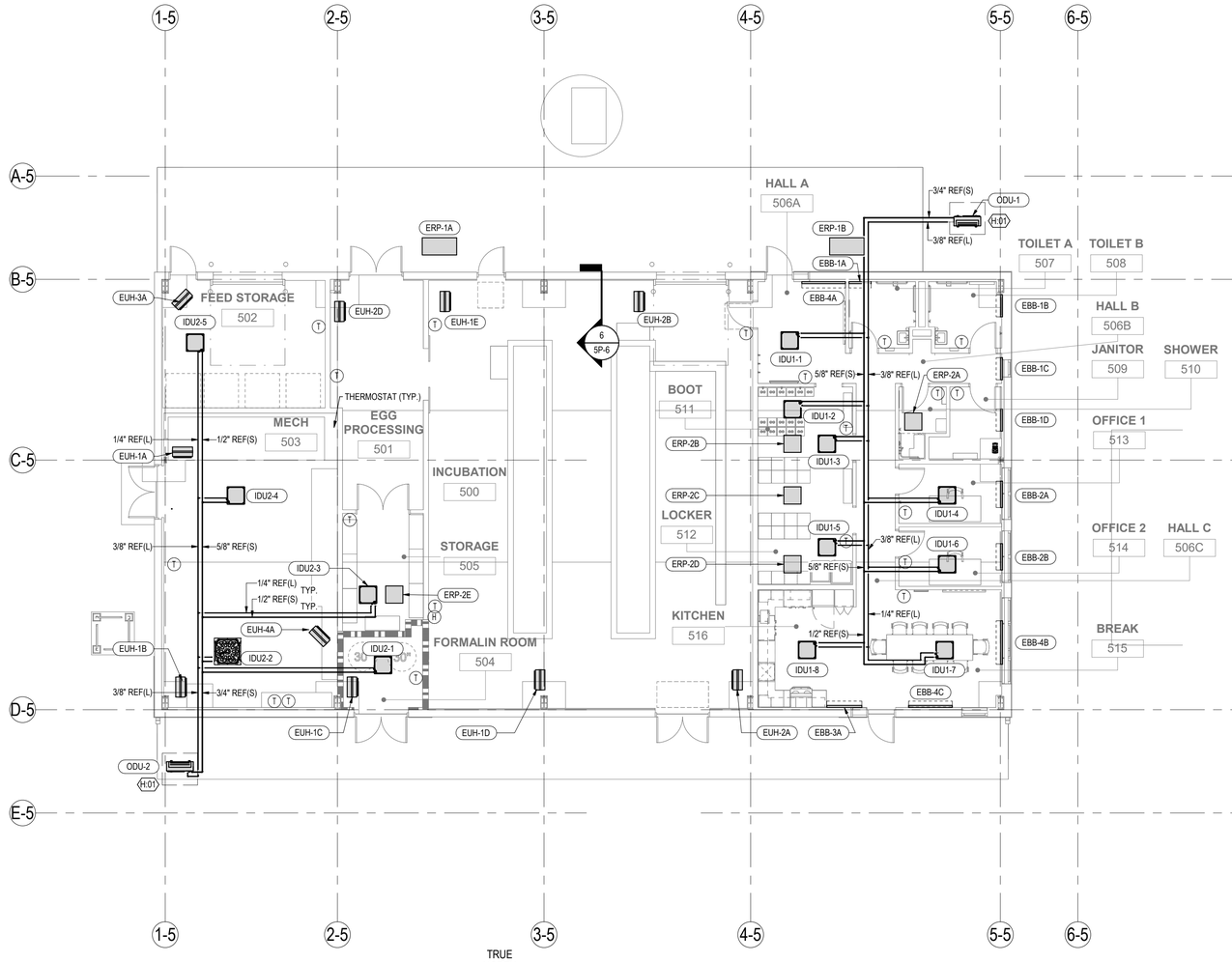
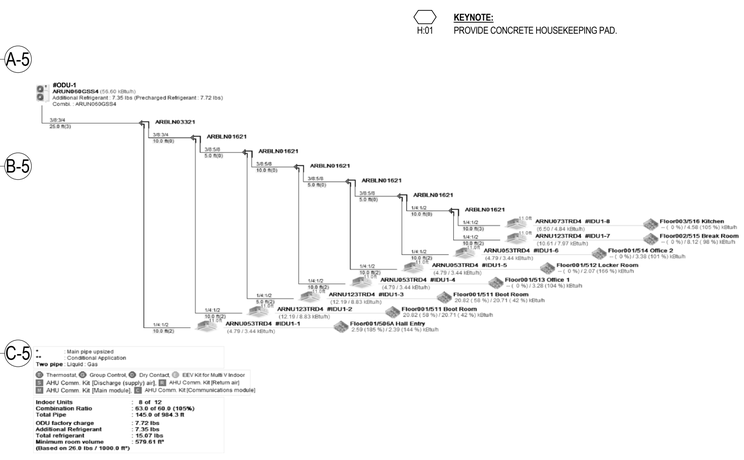


1 5H-4 **INCUBATION BUILDING MECHANICAL PIPING PLAN**
1/8" = 1'-0"

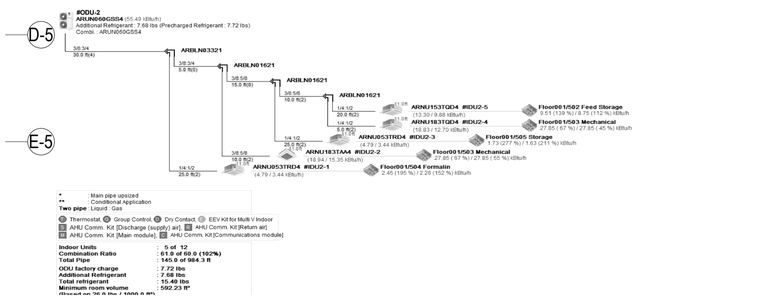
GENERAL NOTES

1. SYSTEMS SHOWN ARE DIAGRAMMATIC AND MAY NOT INCLUDE ALL OFFSETS, FITTINGS AND REQUIRED ROUTING. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF COMPLETE AND OPERATIONAL SYSTEMS WITH DUE RESPECT TO ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION.
2. COORDINATE PIPE ROUTING WITH DUCTWORK, SPRINKLER/PROCESS/PLUMBING PIPING AND ELECTRICAL POWER/LIGHTING CIRCUITING AND STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
3. INSTALL ALL REFRIGERATION EQUIPMENT, TERMINAL UNITS AND ACCESSORIES IN ACCORDANCE WITH ALL LOCAL CODES, AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.

H:01 **KEYNOTE:**
PROVIDE CONCRETE HOUSEKEEPING PAD.



2 5H-4 **ODU-1 PIPING DIAGRAM**
NOT TO SCALE



3 5H-4 **ODU-2 PIPING DIAGRAM**
NOT TO SCALE

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Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
INCUBATION BUILDING MECHANICAL PIPING PLAN

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5H-4**

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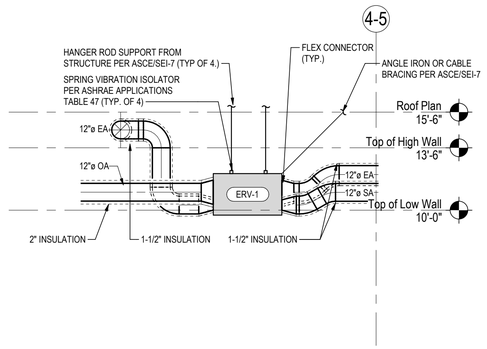
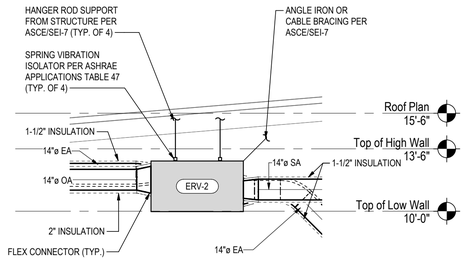
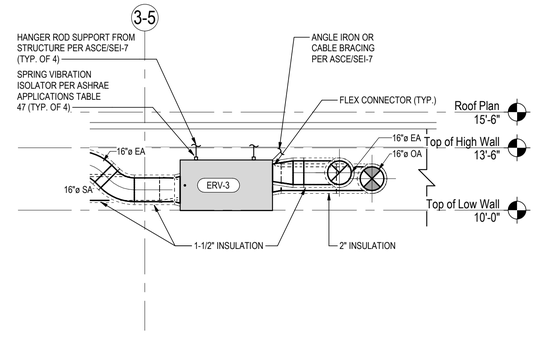


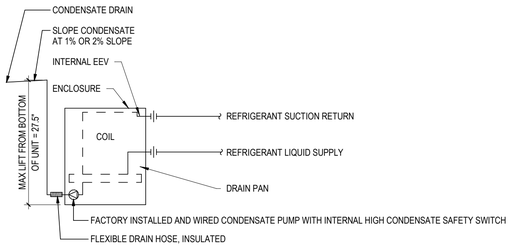
1 ERV-1 HVAC SECTION
5H-5 NOT TO SCALE



2 ERV-2 HVAC SECTION
5H-5 NOT TO SCALE

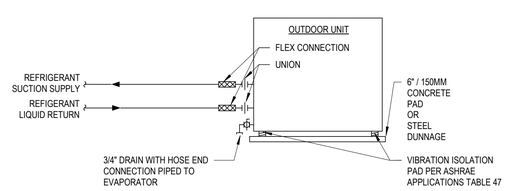


3 ERV-3 HVAC SECTION
5H-5 NOT TO SCALE



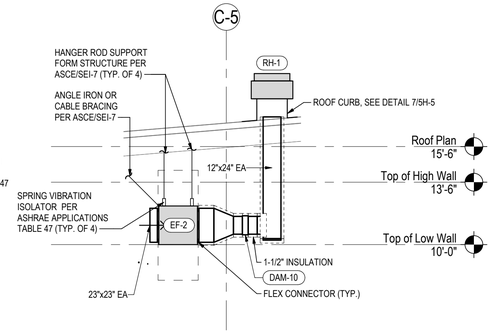
NOTES:
1. INSULATE THE SUCTION COIL TO PREVENT HEAT LOSS / CONDENSATION.
2. IF THE MECHANICAL CONTRACTOR USES QUICK CONNECT KITS, WHERE THE EQUIPMENT ISOLATION VALVE IS PART OF ANOTHER COMPONENT, THEN PROVIDE THE MAIN ISOLATION VALVES (OTHERWISE THEY ARE NOT REQUIRED).
3. SHUT OFF VALVES AND ACCESSORIES SHALL BE THE SAME SIZE AS THE SYSTEM PIPING. TRANSITION TO THE COIL CONNECTION SIZE AT THE COIL.
4. INCLUDE FACTORY FURNISHED WATER-LEVEL MONITORING DEVICE INSIDE PRIMARY DRAIN PAN. INTERLOCK MONITORING DEVICE TO VRF UNIT ENABLE TO DISABLE UNIT IF WATER LEVEL EXCEEDS LIMIT.
5. ROUTE CONDENSATE DRAINAGE PER MANUFACTURER'S RECOMMENDATIONS.
6. PROVIDE WITH FACTORY FURNISHED CONDENSATE PUMP WITH HIGH CONDENSATE LEVEL SAFETY SWITCH.

4 INDOOR VRF CEILING CASSETTE DETAIL
5H-5 NOT TO SCALE

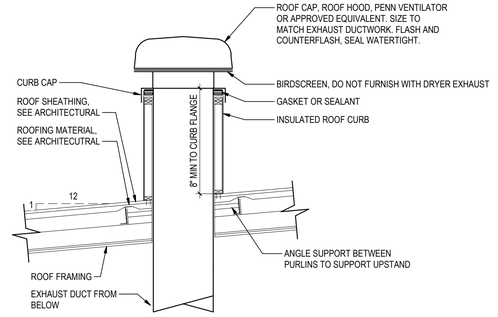


NOTES:
1. LOCATE PIPING TO FACILITATE THE REQUIRED ACCESS AND REMOVAL OF REFRIGERATION COMPONENTS.
2. COORDINATE THE COIL PULL SIDE WITH THE PIPING LAYOUT AND ALLOCATED ACCESS AREAS.
3. SHUT OFF VALVES AND ACCESSORIES SHALL BE THE SAME SIZE AS THE SYSTEM PIPING. TRANSITION TO THE CHILLER INLET/OUTLET SIZES AT THE CHILLER

5 OUTDOOR DRY COOLER UNIT DETAIL
5H-5 NOT TO SCALE



6 EF-2 HVAC SECTION
5H-5 NOT TO SCALE



NOTES:
1. REFER TO CONTRACT DOCUMENTS FOR DUCT MATERIAL AND INSULATION REQUIREMENTS.
2. COORDINATE THE LOCATION AND SIZE OF THE EQUIPMENT BASED ON THE CONTRACT DOCUMENTS.
3. THE PURPOSE OF THE EQUIPMENT CURB IS TO SUPPORT THE WEIGHT OF THE EQUIPMENT. FOLLOW VIBRATION/SEISMIC REQUIREMENTS PER ASCE/SEI 7-16.

7 ROOF CURB DETAIL
5H-5 NOT TO SCALE

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ORIGINAL SHEET - ANSI D

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4287
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PROFESSIONAL ENGINEER
2025-02-10

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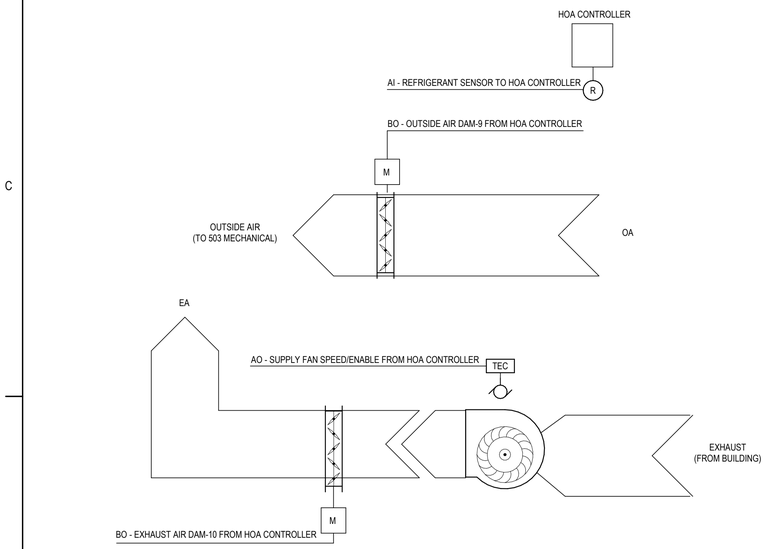
Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
INCUBATION BUILDING HVAC DETAILS

Project No. 224202267
Scale As indicated
Revision
Drawing No. 5H-5



ERV-2 / EF-2

MICROPROCESSOR CONTROLLER:
- a. CONTROLLER SHALL BE PROVIDED WITH THE REQUIRED SENSORS AND PROGRAMMING FOR THE PRECONDITIONER. CONTROLLER SHALL BE FACTORY PROGRAMMED, MOUNTED, AND TESTED. CONTROLLER SHALL HAVE AN LCD READOUT FOR CHANGING SET POINTS AND MONITORING UNIT OPERATION.
- b. MICROPROCESSOR CONTROLLER SHALL BE CAPABLE OF CARRYING OUT ALL OF THE FOLLOWING BELOW.

ENERGY RECOVERY VENTILATOR OCCUPIED TIME SCHEDULE:
- a. ENABLE STARTUP, INITIATION, AND CONTROL.
- b. ENERGIZE UNIT ON OCCUPIED. DE-ENERGIZE ON UNOCCUPIED CYCLE.

START-UP:
- a. OSA AND EA DAMPERS SHALL FULLY OPEN.
- b. AFTER 30 SECOND (ADJUSTABLE) DELAY THE SUPPLY FAN SHALL ENGAGE. AFTER 60 SECOND (ADJUSTABLE) DELAY THE EXHAUST FAN SHALL ENGAGE. AFTER 90 SECOND (ADJUSTABLE) DELAY THE ENERGY WHEEL SHALL ENGAGE.

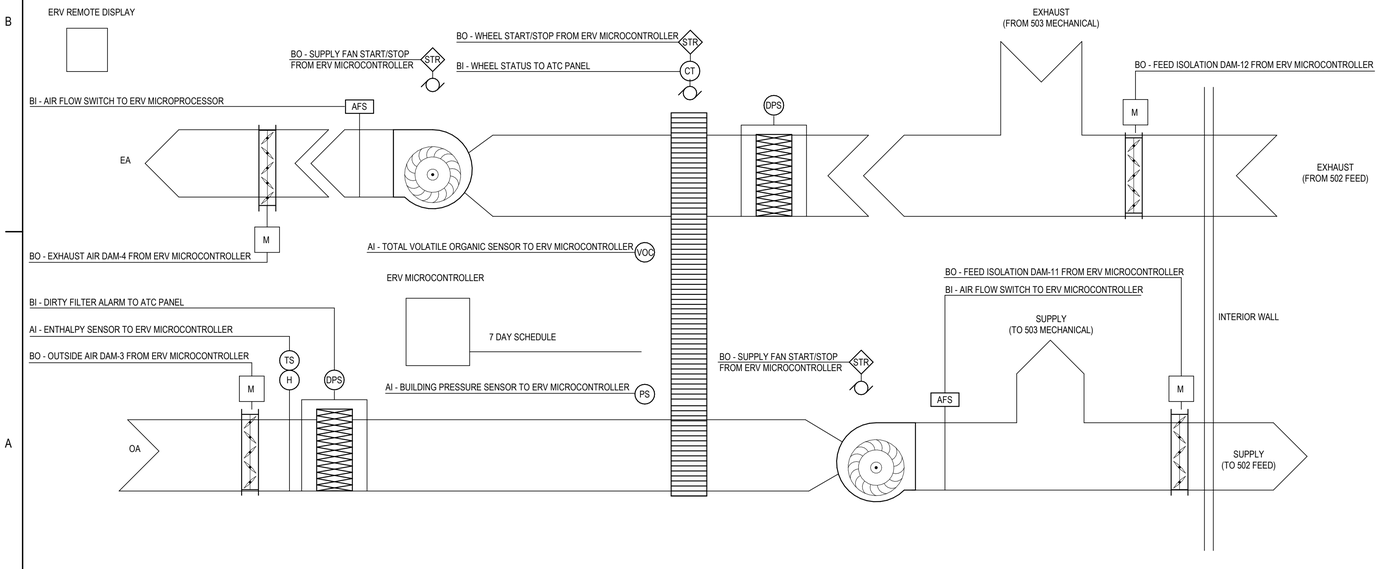
OCCUPIED MODE:
- a. SUPPLY FAN FOR ERV-2 SHALL MODULATE TO MAINTAIN VOC SETPOINT OF 40% (ADJUSTABLE).
- b. STOP ENERGY WHEEL WHEN OUTDOOR-AIR ENTHALPY EXCEEDS 23 BTU/LBA.
- c. EXHAUST FAN FOR ERV-2 SHALL MODULATE TO MAINTAIN CONSTANT INDOOR STATIC-PRESSURE SET POINT OF 0.02-INCH WG POSITIVE FOR OUTDOORS.
- d. OCCUPIED MODE SHALL RUN CONTINUOUSLY FOR OCCUPIED SEASON (ADJUSTABLE).

UNOCCUPIED MODE:
- a. ENERGY WHEEL AND SUPPLY AND EXHAUST FANS SHALL DE-ENERGIZE.
- b. OSA AND EA DAMPERS SHALL SPRING RETURN FULLY CLOSE.

PURGE MODE:
- a. THE SYSTEM WILL SWTCH TO PURGE MODE:
  1. MANUAL SELECTION BY OPERATOR.
  2. REFRIGERANT LEAK DETECTS 75PPM OF R513-A.

PURGE OPERATION:
- a. THE FOLLOWING SEQUENCE SHALL IMMEDIATELY AND SIMULTANEOUSLY OCCUR:
  1. ERV-2 SHALL ENTER SHUT DOWN SEQUENCE (UNOCCUPIED MODE).
  2. PURGE OUTSIDE AIR DAMPER (DAM-9) SHALL ENERGIZE OPEN.
  3. EXHAUST FAN DAMPER (DAM-10) SHALL ENERGIZE OPEN.
  4. ERV-2 MECHANICAL ROOM ISOLATION SUPPLY (DAM-11 & DAM-13) AND EXHAUST DAMPERS (DAM-12 & DAM-14) SHALL ENERGIZE CLOSED THROUGH INTERLOCK WITH DAM-9 AND DAM-10. DAMPERS SHALL SPRING RETURN OPEN WHEN DE-ENERGIZED.
  5. EXHAUST FAN (EF-2) SHALL BE ENERGIZED TO RUN AT CONSTANT VOLUME.

ALARMS:
- a. FILTER DIFFERENTIAL PRESSURE: SIGNAL ALARM ON HIGH-PRESSURE CONDITIONS.
- b. ENTHALPY WHEEL ROTATION: SIGNAL ALARM ON ROTATION FAILURE.
- c. ERV SUPPLY FAN: AIR FLOW FAILURE ALARM.
- d. ERV EXHAUST FAN: AIR FLOW FAILURE ALARM.
- e. REFRIGERANT LEAK: DETECTION OF REFRIGERANT LEAK.



1 5H-6 **Controls Drawing ERV-2 EF-2**
NOT TO SCALE

CONTROLS

CT	CURRENT SENSOR
DPS	DIFFERENTIAL PRESSURE SENSOR
HS	HAND SWITCH
H	HUMIDITY SENSOR
PS	PRESSURE SENSOR
R	REFRIGERANT SENSOR
R	RELAY
TS	TEMPERATURE SENSOR
T	THERMOSTAT
VOC	VOLATILE ORGANIC SENSOR

CONTROLS

AFS	AIR FLOW SWITCH
TEC	TEMPERATURE CONTROL PANEL
TEC	TERMINAL EQUIPMENT CONTROLLER
	ALARM HORN
	ALARM BEACON
AI	ANALOG INPUT
AO	ANALOG OUTPUT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
STR	STARTER
VFD	VARIABLE FREQUENCY DRIVE

CONTROLS

	FILTER
	AIR BLENDER
	ENERGY WHEEL
	BACKDRAFT DAMPER
	MOTORIZED DAMPER - PARALLEL BLADE
	MOTORIZED DAMPER - OPPOSED BLADE
	DAMPER ACTUATOR - ELECTRIC
	DAMPER ACTUATOR - ELECTRIC
	CENTRIFUGAL FAN

ERV-1 / ERV-3

MICROPROCESSOR CONTROLLER:
- a. CONTROLLER SHALL BE PROVIDED WITH THE REQUIRED SENSORS AND PROGRAMMING FOR THE PRECONDITIONER. CONTROLLER SHALL BE FACTORY PROGRAMMED, MOUNTED, AND TESTED. CONTROLLER SHALL HAVE AN LCD READOUT FOR CHANGING SET POINTS AND MONITORING UNIT OPERATION.
- b. MICROPROCESSOR CONTROLLER SHALL BE CAPABLE OF CARRYING OUT ALL OF THE FOLLOWING BELOW.

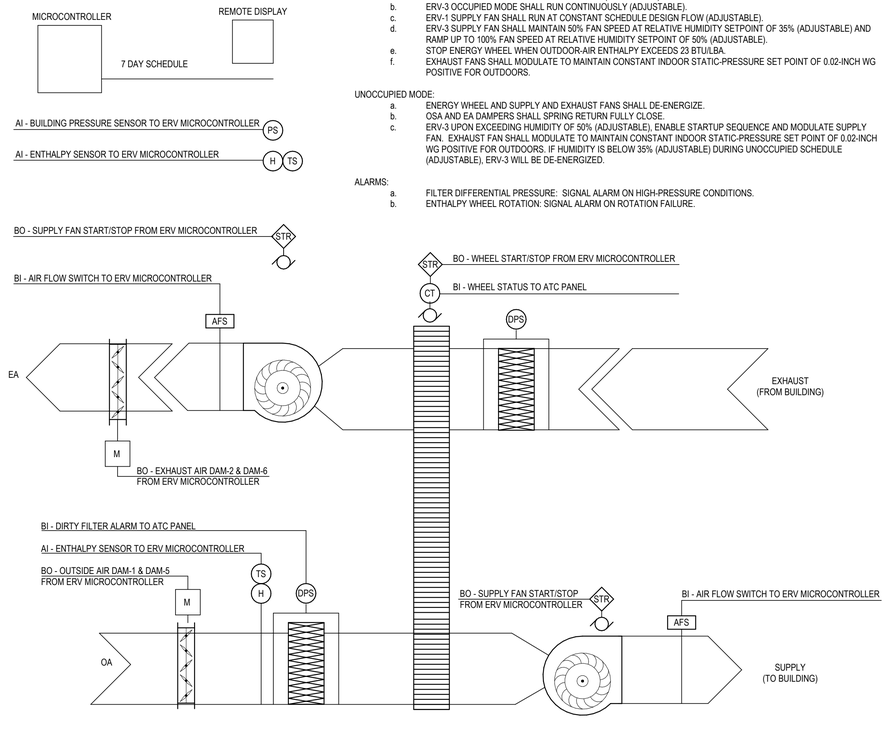
ENERGY RECOVERY VENTILATOR OCCUPIED TIME SCHEDULE:
- a. ENABLE STARTUP, INITIATION, AND CONTROL.
- b. ENERGIZE UNIT ON OCCUPIED. DE-ENERGIZE ON UNOCCUPIED CYCLE.

START-UP:
- a. OSA AND EA DAMPERS SHALL FULLY OPEN.
- b. AFTER 30 SECOND (ADJUSTABLE) DELAY THE SUPPLY FAN SHALL ENGAGE. AFTER 60 SECOND (ADJUSTABLE) DELAY THE EXHAUST FAN SHALL ENGAGE. AFTER 90 SECOND (ADJUSTABLE) DELAY THE ENERGY WHEEL SHALL ENGAGE.

OCCUPIED MODE:
- a. ERV-1 7-DAY A WEEK OCCUPANCY SCHEDULE (ADJUSTABLE).
- b. ERV-3 OCCUPIED MODE SHALL RUN CONTINUOUSLY (ADJUSTABLE).
- c. ERV-1 SUPPLY FAN SHALL RUN AT CONSTANT SCHEDULE DESIGN FLOW (ADJUSTABLE).
- d. ERV-3 SUPPLY FAN SHALL MAINTAIN 50% FAN SPEED AT RELATIVE HUMIDITY SETPOINT OF 35% (ADJUSTABLE) AND RAMP UP TO 100% FAN SPEED AT RELATIVE HUMIDITY SETPOINT OF 50% (ADJUSTABLE).
- e. STOP ENERGY WHEEL WHEN OUTDOOR-AIR ENTHALPY EXCEEDS 23 BTU/LBA.
- f. EXHAUST FANS SHALL MODULATE TO MAINTAIN CONSTANT INDOOR STATIC-PRESSURE SET POINT OF 0.02-INCH WG POSITIVE FOR OUTDOORS.

UNOCCUPIED MODE:
- a. ENERGY WHEEL AND SUPPLY AND EXHAUST FANS SHALL DE-ENERGIZE.
- b. OSA AND EA DAMPERS SHALL SPRING RETURN FULLY CLOSE.
- c. ERV-3 UPON EXCEEDING HUMIDITY OF 50% (ADJUSTABLE), ENABLE STARTUP SEQUENCE AND MODULATE SUPPLY FAN. EXHAUST FAN SHALL MODULATE TO MAINTAIN CONSTANT INDOOR STATIC-PRESSURE SET POINT OF 0.02-INCH WG POSITIVE FOR OUTDOORS. IF HUMIDITY IS BELOW 35% (ADJUSTABLE) DURING UNOCCUPIED SCHEDULE (ADJUSTABLE), ERV-3 WILL BE DE-ENERGIZED.

ALARMS:
- a. FILTER DIFFERENTIAL PRESSURE: SIGNAL ALARM ON HIGH-PRESSURE CONDITIONS.
- b. ENTHALPY WHEEL ROTATION: SIGNAL ALARM ON ROTATION FAILURE.



2 5H-6 **Controls Drawing HVAC ERV-1 ERV-3**
NOT TO SCALE

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Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
INCUBATION BUILDING MECHANICAL CONTROLS 1

Project No. 224202267
Scale As indicated
Revision
Drawing No. **5H-6**

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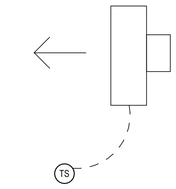
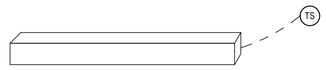


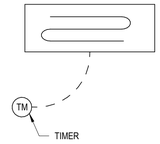
UNIT HEATER CONTROLS:
1. MAINTAIN SPACE SETPOINT TEMPERATURE AT 65 DEGREES F.
2. UH-4: MAINTAIN SPACE SETPOINT TEMPERATURE AT 55 DEGREES F.

1 Controls Drawing EUH
5H-7 NOT TO SCALE



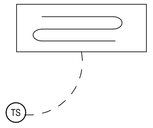
RADIANT BASEBOARD ELECTRIC CONTROLS:
1. SEQUENCE STAGES OF HEATING TO MAINTAIN SETPOINT OF 75 DEGREES F.

2 Controls Drawing Electric Radiators Baseboard
5H-7 NOT TO SCALE



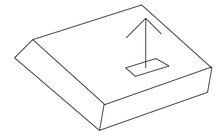
RADIANT OUTDOOR PANEL CONTROLS:
1. ACTIVATE DEVICE ON A 60 MINUTE TIMER.

3 Controls Drawing Radiant Outdoor Panel
5H-7 NOT TO SCALE



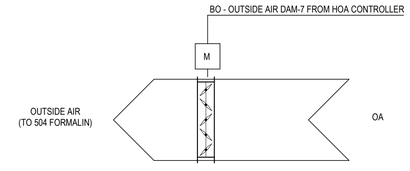
RADIANT INDOOR PANEL CONTROLS:
1. OCCUPIED MODE: MAINTAIN 75 DEGREES F.
2. UNOCCUPIED MODE: MAINTAIN 65 DEGREES F.

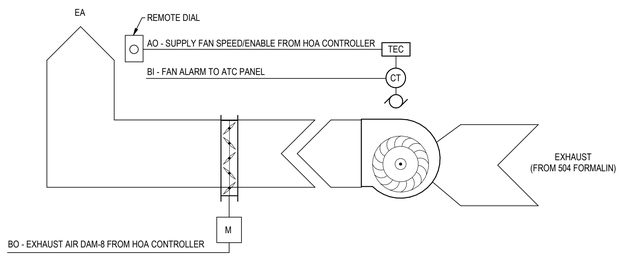
4 Controls Drawing Radiant Indoor Panel
5H-7 NOT TO SCALE



KITCHEN HOOD CONTROLS:
1. MANUAL ON / OFF.

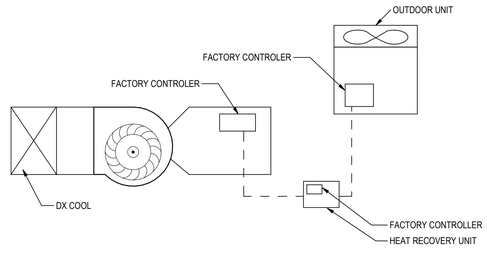
5 Controls Drawing Kitchen Exhaust Hood
5H-7 NOT TO SCALE





EF-1 CONTROLS:
1. FAN SHALL RUN CONTINUOUSLY AT 120 CFM (ADJUSTABLE) THROUGH REMOTE DIAL.
2. FAN SHALL ALARM WHEN OFF THROUGH NC CT RELAY TO ATC PANEL.
3. DAM-7 & DAM-8 DAISY CHAINED TO OPEN ON ENERGIZED AUXILIARY CONTACT FROM HOA CONTROLLER (TEC) THROUGH RELAY.
4. DAM-7 & DAM-8 TO CLOSE ON DE-ENERGIZED AUXILIARY CONTACT FROM HOA CONTROLLER (TEC) THROUGH RELAY.

6 Controls Drawing EF-1
5H-7 NOT TO SCALE



AIR-COOLED VRF UNIT CONTROLS

GENERAL:
VRF OUTDOOR AIR-COOLED UNITS SHALL BE LOCALLY CONTROLLED WITH MANUFACTORER PROVIDED CONTROLS. SYSTEM DIAGRAM REPRESENTS GENERAL SYSTEM, REFER TO DRAWING 5H-4 TREE DIAGRAMS FOR SPECIFIED SYSTEM DIAGRAMS.

ENABLE/DISABLE:
VRF OUTDOOR UNIT SHALL BE ENABLED AUTOMATICALLY BY THE FACTORY CONTROLLER WHEN ANY OF THE INDOOR VRF UNITS ARE ENABLED TO MEET COOLING DEMAND.

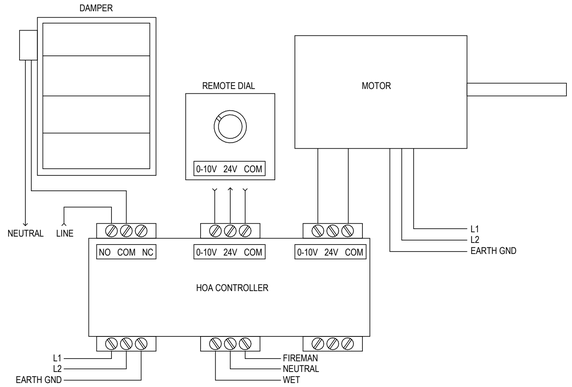
OCCUPIED MODE:
FACTORY CONTROLLER SHALL PROVIDE AN ENABLE SIGNAL TO INDOOR FAN COIL UNITS BASED ON A TIME-OF-DAY SCHEDULE. FAN COILS SHALL BE OPERATED TO CYCLE ON LOAD DURING OCCUPIED AND UNOCCUPIED HOURS. DURING DEADBAND VRF UNIT SHALL BE OFF.

UNOCCUPIED MODE
FACTORY CONTROLLER SHALL RESET TEMPERATURE SETPOINTS TO UNOCCUPIED SET POINTS (ADJ.) LISTED BELOW.

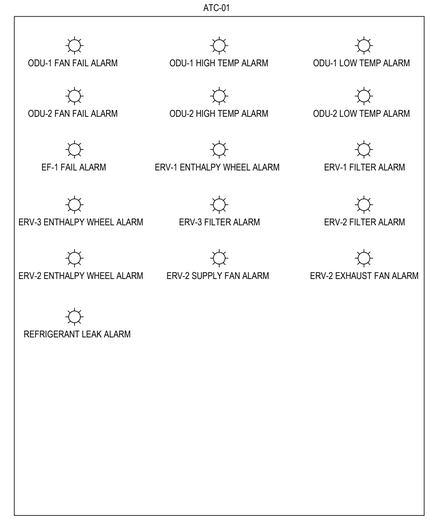
SETPOINTS:
OCCUPIED COOLING SETPOINT – 75 DEG F.
UNOCCUPIED COOLING SETPOINT – 84 DEG F.
DEADBAND SETPOINT – (+/-) 5 DEG F.

ALARMS:
HIGH / LOW TEMPERATURE: TEMPERATURE IS ABOVE THE COOLING SETPOINT OR BELOW THE HEATING SETPOINT BY 2 DEG F (ADJ.) FOR 15 MINUTES (ADJ.).
FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF FOR 30 SECONDS.

7 Controls Drawing VRF
5H-7 NOT TO SCALE



8 Controls Drawing HOA Controller
5H-7 1/2" = 1'-0"



9 Controls Drawing ATC Alarm Panel
5H-7 1/2" = 1'-0"

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Revision | By | Appd | YYYY.MM.DD

PACKAGE A
Issued | By | Appd | YYYY.MM.DD

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STATE OF WASHINGTON JEFFREY M. LYNCH 42871 REGISTERED PROFESSIONAL ENGINEER 2025-02-10

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Client/Project Logo
TULALIP TRIBES

Client/Project
Tulalip Tribes

Tulalip - Utility Wells ESDC & Battle Creek Design

File Name: N/A | BHC Dwn. | MSM Dsgn. | JML Chkd. | 2/10/25 YYYY.MM.DD

Title
INCUBATION BUILDING MECHANICAL CONTROLS 2

Project No. 224202267
Scale As indicated
Revision
Drawing No. 5H-7

ORIGINAL SHEET - ANSI D

LAYOUT SYMBOLS

CABLE, CONDUIT & WIRE

- EN — ETHERNET CABLE (CAT6)
- EN-F — FIBER CABLE EN-F
- CONDUIT RUN ON SURFACE (WALL OR CEILING)
- CONDUIT RUN IN SLAB (OR BELOW GRADE)
- CONDUIT CAPPED
- CONDUIT GOING UP
- CONDUIT GOING DOWN
- FLEXIBLE CONDUIT
- CONDUIT HOME RUN
- CONDUIT SEAL WP-WEATHERPROOF, EP-EXPLOSION PROOF
- CONDUIT UNION
- CONDUIT EXPANSION JOINT
- CONDUIT BEND
- BARE GROUND WIRE
- BUS WAY
- POWER SERVICE ENTRANCE
- TELEPHONE SERVICE ENTRANCE
- JUNCTION BOX - CEILING SPACE
- JUNCTION BOX - FLUSH MOUNTED
- JUNCTION BOX - WALL MOUNTED
- MULTI-CABLE TRANSIT (MCT)
- SPARE WIRE LOOP
- CABLE OR CONDUIT DESIGNATION PC-POWER CC-CONTROL HC-HEATING TC-TELEPHONE IC-INSTRUMENTATION (PC-101)
- A10-b — PANEL "A", CIRCUIT "10", SWITCH "b"

POWER

- XFMR — POWER TRANSFORMER
- PNL "XX" — LIGHTING OR BRANCH PANEL "13.1"
- SPLTR — SPLITTER
- UH5.002 — MECHANICAL EQUIPMENT TAG
- MOTOR
- D — MOTORIZED DAMPER
- ELECTRIC HEATER
- SINGLE RECEPTACLE (15A,120VAC)
- DUPLEX RECEPTACLE (15A,120VAC)
- DUPLEX RECEPTACLE, T-SLOT (20A, 120VAC)
- SPLIT DUPLEX RECEPTACLE
- ISOLATED GROUND RECEPTACLE
- GROUND FAULT (GFCI) RECEPTACLE
- ABOVE COUNTER DUPLEX RECEPTACLE
- ABOVE COUNTER SPLIT DUPLEX RECEPTACLE
- FLOOR MOUNTED SINGLE RECEPTACLE
- FLOOR MOUNTED DUPLEX RECEPTACLE
- EXPLOSION PROOF SINGLE RECEPTACLE
- EXPLOSION PROOF DUPLEX RECEPTACLE
- SPECIAL SINGLE PHASE RECEPTACLE
- SPECIAL THREE PHASE RECEPTACLE
- OVERHEAD REEL DUPLEX RECEPTACLE
- SINGLE PHASE POWER CONNECTION
- THREE PHASE POWER CONNECTION

LIGHTING

- 101 — FIXTURE TYPE TAG
- SURFACE MOUNTED OR SUSPENDED LED FIXTURE
- NL — SURFACE MOUNTED OR SUSPENDED LED FIXTURE - NIGHT LIGHT
- RECESSED LED FIXTURE
- SURFACE MOUNTED OR SUSPENDED 610 x 610 LED FIXTURE
- RECESSED 610 x 610 LED FIXTURE
- LED STRIP FIXTURE
- WALL MOUNTED LED FIXTURE
- SURFACE MOUNTED OR SUSPENDED ON EMERGENCY POWER LED FIXTURE
- RECESSED ON EMERGENCY POWER LED FIXTURE
- AREA LIGHTING FIXTURE
- SURFACE MOUNTED OR SUSPENDED LUMINAIRE
- RECESSED LUMINAIRE
- LUMINAIRE ON EMERGENCY POWER CIRCUIT
- WALL MOUNTED LUMINAIRE
- POLE MOUNTED LUMINAIRE
- CEILING MOUNTED EXIT SIGN
- WALL MOUNTED EXIT SIGN
- EMERGENCY LIGHTING UNIT c/w BATTERY PACK, CHARGER AND TWO HEADS
- EMERGENCY EXIT LIGHTING UNIT c/w BATTERY PACK, CHARGER AND TWO HEADS
- WALL MOUNTED SINGLE EMERGENCY LIGHTING HEAD c/w JUNCTION BOX
- WALL MOUNTED DOUBLE EMERGENCY LIGHTING HEAD c/w JUNCTION BOX
- P — PHOTOELECTRIC CELL

COMMUNICATIONS

- TELEPHONE CABINET
- TTB — TELEPHONE TERMINAL BOARD
- TELEPHONE - WALL MOUNTED
- TELEPHONE - FLOOR MOUNTED

GROUNDING

- GROUND BUS
- GROUND COMPRESSION CONNECTION
- EQUIPMENT GROUND CONNECTION
- GROUND ROD
- GROUND WELL & ROD
- GROUND GRID w/ RODS ONLY
- GROUND GRID w/ WELLS & RODS

CONTROL

- $a — SINGLE POLE SWITCH (CIRCUIT "a")
- 2 SWITCHES IN 2 GANG BOX
- 3 SWITCHES IN 3 GANG BOX
- 4 SWITCHES IN 4 GANG BOX
- $2 — TWO POLE SWITCH
- $3 — THREE WAY SWITCH
- $4 — FOUR WAY SWITCH
- SWITCH c/w PILOT LIGHT
- MANUAL MOTOR SWITCH
- MANUAL MOTOR SWITCH c/w PILOT LIGHT
- $K — KEY OPERATED SWITCH
- $D — DOOR OPERATED SWITCH
- $EP — EXPLOSION PROOF SWITCH
- $WP — WEATHERPROOF SWITCH
- $a — LOW VOLTAGE SWITCH (CIRCUIT "a")
- $K,P — LOW VOLTAGE SWITCH (K-KEY OPERATED, P-PILOT LIGHT)
- $S — SPECIAL LOW VOLTAGE SWITCH UNIT (SEE SPECIFICATIONS)
- RC — LOW VOLTAGE SWITCHING RELAY CABINET
- M — MOTION SENSOR SWITCH
- P — PHOTOELECTRIC CELL
- DISCONNECT SWITCH - FUSED
- DISCONNECT SWITCH - UNFUSED
- MANUAL MOTOR STARTER
- MAGNETIC MOTOR STARTER
- COMBINATION MAGNETIC STARTER
- T — LOW VOLTAGE THERMOSTAT
- T — LINE VOLTAGE THERMOSTAT
- H — HUMIDSTAT
- OA — ON-OFF CONTROL STATION
- HOA — HAND-OFF-AUTO SELECTOR SWITCH
- LO — LOCKOUT STOP CONTROL STATION
- LOR — LOCAL-OFF-REMOTE CONTROL STATION
- SELECTOR SWITCH (HOA, LOR, LO or OA)
- START-STOP PUSHBUTTON AND SELECTOR SWITCH (HOA, LOR, LO or OA)
- MOMENTARY OPEN PUSHBUTTON
- LOCKOUT STOP PUSHBUTTON
- START-STOP PUSHBUTTON
- START-STOP PUSHBUTTON c/w PILOT LIGHT & LOCKOUT STOP
- START-JOG-STOP PUSHBUTTON
- TS — TIME SWITCH
- LVT XX — LOW VOLTAGE TRANSFORMER (XX=TRANSFORMER NUMBER)

ABBREVIATIONS

A	- AMMETER or AMPERES
AF	- AMPERE FRAME
AFF	- ABOVE FINISHED FLOOR
AFG	- ABOVE FINISHED GRADE
AT	- AMPERE TRIP
CB	- CIRCUIT BREAKER
CCT	- CIRCUIT
CPL	- CONTROL PANEL
C/T	- CABLE TRAY
D/C	- DISCONNECT
GFCI	- GROUND FAULT CIRCUIT INTERRUPTER
EN	- ETHERNET CABLE
EN-F	- FIBRE OPTIC CABLE
GND	- GROUND
HOA	- HAND-OFF-AUTO
JB	- JUNCTION BOX
kV	- KILOVOLT
kVA	- KILOVOLT-AMPERES
mmC	- MILLIMETER CONDUIT
S	- SURFACE
SS	- SOFT STARTER
SWGR	- SWITCHGEAR
U/G	- UNDERGROUND
VFD	- VARIABLE FREQUENCY DRIVE
WP	- WEATHERPROOF
XFMR	- TRANSFORMER

SINGLE LINE DIAGRAM SYMBOLS

- EQUIPMENT BUS
- BUS WAY
- BUS EXTENSION
- MALE & FEMALE DISCONNECT DEVICE
- AS — AMMETER SWITCH
- VS — VOLTMETER
- XXX:X QTY — CURRENT TRANSFORMER c/w RATIO & QUANTITY
- XXX:5 QTY — ZERO SEQUENCE CURRENT TRANSFORMER c/w RATIO & QUANTITY
- XXX:X QTY — BUSHING TYPE CURRENT TRANSFORMER c/w RATIO & QUANTITY
- V-V QTY — POTENTIAL TRANSFORMER c/w VOLTAGE RATING & QUANTITY
- XXX:5 X — ELECTRONIC OVERLOAD c/w RATIO & QUANTITY
- K — KEY OPERATED SWITCH
- DMS — DIGITAL METERING SYSTEM
- M — UTILITY POWER METER
- MULTILIN XXX — MULTILIN DEVICE
- CTS — CURRENT TRANSFORMER SHORTING BLOCK
- 29-1 — PT-CT TEST BLOCK
- C — PILOT LIGHT c/w COLOR TYPE
- F1 QTY — FUSE c/w FUSE No. or AMP RATING AND QUANTITY
- GROUND TO EARTH
- LIGHTNING ARRESTER w/ GROUNDED GAP
- LIGHTNING ARRESTER w GROUNDED GAP AND SURGE CAPACITOR
- 01 — NEMA FULL-VOLTAGE NON-REVERSING (FVNR)
- 01 01 FWD REV — NEMA FULL-VOLTAGE REVERSING
- MAGNETIC ELEMENT
- X kVAR — CAPACITOR FOR PF CORRECTION c/w kVAR RATING
- FLEX CONNECTOR
- J — JUNCTION BOX MOUNTED NEAR MOTOR
- RTD — RESISTANCE TEMPERATURE DETECTOR
- TRANSFER SWITCH
- REACTOR
- VARIABLE SPEED DRIVE
- SOFT START REDUCED VOLTAGE
- GENERATOR
- HP — SQUIRREL CAGE MOTOR
- LIGHTING OR POWER PANEL
- VALVE TRAVEL LIMIT SWITCH-NORMALLY OPEN
- VALVE TRAVEL LIMIT SWITCH-NORMALLY CLOSED
- SPECIAL RECEPTACLE
- MOTOR SPACE HEATER
- SOLID STATE SURGE ARRESTER
- TVSS — TRANSIENT VOLTAGE SURGE SUPPRESSION
- PLC — PROGRAMMABLE LOGIC CONTROLLER
- XX — COMMUNICATIONS PROTOCOL MB - MODBUS, MB+ - MODBUS PLUS, CN - CONTROL NET, DN - DEVICE NET, EN - ETHERNET, FF - FOUNDATION FIELDBUS
- AMMETER
- DM — DEMAND METER
- EM — ELECTRONIC METERING
- GD — GROUND DETECTOR
- GFM — GROUND FAULT MONITOR
- GFR — GROUND FAULT RELAY
- OHM — OHMMETER
- PF — POWER FACTOR METER
- V — VOLTMETER
- VA — VOLT-AMMETER
- VAR — VARMETER
- W — WATTMETER
- WH — WATTHOUR METER
- NON-FUSED DISCONNECT SWITCH
- FUSED DISCONNECT SWITCH
- PLUGGED FUSED DISCONNECT SWITCH
- 225 AF 100 AT 3P — AIR CIRCUIT BREAKER
- 225 AF 100 AT 3P — PLUG-IN AIR CIRCUIT BREAKER
- 52 — 4160 V 1200 A 150 MVA — DRAWOUT POWER CIRCUIT BREAKER
- EOL — ELECTRONIC OVERLOAD RELAY
- POLYPHASE TRANSFORMER
- BATTERY
- 50 QTY — PROTECTIVE RELAY c/w QUANTITY (1 LINE)
- 50 ST QTY — PROTECTIVE RELAY c/w QUANTITY (2 LINE)
- RELAY SHUNT
- ** — INSTRUMENT OR METER (**) - USE LETTER COMBINATIONS LISTED BELOW TO DESIGNATE TYPE OF METER OR INSTRUMENT
- THREE PHASE WYE
- THREE PHASE WYE TO GROUND
- THREE PHASE WYE w/ RESISTOR TO GROUND
- HAND-OFF-AUTO SELECTOR SWITCH
- LOCKOUT STOP CONTROL STATION
- LOCAL-OFF-REMOTE CONTROL STATION
- SELECTOR SWITCH (HOA, LOR, LO or OA)
- START-STOP PUSHBUTTON AND SELECTOR SWITCH
- LOCKOUT STOP PUSHBUTTON
- START-STOP PUSHBUTTON
- START-STOP PUSHBUTTON c/w PILOT LIGHT
- START-JOG-STOP PUSHBUTTON
- THERMISTOR CONTROL TRIPPING UNIT
- TS — TIME SWITCH
- TE — THERMAL ELEMENT
- TY — THERMAL AUXILIARY RELAY
- CLOSED DELTA

CONTROL SCHEMATIC SYMBOLS

- H1 H2 HV / LV X1 X2 — CONTROL POWER TRANSFORMER
- X HP — SINGLE or THREE PHASE MOTOR
- MOV — MOTOR OPERATED VALVE
- R1 — RELAY COIL (1 LINE)
- R 101 — RELAY COIL (2 LINE)
- TD TD_ 0-30 SECS — TIMING RELAY COIL w/ TDE-TIME DELAY ENERGIZED, TDD-TIME DELAY DEENERGIZED AND TIME RANGE
- LC — LIGHTING CONTACTOR COIL
- M — MOTOR STARTER COIL
- CR — CONTROL RELAY
- RA — AUXILIARY RELAY
- PFR — POWER FAILURE RELAY
- OTR — OVERLOAD TRIP RELAY
- HC — HOLDING COIL
- A — INDICATING PILOT LIGHT c/w COLOR TYPE
- ETM — ELAPSED TIME METER
- GROUND TO EARTH
- THERMAL OVERLOAD RELAY
- CAPACITOR
- NORMALLY OPEN CONTACT
- NORMALLY CLOSED CONTACT
- O/L — MOTOR OVERLOAD CONTACT
- X A — FUSE c/w AMP RATING
- P — PHOTOELECTRIC CELL
- X kW HTR — ELECTRIC HEATER c/w KILOWATT RATING
- X kW — MOTOR SPACE HEATER c/w KILOWATT RATING
- X OHMS — RESISTOR c/w RESISTANCE RATING
- SERIES COIL OR SOLENOID VALVE
- SURGE SUPPRESSOR
- SUPPRESSOR M — MOTOR SURGE SUPPRESSOR
- 12-24 V — POTENTIOMETER c/w VOLTAGE RANGE
- SEMICONDUCTOR DIODE
- TYRISTOR OR SCR (SILICON CONTROLLED RECTIFIER) DIODE
- MALE & FEMALE DISCONNECT DEVICE
- TERMINAL ON DEVICE
- TERMINAL ON FIELD DEVICE
- MECHANICAL CONNECTION
- WIRES CROSSOVER
- WIRES CONNECTED
- FIELD CONNECTION
- NORMALLY OPEN MUSHROOM HEAD PUSHBUTTON - MOMENTARY
- NORMALLY CLOSED MUSHROOM HEAD PUSHBUTTON - MOMENTARY
- NORMALLY OPEN PUSHBUTTON - MOMENTARY
- NORMALLY CLOSED PUSHBUTTON - MOMENTARY
- THREE POLE CIRCUIT BREAKER (CONTROL SCHEMATIC ONLY)
- THREE POLE DISCONNECT SWITCH (CONTROL SCHEMATIC ONLY)
- SINGLE POLE SINGLE THROW DISCONNECT SWITCH
- SINGLE POLE DOUBLE THROW DISCONNECT SWITCH
- ON OFF — ON-OFF SELECTOR SWITCH
- H O A — HAND-OFF-AUTO SELECTOR SWITCH
- FLOW SWITCH NORMALLY OPEN -CLOSES ON DECREASING FLOW
- FLOW SWITCH NORMALLY OPEN -CLOSES ON INCREASING FLOW
- FLOW SWITCH NORMALLY CLOSED -OPENS ON DECREASING FLOW
- FLOW SWITCH NORMALLY CLOSED -OPENS ON INCREASING FLOW
- LEVEL SWITCH NORMALLY OPEN -CLOSES ON DECREASING LEVEL
- LEVEL SWITCH NORMALLY OPEN -CLOSES ON INCREASING LEVEL
- LEVEL SWITCH NORMALLY CLOSED -OPENS ON DECREASING LEVEL
- LEVEL SWITCH NORMALLY CLOSED -OPENS ON INCREASING LEVEL
- LIMIT SWITCH NORMALLY OPEN -CLOSES ON LIMIT
- LIMIT SWITCH NORMALLY CLOSED -OPENS ON LIMIT
- LIMIT SWITCH NORMALLY CLOSED -HELD OPEN
- LIMIT SWITCH NORMALLY OPEN -HELD CLOSED
- PRESSURE SWITCH NORMALLY OPEN -CLOSES ON INCREASING PRESSURE
- PRESSURE SWITCH NORMALLY CLOSED -OPENS ON INCREASING PRESSURE
- PRESSURE SWITCH NORMALLY OPEN -CLOSES ON DECREASING PRESSURE
- PRESSURE SWITCH NORMALLY CLOSED -OPENS ON DECREASING PRESSURE
- TEMPERATURE SWITCH NORMALLY OPEN -CLOSES ON INCREASING TEMPERATURE
- TEMPERATURE SWITCH NORMALLY CLOSED -OPENS ON INCREASING TEMPERATURE
- TEMPERATURE SWITCH NORMALLY OPEN -CLOSES ON DECREASING TEMPERATURE
- TEMPERATURE SWITCH NORMALLY CLOSED -OPENS ON DECREASING TEMPERATURE
- tc — THERMOSTAT NORMALLY OPEN -CLOSES ON RISING TEMPERATURE
- to — THERMOSTAT NORMALLY CLOSED -OPENS ON RISING TEMPERATURE
- TDOE 3 SEC — TIMER SWITCH NORMALLY CLOSED- TIME DELAY OPEN ON ENERGIZATION (TDOE) TIME SETTING @ 3 SECS
- TDCE 3 SEC — TIMER SWITCH NORMALLY OPEN- TIME DELAY CLOSE ON ENERGIZATION (TDCE) TIME SETTING @ 3 SECS
- TDCD 3 SEC — TIMER SWITCH NORMALLY CLOSED- TIME DELAY OPEN ON DE-ENERGIZATION (TDCD) TIME SETTING @ 3 SECS
- TDOD 3 SEC — TIMER SWITCH NORMALLY OPEN- TIME DELAY CLOSE ON DE-ENERGIZATION (TDOD) TIME SETTING @ 3 SECS
- SOLENOID SWITCH or SERIES COIL
- TERMINAL IN STARTER IN MCC
- TERMINAL IN LOCAL VFD CABINET
- TERMINAL IN PLC
- TERMINAL IN HVAC CONTROL PANEL

Revision	By	Appd	YYYY.MM.DD
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JOHN C. DERRICK — STATE OF WASHINGTON — 31294 — REGISTERED PROFESSIONAL ENGINEER

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 022678CH-GE-1

STR	DBSV	CWS	2024.12.27
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Title
ELECTRICAL SYMBOLS 1

Project No. 224202267
Scale NO SCALE
Revision 0
Drawing No. GE-1

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ORIGINAL SHEET - ANSI D

2/12/2025

ELECTRICAL ABBREVIATIONS

A	AMPERE, AUTOMATIC
AC	ALTERNATING CURRENT
AF	CIRCUIT BREAKER FRAME SIZE
AM	AMMETER
ANN	ANNUNCIATOR
AS	ADJUSTABLE SPEED
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BC	BARE COPPER
BKR	BREAKER
C	CONDUIT, CLOSED
CAP	CAPACITOR
CB	CIRCUIT BREAKER
CCT	CIRCUIT
CLF	CURRENT LIMITING FUSE
COM	COMMON
COMM	COMMUNICATIONS
COMP	COMPARTMENT
CP	CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY, CARD READER
CT	CURRENT TRANSFORMER
DCS	DISTRIBUTED CONTROL SYSTEM
DISC	DISCONNECT
DISTR	DISTRIBUTION
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
E	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
ETM	ELAPSED TIME METER
F	FREQUENCY, FUSE, FIXED
FDR	FEEDER
FLA	FULL LOAD AMPS
FLUOR	FLUORESCENT
FM	FREQUENCY METER
FO	FIBER OPTIC
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
H	HAND
HD	HEAT DETECTOR
HH	HAND HOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HPS	HIGH PRESSURE SODIUM
HS	HAND SWITCH
HZ	HERTZ
IMC	INTERMEDIATE METALLIC CONDUIT
INCAND	INCANDESCENT
IND	INDICATION
INST	INSTANTANEOUS
I/O	INPUT/OUTPUT
Isc	SHORT CIRCUIT CURRENT, AMPS
ISO	ISOLATION
J,JB	JUNCTION BOX
KA	KILO AMPERES
KAIC	KILO AMP INTERRUPTING CURRENT
KCMIL	KILO CIRCULAR MILS
KVA	KILOVOLT AMPERE
L	LOCAL
LCP	LOCAL CONTROL PANEL
LCS	LOCAL CONTROL STATION
LOC	LOCAL
LOR	LOCAL-OFF-REMOTE
LOS	LOCKOUT STOP PUSHBUTTON
LP	LIGHTING PANEL
LRA	LOCKED ROTOR AMPS
LS	LEVEL SWITCH
LTG	LIGHTING
LTS	LIGHTS
M	MOTOR CONTACTOR COIL
mA	MILLIAMPERE
MCP	MOTOR CIRCUIT PROTECTOR
MLO	MAIN LUGS ONLY
MOV	MOTOR OPERATED VALVE
MS	MANUAL MOTOR STARTER
MTS	MANUAL TRANSFER SWITCH
NEUT	NEUTRAL
NP	NAMEPLATE
O	OPEN, OFF
OL	OVERLOAD
PA	PUBLIC ADDRESS
PB	PUSHBUTTON, PULLBOX
PC	PHOTOCELL
PCM	PROCESS CONTROL MODULE
PF	POWER FACTOR
PFM	POWER FACTOR METER
PH	PHASE
PL	PILOT LIGHT
PNLBD	PANELBOARD
PP	POWER PANELBOARD
POS	POSITION
POT	POTENTIOMETER
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PTZ	PAN-TILT-ZOOM
PWR	POWER
R	REMOTE
RECPT	RECEPTACLE
RGS	RIGID GALVANIZED STEEL
RMS	ROOT MEAN SQUARE
RTU	REMOTE TERMINAL UNIT
RVSS	REDUCED VOLTAGE SOLID STATE
SEL SW	SELECTOR SWITCH
SEQ	SEQUENCE
SHLD	SHIELDED
SIG	SIGNAL
SP	SPARE
SP HTR	SPACE HEATER
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
SSM	SOLID STATE METER
SSMP	SOLID STATE MOTOR PROTECTOR
ST, SH	SHUNT TRIP
STR	STARTER
SSTU	SOLID STATE TRIP UNIT
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TACH	TACHOMETER
TB	TERMINAL BOX
TERM	TERMINAL
TM	REPEAT CYCLE TIMER
TD	TIME DELAY RELAY
TS	TEMPERATURE SWITCH
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTAGE, VOLTS
VA	VOLT AMPERE
VAR	VOLT AMPERE REACTIVE
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
VP	VAPOR PROOF
W	WATTS, WIRE
WM	WATT METER
WP	WEATHERPROOF
XFMR	TRANSFORMER
XMTR	TRANSMITTER
XP	EXPLOSION PROOF

GENERAL ELECTRICAL NOTES

1. ALL RACEWAYS AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
2. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF TERMINAL BOXES AND CONDUIT ENTRANCES OF ALL EQUIPMENT AGAINST APPROVED SHOP DRAWINGS BEFORE STUBBING UP CONDUITS.
3. REFER TO SPECIFICATION SECTION 260533 FOR REQUIREMENTS RELATED TO FLEXIBLE CONDUIT INSTALLATION.
4. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT OR STRUCTURAL CONDITIONS. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BEAMS AND WALLS. REFER TO SPECIFICATION SECTION 260533.
5. CONDUIT STUB-UPS SHALL NOT BE MORE THAN 6 INCHES FROM THE CENTERLINE OF TERMINAL BOXES.
6. IN THE EVENT OF INTERFERENCE BETWEEN ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND OTHER EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING AND THE ENGINEER SHALL APPROVE PROPOSED CHANGES BEFORE THEY ARE MADE.
7. ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INTERIOR OF EXTERIOR WALLS ABOVE GRADE OR IN OTHER LOCATIONS CONSIDERED DAMP OR WET SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4 INCH (MINIMUM) AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
8. LOCATION OF PULLBOXES ARE APPROXIMATE. THE CONTRACTOR SHALL COORDINATE EXACT LOCATION WITH MECHANICAL PIPING AND SHALL BE 6 INCHES (MINIMUM) AWAY FROM MECHANICAL PIPING FLOW LINES.
9. ONLY MAJOR PULLBOXES ARE SHOWN. THE CONTRACTOR SHALL PROVIDE ADDITIONAL PULLBOXES WHERE REQUIRED TO MAKE A WORKABLE INSTALLATION.
10. THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE DETAILS WHETHER OR NOT THEY ARE REFERENCED ON THE DRAWINGS.
11. ALL CONDUIT RUNS CROSSING EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS. FOR LOCATIONS OF EXPANSION JOINTS, REFER TO THE STRUCTURAL DWGS.
12. LUMINAIRES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS, WITH THE DISTANCE BEING MEASURED FROM THE BOTTOM OF THE LUMINAIRE TO THE FINISHED FLOOR. THE APPROPRIATE MOUNTING BRACKETS AND HARDWARE SHALL BE SUPPLIED.
13. ALL PANELBOARDS SHALL BE MOUNTED SO THAT THE DISTANCE FROM THE CENTERLINE OF THE TOP CIRCUIT BREAKER OPERATING HANDLE IN THE UPPERMOST POSITION TO THE FINISHED FLOOR SHALL NOT EXCEED 6'-7".
14. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED. THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
15. CONNECTIONS BETWEEN RIGID CONDUIT AND MOTOR TERMINAL BOXES OR SIMILAR EQUIPMENT SUBJECT TO VIBRATION SHALL BE FLEXIBLE LIQUID-TIGHT CONDUIT.
16. CONDUITS SHALL BE TERMINATED SO AS TO PERMIT NEAT CONNECTION TO MOTORS AND OTHER EQUIPMENT.
17. CONDUITS FOR FUTURE EQUIPMENT OR EXTENSIONS SHALL BE TERMINATED AS SHOWN IN DETAIL OR AS SPECIFIED.
18. SWITCHBOARD AND SWITCHGEAR COMPARTMENT DESIGNATIONS SHALL BE AS FOLLOWS:

    BLANK/SPACE: CONTAINS NECESSARY BUS AND HARDWARE FOR FUTURE ADDITION OF BREAKERS OR STARTERS.

    SPARE: CONTAINS A COMPLETE INSTALLED BREAKER OR STARTER AVAILABLE FOR FUTURE USE.
19. ALL MOTOR STARTER CONTROL POWER TRANSFORMERS SHALL BE SIZED TO PROVIDE SUFFICIENT VOLT-AMPERE CAPACITY FOR OPERATING ALL LOCAL AND REMOTE ELECTRICAL DEVICES ASSOCIATED WITH CONTROL OF THE MOTOR IN ADDITION TO THE STARTER COIL.
20. SWITCHBOARD AND ALL FREE STANDING PANELS SHALL BE SET ON CONCRETE HOUSEKEEPING PADS WITH LEVELING CHANNELS EMBEDDED IN THE PAD.
21. ALL RECEPTACLES IN OUTDOOR AND ANTICIPATED WET AREAS SHALL BE GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLES WITH WEATHERPROOF COVERS.
22. ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT TO VERIFY THE SCOPE OF WORK WITH FIELD CONDITIONS.
23. EQUIPMENT LOCKOUTS SHALL BE IN STRICT ACCORDANCE WITH OWNER'S REQUIREMENTS.
24. FOR LIGHTING, RECEPTACLES, AND EQUIPMENT POWER FROM 102/208V PANELS, ONLY CIRCUIT NUMBERS ARE SHOWN. CONTRACTOR SHALL PROVIDE ALL NECESSARY CONDUITS, WIRES, FITTINGS, JUNCTION BOXES AND ALL NECESSARY COMPONENTS SHOWN OR NOT SHOWN ON THE DRAWINGS, TO MAKE THE ELECTRICAL INSTALLATION COMPLETE AND OPERATIONAL. ALL CONDUIT RUNS SHALL BE CONCEALED UNLESS INDICATED OTHERWISE. CIRCUIT LOADING SHALL BE AS INDICATED IN THE PANEL SCHEDULES. ALL LIGHTING AND RECEPTACLE CIRCUITS SHALL INCLUDE GROUND WIRE.
25. CONTRACTOR SHALL READ THESE DRAWINGS AND ALL PROJECT RELATED DOCUMENTATION, INCLUDING DRAWINGS AND SPECIFICATIONS FROM ALL OTHER DISCIPLINES. SCOPE OF WORK IS NOT LIMITED TO THESE DRAWINGS BUT INCLUDES ALL ITEMS AS LISTED ON DRAWINGS, SPECIFICATIONS AND ALL OTHER PROJECT RELATED DOCUMENTATION.
26. ALL ELECTRICAL AND INSTRUMENTATION WORK AND EQUIPMENT SHALL BE IN ACCORDANCE WITH LATEST EDITION OF THE NEC, AND AS ALLOWED AND ACCEPTED BY THE APPROPRIATE AUTHORITY HAVING JURISDICTION IN THE STATE OF WASHINGTON. CONTRACTOR SHALL VERIFY THAT THE NEW ELECTRICAL AND INSTRUMENTATION SYSTEMS ARE TESTED, COMMISSIONED, AND READY FOR USE PRIOR TO TURNOVER TO THE OWNER. CONTRACTOR SHALL FIELD TEST THE ENTIRE SYSTEM AND ENSURE IT IS OPERATIONAL AND READY FOR USE PRIOR TO HANDING OVER TO THE OWNER.
27. CONTRACTOR TO REFER TO ALL DISCIPLINE DRAWINGS AND SPECIFICATIONS, CONFIRM THE EXACT LOCATION OF ELECTRICAL, INSTRUMENTATION, AND PROCESS CONTROL ITEMS.
28. FIELD VERIFY ALL DIMENSIONS PRIOR TO ORDERING MATERIALS.
29. PROVIDE A SET OF "AS-BUILT" DRAWINGS AT THE COMPLETION OF THE CONTRACT AND PRIOR TO FINAL ACCEPTANCE.
30. THE CONTRACTOR SHALL BRING ANY DISCREPANCIES IN THE DESIGN TO THE CONSULTANT'S ATTENTION FOR REVIEW, PRIOR TO MOVING FORWARD WITH PORTIONS OF THE WORK THAT ARE AFFECTED BY POTENTIAL CHANGES.
31. CONFIRM THE INSTALLATION REQUIREMENTS/INSTRUCTIONS WITH THE ELECTRICAL AND INSTRUMENTATION VENDORS AND MANUFACTURER'S BASED ON BEST PRACTICE.
32. FIELD COORDINATE INSTALLATION OF ALL ELECTRICAL AND INSTRUMENTATION CONDUITS, PULL BOXES, DEVICES AND EQUIPMENT ON SITE. ADJUST ELECTRICAL DEVICE AND EQUIPMENT PLACEMENT AS REQUIRED TO SUIT FIELD CONDITIONS.
33. USE GALVANIZED RIGID CONDUIT (GRC) FOR ALL POWER AND CONTROL FEEDERS OR WHERE EXPOSED TO MECHANICAL DAMAGE.
34. USE RIGID PVC OR GALVANIZED RIGID CONDUIT (GRC) WHEN INSTALLING CONDUITS IN-SLAB. EXIT ABOVE SLAB WITH GRC AND PROVIDE MINIMUM 6" OF GRC BELOW SLAB.
35. WIRING NUMBERING STRATEGY:
    A. SINGLE CONDUCTOR OR MULTI CONDUCTOR NON-COLOR CODED CABLES: EACH END OF THE WIRE IS TO BE LABELED WITH THE SOURCE AND DESTINATION OF THE WIRE (SAME WIRE TAG ON BOTH ENDS OF THE WIRE).
    B. ALL ANALOG LOOPS ARE TO BE WIRED WITH ONE PAIR SHIELDED INSTRUMENT CABLE AND TAG WITH THE LOOP NUMBER ON BOTH ENDS.
36. PERMANENTLY LABEL ALL LOADS, POWER DISCONNECTS AND REMOTE LOADS WITH THE PANEL AND CIRCUIT NUMBER SERVING THE DEVICE. PERMANENTLY LABEL NEW WIRES AS INDICATED WITHIN THE DETAILED DRAWINGS.
37. ALL CIRCUITS ARE SIZED ASSUMING NO MORE THAN THREE CURRENT CARRYING CONDUCTORS IN A SINGLE CONDUIT. FOR CONDUITS CONTAINING MORE THAN THREE, PROVIDE APPROPRIATE DE-RATING OF CONDUCTORS AS PER THE NEC; MOST RECENT VERSION.
38. ALL UNDERGROUND CONDUITS TO BE SCHEDULE 40PVC.
39. ALL EXTERIOR CONDUITS TO BE GRC.
40. CONDUIT AND CABLE SCHEDULES SHOW INDIVIDUAL POWER, CONTROLS, OR COMMUNICATIONS RUNS TO COMMUNICATE DESIGN INTENT. CONTRACTOR MAY GROUP LIKE SIGNALS WITHIN THE SAME CONDUIT RUNS PROVIDED THEY MEET THE RULES OF N.E.C. FOR CONDUCTORS AND CABLES IN RACEWAYS. DO NOT GROUP PARALLEL FEEDS IN THE SAME CONDUIT RUN.

GENERAL PROGRAMMING & AUTOMATION NOTES

1. REFER TO THE SPECIFICATIONS FOR ADDITIONAL NOTES ON PROGRAMMING AND AUTOMATION.
2. PROGRAMMABLE LOGIC CONTROLLER (PLC) PROGRAMMING FOR THE BATTLE CREEK FISH HATCHERY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) PROGRAMMING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. ALL PLC AND SCADA HARDWARE FOR THE BATTLE CREEK FISH HATCHERY SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. SITE COMMUNICATIONS TO UTILIZE THE ETHERNET IP/TCP PROTOCOL FOR THE HATCHERY PLC AND SCADA SYSTEM.
6. PERFORM LOOP CHECKS, AND PREPARE REQUIRED COMMISSIONING DOCUMENTATION PRIOR TO ALL COMMISSIONING AND TESTING.
7. CONTRACTOR TO ENGAGE THE OWNER'S PREFERRED CONTROLS SYSTEM INTEGRATOR TO COMPLETE THE PLC, HMI, AND SCADA PROGRAMMING. REFER TO SPECIFICATION 40 91 00 FOR ADDITIONAL INFORMATION.

GENERAL CONTROL PANEL SYSTEM NOTES

1. LOCAL CONTROL PANELS (MCP-01,LCP-300,LCP-400,LCP-600) ARE SHOWN AS TYPICAL TO CONVEY DESIGN INTENT AND GENERAL ARRANGEMENT.
2. CONTRACTOR TO ENGAGE THE OWNER'S CONTROLS SYSTEM INTEGRATOR FOR THE COMPLETE DESIGN AND FABRICATION OF THE CONTROL PANEL USING THE TYPICAL PANEL ARRANGEMENTS PROVIDED IN THE DESIGN.
3. CONTROL PANEL DESIGN BASED ON THE P&ID'S, I/O LISTS, AND GENERAL CONTROL PANEL DRAWINGS.
4. SUBMIT FOR REVIEW PRIOR TO FABRICATING CONTROL PANELS:
   - 4.1 PANEL LAYOUTS (ELEVATION, DIMENSIONS)
   - 4.2 PANEL ARRANGEMENTS
   - 4.3 BILL OF MATERIALS
   - 4.4 CARD DRAWINGS
   - 4.5 I/O DRAWINGS

Revision	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14

Issued

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 022678CH-GE-2 | SNH Dwn. | DJDV Dsgn. | CJWS Chkd. | 2024.12.27 YYYY.MM.DD

Title
ELECTRICAL ABBREVIATIONS & NOTES

Project No. 224202267
Scale NO SCALE
Revision 0
Drawing No. GE-2

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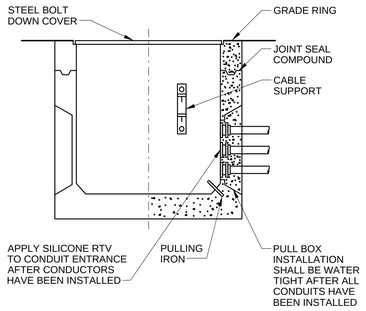
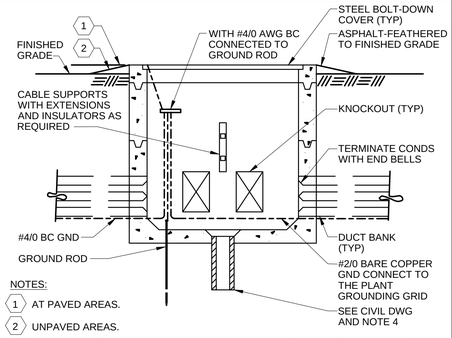
ORIGINAL SHEET - ANSI D

2/12/2025

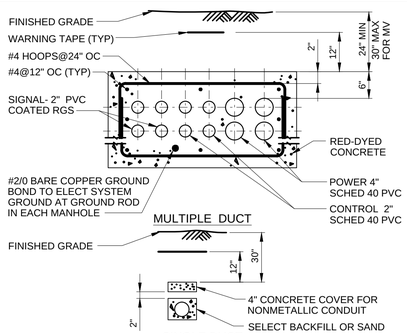


E-101 PRE-CAST PULLBOX
REV 010119



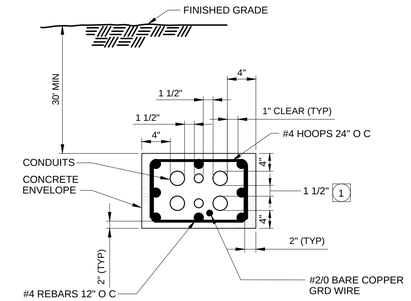
NOTES:
1. AT PAVED AREAS.
2. UNPAVED AREAS.
3. PULL BOX INSTALLATION TO BE WATERTIGHT AFTER CONDUITS HAVE BEEN INSTALLED BY USING DUCT SEALING.
4. FOR MANHOLE/PULL BOX NOT SHOWN WITH DRAINAGE PIPING ON CIVIL DRAWINGS, PROVIDE A MINIMUM 4" DIAMETER PVC PIPE TO A 3'x3'x3' DRAIN ROCK PIT.

E-102 TYPICAL MANHOLE/ PULLBOX
REV 010119



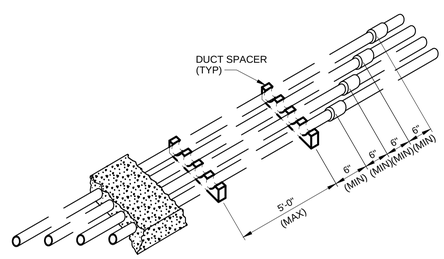
NOTES:
1. AT INTERSECTIONS WITH STRUCTURES HOOK #4'S INTO THE FOOTING OR WALL (TYP).
2. SEE DUCT BANK SECTIONS AND DETAILS FOR NUMBER AND ARRANGEMENT OF DUCTS.

E-103 TYPICAL DUCTBANK
REV 010119

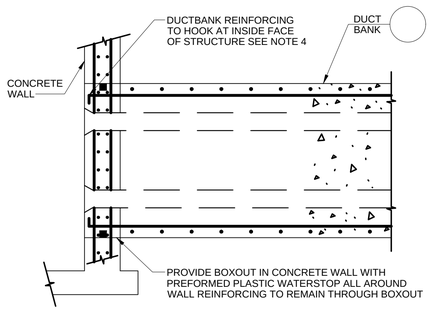


NOTES:
1. 3" CLEAR BETWEEN POWER AND TELEPHONE OR SIGNAL CONDUIT.
2. TERMINATE GRD. WIRE ON SWITCHGEAR GRD. BUS.

E-104 DUCT BANK (CONTROL/SIGNAL)
DUCT BANK SHALL BE COLORED RED
REV 010119



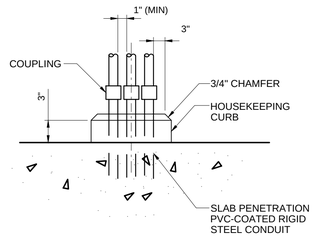
E-108 TYPICAL DUCTBANK
JOINT/SUPPORT SPACING
REV 010119



NEW STRUCTURES

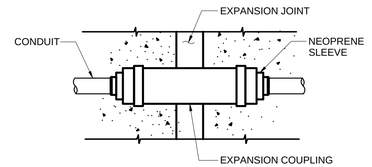
NOTES:
1. NO DUCTBANKS OR CONDUIT SHALL PENETRATE THROUGH ANY WALL FOOTINGS OR GRADE BEAMS WHEN ENTERING OR LEAVING STRUCTURES.
2. ALL DUCTBANKS SHALL BE DOWELED INTO STRUCTURES USING THE DETAILS SHOWN ON THIS SHEET.
3. WHERE DUCTBANKS PASS BENEATH FOOTINGS OF EXISTING BUILDING, THE FOOTING SHALL BE UNDERPINNED OR OTHERWISE PROTECTED FROM SETTLEMENT OR OTHER DAMAGE. OVER EXCAVATION BENEATH FOOTINGS DURING DUCTBANK INSTALLATION SHALL BE REPLACED WITH LEAN CONCRETE. LEAN CONCRETE SHALL BE SEPARATED FROM THE DUCTBANK CONCRETE WITH 3/4" EXPANSION JOINT FILLER.
4. FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY A OR B, REINFORCING CAN BE DRILLED AND GROUTED PER THE "EXISTING STRUCTURES" DETAIL.

E-109 DUCTBANK TIE IN
REV 010119



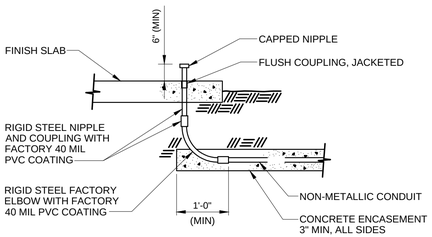
NOTE:
HOUSEKEEPING CURB REQUIRED AT ALL LOCATIONS FOR SINGLE AND MULTIPLE RISERS.

E-203 CONCRETE HOUSEKEEPING CURB
NON-HAZARDOUS LOCATIONS



NOTE:
PROVIDE EXTERNAL BONDING JUMPER WITH METALLIC CONDUIT AND WHEN COUPLING HAS NO INTERNAL JUMPER.

E-204 EXPANSION COUPLING



E-205 RISER FROM NON-METALLIC DUCT
REV 010119

Revision				
A	100% DESIGN	JM	JCD	2025.01.14
Issued		By	Appd	YYYY.MM.DD

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JOHN C. DEFRANCO — STATE OF WASHINGTON — 31294 — REGISTERED PROFESSIONAL ENGINEER

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BATTLE CREEK HATCHERY

File Name: 02267BCH-GE-3	JMK	DBW	CJWS	2024.12.27
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
ELECTRICAL STANDARD DETAILS (1 OF 5)

Project No. 224202267
Scale AS NOTED
Revision 0
Drawing No. GE-3

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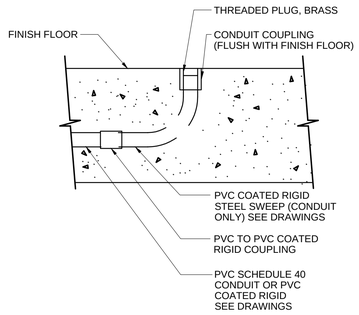
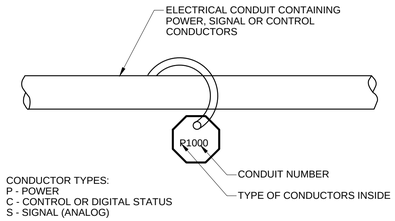
ORIGINAL SHEET - ANSI D

2/12/2025



E-206 CONDUIT TERMINATION FOR FUTURE EQUIPMENT
REV 110112



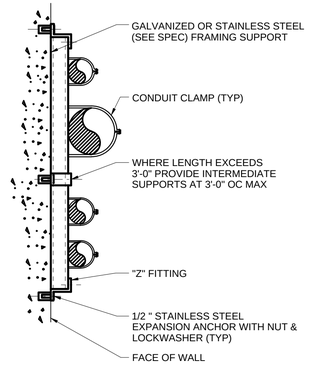
CONDUCTOR TYPES:
P - POWER
C - CONTROL OR DIGITAL STATUS
S - SIGNAL (ANALOG)

CONDUIT NUMBERS ARE LISTED ON THE CONDUIT / CABLE SCHEDULE

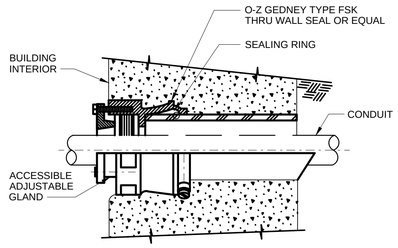
NOTE:

1. CONDUIT TAGS SHALL BE AFFIXED TO CONDUITS:
   A. AFTER ALL WORKING DRAWINGS ARE APPROVED AND ALL FIELD MODIFICATIONS HAVE BEEN MADE.
   B. BEFORE FINAL ACCEPTANCE TESTING HAS STARED.

E-210 CONDUIT IDENTIFICATION TAG
REV 010119



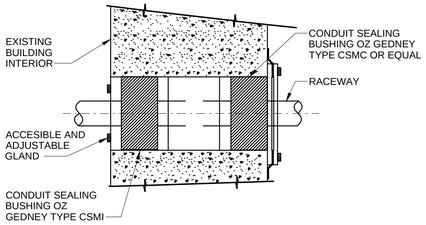
E-212 CONDUIT SUPPORT - FLUSH MOUNT
REV 110112



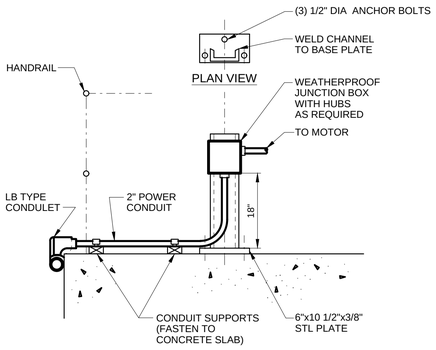
NOTE:

USE WATERTIGHT CONDUIT SEAL WHERE CONDUIT PENTRATIONS OF EXTERIOR WALLS ARE BELOW GRADE.

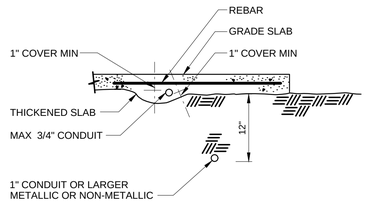
E-213 WATERTIGHT CONDUIT SEAL
BELOW GRADE EXTERIOR WALLS
REV 010119



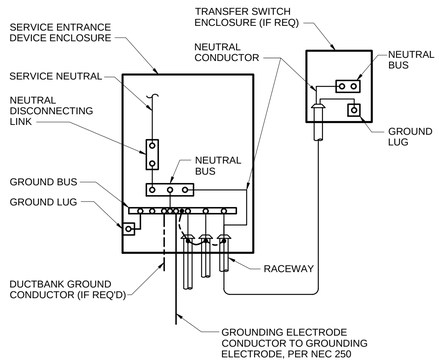
E-214 WATERTIGHT CONDUIT SEAL
REV 010119



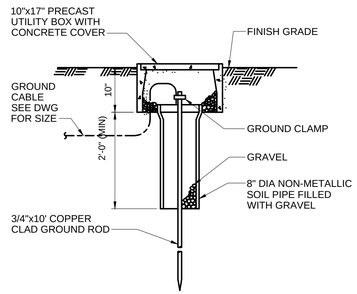
E-250 MOTOR POWER CONDUIT TERMINATION
REV 010119



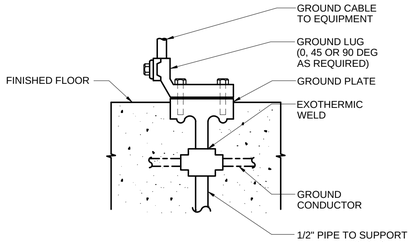
E-255 CONDUIT PLACEMENT
REV 010119



E-300 SERVICE GROUNDING NON-SEPARATELY DERIVED SOURCE
REV 110112



E-303 GROUND ROD AND WELL
REV 110112



NOTE:

1. ALL BOLTS SHALL BE INSERTED IN BOLT HOLES BEFORE THE INSERT IS EMBEDDED.

E-308 GROUNDING INSERT
REV 110112

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14

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JOHN C. DERRICK — STATE OF WASHINGTON — 31294 — REGISTERED PROFESSIONAL ENGINEER

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 022678CH-GE-4	STW	DBW	CWS	2024.12.27
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
ELECTRICAL STANDARD DETAILS
(2 OF 5)

Project No.	Scale
224202267	NONE
Revision	Drawing No.
0	GE-4

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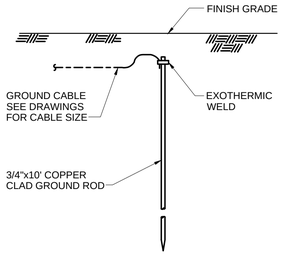
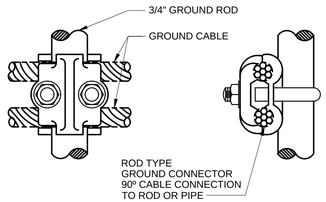
ORIGINAL SHEET - ANSI D

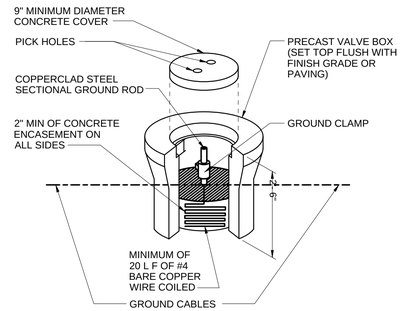
2/12/2025



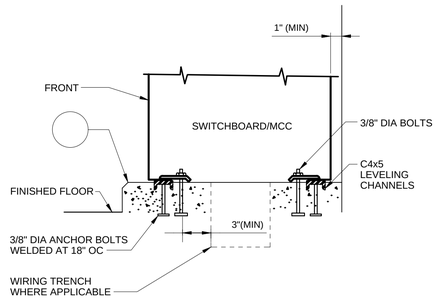
E-351 BURIED GROUND ROD INSTALLATION
REV 110112



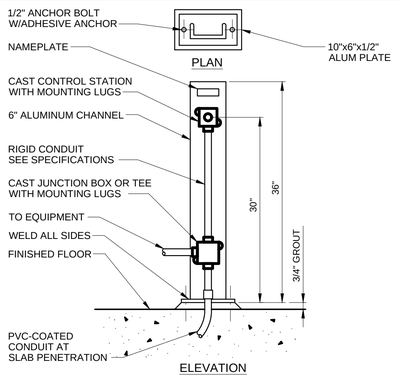
E-355 CABLE -TO- ROD CONNECTION
REV 010119



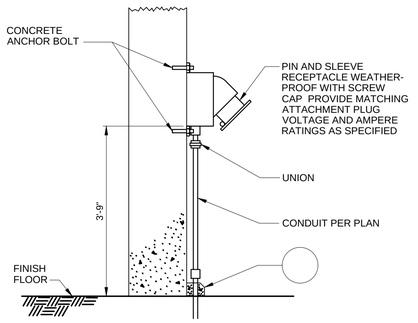
E-356 GROUND ELECTRODE INSTALLATION
REV 110112



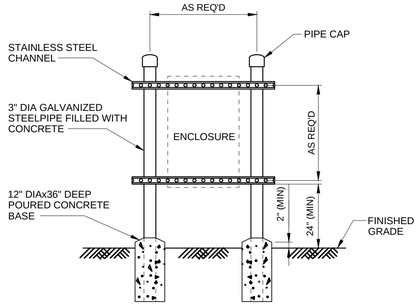
E-400 SWITCHBOARD/MCC MOUNTING
REV 010119



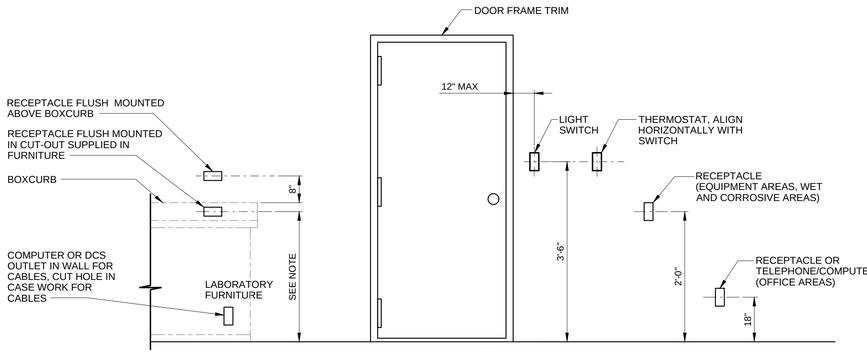
E-406 PEDESTAL MOUNTED CONTROL STATION
REV 010119



E-419 RECEPTACLE INSTALLATION
REV 010119

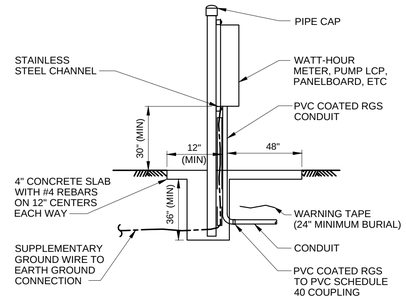


E-420 ENCLOSURE MOUNTING STAND
REV 010119



NOTE:
CONTRACTOR SHALL DETERMINE OUTLET BOX MOUNTING HEIGHT TO SUIT LABORATORY EQUIPMENT FURNISHED FOR INSTALLATION

E-450 OUTLET BOX MOUNTING
REV 010119



NOTES:

1. 3" STEEL MOUNTING POSTS MAY BE BOLTED TO SIDE OF VERTICAL CONCRETE WALL IF AVAILABLE.

E-460 PANEL MOUNTING DETAIL
REV 010119

Revision	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14
Issued	By	Appd	YYYY.MM.DD

ORIGINAL SHEET - ANSI D

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267BCH-GE-5

SPM	DBW	CJWS	2024.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
ELECTRICAL STANDARD DETAILS
(3 OF 5)

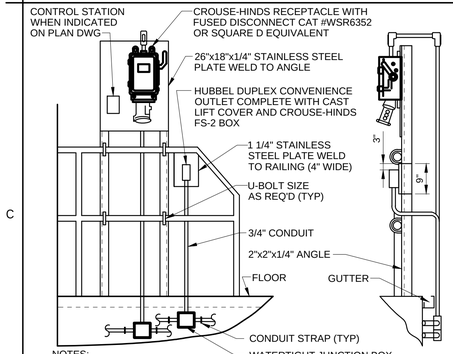
Project No.
224202267

Scale
NONE

Revision
0

Drawing No.
GE-5

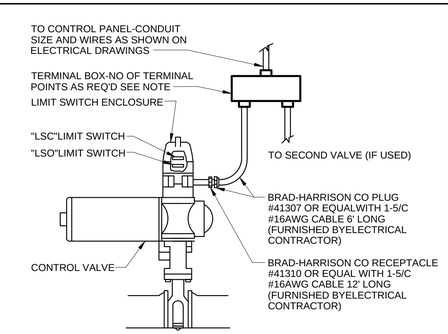
2/12/2025



NOTES:

1. ALL HARDWARE TO BE STAINLESS STEEL.

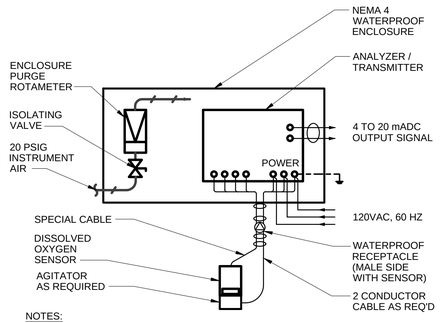
E-465 — 480V RECEPTACLE AND CONVENIENCE OUTLET MOUNTED ON RAILING
REV 010119



NOTES:

1. IF THE DISTANCE BETWEEN CONTROL PANEL AND VALVE IS LESS THAN 6 FEET,CABLE MAY BE TERMINATED DIRECTLY IN THE PANEL.

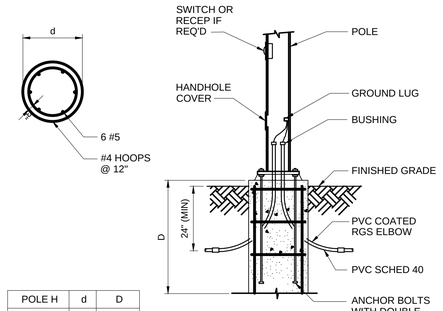
E-561 — CONTROL VALVE WIRING SCHEME
REV 010119



NOTES:

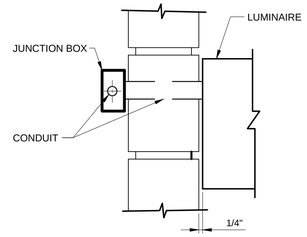
1. DISSOLVED OXYGEN TRANSMITTER MOUNT BOLTED DIRECTLY TO RAILING IN AERATION TANK AREA.

E-570 — DISSOLVED OXYGEN MEASUREMENT SYSTEM
REV 010119



POLE H	d	D
50'	30"	9'-0"
30'	24"	6'-0"
20'	20"	5'-6"
15'	20"	4'-8"

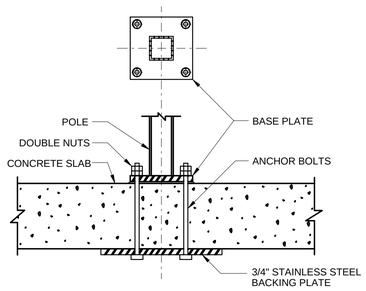
E-600 — POLE FOUNDATION
REV 110112



NOTES:

1. PROVIDE GASKET BETWEEN LUMINAIRE AND CONDUIT.
2. INSTALLATION SHALL BE WATERTIGHT.

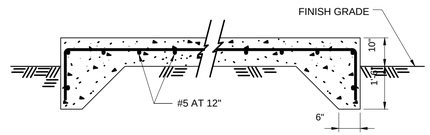
E-605 — WALL MOUNT LUMINAIRE
EXTERIOR WALL
REV 010119



NOTES:

1. BACKING PLATE SHALL BE 6" LARGER, IN BOTH DIRECTIONS, THAN THE BASE PLATE.
2. ALL HARDWARE SHALL BE STAINLESS STEEL.

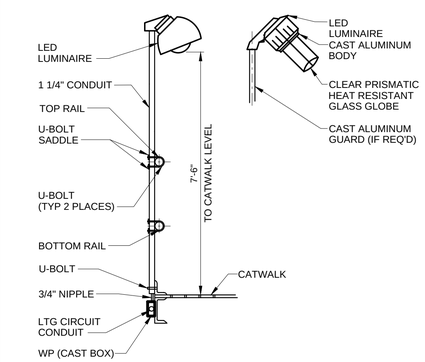
E-616 — POLE MOUNTING ON SLAB
REV 010119



NOTES:

1. OVERALL PAD DIMENSIONS SHALL BE DETERMINED FROM ELECTRICAL DRAWING AND ADJUSTED AS REQ'D TO SUIT EQUIPMENT FURNISHED.
2. COORDINATE WITH STRUCTURAL DRAWINGS.

E-617 — ELECTRICAL EQUIPMENT PAD
REV 110112



E-666 — LUMINAIRE MOUNTING DETAIL
REV 010119

Revision	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: 022678CH-GE-6 | SPW Dwn. | DBW Dsgn. | CJWS Chkd. | 2024.12.27 YYYY.MM.DD

Title
ELECTRICAL STANDARD DETAILS (4 OF 5)

Project No. 224202267
Scale NONE
Revision 0
Drawing No. GE-6

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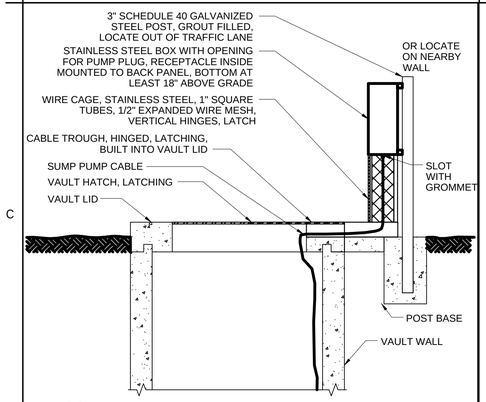
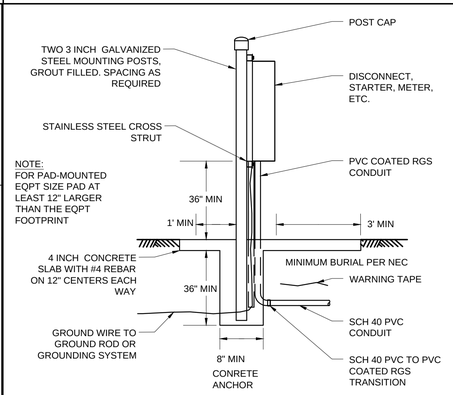
ORIGINAL SHEET - ANSI D

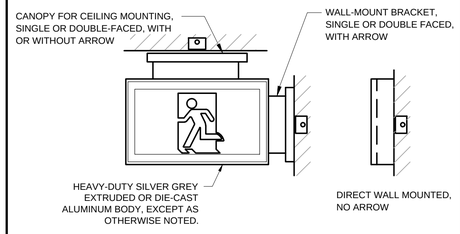
2/12/2025



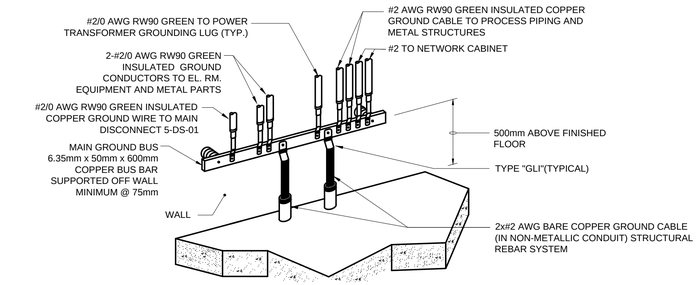
E-900 VAULT CABLE TROUGH



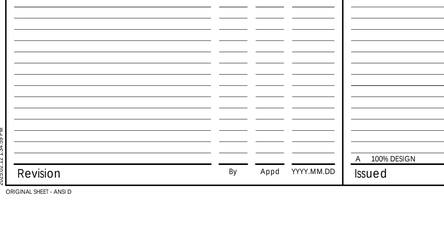
E-901 PANEL MOUNTING DETAIL



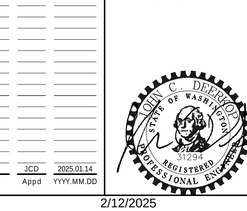
E-902 EXIT LIGHT DETAIL



E-903 BUILDING GROUND BUS



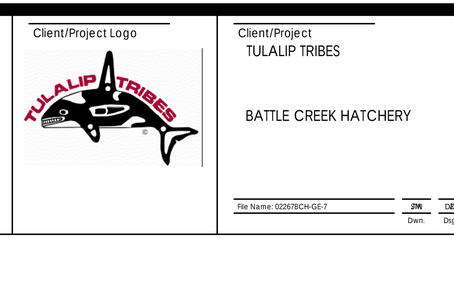
E-904 EMERGENCY LIGHT DETAIL



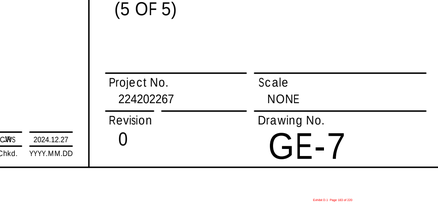
LEGEND:
1. ENCLOSURE 305 x 305 x 152
2. LIGHTING CONTROL PANEL LAMACOID
3. ON/OFF/REMOTE SELECTOR SWITCH

E-905A EXTERIOR LIGHTING SCHEMATIC

E-905 EXTERIOR LIGHTING CONTACTOR PANEL LAYOUT



E-906 SERVICE GROUNDING
NON-SEPARATELY DERIVED SOURCE



BURNDY CATALOG #	CABLE TO REBAR CONNECTOR	
	RUN	TAP
YGHP29C6W6W	#3 REBAR 3/8"	#6 SOL - #6 STR
YGHP29C2	#3 REBAR 3/8"	#2 STR
YGHP29C26	#3 REBAR 3/8"	1/0 STR - 2/0 STR
YGHP29C29	#4 REBAR 1/2"	3/0 STR - #250 KCMIL
YGHP34C2	#5 REBAR 5/8"	----------
YGHP34C26	#5 REBAR 5/8"	1/0 STR - 2/0 STR
YGHP34C29	#5 REBAR 5/8"	3/0 STR - #250 KCMIL
YGHP34C34	#6 REBAR 3/4"	#350 KCMIL - 500 KCMIL

NOTES:

1. STR - STANDARD BARE COPPER WIRE
2. SOL - SOLID BARE COPPER WIRE
3. CLEAN RUST AND PROTECTIVE COATING FROM REBAR BEFORE CONNECTOR
4. PROVIDE TWO #2 GROUNDS FROM ANY STRUCTURAL REBAR FROM THE GENERATOR OR FUEL TANK SLABS
5. CONNECTIONS TO REBAR EITHER BY IRREVERSIBLE COMPRESSION OR EXOTHERMIC
6. PROVIDE 30 FEET OF #2 FROM EACH SLAB FOR CONNECTION TO FUTURE GROUNDING RING. EXIT THE SLAB OUT THE SIDE AND COIL UP GROUND WIRE 1.5 FEET BELOW GRADE AND MARK LOCATION. LOCATE AND BURY IN A LOCATION THAT IS ACCESSIBLE FOR FUTURE UNEARTHING.

E-907 GROUNDING CABLE TO REBAR

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14

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BATTLE CREEK HATCHERY

File Name: 02267BCH-GE-7 | Dwn. SMN | Dsgn. DBW | Chkd. CWS | 2024.12.27 YYYY.MM.DD

Title
ELECTRICAL STANDARD DETAILS (5 OF 5)

Project No. 224202267
Scale NONE
Revision 0
Drawing No. GE-7

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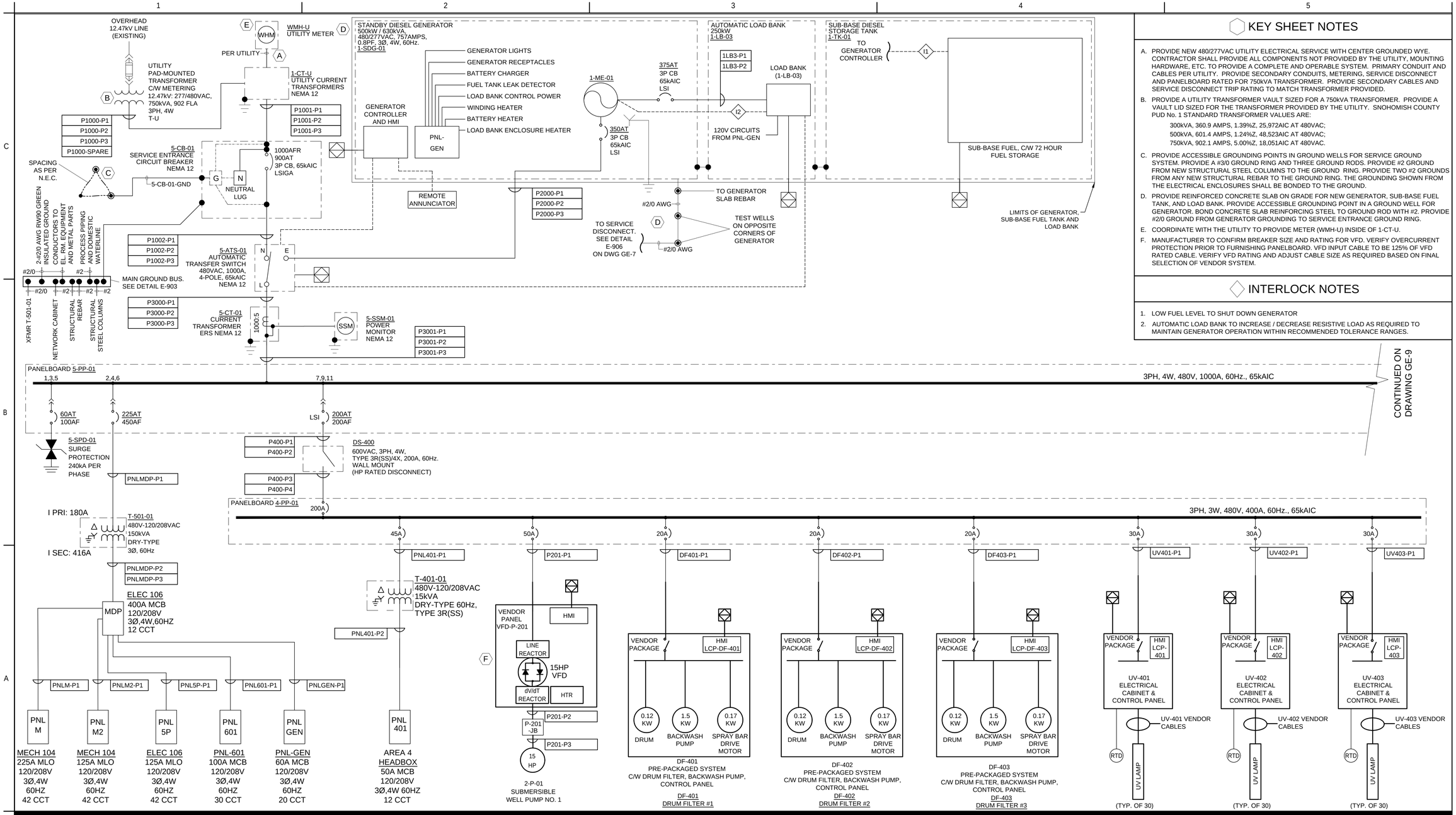
2/12/2025



KEY SHEET NOTES

A. PROVIDE NEW 480/277VAC UTILITY ELECTRICAL SERVICE WITH CENTER GROUNDED WYE. CONTRACTOR SHALL PROVIDE ALL COMPONENTS NOT PROVIDED BY THE UTILITY, MOUNTING HARDWARE, ETC. TO PROVIDE A COMPLETE AND OPERABLE SYSTEM. PRIMARY CONDUIT AND CABLES PER UTILITY. PROVIDE SECONDARY CONDUITS, METERING, SERVICE DISCONNECT AND PANELBOARD RATED FOR 750kVA TRANSFORMER. PROVIDE SECONDARY CABLES AND SERVICE DISCONNECT TRIP RATING TO MATCH TRANSFORMER PROVIDED.

B. PROVIDE A UTILITY TRANSFORMER VAULT SIZED FOR A 750kVA TRANSFORMER. PROVIDE A VAULT LID SIZED FOR THE TRANSFORMER PROVIDED BY THE UTILITY. SNOHOMISH COUNTY PUD No. 1 STANDARD TRANSFORMER VALUES ARE:

300kVA, 360.9 AMPS, 1.39%Z, 25,972AIC AT 480VAC;
500kVA, 601.4 AMPS, 1.24%Z, 48,523AIC AT 480VAC;
750kVA, 902.1 AMPS, 5.00%Z, 18,051AIC AT 480VAC.

C. PROVIDE ACCESSIBLE GROUNDING POINTS IN GROUND WELLS FOR SERVICE GROUND SYSTEM. PROVIDE A #3/0 GROUND RING AND THREE GROUND RODS. PROVIDE #2 GROUND FROM NEW STRUCTURAL STEEL COLUMNS TO THE GROUND RING. PROVIDE TWO #2 GROUNDS FROM ANY NEW STRUCTURAL REBAR TO THE GROUND RING. THE GROUNDING SHOWN FROM THE ELECTRICAL ENCLOSURES SHALL BE BONDED TO THE GROUND.

D. PROVIDE REINFORCED CONCRETE SLAB ON GRADE FOR NEW GENERATOR, SUB-BASE FUEL TANK, AND LOAD BANK. PROVIDE ACCESSIBLE GROUNDING POINT IN A GROUND WELL FOR GENERATOR. BOND CONCRETE SLAB REINFORCING STEEL TO GROUND ROD WITH #2. PROVIDE #2/0 GROUND FROM GENERATOR GROUNDING TO SERVICE ENTRANCE GROUND RING.

E. COORDINATE WITH THE UTILITY TO PROVIDE METER (WMH-U) INSIDE OF 1-CT-U.

F. MANUFACTURER TO CONFIRM BREAKER SIZE AND RATING FOR VFD. VERIFY OVERCURRENT PROTECTION PRIOR TO FURNISHING PANELBOARD. VFD INPUT CABLE TO BE 125% OF VFD RATED CABLE. VERIFY VFD RATING AND ADJUST CABLE SIZE AS REQUIRED BASED ON FINAL SELECTION OF VENDOR SYSTEM.

INTERLOCK NOTES

1. LOW FUEL LEVEL TO SHUT DOWN GENERATOR
2. AUTOMATIC LOAD BANK TO INCREASE / DECREASE RESISTIVE LOAD AS REQUIRED TO MAINTAIN GENERATOR OPERATION WITHIN RECOMMENDED TOLERANCE RANGES.

Revision	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14

Issued

Permit/Seal

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267BCH-GE-8 | Dwn. JM | Dsgn. DBW | Chkd. CWS | 2024.12.27 YYYY.MM.DD

Title
SINGLE LINE DIAGRAM (1 OF 3)

Project No. 224202267
Scale NO SCALE
Revision 0
Drawing No. GE-8

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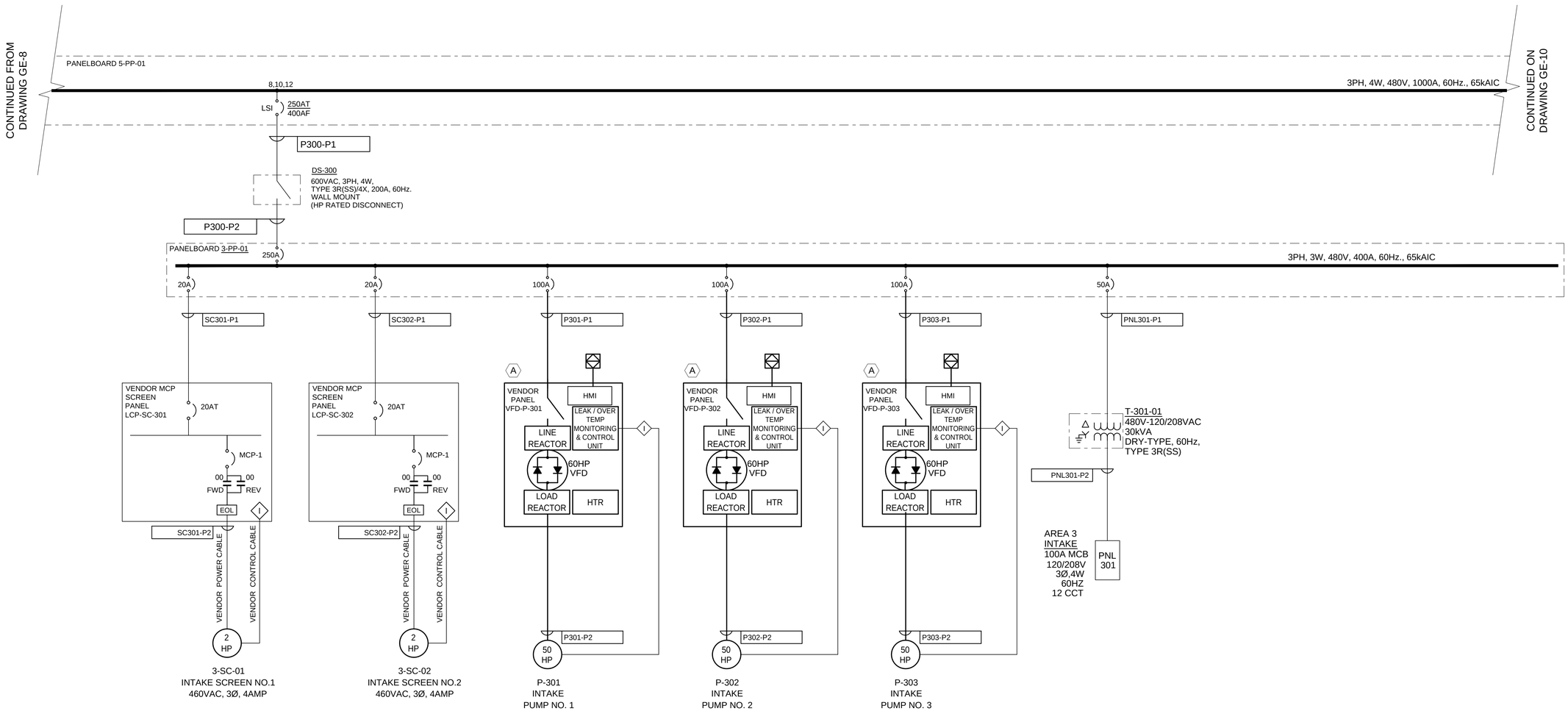
ORIGINAL SHEET - ANSI D

2/12/2025

KEY SHEET NOTES

A. MANUFACTURER TO CONFIRM BREAKER SIZE AND RATING FOR VFD. VERIFY OVERCURRENT PROTECTION PRIOR TO FURNISHING PANELBOARD. VFD INPUT CABLE TO BE 125% OF VFD RATED CABLE. VERIFY VFD RATING AND ADJUST CABLE SIZE AS REQUIRED BASED ON FINAL SELECTION OF VENDOR SYSTEM.



Revision	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267BCH-GE-9	SYM Dwn.	DBW Dsgn.	CWS Chkd.	2024.12.27 YYYY.MM.DD

Title
SINGLE LINE DIAGRAM (2 OF 3)

Project No.
224202267

Scale
NO SCALE

Revision
0

Drawing No.
GE-9

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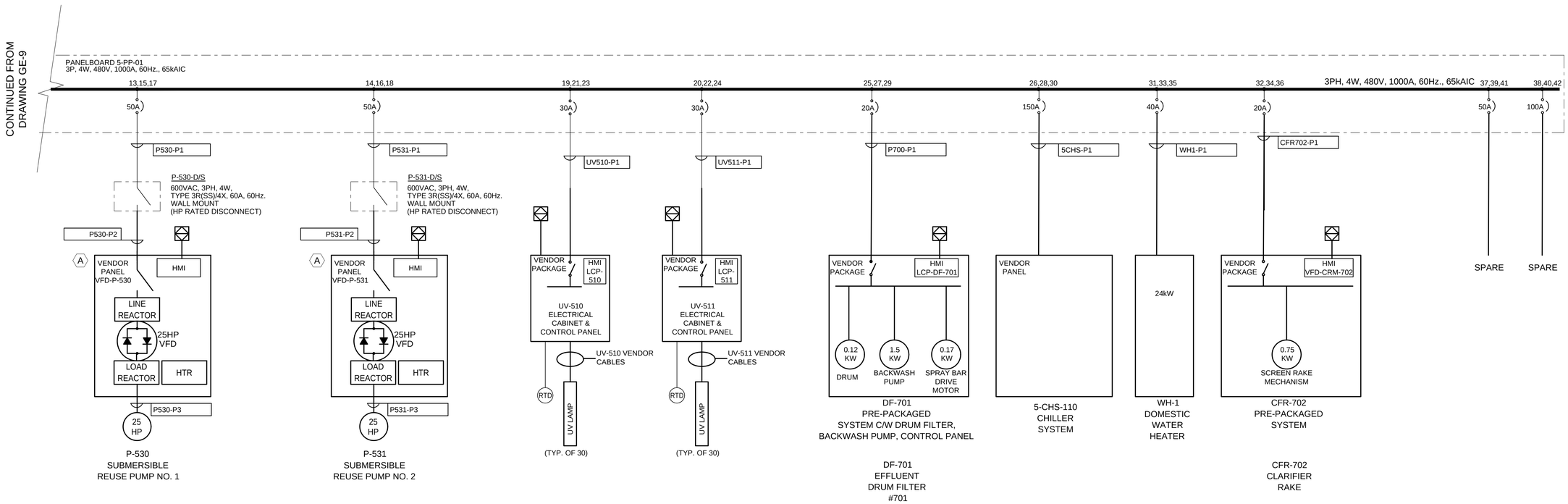
ORIGINAL SHEET - ANSI D

2/12/2025

KEY SHEET NOTES

A. MANUFACTURER TO CONFIRM BREAKER SIZE AND RATING FOR VFD. VERIFY OVERCURRENT PROTECTION PRIOR TO FURNISHING PANELBOARD. VFD INPUT CABLE TO BE 125% OF VFD RATED CABLE. VERIFY VFD RATING AND ADJUST CABLE SIZE AS REQUIRED BASED ON FINAL SELECTION OF VENDOR SYSTEM.



P-530
SUBMERSIBLE
REUSE PUMP NO. 1

P-531
SUBMERSIBLE
REUSE PUMP NO. 2

(TYP. OF 30)

(TYP. OF 30)

DF-701
PRE-PACKAGED
SYSTEM C/W DRUM FILTER,
BACKWASH PUMP, CONTROL PANEL

DF-701
EFFLUENT
DRUM FILTER
#701

5-CHS-110
CHILLER
SYSTEM

WH-1
DOMESTIC
WATER
HEATER

CFR-702
PRE-PACKAGED
SYSTEM

CFR-702
CLARIFIER
RAKE

Revision	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: 022678CH-GE-10

STVI	DABW	CJWS	2024.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
SINGLE LINE DIAGRAM (3 OF 3)

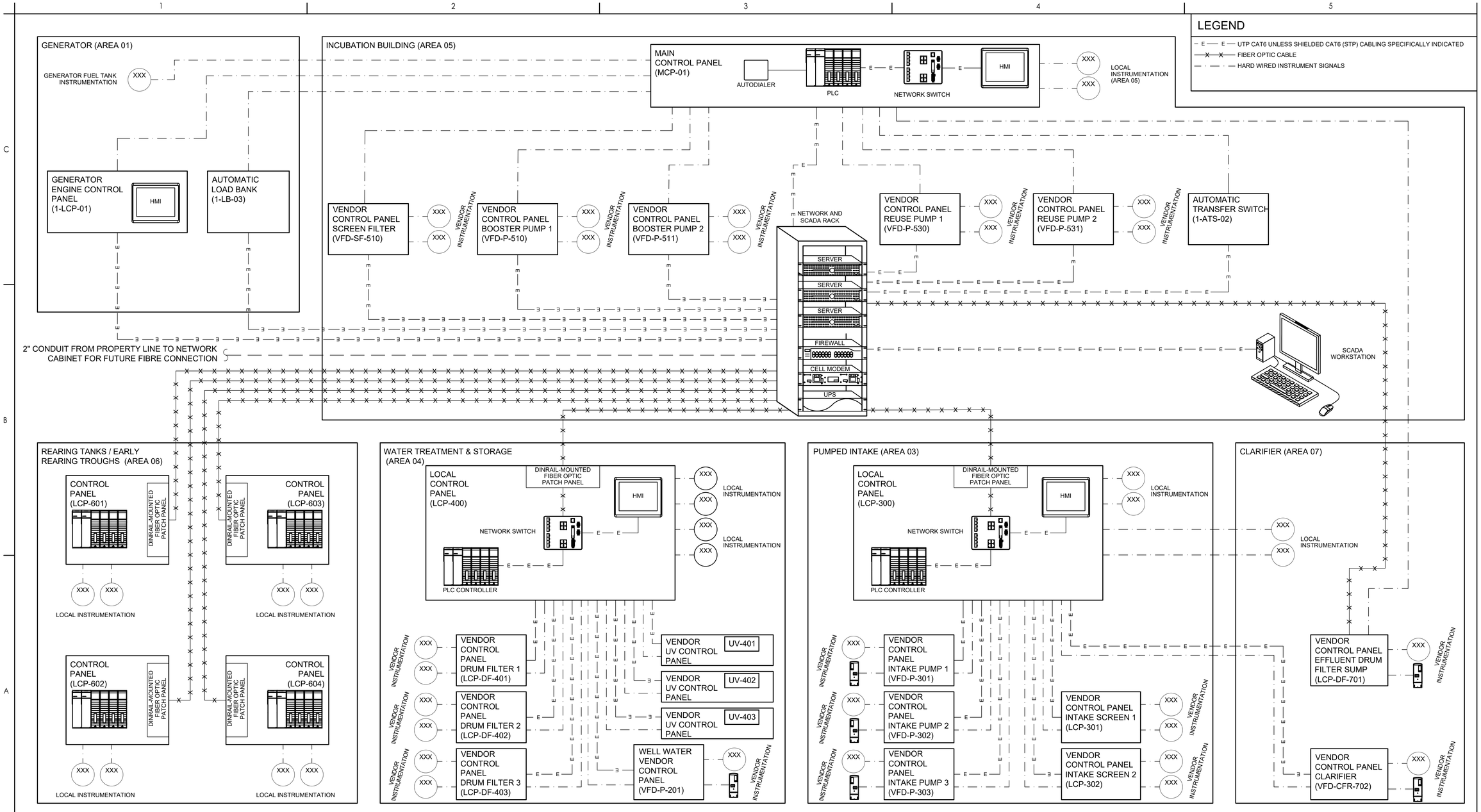
Project No.
224202267

Scale
NO SCALE

Revision
0

Drawing No.
GE-10

2/12/2025



Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
FINAL DESIGN	JM	JCD	2026.04.13

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BATTLE CREEK HATCHERY

File Name: 022678CH-GE-11	JM	JS	JR	2026.04.17
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
NETWORK DIAGRAM
SITE NETWORK ARCHITECTURE DIAGRAM

Project No.	Scale
224202267	NO SCALE
Revision	Drawing No.
0	GE-11

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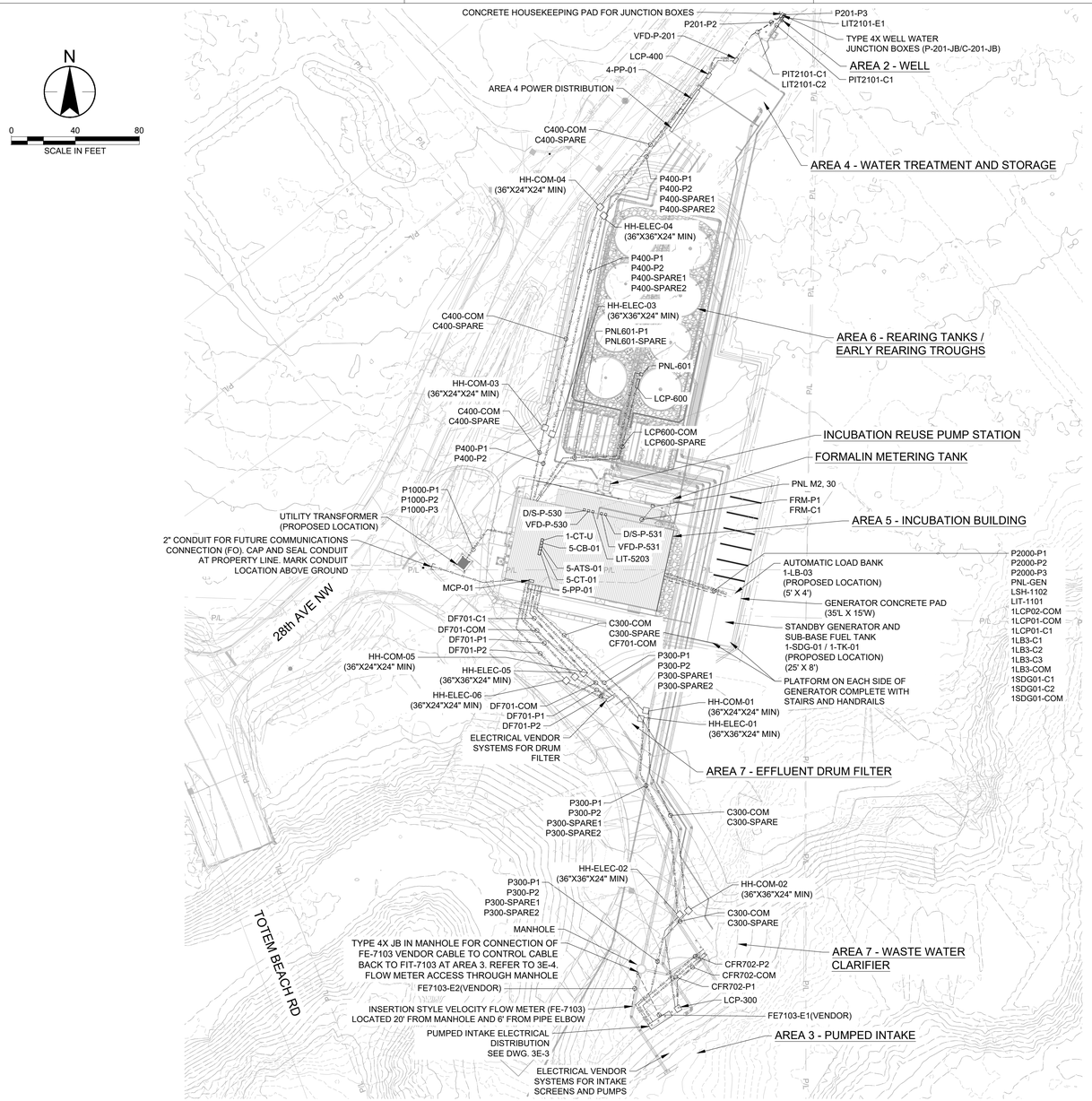

BATTLE CREEK ELECTRICAL SITE PLAN

SCALE: 1:40

LEGEND

- ELEC — UNDERGROUND ELECTRICAL DUCT BANK (SEE CONDUIT AND CABLE SCHEDULE)
- COMM — UNDERGROUND ETHERNET OR RS485 COMMUNICATIONS LINE (SEE CONDUIT AND CABLE SCHEDULE)
- FO — UNDERGROUND FIBER OPTICS COMMUNICATIONS LINE (SEE CONDUIT AND CABLE SCHEDULE)
- UNDERGROUND INSTRUMENT SIGNAL CABLE (SEE CONDUIT AND CABLE SCHEDULE)
- HH-ELEC-XX — ELECTRICAL HANDHOLES (SIZE AS INDICATED)
- HH-COM-XX — COMMUNICATIONS HANDHOLES (SIZE AS INDICATED)

GENERAL UTILITY TRANSFORMER AND STANDBY GENERATOR NOTES

1. LOCATION OF NEW PADMOUNT UTILITY TRANSFORMER SHOWN AS APPROXIMATE. EXACT AREA OF INSTALL TO BE CONFIRMED BY SNOHOMISH PUD AND CONTRACTOR.
2. LOCATION OF STANDBY GENERATOR SHOWN AS APPROXIMATE. EXACT PLACEMENT TO BE CONFIRMED ON SITE.
3. ALL NEW TRANSFORMER WORK SHALL BE IN ACCORDANCE WITH THE SNOHOMISH PUD STANDARDS (LATEST EDITION).
4. COORDINATE AND OBSERVE ALL TRANSFORMER AND STANDBY GENERATOR / FUEL SUPPLY CLEARANCES ON SITE.
5. CONTRACTOR RESPONSIBLE FOR OBTAINING AND COMPLETING SERVICE APPLICATION FOR SITE ELECTRICAL CONNECTION WITH P.U.D. COORDINATE PERMIT PROCESS WITH OWNER.
6. CONTRACTOR RESPONSIBLE FOR OBTAINING AND COMPLETING SERVICE APPLICATION FOR SITE CONNECTION WITH P.U.D. COORDINATE PERMIT PROCESS WITH OWNER.
7. STANDBY GENERATOR (1-SD-01) COMPLETE WITH SUB-BASE FUEL TANK (1-TK-01) AND AUTOMATIC LOAD BANK (1-LB-03). REFER TO CIVIL/STRUCTURAL DRAWINGS FOR EXACT LOCATION.
8. PROVIDE GROUND WELLS ON OPPOSITE CORNERS OF GENERATOR AND CONNECT TO GENERATOR GROUND. ROUTE DEDICATED #2/0 AWG INSULATED GROUND CONDUCTOR (GREEN) BACK TO SERVICE DISCONNECT IN MECHANICAL ROOM. BOND STRUCTURAL STEEL OF GENERATOR AND REBAR TO GROUND. REFER TO GE-8 FOR INFORMATION ON GENERATOR GROUNDING.
9. FURNISH AND INSTALL PERMANENT PLATFORMS COMPLETE WITH STAIRS AND HANDRAILS FOR GENERATOR SERVICING. PLATFORMS SHALL PROVIDE ACCESS ON EACH SIDE OF THE GENERATOR FOR ACCESS AND SERVICING. HEIGHT OF PLATFORM SHALL NOT INTERFERE WITH ACCESSING COMPARTMENTS ON EACH END OF THE GENERATOR.

GENERAL ELECTRICAL UNDERGROUND CONDUIT NOTES

1. REFER TO GE-2 FOR ADDITIONAL ELECTRICAL NOTES.
2. DASHED LINE INDICATES PROPOSED CONDUIT ROUTING FOR POWER AND/OR CONTROLS AND NOT EXACT QUANTITY. REFER TO THE CONDUIT AND CABLE SCHEDULES WITHIN FOR DETAILS ON NUMBER OF CONDUITS REQUIRED BETWEEN LOCATIONS.
3. CONDUIT ROUTING AND LOCATION OF VAULTS / PULL-BOXES SHOWN ON THIS AS APPROXIMATE ONLY. THE CONTRACTOR SHALL ROUTE NEW CONDUITS WITHOUT DISTURBING OTHER UTILITIES OR UNDERGROUND WORK. PERFORM LINE LOCATES OF ALL AREAS BEFORE SETTING IN PLACE PULL BOXES.
4. CONTRACTOR TO CONFIRM ALL ROUTING AND VAULT / PULL-BOX LOCATIONS ON SITE. DO NOT INSTALL PULL BOXES IN AREAS SUSCEPTIBLE TO COLLECTING MOISTURE.
5. REFER TO THE STANDARD ELECTRICAL DETAILS DRAWINGS FOR TYPICAL INSTALLATION NOTES AND DETAILS.
6. GROUP ALL CONDUITS WHERE POSSIBLE AND WHEN CROSSING ROADWAYS AND HIGH TRAFFIC AREAS.
7. CONDUIT DEPTHS TO BE IN ACCORDANCE WITH N.E.C. STANDARDS.
8. CONTRACTOR TO SITE VERIFY EXACT PLACEMENT OF VAULT / PULL-BOXES PRIOR TO FINAL CONDUIT ROUTING AND INSTALLATION.
9. EXACT PLACEMENT OF ALL CONTROL PANELS, DISCONNECTS, TRANSFORMERS, PANEL BOARDS, ETC.TO BE COORDINATED ON SITE.
10. PRIOR TO EXCAVATION IN THE VICINITY OF ANY UNDERGROUND UTILITIES, INCLUDING ALL DOMESTIC WATER, PROCESS WATER, SEWER, STORM DRAIN, BURIED ELECTRICAL POWER, COMMUNICATIONS LINES, OR OTHERS, CONTRACTOR SHALL POTHOLE TO DETERMINE LOCATION OF UTILITIES. TAKE ALL NECESSARY PRECAUTIONS TO PROTECT UNDERGROUND UTILITIES FROM DAMAGE. OBTAIN ALL PERMITS AND LINE LOCATES.
11. CONDUIT ROUTING AND LOCATION OF VAULTS / PULL-BOXES SHOWN ON AS APPROXIMATE ONLY. THE CONTRACTOR SHALL ROUTE NEW CONDUITS WITHOUT DISTURBING EXISTING UTILITIES AND CONFIRM ALL ROUTING AND VAULT / PULL-BOX LOCATIONS ON SITE. PLACEMENT OF VAULTS / PULL-BOXES TO NOT BE LOCATED IN AREAS WHERE SUSCEPTIBLE TO MOISTURE DRAINAGE OR LOW GRADING. VERIFY ALL CONDUIT ROUTING ON HILLSIDE NORTH OF NEW ELECTRICAL EQUIPMENT AND GENERATOR.
12. INTENT OF DRAWING IS TO SHOW GENERAL CONDUIT ROUTING PATHS. CONTRACTOR SHALL FIELD VERIFY EXACT CONDUIT ROUTING AND LOCATION OF VAULTS PRIOR TO TRENCHING.
13. REFER TO THE STANDARD ELECTRICAL DETAILS DRAWINGS FOR TYPICAL INSTALLATION NOTES AND DETAILS.
14. GENERAL ROUTING PATH OF CONDUITS SHOWN FOR INTENT ONLY. NOT ALL CONDUITS SHOWN. REFER TO THE CABLE AND CONDUIT SCHEDULE IN ORDER TO COORDINATE WITH THE PROPOSED LAYOUTS SHOWN HERE. PROVIDE ALL CONDUITS AND FEEDERS AS REQUIRED TO MEET THE INTENT OF THE DESIGN.
15. EXACT PLACEMENT OF ALL FIELD DISCONNECTS, TRANSFORMERS, AND PANEL BOARDS SHALL BE COORDINATED ON SITE BASED ON SITE CONDITIONS. COORDINATE PLACEMENT WITH OWNER.
16. THE CONTRACTOR SHALL PROPERLY DISPOSE OFF SITE OF ALL DEBRIS FROM DEMOLITION AT CONTRACTORS EXPENSE.
17. CONFIRM ALL CONDUIT ENTRY AND EXIT POINTS ON SITE.
18. NOT ALL CONDUITS SHOWN ON THIS PLAN. REFER TO THE INDIVIDUAL AREA DRAWINGS AND CABLE AND CONDUIT SCHEDULES FOR DETAILS.
19. REFER TO GE-8 FOR INFORMATION ON SERVICE GROUNDING REQUIREMENTS FROM 5-CB-01. CONFIRM LOCATION OF GROUND GRID INSTALLATION ON SITE BASED ON EXISTING SITE CONDITIONS.
20. PROVIDE DEDICATED 2" PVC CONDUIT, COMPLETE WITH LONG SWEEP ELBOWS, FROM MECHANICAL ROOM TO PROPERTY LINE FOR FUTURE FIBRE OPTIC COMMUNICATIONS CONNECTION.

Revision	By	Appd	YYYY.MM.DD
FINAL DESIGN	JM	JCD	2026.04.13
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: 022678CH-1E-1	JM	JS	JR	2026.04.17
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
SITE LAYOUT

Project No.	Scale
224202267	AS NOTED
Revision	Drawing No.
0	1E-1

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ORIGINAL SHEET - ANSI D

4/20/2026

GEN-PNL

CKT	LOAD	BRANCH BKR	BRANCH VA	CONNECTED KVA A	CONNECTED KVA B	CONNECTED KVA C	BRANCH VA	BRANCH BKR	LOAD	CKT
1	GENERATOR ENCLOSURE LIGHTS	15/1	250	0.50			250	15/1	GENERATOR WINDING HEATER	2
3	GENERATOR ENCLOSURE RECEPTACLES	15/1	250		0.50		250	15/2	GENERATOR BLOCK HEATER	4
5	GENERATOR BATTERY CHARGER	15/2	250			0.25				6
7				0.25			250	15/1	GENERATOR BATTERY HEATER	8
9	FUEL LEAK DETECTOR	15/1	150		0.15					10
11	LOAD BANK CONTROLS	15/1	600			1.35	750	15/1	LOAD BANK ENCLOSURE HEATER	12
13				0.00						14
15					0.00					16
17						0.00				18
19				0.00						20
	CONNECTED LOAD	**3.00** KVA		0.75	0.65	1.60				
		8.33 AMPS		6.3	5.4	13.3				
	NEC DEMAND	KVA								
		AMPS								

PANEL NOTES

PANEL SPECIFICATIONS
MAINS RATING AMPS - 100
MAIN CIRCUIT BREAKER AMPERES - 50
CAPACITY ONE-POLE CIRCUITS - 20
SYSTEM VOLTAGE - 208Y/120
PHASE, NO. OF WIRES - 3 PH, 4 W
AIC RATING - 10,000
MOUNTING - PER GENERATOR PROVIDER
LOCATION - GENERATOR INTERIOR

GENERATOR PANEL SCHEDULE

SCALE: NTS

AREA #1 (UTILITY AND GENERATOR)

DEVICE GROUP	CABLE/CONDUIT TAG (INDIVIDUAL)	APPLICATION	VOLTS	CONDUIT TYPE	RUN FROM	RUN VIA	RUN TO	CONDUCTORS WIRE COUNT	CONDUCTORS WIRE SIZE (CU.)	CONDUCTORS SPARE	CONDUCTORS GROUND/ BOND/SHLD	CONDUIT SIZE	COMMENTS
P1000	P1	POWER	480V	PVC,GRC	UTILITY XFMR	U/G	5-CT-U	4	500kCMIL	-	#2/0	4"	1000V RATED
	P2	POWER	480V	PVC,GRC	UTILITY XFMR	U/G	5-CT-U	4	500kCMIL	-	#2/0	4"	
	P3	POWER	480V	PVC,GRC	UTILITY XFMR	U/G	5-CT-U	4	500kCMIL	-	#2/0	4"	
	SPARE	POWER	480V	PVC,GRC	UTILITY XFMR	U/G	5-CT-U		-			4"	
P1001	P1	POWER	480V	PVC,GRC	5-CT-U	U/G,S	5-DS-01	4	500kCMIL	-	#2/0	4"	1000V RATED
	P2	POWER	480V	PVC,GRC	5-CT-U	U/G,S	5-DS-01	4	500kCMIL	-	#2/0	4"	
	P3	POWER	480V	PVC,GRC	5-CT-U	U/G,S	5-DS-01	4	500kCMIL	-	#2/0	4"	
P1002	P1	POWER	480V	PVC,GRC	5-DS-01	U/G,S	5-ATS-01	4	500kCMIL	-	#2/0	4"	1000V RATED
	P2	POWER	480V	PVC,GRC	5-DS-01	U/G,S	5-ATS-01	4	500kCMIL	-	#2/0	4"	
	P3	POWER	480V	PVC,GRC	5-DS-01	U/G,S	5-ATS-01	4	500kCMIL	-	#2/0	4"	
5-DS-01	GND	GROUND	-	PVC,GRC	5-DS-01	U/G	SERVICE GND	1	#3/0	-	-	1 1/2"	SERVICE GROUND FROM DISCONNECT
P2000	P1	POWER	480V	PVC,GRC	1-SDG-01	U/G	5-ATS-01	4	500kCMIL	-	#2/0	4"	1+1 SPARE
	P2	POWER	480V	PVC,GRC	1-SDG-01	U/G	5-ATS-01	4	500kCMIL	-	#2/0	4"	
	P3	POWER	480V	PVC,GRC	1-SDG-01	U/G	5-ATS-01	4	500kCMIL	-	#2/0	4"	
P3000	P1	POWER	480V	PVC,GRC	5-ATS-01	U/G,S	5-CT-01	4	500kCMIL	-	#2/0	4"	1000V RATED
	P2	POWER	480V	PVC,GRC	5-ATS-01	U/G,S	5-CT-01	4	500kCMIL	-	#2/0	4"	
	P3	POWER	480V	PVC,GRC	5-ATS-01	U/G,S	5-CT-01	4	500kCMIL	-	#2/0	4"	
P3001	P1	POWER	480V	PVC,GRC	5-CT-01	U/G,S	5-PP-05	4	500kCMIL	-	#2/0	4"	1000V RATED
	P2	POWER	480V	PVC,GRC	5-CT-01	U/G,S	5-PP-05	4	500kCMIL	-	#2/0	4"	
	P3	POWER	480V	PVC,GRC	5-CT-01	U/G,S	5-PP-05	4	500kCMIL	-	#2/0	4"	
PNL-GEN	PNLGEN-P1	POWER	120/208V	PVC,GRC	PNL-MDP	U/G	PNL-GEN	4	#4AWG	-	#6AWG	1 1/2"	GENERATOR LOAD CENTER
LSH-1102	LSH1102-C1	CONTROLS	24VDC	PVC,GRC	LSH-1102	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	
LIT-1101	LIT1102-C1	CONTROLS	24VDC	PVC,GRC	LIT-1101	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
1-LCP-02 REMOTE GENERATOR ANNUNCIATOR	1LCP02-COM	COMMS	-	PVC,GRC	1-LCP-02	U/G,S	1-LCP-01	-	-	-	-	3/4"	MODBUS RTU CABLE (RS485)
	1LCP02-P1	POWER	120VAC	PVC,GRC	1-LCP-02	U/G,S	5P-11	2C	#12AWG	-	#14AWG	3/4"	
1-LCP-01 ENGINE CONTROL PANEL	1LCP01-C1	CONTROLS	24VDC	PVC,GRC	1-LCP-01	U/G,S	MCP-01	16C	#14AWG	2C	#14AWG	1"	
	1LCP01-COM	COMMS	-	PVC,GRC	1-LCP-01	U/G,S	MCP-01	CAT6	-	-	-	3/4"	
1-LB-3 AUTOMATIC LOAD BANK	1LB3-C1	CONTROLS	24VDC	PVC,GRC	5-ATS-01	U/G,S	1-LB-3	6C	#12AWG	2C	#14AWG	1"	EXERCISE STATUS
	1LB3-C2	CONTROLS	24VDC	PVC,GRC	1-SD-G-01	U/G,S	1-LB-3	6C	#12AWG	2C	#14AWG	1"	LOAD ADD/DUMP
	1LB3-C3	CONTROLS	24VDC	PVC,GRC	1-LB-3	U/G	1-SDG-01	3C	#2/0AWG		#4AWG	2"	
	1LB3-COM	COMMS	-	PVC,GRC	1-LB-3	U/G,S	MCP-01	CAT6	-	-	-	3/4"	
	1LB3-P1	POWER	480V	PVC,GRC	1-LB-3	U/G	1-SDG-01	3C	#2/0AWG		#4AWG	2"	LOAD BANK POWER
	1LB3-P2	POWER	480V	PVC,GRC	1-LB-3	U/G	1-SDG-01	3C	#2/0AWG		#4AWG	2"	
1-SDG-01	1SDG01-C1	CONTROLS	24VDC	PVC,GRC	1-SDG-01	U/G,S	5-ATS-01	2C	#14AWG	4C	#14AWG	1"	GENERATOR START
	1SDG01-C2	CONTROLS	24VDC	PVC,GRC	1-SDG-01	U/G,S	MCP-01	12C	#14AWG	-	#14AWG	1 1/2"	GENERATOR SIGNALS
	1SDG01-COM	COMMS	-	PVC,GRC	1-SDG-01	U/G,S	MCP-01	-	-	-	-	1"	CAT6 ETHERNET I/P
	1SDG01-GND	GROUND	-	PVC,GRC	1-SDG-01	U/G	5-DS-01	1	#3/0	-	-	1 1/2"	GROUND CONNECTION TO 5-DS-01

NOTES

1. CABLE AND CONDUIT SCHEDULE SHOWS INDIVIDUAL RUNS TO CONVEY DESIGN INTENT. WHERE ACCEPTABLE IN N.E.C, CONTRACTOR PERMITTED TO REDUCE THE NUMBER OF CONDUIT RUNS BY COMBINING LIKE SIGNALS AND CABLES .
2. DO NOT COMBINE PARALLEL RUNS IN A SINGLE CONDUIT RUN.
3. UNDER THE 'VIA' HEADING IN THE TABLE FOR CONDUIT ROUTING, ALL UNDGERGROUND CONDUIT RUNS TO BE PVC. EXIT ABOVE GRADE WITH GRC. SURFACE CONDUIT TO BE GRC.
4. UTILITY AND GENERATOR POWER FEEDS TO BE 1000V XLPE INSULATION
5. WHERE CONDUITS ARE DENOTED AS SURFACE INSTALLATION, CONTRACTOR MAY RUN CONDUITS UNDERGROUND OR IN-SLAB WHERE ACCEPTABLE.

LEGEND

- U/G UNDERGROUND CONDUIT INSTALLATION
- S SURFACE CONDUIT INSTALLATION

AREA 1 - CABLE AND CONDUIT SCHEDULE

SCALE: NTS

Revision	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14
Issued	By	Appd	YYYY.MM.DD

ORIGINAL SHEET - ANSI D

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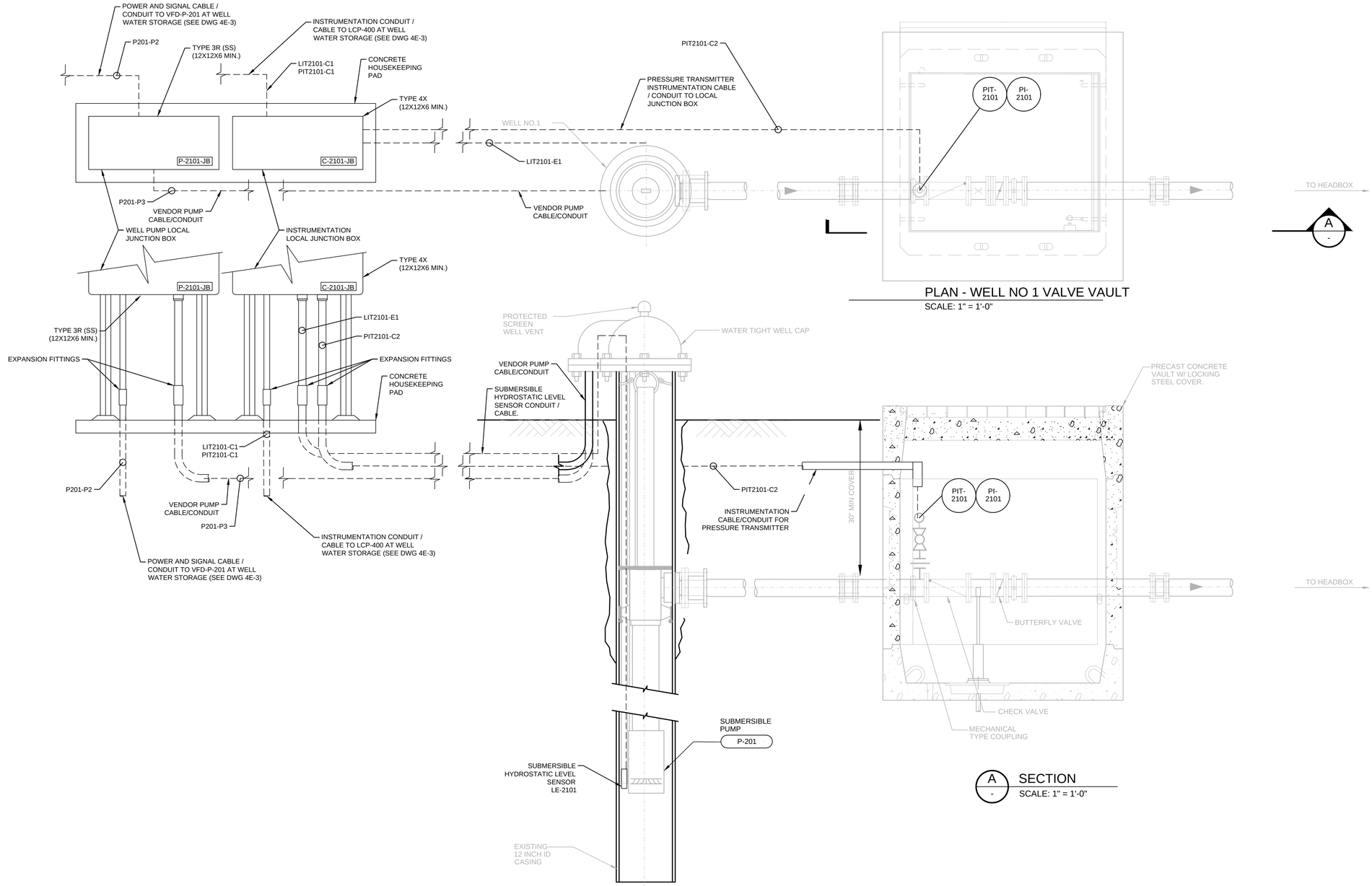
BATTLE CREEK HATCHERY

File Name: 02267BCH-1E-2 | Dwn. SNN | Dsgn. DBSW | Chkd. CJWS | 2024.12.27 YYYY.MM.DD

Title
GENERATOR PANEL SCHEDULE AND CABLE AND CONDUIT SCHEDULE

Project No. 224202267
Scale AS NOTED
Revision 0
Drawing No. 1E-2

2/12/2025



PLAN - WELL NO 1 VALVE VAULT

SCALE: 1" = 1'-0"

A - SECTION

SCALE: 1" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14

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Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267BCH-2E-1	DWN Dwn.	DESV Dsgn.	CWS Chkd.	2024.12.27 YYYY.MM.DD

Title
WELL No.1 ELECTRICAL PLAN AND SECTION

Project No. 224202267

Scale NONE

Revision

Drawing No. 2E-1

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ORIGINAL SHEET - ANSI D

2/12/2025

AREA #2 WELL WATER													
					RUN			CONDUCTORS				CONDUIT	
DEVICE GROUP	CABLE/CONDUIT TAG (INDIVIDUAL)	APPLICATION	VOLTS	CONDUIT TYPE	FROM	VIA	TO	WIRE COUNT	WIRE SIZE (CU.)	SPARE	GROUND/ BOND/SHLD	SIZE	COMMENTS
LIT-2101	C1	INSTRUMENT	24VDC	PVC,GRC	LCP-400	U,G/S	C-2101-JB	1PR	#16AWG	-	#16AWG	3/4"	ANALOG LEVEL SIGNAL
	E1	INSTRUMENT	24VDC	PVC,GRC	C-2101-JB	S	LE-2101	VENDOR					LEVEL INSTRUMENT
P-201	C1	CONTROL	24VDC	PVC,GRC	VFD-P-201	U/G,S	LCP-400	14C	#14AWG	2C	#14AWG	1"	BUNDLED DIGITAL SIGNALS
	C2	CONTROL	24VDC	PVC,GRC	VFD-P-201	U/G,S	LCP-400	2PR	#1AWG	-	#14AWG	1"	BUNDLED ANALOG SIGNALS
	P1	POWER	480VAC	PVC,GRC	4-PP-01	U/G,S	VFD-P-201	3C	#10AWG	-	#10AWG	1"	WELL PUMP POWER
	P2	POWER	480VAC	PVC,GRC	VFD-P-201	U/G	P-2101-JB	3C	#10AWG	-	#10AWG	1"	WELL PUMP POWER VIA JUNCTION BOX
		CONTROL	24VDC	PVC,GRC	VFD-P-201	U/G	P-2101-JB	3C	#14AWG	-	#10AWG	3/4"	WELL PUMP TEMP/MOISTURE ALARM
	P3	POWER	480VAC	PVC,GRC	P-2101-JB	U/G	P-201	VENDOR					VENDOR PUMP CABLE
	COMMS	COMMS	-	PVC,GRC	VFD-P-201	S	LCP-400	CAT6	-	-	-	3/4"	VFD COMMS
PIT-2101	C1	INSTRUMENT	24VDC	PVC,GRC	LCP-400	U/G,S	C-2101-JB	1PR	#16AWG	-	#16AWG	3/4"	ANALOG PRESSURE INDICATION VIA JUNCTION BOX AT AREA 2 WELL PUMP
	C2	INSTRUMENT	24VDC	PVC,GRC	C-2101-JB	U/G	PIT-2101	1PR	#16AWG	-	#16AWG	3/4"	ANALOG PRESSURE INDICATION WITHIN VALVE VAULT NO.1

NOTES

1. CABLE AND CONDUIT SCHEDULE SHOWS INDIVIDUAL RUNS TO CONVEY DESIGN INTENT. WHERE ACCEPTABLE IN N.E.C, CONTRACTOR PERMITTED TO REDUCE THE NUMBER OF CONDUIT RUNS BY COMBINING LIKE SIGNALS AND CABLES .
2. DO NOT COMBINE PARALLEL RUNS IN A SINGLE CONDUIT RUN.
3. UNDER THE 'VIA' HEADING IN THE TABLE FOR CONDUIT ROUTING, ALL UNDGERGROUND CONDUIT RUNS TO BE PVC. EXIT ABOVE GRADE WITH GRC. SURFACE CONDUIT TO BE GRC.
4. WHERE CONDUITS ARE DENOTED AS SURFACE INSTALLATION, CONTRACTOR MAY RUN CONDUITS UNDERGROUND OR IN-SLAB WHERE ACCEPTABLE.

LEGEND

U/G	UNDERGROUND CONDUIT INSTALLATION
S	SURFACE CONDUIT INSTALLATION
PVC	POLYVINYL CHLORIDE
GRC	GALVANIZED RIGID CONDUIT

AREA 2 - CABLE AND CONDUIT SCHEDULE

SCALE: NTS

Revision	By	Appd	YYYY.MM.DD

Issued	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14

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File Name: 022678CH-2E-2	STR. Dwn.	DJSV Dsgn.	CWS Chkd.	2024.12.27 YYYY.MM.DD

Title
WELL No.1 CABLE AND CONDUIT SCHEDULE

Project No.	Scale
224202267	NONE
Revision	Drawing No.
	2E-2

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ORIGINAL SHEET - ANSI D

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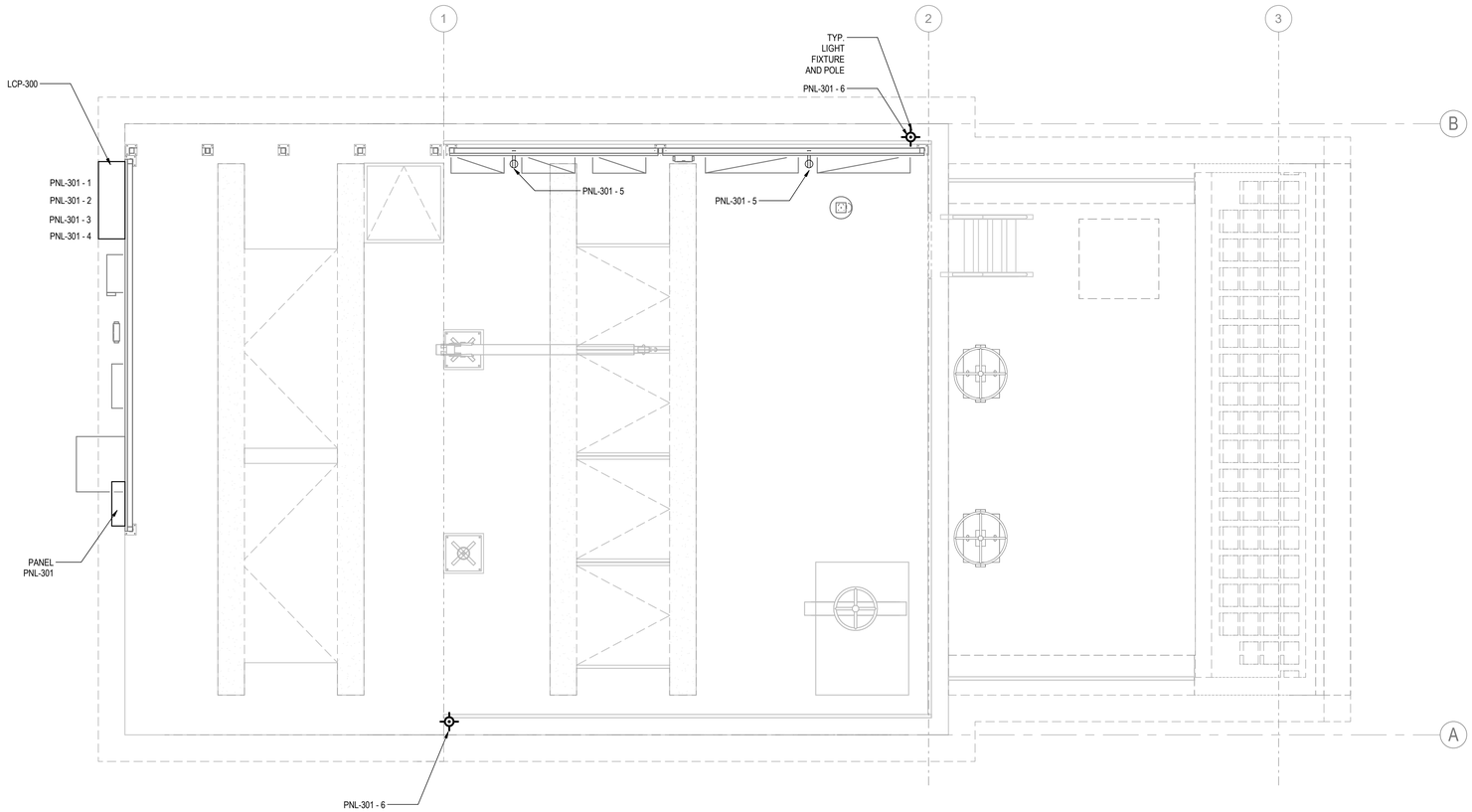

GENERAL NOTES

1. LIGHT FIXTURE MOUNTED ON 10-FT. METAL POLE WITH INTEGRAL LIGHT SWITCH IN WEATHERPROOF ENCLOSURE, ATTACH POLE TO GUARDRAIL, SEE DETAIL E-666. LIGHT FIXTURE TYPE: LITHONIA RSXF1 LED P5 40K WFL MVOLT AARP DDBXD.
2. PROVIDE MOTION SENSOR AND MOUNT ON EACH LIGHT POLE. MOTION SENSOR NEAREST TO STAIRS SHALL ACTIVATE UPON PERSONNEL WALKING TOWARD STAIRS. THE OTHER MOTION SENSOR SHALL ACTIVATE UPON PERSONNEL WALKING ON DECK.

1 / 3E-1 INTAKE STRUCTURE LIGHTING AND POWER

3/8" = 1'-0"

0	Revision	By	Appd	YYYY.MM.DD
A	100% DESIGN Issued	CR By	JCD Appd	2025.01.14 YYYY.MM.DD

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BATTLE CREEK HATCHERY

PROJECT ADDRESS

File Name: N/A | Author Dwn. | Designer Dsgn. | Checker Chkd. | 2024.12.13 YYYY.MM.DD

Title
INTAKE STRUCTURE ELECTRICAL LIGHTING AND POWER PLAN

Project No. 224202267
Scale 3/8" = 1'-0"
Revision 0
Drawing No. **3E-1**

<Pick location in Project Information>
2/12/2025 12:15:13 PM
ORIGINAL SHEET - ANSI D

2/12/2025

PNL-301

CKT	LOAD	BRANCH BKR	BRANCH VA	CONNECTED KVA A	CONNECTED KVA B	CONNECTED KVA C	BRANCH VA	BRANCH BKR	LOAD	CKT
1	LCP-300	15/1	500	1.2			700	20/1	LCP-300 HEATER	2
3	LCP-300	15/1	1000		1.2		200	20/1	LCP-300 COOLING FAN	4
5	RECEPTACLES	20/1	360			0.8	436	20/1	LIGHTING	6
7	CLARIFIER RECEPTACLES	20/1	180	0.6			436	20/1	CLARIFIER LIGHTING	8
9	SPARE	20/1			0.0			20/1	SPARE	10
11	SPARE	20/1				0.0		20/1	SPARE	12
13				0.0						14
15					0.0					16
17						0.0				18
19				0.0						20
	CONNECTED LOAD	**3.8** KVA		1.8	1.2	0.8				
		11 AMPS		15	10	7				
	NEC DEMAND	**4.0** KVA								
		11 AMPS								

PANEL NOTES

PANEL SPECIFICATIONS

MAINS RATING AMPS - 100
MAIN CIRCUIT BREAKER AMPERES - 50
CAPACITY ONE-POLE CIRCUITS - 20
SYSTEM VOLTAGE - 208Y/120
PHASE, NO. OF WIRES - 3 PH, 4 W
AIC RATING - 10,000
MOUNTING - SURFACE
LOCATION - INTAKE

	Revision	By	Appd	YYYY.MM.DD
0				

	Issued	By	Appd	YYYY.MM.DD
A	100% DESIGN	CR	JCD	2025.01.14

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PROJECT ADDRESS

File Name: N/A	CLR Dwn.	CLR Dsgn.	LPS Chkd.	12/02/24 YYYY.MM.DD

Title
ELECTRICAL INTAKE PANEL SCHEDULE

Project No. 224202267
Scale
Revision 0
Drawing No. **3E-2**

«Plot location in Project Information»
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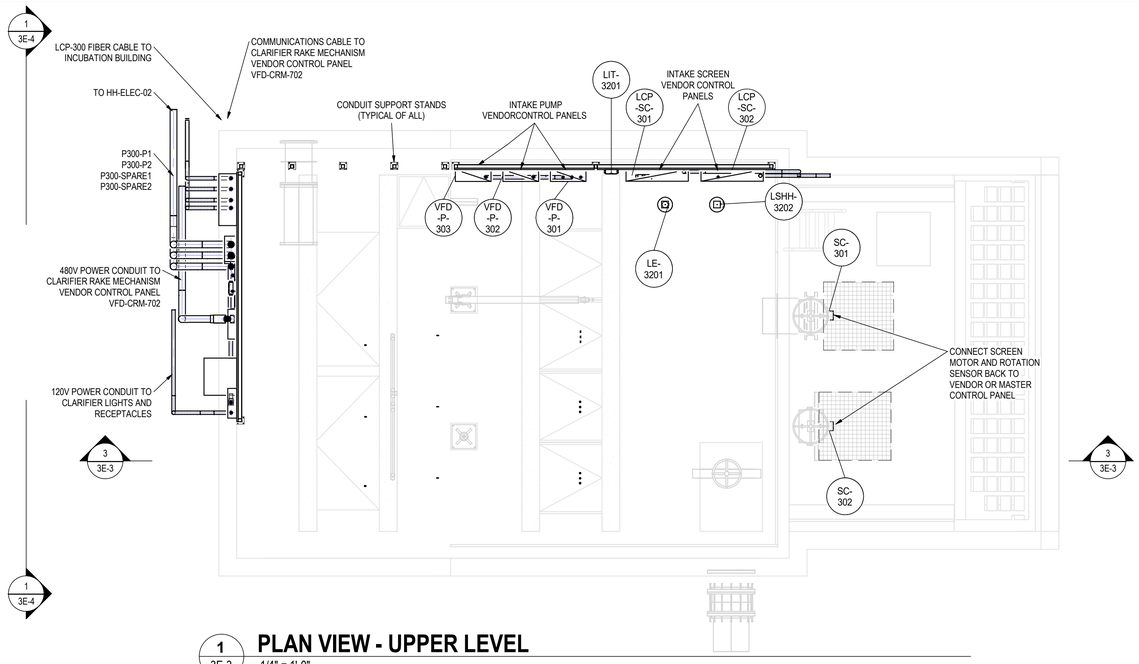
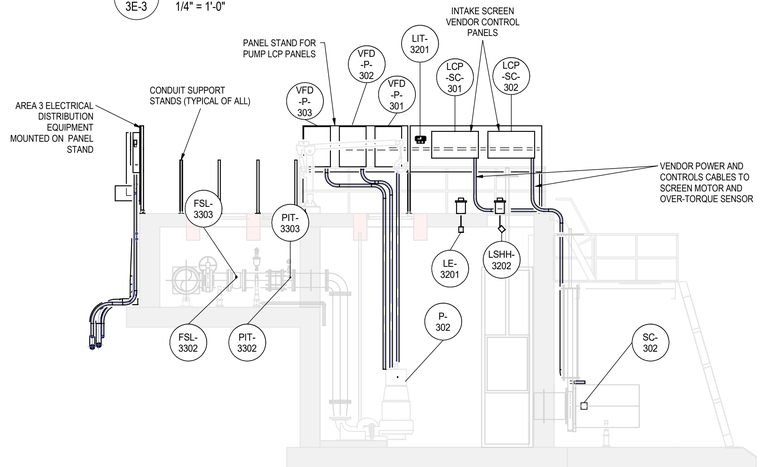
ORIGINAL SHEET - ANSI D



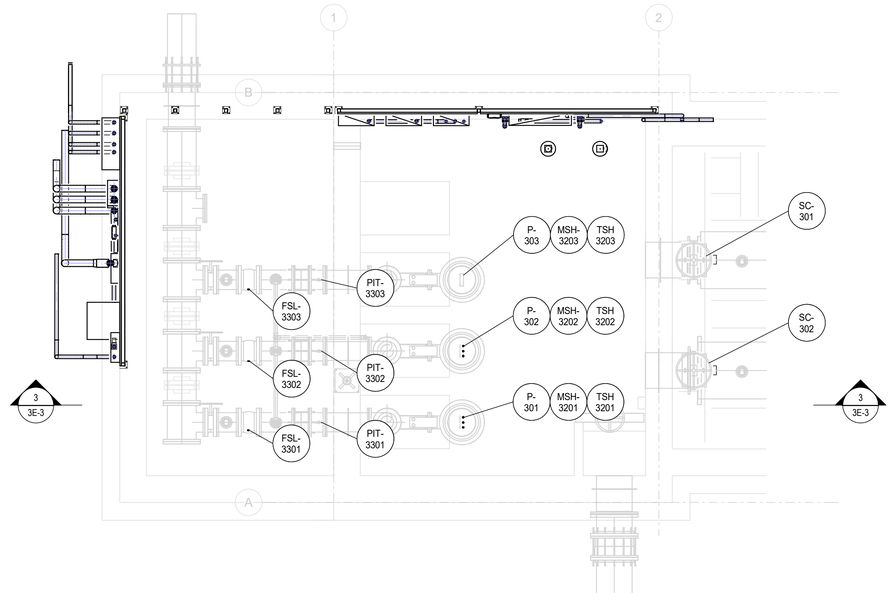
1 PLAN VIEW - UPPER LEVEL
3E-3 — 1/4" = 1'-0"



3 SECTION - PUMPED INTAKE
3E-3 — 3/16" = 1'-0"

GENERAL NOTES

1. CONFIRM INSTALLATION LOCATION OF RADAR LEVEL SENSOR ON SITE.
2. COORDINATE THE ROUTING OF UNDERGROUND CONDUITS FOR POWER AND CONTROL FROM THE INCUBATION BUILDING TO THE INTAKE STRUCTURE.
3. INTAKE SCREEN VENDOR CONTROL PANELS:
   A. SCREEN MOTOR AND INSTRUMENTATION SYSTMS SHALL COME COMPLETE WITH VENDOR CABLING WHICH CONNECTS FROM THE FIELD DEVICES TO THE INTAKE SCREEN CONTROL PANELS ON THE UPPER LEVEL. COMFIRM CONDUIT AND CABLING ROUTING ON SITE.
   B. ROUTE VENDOR CONTROL AND POWER ABLE FROM INTAKE PUMPS TO VFD PANELS ON UPPER LEVEL.
   C. INTAKE PUMPS TO COM COMPLETE WITH MOISTURE AND TEMERATURE SENSORS WHICH SHALL BE INTEGRAL TO THE PUMP VFD PANEL. VERIFY CABLE LENGTHS PRIOR TO ORDERING.
   D. VENDOR PANELS TO BE TYPE 4X.
   E. VENDOR PANELS SHALL BE LOCKABLE WITH EXTERIOR DOOR (BLANK) AND DEADFRONT COVER (INTERIOR) WITH DISCONNECT,SWITCHES, INDICATORS, ETC. NO EXPOSED LIVE PARTS SHALL BE PRESENT WHEN OPENING EXTERIOR DOOR.
4. NOT ALL CONDUIT AND CABLES SHOWN ON THIS DRAWING. REFER TO THE CONDUIT AND CABLE SCHEDULE ON 3E-5 FOR INSTRUMENTATION AND POWER REQUIREMENTS FOR AREA 3.
5. INSTALL ALL CONDUITS AND CABLES PER THE CONDUIT AND CABLE SCHEDULES. CONDUIT ROUTING TO BE VERFIED ON SITE AGAINST SITE CONDITIONS. COORDINATE ROUTING OF CONDUITS WITH OTHER TRADES TO AVOID CONFLICTS.
6. VFD'S SHALL BE IN TYPE 4X ENCLSOURES. VFD CABINETS TO HAVE EXTERIOR DOOR (BLANK) AND DEADFRONT COVER (INTERIOR) WITH DISCONNECT,SWITCHES, INDICATORS, ETC. NO SWITCHES OR DISPLAYS SHALL BE VISIBLE FROM OUTSIDE THE PANEL. NO EXPOSED LIVE PARTS SHALL BE PRESENT WHEN OPENING EXTERIOR DOOR.



2 PLAN VIEW - LOWER LEVEL
3E-3 — 1/4" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
0			

Issued	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14

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BATTLE CREEK HATCHERY

File Name: N/A | JM Dwn. | JS Dsgn. | JR Chkd. | 2024.12.27 YYYY.MM.DD

Title
INTAKE STRUCTURE ELECTRICAL PUMP AND SCREEN PLAN

Project No. 224202267
Scale As indicated
Revision 0
Drawing No. 3E-3

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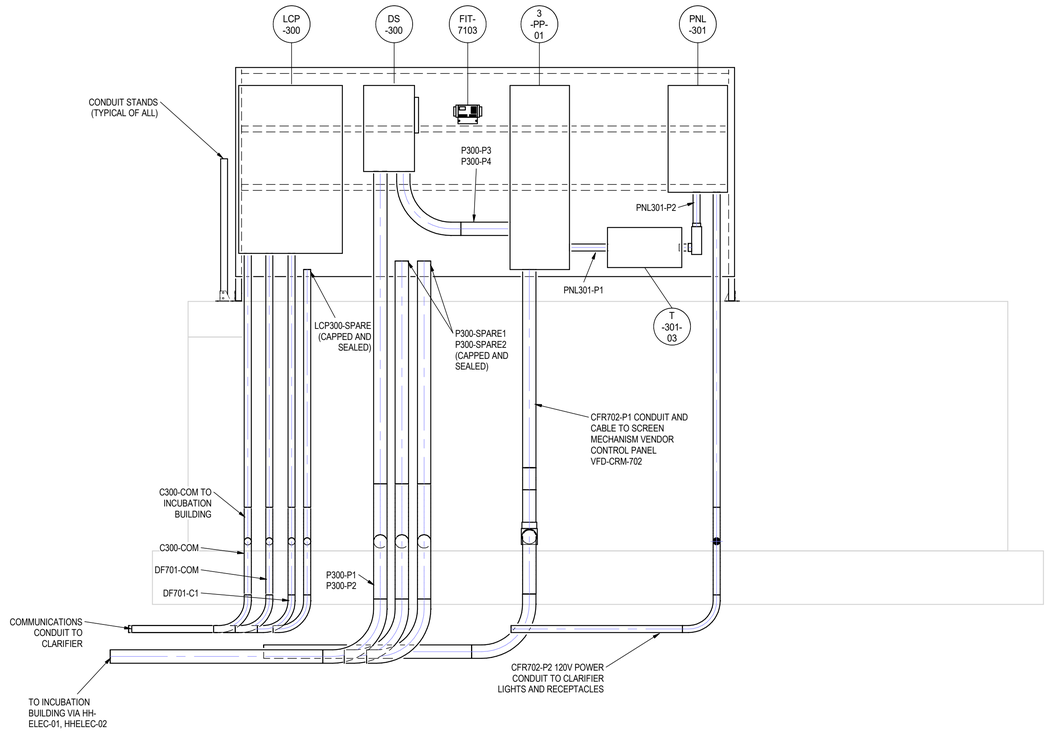
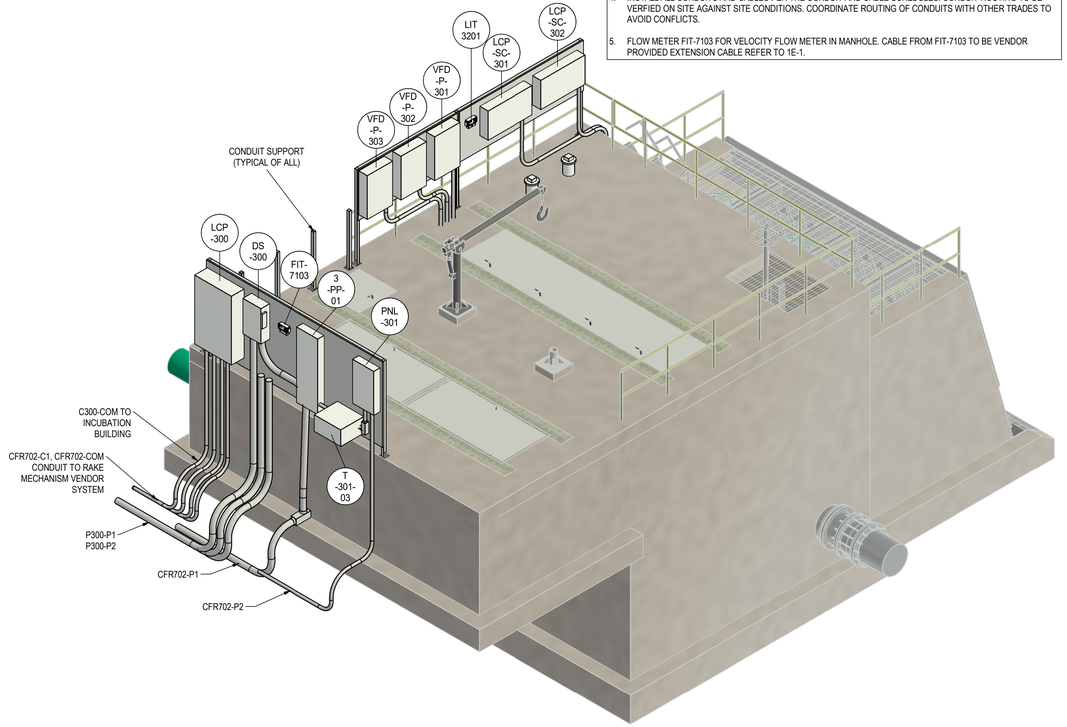


1 3E-4 **AREA 3 - POWER DISTRIBUTION**

1/2" = 1'-0"



2 3E-4 **AREA 3 - ISOMETRIC**

GENERAL NOTES

1. CONDUIT SUPPORTS STANDS FOR EXPOSED CONDUITS ARE SHOWN AS TYPICAL. SPACING OF SUPPORT STANDS TO BE BASED ON THE SMALLEST DIAMETER CONDUIT.
2. CONDUIT ROUTING SHOWN TO COVNEY GENERAL INTENT. CONFIRM ALL CONDUIT ROUTING ON SITE.
3. NOT ALL CONDUIT AND CABLES SHOWN ON THIS DRAWING. REFER TO THE CONDUIT AND CABLE SCHEDULE ON 3E-5 FOR INSTRUMENTATION AND POWER REQUIREMENTS FOR AREA 3.
4. INSTALL ALL CONDUITS AND CABLES PER THE CONDUIT AND CABLE SCHEDULES. CONDUIT ROUTING TO BE VERFIED ON SITE AGAINST SITE CONDITIONS. COORDINATE ROUTING OF CONDUITS WITH OTHER TRADES TO AVOID CONFLICTS.
5. FLOW METER FIT-7103 FOR VELOCITY FLOW METER IN MANHOLE. CABLE FROM FIT-7103 TO BE VENDOR PROVIDED EXTENSION CABLE REFER TO 1E-1.

Revision	By	Appd	YYYY.MM.DD
0			

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A 100% DESIGN	JM	JCD	2025.01.14

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BATTLE CREEK HATCHERY

File Name: N/A | Dwn. JM | Dsgn. JS | Chkd. JR | 2024.12.27 YYYY.MM.DD

Title
INTAKE STRUCTURE ELECTRICAL PUMP AND SCREEN ELEVATION

Project No. 224202267
Scale 1/2" = 1'-0"
Revision 0
Drawing No. **3E-4**

<Pw location in Project Information>
2/12/2025 2:23:56 PM
ORIGINAL SHEET - ANSI D

AREA #3 (INTAKE) / AREA #7 (CLARIFIER)													
					RUN			CONDUCTORS				CONDUIT	
DEVICE GROUP	CABLE/CONDUIT TAG (INDIVIDUAL)	APPLICATION	VOLTS	CONDUIT TYPE	FROM	VIA	TO	WIRE COUNT	WIRE SIZE (CU.)	SPARE	GROUND/ BOND/SHLD	SIZE	COMMENTS
P-300	P300-P1	POWER	480VAC	PVC,GRC	5-PP-01	U/G VIA HH-ELEC-01, HH-ELEC-02	DS-300	3C	#4/0AWG	-	#6AWG	4"	
	P300-P2	POWER	480VAC	PVC,GRC	5-PP-01	U/G VIA HH-ELEC-01, HH-ELEC-02	DS-300	3C	#4/0AWG	-	#6AWG	4"	
	P300-P3	POWER	480VAC	PVC,GRC	DS-300	S	DS-300	3C	#4/0AWG	-	#6AWG	4"	
	P300-P4	POWER	480VAC	PVC,GRC	DS-300	S	DS-300	3C	#4/0AWG	-	#6AWG	4"	
	P300-SPARE1	-	-	PVC,GRC	-	U/G VIA HH-ELEC-01, HH-ELEC-02	AREA 3 EXT.WALL	-	-	-	-	2"	SPARE POWER CONDUIT
	P300-SPARE2	-	-	PVC,GRC	-	U/G VIA HH-ELEC-01, HH-ELEC-02	AREA 3 EXT.WALL	-	-	-	-	2"	SPARE POWER CONDUIT
INTAKE SCREEN LOCAL CONTROL PANEL (LCP-SC-301)	LCPSC301-C1	CONTROLS	24VDC	PVC,GRC	LCP-SC-301	U/G,S	LCP-300	18C	#14AWG	2C	#14AWG	1"	
	LCPSC301-COM1	COMMS	-	PVC,GRC	LCP-SC-301	U/G,S	LCP-300	CAT6	-	-	-	3/4"	
	SC301-P1	POWER	480VAC	PVC,GRC	3-PP-01	S	LCP-SC-301	3C	#10AWG	-	#12AWG	1"	PANEL POWER
	SC301-P2	POWER	480VAC	PVC,GRC	LCP-SC-301	S	SC-301	VENDOR				1"	INTAKE SCREEN NO.1 MOTOR
	LCPSC301-C2	CONTROLS	-	PVC,GRC	LCP-SC-301	S	SC-301	VENDOR				1"	INTAKE SCREEN NO.1 OVER-TORQUE SWITCH
INTAKE SCREEN LOCAL CONTROL PANEL (LCP-SC-302)	LCPSC302-C1	CONTROLS	24VDC	PVC,GRC	LCP-SC-301	U/G,S	LCP-300	18C	#14AWG	2C	#14AWG	1"	
	LCPSC302-COM1	COMMS	-	PVC,GRC	LCP-SC-302	U/G,S	LCP-300	CAT6	-	-	-	3/4"	
	SC302-P1	POWER	480VAC	PVC,GRC	3-PP-01	S	LCP-SC-302	3C	#10AWG	-	#12AWG	1"	PANEL POWER
	SC302-P2	POWER	480VAC	PVC,GRC	LCP-SC-302	S	SC-302	VENDOR				1"	INTAKE SCREEN NO.2 MOTOR
	LCPSC302-C2	CONTROLS	-	PVC,GRC	LCP-SC-302	S	SC-302	VENDOR				1"	INTAKE SCREEN NO.2 OVER-TORQUE SWITCH
INTAKE PUMP NO 1 VFD (VFD-P-301)	VFDP301-C1	CONTROLS	24VDC	PVC,GRC	VFD-P-301	S	LCP-300	16C	#14AWG	2C	#14AWG	1"	
	VFDP301-C2	CONTROLS	24VDC	PVC,GRC	VFD-P-301	S	LCP-300	2PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNALS
	VFDP301-C3	CONTROLS	24VDC	PVC,GRC	VFD-P-301	S	P-301	VENDOR				-	MOISTURE AND TEMPERATURE
	VFD301-COMM	COMMS	-	PVC,GRC	VFD-P-301	S	LCP-300	CAT6	-	-	-	3/4"	
	P301-P1	POWER	480VAC	PVC,GRC	3-PP-01	S	VFD-P-301	3C	#4AWG	-	#6AWG	1 1/4"	PANEL
	P301-P2	POWER	480VAC	PVC,GRC	VFD-P-301	S	P-301	VENDOR				-	VENDOR POWER CABLE
INTAKE PUMP NO 2 VFD (VFD-P-302)	VFDP302-C1	CONTROLS	24VDC	PVC,GRC	VFD-P-302	S	LCP-300	16C	#14AWG	2C	#14AWG	1"	
	VFDP302-C2	CONTROLS	24VDC	PVC,GRC	VFD-P-302	S	LCP-300	2PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNALS
	VFDP302-C3	CONTROLS	24VDC	PVC,GRC	VFD-P-302	S	P-302	VENDOR				-	MOISTURE AND TEMPERATURE
	VFD302-COMM	COMMS	-	PVC,GRC	VFD-P-302	S	LCP-300	CAT6	-	-	-	3/4"	
	VFDP302-P1	POWER	480VAC	PVC,GRC	3-PP-01	S	VFD-P-302	3C	#4AWG	-	#6AWG	1 1/4"	PANEL
	P302-P2	POWER	480VAC	PVC,GRC	VFD-P-302	S	P-302	VENDOR				-	VENDOR POWER CABLE
INTAKE PUMP NO 3 VFD (VFD-P-303)	VFDP303-C1	CONTROLS	24VDC	PVC,GRC	VFD-P-303	S	LCP-300	16C	#14AWG	2C	#14AWG	1"	
	VFDP303-C2	CONTROLS	24VDC	PVC,GRC	VFD-P-303	S	LCP-300	2PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNALS
	VFDP303-C3	CONTROLS	24VDC	PVC,GRC	VFD-P-303	S	P-301	VENDOR				-	MOISTURE AND TEMPERATURE
	VFD303-COMM	COMMS	-	PVC,GRC	VFD-P-303	S	LCP-300	CAT6	-	-	-	3/4"	
	VFDP303-P1	POWER	480VAC	PVC,GRC	3-PP-01	S	VFD-P-303	3C	#4AWG	-	#6AWG	1 1/4"	PANEL
	P303-P2	POWER	480VAC	PVC,GRC	VFD-P-301	S	P-303	VENDOR				-	VENDOR POWER CABLE
LIT-3201	LIT3201-C1	CONTROLS	24VDC	PVC,GRC	LIT-3201	U/G,S	LCP-300	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	LIT3201-P1	POWER	24VDC	PVC,GRC	LIT-3201	U/G,S	LCP-300	2C	#12AWG	-	#14AWG	3/4"	
	LIT3201-E1	INSTRUMENT	24VDC	PVC,GRC	LIT-3201	U/G,S	LCP-300	VENDOR				-	
PNL-301	PNL301-P1	POWER	480VAC	PVC,GRC	3-PP-01	S	T-301-01	4C	#6AWG	-	#6AWG	1"	
	PNL301-P2	POWER	208VAC	PVC,GRC	T-301-01	S	PNL-301	4C	#2AWG	-	#6AWG	1 1/4"	INTAKE AREA LIGHTING PANEL
AREA #3 LOCAL CONTROL PANEL (LCP-300)	C300-COM	COMMS	-	PVC,GRC	LCP-300	U/G,S VIA HH-COM-01, HH-COM-02	MCP-01	FIBER	-	-	-	-	
	C300-SPARE	-	-	PVC,GRC	LCP-300	U/G,S VIA HH-COM-01, HH-COM-02	HEADBOX EXT.WALL	-	-	-	-	2"	SPARE CONDUIT
	LCP300-P1	POWER	120VAC	PVC,GRC	PNL-401	S	LCP-300	2C	#12AWG	-	#14AWG	3/4"	PANEL POWER
	LCP300-P2	POWER	120VAC	PVC,GRC	PNL401	S	LCP-300	2C	#12AWG	-	#14AWG	3/4"	PANEL HEATER POWER
LSHH-3202	LSHH3202-C1	CONTROLS	24VDC	PVC,GRC	LSHH-3202	U/G,S	LCP-300	VENDOR				3/4"	INTAKE STRUCTURE HIGH HIGH LEVEL ALARM

NOTES

1. CABLE AND CONDUIT SCHEDULE SHOWS INDIVIDUAL RUNS TO CONVEY DESIGN INTENT. WHERE ACCEPTABLE IN N.E.C, CONTRACTOR PERMITTED TO REDUCE THE NUMBER OF CONDUIT RUNS BY COMBINING LIKE SIGNALS AND CABLES .
2. DO NOT COMBINE PARALLEL RUNS IN A SINGLE CONDUIT RUN.
3. UNDER THE 'VIA' HEADING IN THE TABLE FOR CONDUIT ROUTING, ALL UNDGERGROUND CONDUIT RUNS TO BE PVC. EXIT ABOVE GRADE WITH GRC. SURFACE CONDUIT TO BE GRC.
4. WHERE CONDUITS ARE DENOTED AS SURFACE INSTALLATION, CONTRACTOR MAY RUN CONDUITS UNDERGROUND OR IN-SLAB WHERE ACCEPTABLE.

LEGEND

U/G	UNDERGROUND CONDUIT INSTALLATION
S	SURFACE CONDUIT INSTALLATION
PVC	POLYVINYL CHLORIDE
GRC	GALVANIZED RIGID CONDUIT

AREA 3/7 - CABLE AND CONDUIT SCHEDULE

SCALE: NTS

Revision	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: 02267BCH-3E-5

STM	DJSV	CJWS	2024.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

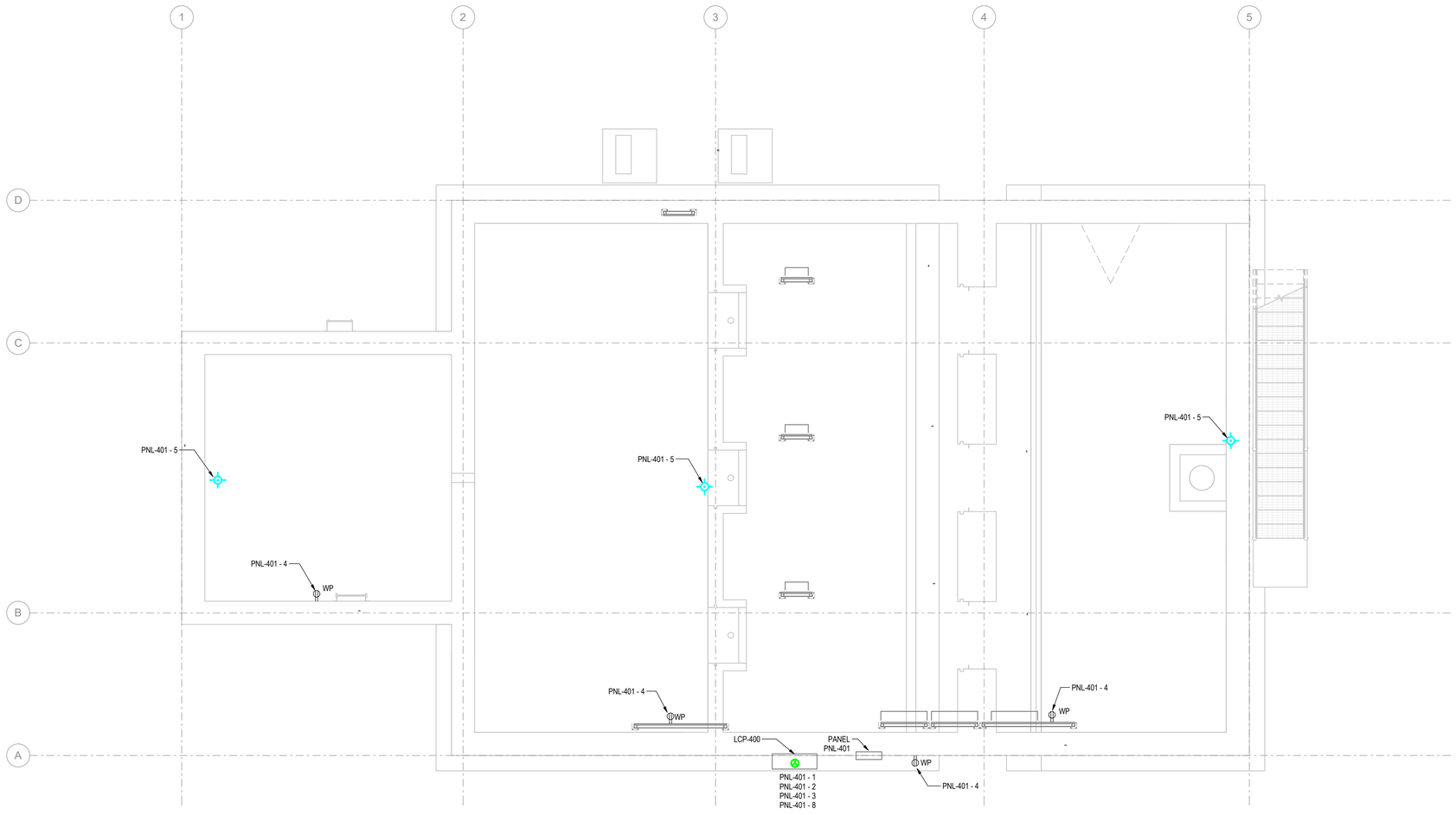
Title
INTAKE STRUCTURE ELECTRICAL CONDUIT AND CABLE SCHEDULE

Project No. 224202267

Scale AS NOTED

Revision 0

Drawing No. 3E-5



GENERAL NOTES

1. LIGHT FIXTURE MOUNTED ON 10-FT. METAL POLE WITH INTEGRAL LIGHT SWITCH IN WEATHERPROOF ENCLOSURE, ATTACH POLE TO GUARDRAIL, SEE DETAIL E-666. LIGHT FIXTURE TYPE: LITHONIA RSXF1 LED P5 40K WFL MVOLT AARP DDBXD.
2. PROVIDE MOTION SENSOR AND MOUNT ON EACH LIGHT POLE. MOTION SENSOR NEAREST TO STAIRS SHALL ACTIVATE UPON PERSONNEL WALKING TOWARD STAIRS. THE OTHER MOTION SENSOR SHALL ACTIVATE UPON PERSONNEL WALKING ON DECK.

1 4E-1 HEAD BOX LIGHTING AND POWER PLAN

1/4" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
0			

Issued	By	Appd	YYYY.MM.DD
A 100% DESIGN	CR	JCD	2025.01.14

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BATTLE CREEK HATCHERY

PROJECT ADDRESS

File Name: N/A

CLR	CLR	LPS	09/05/24
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
HEAD BOX ELECTRICAL LIGHTING AND POWER PLAN

Project No. 224202267
Scale 1/4" = 1'-0"
Revision 0
Drawing No. **4E-1**

«Plot Location in Project Information»
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PNL- 401

CKT	LOAD	BRANCH BKR	BRANCH VA	CONNECTED KVA A	B	C	BRANCH VA	BRANCH BKR	LOAD	CKT
1	LCP-400	15/1	500	1.2			700	20/1	LCP-400 HEATER	2
3	LCP-400	15/1	500		1.2		720	20/1	RECEPTACLES	4
5	LIGHTING	20/1	1000			1.2	200	15/1	LCP-400 COOLING FAN	6
7	SPARE	20/1		0.0					SPARE	8
9	SPARE				0.0				SPARE	10
11						0.0				12
13				0.0						14
15					0.0					16
17						0.0				18
19				0.0						20
	CONNECTED LOAD	**3.6** KVA		1.2	1.2	1.2			PANEL SPECIFICATIONS	
		10 AMPS		10	10	10			MAINS RATING AMPS - 100	
	NEC DEMAND	**3.9** KVA							MAIN CIRCUIT BREAKER AMPERES - 50	
		11 AMPS							CAPACITY ONE-POLE CIRCUITS - 20	
									SYSTEM VOLTAGE - 208Y/120	
									PHASE, NO. OF WIRES - 3 PH, 4 W	
									AIC RATING - 10,000	
									MOUNTING - SURFACE	
									LOCATION - HEADWORKS	

PANEL NOTES

0	Revision	By	Appd	YYYY.MM.DD
A	100% DESIGN	CR	JCD	2025.01.14
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PROJECT ADDRESS

File Name: N/A | Author | Designer | Checker | 12/03/24
Dwn. | Dsgn. | Chkd. | YYYY.MM.DD

Title
HEAD BOX ELECTRICAL PANEL SCHEDULE

Project No. 224202267
Scale
Revision 0
Drawing No. **4E-2**

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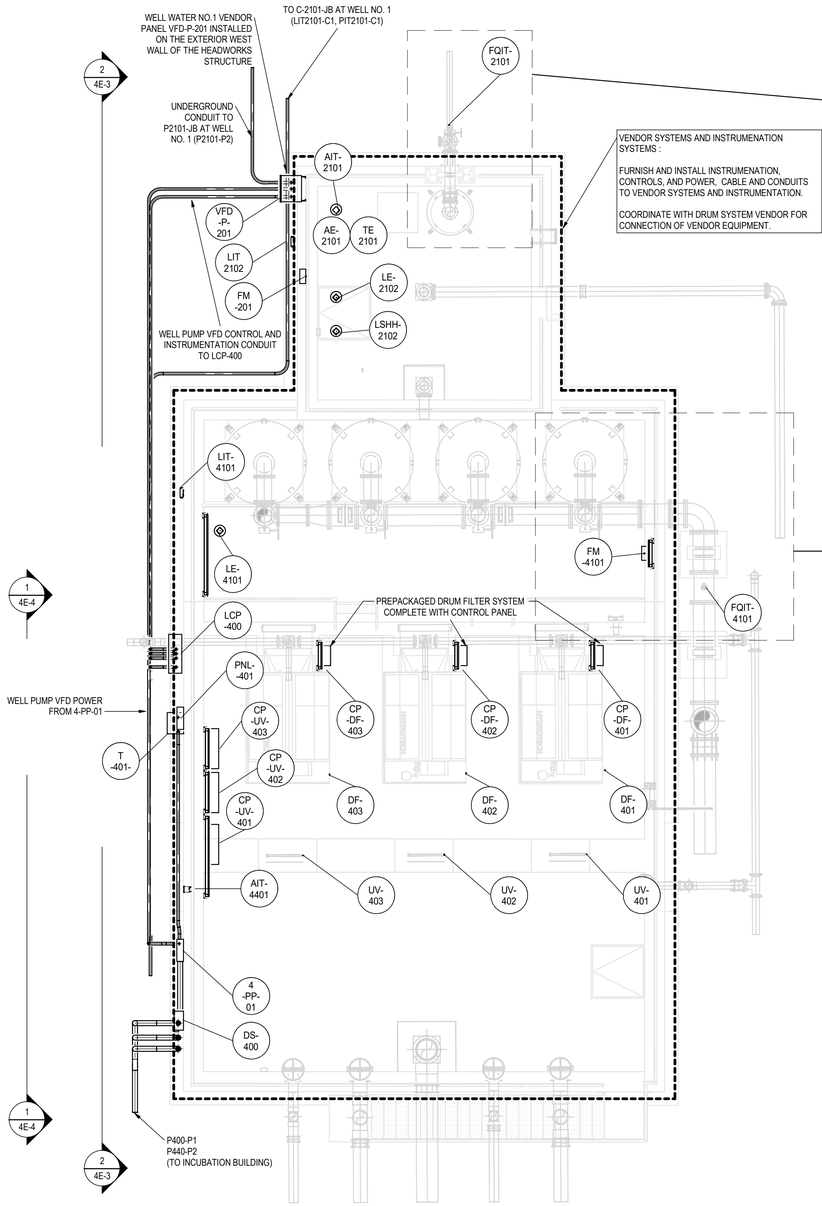
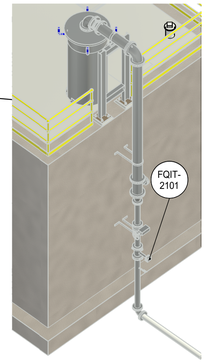
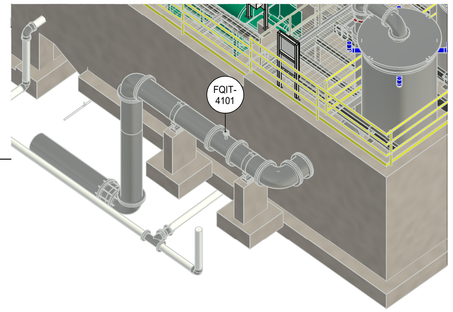


1 4E-3 FLOOR PLAN

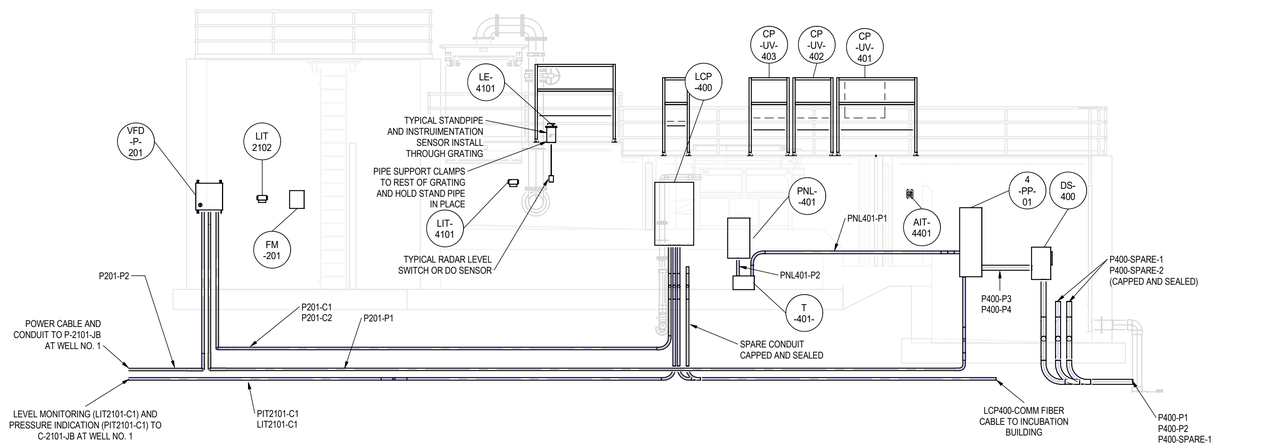
3/16" = 1'-0"



3 4E-3 AREA 4 - FQIT-2101



4 4E-3 AREA 4 - FQIT-4101



2 4E-3 SECTION - INSTRUMENTATION

3/16" = 1'-0"

GENERAL NOTES

1. CONFIRM LOCATION OF RADAR LEVEL, DISSOLVED OXYGEN, AND HIGH HIGH LEVEL SWITCH SENSOR INSTALLATION LOCATIONS ON SITE.
2. WALL MOUNT LEVEL INDICATING TRANSMITTER AND DISSOLVED OXYGEN TRANSMITTER ON THE HEAD BOX GRADE LEVEL. CONFIRM MOUNTING LOCATIONS IN SITE AND COORDINATE PROPER VENDOR CABLE LENGTHS PRIOR TO ORDERING INSTRUMENTS.
3. WALL MOUNT VFD CABINET (VFD-P-201) ON THE EXTERIOR OF THE WELL WATER STPRAGE TANK CONFIRM EXACT PLACEMENT OF VFD PANEL ON SITE.
4. COORDINATE THE ROUTING OF UNDERGROUND CONDUITS FOR POWER AND CONTROL FROM THE INCUBATION BUILDING TO THE WELL WATER STORAGE TANK AND FROM THE WELL WATER STORAGE TANK TO THE WELL PUMP NO.1.
5. VFD-02-01 SHALL BE:
   A. RATED AT 480VAC, 3 PHASE, 15HP. 60HZ, UL
   B. LOCATED WITHIN A TYPE 4X, LOCKABLE ENCLOSURE COMPLETE WITH DISCONNECT
   C. LINE REACTOR / DC CHOKE
   D. dv/dt FILTER ON OUTPUT
   E. FREE STANDING ENCLOSURE FOOT KIT (16")
   F. RUN PILOT LIGHT
   G. FAULT PILOT LIGHT
   H. SPEED POTENTIOMETER
   I. EMI / RFI FILTER
   J. PANEL HEATER
   K. HAND / OFF / AUTO SWITCH
   L. TAMPER PROOF
   M. TYPE FRANKLIN VFD XS4B0240-3A OR APPROVED ALTERNATE
   N. BLANK EXTERIOR DOOR
   O. INTERIOR DEADFRONT COVER WITH SWITCHES, INDICATORS, LIGHTS, ETC. NO EXPOSED LIVE PARTS ON INTERIOR COVER
6. COORDINATE LOCATION OF TEMPERATURE AND LEVEL SENSOR INSTALLS ON SITE THROUGH THE TOP OF THE WELL WATER STORAGE TANK.
7. NOT ALL CONDUIT AND CABLES SHOWN ON THIS DRAWING. REFER TO THE CONDUIT AND CABLE SCHEDULE ON 4E-5 FOR INSTRUMENTATION AND POWER REQUIREMENTS FOR AREA 4.
8. INSTALL ALL CONDUITS AND CABLES PER THE CONDUIT AND CABLE SCHEDUELS. CONDUIT ROUTING TO BE VERIFIED ON SITE AGAINST SITE CONDITIONS. COORDINATE ROUTING OF CONDUITS WITH OTHER TRADES TO AVOID CONFLICTS.
9. REFER TO 2E-2 FOR CONDUIT AND CABLE SCHEDULE FOR AREA 2 (WELL NO. 1).
10. VENDOR PANELS TO BE TYPE 4X.
11. VENDOR PANELS SHALL BE LOCKABLE WITH EXTERIOR DOOR (BLANK) AND DEADFRONT COVER (INTERIOR) WITH DISCONNECT, SWITCHES, INDICATORS ETC. NO EXPOSED LIVE PARTS SHALL BE PRESENT WHEN OPENING EXTERIOR DOOR.

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File Name: N/A

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JM	JS	JR	2024.12.27

Title
HEADBOX INSTRUMENTATION PLAN

Project No. 224202267

Scale 3/16" = 1'-0"

Revision 0

Drawing No. **4E-3**

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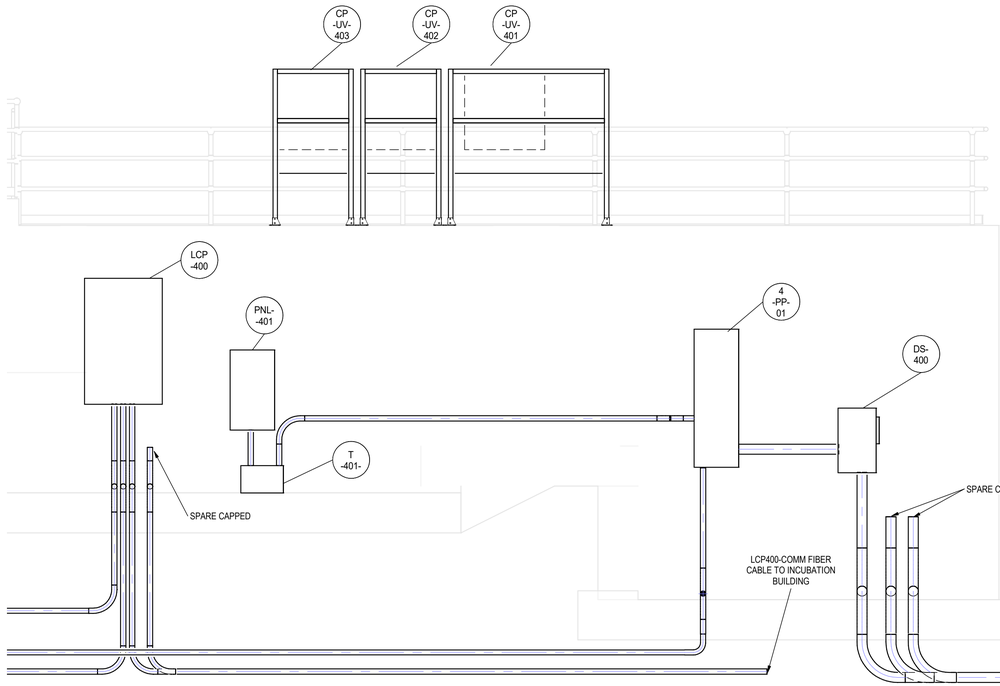
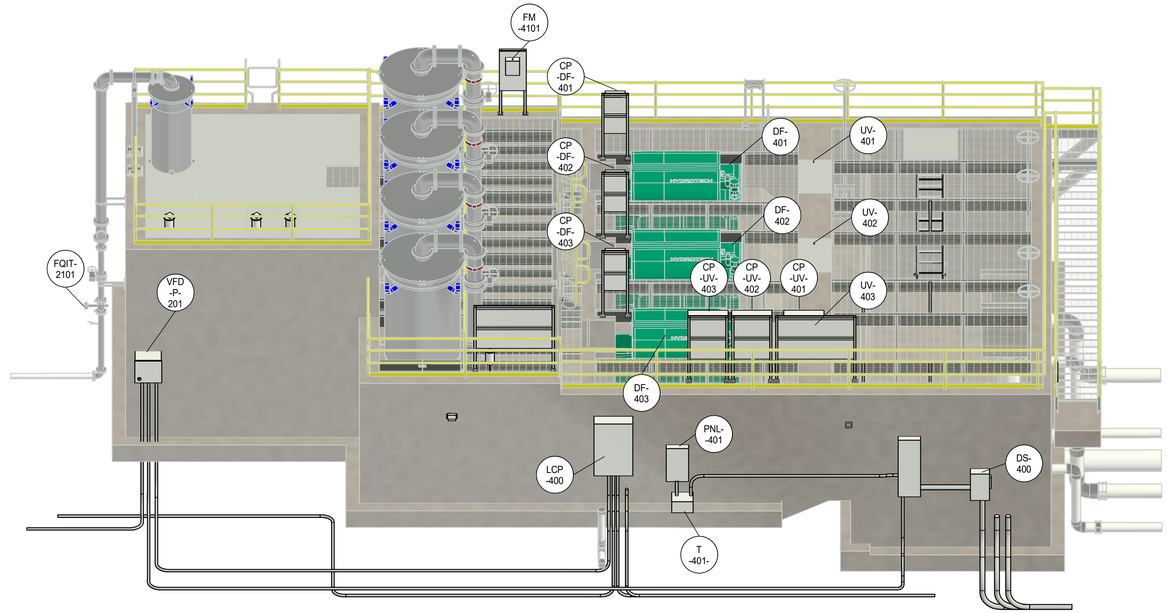


1 4E-4 AREA 4 - ELECTRICAL DISTRIBUTION

3/8" = 1'-0"



2 4E-4 HEADWORKS -BLDG

Revision	By	Appd	YYYY.MM.DD
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Issued	By	Appd	YYYY.MM.DD
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BATTLE CREEK HATCHERY

File Name: N/A

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JM	JS	JR	2024.12.27

Title
HEAD BOX ELECTRICAL DSTRIBUTION

Project No. 224202267
Scale 3/8" = 1'-0"
Revision 0
Drawing No. 4E-4

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AREA #4 HEADBOX AND WATER STORAGE													
					RUN			CONDUCTORS				CONDUIT	
DEVICE GROUP	CABLE/CONDUIT TAG (INDIVIDUAL)	APPLICATION	VOLTS	CONDUIT TYPE	FROM	VIA	TO	WIRE COUNT	WIRE SIZE (CU.)	SPARE	GROUND/ BOND/SHLD	SIZE	COMMENTS
P400	P400-P1	POWER	480VAC	PVC,GRC	5-PP-01	U/G VIA HH-ELEC-03 HH-ELEC-04	DS-400	4C	#4/0AWG	-	#2AWG	4"	
	P400-P2	POWER	480VAC	PVC,GRC	5-PP-01	U/G VIA HH-ELEC-03 HH-ELEC-04	DS-400	4C	#4/0AWG	-	#2AWG	4"	
	P400-P3	POWER	480VAC	PVC,GRC	DS-400	S	4-PP-01	4C	#4/0AWG	-	#2AWG	4"	
	P400-P4	POWER	480VAC	PVC,GRC	DS-400	S	4-PP-01	4C	#4/0AWG	-	#2AWG	4"	
	P400-SPARE-1	POWER	-	PVC,GRC	5-PP-01	U/G VIA HH-ELEC-03 HH-ELEC-04	HEADBOX EXT.WALL	-	-	-	-	2"	SPARE POWER CONDUIT
	P400-SPARE-2	POWER	-	PVC,GRC	5-PP-01	U/G VIA HH-ELEC-03 HH-ELEC-04	HEADBOX EXT.WALL	-	-	-	-	2"	SPARE POWER CONDUIT
PNL-401	PNL401-P1	POWER	480VAC	PVC,GRC	4-PP-01	S	T-401-01	3C	#6AWG	-	#10AWG	1"	15kVA TRANSFORMER
	PNL401-P2	POWER	208VAC	PVC,GRC	T-401-01	S	PNL-401	3C	#6AWG	-	#10AWG	1"	
LCP-DF-401 DRUM FILTER 401 LCP	LCP401-C1	CONTROL	24VDC	PVC,GRC	LCP-DF-401	UG,S	LCP-400	20C	#14AWG	2C	#14AWG	1 1/2"	
	DF401-P1	POWER	480VAC	PVC,GRC	4-PP-01	S	LCP-DF-401	3C	#10AWG	-	#12AWG	3/4"	
	DF401-COMM1	COMMS	-	PVC,GRC	LCP-DF-401	U/G,S	LCP-400	CAT6	-	-	-	3/4"	
LCP-DF-402 DRUM FILTER 402 LCP	LCP402-C1	CONTROL	24VDC	PVC,GRC	LCP-DF-402	UG,S	LCP-400	20C	#14AWG	2C	#14AWG	1 1/2"	
	DF402-P1	POWER	480VAC	PVC,GRC	4-PP-01	S	LCP-DF-402	3C	#10AWG	-	#12AWG	3/4"	
	DF402-COMM1	COMMS	-	PVC,GRC	LCP-DF-402	U/G,S	LCP-400	CAT6	-	-	-	3/4"	
LCP-DF-403 DRUM FILTER 403 LCP	LCP403-C1	CONTROL	24VDC	PVC,GRC	LCP-DF-403	UG,S	LCP-400	20C	#14AWG	2C	#14AWG	1 1/2"	
	DF403-P1	POWER	480VAC	PVC,GRC	4-PP-01	S	LCP-DF-403	3C	#10AWG	-	#12AWG	3/4"	
	DF403-COMM1	COMMS	-	PVC,GRC	LCP-DF-403	U/G,S	LCP-400	CAT6	-	-	-	3/4"	
CP-UV-401 UV SYSTEM 401 LCP	UV401-C1	CONTROL	24VDC	PVC,GRC	CP-UV-401	S	LCP-400	8C	#14AWG	2C	#14AWG	1"	BUNDLED DIGITAL SIGNALS
	UV401-C2	CONTROL	24VDC	PVC,GRC	CP-UV-401	S	LCP-400	2PR	#16AWG	-	#14AWG	3/4"	BUNDLED ANALOG SIGNALS
	UV401-C3	CONTROL	24VDC	PVC,GRC	CP-UV-401	S	UV-401	VENDOR					UV CONTROL (VENDOR)
	UV401-P1	POWER	480VAC	PVC,GRC	4-PP-01	S	CP-UV-401	4C	#6AWG	-	#8AWG	1 1/2"	
	UV401-P2	POWER	480VAC	PVC,GRC	CP-UV-401	S	UV LAMPS	VENDOR					UV LAMPS (POWER)
	UV401-COMM1	COMMS	-	PVC,GRC	CP-UV-401	U/G,S	LCP-400	CAT6	-	-	-	3/4"	
CP-UV-402 UV SYSTEM 402 LCP	UV402-C1	CONTROL	24VDC	PVC,GRC	CP-UV-402	S	LCP-400	8C	#14AWG	2C	#14AWG	1"	BUNDLED DIGITAL SIGNALS
	UV402-C2	CONTROL	24VDC	PVC,GRC	CP-UV-402	S	LCP-400	2PR	#16AWG	-	#14AWG	3/4"	BUNDLED ANALOG SIGNALS
	UV402-C3	CONTROL	24VDC	PVC,GRC	CP-UV-402	S	UV-402	VENDOR					UV CONTROL (VENDOR)
	UV402-P1	POWER	480VAC	PVC,GRC	4-PP-01	S	CP-UV-402	4C	#6AWG	-	#8AWG	1 1/2"	
	UV402-P2	POWER	480VAC	PVC,GRC	CP-UV-402	S	UV LAMPS	VENDOR					UV LAMPS (POWER)
	UV402-COMM1	COMMS	-	PVC,GRC	CP-UV-402	U/G,S	LCP-400	CAT6	-	-	-	3/4"	
CP-UV-403 UV SYSTEM 403 LCP	UV403-C1	CONTROL	24VDC	PVC,GRC	UV-403	S	LCP-400	8C	#14AWG	2C	#14AWG	1"	BUNDLED DIGITAL SIGNALS
	UV403-C2	CONTROL	24VDC	PVC,GRC	UV-403	S	LCP-400	2PR	#16AWG	-	#14AWG	3/4"	BUNDLED ANALOG SIGNALS
	UV403-P1	POWER	480VAC	PVC,GRC	4-PP-01	S	CP-UV-403	4C	#6AWG	-	#8AWG	1 1/2"	
	UV403-COMM1	COMMS	-	PVC,GRC	UV-403	S	LCP-400	CAT6	-	-	-	3/4"	
LSHH-4401	LSHH4401-C1	INSTRUMENT	24VDC	PVC,GRC	LSHH-4401	S	LCP-400	VENDOR					
AIT-4401	AIT4401-C1	INSTRUMENT	24VDC	PVC,GRC	AIT-4401	S	LCP-400	1PR	#16AWG	-	#14AWG	3/4"	
	AIT4401-E1	INSTRUMENT	-	PVC,GRC	AE-4401	S	AIT-4401	VENDOR					
	AIT4401-P1	POWER	24VDC	PVC,GRC	LCP-400	S	AIT-4401	2C	#12AWG	-	#14AWG	3/4"	

					RUN			CONDUCTORS				CONDUIT	
DEVICE GROUP	CABLE/CONDUIT TAG (INDIVIDUAL)	APPLICATION	VOLTS	CONDUIT TYPE	FROM	VIA	TO	WIRE COUNT	WIRE SIZE (CU.)	SPARE	GROUND/ BOND/SHLD	SIZE	COMMENTS
FQIT-4101	FQIT4101-C1	CONTROL	24VDC	PVC,GRC	FQIT-4101	S	LCP-400	2C	#14AWG	-	#14AWG	3/4"	DIGITAL SIGNAL
	FQIT4101-C2	CONTROL	24VDC	PVC,GRC	FQIT-4101	S	LCP-400	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT4101-P1	POWER	24VDC	PVC,GRC	FQIT-4101	S	LCP-400	2C	#14AWG	-	#14AWG	3/4"	INSTRUMENT POWER
	FE4101-E1	CONTROL	-	PVC,GRC	FQIT-4101	S	FE-4101	VENDOR					VENDOR CONTROL FROM DISPLAY TO METER
	FE4101-E2	POWER	-	PVC,GRC	FQIT-4101	S	FE-4101	VENDOR					VENDOR POWER FROM DISPLAY TO METER
FQIT-4102	FQIT4102-C1	CONTROL	24VDC	PVC,GRC	FQIT-4102	S	LCP-400	2C	#14AWG	-	#14AWG	3/4"	DIGITAL SIGNAL
	FQIT4102-C2	CONTROL	24VDC	PVC,GRC	FQIT-4102	S	LCP-400	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT4102-P1	POWER	24VDC	PVC,GRC	FQIT-4102	S	LCP-400	2C	#14AWG	-	#14AWG	3/4"	INSTRUMENT POWER
	FE4102-E1	CONTROL	-	PVC,GRC	FQIT-4102	S	FE-4102	VENDOR					VENDOR CONTROL FROM DISPLAY TO METER
	FE4102-E2	POWER	-	PVC,GRC	FQIT-4102	S	FE-4102	VENDOR					VENDOR POWER FROM DISPLAY TO METER
FQIT-4103	FQIT4103-C1	CONTROL	24VDC	PVC,GRC	FQIT-4103	S	LCP-400	2C	#14AWG	-	#14AWG	3/4"	DIGITAL SIGNAL
	FQIT4103-C2	CONTROL	24VDC	PVC,GRC	FQIT-4103	S	LCP-400	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT4103-P1	POWER	24VDC	PVC,GRC	FQIT-4103	S	LCP-400	2C	#14AWG	-	#14AWG	3/4"	INSTRUMENT POWER
	FE4103-E1	CONTROL	-	PVC,GRC	FQIT-4103	S	FE-4103	VENDOR					VENDOR CONTROL FROM DISPLAY TO METER
	FE4103-E2	POWER	-	PVC,GRC	FQIT-4103	S	FE-4103	VENDOR					VENDOR POWER FROM DISPLAY TO METER
FQIT-4104	FQIT4104-C1	CONTROL	24VDC	PVC,GRC	FQIT-4104	S	LCP-400	2C	#14AWG	-	#14AWG	3/4"	DIGITAL SIGNAL
	FQIT4104-C2	CONTROL	24VDC	PVC,GRC	FQIT-4104	S	LCP-400	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT4104-P1	POWER	24VDC	PVC,GRC	FQIT-4104	S	LCP-400	2C	#14AWG	-	#14AWG	3/4"	INSTRUMENT POWER
	FE4104-E1	CONTROL	-	PVC,GRC	FQIT-4104	S	FE-4104	VENDOR					VENDOR CONTROL FROM DISPLAY TO METER
	FE4104-E2	POWER	-	PVC,GRC	FQIT-4104	S	FE-4104	VENDOR					VENDOR POWER FROM DISPLAY TO METER
LIT-4101	LIT4101-C1	CONTROL	24VDC	PVC,GRC	LIT-4101	S	LCP-400	2C	#14AWG	-	#14AWG	3/4"	DIGITAL SIGNAL
	LIT4101-C2	CONTROL	24VDC	PVC,GRC	LIT-4101	S	LCP-400	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	LIT4101-E1	INSTRUMENT	-	PVC,GRC	LE-4101	S	LIT-4101	VENDOR					
	LIT4101-P1	POWER	24VDC	PVC,GRC	LCP-400	S	LIT-4101	2C	#14AWG	-	#14AWG	3/4"	INSTRUMENT POWER
AREA #4 LOCAL CONTROL PANEL (LCP-400)	C400-COM	COMMS	-	PVC,GRC	LCP-400	U/G,S VIA HH-COM-03, HH-COM-04	NETWORK PANEL	FIBER	-	-	-	4"	FIBER NETWORK PANEL IN INCUBATION BUILDING
	C400-SPARE	-	-	PVC,GRC	LCP-400	U/G,S VIA HH-COM-03, HH-COM-04	HEADBOX EXT.WALL	-	-	-	-	2"	SPARE CONDUIT
	LCP400-P1	POWER	120VAC	PVC,GRC	PNL-401	S	LCP-400	2C	#12AWG	-	#14AWG	3/4"	LCP PANEL POWER
	LCP400-P2	POWER	120VAC	PVC,GRC	PNL401	S	LCP-400	2C	#12AWG	-	#14AWG	3/4"	LCP PANEL HEATER POWER
LIT-2102	LIT2102-C1	CONTROL	24VDC	PVC,GRC	LIT-2102	S	LCP-400	2C	#14AWG	-	#14AWG	3/4"	DIGITAL SIGNAL
	LIT2102-C2	CONTROL	24VDC	PVC,GRC	LIT-2102	S	LCP-400	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	LIT2102-E1	INSTRUMENT	-	PVC,GRC	LE-2102	S	LIT-2102	VENDOR					
	LIT2102-P1	POWER	24VDC	PVC,GRC	LCP-400	S	LIT-2102	2C	#14AWG	-	#14AWG	3/4"	INSTRUMENT POWER
LSHH-2102	LSHH2102-C1	INSTRUMENT	-	PVC,GRC	LSHH-2102	S	LCP-400	VENDOR					
FQIT-2101	FQIT2101-C1	CONTROL	24VDC	PVC,GRC	FQIT-2101	S	LCP-400	2C	#14AWG	-	#14AWG	3/4"	DIGITAL SIGNAL
	FQIT2101-C2	CONTROL	24VDC	PVC,GRC	FQIT-2101	S	LCP-400	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT2101-P1	POWER	24VDC	PVC,GRC	FQIT-2101	S	LCP-400	2C	#14AWG	-	#14AWG	3/4"	INSTRUMENT POWER
	FE2101-E1	CONTROL	-	PVC,GRC	FQIT-2101	S	FE-2101	VENDOR					VENDOR CONTROL FROM DISPLAY TO METER
	FE2101-E2	POWER	-	PVC,GRC	FQIT-2101	S	FE-2101	VENDOR					VENDOR POWER FROM DISPLAY TO METER
TIT-2101	TIT2101-C1	CONTROLS	24VDC	PVC,GRC	TIT-2101	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL

NOTES

1. CABLE AND CONDUIT SCHEDULE SHOWS INDIVIDUAL RUNS TO CONVEY DESIGN INTENT. WHERE ACCEPTABLE IN N.E.C, CONTRACTOR PERMITTED TO REDUCE THE NUMBER OF CONDUIT RUNS BY COMBINI
2. DO NOT COMBINE PARALLEL RUNS IN A SINGLE CONDUIT RUN.
3. UNDER THE 'VIA' HEADING IN THE TABLE FOR CONDUIT ROUTING, ALL UNDGERGROUND CONDUIT RUNS TO BE PVC. EXIT ABOVE GRADE WITH GRC. SURFACE CONDUIT TO BE GRC.
4. WHERE CONDUITS ARE DENOTED AS SURFACE INSTALLATION, CONTRACTOR MAY RUN CONDUITS UNDERGROUND OR IN-SLAB WHERE ACCEPTABLE

LEGEND

U/G	UNDERGROUND CONDUIT INSTALLATION
S	SURFACE CONDUIT INSTALLATION
PVC	POLYVINYL CHLORIDE
GRC	GALVANIZED RIGID CONDUIT

AREA 4 - CABLE AND CONDUIT SCHEDULE

SCALE: NTS

0	Revision	By	Appd	2022.12.02 YYYY.MM.DD
A	100% DESIGN Issued	JM By	JCD Appd	2025.01.14 YYYY.MM.DD

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TULALIP TRIBES

Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: 02267BCH-4E-5 | Dwn. STM | Dsgn. DBW | Chkd. CJWS | 2024.12.27 YYYY.MM.DD

Title
HEADBOX CABLE AND CONDUIT SCHEDULE

Project No. 224202267 | Scale NO SCALE | Revision | Drawing No. 4E-5

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ORIGINAL SHEET - ANSI D

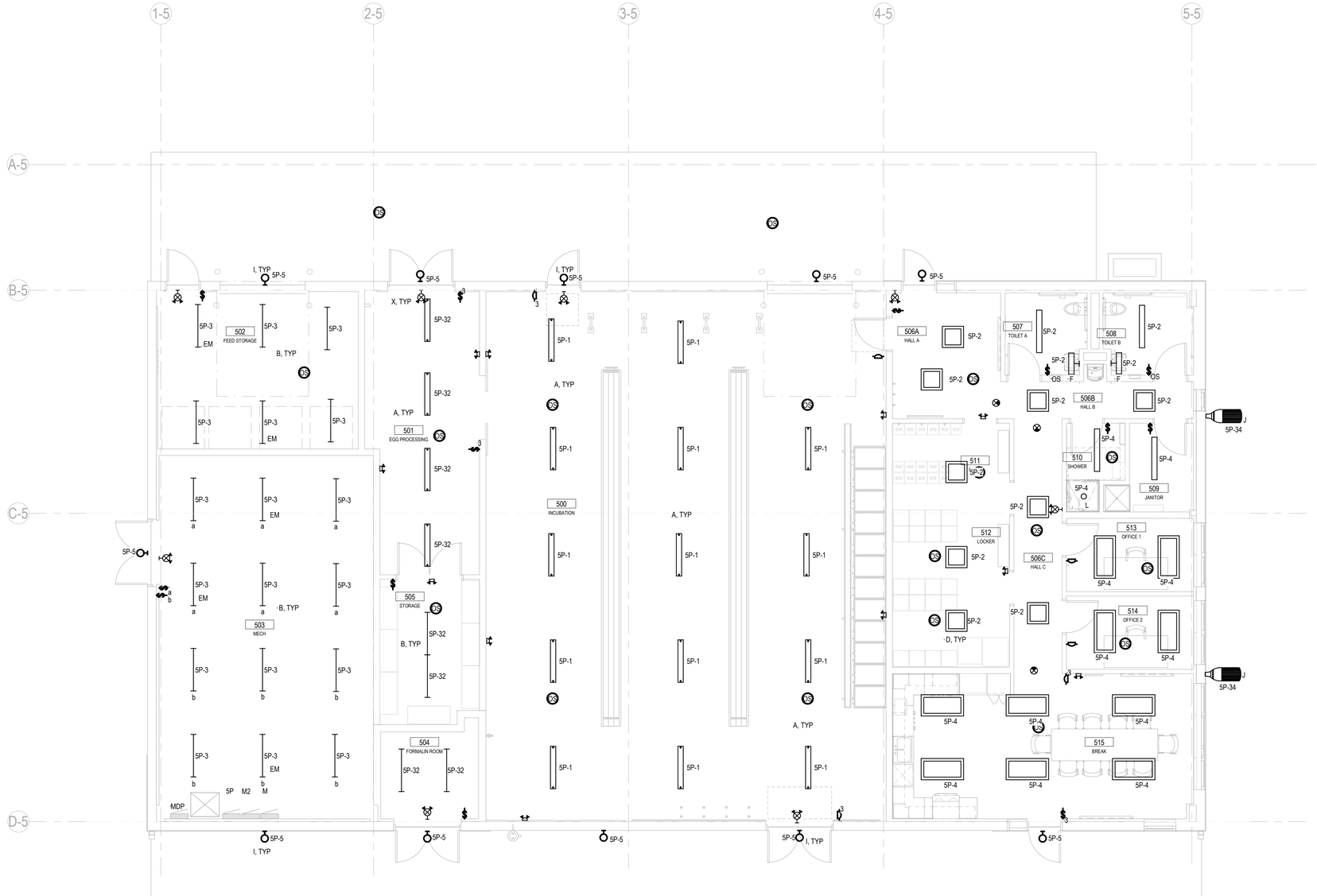
2/12/2025

LEGEND

- SWITCH, SINGLE POLE
- 3-WAY SWITCH
- PILOT LIGHT SWITCH
- OCCUPANCY SENSOR SWITCH
- DIMMING SWITCH
- OCCUPANCY SENSOR, CEILING MOUNT
- COMBINATION DIMMING PHOTO/OCCUPANCY SENSOR, CEILING MOUNT
- CAN LIGHT, RECESSED
- WALL MOUNT
- LINEAR LENSED, SURFACE MOUNT
- LINEAR LENSED, PENDANT MOUNT
- LINEAR INDUSTRIAL, PENDANT MOUNT
- 2x2 TROFFER, GRID MOUNT
- 2x4 TROFFER, GRID MOUNT
- VANITY, WALL MOUNT
- EMERGENCY LIGHT, BUG EYE
- EXIT SIGN WITH EMERGENCY LIGHT

GENERAL NOTES

1. DEFAULT WIRE SIZE IS #12 IN 1/2" CONDUIT U.O.N. INCREASE WIRE SIZE AND CONDUIT TO MAINTAIN A MAXIMUM OF 3% VOLTAGE DROP FOR BRANCH CIRCUITS.



1 INCUBATION BUILDING LIGHTING PLAN

5E-1 | 3/16" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
0			

Issued	By	Appd	YYYY.MM.DD
A 100% DESIGN	CR	JCD	2025.01.14

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TULALIP TRIBES

Client/Project
Tulalip Tribe

Battle Creek Hatchery

File Name: N/A | CLR Dwn. | CLR Dsgn. | LPS Chkd. | 2022.11.23 YYYY.MM.DD

Title
INCUBATION BUILDING ELECTRICAL LIGHTING PLAN

Project No. 224202267
Scale 3/16" = 1'-0"
Revision 0
Drawing No. **5E-1**

<Pw location in Project Information>
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ORIGINAL SHEET - ANSI D

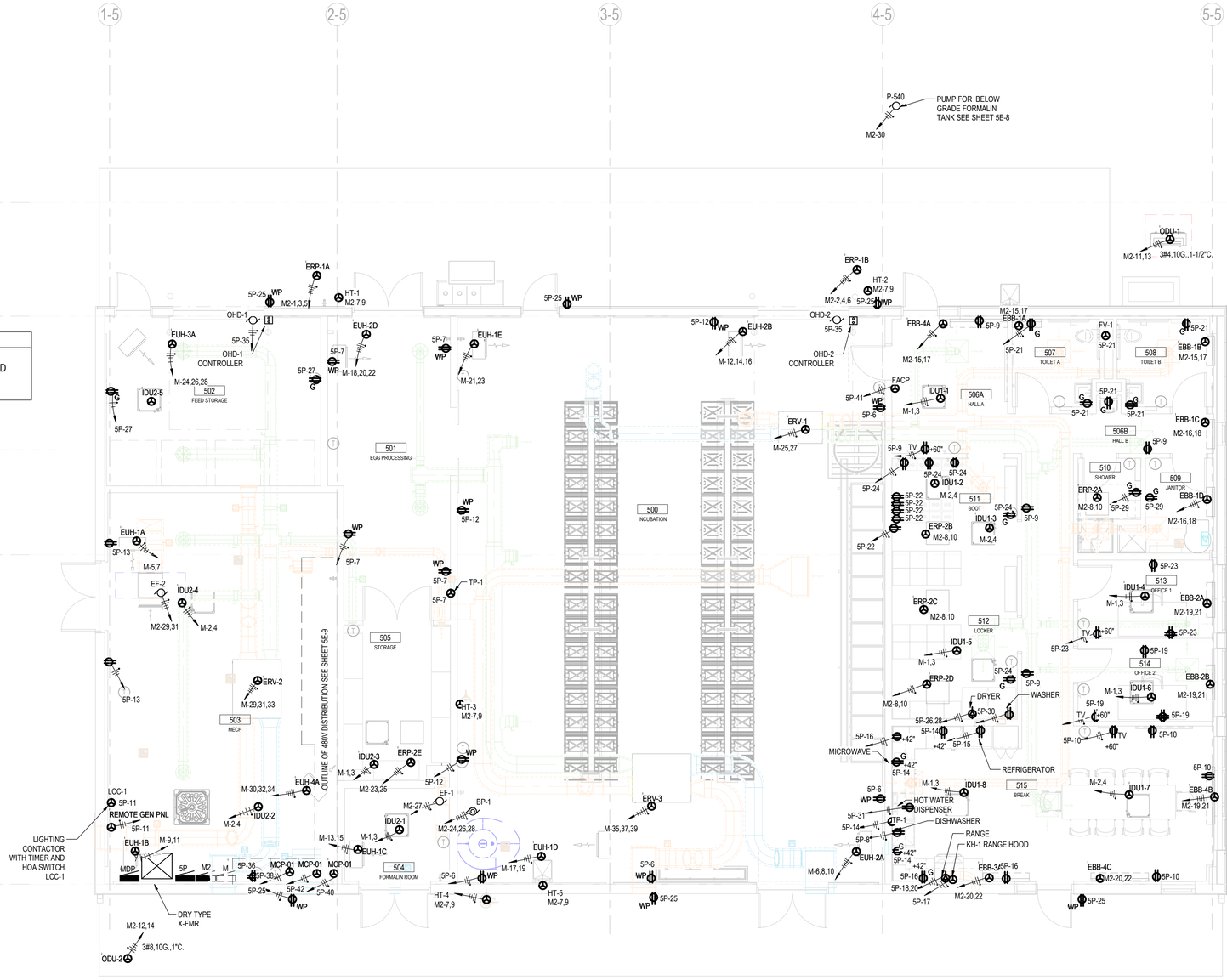
2/12/2025

LEGEND

- DUPLEX RECEPTACLE
- QUADRAPLEX RECEPTACLE
- GFCI RECEPTACLE
- WEATHER RESISTANT RECEPTACLE WITH WEATHERPROOF WHILE-IN-USE COVER
- 240-VOLT RECEPTACLE
- ELECTRICAL POWER CONNECTION
- ELECTRICAL PANEL
- DISCONNECT SWITCH

GENERAL NOTES

1. DEFAULT WIRE SIZE IS #12 IN 1/2" CONDUIT U.O.N. INCREASE WIRE SIZE AND CONDUIT TO MAINTAIN A MAXIMUM OF 3% VOLTAGE DROP FOR BRANCH CIRCUITS.



1 INCUBATION BUILDING POWER PLAN

5E-2

3/16" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
0			

Issued	By	Appd	YYYY.MM.DD
A 100% DESIGN	CR	JCD	2025.01.14

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Client/Project
Tulalip Tribe

Battle Creek Hatchery

File Name: N/A | Dwn. CLR | Dsgn. CLR | Chkd. LPS | 2022.11.23 YYYY.MM.DD

Title
INCUBATION BUILDING ELECTRICAL POWER PLAN

Project No. 224202267
Scale 3/16" = 1'-0"
Revision 0
Drawing No. 5E-2

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ORIGINAL SHEET - ANSI D

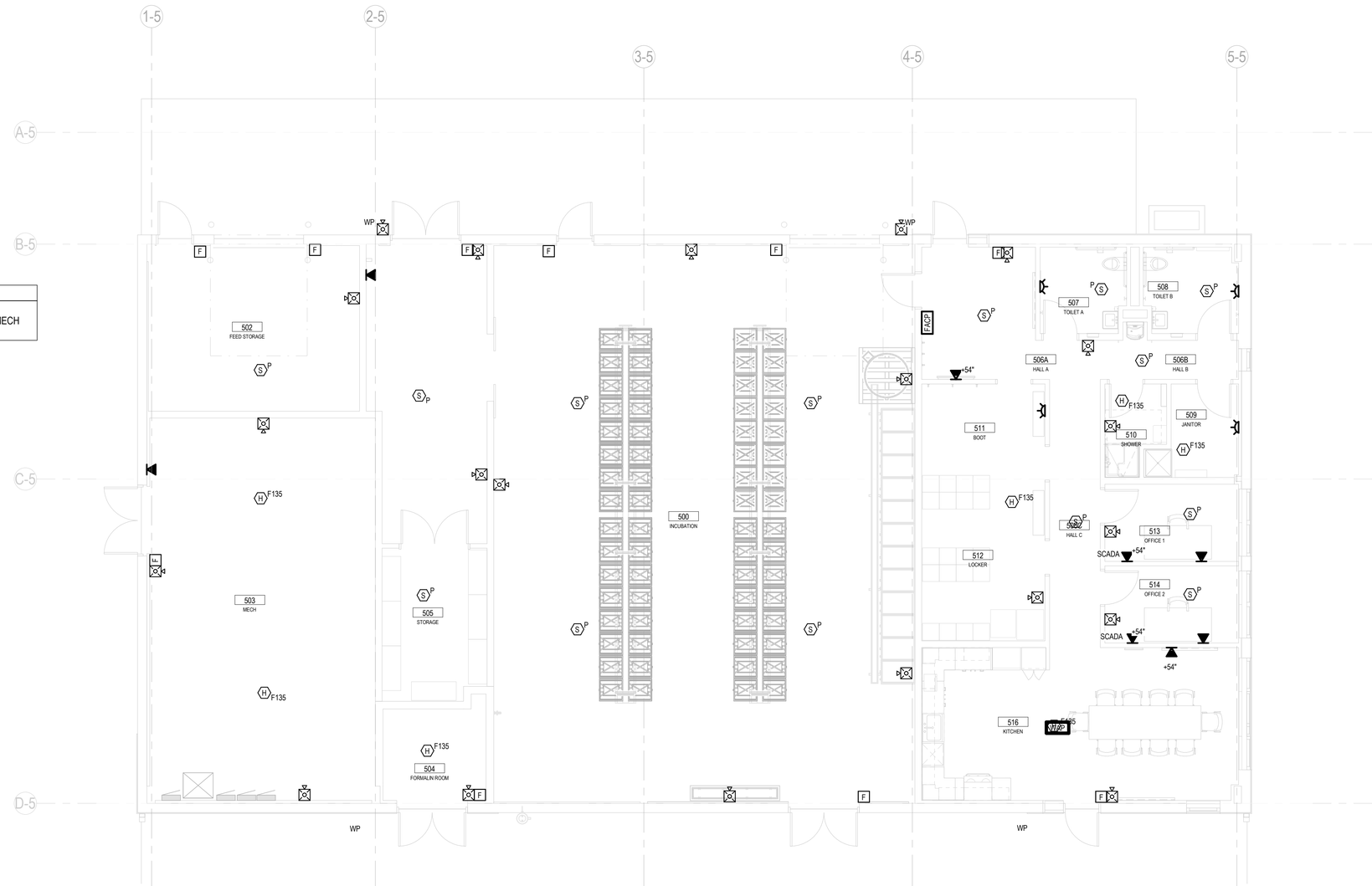
2/12/2025

LEGEND

- WAP — WIRELESS ACESS POINT
- TELEPHONE/DATA OUTLET (2-PORTS)
- S P — SMOKE DETECTOR
- H F135 — HEAT DETECTOR (RATE OF RISE)
- HORN / STROBE
- STROBE
- F — PULL - STATION

GENERAL NOTES

1. ROUTE COMMUNICATION CABLES TO NETWORKING RACK LOCATED IN MECH 503 (SEE SHEET 1/5E-9)



1 INCUBATION BUILDING SYSTEMS PLAN

5E-3 3/16" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
0			
A 100% DESIGN	CR	JCD	2025.01.14

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Client/Project Logo — TULALIP TRIBES

Client/Project
Tulalip Tribe

Battle Creek Hatchery

File Name: N/A | CLR Dwn. | CLR Dsgn. | LPS Chkd. | 2022.11.23 YYYY.MM.DD

Title
INCUBATION BUILDING ELECTRICAL SYSTEMS PLAN

Project No. 224202267
Scale As indicated
Revision 0
Drawing No. 5E-3

<Plot Location in Project Information>
2/12/2025 1:44:31 PM
ORIGINAL SHEET - ANSI D

2/12/2025

Stantec — Panel

Name: **5P** | Volts: 208Y/120V | Mains Type: MLO | Type:
Location: MECH 503 | Phases: 3 | Mains Rating: 225 A | AIC Rating: 22kAIC
Supply From: MDP | Wires: 4 | Max Rating: 150 A | Mounting: Surface
Serves: | Lugs: Single Lugs | Enclosure: Type 1

Notes:
** - *ROUTE THRU LIGHTING CONTACTOR LCC-1 LOCATED IN MECH 503*

CKT	Circuit Description	Trip	Poles	CB	A	B	C	CB	Poles	Trip	Circuit Description	CKT
1	LTS - 500 INCUBATION	20 A	1		336	759			1	20 A	LTS - 506 HALL, 507&8 TO, 511 BT, 512...	2
3	LTS - 502 FEED STO & 503 MECH	20 A	1				612 690		1	20 A	LTS - 509 JAN, 510 SHO, 513&514 OFF,...	4
5	LTS - EXTERIOR**	20 A	1				572 720		1	20 A	REC - 500 INCUBATION	6
7	REC - 501 EGG PROCESS	20 A	1		733	300			1	20 A	DISHWASHER	8
9	REC - 506A&B HALL	20 A	1				900 720		1	20 A	REC - 515 BREAK	10
11	REMOTE GEN PANEL & LCC-1	20 A	1				500 540		1	20 A	REC - 500 INCUBATION	12
13	REC - MECH 503	20 A	1		360	553			1	20 A	REC - OVER THE COUNTE & TP-1	14
15	REC - 515 BREAK (REFRIGERATOR)	20 A	1				300 540		1	20 A	REC - OVER THE COUNTER	16
17	REC -515 BREAK (KH-1 RANGE HOOD)	20 A	1				400 4000		2	50 A	ELEC RANGE	18
19	REC - 514 OFFICE	20 A	1		720	4000		--	--	--	--	20
21	REC - 507 & 508 TOILET, FV-1	20 A	1				920 900		1	20 A	REC - 511 BOOT	22
23	REC - 513 OFFICE	20 A	1				540 900		1	20 A	REC - 511 BOOT	24
25	REC - EXTERIOR	20 A	1		1080	2500			2	20 A	ELECTRIC CLOTHES DRYER	26
27	REC - 502 FEED STORAGE	20 A	1				360 2500	--	--	--	--	28
29	REC - 509 JAN & 510 SHOWER	20 A	1				360 180		1	20 A	REC - WASHER	30
31	REC - HOT WATER DISPENSER	20 A	1		1300	232			1	20 A	LTS - 501 EGG, 504 FORMALIN, 505 STO	32
33							932		1	20 A	LTS - SITE**	34
35	OHD-1 AND OHD-2	20 A	1				1392 360		1	20 A	REC - MECH 503 NETWORKING...	36
37						300			1	20 A	MCP-01 COOLING FAN	38
39	Spare	20 A	1	--		0 300			1	20 A	MCP-01	40
41	FACP	20 A	1				300 300		1	20 A	MCP-01	42
43						0		--	1	20 A	Spare	44
45							0	--	1	20 A	Spare	46
47							0	--	1	20 A	Spare	48
49												50
51												52
53												54
				Total Load:	12.90 kVA		9.64 kVA		10.76 kVA			
				Total Amps:	109 A		80 A		91 A			

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Electric Clothes Dryer	5000 VA	100.00%	5000 VA		
Electric Range - 3.5 kW to 8.75 kW	8000 VA	80.00%	6400 VA	Total Conn. Load:	33181 VA
Equipment	500 VA	100.00%	500 VA	Total Est. Demand:	32651 VA
HVAC	26 VA	125.00%	33 VA	Total Conn.:	92 A
Heating	20 VA	100.00%	20 VA	Total Est. Demand:	91 A
Kitchen Equipment - Non-Dwelling Unit	2000 VA	90.00%	1800 VA		
Lighting	4105 VA	125.00%	5131 VA		
Motor	1392 VA	112.50%	1566 VA		
Receptacle	11640 VA	100.00%	11640 VA		
Computer	900 VA	100.00%	900 VA		
Fire Alarm Panel	300 VA	100.00%	300 VA		

CB Legend (blank = circuit breaker):
G = GFCI S = Shunt Trip D = Switching Duty A = AFCI H = HID Rated C = HACR Rated † = Existing Circuit ‡ = Revised Circuit

Notes:

LIGHT FIXTURE SCHEDULE

ID	DESCRIPTION	FIXTURE VOLTAGE	FIXTURE WATTS	FIXTURE LUMENS	COLOR TEMP	CONTROL	MOUNTING	MTG HEIGHT	CLG TYPE	MANUFACTURERS CATALOG NO.	NOTES
A	LINEAR WET LOCATION	120	26	4174	4000K	OC	PENDANT	10'-0"	STR	LITHONIA FEM L48 4000LM IMAFD WD MVOLT GZ10 40K 80	
B	LINEAR IDUSTRIAL	120	34	5147	4000K	OC	PENDANT	8'-0"	STR	LITHONIA ZL1N L48 5000LM MVOLT 40K 80CRI	
C	2x4 LED TROFFER	120	36	4968	4000K	OC	RECESSED	8'-0"	GRID	LITHONIA 2GTL 4 48L GZ10 LP840	
D	2x2 LED TROFFER	120	34	3986	4000K	OC	RECESSED	8'-0"	GRID	LITHONIA 2GTL 2 40L GZ10 LP840	
E	LED WRAPAROUND 1X4	120	49	4000	4000K	OC	SURFACE	8'-0"	GWB	LITHONIA FML4W 48 4000LM 840	
F	VANITY	120	18	1800	4000K	OC	SURFACE	7'-0"	WALL	LITHONIA WL2 18L EZ1 LP840	
H	8" CAN DOWNLIGHT	120	25	2572	4000K	OC	RECESSED	8'-0"	GRID	LITHONIA LBR8 20LM 40K AR WD	
I	BUILDING EXTERIOR	120	52	7753	4000K	PHOTOCELL	SURFACE	VARIES	WALL	LITHONIA WDGE3 LED P1 40K 80CRI R4 MVOLT SRM DDBXD	
J	AREA LIGHTING	120	466	57549	4000K	PHOTOCELL	SURFACE	VARIES	WALL	LITHONIA DSX2 LED P8 40K 70CRI TFTM MVOLT SPA DDBXD	
L	6" RECESSED CAN LIGHT SHOWER	120	20	1729	4000K	OC	RECESSED	8'-0"	GWB	GOTHAM EVO6SH 4000 20 DFFAMF SOL MVOLT	
X	COMBINATION EXIT EMERGENCY LIGHT	120	-	-	GREEN		SURFACE	7'-6"	WALL	LITHONIA LHQM LED G	
EM	BUG EYE EMERGENCY LIGHT	120	-	-	-		SURFACE	7'-6"	WALL	LITHONIA ELM4L	

ABBREVIATIONS:
GWB = GYPSUM WALL BOARD
GRID = LAY-IN GRID
STR = EXPOSED STRUCTURE

GENERAL NOTES:
1. MOUNTING HEIGHTS SHOWN ARE TYPICAL FOR FIXTURE TYPE UNLESS OTHERWISE INDICATED ON THE PLANS.
2. FIXTURE TYPES INDICATED IN EACH ROOM ON THE PLANS ARE TYPICAL FOR ALL FIXTURES USING THE SAME SYMBOL IN THAT ROOM UNLESS OTHERWISE INDICATED.

Stantec

Name: **MDP** | Volts: 208Y/120V | Mains Type: MCB | Type:
Location: MECH 503 | Phases: 3 | Mains Rating: 400 A | AIC Rating: 22 kAIC
Supply From: | Wires: 4 | | Mounting: Surface
Serves: | | Lugs: | Enclosure: Type 1

Notes:

#	Description	Load	Trip	Poles	Type	Remarks
1	5P	33181	150 A	3		
2	M	35243	225 A	3		
3	M2	38788	200 A	3		
4	GEN-PNL	15311	60 A	3		
5	PNL-301	4000	50 A	3		
6	PNL-401	3900	50 A	3		
7	PNL-601	7700	50 A	3		
8	Spare	0	100 A	3	--	
9						
10						
11						
12						
	Total Conn. Load:	137.87 kVA				
	Total Amps:	383 A				

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Electric Clothes Dryer	5000 VA	100.00%	5000 VA		
Electric Range - 3.5 kW to 8.75 kW	8000 VA	80.00%	6400 VA	Total Conn. Load:	137870 VA
Equipment	15811 VA	100.00%	15811 VA	Total Est. Demand:	151926 VA
HVAC	56309 VA	125.00%	70386 VA	Total Conn.:	383 A
Heating	12020 VA	100.00%	12020 VA	Total Est. Demand:	422 A
Kitchen Equipment - Non-Dwelling Unit	2000 VA	90.00%	1800 VA		
Lighting	4536 VA	125.00%	5670 VA		
Motor	7081 VA	108.78%	7702 VA		
Power	15600 VA	100.00%	15600 VA		
Receptacle	12000 VA	100.00%	12000 VA		
Computer	900 VA	100.00%	900 VA		
Fire Alarm Panel	300 VA	100.00%	300 VA		

Legend:
CB = Circuit Breaker C = HACR Rated F = Fused Switch G = GFCI H = HID Rated M = Motor Circuit Protection S = Shunt Trip # = See Notes † = Existing Circuit ‡ = Revised Circuit

Notes:

0 Revision	By	Appd	YYYY.MM.DD		
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Client/Project Logo — TULALIP TRIBES

Client/Project
Tulalip Tribe

Battle Creek Hatchery

File Name: N/A | CLR Dwn. | CLR Dsgn. | LPS Chkd. | 2022.11.23 YYYY.MM.DD

Title
INCUBATION BUILDING ELECTRICAL SCHEDULES 1 OF 2

Project No. 224202267
Scale
Revision 0
Drawing No. **5E-4**

<Pw Update In Project Information>
2/12/2025 1:54:31 PM
ORIGINAL SHEET - ANSI D

2/12/2025

Stantec — Panel

Name: **M2** | Volts: 208Y/120V | Mains Type: MLO | Type:
Location: MECH 503 | Phases: 3 | Mains Rating: 225 A | AIC Rating: 22 kAIC
Supply From: MDP | Wires: 4 | Max Rating: 200 A | Mounting: Surface
Serves: | Lugs: Single Lugs | Enclosure: Type 1

CKT	Circuit Description	Trip	Poles	CB	A		B		C		CB	Poles	Trip	Circuit Description	CKT
1	ERP-1A	20 A	3		1600	1600						3	20 A	ERP-1B	2
3	--	--	--	--			1600	1600			--	--	--	--	4
5	--	--	--	--					1600	1600	--	--	--	--	6
7	HEAT TRACE	20 A	2	G	1250	500						2	20 A	EPR-2A, EPR-2B, ERP-2C, EPR-2D	8
9	--	--	--	--			1250	500			--	--	--	--	10
11	ODU-1	50 A	2						3120	2600		2	40 A	ODU-2	12
13	--	--	--	--	3120	2600					--	--	--	--	14
15	EBB-1A, EEB-1B, EE-4A	20 A	2				1125	500				2	20 A	EBB-1C, EBB-1D	16
17	--	--	--	--					1125	500	--	--	--	--	18
19	EBB-2A , EBB-2B ,EBB-4B	20 A	2		1375	1125						2	20 A	EBB-4C, EBB-3A	20
21	--	--	--	--			1375	1125			--	--	--	--	22
23	ERP-2E	20 A	2						125	829		3	20 A	BP-1	24
25	--	--	--	--	125	829					--	--	--	--	26
27	EF-1	20 A	1				696	829			--	--	--	--	28
29	EF-2	15 A	2						822	864		1	15 A	P-540 (FORMALIN TANK)	30
31	--	--	--	--	822	360						1	20 A	REC - EFFLUENT DRUM BLDG.	32
33	LTS- EFFLUENT DRUM FILTER BLDG.	20 A	1				436	0			--	1	20 A	Spare	34
35	Spare	20 A	1	--					0	0	--	1	20 A	Spare	36
37	Spare	20 A	1	--	0	0					--	1	20 A	Spare	38
39	Spare	20 A	1	--			0								40
41															42
43															44
45															46
47															48
49															50
51															52
53															54
				Total Load:	15.08 kVA		10.84 kVA		12.88 kVA						
				Total Amps:	128 A		90 A		110 A						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	21040 VA	125.00%	26300 VA		
Heating	12000 VA	100.00%	12000 VA	Total Conn. Load:	38788 VA
Lighting	436 VA	125.00%	545 VA	Total Est. Demand:	44693 VA
Motor	5689 VA	110.92%	6310 VA	Total Conn.:	108 A
Receptacle	360 VA	100.00%	360 VA	Total Est. Demand:	124 A

CB Legend (blank = circuit breaker):
G = GFCI S = Shunt Trip D = Switching Duty A = AFCI H = HID Rated C = HACR Rated † = Existing Circuit ‡ = Revised Circuit

Notes:

Stantec — Panel

Name: **M** | Volts: 208Y/120V | Mains Type: MLO | Type:
Location: MECH 503 | Phases: 3 | Mains Rating: 225 A | AIC Rating: 22 kAIC
Supply From: MDP | Wires: 4 | Max Rating: 225 A | Mounting: Surface
Serves: | Lugs: Single Lugs | Enclosure: Type 1

Notes:

CKT	Circuit Description	Trip	Poles	CB	A		B		C		CB	Poles	Trip	Circuit Description	CKT
1	IDU1-1,4,5,6,8 & IDU2-1,3	20 A	2	15/2	46	55						2	20 A	IDU1-2,3,7 & IDU2-2,4,5	2
3	--	--	--	--			46	55			--	--	--	--	4
5	EUH-1A	20 A	2						1100	1233		3	20 A	EUH-2A	6
7	--	--	--	--	1100	1233					--	--	--	--	8
9	EUH-1B	20 A	2				1100	1233			--	--	--	--	10
11	--	--	--	--					1100	1233		3	20 A	EUH-2B	12
13	EUH-1C	20 A	2		1100	1233					--	--	--	--	14
15	--	--	--	--			1100	1233			--	--	--	--	16
17	EUH-1D	20 A	2						1100	1233		3	20 A	EUH-2D	18
19	--	--	--	--	1100	1233					--	--	--	--	20
21	EUH-1E	20 A	2				1100	1233			--	--	--	--	22
23	--	--	--	--					1100	1867		3	20 A	EUH-3A	24
25	ERV-1	15 A	2		562	1867					--	--	--	--	26
27	--	--	--	--			562	1867			--	--	--	--	28
29	ERV-2	15 A	3						288	1233		3	20 A	EUH-4A	30
31	--	--	--	--	288	1233					--	--	--	--	32
33	--	--	--	--			288	1233			--	--	--	--	34
35	ERV-3	20 A	3						552	0	--	1	20 A	Spare	36
37	--	--	--	--	552	0					--	1	20 A	Spare	38
39	--	--	--	--			552	0			--	1	20 A	Spare	40
41	Spare	20 A	1	--					0						42
43	Spare	20 A	1	--	0										44
45	Spare	20 A	1	--			0								46
47															48
49															50
51															52
53															54
				Total Load:	11.60 kVA		11.60 kVA		12.04 kVA						
				Total Amps:	97 A		97 A		100 A						

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	35243 VA	125.00%	44054 VA		
				Total Conn. Load:	35243 VA
				Total Est. Demand:	44054 VA
				Total Conn.:	98 A
				Total Est. Demand:	122 A

CB Legend (blank = circuit breaker):
G = GFCI S = Shunt Trip D = Switching Duty A = AFCI H = HID Rated C = HACR Rated † = Existing Circuit ‡ = Revised Circuit

Notes:

0	Revision	By	Appd	YYYY.MM.DD
A	100% DESIGN	CR	JCD	2025.01.14
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Client/Project
Tulalip Tribe

Battle Creek Hatchery

File Name: N/A | CLR Dwn. | CLR Dsgn. | LPS Chkd. | 2022.11.23 YYYY.MM.DD

Title
INCUBATION BUILDING ELECTRICAL SCHEDULES 2 OF 2

Project No. 224202267
Scale
Revision 0
Drawing No. **5E-5**

<Pw Location In Project Information>
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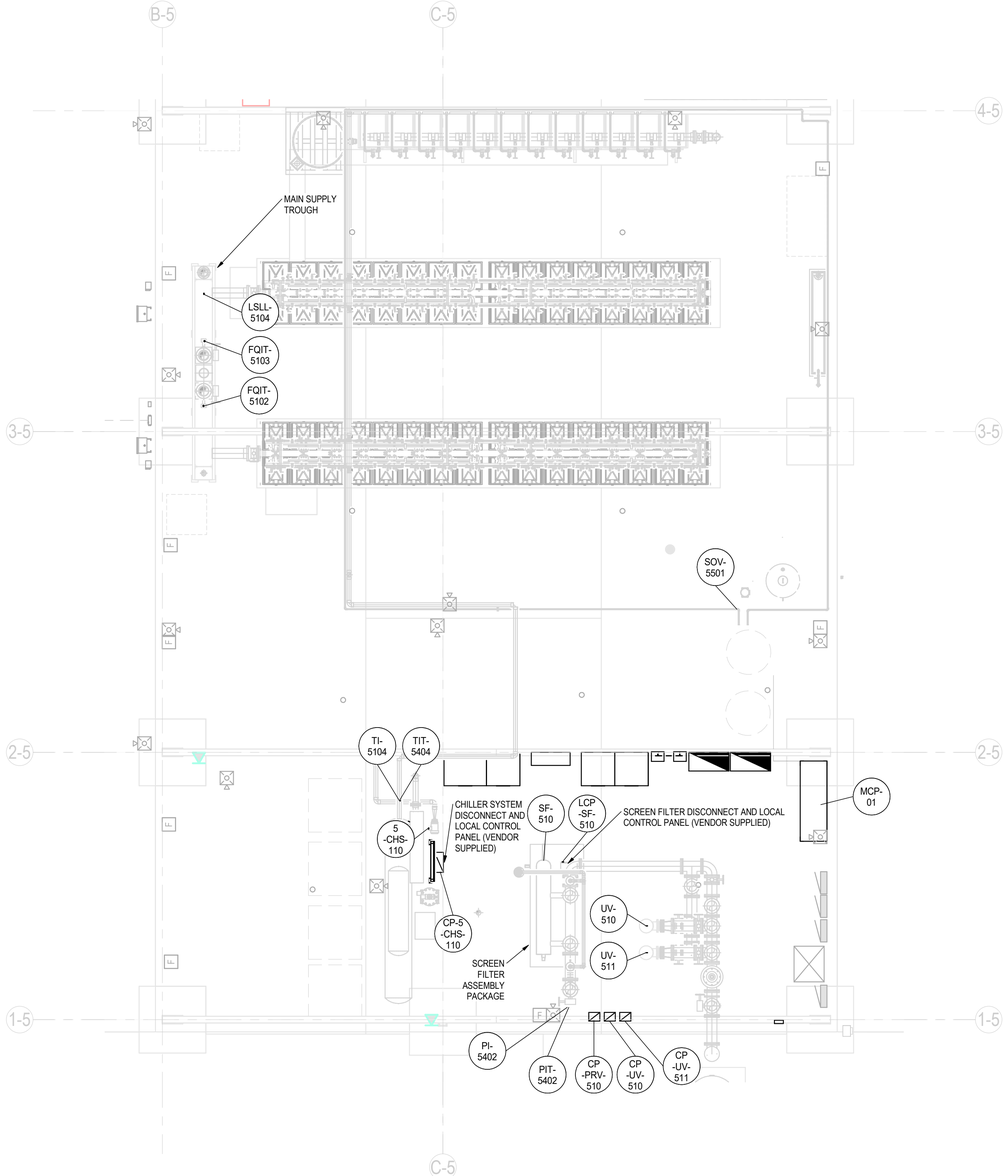
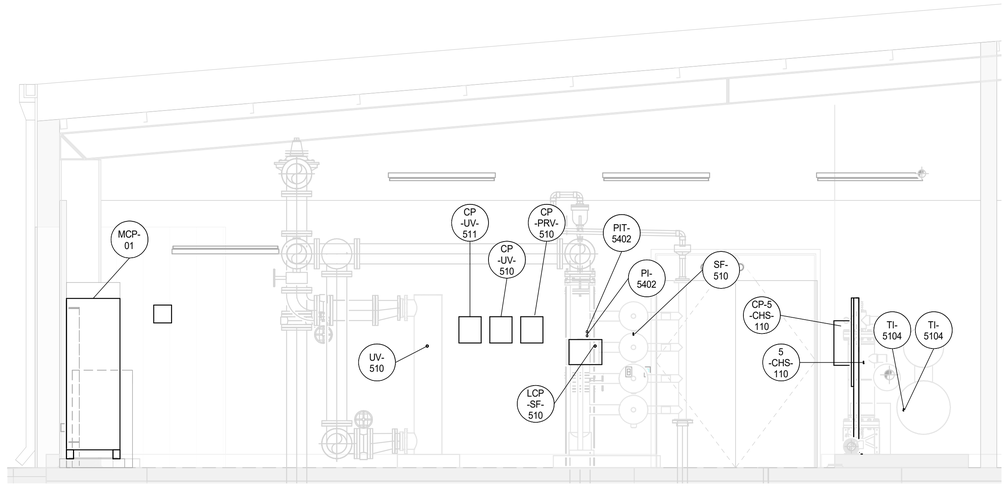
ORIGINAL SHEET - ANSI D

2/12/2025



1 5E-6 **PLAN - PROCESS EQUIPMENT POWER**

3/16" = 1'-0"



2 5E-6 **LCP PANELS**

3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
0			

Issued	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14

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Client/Project
TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: N/A	JM	JS	JR	2024.12.27
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
INCUBATION BUILDING ELECTRICAL PLAN & SECTIONS FOR PROCESS EQUIPMENT

Project No.	Scale
224202267	As indicated
Revision	**Drawing No.**
0	**5E-6**

<Plot Location in Project Information>
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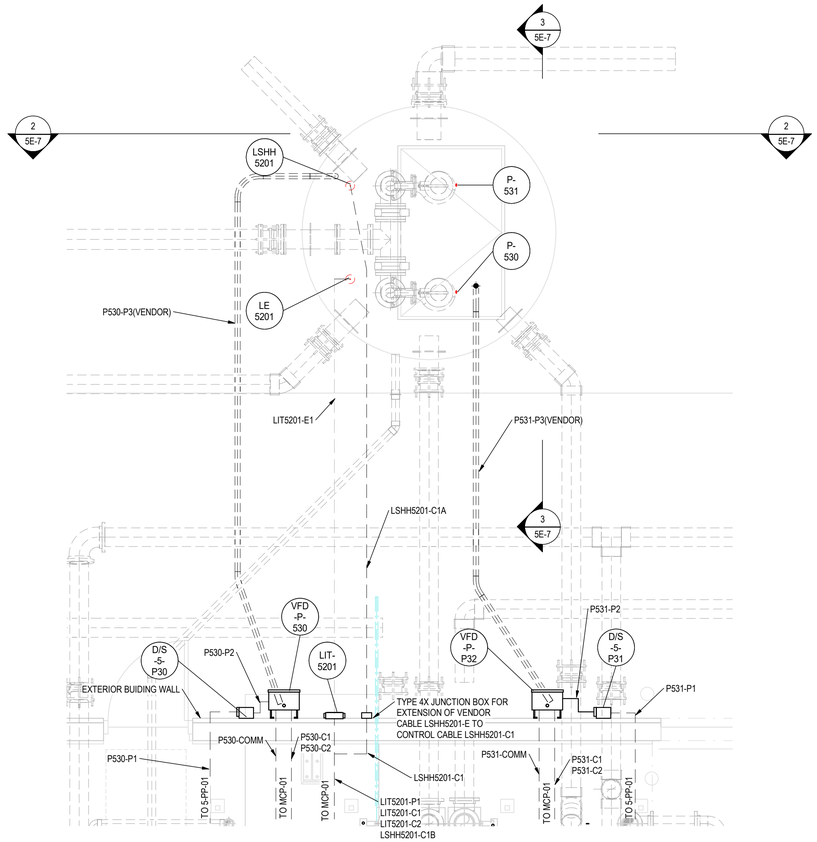
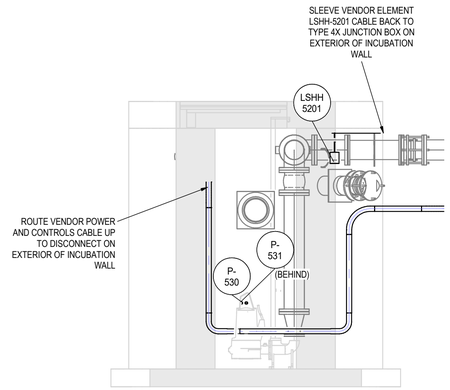


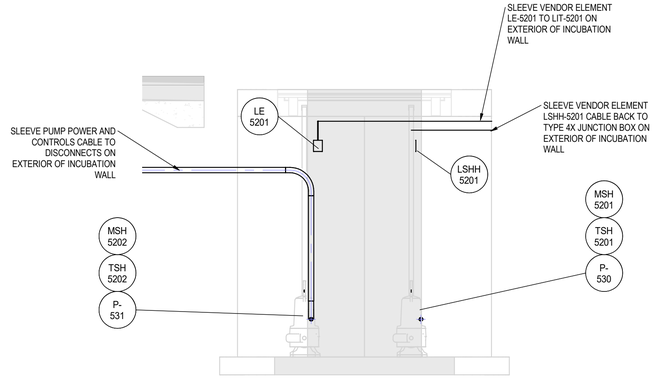
1 5E-7 PLAN - REUSE PUMP STATION

3/8" = 1'-0"



2 5E-7 Section 2

3/8" = 1'-0"



3 5E-7 Section 3

3/8" = 1'-0"

GENERAL NOTES

1. PROVIDE WALL MOUNTED 480VAC, 3P, HP RATED DISCONNECTS FOR SUBMERSIBLE REUSE PUMPS. MOUNT NEAR EXTERIOR WALL OF INCUBATION BUILDING IN SIGHT OF REUSE WELL.
2. ROUTE REUSE PUMP MOTOR CABLES BACK TO VFDs IN PANELBOARD 5-PP-01
3. REUSE PUMPS TO COME WITH INTERNAL TEMPERATURE AND MOISTURE LEAK DETECTION. SIGNALS TO BE ROUTED BACK TO RESPECTIVE VFDs AS INERLOCKS.
4. VENDOR LEVEL SWITCH AND LEVEL ELEMENT CABLES TO BE ORDERED LONG ENOUGH TO SLEEVE FROM REUSE PUMP STATION TO EXTERIOR OF INCUBATION WALL. TERMINATE LEVEL ELEMENT CABLE LE-5201 TO LIT-5201. INSTALL TYPE 4X JUNCTION BOX NEXT TO LIT-5201 TO EXTEND LSHH-5201 VENDOR CABLE TO CONTROL CABLE BACK TO MCP-01. CONFIRM INSTRUMENT VENDOR CABLE LENGTHS PRIOR TO ORDERING.
5. PROVIDE SUN-SHIELD FOR LIT-5201.
6. ROUTE REUSE PUMP VENDOR POWER AND CONTROL CABLE TO VFD ON EXT. WALL.

Revision	By	Appd	YYYY.MM.DD
0			

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A 100% DESIGN	JM	JCD	2025.01.14

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BATTLE CREEK HATCHERY

File Name: N/A | Dwn. JM | Dsgn. JS | Chkd. JR | YYYY.MM.DD 2024.12.27

Title
INCUBATION BUILDING REUSE PUMP STATION ELECTRICAL PLAN & SECTIONS

Project No. 224202267
Scale 3/8" = 1'-0"
Revision 0
Drawing No. 5E-7

<Pro_tsetting> Project Information>
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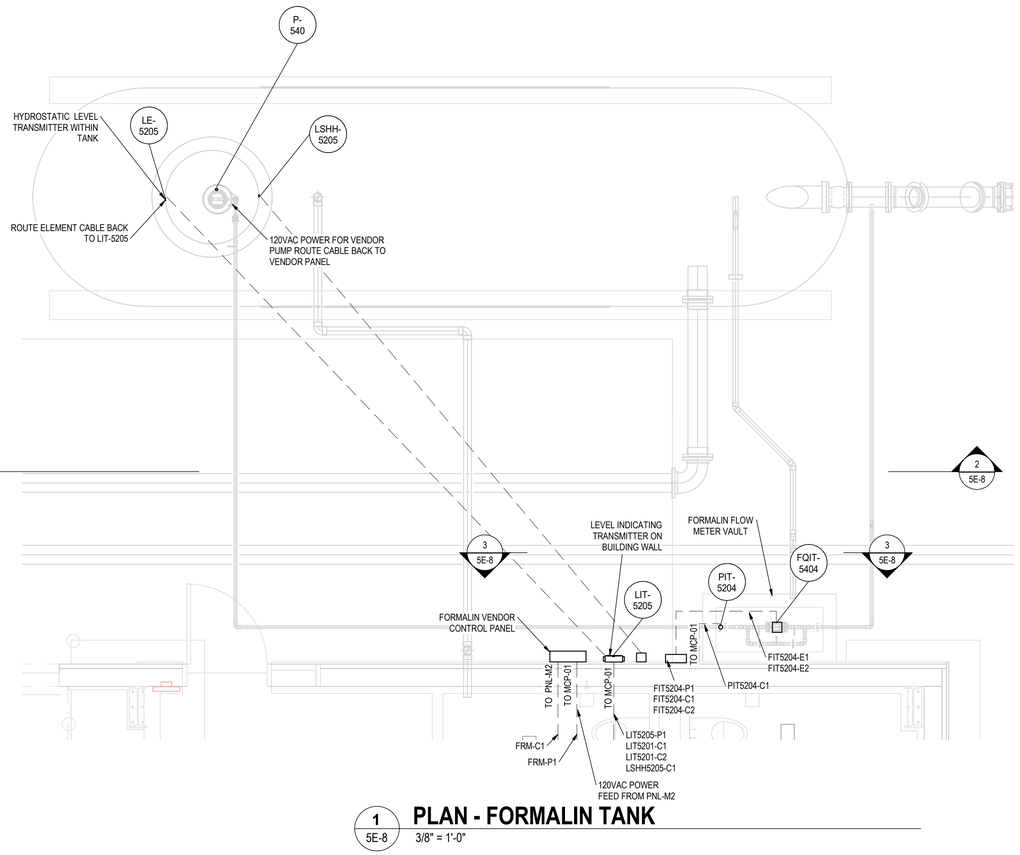
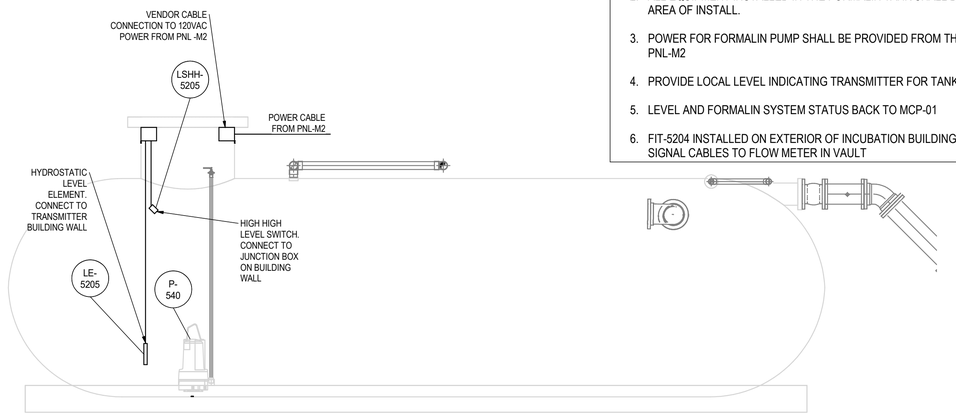


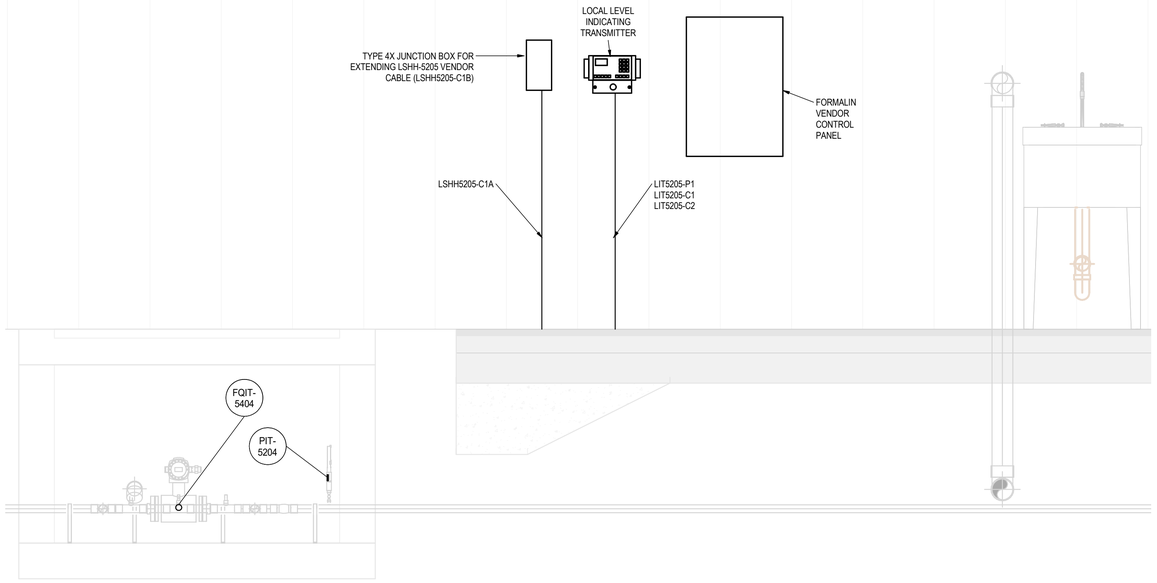
1 5E-8 PLAN - FORMALIN TANK
3/8" = 1'-0"



2 5E-8 SECTION - FORMALIN TANK
3/8" = 1'-0"

GENERAL NOTES

1. COORDINATE WITH FORMALIN TANK VENDOR FOR MOTOR CONNECTION AND LEVEL INSTRUMENTS TO FIELD WIRING. WIRING BOXES AND CONNECTIONS TO BE RATED FOR THE AREA OF INSTALL.
2. ALL EQUIPMENT INSTALLED IN THE FORMALIN TANK SHALL BE RATED FOR THE AREA OF INSTALL.
3. POWER FOR FORMALIN PUMP SHALL BE PROVIDED FROM THE 102/208VAC PNL-M2
4. PROVIDE LOCAL LEVEL INDICATING TRANSMITTER FOR TANK LEVEL.
5. LEVEL AND FORMALIN SYSTEM STATUS BACK TO MCP-01
6. FIT-5204 INSTALLED ON EXTERIOR OF INCUBATION BUILDING. CONNECT VENDOR SIGNAL CABLES TO FLOW METER IN VAULT



3 5E-8 SECTION - FORMALIN FLOW METER VAULT & BUILDING WALL
1" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
0			

Issued	By	Appd	YYYY.MM.DD
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BATTLE CREEK HATCHERY

File Name: N/A | Dwn. JM | Dsgn. JS | Chkd. JR | 2024.12.27 YYYY.MM.DD

Title
INCUBATION BUILDING FORMALIN METERING TANK ELECTRICAL PLAN & SECTION

Project No. 224202267
Scale As indicated
Revision 0
Drawing No. **5E-8**

<Plot Location in Project Information>
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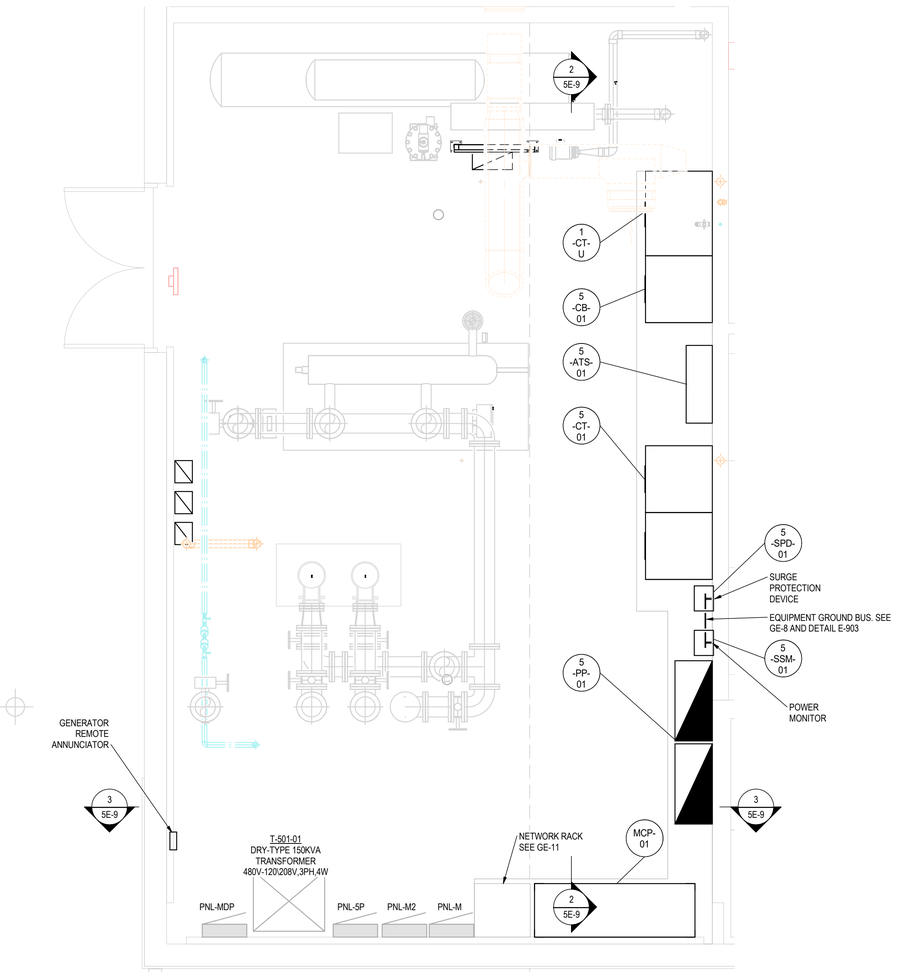
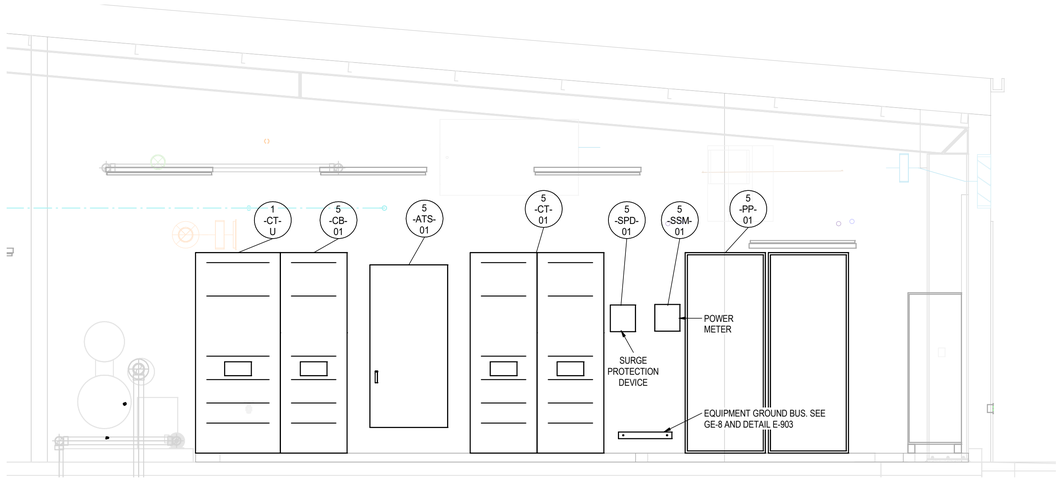
ORIGINAL SHEET - ANSI D

2/12/2025



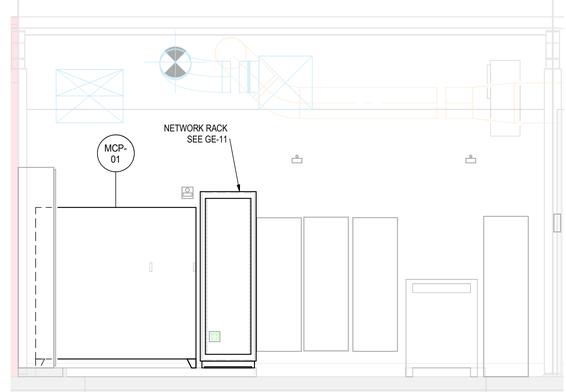
PLAN VIEW - POWER DISTRIBUTION EQUIPMENT

1 / 5E-9 — 3/8" = 1'-0"



SECTION - POWER DISTRIBUTION EQUIPMENT

2 / 5E-9 — 3/8" = 1'-0"



SECTION - PLC AND NETWORK CABINETS

3 / 5E-9 — 3/8" = 1'-0"

Revision	By	Appd	YYYY.MM.DD
0			

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A 100% DESIGN	JM	JCD	2025.01.14

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BATTLE CREEK HATCHERY

File Name: N/A	Dwn.	Chkd.	Dsgn.	YYYY.MM.DD
	JM	JR	JS	2024.12.27

Title
INCUBATION BUILDING - POWER DISTRIBUTION EQUIPMENT LAYOUT

Project No.	Scale
224202267	3/8" = 1'-0"
Revision: 0	Drawing No.: 5E-9

<Pw location in Project Information>
2/12/2025 2:27:14 PM
ORIGINAL SHEET - ANSI D

AREA #5 INCUBATION														
DEVICE GROUP	CABLE/CONDUIT TAG (INDIVIDUAL)	APPLICATION	VOLTS	CONDUIT TYPE	RUN			CONDUCTORS				CONDUIT	COMMENTS
					FROM	VIA	TO	WIRE COUNT	WIRE SIZE (CU.)	SPARE	GROUND/ BOND/SHLD	SIZE	
PNL-M	PNLM-P1	POWER	208VAC	PVC,GRC	PNL-MDP	U/G,S	PNL-M	4C	#4/0AWG	-	#4AWG	2 1/2"	
PNL-M2	PNLM2-P1	POWER	208VAC	PVC,GRC	PNL-MDP	U/G,S	PNL-M2	4C	#1AWG	-	#6AWG	2"	
PNL-5P	PNL5P-P1	POWER	208VAC	PVC,GRC	PNL-MDP	U/G,S	PNL-5P	4C	#1AWG	-	#6AWG	2"	
5-SPD-01	5SPD01-P1	POWER	480VAC	PVC,GRC	5-PP-01	S	5-SPD-01	4C	#4AWG	1C	#6AWG	1 1/2"	
PNL-MDP	PNLMDP-P1	POWER	480VAC	PVC,GRC	5-PP-01	U/G,S	T-501-01	3C	#4/0AWG	-	#4AWG	2 1/2"	
PNL-MDP	PNLMDP-P2	POWER	208VAC	PVC,GRC	T-501-01	U/G,S	PNL-MDP	4C	300kcmil	-	#4AWG	3"	
PNL-MDP	PNLMDP-P3	POWER	208VAC	PVC,GRC	T-501-01	U/G,S	PNL-MDP	4C	300kcmil	-	#4AWG	3"	
P-530 SUBMERSIBLE REUSE PUMP	P530-C1	CONTROLS	24VDC	PVC,GRC	VFD-P-530	U/G,S	MCP-01	14C	#14AWG	2C	#14AWG	1"	BUNDLED DIGITAL SIGNALS
	P530-C2	CONTROLS	24VDC	PVC,GRC	VFD-P-530	U/G,S	MCP-01	2PR	#16AWG	-	#14AWG	1"	BINDLED ANALOG SIGNALS
	P530-COMM	COMMS	-	PVC,GRC	VFD-P-530	S	MCP-01	CAT6	-	-	-	3/4"	
	P530-P1	POWER	480VAC	PVC,GRC	5-PP-01	U/G,S	P-530-D/S	3C	#8AWG	-	#10AWG	1"	
	P530-P2	POWER	480VAC	PVC,GRC	P-530-D/S	S	VFD-P-510	3C	#8AWG	-	#10AWG	1"	
	P530-P3	POWER	480VAC	PVC,GRC	VFD-P-530	U/G,S	P-530	VENDOR					
P-531 SUBMERSIBLE REUSE PUMP	P531-C1	CONTROLS	24VDC	PVC,GRC	VFD-P-531	U/G,S	MCP-01	14C	#14AWG	2C	#14AWG	1"	BUNDLED DIGITAL SIGNALS
	P531-C2	CONTROLS	24VDC	PVC,GRC	VFD-P-531	U/G,S	MCP-01	2PR	$16AWG	-	#14AWG	1"	BINDLED ANALOG SIGNALS
	P531-COMM	COMMS	-	PVC,GRC	VFD-P-531	S	MCP-01	CAT6	-	-	-	3/4"	
	P531-P1	POWER	480VAC	PVC,GRC	5-PP-01	U/G,S	P-531-D/S	4C	#8AWG	-	#10AWG	1"	
	P531-P2	POWER	480VAC	PVC,GRC	P-531-D/S	S	VFD-P-511	4C	#8AWG	-	#10AWG	1"	
	P531-P3	POWER	480VAC	PVC,GRC	VFD-P-531	U/G,S	P-531-D/S	VENDOR					
UV-510 ELECTRICAL CABINET UV PANEL	UV510-C1	CONTROL	24VDC	PVC,GRC	CP-UV-510	S	MCP-01	8C	#14AWG	2C	#14AWG	1"	BUNDLED DIGITAL SIGNALS
	UV510-C2	CONTROL	24VDC	PVC,GRC	CP-UV-510	S	MCP-01	2PR	#16AWG	-	#14AWG	3/4"	BUNDLED ANALOG SIGNALS
	UV510-C3	CONTROL	24VDC	PVC,GRC	CP-UV-510	S	UV-510	VENDOR					UV CONTROL (VENDOR)
	UV510-P1	POWER	480VAC	PVC,GRC	4-PP-01	S	CP-UV-510	4C	#6AWG	-	#8AWG	1 1/2"	
	UV510-P2	POWER	480VAC	PVC,GRC	CP-UV-510	S	UV LAMPS	VENDOR					UV LAMPS (POWER)
	UV510-COMM1	COMMS	-	PVC,GRC	CP-UV-510	U/G,S	MCP-01	CAT6	-	-	-	3/4"	
UV-511 ELECTRICAL CABINET UV PANEL	UV511-C1	CONTROL	24VDC	PVC,GRC	CP-UV-511	S	MCP-01	8C	#14AWG	2C	#14AWG	1"	BUNDLED DIGITAL SIGNALS
	UV511-C2	CONTROL	24VDC	PVC,GRC	CP-UV-511	S	MCP-01	2PR	#16AWG	-	#14AWG	3/4"	BUNDLED ANALOG SIGNALS
	UV511-C3	CONTROL	24VDC	PVC,GRC	CP-UV-511	S	UV-511	VENDOR					UV CONTROL (VENDOR)
	UV511-P1	POWER	480VAC	PVC,GRC	4-PP-01	S	CP-UV-511	4C	#6AWG	-	#8AWG	1 1/2"	
	UV511-P2	POWER	480VAC	PVC,GRC	CP-UV-511	S	UV LAMPS	VENDOR					UV LAMPS (POWER)
	UV511-COMM1	COMMS	-	PVC,GRC	CP-UV-511	U/G,S	MCP-01	CAT6	-	-	-	3/4"	
SF-510 SCREEN FILTER ASSEMBLY	SFVCP-C1	CONTROLS	24VDC	PVC,GRC	VFD-SF-510	U/G,S	MCP-01	20C	#14AWG	2C	#14AWG	1 1/2"	
	SFVCP-COM1	COMMS	-	PVC,GRC	VFD-SF-510	U/G,S	MCP-01	CAT6	-	-	-	3/4"	
	SFVCP-P1	POWER	480VAC	PVC,GRC	VFD-SF-510	U/G,S	5-PP-01	4C	?	?	?	?	
FQIT-5403	FQIT5403-C1	CONTROLS	24VDC	PVC,GRC	FQIT-5403	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT5403-C2	CONTROLS	24VDC	PVC,GRC	FQIT-5403	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT5403-P1	POWER	24VDC	PVC,GRC	FQIT-5403	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	
CP-PRV-510	PRV510-P1	POWER	120VAC	PVC,GRC	CP-PRV510	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	CONTROL PANEL/SOLENOID PANEL
	PRV510-C1	CONTROLS	24VDC	PVC,GRC	CP-PRV510	S	MCP-01	4PR	#16AWG	1PR	#14AWG	3/4"	VALVE POSITION INDICATION, POSITION COMMAND, FAULT
	PRV510-C2	CONTROLS	24VDC	PVC,GRC	PRV-510	S	CP-PRV510	1PR	#16AWG	-	#14AWG	3/4"	VALVE POSITION INDICATION
	PRV510-P2	POWER	120VAC	PVC,GRC	CP-PRV510	S	PRV-SOL1	2C	#14AWG	-	#14AWG	3/4"	
	PRV510-P3	POWER	120VAC	PVC,GRC	CP-PRV510	S	PRV-SOL2	2C	#14AWG	-	#14AWG	3/4"	

					RUN			CONDUCTORS				CONDUIT	
DEVICE GROUP	CABLE/CONDUIT TAG (INDIVIDUAL)	APPLICATION	VOLTS	CONDUIT TYPE	FROM	VIA	TO	WIRE COUNT	WIRE SIZE (CU.)	SPARE	GROUND/ BOND/SHLD	SIZE	COMMENTS
TIT-5404	TIT5404-C1	CONTROLS	24VDC	PVC,GRC	TIT-5404	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
PIT-5401	PIT5401-C1	CONTROLS	24VDC	PVC,GRC	PIT-5401	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
PIT-5402	PIT5402-C1	CONTROLS	24VDC	PVC,GRC	PIT-5402	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
5-CHS-110 CHILLER	5CHS110-C1	CONTROLS	24VDC	PVC,GRC	5-CHS-110	U/G,S	MCP-01	10C	#14AWG	2C	#14AWG	1 1/2"	
	5CHS110-COM1	COMMS	-	PVC,GRC	5-CHS-110	U/G,S	MCP-01	CAT6	-	-	-	3/4"	
LSHH-5201	LSHH5201-C1	CONTROLS	24VDC	PVC,GRC	LSHH-5201	U/G,S	MCP-01	VENDOR					
LSLL-5101	LSHH5101-C1	CONTROLS	24VDC	PVC,GRC	LSHH-5101	U/G,S	MCP-01	VENDOR					
LIT-5201	LIT5201-C1	CONTROLS	24VDC	PVC,GRC	LIT-5201	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	LIT5201-C2	CONTROLS	24VDC	PVC,GRC	LIT-5201	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	DIGITAL SIGNAL
	LIT5201-E1	CONTROLS	-	PVC,GRC	LIT-5201	U/G,S	LE-5201	VENDOR					
	LIT5201-P1	POWER	24VDC	PVC,GRC	LIT-5201	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	
LIT-5204	LIT5204-C1	CONTROLS	24VDC	PVC,GRC	LIT-5204	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	LIT5204-C2	CONTROLS	24VDC	PVC,GRC	LIT-5204	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	DIGITAL SIGNAL
	LIT5204-E1	CONTROLS	-	PVC,GRC	LIT-5204	U/G,S	LE-5204	VENDOR					
	LIT5204-P1	POWER	24VDC	PVC,GRC	LIT-5204	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	
LSHH-5204	LSHH5204-C1	CONTROLS	24VDC	PVC,GRC	LSHH-5204	U/G,S	MCP-01	VENDOR					
P520 FORMALIN DILUTION PUMP	P520-C1	CONTROLS	24VDC	PVC,GRC	VFD-P-520	U/G,S	MCP-01	14C	#14AWG	2C	#14AWG	1"	BUNDLED DIGITAL SIGNALS
	P520-C2	CONTROLS	24VDC	PVC,GRC	VFD-P-520	U/G,S	MCP-01	2PR	$16AWG	-	#14AWG	1"	BINDLED ANALOG SIGNALS
	P520-P1	POWER	120VAC	PVC,GRC	PNL-M2	U/G,S	VFD-P-520	2C	#14AWG	-	#14AWG	3/4"	
	P520-P2	POWER	120VAC	PVC,GRC	VFD-P-520	U/G,S	P-520	VENDOR					
PIT-5204	PIT5204-C1	CONTROLS	24VDC	PVC,GRC	PIT-5204	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
PIT-5402	PIT5402-C1	CONTROLS	24VDC	PVC,GRC	PIT-5402	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
FQIT-5404	FQIT5404-C1	CONTROLS	24VDC	PVC,GRC	FQIT-5404	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT5404-C2	CONTROLS	24VDC	PVC,GRC	FQIT-5404	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT5404-P1	POWER	24VDC	PVC,GRC	FQIT-5404	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	
FQIT-5102	FQIT5102-C1	CONTROLS	24VDC	PVC,GRC	FQIT-5102	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT5102-C2	CONTROLS	24VDC	PVC,GRC	FQIT-5102	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT5102-P1	POWER	24VDC	PVC,GRC	FQIT-5102	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	
FQIT-5101	FQIT5101-C1	CONTROLS	24VDC	PVC,GRC	FQIT-5101	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT5101-C2	CONTROLS	24VDC	PVC,GRC	FQIT-5101	U/G,S	MCP-01	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT5101-P1	POWER	24VDC	PVC,GRC	FQIT-5101	U/G,S	MCP-01	2C	#14AWG	-	#14AWG	3/4"	
SOV-5501	SOV5501-C1	CONTROLS	24VDC	PVC,GRC	SOV-5501	U/G,S	LCP-500	4C	#14AWG	-	#14AWG	3/4"	DIGITAL SIGNALS
	SOV5501-P1	POWER	120VAC	PVC,GRC	SOV-5501	U/G,S	LCP-500	4C	#12AWG	-	#14AWG	3/4"	
WH-1 DOMESTIC WATER HEATER	WH1-P1	POWER	480VAC	PVC,GRC	5-PP-01	S	WH-1	4C	#8AWG	-	#10AWG	2"	
1-ATS-02	ATS02-COMM	COMMS	-	PVC,GRC	1-ATS-02	S	MCP-01	CAT6	-	-	-	3/4"	
AREA #5 MASTER CONTROL PANEL (MCP-01)	C500-COM	COMMS	-	-	MCP-01	S	NETWORK PANEL	CAT6	-	-	-	3/4"	ETHERNET
	MCP01-P1	POWER	120VAC	-	PNL-5P	S	MCP-01	2C	#12AWG	-	#14AWG	3/4"	MCP PANEL POWER
	MCP01-P2	POWER	120VAC	-	PNL-5P	S	MCP-01	2C	#12AWG	-	#14AWG	3/4"	MCP PANEL HEATER POWER

NOTES

1. CABLE AND CONDUIT SCHEDULE SHOWS INDIVIDUAL RUNS TO CONVEY DESIGN INTENT. WHERE ACCEPTABLE IN N.E.C, CONTRACTOR PERMITTED TO REDUCE THE NUMBER OF CONDUIT RU
2. DO NOT COMBINE PARALLEL RUNS IN A SINGLE CONDUIT RUN.
3. UNDER THE 'VIA' HEADING IN THE TABLE FOR CONDUIT ROUTING, ALL UNDGERGROUND CONDUIT RUNS TO BE PVC. EXIT ABOVE GRADE WITH GRC. SURFACE CONDUIT TO BE GRC.
4. WHERE CONDUITS ARE DENOTED AS SURFACE INSTALLATION, CONTRACTOR MAY RUN CONDUITS UNDERGROUND OR IN-SLAB WHERE ACCEPTABLE

LEGEND

U/G	UNDERGROUND CONDUIT INSTALLATION
S	SURFACE CONDUIT INSTALLATION
PVC	POLYVINYL CHLORIDE
GRC	GALVANIZED RIGID CONDUIT

AREA 5 - CABLE AND CONDUIT SCHEDULE

SCALE: NTS

Revision	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: 022678CH-5E-10 | Dwn. SYM | Dsgn. DBSV | Chkd. CJWS | 2024.12.27 YYYY.MM.DD

Title
INCUBATION BUILDING ELECTRICAL CABLE AND CONDUIT SCHEDULE

Project No. 224202267
Scale AS NOTED
Revision 0
Drawing No. 5E-10

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ORIGINAL SHEET - ANSI D

2/12/2025

Exhibit D.1 Page 325 of 350

GENERAL NOTES

1. LIGHT FIXTURE MOUNTED ON 10-FT. POLE (U.O.N) AND BASEWITH INTEGRAL LIGHT SWITCH IN WEATHERPROOF ENCLOSURE, SEE DETAIL E-600. LIGHT FIXTURE TYPE; LITHONIA DSX2 LED P8 40K 70CRI TFTM MVOLT SPA DDBXD

0 Revision	By	Appd	YYYY.MM.DD	
A 100% DESIGN Issued	CR By	JCD Appd	2025.01.14 YYYY.MM.DD	

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PROJECT ADDRESS

File Name: N/A | CLR Dwn. | CLR Dsgn. | LPS Chkd. | 09/05/24 YYYY.MM.DD

Title
REARING TANKS ELECTRICAL LIGHTING AND POWER PLAN

Project No. 224202267
Scale 1/16" = 1'-0"
Revision 0
Drawing No. 6E-1

<Plot Location in Project Information>
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ORIGINAL SHEET - ANSI D

4/20/2026

PNL-601

CKT	LOAD	BRANCH BKR	BRANCH VA	CONNECTED KVA A	CONNECTED KVA B	CONNECTED KVA C	BRANCH VA	BRANCH BKR	LOAD	CKT
1	LCP-600	15/1	500	1.4			872	20/1	LIGHTING	2
3	LCP-600	15/1	500		1.4		872	20/1	LIGHTING	4
5	LCP-600 HEATER	20/1	700			1.4	720	20/1	RECEPTACLE (CORD REEL)	6
7	LIGHTING	20/1	872	1.1			200	20/1	LCP-600 COOLING FAN	8
9	LIGHTING	20/1	872		0.9			20/1	SPARE	10
11	RECEPTACLE (CORD REEL)	20/1	720			0.7		20/1	SPARE	12
13	SPARE	20/1		0.0						14
15	SPARE	20/1			0.0					16
17						0.0				18
19				0.0						20
	CONNECTED LOAD	**6.8** KVA		2.4	2.2	2.1				
		19 AMPS		20	19	18				
	NEC DEMAND	**7.7** KVA								
		21 AMPS								

PANEL NOTES

PANEL SPECIFICATIONS

MAINS RATING AMPS - 100
MAIN CIRCUIT BREAKER AMPERES - 50
CAPACITY ONE-POLE CIRCUITS - 20
SYSTEM VOLTAGE - 208Y/120
PHASE, NO. OF WIRES - 3 PH, 4 W
AIC RATING - 10,000
MOUNTING - SURFACE
LOCATION - REARING TANKS

Revision	By	Appd	YYYY.MM.DD
0			

Issued	By	Appd	YYYY.MM.DD
A 100% DESIGN	CR	JCD	2025.01.14

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PROJECT ADDRESS

File Name: N/A | Author | Designer | Checker | 12/03/24
Dwn. | Dsgn. | Chkd. | YYYY.MM.DD

Title
REARING TANKS ELECTRICAL PANEL SCHEDULE

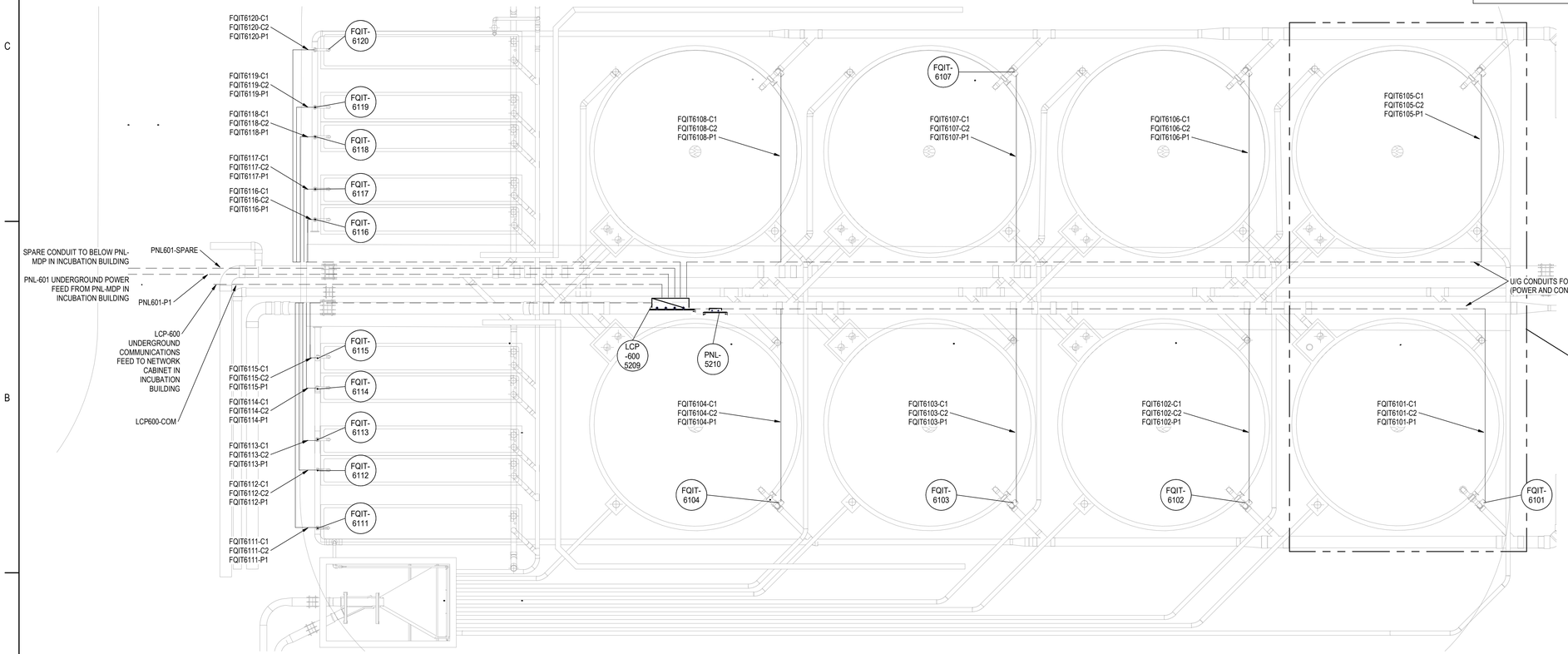
Project No. 224202267
Scale
Revision 0
Drawing No. **6E-2**

<File Location in Project Information>
2/12/2025 2:07:39 PM
ORIGINAL SHEET - ANSI D

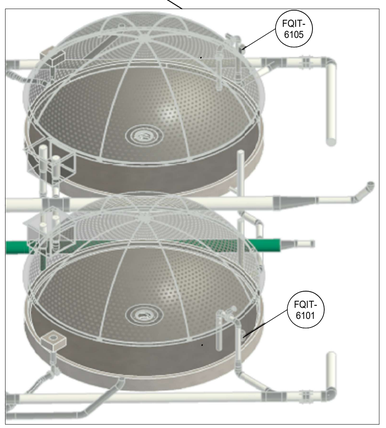
Exhibit D.1 Page 214 of 250

GENERAL NOTES

1. FLOW METER TO BE ULTRASONIC CLAMP ON STYLE. CONFIRM EXACT PLACEMENT ON SITE.
2. ROUTE POWER AND CONTROLS UNDERGROUND FROM LC-600 TO TANK FLOW METERS. COORDINATE UNDERGROUND CONDUIT ROUTING ON SITE FOR FLOW METERS.



1 6E-3 **PLAN**
1/8" = 1'-0"



Revision	By	Appd	YYYY.MM.DD
0			

Issued	By	Appd	YYYY.MM.DD
A FINAL DESIGN	JM	JCD	2026.04.17

<Pick location in Project Information>
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ORIGINAL SHEET - ANSI D

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File Name: N/A

Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
JM	JA	JR	2026.04.17

Title
REARING TANKS ELECTRICAL AND PROCESS PLAN

Project No.
224202267

Scale
1/8" = 1'-0"

Revision
0

Drawing No.
6E-3

AREA #6 REARING TANKS													
					RUN			CONDUCTORS				CONDUIT	
DEVICE GROUP	CABLE/CONDUIT TAG (INDIVIDUAL)	APPLICATION	VOLTS	CONDUIT TYPE	FROM	VIA	TO	WIRE COUNT	WIRE SIZE (CU.)	SPARE	GROUND/ BOND/SHLD	TYPE	COMMENTS
FQIT-6101	FQIT6101-C1	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6101	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT6101-C2	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6101	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT6101-P1	POWER	120VAC	PVC,GRC	LCP-600	U/G,S	FQIT-6101	2C	#14AWG	-	#14AWG	3/4"	FLOW METER POWER
FQIT-6102	FQIT6102-C1	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6102	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT6102-C2	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6102	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT6102-P1	POWER	120VAC	PVC,GRC	LCP-600	U/G,S	FQIT-6102	2C	#14AWG	-	#14AWG	3/4"	FLOW METER POWER
FQIT-6103	FQIT6103-C1	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6103	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT6103-C2	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6103	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT6103-P1	POWER	120VAC	PVC,GRC	LCP-600	U/G,S	FQIT-6103	2C	#14AWG	-	#14AWG	3/4"	FLOW METER POWER
FQIT-6104	FQIT6104-C1	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6104	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT6104-C2	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6104	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT6104-P1	POWER	120VAC	PVC,GRC	LCP-600	U/G,S	FQIT-6104	2C	#14AWG	-	#14AWG	3/4"	FLOW METER POWER
FQIT-6105	FQIT6105-C1	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6105	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT6105-C2	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6105	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT6105-P1	POWER	120VAC	PVC,GRC	LCP-600	U/G,S	FQIT-6105	2C	#14AWG	-	#14AWG	3/4"	FLOW METER POWER
FQIT-6106	FQIT6106-C1	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6106	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT6106-C2	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6106	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT6106-P1	POWER	120VAC	PVC,GRC	LCP-600	U/G,S	FQIT-6106	2C	#14AWG	-	#14AWG	3/4"	FLOW METER POWER
FQIT-6107	FQIT6107-C1	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6107	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT6107-C2	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6107	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT6107-P1	POWER	120VAC	PVC,GRC	LCP-600	U/G,S	FQIT-6107	2C	#14AWG	-	#14AWG	3/4"	FLOW METER POWER
FQIT-6108	FQIT6108-C1	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6108	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT6108-C2	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6108	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT6108-P1	POWER	120VAC	PVC,GRC	LCP-600	U/G,S	FQIT-6108	2C	#14AWG	-	#14AWG	3/4"	FLOW METER POWER
FQIT-6109	FQIT6109-C1	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6109	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT6109-C2	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6109	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT6109-P1	POWER	120VAC	PVC,GRC	LCP-600	U/G,S	FQIT-6109	2C	#14AWG	-	#14AWG	3/4"	FLOW METER POWER
FQIT-6110	FQIT6110-C1	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6110	2C	#14AWG	-	#14AWG	3/4"	DIGITAL PULSE
	FQIT6110-C2	CONTROLS	24VDC	PVC,GRC	LCP-600	U/G,S	FQIT-6110	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT6110-P1	POWER	120VAC	PVC,GRC	LCP-600	U/G,S	FQIT-6110	2C	#14AWG	-	#14AWG	3/4"	FLOW METER POWER
LCP-600	C601-COM	COMMS	-	PVC,GRC	LCP-600	U/G,S	MCP-01	FIBER	-	-	-	3/4"	
	LCP601-P1	POWER	120VAC	PVC,GRC	LCP-600	U/G,S	PNL-601	2C	#12AWG	-	#14AWG	3/4"	
	LCP601-P2	POWER	120VAC	PVC,GRC	LCP-600	U/G,S	PNL-601	2C	#12AWG	-	#14AWG	3/4"	
PNL601	PNL601-P1	POWER	120/208V	PVC,GRC	PNL-MDP	U/G,S	PNL-601	4C	#2AWG	-	#4AWG	2"	FEEDER FROM INCUBATION BUILDING

NOTES

1. CABLE AND CONDUIT SCHEDULE SHOWS INDIVIDUAL RUNS TO CONVEY DESIGN INTENT. WHERE ACCEPTABLE IN N.E.C, CONTRACTOR PERMITTED TO REDUCE THE NUMBER OF CONDUIT RUNS BY COMBINING LIKE SIGNALS AND CABLES .
2. DO NOT COMBINE PARALLEL RUNS IN A SINGLE CONDUIT RUN.
3. UNDER THE 'VIA' HEADING IN THE TABLE FOR CONDUIT ROUTING, ALL UNDGERGROUND CONDUIT RUNS TO BE PVC. EXIT ABOVE GRADE WITH GRC. SURFACE CONDUIT TO BE GRC.
4. WHERE CONDUITS ARE DENOTED AS SURFACE INSTALLATION, CONTRACTOR MAY RUN CONDUITS UNDERGROUND OR IN-SLAB WHERE ACCEPTABLE

LEGEND

U/G	UNDERGROUND CONDUIT INSTALLATION
S	SURFACE CONDUIT INSTALLATION
PVC	POLYVINYL CHLORIDE
GRC	GALVANIZED RIGID CONDUIT

AREA 6 - CABLE AND CONDUIT SCHEDULE

SCALE: NTS

Revision	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: 02267BCH-6E-4

DWN	DESV	CAWS	2024.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

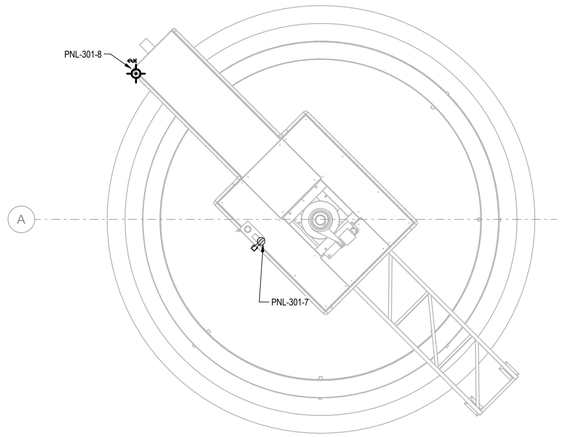
Title
REARING TANKS ELECTRICAL CABLE AND CONDUIT SCHEDULE

Project No.
224202267

Scale
AS NOTED

Revision
0

Drawing No.
6E-4



GENERAL NOTES
1. LIGHT FIXTURE MOUNTED ON 10-FT. METAL POLE WITH INTEGRAL LIGHT SWITCH IN WEATHERPROOF ENCLOSURE, ATTACH POLE TO GUARDRAIL, SEE DETAIL E-666. LIGHT FIXTURE TYPE: LITHONIA RSXF1 LED P5 40K WFL MVOLT AARP DDBXD.

1 / 7E-1 **WASTE WATER CLARIFIER LIGHTING AND POWER**

1/4" = 1'-0"

No.	Revision	By	Appd	YYYY.MM.DD
0				

No.	Issued	By	Appd	YYYY.MM.DD
A	100% DESIGN	CR	JCD	2025.01.14

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BATTLE CREEK HATCHERY

PROJECT ADDRESS

File Name: N/A

CLR	CLR	LPS	09/05/24
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title

WASTE WATER CLARIFIER ELECTRICAL LIGHTING AND POWER PLAN

Project No. 224202267

Scale 1/4" = 1'-0"

Revision 0

Drawing No. **7E-1**

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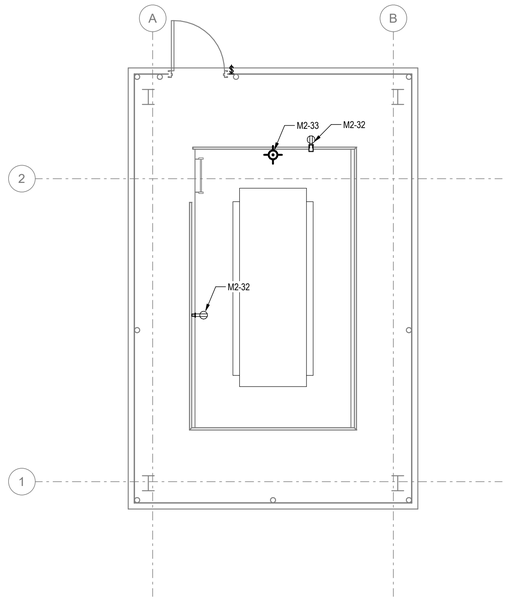

GENERAL NOTES

1. LIGHT FIXTURE MOUNTED ON 10-FT. METAL POLE WITH INTEGRAL LIGHT SWITCH IN WEATHERPROOF ENCLOSURE, ATTACH POLE TO GUARDRAIL, SEE DETAIL E-666. LIGHT FIXTURE TYPE: LITHONIA RSXF1 LED P5 40K WFL MVOLT AARP DDBXD.

1 EFFLUENT DRUM FILTER SUMP LIGHTING AND POWER PLAN

7E-2

1/4" = 1'-0"

0	Revision	By	Appd	YYYY.MM.DD	
A	100% DESIGN	CR	JCD	2025.01.14	Issued

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BATTLE CREEK HATCHERY

PROJECT ADDRESS

File Name: N/A | Author: Dwn. | Designer: Dsgn. | Checker: Chkd. | 09/17/24 YYYY.MM.DD

Title
EFFLUENT DRUM FILTER SUMP ELECTRICAL LIGHTING AND POWER PLAN

Project No. 224202267
Scale 1/4" = 1'-0"
Revision 0
Drawing No. 7E-2

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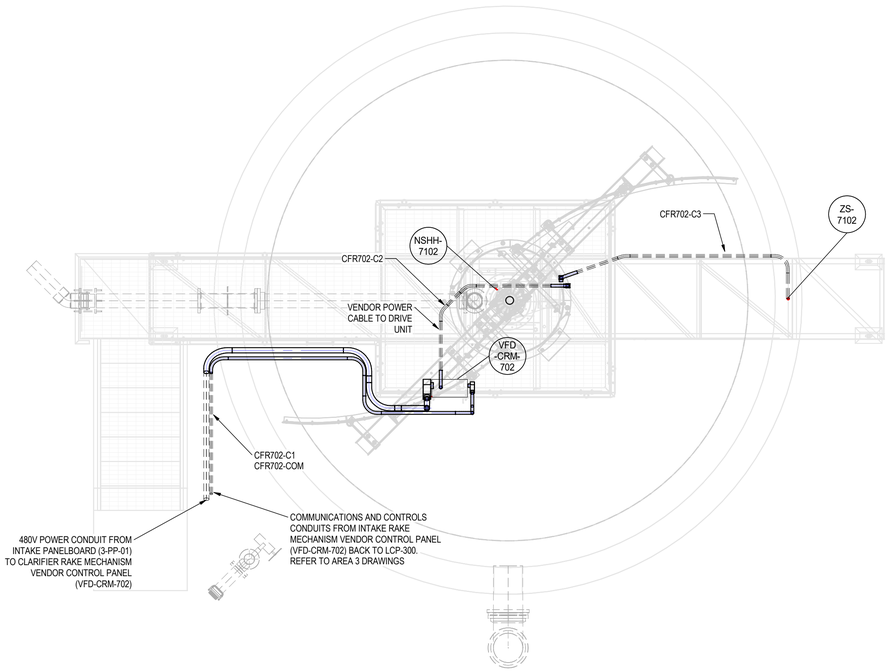
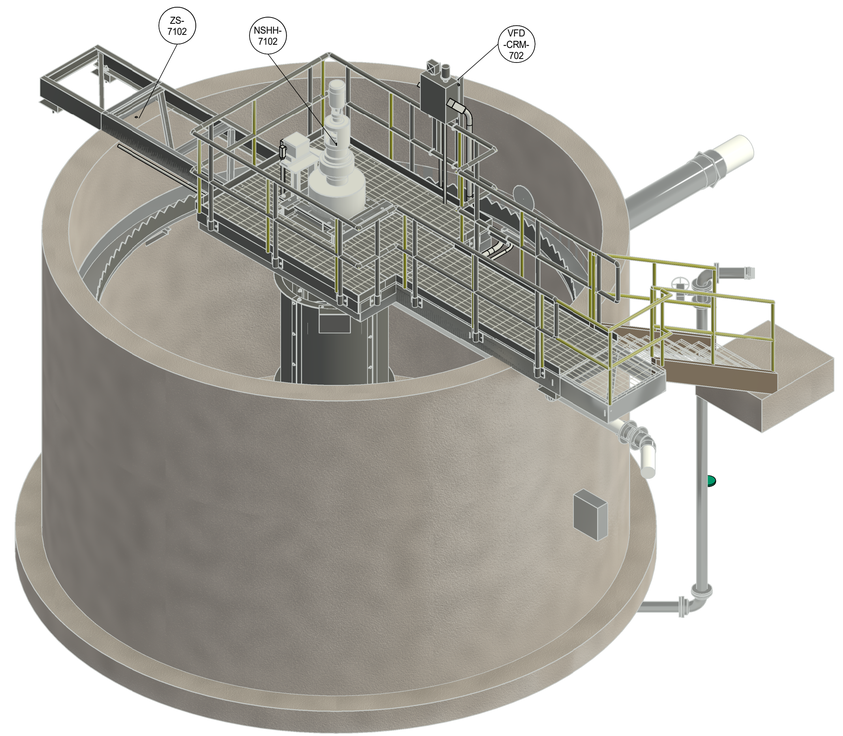
GENERAL NOTES

1. COORDINATE ALL ELECTRICAL, CONTROLS, AND INSTRUMENTATION WORK WITH THE CLARIFIER SCREEN VENDOR. MAKE ALL NECESSARY FIELD CONNECTIONS TO VENDOR SYSTEM MOTOR AND CONTROLS.
2. CONFIRM CONDUIT ROUTING ON SITE FOR INCOMING POWER AND COMMUNCIATIONS/CONTROLS.
3. REFER TO 7E-1 FOR INFORMATION ON GENERAL LIGHTING AND POWER FOR CLARIFIER AREA. INCOMING 120/208V POWER FEED FROM PNL-301 IN AREA 3. REFER TO PANEL SCHEDULE ON 3E-2.



1 PLAN - CLARIFIER
7E-3 — 3/8" = 1'-0"



2 WASTE WATER CLARIFIER 3D VIEW
7E-3 — N.T.S

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: N/A — JM Dwn. — JS Dsgn. — JR Chkd. — 2024.12.27 YYYY.MM.DD

Title
WASTE WATER CLARIFIER ELECTRICAL PROCESS PLAN

Project No. 224202267
Scale 3/8" = 1'-0"
Revision 0
Drawing No. **7E-3**

ORIGINAL SHEET - ANSI D
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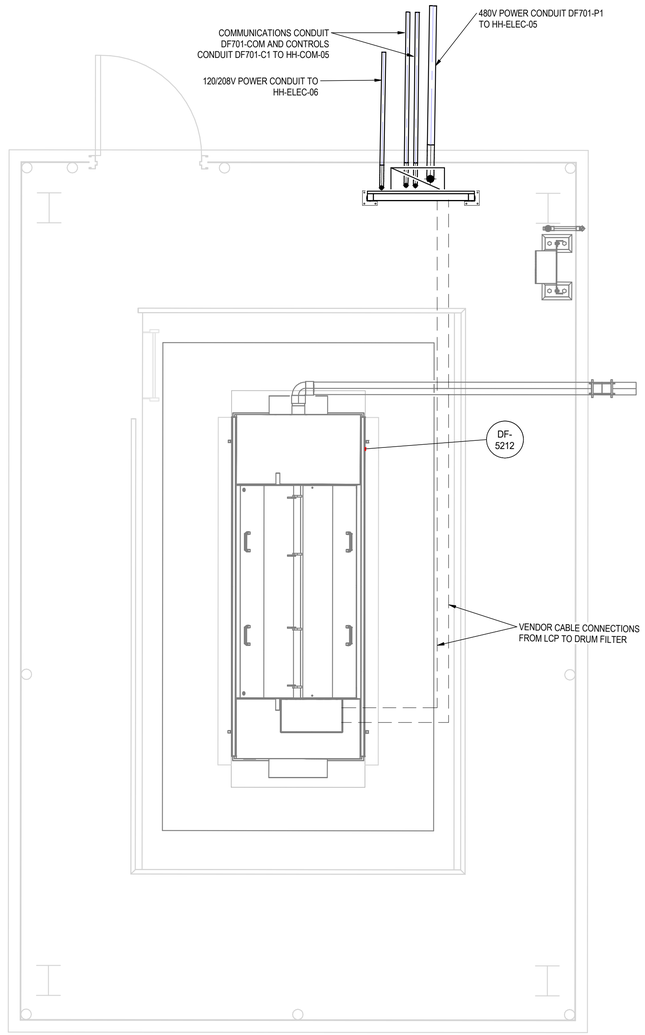


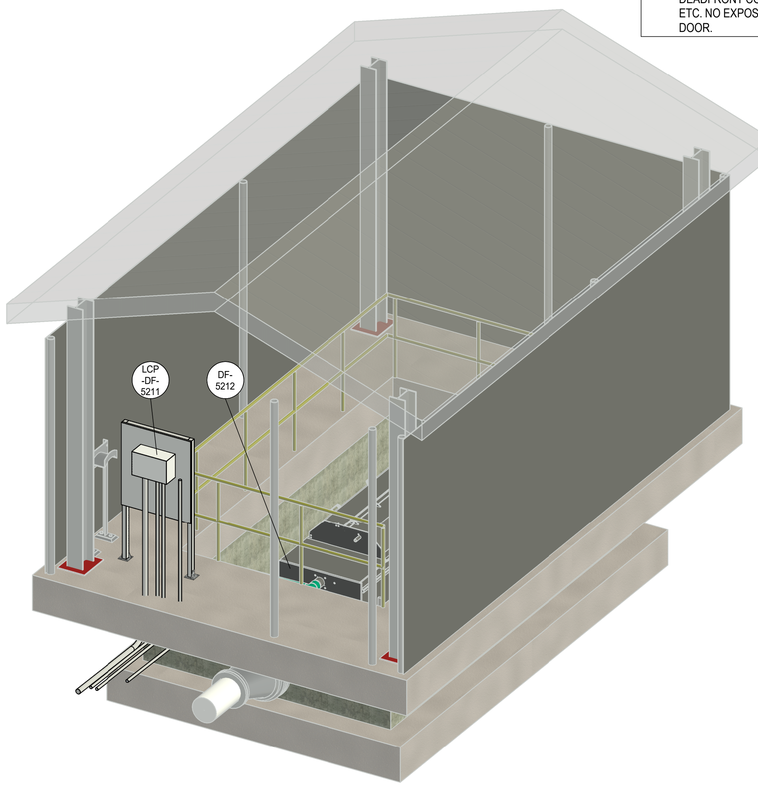
EFFLUENT DRUM FILTER SUMP - ELECTRICAL PLAN

1 / 7E-4

1/2" = 1'-0"

GENERAL NOTES

1. COORDINATE ALL ELECTRICAL, CONTROLS, AND INSTRUMENTATION WORK WITH THE DRUM FILTER SCREEN AND SUMP VENDOR. MAKE ALL NECESSARY FIELD CONNECTIONS TO VENDOR SYSTEM MOTOR AND CONTROLS.
2. CONFIRM CONDUIT ROUTING ON SITE FOR CONNECTION TO VENMODR SYSTEM.
3. REFER TO 7E-2 FOR INFORMATION ON GENERAL LIGHTING AND POWER FOR DRUM FILTER SUMP AREA.
4. INCOMING 120/208V POWER FEED FOR LIGHTS AND RECEPTACLES FROM PANEL PNL-M2 IN THE INCUBATION BUILDING.
5. CONTROLS AND COMMUNICATIONS CONDUITS TO NETWORK CABINET AND MCP-01 IN INCUBATION BUILDING.
6. VENDOR PANELS TO BE TYPE 4X.
7. VENDOR PANELS SHALL BE LOCKABLE WITH EXTERIOR DOOR (BLANK) AND DEADFRONT COVER (INTERIOR) WITH DISCONNECT,SWITCHES, INDICATORS, ETC. NO EXPOSED LIVE PARTS SHALL BE PRESENT WHEN OPENING EXTERIOR DOOR.



EFFLUENT DRUM FILTER SUMP 3D VIEW

2 / 7E-4

N.T.S

Revision	By	Appd	YYYY.MM.DD
0			

Issued	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14

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TULALIP TRIBES

BATTLE CREEK HATCHERY

File Name: N/A	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
	JM	JS	JR	2024.12.27

Title
EFFLUENT DRUM FILTER SUMP
ELECTRICAL PROCESS PLAN

Project No.	Scale
224202267	1/2" = 1'-0"
Revision: 0	Drawing No.: 7E-4

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ORIGINAL SHEET - ANSI D

2/12/2025

AREA #7 EFFLUENT DRUM FILTER SUMP AND CLARIFIER RAKE MECHANISM													
DEVICE GROUP	CABLE/CONDUIT TAG (INDIVIDUAL)	APPLICATION	VOLTS	CONDUIT TYPE	RUN			CONDUCTORS				CONDUIT	COMMENTS
					FROM	VIA	TO	WIRE COUNT	WIRE SIZE (CU.)	SPARE	GROUND/ BOND/SHLD	TYPE	
CFR-702 CLARIFIER RAKE MECHANISM	CFR702-C1	CONTROLS	24VDC	PVC,GRC	LCP-300	U/G,S	VFD-CRM-702	18C	#14AWG	2C	#14AWG	1 1/2"	BUNDLED DIGITAL SIGNALS
	CFR702-C2	CONTROLS	24VDC	PVC,GRC	VFD-CRM-702	S	CFR-702	VENDOR				1"	CLARIFIER RAKE OVER-TORQUE SWITCH
	CFR702-C3	CONTROLS	24VDC	PVC,GRC	VFD-CRM-702	S	ZS-7102	2C	#14AWG	-	#14AWG	3/4"	CLARIFIER RAKE POSITION SWTICH
	CFR702-COM	COMMS	-	PVC,GRC	VFD-CRM-702	U/G,S	LCP-300	CAT6	-	-	-	3/4"	
	CFR702-P1	POWER	480VAC	PVC,GRC	3-PP-01	U/G,S	VFD-CRM-702	3C	#8AWG	-	#8AWG	1"	480VAC POWER TO VFD PANEL
	CFR702-P2	POWER	120VAC	PVC,GRC	PNL-301	U/G,S	AREA 7	8C	#10AWG	2C		1 1/2"	CLARIFIER LIGHTING AND RECEPTACLES
FQIT-7103	FQIT7103-C1	CONTROL	24VDC	PVC,GRC	FQIT-7103	S	LCP-300	2C	#14AWG	-	#14AWG	3/4"	DIGITAL SIGNAL
	FQIT7103-C2	CONTROL	24VDC	PVC,GRC	FQIT-7103	S	LCP-300	1PR	#16AWG	-	#14AWG	3/4"	ANALOG SIGNAL
	FQIT7103-P1	POWER	24VDC	PVC,GRC	FQIT-7103	S	LCP-300	2C	#14AWG	-	#14AWG	3/4"	FLOW METER DISPLAY POWER
	FE7103-E1	INSTRUMENT	-	PVC,GRC	FQIT-7103	U\G,S	FQIT-7103-JB	VENDOR					VENDOR CABLE (EXTENSION) FROM FQIT-7103 TO JB. CONFIRM LENGTH WITH SUPPLIER
	FE7103-E2	INSTRUMENT	-	PVC	FQIT-7103-JB	U/G	FE-7103	VENDOR					VENDOR CABLE CONNECTED TO INSTRUMENT
LCP-DF-701 EFFLUENT DRUM FILTER SUMP	DF701-C1	CONTROL	24VDC	PVC,GRC	LCP-DF-701	U/G,S, HH-COM-05	MCP-01	20C	#14AWG	2C	#14AWG	1 1/2"	DIGITAL SIGNAL
	DF701-COM	COMMS	-	PVC,GRC	LCP-DF-701	U/G,S, HH-COM-05	MCP-01	FIBER	-	-	-	3/4"	COMMUNICATIONS
	DF701-P1	POWER	480VAC	PVC,GRC	3-PP-01	U/G,S, HH-ELEC-05	LCP-DF-701	3C	#10AWG	-	#12AWG	1 1/2"	480VAC POWER
	DF701-P2	POWER	120VAC	PVC,GRC	PNL-M2	U/G,S, HH-ELEC-06	AERA 7	8C	#10AWG	4C	#12AWG	1 1/2"	120VAC POWER

NOTES

1. CABLE AND CONDUIT SCHEDULE SHOWS INDIVIDUAL RUNS TO CONVEY DESIGN INTENT. WHERE ACCEPTABLE IN N.E.C, CONTRACTOR PERMITTED TO REDUCE THE NUMBER OF CONDUIT RUNS BY COMBINING LIKE SIGNALS AND CABLES .
2. DO NOT COMBINE PARALLEL RUNS IN A SINGLE CONDUIT RUN.
3. UNDER THE 'VIA' HEADING IN THE TABLE FOR CONDUIT ROUTING, ALL UNDGERGROUND CONDUIT RUNS TO BE PVC. EXIT ABOVE GRADE WITH GRC. SURFACE CONDUIT TO BE GRC.
4. WHERE CONDUITS ARE DENOTED AS SURFACE INSTALLATION, CONTRACTOR MAY RUN CONDUITS UNDERGROUND OR IN-SLAB WHERE ACCEPTABLE

LEGEND

U/G	UNDERGROUND CONDUIT INSTALLATION
S	SURFACE CONDUIT INSTALLATION
PVC	POLYVINYL CHLORIDE
GRC	GALVANIZED RIGID CONDUIT

AREA 7 - CABLE AND CONDUIT SCHEDULE

SCALE: NTS

Revision	By	Appd	YYYY.MM.DD
A 100% DESIGN	JM	JCD	2025.01.14
Issued	By	Appd	YYYY.MM.DD

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BATTLE CREEK HATCHERY

File Name: 02267BCH-7E-5

DWL	DESV	CJWS	2024.12.27
Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Title
EFFLUENT DRUM FILTER SUMP ELECTRICAL CABLE AND CONDUIT SCHEDULE

Project No.
224202267

Scale
AS NOTED

Revision
0

Drawing No.
7E-5

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