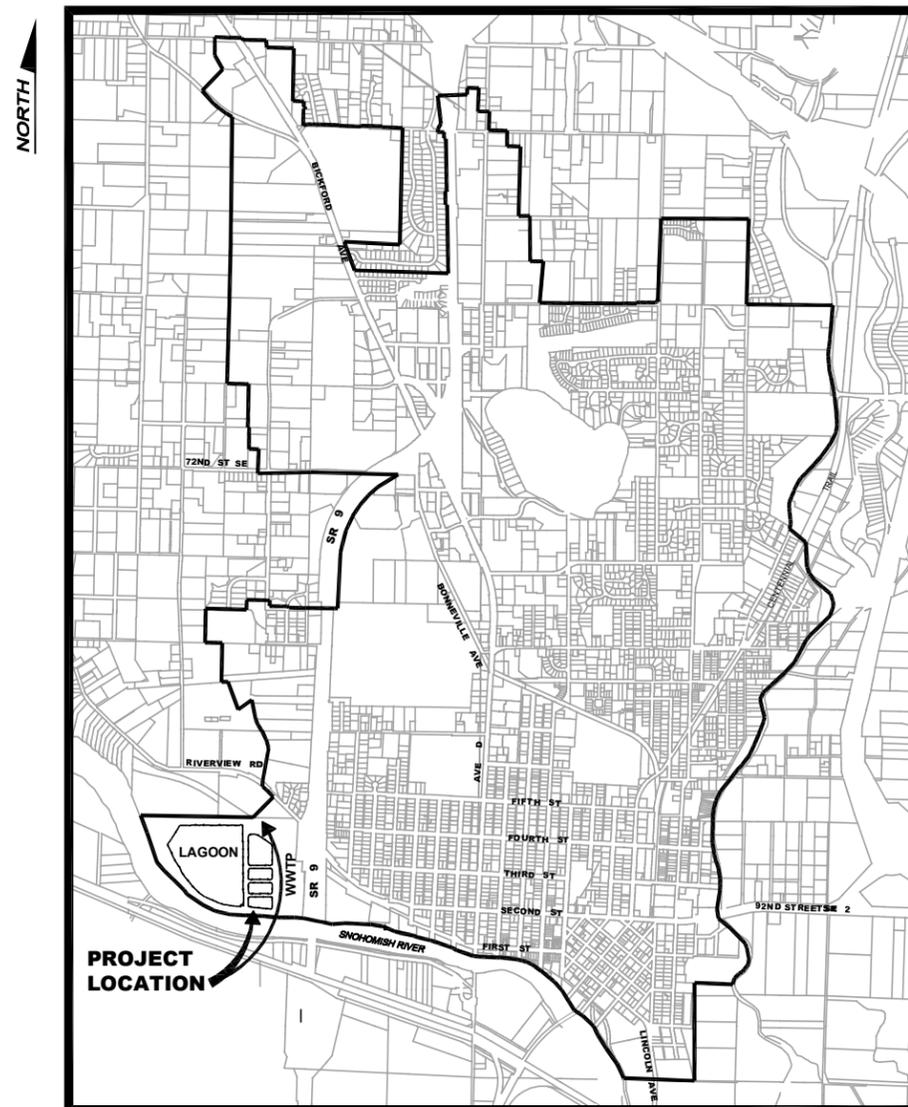
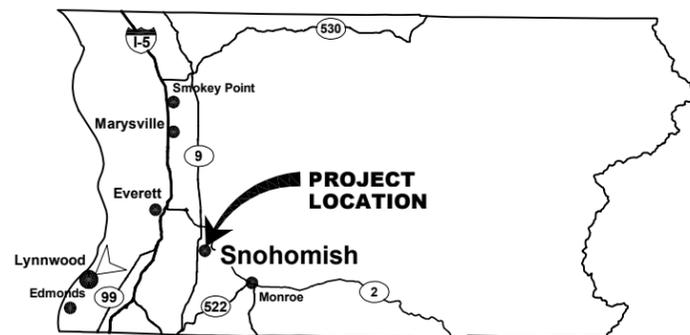




CITY OF SNOHOMISH PERACETIC ACID DISINFECTION SYSTEM

JUNE 2019

LOCATION MAPS



VICINITY MAP
NTS

MAYOR
JOHN T. KARTAK

**CITY ADMINISTRATOR &
UTILITY GENERAL MANAGER**
STEVE SCHULLER, P.E.

CITY COUNCIL PRESIDENT
JASON SANDERS

CITY ENGINEER
YOSHIHIRO MONZAKI, P.E.

CITY COUNCIL MEMBERS
LARRY COUNTRYMAN
STEVE DANA
KAREN GUZAK
TOM MERRILL
LINDA REDMON
LYNN SCHILATY

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DUANE LEACH - SR. WWTP OPERATOR	425-328-0061
JOE PALMER - WATER DIVISION LEAD	425-328-0068
DEREK DEBARDI - SEWER/STORM DIVISION LEAD	425-328-6251
ANN RAY - WATER QUALITY SPECIALIST	425-325-0059

PREPARED BY:

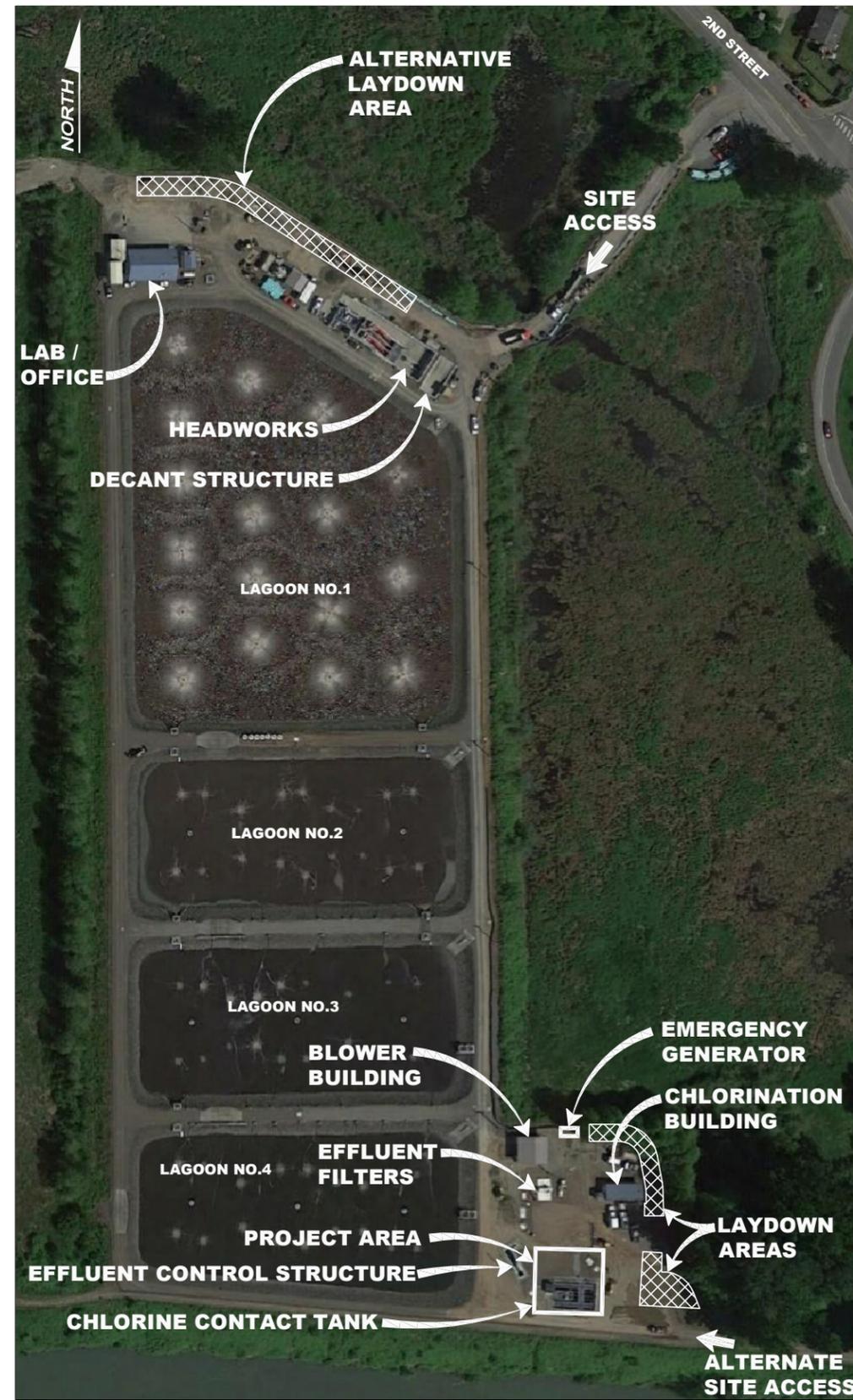


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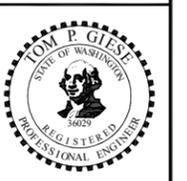
INDEX OF DRAWINGS

SHEET NO.	DWG NO.	DRAWING TITLE
GENERAL		
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X	G-2	INDEX OF DRAWINGS, SITE MAP AND LEGEND
X	G-3	ABBREVIATIONS, SYMBOLS AND DESIGNATIONS
X	G-4	PROCESS FLOW DIAGRAM AND DESIGN CRITERIA
X	G-5	HYDRAULIC PROFILE
CIVIL		
X	C-1	SITE PLAN
X	C-2	DEMOLITION PLAN AND NOTES
X	C-3	EROSION CONTROL NOTES AND DETAILS
MECHANICAL		
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STRUCTURAL		
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ELECTRICAL		
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X	E-5	ELECTRICAL SITE PLAN
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PROCESS AND INSTRUMENTATION		
X	I-1	P&ID SYMBOLS AND ABBREVIATIONS
X	I-2	PAA SYSTEM P&ID
X	I-3	CHLORINE CONTACT TANK P&ID

SITE MAP



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Path: S:\Cadd\Snohomish\19-10615 PAAD System\19-10615 PAAD System.dwg File: 19-10615_G-2_Prelim.dwg Plot Date: May 30, 2019 04:06:36pm CAD User: soliseo Xref Filename: | X19-10615_TB | X19-10615_Prelim | Gray | X19-10615_Aerial 2007 | Gleese | Gibson | Franco |

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PERACETIC ACID DISINFECTION SYSTEM
INDEX OF DRAWINGS, SITE MAP AND LEGEND

Drawing: **G-2**
 Sheet: **X** of **X**
 File: P19-10615_G-2
 Date: June 2019

LEGEND:

EXISTING

-----	RIGHT OF WAY	⊕	TEMPORARY BENCHMARK	⊙	TELEPHONE MANHOLE
-----	CENTERLINE	●	MONUMENT (IN CASE)	⊞	JUNCTION BOX (TYPE I)
-----	PROPERTY LINE	⊙	CONTROL (MAG NAIL, REBAR, RR SPIKE)	⊙	WETLAND FLAG
-----	EASEMENT	○	IRON PIPE, REBAR W/ YELLOW CAP	⊙	MONITORING WELL
-----	BUILDING LINE	⊞	WATER METER	⊙	BOULDER
-----	CURB/PAVEMENT/SIDEWALK	⊙	FIRE HYDRANT 2-NOZZLE	⊙	SIGN (SINGLE POST)
-----	DIRT LINE	⊙	GATE/GENERAL VALVE	⊙	SIGN (DOUBLE POST)
-----	DITCH LINE	⊙	SANITARY SEWER CLEAN OUT	⊙	TREE (EVERGREEN)
-----	FENCE LINE	⊙	SANITARY SEWER MANHOLE	⊙	TREE (DECIDUOUS)
-----	GRAVEL LINE	⊙	STORM DRAIN CATCH BASIN (TYPE 1)	⊙	FENCE POST
-----	HANDRAIL LINE	⊙	STORM DRAIN CATCH BASIN (TYPE 2)		
-----	OVERHANG	⊙	STORM DRAIN MANHOLE		
-----	POND LINE	⊙	GAS VALVE		
-----	RIVER LINE	⊙	POWER VAULT		
-----	WETLAND LINE	⊙	POWER JUNCTION BOX		
-----	VEGETATION LINE	⊙	POWER TRANSFORMER		
-----	FIBER-OPTIC LINE	⊙	UTILITY POLE		
-----	GAS LINE	⊙	UTILITY POLE W/LIGHT		
-----	AERIAL POWER LINE	⊙	UTILITY GUY POLE		
-----	BURIED POWER LINE	⊙	UTILITY POLE ANCHOR		
-----	STORM DRAIN LINE	⊙	TELEPHONE RISER		
-----	STORM DRAIN CULVERT				
-----	SANITARY SEWER LINE				
-----	AERIAL TELEPHONE LINE				
-----	BURIED TELEPHONE LINE				
-----	WATER LINE				

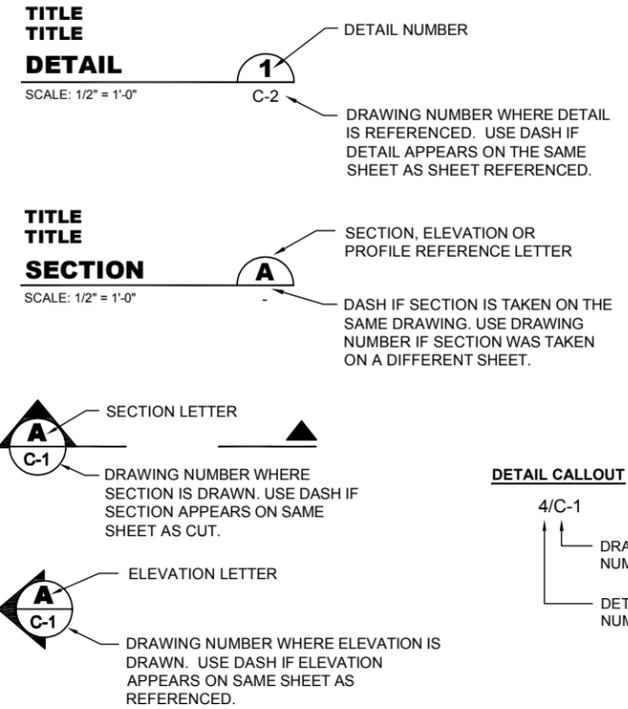
PROPOSED

-----	CLEARING LIMIT/WORK ZONE DELINEATION FENCE	-----	GRAVEL PAVEMENT
-----	SILT FENCE	-----	AC PAVEMENT PATCH
-----	WATTLES	-----	SOD
-----	CATCH BASIN PROTECTION	-----	CONCRETE
-----	WETLAND BUFFER BOUNDARY	-----	PRECAST CONCRETE
-----	STORM DRAIN	-----	GROUT OR SAND
-----	CENTERLINE STATIONING	-----	CDF
-----	TO BE REMOVED OR ABANDONED	-----	GRAVEL BACKFILL
-----	FIRE HYDRANT	-----	PIPE BEDDING
-----	WATER METER	-----	CSTC
-----	GATE VALVE	-----	CSBC OVERLAY
-----	BLOWOFF	-----	COMMON BORROW
-----	COMBINATION AIR VALVE	-----	PREPARED SUBGRADE
-----	REDUCER	-----	UNDISTURBED GROUND
-----	FLEXIBLE COUPLING		
-----	FIRE DISTRICT POST		

ABBREVIATIONS

AASHTO	AMERICAN ASSOC. OF STATE HIGHWAY TRANSPORTATION OFFICIALS	MB	MAILBOX
AC	ASPHALT CONCRETE, ASBESTOS CEMENT	MDD	MAXIMUM DRY DENSITY
ACP	ASPHALT CONCRETE PAVEMENT	MH	MANHOLE
ALD	ALDER	MIN	MINIMUM
APPROX	APPROXIMATE	MON	MONUMENT
APWA	AMERICAN PUBLIC WORKS ASSOCIATION	MW	MONITORING WELL
AVE	AVENUE	N	NORTH
BF	BLIND FLANGE	NAD	NORTH AMERICAN DATUM
BH	BORE HOLE	NAVD	NORTH AMERICAN VERTICAL DATUM
BM	BENCH MARK	NE	NORTHEAST
BO	BLOW-OFF	NIC	NOT IN CONTRACT
		NO., #	NUMBER
		NPT	NATIONAL PIPE THREAD
		NTS	NOT TO SCALE
		NW	NORTHWEST
CAV	COMBINATION AIR VALVE	OC	ON CENTER
CB	CATCH BASIN	OD	OUTSIDE DIAMETER
CDF	CONTROLLED DENSITY FILL	OH	OVERHEAD
CESCL	CERTIFIED EROSION AND SEDIMENT CONTROL LEAD	OHW	ORDINARY HIGH WATER
		OP	OVERHEAD POWER
CF	CLEARING LIMIT FENCE	OPG	OPENING
CFS	CUBIC FEET PER SECOND		
CHLK	CHAIN LINK	P	POWER
C/L, CL	CENTERLINE	PE	PLAIN END
CLR	CLEAR	PG	PERFORMANCE GRADE
CMP	CORRUGATED METAL PIPE	PSF	POUNDS PER SQUARE FOOT
CO	CLEANOUT	PT	POINT
CONC	CONCRETE	PVC	POLYVINYL CHLORIDE
CONSTR	CONSTRUCTION	PVMT	PAVEMENT
COS	CITY OF SNOHOMISH	PWR	POWER
CPLG	COUPLING		
CSBC	CRUSHED SURFACING BASE COURSE	RD	ROAD
CSTC	CRUSHED SURFACING TOP COURSE	REINF	REINFORCEMENT
CULV	CULVERT	REQ'D	REQUIRED
		ROW, R/W	RIGHT OF WAY
D/W	DRIVEWAY	RRC	RED REBAR AND CAP
D	DEPTH, DOUBLE	RT	RIGHT
DBH	DIAMETER BREST HEIGHT		
DI	DUCTILE IRON	S	SOUTH, SLOPE
DIA	DIAMETER	SCH	SCHEDULE
DIP	DUCTILE IRON PIPE	SD	STORM DRAIN
DIPS	DUCTILE IRON PIPE SIZE	SDMH	STORM DRAIN MANHOLE
DR	DRIVE	SDR	STANDARD DIMENSION RATIO
DTREE	DECIDUOUS TREE	SE	SOUTHEAST
DWG	DRAWING	SERV	SERVICE
		SF	SILT FENCE
E	EAST, ELECTRICAL	SSFM	SANITARY SEWER FORCE MAIN
EA	EACH	SSMH	SEWER MANHOLE
EG	EXISTING GRADE	SS	SANITARY SEWER
EW	EACH WAY	SST	STAINLESS STEEL
EL, ELEV	ELEVATION	ST	STREET
EP	EDGE OF PAVEMENT	STA	STATION
ESMT	EASEMENT	STD	STANDARD
EX	EXISTING	STL	STEEL
		SW	SOUTHWEST
FF	FINISHED FLOOR	SWMMWW	STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON
FG	FINISH GRADE	SWPPP	STORMWATER POLLUTION PREVENTION PLAN
FL	FLANGE		
FPS	FEET PER SECOND		
FT	FEET		
G	GAS	T	TELEPHONE
GALV	GALVANIZED	T&B	TOP AND BOTTOM
GB	GRADE BREAK	TBM	TEMPORARY BENCHMARK
GP	GUARD POST	TELJB	TELEPHONE JUNCTION BOX
GRAV	GRAVEL	TELR	TELEPHONE RISER
GV	GATE VALVE	TESC	TEMPORARY EROSION SEDIMENTATION CONTROL
		TV	TELEVISION (CABLE)
HDD	HORIZONTAL DIRECTION DRILLING	TVJB	TELEVISION (CABLE) JUNCTION BOX
HDPE	HIGH DENSITY POLYETHYLENE	TVR	TELEVISION (CABLE) RISER
HMA	HOT MIX ASPHALT	TYP	TYPICAL
HORIZ	HORIZONTAL		
HP	HIGH POINT	UGP	UNDERGROUND POWER
HT	HUB AND TACK	UNO	UNLESS NOTED OTHERWISE
HYD	HYDRANT		
		VAC	VACUUM
ID	INSIDE DIAMETER	VERT	VERTICAL
IE	INVERT ELEVATION	VPC	VERTICAL POINT OF CURVATURE
IPS	IRON PIPE SIZE	VPI	VERTICAL POINT OF INTERSECTION
		VPT	VERTICAL POINT OF TANGENCY
JB	JUNCTION BOX		
		W/	WITH
KW	KILOWATT	W	WATER, WEST
		WL	WATER LEVEL
L	LENGTH	WM	WATER METER
LF	LINEAR FEET	WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
LN	LANE	WS	WATER SERVICE
LT	LEFT	WWTP	WASTEWATER TREATMENT PLANT
MAP	MAPLE		
MAX	MAXIMUM		

SYMBOLS AND DESIGNATIONS

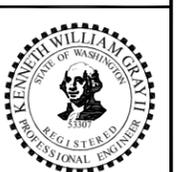


DRAWING REFERENCE

G	GENERAL
C	CIVIL
M	MECHANICAL
S	STRUCTURAL
E	ELECTRICAL
I	PROCESS & INSTRUMENTATION

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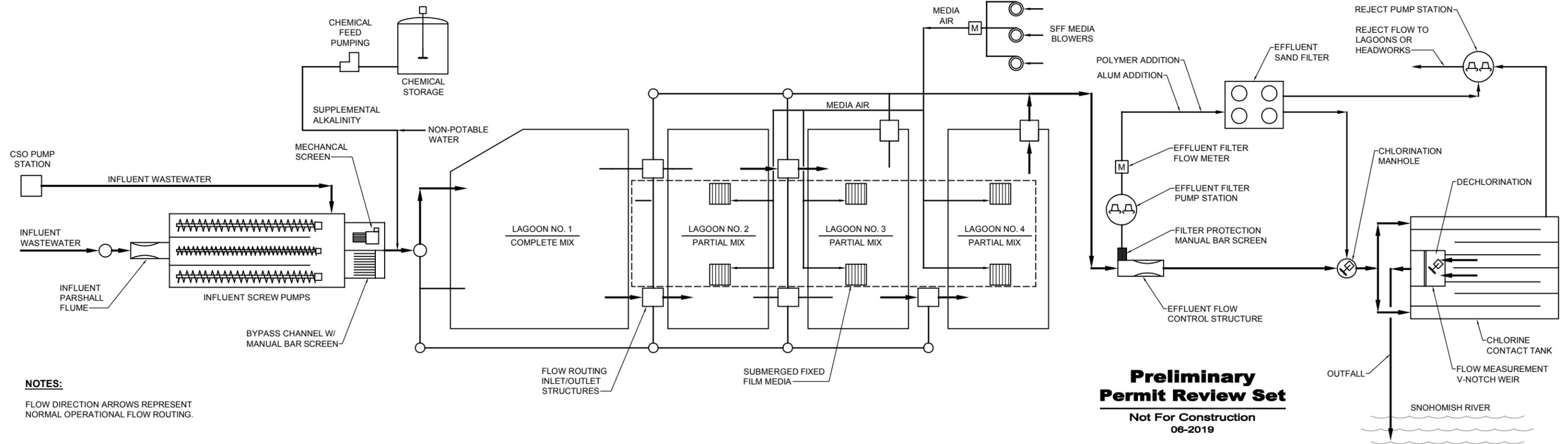


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PERACETIC ACID DISINFECTION SYSTEM
ABBREVIATIONS, SYMBOLS AND DESIGNATIONS

Drawing:	G-3
Sheet:	X of X
File:	P19-10615_G-3
Date:	June 2019

PROCESS FLOW DIAGRAM



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NOTES:
 FLOW DIRECTION ARROWS REPRESENT NORMAL OPERATIONAL FLOW ROUTING.

DESIGN CRITERIA

INFLUENT WASTEWATER DESIGN CRITERIA

AVERAGE ANNUAL FLOW (AAF)	MGD	1.67
MAXIMUM MONTH DRY WEATHER FLOW	MGD	1.32
MAXIMUM MONTH FLOW (MMF)	MGD	2.80
PEAK DAY DRY WEATHER FLOW (PDDWF)	MGD	2.75
PEAK DAY FLOW (PDF)	MGD	8.40
PEAK HOUR FLOW (PHF)	MGD	22.80
AVERAGE ANNUAL CBOD5 LOAD	LBS/DAY	2,300
MAXIMUM MONTH CBOD5 LOAD	LBS/DAY	2,740
PEAK DAY CBOD5 LOAD	LBS/DAY	5,320
AVERAGE ANNUAL TSS LOAD	LBS/DAY	3,008
MAXIMUM MONTH TSS LOAD	LBS/DAY	3,830
PEAK DAY TSS LOAD	LBS/DAY	7,752
AVERAGE ANNUAL AMMONIA-N LOAD	LBS/DAY	226
MAXIMUM MONTH AMMONIA-N LOAD	LBS/DAY	290
PEAK DAY AMMONIA-N LOAD	LBS/DAY	620
AVERAGE ANNUAL TKN LOAD	LBS/DAY	348
MAXIMUM MONTH TKN LOAD	LBS/DAY	467
PEAK DAY TKN LOAD	LBS/DAY	940

NPDES PERMIT LIMITS

CBOD5 (APR-OCT MONTHLY AVG)	MG/L	25
CBOD5 (APR-OCT WEEKLY AVG)	MG/L	40
CBOD5 (NOV-MAR MONTHLY AVG)	MG/L (LBS/DAY)	25 (584)
CBOD5 (NOV-MAR WEEKLY AVG)	MG/L (LBS/DAY)	40 (934)
TSS (MONTHLY AVG)	MG/L (LBS/DAY)	30 (701)
TSS (WEEKLY AVG)	MG/L (LBS/DAY)	45 (1,051)
NBOD + CBOD (JUL-OCT MONTHLY AVG)	LBS/DAY	134
NBOD + CBOD (JUL-OCT DAILY MAX)	LBS/DAY	301
FECAL COLIFORM (MONTHLY AVG)	CFU/100ML	200
FECAL COLIFORM (WEEKLY AVG)	CFU/100ML	400

EXISTING HEADWORKS

PARSHALL FUME		
NUMBER		1
THROAT	INCHES	18
MECHANICAL SCREEN		
NUMBER		1
TYPE		MULTI-RAKE
OPENING SIZE	INCHES	1/4
CAPACITY, EACH	MGD	23.5
MANUAL BAR SCREEN		
NUMBER		1
BAR SPACING	INCHES	3/4

INFLUENT PUMPS

NUMBER		3 (2 LARGE, 1 SMALL)
TYPE		ARCHIMEDES SCREW
LARGE PUMP DIAMETER	FT	6
LARGE PUMP CAPACITY	MGD	15.5
LARGE PUMP MOTOR SIZE	HP	100
SMALL PUMP DIAMETER	FT	3.5
SMALL PUMP CAPACITY	MGD	3.5
SMALL PUMP MOTOR SIZE	HP	25

SUPPLEMENTAL ALKALINITY

SOURCE		MAGNESIUM
HYDROXIDE CONCENTRATION	PERCENT	50-60
STORAGE TANK NUMBER		1
VOLUME	GAL	5,400
METER PUMPS NUMBER		2 (1 DUTY, 1 STANDBY)
TYPE		PERISTALTIC
CAPACITY, EACH	GPH	35

LAGOONS

LAGOON NO. 1		
VOLUME AT MAX MONTH	MG	10
DETENTION TIME AT MAX MONTH	DAYS	3.6
DESIGN OPERATING DEPTH	FT	10
FREEBOARD AT DESIGN OPERATING DEPTH	FT	6
NUMBER OF SURFACE AERATORS		18
AERATOR POWER, EACH	HP	15
LAGOON MIXING ENERGY	HP/MG	27

LAGOON NO. 2, 3, AND 4		
VOLUME AT MAX MONTH, EACH	MG	3.5
DETENTION TIME AT MAX MONTH, EACH	DAYS	1.25
DESIGN OPERATING DEPTH	FT	10
FREEBOARD AT DESIGN OPERATING DEPTH	FT	6
NUMBER OF SURFACE AERATORS, EACH		3
AERATOR POWER, EACH	HP	7.5
LAGOON MIXING ENERGY, EACH	HP/MG	6.4

SUBMERGED FIXED-FILM (SSF) MEDIA SYSTEM

SSF MEDIA

TOTAL NUMBER OF MODULES		54
NUMBER OF MODULES, LAGOON NO. 1		0
NUMBER OF MODULES, LAGOON NO. 2		18
NUMBER OF MODULES, LAGOON NO. 3		18
NUMBER OF MODULES, LAGOON NO. 4		18
MEDIA FACE AREA PER MODULE	SF	3,549
TOTAL MEDIA FACE AREA	SF	191,646
AMMONIA-N REMOVAL PER 1,000 SF		

MEDIA FACE AREA		
AMMONIA-N REMOVAL PER MODULE	LBS/DAY	3.5
TOTAL AMMONIA-N REMOVAL CAPACITY	LBS/DAY	12.5
AIR DIFFUSER TYPE		COURSE BUBBLE
NORMAL AIR FLOW PER MODULE	SCFM	20-45
AIR SCOUR FLOW PER MODULE	SCFM	90
AIR SCOUR DURATION PER MODULE	MIN	20
AIR SCOUR INTERVAL	WEEKS	1

MEDIA BLOWERS		
NUMBER		3 (2 DUTY, 1 STANDBY)
TYPE		POSITIVE
DISPLACEMENT		
MOTOR SIZE	HP	75
CAPACITY, EACH	SCFM	1,000

EFFLUENT CONTROL STRUCTURE

PARSHALL FLUME		
NUMBER		1
THROAT	INCHES	36
MANUAL BAR SCREEN		
NUMBER		1
BAR SPACING	INCHES	3/4

EFFLUENT FILTRATION

FILTER FEED PUMPS		
NUMBER		2 (1 DUTY, 2 STANDBY)
TYPE		SUBMERSIBLE
MOTOR SIZE	HP	10
CAPACITY, EACH	MGD	0.80
TOTAL DYNAMIC HEAD	FT	15

TERTIARY FILTERS

TYPE		SLOW SAND
NUMBER OF FILTER CELL		2

NUMBER OF FILTER MODULES PER CELL		2
FILTER AREA PER MODULE	SF	50
TOTAL FILTER AREA	SF	200
FILTER LOADING RATE	GPM/SF	2.8
TOTAL FILTRATION CAPACITY	MGD	0.80
DESIGN HEADLOSS	FT	4

BACKWASH PUMPS		
NUMBER		2 (1 DUTY, 1 STANDBY)
TYPE		SUBMERSIBLE
MOTOR SIZE	HP	3.4
CAPACITY, EACH	GPM	60
TOTAL DYNAMIC HEAD	FT	40

POLYMER FEED SYSTEM		
NUMBER OF POLYMER FEED UNITS		1
NEAT POLYMER FEED CAPACITY	GPH	1
DILUTION WATER FEED CAPACITY	GPH	200

ALUM FEED SYSTEM		
NUMBER OF STORAGE TANK		1
STORAGE TANK CAPACITY	GAL	1,000
NUMBER OF METERING PUMPS		2 (1 DUTY, 1 STANDBY)
METERING PUMP CAPACITY, EACH	GPH	2

DISINFECTION

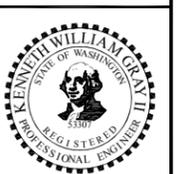
CHLORINE CONTACT TANK		
CONTACT TANK VOLUME	GAL	178,570
THEORETICAL DETENTION TIME AT PEAK DAY FLOW	HRS	0.5
THEORETICAL DETENTION TIME AT AVERAGE ANNUAL FLOW	HRS	2.5

PAA METERING PUMPS		
NUMBER		2
CAPACITY, EACH	GPH	3.2

PAA TOTES		
NUMBER		2
VOLUME, EACH	GAL	300

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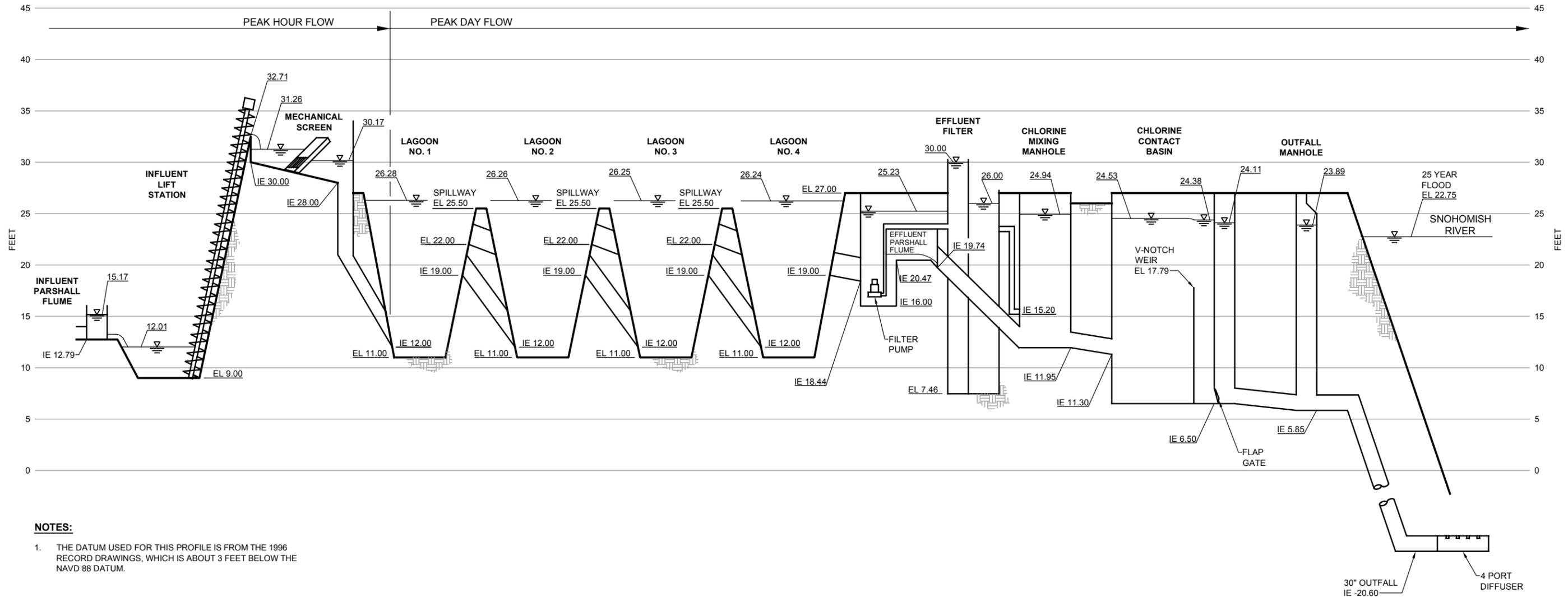
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PERACETIC ACID DISINFECTION SYSTEM
PROCESS FLOW DIAGRAM AND DESIGN CRITERIA

Drawing: **G-4**
 Sheet: **X** of **X**
 File: 19-10615_G-4
 Date: June 2019



NOTES:

1. THE DATUM USED FOR THIS PROFILE IS FROM THE 1996 RECORD DRAWINGS, WHICH IS ABOUT 3 FEET BELOW THE NAVD 88 DATUM.

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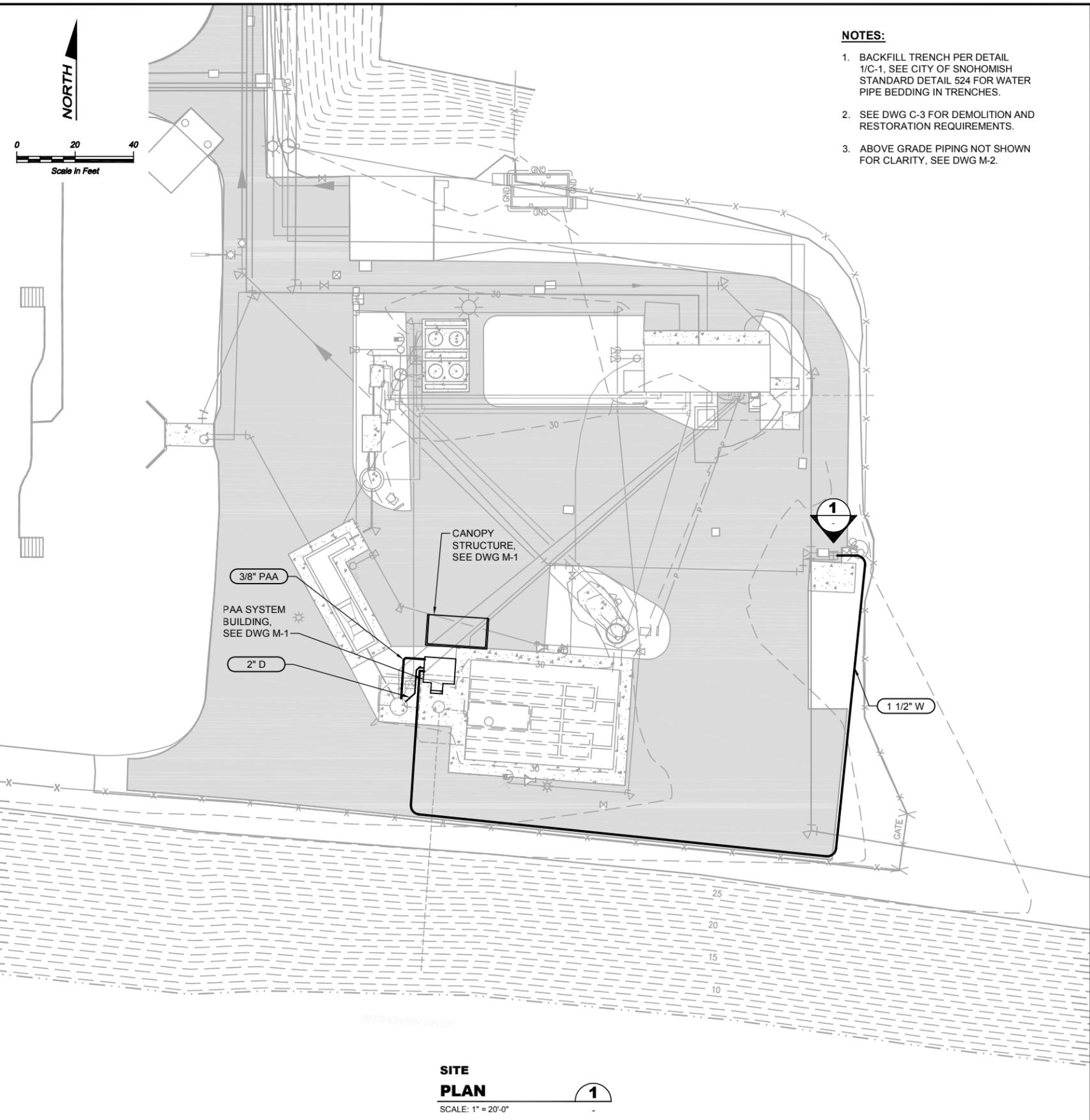
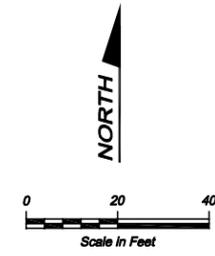


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PERACETIC ACID DISINFECTION SYSTEM

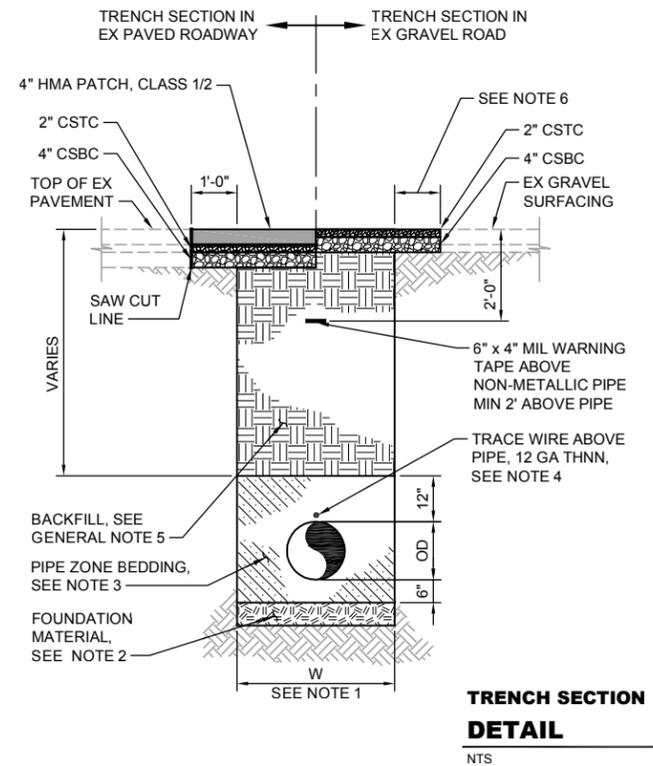
HYDRAULIC PROFILE

Drawing: **G-5**
Sheet: **X** of **X**
File: P19-10615_G-5
Date: June 2019



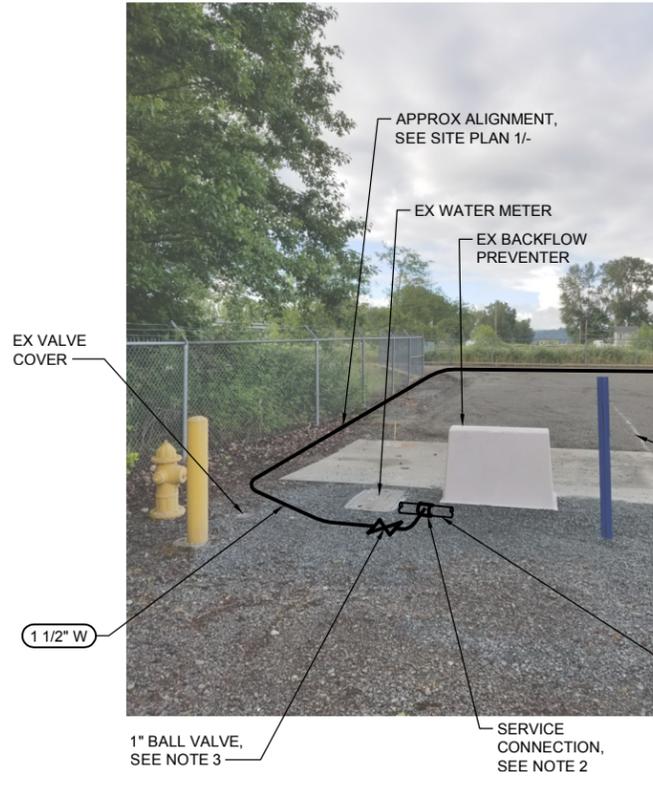
- NOTES:**
- BACKFILL TRENCH PER DETAIL 1/C-1. SEE CITY OF SNOHOMISH STANDARD DETAIL 524 FOR WATER PIPE BEDDING IN TRENCHES.
 - SEE DWG C-3 FOR DEMOLITION AND RESTORATION REQUIREMENTS.
 - ABOVE GRADE PIPING NOT SHOWN FOR CLARITY, SEE DWG M-2.

SITE PLAN
SCALE: 1" = 20'-0"
1
NTS



- NOTES:**
- W = MAXIMUM WIDTH OF TRENCH. FOR PIPES 15" OR LESS IN DIAMETER, W = 40". FOR PIPES 18" OR GREATER W = 1 1/2 x ID + 18". TRENCH SECTIONS SHALL CONFORM TO COS STANDARD PLANS 615, 616, AND 617.
 - WHERE SPECIFIED OR DIRECTED BY THE ENGINEER, REPLACE UNSUITABLE MATERIAL WITH FOUNDATION MATERIAL CLASS A CONFORMING TO SECTION 9-03.17 OF THE WSDOT STANDARD SPECIFICATIONS.
 - PIPE ZONE BEDDING MATERIAL SHALL BE PEA GRAVEL CONFORMING TO SECTION 9-03.12 (3) OF THE WSDOT STANDARD SPECIFICATIONS. COMPACT TO 90% MAX DENSITY. REFER TO COS STANDARD PLANS 615, 616, AND 617.
 - TERMINATE WIRE IN VALVE BOX, METER, OR AROUND A STEP IN A MANHOLE CHIMNEY WHERE PRESENT. IF NO VALVE IS IN NEW PIPE RUN, TERMINATE ONE END OF WIRE BY WRAPPING AROUND ABOVE-GRADE FLEXIBLE GUIDE POST, TYPE W IN ACCORDANCE WITH STANDARD PLAN M-40.10-00 @ MAX 500' OC.
 - BACKFILL SHALL BE IN ACCORDANCE WITH COS STANDARD PLANS 615, 616 AND 617.
 - RESTORE TO LIMITS OF DISTURBED AREA.

TRENCH SECTION DETAIL
1
NTS TYP



- NOTES:**
- PHOTO TAKEN FROM NORTH SIDE OF PROPOSED CONNECTION LOOKING SOUTH.
 - CONNECTION SHALL BE BETWEEN WATER METER AND BACKFLOW PREVENTER, INSTALL SERVICE SADDLE AND CORP STOP IN COMPLIANCE WITH APPLICABLE REQUIREMENTS AS NOTED ON CITY STANDARD DRAWING PLAN NO.'S 501 AND 502, SEE SECTION 01570.
 - 1 1/2" POLY-WATER VALVE MANUFACTURED BY POLYVALVE, SDR 9, FUSION WELDED, OR APPROVED EQUIVALENT. PROVIDE CAST IRON VALVE BOX, TWO PIECE UNIT, DESIGNED WITH LUGS ON COVER, AS MANUFACTURED BY EAST JORDAN IRON WORKS OR APPROVED EQUAL.

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PHOTO
1
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Designed: K. Gray, P.E.	Scale: As Shown
Drawn: S. Olsoe	One Inch at Full Scale If Not One Inch Scale Accordingly
Checked: T. Geise, P.E.	
Approved: R. Dorn, P.E.	

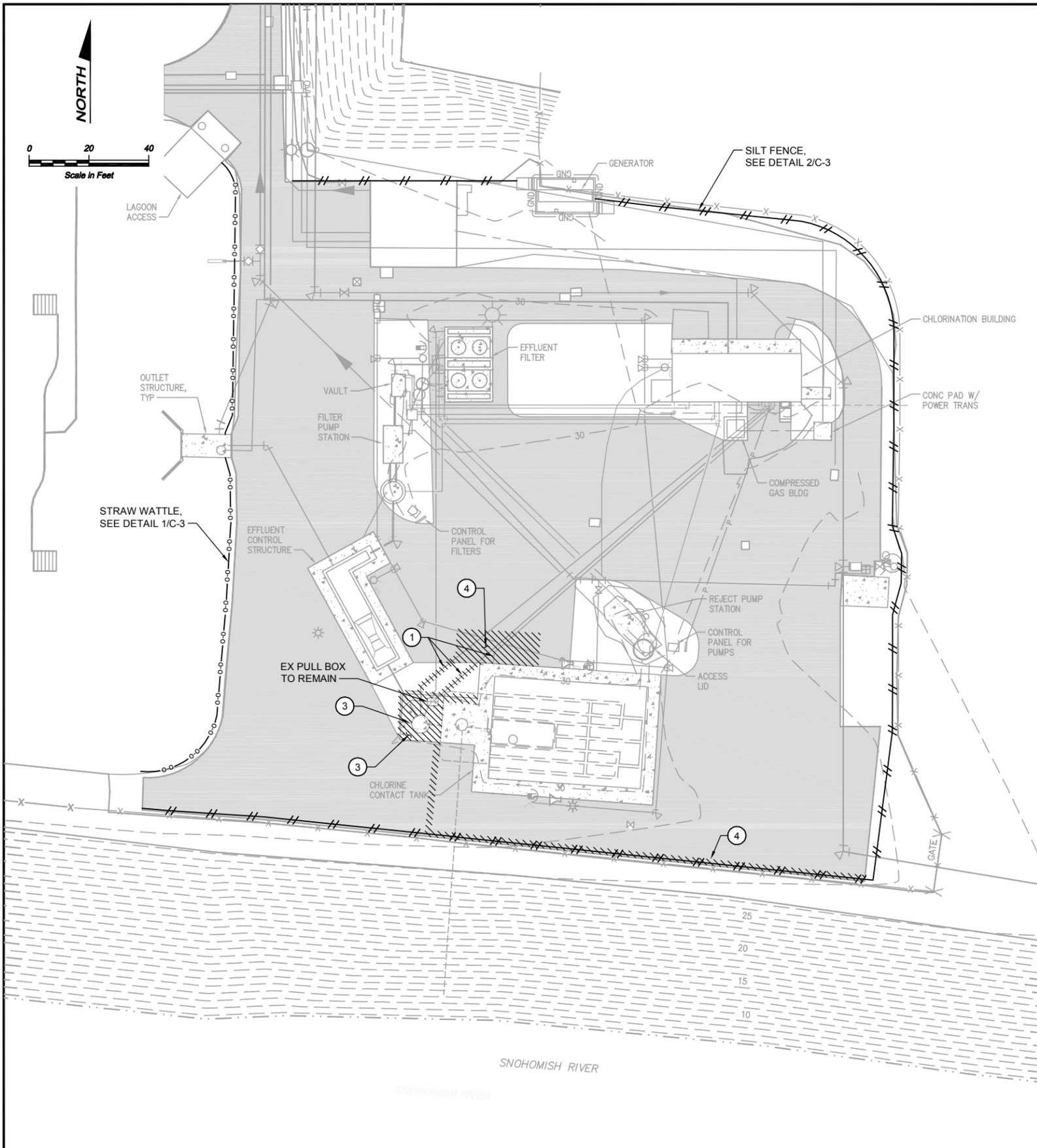
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PERACETIC ACID DISINFECTION SYSTEM
SITE PLAN

Drawing: C-1
Sheet: X of X
File: P19-10615_C-1
Date: June 2019

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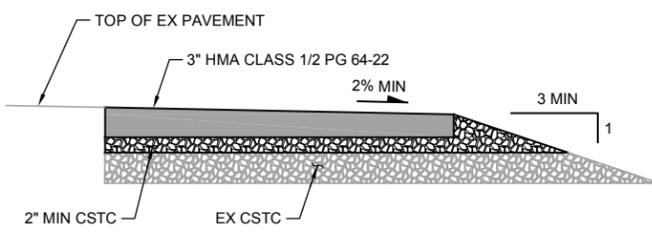


NOTES:

1. CONTRACTOR SHALL VERIFY ALL ASPHALT AND CONCRETE PAVEMENT DEMOLITION LIMITS WITH OWNER PRIOR TO BEGINNING CONSTRUCTION.
2. CONTRACTOR SHALL SAW CUT EXISTING PAVEMENT TO CLEAN SURFACE. ALL PAVEMENT TO BE DEMOLISHED OR REMOVED SHALL BE SAW CUT TO IT'S FULL DEPTH TO CREATE A CLEAN, NEAT EDGE AT THE SURFACE OF PAVEMENT THAT IS TO REMAIN.
3. CONTRACTOR SHALL FINE GRADE DISTURBED AREAS PRIOR TO PLACING ASPHALT TO ENSURE THE RESTORED SITE MAINTAINS DRAINAGE.
4. FOR SURFACING AND HMA RESTORATION SEE DETAILS 1/C-2, 2/C-2, AND 1/C-1.
5. SEE DWG C-3 FOR TEMPORARY EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS, TYP.
6. CONTRACTOR SHALL SAVE AND PROTECT EXISTING STRUCTURES, LIDS AND OTHER SURFACE FEATURES WITHIN THE PROPOSED WORK LIMITS AND MATCH FINAL GRADES.
7. WHERE SHOWN, PLACE STRAW WATTLES OUTSIDE OF PAVEMENT BOUNDARY.

CONSTRUCTION NOTES:

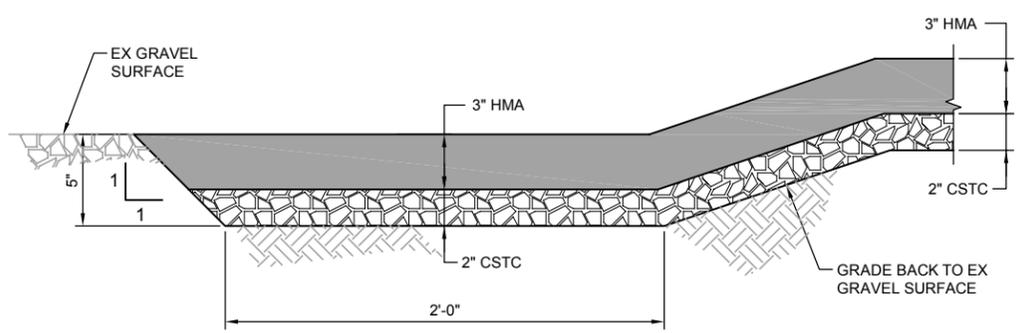
- ① DEMO AND PROVIDE TEMPORARY PIPING FOR 1/2" SDG, 1" CLS AND 1/2" CLG IN ACCORDANCE W/ SECTION 01500. PLUG AND ABANDON PIPING AT TEMPORARY TIE IN WHEN WORK IS COMPLETED.
- ② DEMO, PLUG AND ABANDON 1" CLS AND 1/2" CLG PIPING AND COMPONENTS TO INTERIOR WALL.
- ③ DEMO SLABS ON GRADE TO EXISTING CONSTRUCTION JOINTS AND RESTORE IN KIND UPON COMPLETION OF SUBGRADE WORK, SEE STRUCTURAL DRAWINGS.
- ④ REMOVE AND REPLACE EXISTING ASPHALT PAVEMENT TO MINIMUM EXTENT POSSIBLE TO COMPLETE THE PROPOSED WORK, SEE NOTE 4.



NOTES:

1. EXISTING SUITABLE CSTC MATERIAL MAY BE REUSED AS APPROVED BY ENGINEER. CONTRACTOR SHALL VERIFY MINIMUM DEPTH OF CSTC.
2. CSTC SHALL BE COMPACTED TO 95% MAXIMUM DENSITY.
3. MATCH EXISTING GRADE WHERE PAVEMENT ABUTS EXISTING HARD SURFACE UNLESS OTHERWISE INDICATED.
4. DO NOT PAVE OVER EXISTING STRUCTURES. ALL STRUCTURES SHALL BE LOCATED PRIOR TO PAVING.
5. ALL UTILITY STRUCTURES SHALL BE RAISED TO MATCH FINAL ASPHALT GRADE.

**PAVEMENT SECTION
DETAIL 1**
NTS



**MATCH EXISTING
GRAVEL GRADE
DETAIL 2**
NTS

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 Checked: T. Giese, P.E.
 Approved: R. Dorn, P.E.

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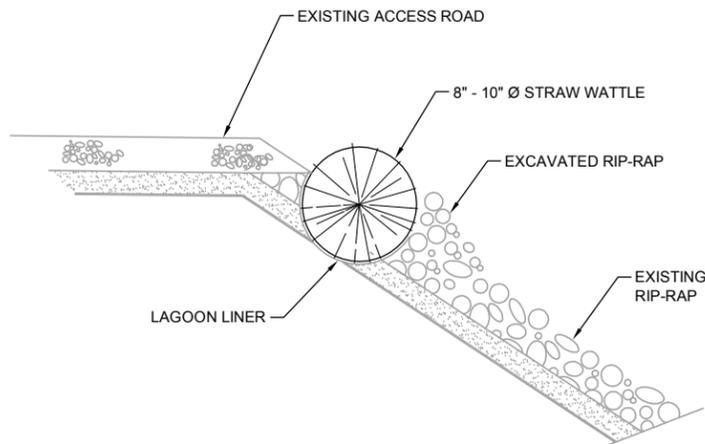
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**PERACETIC ACID DISINFECTION SYSTEM
DEMOLITION PLAN
AND NOTES**

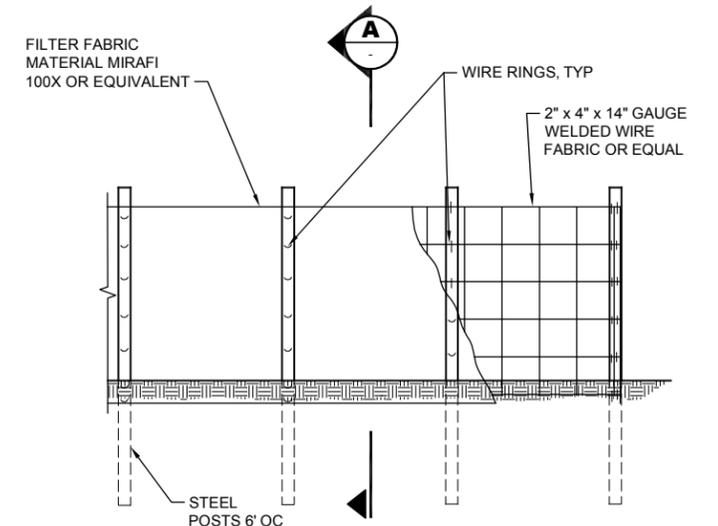
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 File: P19-10615_C-2
 Date: June 2019

TEMPORARY EROSION AND SEDIMENTATION CONTROL NOTES

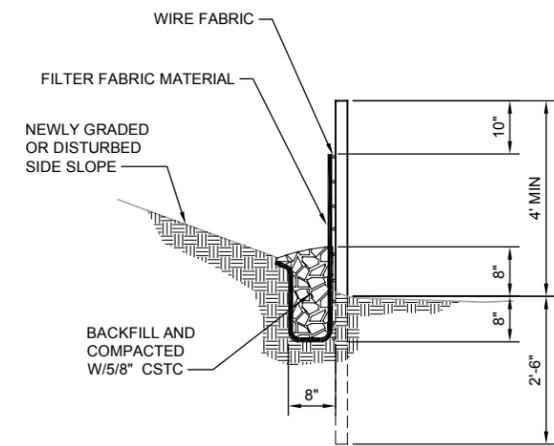
1. ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL MEASURES REQUIRED FOR THE PROJECT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR INCLUDING ANY STATE OR LOCAL AGENCY APPROVALS AND PERMITS.
2. EROSION CONTROL MEASURES SHALL BE TAKEN BY THE CONTRACTOR DURING CONSTRUCTION TO PREVENT SILT AND DEBRIS FROM ENTERING THE EXISTING STORM DRAINAGE FACILITIES AND WATERWAYS, IN COMPLIANCE WITH THE PLANS, THE SPECIFICATIONS AND THE WASHINGTON STATE DEPARTMENT OF ECOLOGY STORM WATER MANAGEMENT MANUAL.
3. THE EROSION AND SEDIMENTATION CONTROL MEASURES SHOWN ON THE PLANS REPRESENT MINIMUM REQUIREMENTS. ACTUAL MEASURES SHALL BE DETERMINED AND FIELD LOCATED BY THE CONTRACTOR TO SUIT CONDITIONS AND TO BE IN COMPLIANCE WITH THE CURRENT EDITION OF THE WASHINGTON STATE DEPARTMENT OF ECOLOGY SWMMWW.
4. ALL REQUIRED EROSION/SEDIMENTATION CONTROL FACILITIES MUST BE CONSTRUCTED AND IN OPERATION PRIOR TO LAND CLEARING AND/OR OTHER CONSTRUCTION TO INSURE THAT SEDIMENT LADEN WATER DOES NOT LEAVE THE SITE, ENTER THE DRAINAGE SYSTEM OR VIOLATE APPLICABLE WATER STANDARDS. ALL EROSION AND SEDIMENT FACILITIES SHALL BE MAINTAINED IN A SATISFACTORY CONDITION UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED AND POTENTIAL FOR ONSITE EROSION HAS PASSED. THE IMPLEMENTATION, MAINTENANCE, REPLACEMENT AND ADDITIONS TO EROSION/SEDIMENTATION CONTROL SYSTEMS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD LOCATING THE CLEARING LIMITS AND ESTABLISHING THOSE BOUNDARIES WITH BRIGHT COLORED FLAGGING. THE CONTRACTOR SHALL CLEAR TO ONLY THOSE LIMITS AS ESTABLISHED, APPROVED BY ENGINEER AND FLAGGED IN THE FIELD. THE FLAGGING SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
6. IN ANY AREA WHICH HAS BEEN STRIPPED OF VEGETATION AND WHERE NO FURTHER WORK IS ANTICIPATED FOR A PERIOD OF 30 DAYS OR MORE, ALL DISTURBED AREAS MUST BE IMMEDIATELY STABILIZED WITH MULCHING, GRASS PLANTING OR OTHER APPROVED EROSION CONTROL TREATMENT APPLICABLE TO THE TIME OF YEAR. GRASS SEEDING ALONE WILL BE ACCEPTABLE ONLY DURING THE MONTHS OF APRIL THROUGH SEPTEMBER. INCLUSIVE SEEDING MAY PROCEED, WHENEVER IT IS IN THE INTEREST OF THE CONTRACTOR, BUT MUST BE AUGMENTED WITH MULCHING, NETTING, EROSION BLANKETS OR OTHER APPROVED TREATMENT WHEN SEEDING OCCURS OUTSIDE THE SPECIFIED TIME PERIOD.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR STREET CLEANING OR VACUUMING SWEEPING (ONSITE AND OFFSITE) UPON THE DIRECTION OF THE ENGINEER TO UNDERTAKE THE MEASURES DEEMED NECESSARY TO AFFECT SUCH CONTROL.
8. STORM DRAIN RUNOFF FROM THE CONSTRUCTION SITE SHALL NOT AFFECT ADJACENT PROPERTIES. WHERE POSSIBLE, MAINTAIN NATURAL VEGETATION FOR SILT CONTROL.
9. THE IMPLEMENTATION OF THESE TESC PLANS AND CONSTRUCTION, MAINTENANCE, REPLACEMENT AND UPGRADE OF THESE TESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.
10. SHOULD THE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES TAKEN AND/OR UPGRADED OR EXPANDED FACILITIES/MEASURES BE INADEQUATE TO CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL INSTALL ADDITIONAL FEATURES NECESSARY TO PROTECT ADJACENT PROPERTIES, SENSITIVE AREAS, NATURAL WATER COURSES AND/OR STORM DRAINAGE SYSTEMS.
11. IN CASE EROSION OR SEDIMENTATION OCCURS TO ADJACENT PROPERTY OWNERS, ALL CONSTRUCTION WORK WITHIN THE AREA, THAT MAY FURTHER AGGRAVATE THE SITUATION, SHALL CEASE AND THE CONTRACTOR SHALL IMMEDIATELY COMMENCE RESTORATION METHODS. RESTORATION ACTIVITY WILL CONTINUE UNTIL SUCH TIME AS THE AFFECTED PROPERTY OWNER IS SATISFIED.
12. THESE TESC FACILITIES SHALL BE INSPECTED BY THE CESCL AT LEAST ONCE PER CALENDAR WEEK AND WITHIN 24-HOURS OF ANY DISCHARGE FROM THE SITE. FACILITIES SHALL BE INSPECTED DAILY DURING PROLONGED RAINFALL BY THE CONTRACTOR. THE TESC FACILITIES SHALL BE MAINTAINED AS NECESSARY OR AS DIRECTED BY THE ENGINEER TO ENSURE THEIR CONTINUED FUNCTION. NECESSARY REPAIRS OR REPLACEMENT OF FACILITIES SHALL BE ACCOMPLISHED PROMPTLY. SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT AND/OR WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-THIRD THE MAXIMUM POTENTIAL DEPTH.
13. ALL TESC MEASURES SHALL BE IN ACCORDANCE WITH THE CITY OF SNOHOMISH ENGINEERING DEVELOPMENT MANUAL AND DETAILS UNLESS SHOWN OTHERWISE.
14. SUBMIT CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL) INFORMATION TO THE ENGINEER.



**STRAW WATTLE
DETAIL**
NTS 1 C-2



ELEVATION



SECTION A-A

**TEMPORARY
SILT FENCE
DETAIL**
NTS 2 C-2

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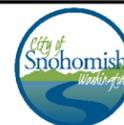
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Drawn: S. Olsoe
Checked: T. Giese, P.E.
Approved: R. Dorn, P.E.

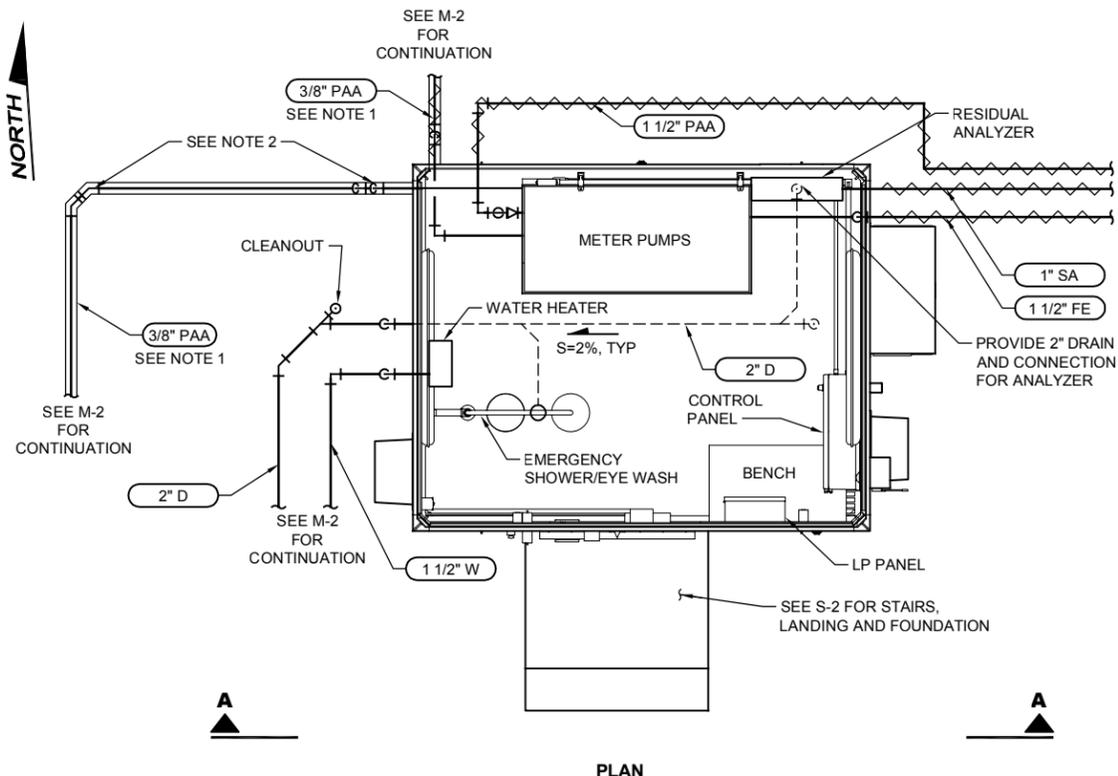
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Scale Accordingly



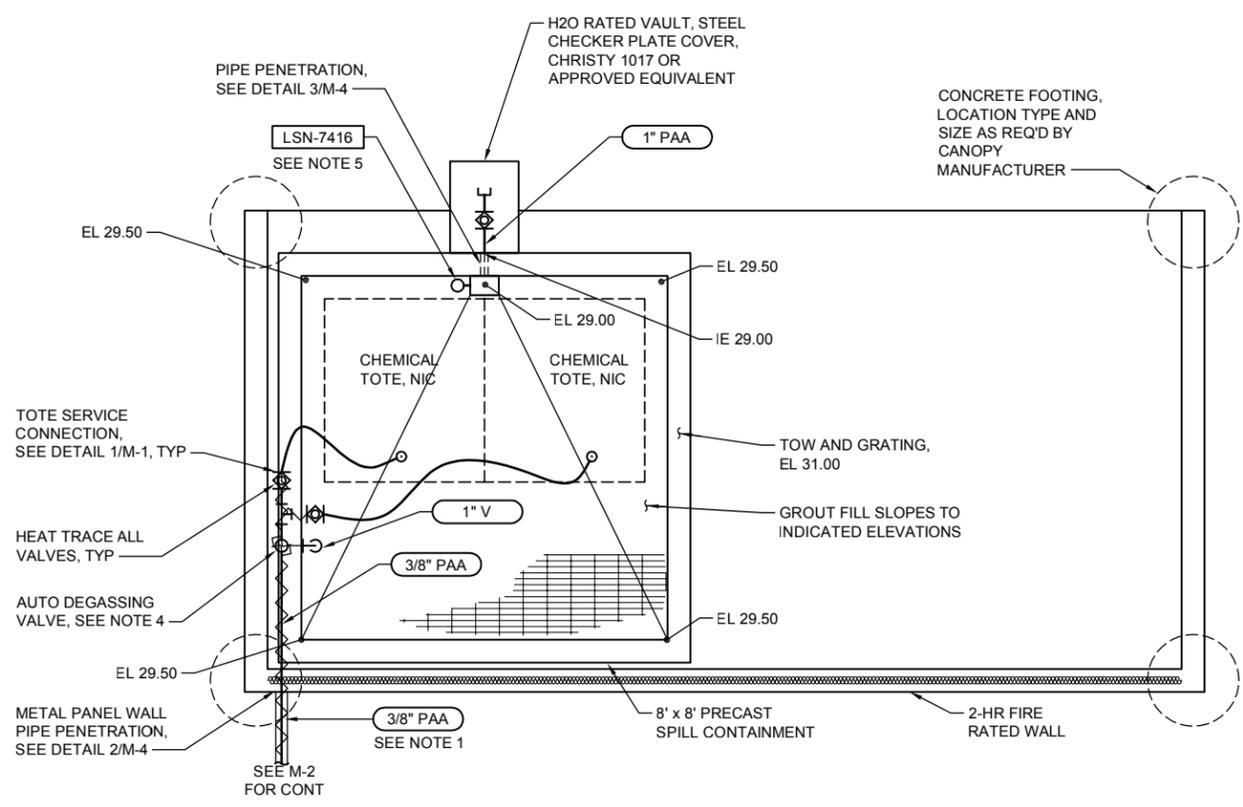
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**PERACETIC ACID DISINFECTION SYSTEM
EROSION CONTROL NOTES
AND DETAILS**

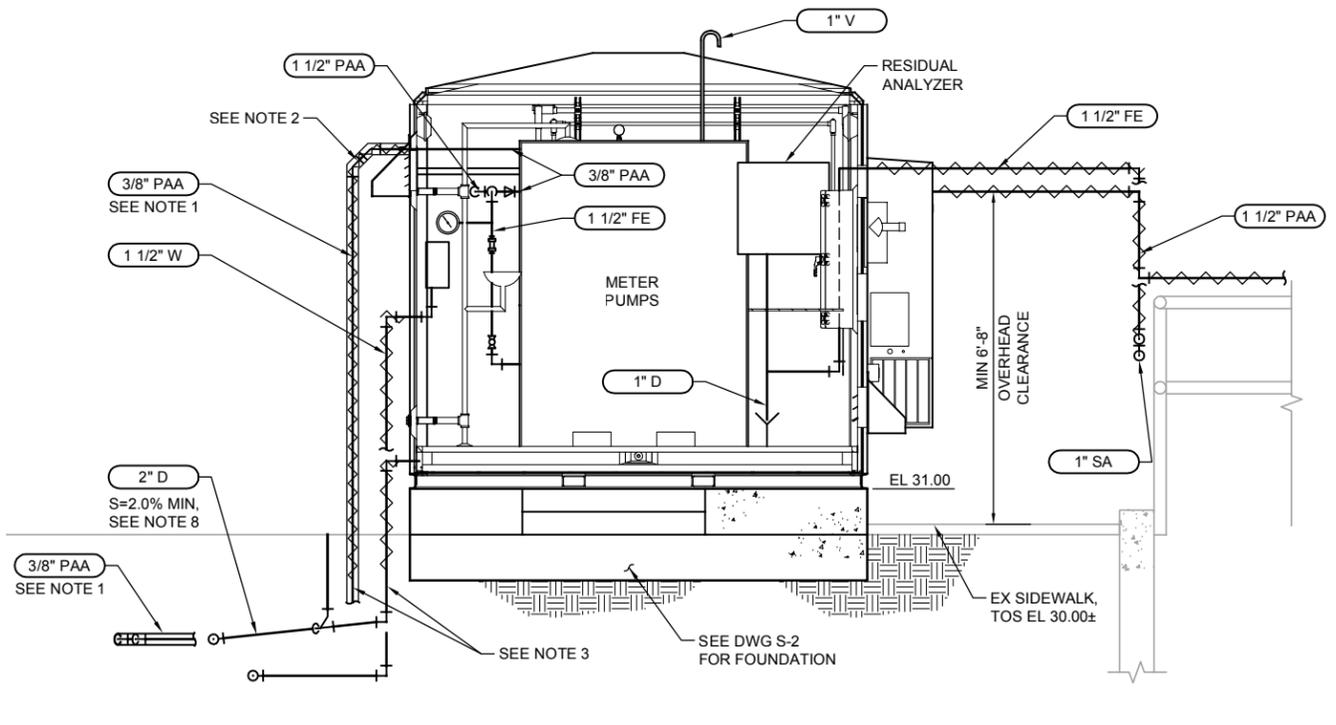
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Sheet: **X** of **X**
File: P19-10615_C-3
Date: June 2019



PLAN



CANOPY STRUCTURE PLAN



SECTION
PAA SYSTEM BUILDING
DETAIL
SCALE: 1/2" = 1'-0"

NOTES:

- ON EXTERIOR/BURIED 3/8" PAA PIPING PROVIDE 3/8" PTFE TUBING AND 2" SCH 40 316 SST CONTAINMENT PIPING.
- ON 3/8" PAA SYSTEM EXTERIOR DISCHARGE CONTAINMENT PIPING PROVIDE TWO (2) 45° ELBOWS FOR ALL 90° BENDS, TYPICAL.
- EXTEND HEAT TRACE A MINIMUM OF 1'-0" BELOW GRADE, TYPICAL.
- ROUTE 316 SST 1" VENT INTO CONTAINMENT VAULT, TERMINATE AT ELEVATION 30.50 IN VAULT.
- LEVEL ALARM ELEVATION 29.25, SEE DETAIL 4/M-4 FOR MOUNTING.
- COORDINATE ALL PIPE CONNECTION ELEVATIONS AND LOCATIONS WITH PAA SYSTEM BUILDING MANUFACTURER, CONTRACTOR TO FIELD VERIFY.
- BURIED PAA, DRAIN AND WATER PIPES SHALL HAVE A MINIMUM COVER OF 2'-6" TO CROWN, TYPICAL.
- MAINTAIN MINIMUM 2% SLOPE TO MIXING MANHOLE FOR BURIED DRAIN PIPE.
- HEAT TRACE WIRE, SEE DETAIL 5/M-4, TYPICAL.

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Drawn: S. Olsoe	One Inch at Full Scale If Not One Inch Scale Accordingly
Checked: T. Glese, P.E.	
Approved: R. Dorn, P.E.	

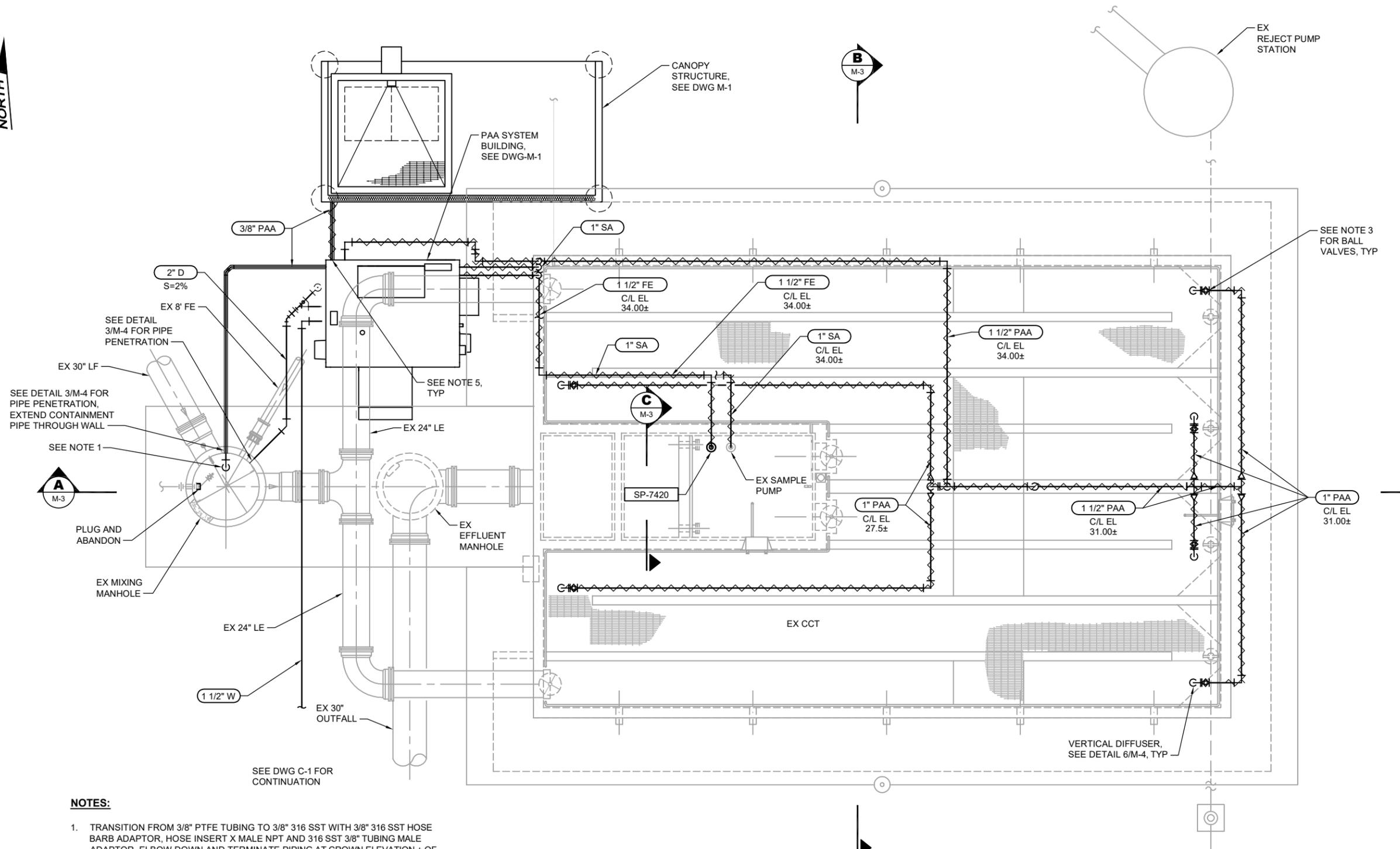
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PERACETIC ACID DISINFECTION SYSTEM
PAA SYSTEM PLAN

Drawing: M-1
Sheet: X of X
File: P19-10615_M-1
Date: June 2019

Path: S:\Cad\Snohomish\19-10615 PAAD System\19-10615 M-2 Plot date: May 31, 2019 08:57:45am CAD User: solsoe
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NORTH



NOTES:

- TRANSITION FROM 3/8" PTFE TUBING TO 3/8" 316 SST WITH 3/8" 316 SST HOSE BARB ADAPTOR, HOSE INSERT X MALE NPT AND 316 SST 3/8" TUBING MALE ADAPTOR. ELBOW DOWN AND TERMINATE PIPING AT CROWN ELEVATION ± OF EXISTING 30" LF.
- BURIED PAA, DRAIN, AND WATER PIPES SHALL HAVE A MINIMUM COVER OF 2'-6" TO CROWN.
- HEAT TRACE ALL EXTERIOR / EXPOSED PAA PIPING, UNO, AND ALL BALL VALVES ON PAA DISTRIBUTION PIPING WITH IN CHLORINE CONTACT TANK, DO NOT EXTEND HEAT TRACE BEYOND BALL VALVES, TYP.
- HEAT TRACE SEE DETAIL 5/M-4, TYP.
- COORDINATE ALL PIPE CONNECTION ELEVATIONS AND LOCATIONS WITH PAA SYSTEM BUILDING MANUFACTURER, CONTRACTOR TO FIELD VERIFY.

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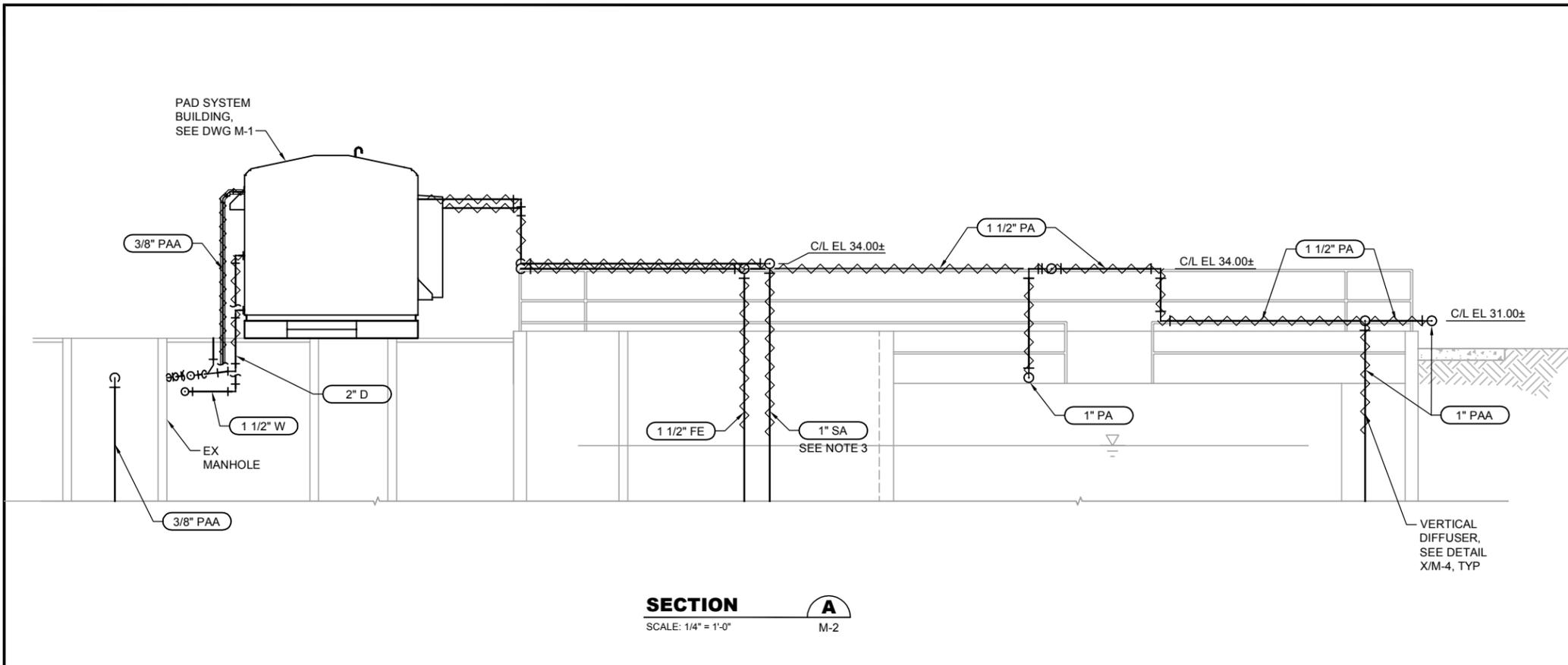
Designed: K. Gray, P.E.	Scale: 1/4" = 1'-0"
Drawn: P. Simon	One Inch at Full Scale
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Approved: R. Dorn, P.E.	

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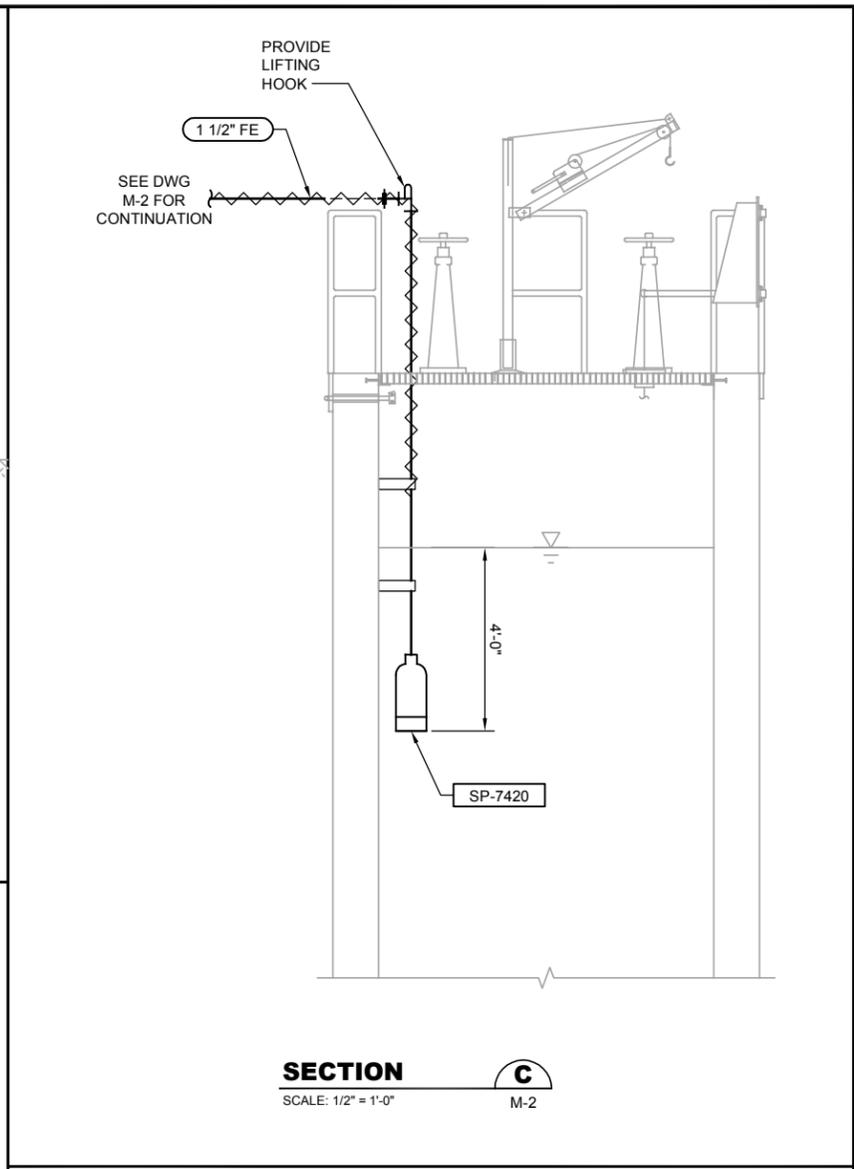
PERACETIC ACID DISINFECTION SYSTEM
CHLORINE CONTACT TANK PLAN

Drawing: M-2
Sheet: X of X
File: P19-10615_M-2
Date: June 2019

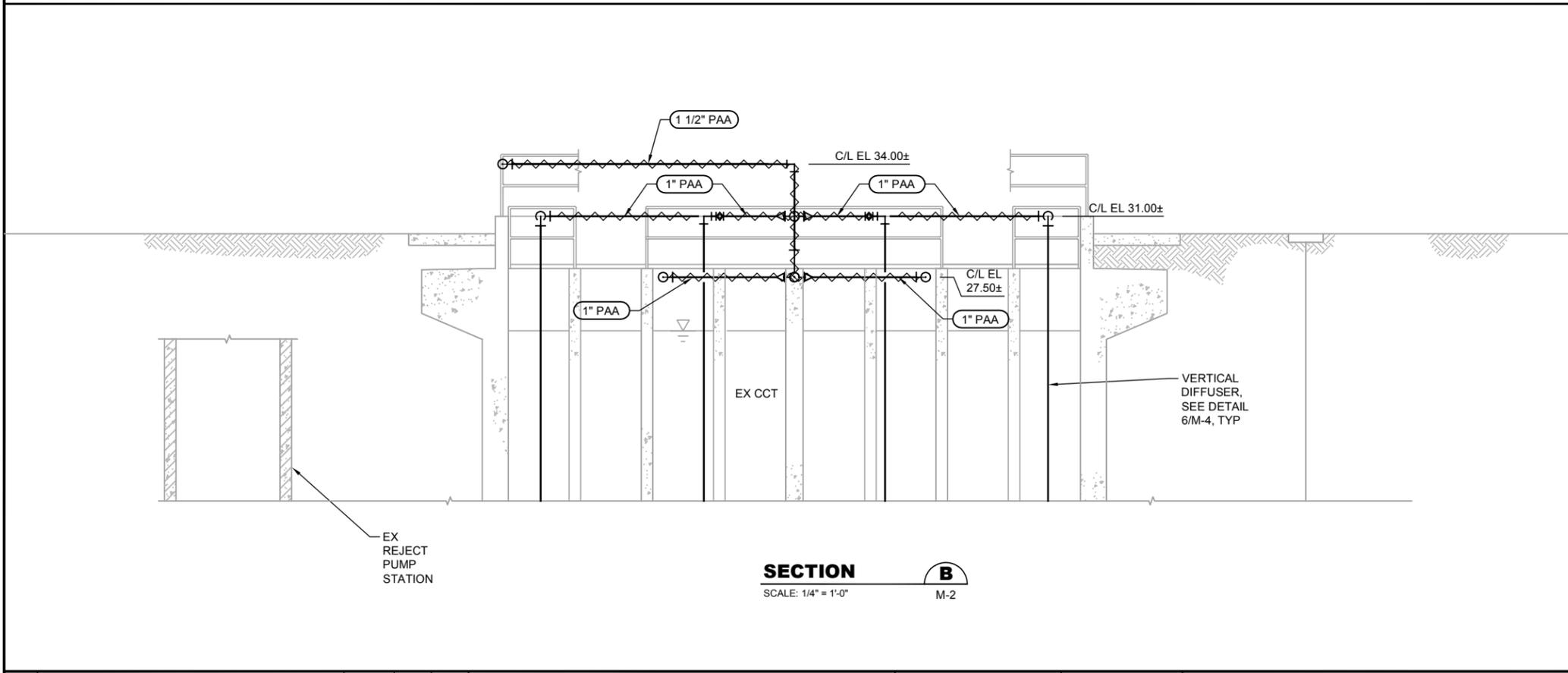
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SECTION A
SCALE: 1/4" = 1'-0" M-2



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



SECTION B
SCALE: 1/4" = 1'-0" M-2

- NOTES:**
- HEAT TRACE ALL EXTERIOR / EXPOSED PAA PIPING, UNO, AND ALL BALL VALVES ON PAA DISTRIBUTION PIPING WITH IN CHLORINE CONTACT TANK, DO NOT EXTEND HEAT TRACE BEYOND BALL VALVES, TYP.
 - HEAT TRACE SEE DETAIL 5/M-4, TYP.
 - REPLACE EXISTING SAMPLE PUMP DISCHARGE PIPING.

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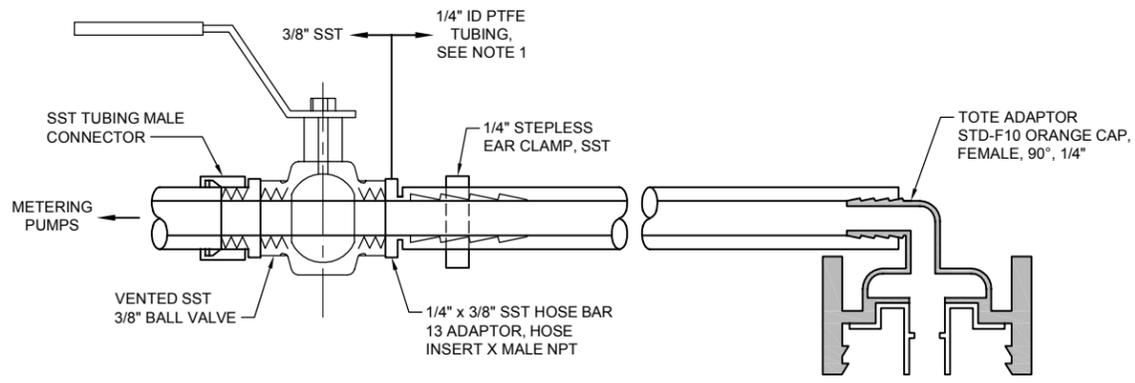
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**PERACETIC ACID DISINFECTION SYSTEM
 CHLORINE CONTACT TANK AND
 PAA SYSTEM SECTIONS**

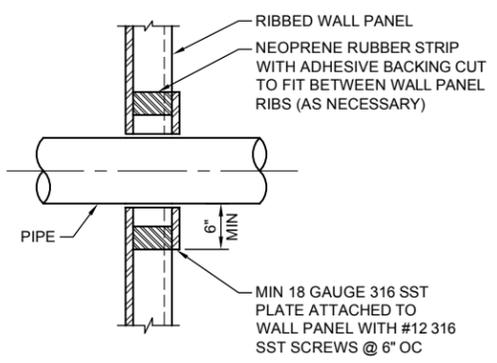
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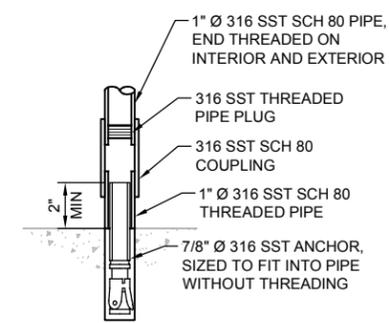
NOTES:

1. CONTRACTOR TO PROVIDE MINIMUM 6'-0" CONTINUOUS LENGTH TUBING SECTION.
2. HEAT TRACE NOT SHOWN FOR CLARITY, SEE DETAIL 5/.

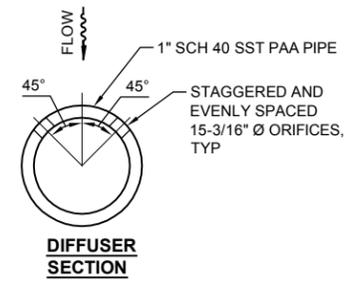
**PAA TOTE TUBING
DETAIL**
NTS M-1



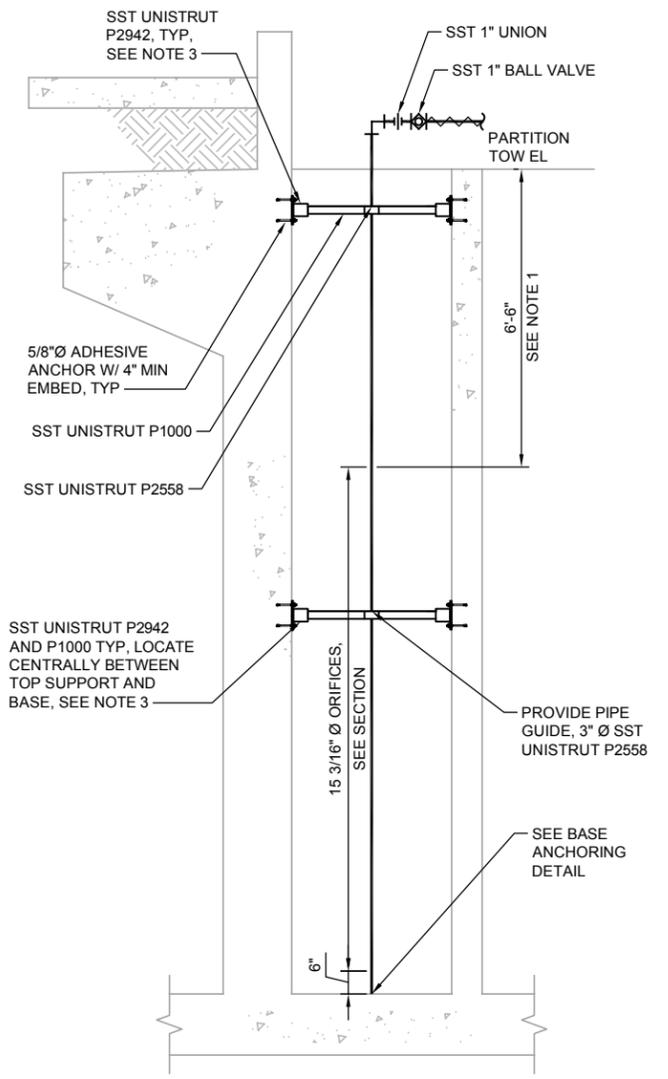
**METAL WALL PANEL
PIPE PENETRATION
DETAIL**
NTS TYP



BASE ANCHORING



**DIFFUSER
SECTION**

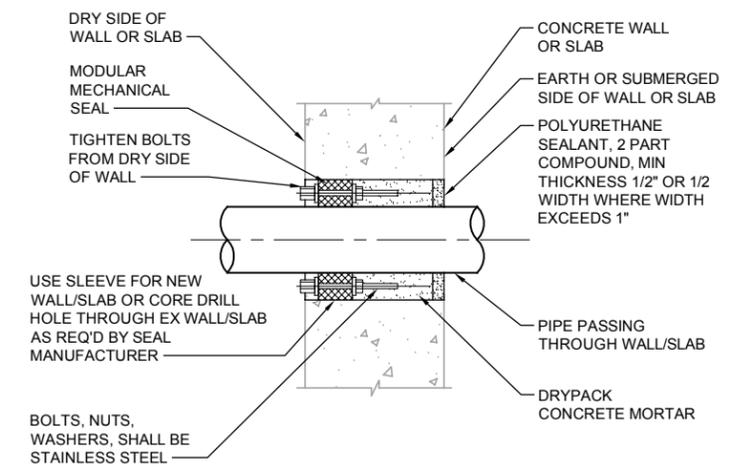


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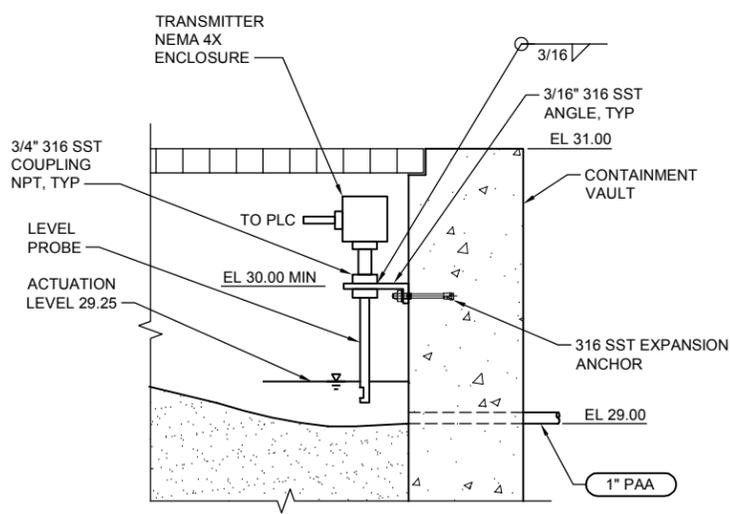
1. TOP ORIFICE SHALL BE 0'-3" BELOW BOTTOM OF V-NOTCH EFFLUENT WEIR ELEVATION, CONTRACTOR TO FIELD VERIFY.
2. CENTER DIFFUSER IN CHANNEL.
3. SST UNISTRUT P2942 POST BASE SHALL BE INSTALLED WITH SST 5/8" ADHESIVE ANCHORS W/ 4" MIN EMBED, TYP.
4. GRATING AND RAILINGS NOT SHOWN FOR CLARITY.

**PAA VERTICAL DIFUSER
DETAIL**
NTS TYP

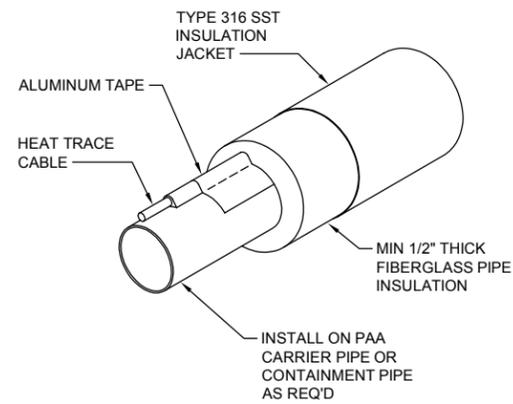
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**SLAB AND SUBMERGED/BELOW GRADE
WALL PENETRATION W/ THICKNESS <12\"/>**



**LEVEL SWITCH
MOUNTING
DETAIL**
NTS M-1



**HEAT TRACE
AND INSULATION
DETAIL**
NTS TYP

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Path: S:\Cad\Snohomish\19-10615 PAAD System\19-10615 M-4 Prelim.dwg Plot Date: May 30, 2019 04:10:10pm CAD User: solsoe
Xref Filename: | X19-10615_Prelim | X19-10615_TB | Gray | Giese | Gibson | Franco

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Checked: T. Giese, P.E.
Approved: R. Dorn, P.E.

Scale:
NTS
One Inch at Full Scale
If Not One Inch Scale Accordingly

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**PERACETIC ACID DISINFECTION SYSTEM
MISCELLANEOUS
DETAILS**

Drawing: **M-4**
Sheet: **X** of **X**
File: P19-10615_M-4
Date: June 2019

GENERAL STRUCTURAL NOTES

A. GENERAL

1. **SCOPE**
THE GENERAL STRUCTURAL NOTES AND TYPICAL STRUCTURAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS OR MODIFICATIONS TO THE CONTRARY.
2. **APPLICABLE SPECIFICATIONS AND CODES**
ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, (SEE BELOW). THE PROVISIONS OF THE BUILDING CODE SHALL SUPERSEDE THE PLANS AND SPECIFICATIONS EXCEPT WHERE THE PLANS AND SPECIFICATIONS ARE MORE RESTRICTIVE.

IN ADDITION TO THE BUILDING CODE, CONSTRUCTION SHALL CONFORM TO OTHER STANDARDS AND CODES AS REFERENCED ON THE DRAWINGS OR IN THE SPECIFICATIONS.
3. **DIMENSIONS**
STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO MECHANICAL AND ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR SIZE AND LOCATION OF ALL OPENINGS FOR DUCTS, PIPING, CONDUITS, ETC., NOT SHOWN. ALL OPENINGS IN STRUCTURAL MEMBERS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER. REFER TO CIVIL DRAWINGS AND SPECIFICATIONS FOR SUBGRADE INFORMATION AND CRITERIA. VERIFY ALL DIMENSIONS WITH CIVIL, MECHANICAL, AND ELECTRICAL DRAWINGS.
4. **PROVISIONS FOR EQUIPMENT**
MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, PIPE SLEEVES AND PENETRATIONS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS, BUT REQUIRED BY OTHER CONTRACT DRAWINGS SHALL BE PROVIDED FOR PRIOR TO CASTING CONCRETE.
5. **CONSTRUCTION LOADS**
STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURES. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED BY BRACING AND SUPPORTS WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR. THE CONTRACTOR SHALL DETERMINE WHEN SUCH BRACING IS NECESSARY.

B. STRUCTURAL DESIGN DATA

1. **GENERAL**
 - A. BUILDING CODE: 2015 INTERNATIONAL BUILDING CODE WITH CITY OF SNOHOMISH AMENDMENTS AND WASHINGTON STATE AMENDMENTS (WAC 51-50) AND BY REFERENCE ASCE 7-10 MINIMUM DESIGN LOADS FOR AND BUILDINGS AND OTHER STRUCTURES.
 - B. LOCATION: N 47° 55' 00", W 122° 06' 36"
 - C. RISK CATEGORY IV
2. **DESIGN LOADS**
 - A. DEAD LOAD: EQUIPMENT OPERATING WEIGHT
 - B. SNOW LOAD:
GROUND SNOW LOAD Pg: 15 PSF
SNOW LOAD IMPORTANCE FACTOR: Is = 1.1
 - C. WIND DESIGN DATA:
BASIC WIND SPEED (3 SECOND GUST): 115 MPH
WIND IMPORTANCE FACTOR: Iw = 1.15
WIND EXPOSURE: D ALL DIRECTIONS
 - D. EARTHQUAKE DESIGN DATA:
SEISMIC IMPORTANCE FACTOR: Ie = 1.50
MAPPED SPECTRAL ACCELERATIONS: Ss = 1.286 S1 = 0.487
SITE CLASS: D
SPECTRAL RESPONSE COEFFICIENTS: SDS = 0.857 SD1 = 0.491
SEISMIC DESIGN CATEGORY: D
 - F. SOILS DATA:
SOIL BEARING PRESSURE: 1.5 KSF, AND MAY BE INCREASED BY ONE THIRD FOR SEISMIC AND WIND LOADS

FROST DEPTH: 18 INCHES

C. CONCRETE

1. **SPECIFICATION**
SEE SPECIFICATIONS FOR COMPLETE REQUIREMENTS FOR MIX DESIGNS, FORMING, REINFORCEMENT, PLACING, CURING, AND FINISHING.
2. **DESIGN STRESSES**
 - A. • STRUCTURAL CONCRETE: 4500 PSI @ 28 DAYS
 - B. ALL CONCRETE SHALL CONTAIN AN ACCEPTABLE ADMIXTURE TO PRODUCE 4- TO 6- PERCENT ENTRAINED AIR.
 - C. REINFORCING STEEL SHALL BE ASTM A615 DEFORMED BARS, GRADE 60. WELDED WIRE FABRIC SHALL BE ASTM A185 SMOOTH WIRE - fy = 60 KSI MINIMUM.
3. **BAR SPLICES**
SPLICES OF REINFORCING STEEL BARS SHALL BE IN ACCORDANCE WITH THE BUILDING CODE AND SHALL BE CLASS B, UNLESS OTHERWISE NOTED. THE LENGTH OF LAP SPLICE OF BARS OF DIFFERENT DIAMETER SHALL BE BASED ON THE SMALLER DIAMETER.
4. **STANDARD HOOKS**
BARS ENDING IN RIGHT ANGLE BENDS OR HOOKS SHALL CONFORM TO THE REQUIREMENTS OF THE BUILDING CODE.
5. **SLOPING SLABS**
MONOLITHIC SLABS WITH TOPS THAT ARE SLOPED SHALL HAVE BOTTOM SLOPED THE SAME AMOUNT, MAINTAINING A UNIFORM SLAB THICKNESS, UNLESS OTHERWISE NOTED.
6. **CHAMFERS**
EXCEPT AS OTHERWISE NOTED, EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS. RE-ENTRANT CORNERS SHALL NOT HAVE FILLETS.
7. **CONSTRUCTION JOINTS**
ENGINEER APPROVAL IS REQUIRED FOR ANY CONSTRUCTION JOINTS NOT SHOWN ON THE DRAWINGS. CONSTRUCTION JOINTS SHALL BE DETAILED AS SHOWN ON THE DRAWINGS.
8. **POST INSTALLED ANCHORS**
USE RESIN-BONDED ANCHORS, HILTI HIT-HY 200-A OR SIMPSON SET/ET.
9. **ANCHOR RODS**
ANCHOR RODS SHALL BE ASTM F1554 GRADE 36 WITH CLASS 2A THREADS, UNLESS NOTED OTHERWISE. FURNISH ANCHOR RODS PREFABRICATED WITH MATCHING DOUBLE HEAVY HEX NUTS JAMMED AT THE END EMBEDDED IN CONCRETE. FURNISH HARDENED PLATE WASHERS, LOCK WASHERS, AND MATCHING HEAVY HEX NUTS FOR SECURING THE GENERATOR BASE PLAT TO THE ANCHOR RODS. HOOKED ANCHOR RODS SHALL NOT BE USED EXCEPT WHERE NOTED. ANCHOR RODS TO BE DESIGNED BY GENERATOR SUPPLIER.

D. NON-SHRINK GROUT

GROUT FOR BASE PLATES, EQUIPMENT ANCHORAGE AND GENERAL PURPOSES SHALL BE APPROVED, NON-SHRINK CEMENTITIOUS GROUT CONTAINING NATURAL AGGREGATES DELIVERED TO THE JOB SITE IN FACTORY REPACKAGED CONTAINERS REQUIRING ONLY THE ADDITION OF WATER, ASTM C1107 TYPE B OR C.

I. FOUNDATION PREPARATION

FOUNDATIONS SHALL BEAR ON UNDISTURBED, DENSE SOIL. IF UNDISTURBED, DENSE SOIL IS NOT FOUND AT THE BOTTOM OF THE FOOTING ELEVATION, WEAK MATERIAL SHALL BE REMOVED AND REPLACED WITH COMPACTED BACKFILL IN ACCORDANCE WITH THE SPECIFICATIONS. PROVIDE GRADED CRUSHED OR NATURAL ROCK BASE COURSE BENEATH CONCRETE SLABS OR FOOTINGS WHERE INDICATED.

BACKFILL SHALL BE COMPACTED TO 95% OF MAXIMUM DENSITY USING ASTM D1557.

J. SPECIAL INSPECTION

IN ADDITION TO THE INSPECTIONS REQUIRED BY SECTION 1701 OF THE IBC, SPECIAL INSPECTIONS SHALL BE PROVIDED DURING CONSTRUCTION OF THE FOLLOWING WORK:

1. **ANCHOR BOLTS:** INSTALLED IN CONCRETE OR MASONRY PRIOR TO AND DURING THE PLACEMENT OF CONCRETE AROUND BOLTS.
2. **ALL CONCRETE:** SHALL BE INSPECTED IN ACCORDANCE WITH REQUIREMENTS OF IBC 2015 TABLE 1705.3.
3. **PLACEMENT:** OF ALL REINFORCING STEEL SHALL BE INSPECTED.

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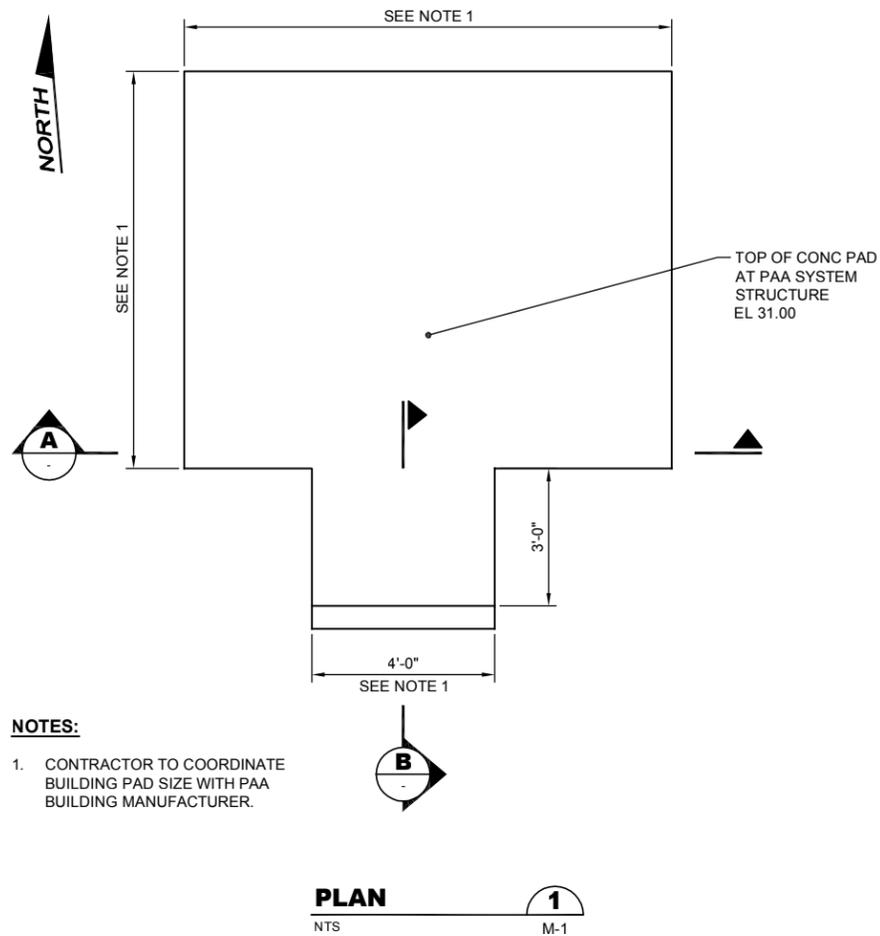


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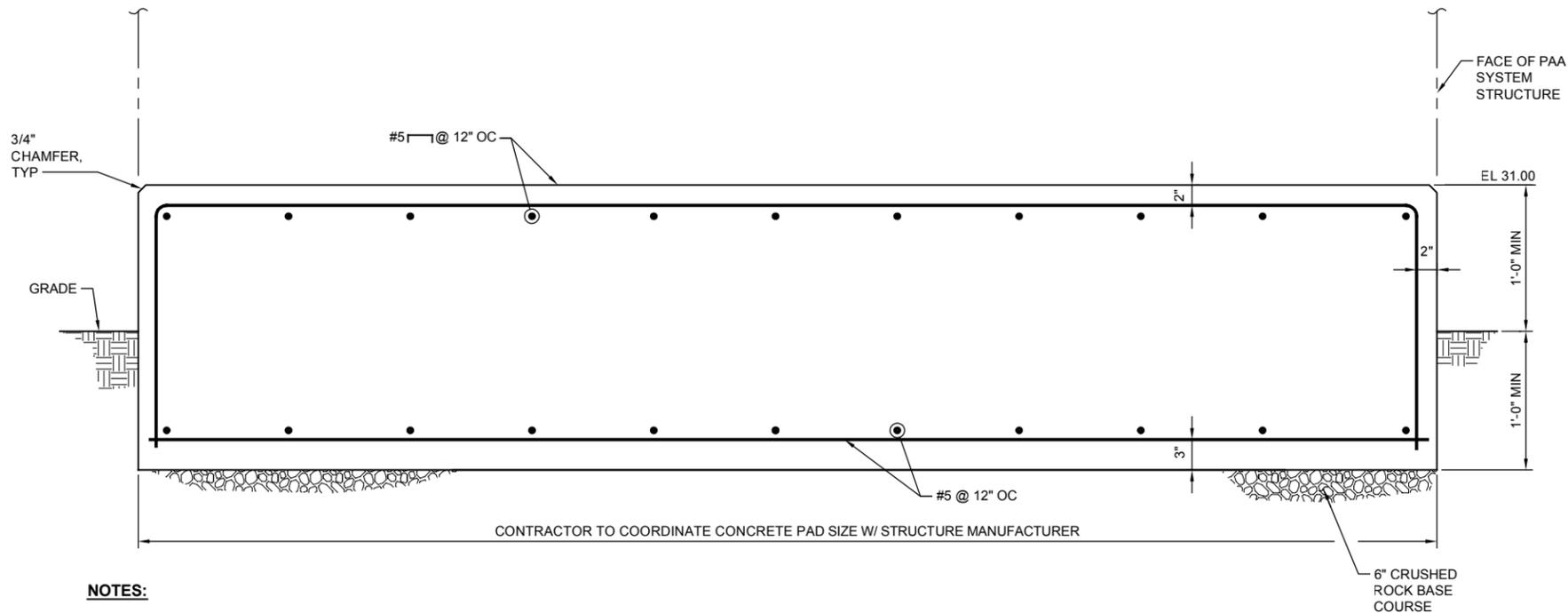
PERACETIC ACID DISINFECTION SYSTEM

GENERAL STRUCTURAL NOTES

Drawing: **S-1**
Sheet: **X** of **X**
File: 19-10615_S-1
Date: June 2019

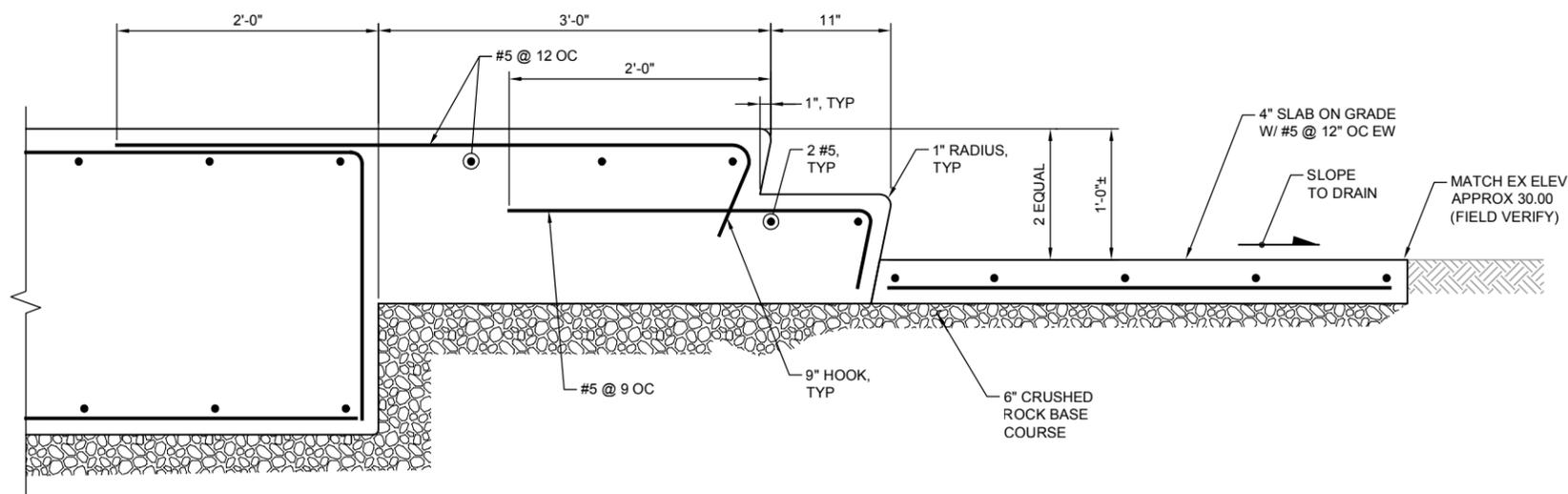


- NOTES:**
- CONTRACTOR TO COORDINATE BUILDING PAD SIZE WITH PAA BUILDING MANUFACTURER.



- NOTES:**
- STRUCTURE VENDOR SHALL BE RESPONSIBLE FOR DESIGN OF STRUCTURE ANCHORAGE TO CONCRETE PAD.

TYPICAL EXTERIOR PAA SYSTEM BUILDING PAD ON GROUND
SECTION A
NTS



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Path: S:\Cadd\Snohomish\19-10615 PAAD System\19-10615 S-2 Plot date: May 30, 2019 03:57:00pm CAD User: solsoe
Xref Filename: | X19-10598_Prelim | X19-10615_TB | Franco | Giese | Gray | Gibson |

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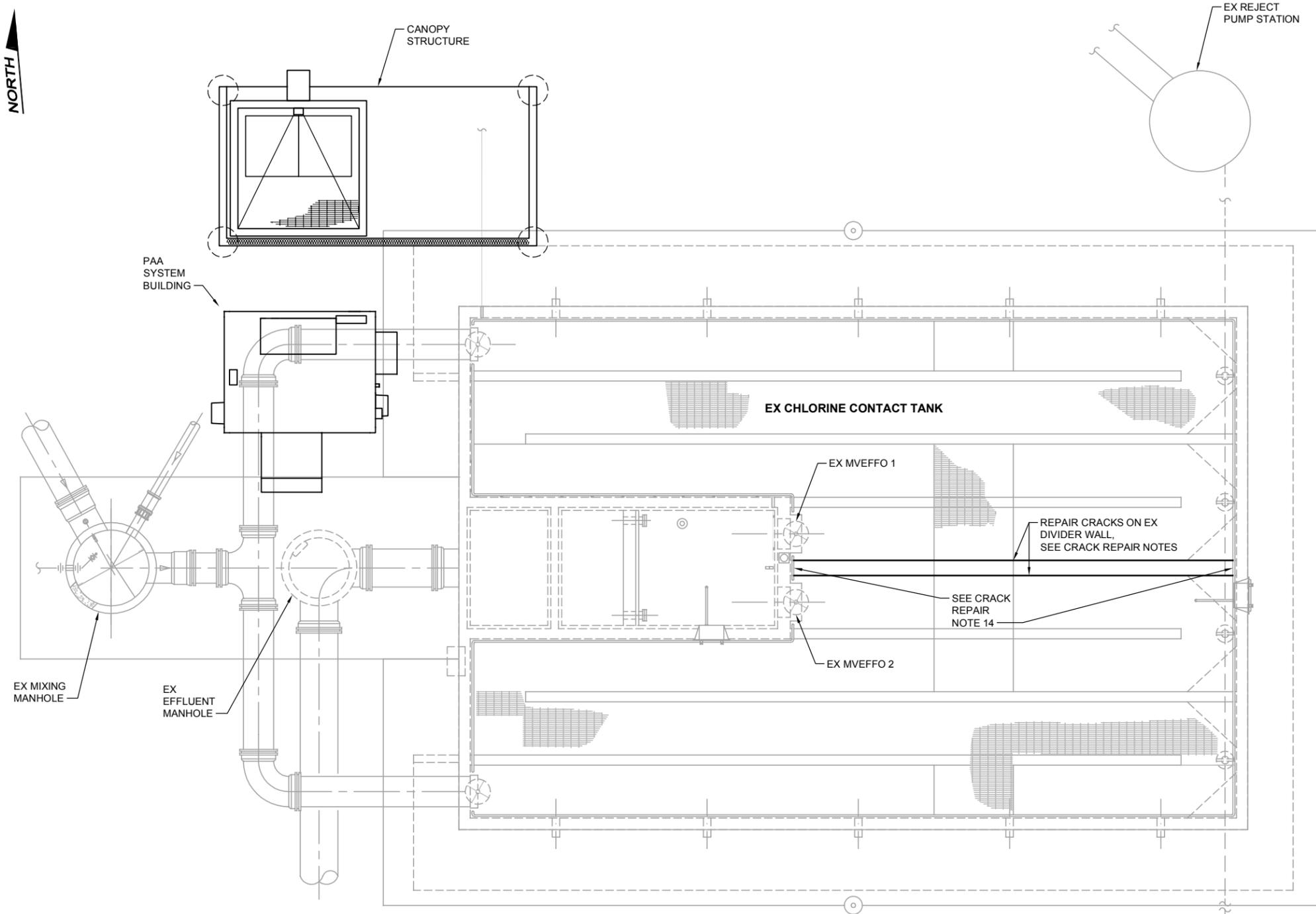


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PERACETIC ACID DISINFECTION SYSTEM
PAA SYSTEM FOUNDATION
PLAN AND SECTION

Drawing: **S-2**
Sheet: **X** of **X**
File: P19-10615_S-2
Date: June 2019

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 XrefFilename: | X19-10615_TB | X19-10615_Prelim | Gray | X19-10615_Ext Tank | Giese | X19-10615_Prop PAA | Franco | X19-10615_Prop Tank | Gibson |



CRACK REPAIR NOTES:

1. CONTRACTORS SHALL BE QUALIFIED IN THE FIELD OF CONCRETE REPAIR AND PROTECTION WITH A SUCCESSFUL TRACK RECORD OF 5 YEARS OR MORE. CONTRACTOR SHALL MAINTAIN QUALIFIED PERSONNEL WHO HAVE RECEIVED PRODUCT TRAINING BY THE MANUFACTURER'S REPRESENTATIVE.
2. SUBMIT PRODUCT DATA, SURFACE PREPARATION AND PLACEMENT PROCEDURE FOR REVIEW IN ACCORDANCE WITH SPECIFICATION SECTION 01300.
3. REPAIR CRACKS IN ACCORDANCE WITH WORK SEQUENCE IN SPECIFICATION SECTION 01014.
4. CLEAN CONCRETE SURFACE INSIDE THE CHANNEL WALLS TO THE SLAB INTERFACE TO LOCATE AND REPAIR CRACKS. INFORM ENGINEER OF RECORD AT LEAST 7 DAYS IN ADVANCE FOR INSPECTION OF THE CRACKS AFTER THE CONCRETE SURFACES HAVE BEEN CLEANED AND DRIED INSIDE THE CHANNELS PRIOR TO REPAIRING CRACKS.
5. REPAIR CRACKS 1/16 INCH OR WIDER WITH LOW VISCOSITY, HYDROPHILIC, POLYURETHANE CHEMICAL GROUT; SIKAFIX HH OR EQUAL IN ACCORDANCE WITH MANUFACTURER'S SURFACE PREPARATION, INSTRUCTIONS, RECOMMENDATIONS, AND LIMITATIONS.
6. THE GROUTING COMPOUND SHALL BE A NON-TOXIC, NON FLAMMABLE, HIGH FLASH POINT (225 F) HYDROPHILIC POLYMER OF THE TYPE WHICH IS APPLIED IN A CRACK OR OPEN JOINT BY USE OF A PACKER.
7. CLEAN THE CRACK SURFACE SO THAT THE CRACK CAN BE EXACTLY LOCATED. SEAL THE SURFACE OF THE CRACK WITH A SURFACE SEALING MATERIAL; SIKADUR 31 HI MOD GEL OR EQUAL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, RECOMMENDATIONS, AND LIMITATIONS.
8. DRILL 5/8"Ø HOLES ALONG THE SIDE OF THE CRACK AT 45° TO INTERSECT THE CRACK MIDWAY THROUGH THE SUBSTRATE. SPACE AND INSTALL THE INJECTION PACKERS IN HOLES. PRIOR TO PRODUCT APPLICATION MOISTURE MUST BE PRESENT. IF CONCRETE BEING INJECTED CONTAINS INSUFFICIENT MOISTURE TO ACTIVATE THE GROUT, INJECT THE CRACK WITH A SMALL AMOUNT OF WATER PRIOR TO THE APPLICATION OF THE CHEMICAL GROUT. FOLLOW THE MANUFACTURER'S PLACEMENT PROCEDURE.
9. PRESSURE INJECT POLYURETHANE CHEMICAL GROUT STARTED AT THE LOWEST INJECTION PACKERS AND SEAL THE CRACKS IN ACCORDANCE WITH MANUFACTURER'S PLACEMENT PROCEDURE.
10. REMOVE INJECTION PACKERS AND SURFACE SEALING MATERIAL AFTER CRACKS HAVE BEEN REPAIRED.
11. REMOVE AND REPAIR DELAMINATED CONCRETE TO SOUND CONCRETE. CLEAN AND ROUGHEN CONCRETE SURFACE TO 1/4 INCH AMPLITUDE. APPLY EPOXY BONDING ADHESIVE; SIKADUR 32 HI-MOD, AND THEN PATCH THE HOLE WITH CEMENT MORTAR IN ACCORDANCE WITH SPECIFICATION SECTION 03300. SEE PLAN FOR THE LOCATION.
12. LEAVE FINISHED WORK AND WORK AREA IN A NEAT, CLEAN CONDITION WITHOUT EVIDENCE OF SPILLOVERS ONTO ADJACENT AREAS.
13. COORDINATE ISOLATION OF CHLORINE CONTACT TANK WITH CITY.
14. CITY HAS IDENTIFIED CRACKS AT THE DIVIDER WALL END INTERFACES. FOR ADDITIONAL CRACK REPAIR IDENTIFICATION NEEDS, FILL ONE SIDE OF TANK W/ EFFLUENT TO APPROXIMATELY 0'-6" FROM TOP OF DIVIDER WALL AND COMPLETELY DRAIN OTHER SIDE FOR INSPECTION .

NOTES:

1. PROPOSED AND EXISTING PIPING, EQUIPMENT, AND COMPONENTS NOT SHOWN FOR CLARITY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS AND BRING ANY CONFLICTS TO THE ATTENTION OF THE ENGINEER OF RECORD.

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PERACETIC ACID DISINFECTATION SYSTEM
CHLORINE CONTACT TANK
CRACK REPAIR

Drawing: S-3
Sheet: X of X
File: P19-10615_S-3
Date: June 2019

MOTORS AND POWER EQUIPMENT

	GROUND ROD IN GROUND ROD BOX		SURGE ARRESTER
	TRANSFORMER		DISCONNECT OR SWITCH
	MOTOR STARTER W/ DISCONNECT		TRANSFORMER
	DISCONNECT SWITCH, NON FUSED (60A) INDICATES AMPERAGE RATING		THERMAL MAGNETIC CIRCUIT BREAKER, RATING/NO. POLES MO = MAGNETIC ONLY
	DISCONNECT SWITCH, FUSED 100=SWITCH RATING, 80=FUSE RATING		THERMAL OVERLOAD RELAY
	UTILITY METERING		ATS - AUTOMATIC TRANSFER SWITCH MTS - MANUAL TRANSFER SWITCH
	MOTOR		POWER CAPACITOR WITH KVAR RATING
	EXHAUST FAN		VFD = VARIABLE FREQUENCY DRIVE VSD = VARIABLE SPEED DRIVE SSS = SOLID STATE STARTER
	PANELBOARD, SWITCHBOARD, MCC		MOTOR - NUMBER "15" INDICATES HORSEPOWER
	FUSE WITH AMPERE RATING		MS OR M = MOTOR STARTER CONTACTOR C = CONTACTOR, BP = BYPASS CONTACTOR IC = ISOLATION CONTACTOR
	PACKAGED POWER AND CONTROL PANEL		CURRENT TRANSFORMER, NUMBER "3" INDICATES NUMBER OF CTS
	UTILITY METERING		PULL OUT SWITCH/PLUG-RECEPTACLE CONNECTION
	GROUND		
	SURGE PROTECTIVE DEVICE		

ELEMENTARY WIRING DIAGRAM SYMBOLS

	N.O. NORMALLY OPEN		N.O. NORMALLY CLOSED		HOA = HAND/OFF/AUTO SWITCH HOR = HAND/OFF/REMOTE SWITCH OCA = OPEN/CLOSE/AUTO SWITCH RO = RUN/OFF
	SW		PB		INDICATING LIGHT R=RED, G=GREEN, A=AMBER, B=BLUE, W=WHITE
	NC		CR		CONTROL RELAY / CONTACTOR
	FS		TDR		TIME DELAY RELAY
	LS				TWISTED SHIELDED PAIR (TSP)
	PS		SV		SOLENOID VALVE
	TS		RTM		RTM = RUN TIME METER, AMP = AMP METER, CNT = COUNTER HMI = OPERATOR CONTROL INTERFACE (VFD OPERATOR & DISPLAY)
	ZS				SPEED POT
	FT				BATTERY HORN
	FT				BLOWN FUSE INDICATOR
	FT				INDICATING LIGHT: A = AMBER G = GREEN W = WHITE B = BLUE R = RED
	FT				SELECTOR SWITCH: FOR = FORWARD/OFF/REVERSE HOR = HAND/OFF/REMOTE HOA = HAND/OFF/AUTO RO = RUN/OFF POT = POTENTIOMETER HOL = HIGH/OFF/LOW
	FT				HEATER - HEAT TRACE
	FT				KIRK KEY INTERLOCK

RACEWAY SYMBOLS

	CONDUIT RUN 3/4" C, UNLESS OTHERWISE SHOWN 4-#12 FOR POWER CIRCUITS TO PANEL "A" CKT "4"
	TAGGED CONDUIT RUN - SEE CONDUIT & WIRE SCHEDULE FOR DETAILS. P=POWER, C=CONTROL, S=SIGNAL
	UNTAGGED CONDUIT RUN - CONTRACTOR TO PROVIDE RACEWAY FOR CONTROL OR SIGNAL WIRING AS REQUIRED BY THE EQUIPMENT, IN ACCORDANCE TO THE WIRING DIAGRAMS, OR AS SPECIFIED. CONDUIT SIZE PER NEC; MINIMUM 3/4" "C" = (120V) #14 CONTROL WIRE, #12 POWER WIRE "S" = TSP SIGNAL WIRE "D" = DEVICENET CABLE CONNECTION "E" = ETHERNET CABLE CONNECTION (CAT-5) "F" = FIRE ALARM PANEL CONNECTION PROVIDE # OF WIRES AS REQUIRED.
	CONDUIT TURNED UP OR TOWARD
	RACEWAY TURNED DOWN
	CONDUIT CONCEALED
	CONDUIT EXPOSED
	CONDUIT JUNCTION BOX
	PB = PULL BOX, HH = HANDHOLE C=CONTROL, S=SIGNAL, P=POWER
	CONDUIT CAPPED
	CORD OR FLEXIBLE CONDUIT

WIRE DIAGRAMS, ONE-LINES, MISC

	EXISTING
	FUTURE
	PROPOSED WORK/EQUIPMENT
	CONDUCTORS NOT CONNECTED
	CONDUCTORS CONNECTED

REFERENCE SYMBOLS

	P100 CONDUIT
	XXXX L LIGHTS
	FIT-111 EQUIPMENT TAG
	1 CONSTRUCTION NOTE
	INSTRUMENT TYPE / FUNCTION
	FN INSTRUMENT DESIGNATION
	# INSTRUMENT NUMBER

LIGHTING & RECEPTACLE SYMBOLS

	LIGHTING FIXTURE
	STRIP LIGHTING FIXTURE
	WALL MOUNTED FIXTURE (SURFACE OR ARM)
	POLE ARM MOUNTED FIXTURE
	RECESSED LIGHT FIXTURE
	INFRARED FLOOD LIGHT FIXTURE
	LED LIGHT FIXTURE
	EXIT LIGHT FIXTURE WALL MOUNTED
	REMOTE EXIT LIGHT FIXTURE
	OCCUPANCY SENSOR CEILING MOUNTED

SWITCHES

	DIMMER	2	DOUBLE POLE
	EXISTING SWITCH	3	THREE WAY
	KEY OPERATED SWITCH	4	FOUR WAY
	MOTOR RATED		
	MOMENTARY CONTACT, THREE POSITION	a	LOWER CASE = SWITCH LEG
	SWITCH WITH PILOT LIGHT		
	REOSTATE - SPEED CONTROL		
	TIMER		
	WEATHER PROOF		
	EXPLOSION PROOF		
	MAGNETIC LIMIT SWITCH		
	KEY SWITCH		

SPECIAL PURPOSE CONNECTIONS

	2 SPECIAL PURPOSE EQUIPMENT CONNECTION
	4 SPECIAL PURPOSE EQUIPMENT CONNECTION WALL MOUNTED

RECEPTACLE OUTLETS

	2 GFCI DUPLEX RECEPTACLE OUTLET WALL MOUNTED (NEMA 5-15R UNLESS OTHERWISE SPECIFIED)
	6 WP QUADRUPLE RECEPTACLE OUTLET WALL MOUNTED
	DUPLEX RECEPTACLE OUTLET CEILING MOUNTED
	SINGLE RECEPTACLE
	4 SPECIAL PURPOSE RECEPTACLE OUTLET
	6 SPECIAL PURPOSE RECEPTACLE OUTLET WALL MOUNTED
	▲ DUPLEX DATA OUTLET (RJ45 STYLE)
	Φ(X) SURFACE METAL RACEWAY WITH RECEPTACLE AT "X" OC
	1, 2, 3, ETC ARE CIRCUIT NUMBERS OF PANEL BOARD TO WHICH OUTLET IS TO BE CONNECTED. REFER TO CIRCUIT SCHEDULE.
	H HORIZONTAL
	WP WEATHER PROOF
	XP EXPLOSION PROOF
	GFCI GROUND FAULT CIRCUIT INTERRUPTER

ABBREVIATIONS

A, AMP	AMPERE	M	METER, MOTOR
AC	AIR COMPRESSOR, ALTERNATING CURRENT	MCC	MOTOR CONTROL CENTER
AF	AMPERE FRAME	MCP	MAIN CONTROL PANEL
AFF	ABOVE FINISHED FLOOR	MFR	MANUFACTURER
AI	ANALOG INPUT POINT (PLC)	MH	MANHOLE
AIC	AMPERES INTERRUPTING CAPACITY	MO	MAGNETIC ONLY (CIRCUIT BREAKER)
AIL	AMBER INDICATING LIGHT	MOV	MOTOR OPERATED VALVE
AL	ALARM	MS	MOTOR STARTER
ALT	ALTERNATOR	MTS	MANUAL TRANSFER SWITCH
AM	AMMETER	N	NEUTRAL
AO	ANALOG OUTPUT POINT (PLC)	NC	NORMALLY CLOSED
AS	AMPERE SWITCH	NEC	NATIONAL ELECTRICAL CODE
AT	AMPERE TRIP	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
ATS	AUTOMATIC TRANSFER SWITCH	NF	NON FUSED
AWG	AMERICAN WIRE GAUGE	N.O.	NORMALLY OPEN
BAT	BATTERY	OI	OPERATOR INTERFACE
BC	BATTERY CHARGER	OIT	OPERATOR IN TROUBLE
BH	BLOCK HEATER	OL	OVERLOAD RELAY
BIL	BLUE INDICATING LIGHT	OT	OVER TEMP
BKR	BREAKER	P	POWER
BP	BYPASS CONTRACTOR	PB	PUSH BUTTON
C	CONDUIT, CONTROL	PBC	PULLBOX (CONTROL)
CAP	CAPACITOR	PBD	PULLBOX (DATA)
CB	CIRCUIT BREAKER	PBL	PUSH BUTTON - LIGHTED
CKT	CIRCUIT	PBP	PULLBOX (POWER)
CNT	START COUNTER	PBS	PULLBOX (SIGNAL)
COMPR	COMPRESSOR	PE	PHOTO ELECTRIC RELAY
CP	CONTROL PANEL	PFR	PHASE FAILURE RELAY
CPT	CONTROL POWER TRANSFORMER	PLC	PROGRAMMABLE LOGIC CONTROLLER
CR	CONTROL RELAY	PMD	POWER MONITORING DEVICE
CT	CURRENT TRANSFORMER	PNL	PANEL
CU	COPPER	POT	POTENTIOMETER
CV	CHECK VALVE	PS	PRESSURE SWITCH, PUMP STATION
DB	DIRECT BURIED	PT	POTENTIAL TRANSFORMER
DC	DIRECT CURRENT	PVC	POLYVINYL CHLORIDE (CONDUIT)
DEM	DEMAND	RCP	REMOTE CONTROL PANEL
DF	DEMAND FACTOR	RIL	RED INDICATING LIGHT
DI	AC DIGITAL INPUT POINT (PLC)	RO	RUN - OFF
DISC	DISCONNECT	RTD	RESISTANCE TEMPERATURE DEVICE
DM	DIGITAL METER	RTM	RUN TIME METER
DO	AC DIGITAL OUTPUT POINT (PLC)	RV	REDUCED VOLTAGE
DWG	DRAWING	RVAT	REDUCED VOLTAGE AUTO TRANSFORMER
EF	EXHAUST FAN	S	STARTER
ENCL	ENCLOSURE	SA	SIGNAL SURGE ARRESTOR
EX	EXISTING	SCL	SEATTLE CITY LIGHT
F	FUSED	SE	SERVICE ENTRANCE
FACP	FIRE ALARM CONTROL PANEL	SPD	SURGE PROTECTIVE DEVICE
FS	FLOW SWITCH	SST	STAINLESS STEEL
FT	FLOW TRANSMITTER	SSS	SOLID STATE STARTER
FVNR	FULL VOLTAGE NON-REVERSING	SV	SOLENOID VALVE
FU	FUSE	T	THERMOSTAT
FVR	FULL VOLTAGE REVERSING	TC	TIME CLOCK
G, GND	GROUND	TDOD	TIME DELAY ON DE-ENERGIZATION
GEN	GENERATOR	TDOE	TIME DELAY ON ENERGIZATION
GFI	GROUND FAULT INTERRUPTER	TDR	TIME DELAY RELAY
GFP	GROUND FAULT PROTECTOR	TEL	TELEPHONE
GIL	GREEN INDICATING LIGHT	TNI	TELEPHONE NETWORK INTERFACE
GRS	(GRC) GALVANIZED RIGID STEEL (CONDUIT)	TS	TEMPERATURE SWITCH
H	HOT, HIGH, HAND	TSP	TWISTED SHIELDED PAIR
HH	HAND HOLE	TST	TWISTED SHIELDED THREE WIRE
HID	HIGH INTENSITY DISCHARGE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
HMI	HUMAN MACHINE INTERFACE	TYP	TYPICAL
HOA	HAND OFF AUTO (SELECTOR SWITCH)	UH	UNIT HEATER
HP	HORSEPOWER	UPS	UNINTERRUPTIBLE POWER SUPPLY
HS	HAND STATION (HOA SWITCH & POT)	V	VOLT
HTR	HEATER	VS	VIBRATION SWITCH
IC	ISOLATION CONTRACTOR	VFD	VARIABLE FREQUENCY DRIVE
ISR	INTRINSICALLY SAFE RELAY	VSD	VARIABLE SPEED DRIVE
KVA	KILO VOLT AMPS	W	WATT
KVAR	KILO VOLT AMP REACTIVE	WHM	WATT HOUR METER
KVARH	KILOVAR HOUR	WIL	WHITE INDICATING LIGHT
KW	KILOWATT	WP	WEATHER PROOF
KWH	KILOWATT HOUR	XFMR	TRANSFORMER
L	LOW, LIGHT	XP	EXPLOSION PROOF
LC	LIGHTING CONTACTOR	XMTR	TRANSMITTER
LCP	LOCAL CONTROL PANEL		
LE	LEVEL ELEMENT		
LS	LEVEL SWITCH		
LT	LEVEL TRANSMITTER		
LTG	LIGHTING		

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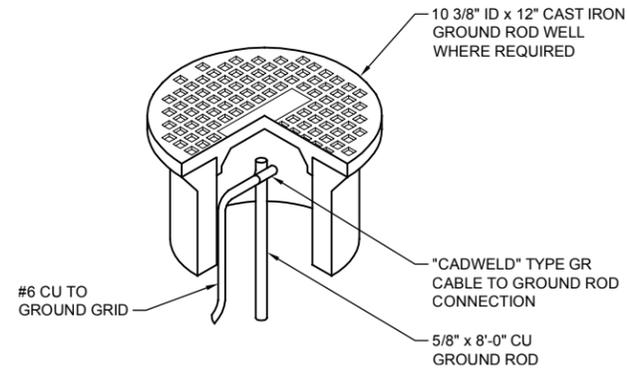
Designed: J. Gibson, P.E.
Drawn: S. Osloe
Checked: T. Giese, P.E.
Approved: R. Dorn, P.E.

Scale: N/A
One Inch at Full Scale
If Not One Inch Scale Accordingly

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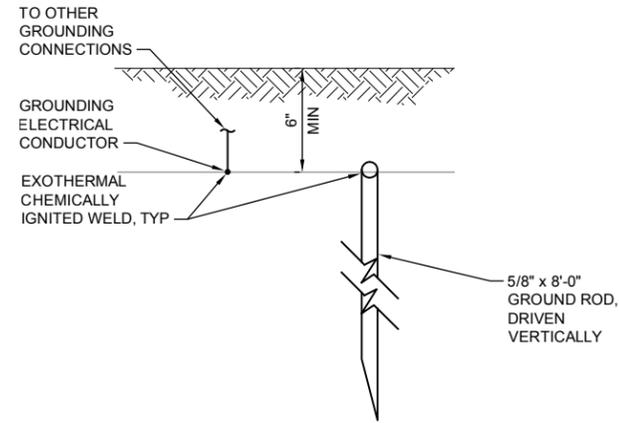
PERACETIC ACID DISINFECTION SYSTEM
ELECTRICAL SYMBOLS AND ABBREVIATIONS

Drawing:	E-1
Sheet:	X of X
File:	P19-10615_E-1
Date:	June 2019



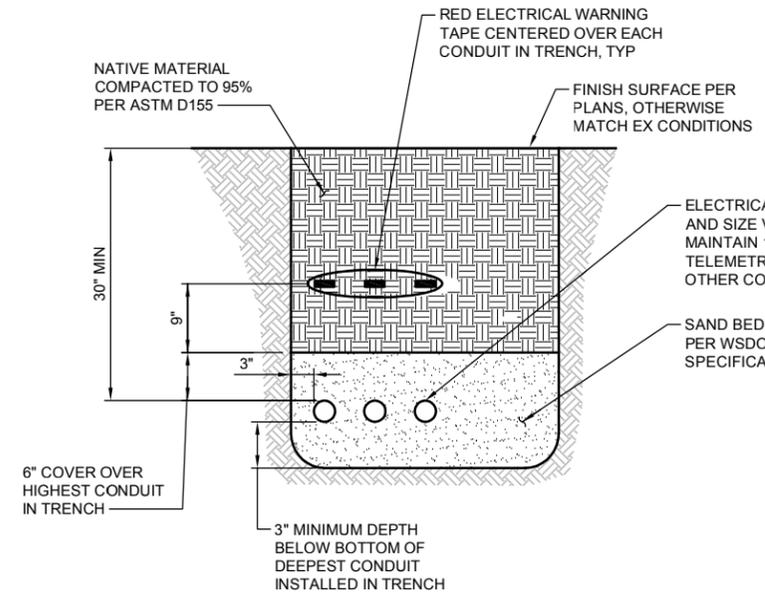
**TYPICAL GROUND ROD AND CABLE CONNECTION
DETAIL 1**

TNS TYP



**GROUND ROD
DETAIL 2**

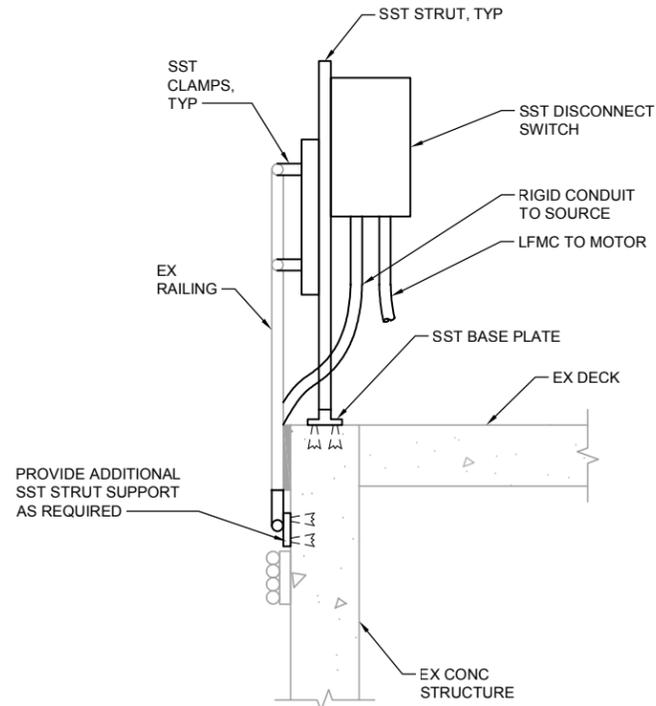
TNS TYP



**ELECTRICAL TRENCH
DETAIL 3**

TNS TYP

- NOTES:**
- BURY DEPTH OF CONDUIT AND HORIZONTAL SPACING SHALL BE CONFIRMED WITH SERVING UTILITY BEFORE CONSTRUCTION.



DETAIL 4

TNS

Path: S:\Cadd\Snohomish\19-10615 PAAD System\19-10615 E-2 Plot date: May 30, 2019 08:30:21am CAD User: solsoe
Xref Filename: | X19-10615_TB | X19-10615_Prelim | Gray | X19-10615_Ex Tank | Giese | Gibson | X19-10615_Ex Topo-ESM | Franco |

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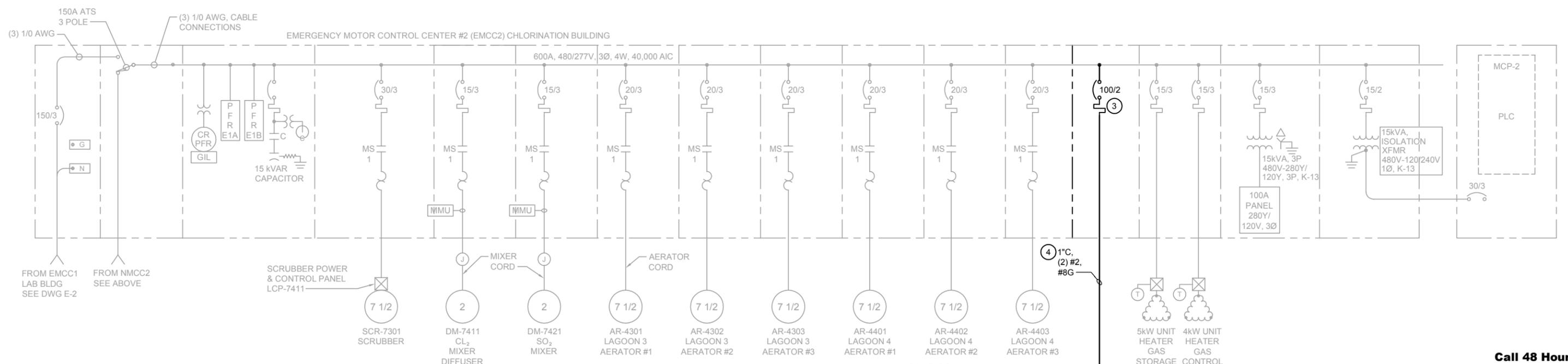
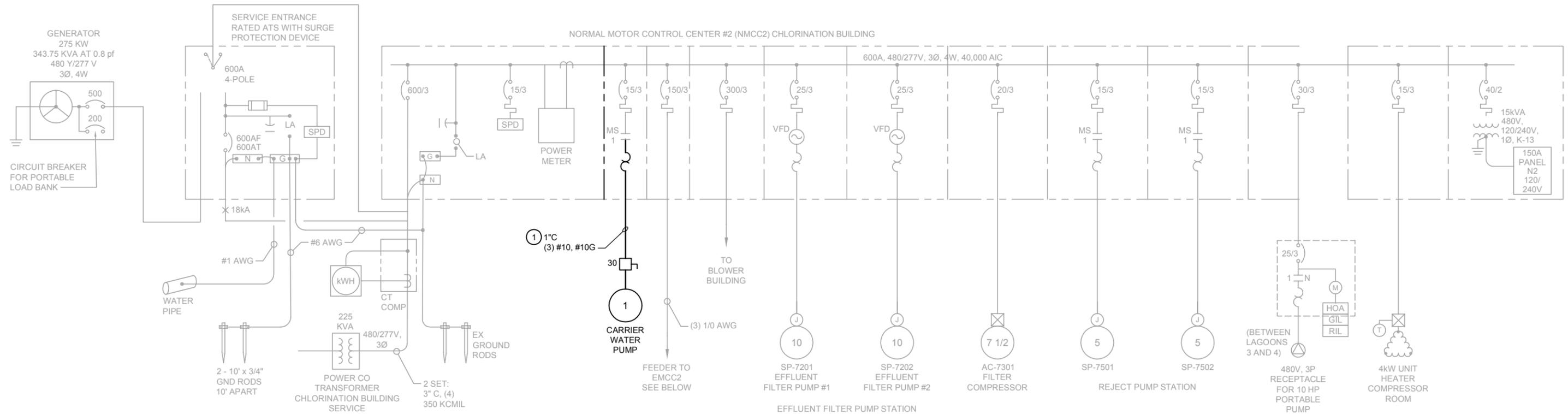
**PERACETIC ACID DISINFECTION SYSTEM
ELECTRICAL
DETAILS**



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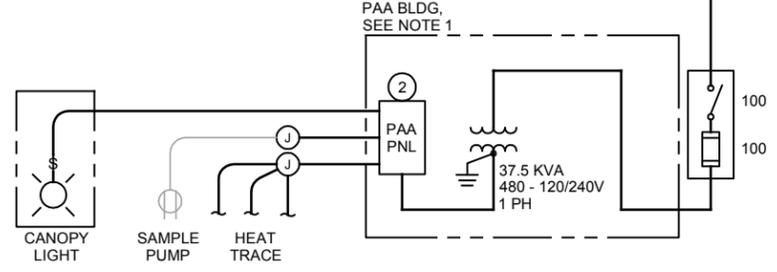
Drawing: **E-2**
 Sheet: **X** of **X**
 File: P19-10615_E-2
 Date: May 2019

Path: S:\Cadd\Snohomish\19-10615 PAAD System\19-10615 E-3 Plot date: May 30, 2019 04:16:02pm CAD User: solsoe.
 Xref Filename: | X19-10615_TB | X19-10615_Prelim | Gray | Gibson | Giese | Franco |



NOTES:
 1. ALL EQUIPMENT IN PAA BUILDING SHALL BE PROVIDED BY PAA SYSTEM SUPPLIER.

CONSTRUCTION NOTES:
 ① REUSE EX 1" CONDUIT TO CHLORINE RESIDUAL ANALYZER SHED. EXTEND CONDUIT TO NMCC2 AND TO PUMP MOTOR.
 ② 200A, 120/240V SINGLE-PHASE, 200A MAIN CB, 30 CIRCUIT, NEMA 1.
 ③ CONFIRM BREAKER SIZE WITH PAA SYSTEM SUPPLIER.
 ④ REUSE EXISTING 1-INCH CONDUIT TO CHLORINE RESIDUAL ANALYZER SHED. EXTEND CONDUIT TO EMCC2 AND TO PAA BUILDING.



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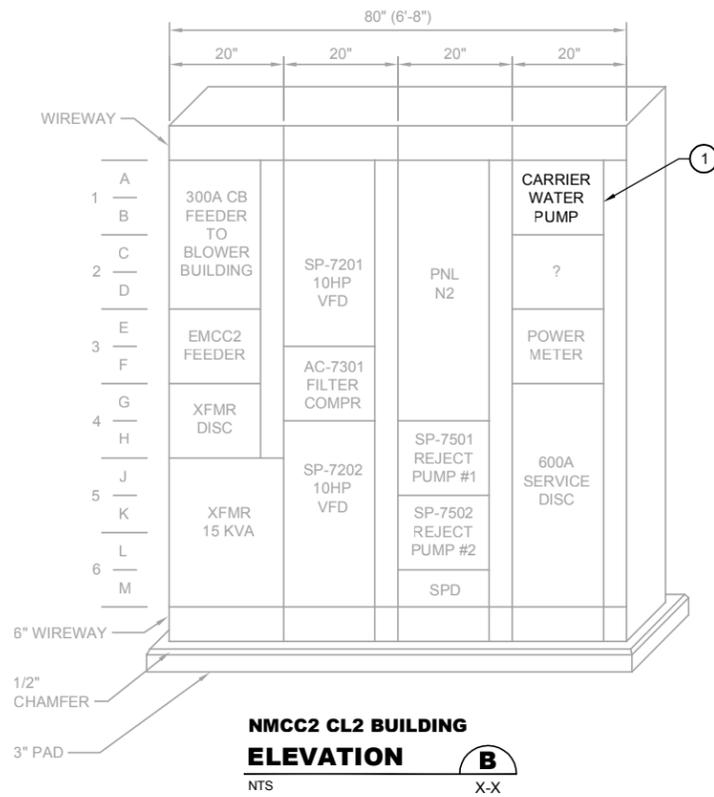
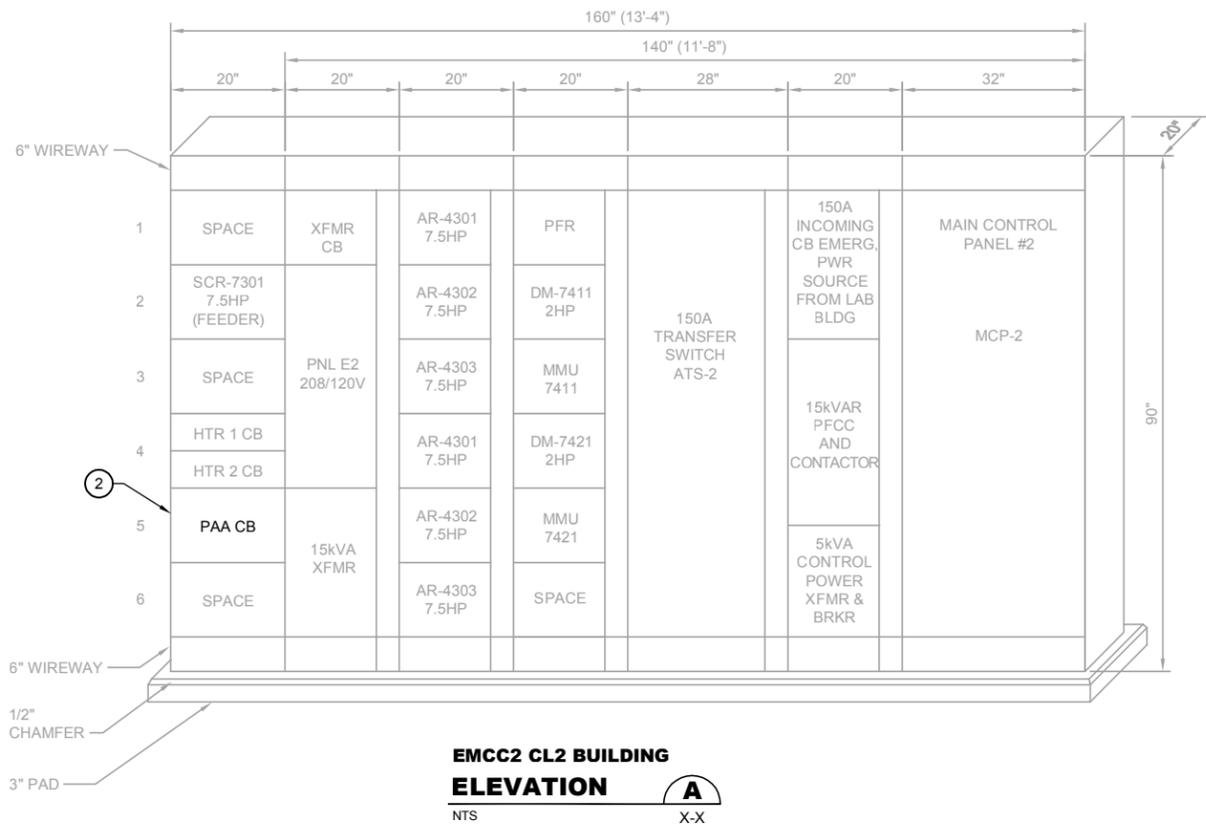
Designed: J. Gibson, P.E.
 Drawn: P. Simon
 Checked: T. Giese, P.E.
 Approved: R. Dorn, P.E.

Scale: NTS
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PERACETIC ACID DISINFECTION SYSTEM
EMCC2 ONE-LINE DIAGRAM AND LOAD CALCULATIONS

Drawing: **E-3**
 Sheet: **X** of **X**
 File: P19-10615_E-3
 Date: June 2019



- CONSTRUCTION NOTES:**
- ① PROVIDE NEW OVERLOADS IN EXISTING SPARE STARTER BUCKET.
 - ② PROVIDE NEW CIRCUIT BREAKER IN EXISTING SPACE

Path: S:\Cadd\Snohomish\19-10615\PAAD\System\19-10615_E-4_Plot.dwg; Plot date: May 30, 2019 03:06:52pm CAD User: solsoe
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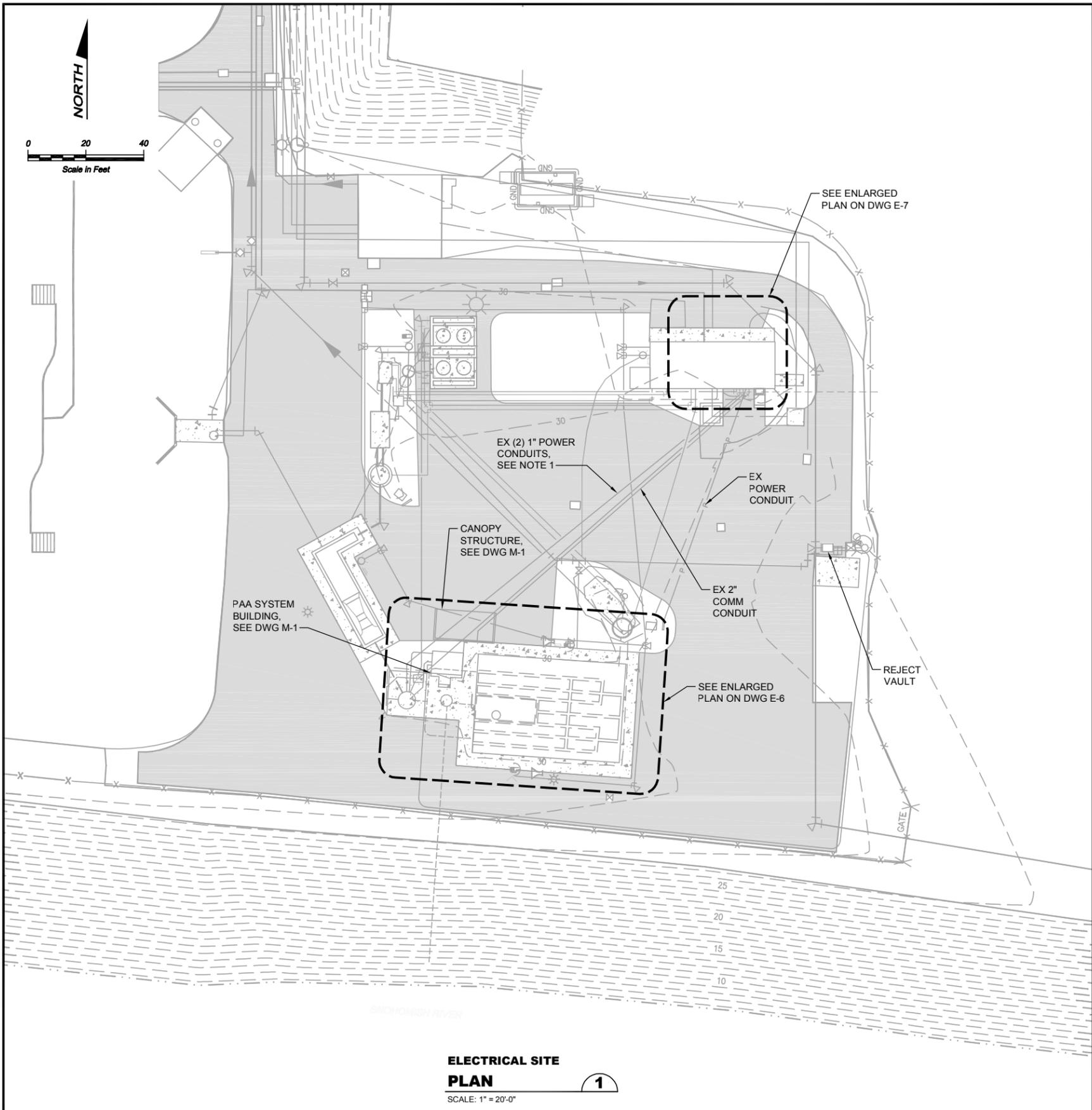
Designed: J. Gibson, P.E.	Scale: N/A
Drawn: P. Simon	One Inch at Full Scale If Not One Inch Scale Accordingly
Checked: T. Giese, P.E.	
Approved: R. Dorn, P.E.	

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PERACETIC ACID DISINFECTION SYSTEM
EMCC2 ELEVATIONS

Drawing: E-4
Sheet: X of X
File: P19-10615_E-4
Date: June 2019

Path: S:\Cadd\Snohomish\19-10615 PAAD System\19-10615 E-5 Plot date: May 30, 2019 03:26:30pm CAD User: solsoe
 Xref Filename: | X19-10615_TB | X19-10615_Prelim | Gray | X19-10615_Ex_Topo-ESM | Giese | X19-10615_Prop Site | Gibson | Franco |



NOTES:

1. REMOVE EXISTING CONDUCTORS AND REPLACE WITH NEW. SEE DWG E-3 FOR CONDUCTOR SIZES.
2. PROVIDE TEMPORARY POWER TO EXISTING SAMPLE PUMP / RECEPTACLE CIRCUIT (120 VAC) DURING CONSTRUCTION.
3. PROTECT POWER AND CONTROL CIRCUITS TO EXISTING FE ACTUATORS THROUGHOUT CONSTRUCTION. SEE SEE DIV 17 SPECIFICATIONS FOR PROGRAMMING REVISION FOR ACTUATORS.

ELECTRICAL SITE PLAN
 SCALE: 1" = 20'-0"
1

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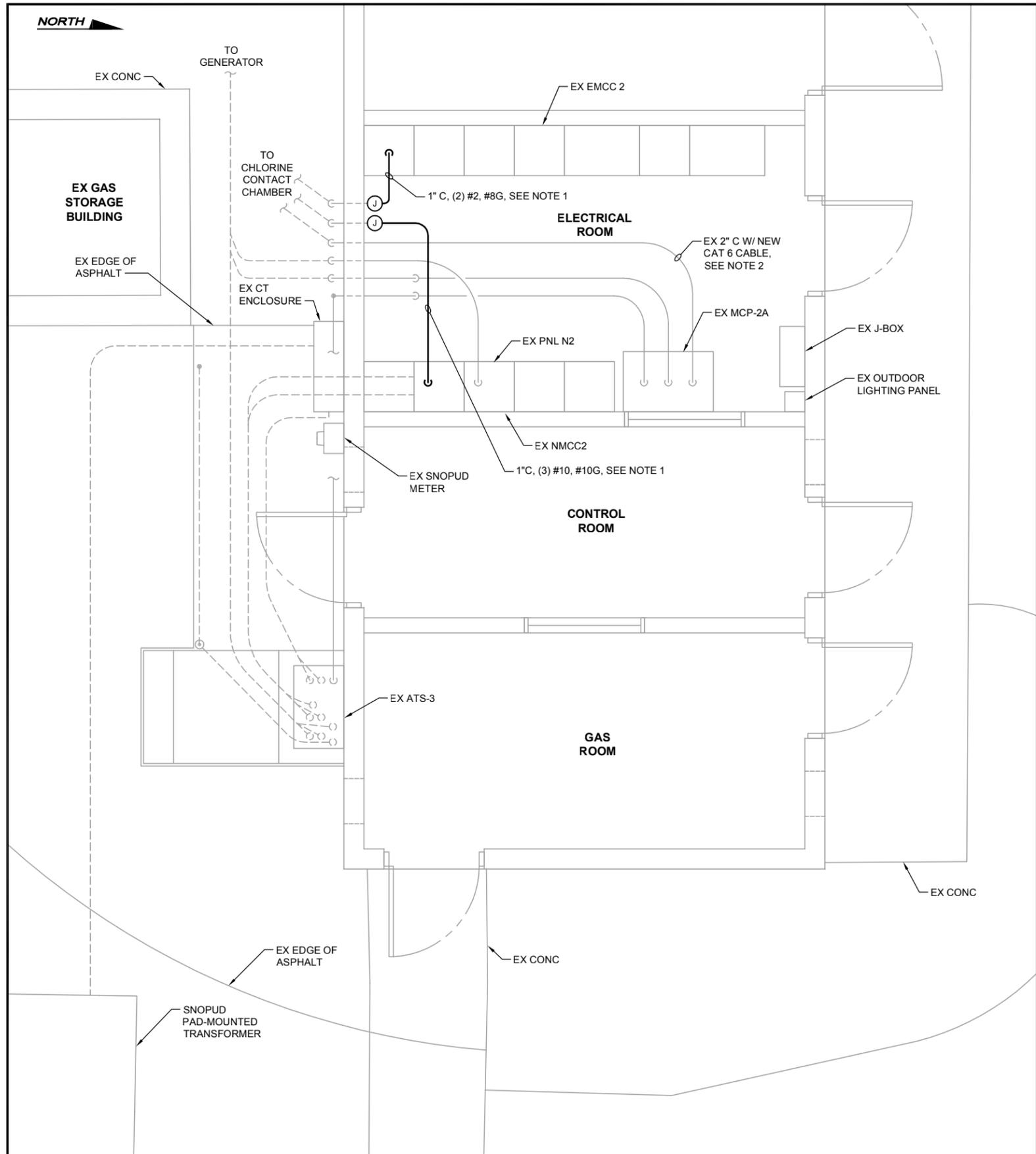
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Drawn: S. Olsoe	
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Approved: R. Dorn, P.E.	

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PERACETIC ACID DISINFECTION SYSTEM
ELECTRICAL SITE PLAN

Drawing:	E-5
Sheet:	X of X
File:	P19-10615_E-5
Date:	June 2019

Path: S:\Cadd\Snohomish\19-10615 PAAD System\19-10615 E-7 Plot date: May 30, 2019 03:41:17pm CAD User: solsoe
 Xref Filename: | X19-10615_Prelim | X19-10615_TB | Gibson | Giese | Franco |



- NOTES:**
1. INTERCEPT EXISTING CONDUITS AND ROUTE TO MCCS.
 2. TERMINATE IN EXISTING ETHERNET SWITCH ENET-1, PORT 2 IN MCP-2A.

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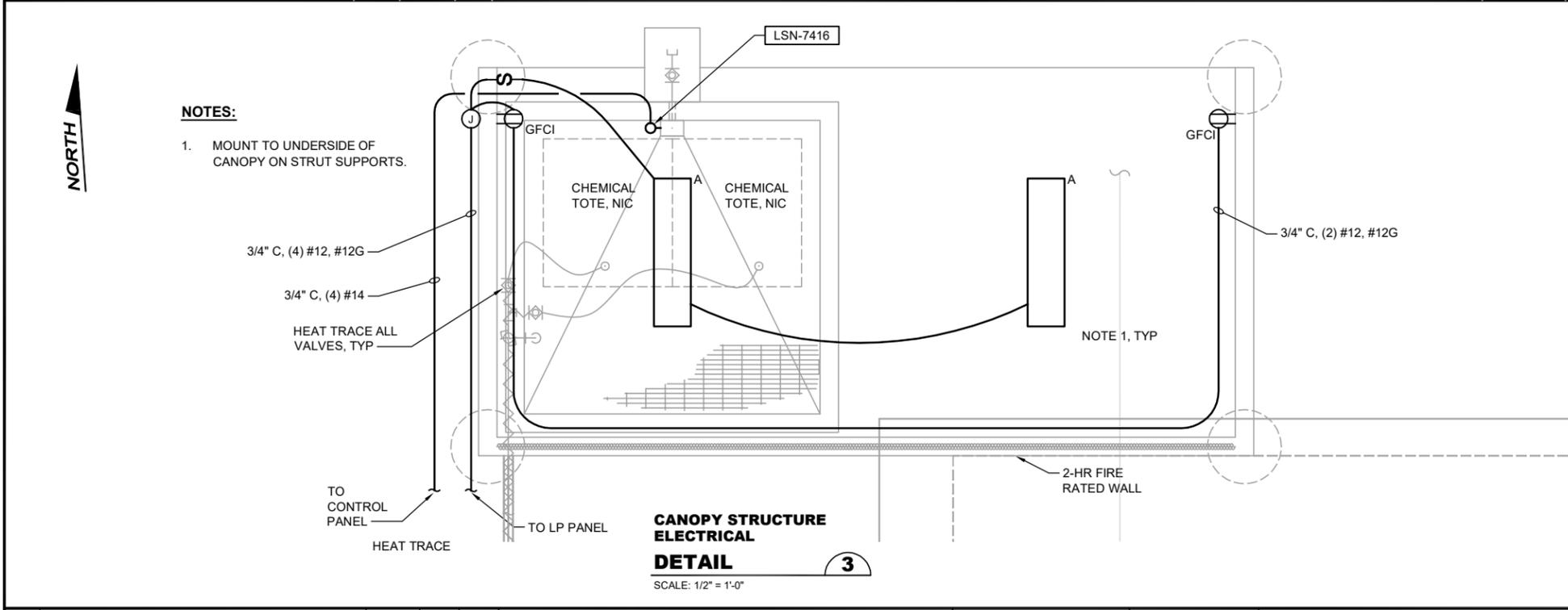
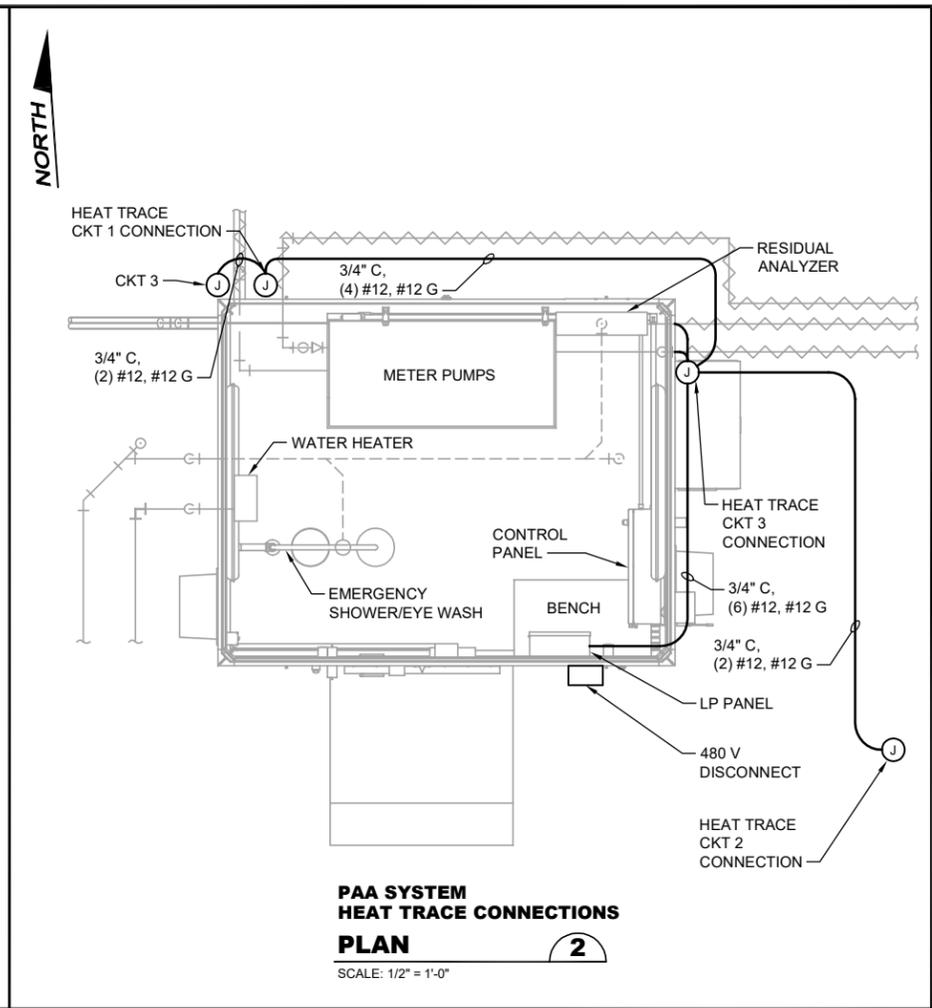
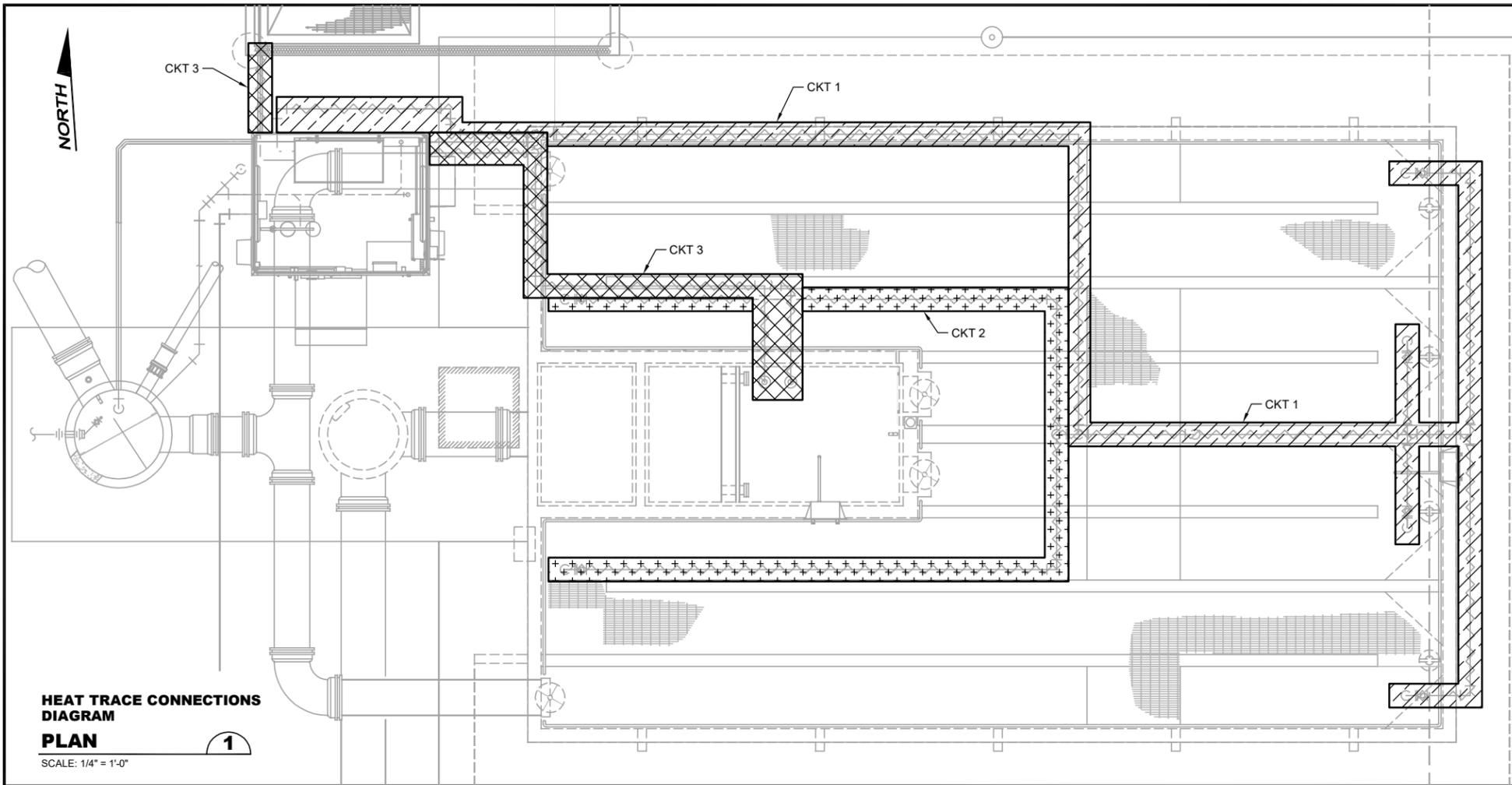
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Drawn: S. Solsoe	One Inch at Full Scale
Checked: T. Giese, P.E.	If Not One Inch Scale Accordingly
Approved: R. Dorn, P.E.	

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PERACETIC ACID DISINFECTION SYSTEM
CHLORINATION BUILDING PLAN

Drawing: E-7
Sheet: X of X
File: P19-10615_E-7
Date: June 2019



LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	LUMENS	WATTS	MANUFACTURER / MODEL #
A	WET LOCATION, LED, RIBBED ACRYLIC FROSTED LENS, FULLY GASKETED, STAINLESS STEEL LATCHES AND MOUNTING BRACKETS, 5000 K COLOR TEMP	2750	18	ILP #WTZ-18WLED-UNIV-50-RAFL-SS

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JEFFREY S. GIBSON
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER

Path: S:\Cadd\Snohomish\19-10615_PAAD_System\m.d File: 19-10615_E-8_Plot.d Date: May 31, 2019 08:48:28am CAD User: solsoe
 Xref File: 19-10615_TB | 19-10615_Prelim | Gray | Giese | X19-10615_Prop PAA | Gibson | X19-10615_Ext Tank | X19-10615_Prop Tank | Franco

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PERACETIC ACID DISINFECTION SYSTEM
PAA SYSTEM PLANS

Drawing: **E-8**
Sheet: **X** of **X**
File: P19-10615_E-8
Date: June 2019

Path: S:\Cadd\Snohomish\19-10615 PAAD System\19-10615_L1_Plot.dwg, May 30, 2019-04:00:28pm, CAD User: soiso.
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PIPING SYMBOLS

INSTRUMENTATION SYMBOLS

MECHANICAL EQUIPMENT SYMBOLS		PIPE LINE DEVICE SYMBOLS		VALVE & ACTUATOR SYMBOLS		PRIMARY ELEMENT SYMBOLS		FUNCTION IDENTIFICATION							
								FIRST LETTER(S)		SUCCEEDING LETTERS			PROCESS & SIGNAL LINE SYMBOLS		
								MEASURED OR INITIATING VARIABLE		MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT	MODIFIER	LINE	DESCRIPTION
	CENTRIFUGAL PUMP (PCN)		COMPRESSOR (CENTRIFUGAL) (P-ACC)		INJECTOR		SLUICE GATE (CSL)		ORIFICE PLATE						MAIN PROCESS FLOW (WITH TYPICAL DIRECTION OF FLOW SHOWN)
	GRINDER PUMP		COMPRESSOR (RECIPROCATING) (P-ACR)		INDUCTOR		GATE VALVE (VGT)		VENTURI OR FLOW TUBE						SECONDARY PROCESS FLOW
	PROGRESSIVE CAVITY PUMP (PPC)		COMPRESSOR (P-COMP)		CARTRIDGE FILTER/SEPARATOR		GLOBE VALVE (VGL)		AVERAGING PITOT TUBE						INSTRUMENT SUPPLY, PROCESS TAPS, TERTIARY PROCESS FLOW
	POSITIVE DISPLACEMENT PUMP (PISTON) (PPN)		LIQUID RING BLOWER OR COMPRESSOR		CAP OR PLUG		PLUG VALVE (VPL)		PROPELLER OR TURBINE METER						ELECTRIC SIGNAL (ANALOG)
	METERING PUMP		SILENCER		PORT CONNECTION		BALL VALVE (VBL)		POSITIVE DISPLACEMENT FLOW METER						ELECTRIC SIGNAL (DISCRETE)
	CHEMICAL PUMP		MIXER (MIX)		BLIND FLANGE		BUTTERFLY VALVE (VBF)		MAGNETIC FLOW ELEMENT						PNEUMATIC SIGNAL
	SUBMERSIBLE SUMP PUMP (PSU)		HEAT EXCHANGER		STRAINER		CHECK VALVE (VCK)		FLUME						ELECTROMAGNETIC OR SONIC SIGNAL
	SUMP PUMP (SUBMERSIBLE) (MOTOR ABOVE) (PSU)		HEATING COIL		REDUCER OR INCREASER		BALL CHECK VALVE		WEIR						SOFTWARE OR DATA LINK
	VERTICAL PUMP		COOLING COIL		BACK FLOW PREVENTER		PINCH VALVE (VPN)		FLOW METER (HYDRONIC)						MECHANICAL LINK
	GEAR PUMP (PGR)		INTAKE FILTER		CALIBRATION TUBE		DIAPHRAGM VALVE (VDI)		VARIABLE AREA FLOW METER (ROTAMETER)						HYDRAULIC
	ROTARY LOBE PUMP (PLB)		VARIABLE SPEED DRIVE - DC (VSD)		STEAM TRAP WITH BY-PASS		NEEDLE VALVE (VND)		RUPTURE DISC						ELECTRIC POWER SUPPLY 120VAC, 60HZ - OR AS NOTED
	FAN		COOLING COIL		PULSATION DAMPENER		VACUUM RELIEF VALVE		FLOW STRAIGHTENING VALVE						AIR SUPPLY LINE (INSTRUMENT) UNGUIDED AIR FLOW
	BLOWER/FAN (CENTRIFUGAL) (PBL)		GENERATOR		PIPE FLANGE CONNECTION TO TANK		FLOAT VALVE		DIAPHRAGM CHEMICAL SEAL						CONTINUED ON DRAWING XX.XX RELEVANT DATA X
	ROTARY LOBE BLOWER		SIGHT GLASS		FLEXIBLE COUPLING		PRESSURE REDUCING VALVE		ANNULAR CHEMICAL SEAL						
	UV BANK		EQUIPMENT DRAIN		EXPANSION JOINT		BACK PRESSURE SUSTAINING VALVE		TEMPERATURE WELL						
			UNION		HEAT TRACING		VALVE WITH HAND OPERATOR		DISPLACER FLOAT SWITCH						
			EQUIPMENT NUMBER		SPRAY NOZZLE		SOLENOID OPERATED VALVE (VOS)		GUIDED FLOAT SWITCH						
			AREA DESIGNATION		GRINDER		ELECTRICAL MOTOR OPERATED VALVE								
			EQUIPMENT ABBREVIATIONS		MOTOR (MOT)		DIAPHRAGM OPERATED VALVE								
			P 32-001A		SUBMERSED PUMP		PISTON OPERATED VALVE								
					SURFACE AERATOR		FLOW BALANCING VALVE (HYDRONIC)								
							THREE-WAY VALVE								

FIRST LETTER(S)		SUCCEEDING LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT	MODIFIER
A		ALARM		
B				
C			CONTROL	CLOSED
D		DIFFERENTIAL		
E		PRIMARY ELEMENT		
F		RATIO		
G			GLASS	
H				HIGH
I		INDICATE		
J		SCAN		
K		TIME RATE CHANGE	CONTROL STATION	
L			PILOT LIGHT	LOW
M		MOMENTARY		MIDDLE
N				
O			ORIFICE	OPEN
P			TEST CONNECTION	
Q		INTEGRATE		
R			RECORD	
S		SAFETY		SWITCH
T				UNCLASSIFIED
U			MULTIFUNCTION	MULTIFUNCTION
V			VALVE, DAMPER	MULTIFUNCTION
W			WELL	
X			UNCLASSIFIED	TRANSMIT
Y				RELAY, COMPUTE
Z				MISC ACTUATOR

ABBREVIATIONS		PROCESS & SIGNAL LINE SYMBOLS	
		LINE	DESCRIPTION
VSD	VARIABLE SPEED DRIVE		MAIN PROCESS FLOW (WITH TYPICAL DIRECTION OF FLOW SHOWN)
VFD	VARIABLE FREQUENCY DRIVE		SECONDARY PROCESS FLOW
HOA	HAND/OFF/AUTO		INSTRUMENT SUPPLY, PROCESS TAPS, TERTIARY PROCESS FLOW
OAC	OPEN/AUTO/CLOSE		ELECTRIC SIGNAL (ANALOG)
N.O.	NORMALLY OPEN		ELECTRIC SIGNAL (DISCRETE)
N.C.	NORMALLY CLOSED		PNEUMATIC SIGNAL
OOC	OPEN/OFF/CLOSED		ELECTROMAGNETIC OR SONIC SIGNAL
MA	MANUAL/AUTO		SOFTWARE OR DATA LINK
			MECHANICAL LINK
			HYDRAULIC
			ELECTRIC POWER SUPPLY 120VAC, 60HZ - OR AS NOTED
			AIR SUPPLY LINE (INSTRUMENT) UNGUIDED AIR FLOW
			CONTINUED ON DRAWING XX.XX RELEVANT DATA X

EXISTING INSTRUMENT AND FUNCTION	PRIMARY LOCATION *** NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	AUXILIARY LOCATION *** NORMALLY ACCESSIBLE TO OPERATOR	NORMALLY INACCESSIBLE OR BEHIND THE PANEL
AAA - FUNCTION BBB - SYSTEM CCC - LOOP NUMBER DDD - DESCRIPTION				

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 Drawn: P. Simon
 Checked: J. Gibson, P.E.
 Approved: R. Dorn, P.E.

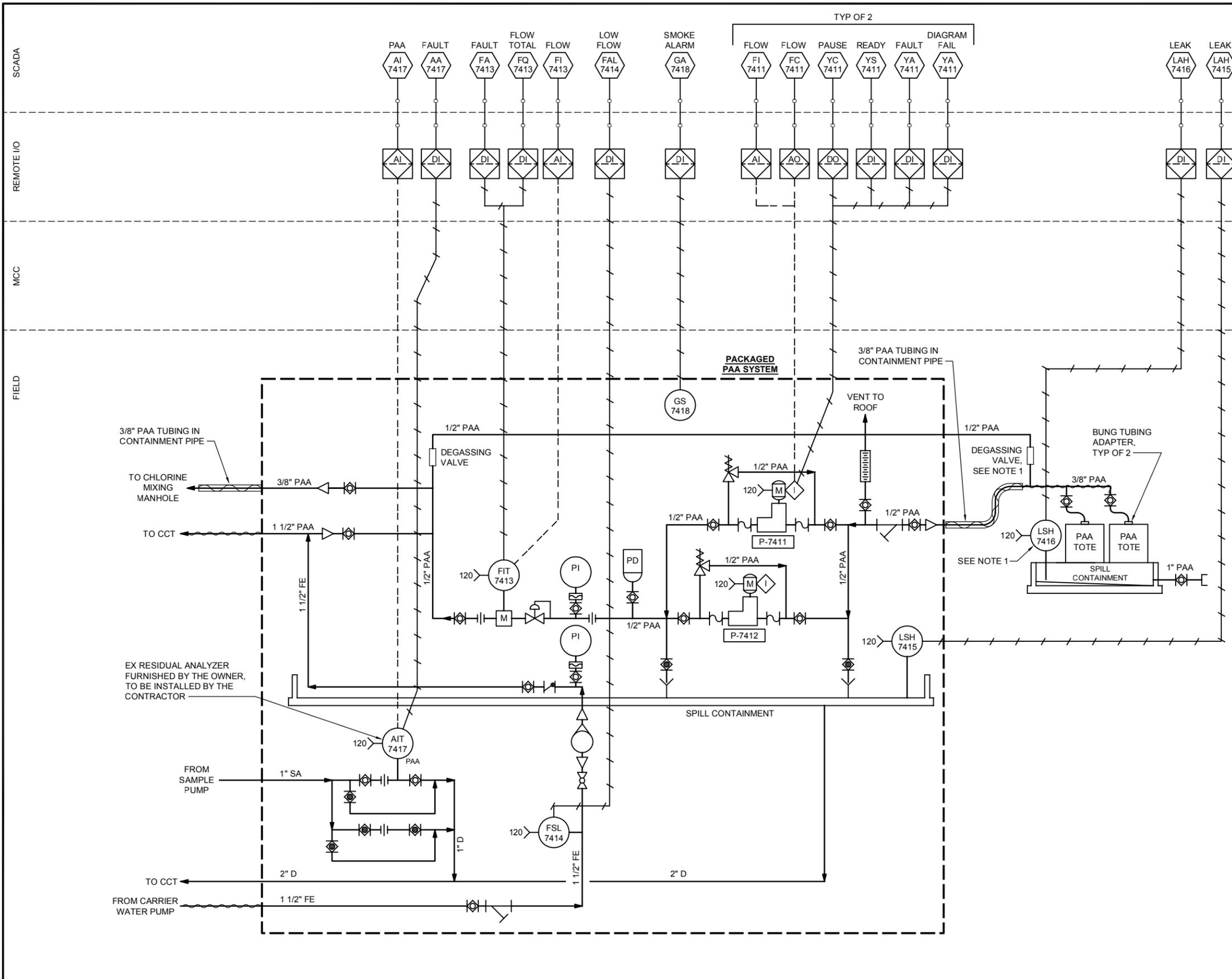
Scale: N/A
 One Inch at Full Scale
 If Not One Inch Scale Accordingly

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 Phone: (360) 568-3115 FAX: (360) 568-1375
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PERACETIC ACID DISINFECTION SYSTEM
P&ID SYMBOLS AND ABBREVIATIONS

Drawing: **I-1**
 Sheet: **X** of **X**
 File: P19-10615_I-1
 Date: June 2019

Path: S:\Cad\Snohomish\19-10615 PAAD System\19-10615_I2_Plot.dwg, May 30, 2019 04:01:56pm CAD User: soisoe
 Xref Filename: | X19-10615_TB | X19-10615_Prelim | Gray | Giese | Gibson | Franco



NOTES:
 1. PROVIDED BY THE PAA SYSTEM MANUFACTURER AND INSTALLED BY THE CONTRACTOR.

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Designed: T. Giese, P.E.
 Drawn: M. Caldwell
 Checked: J. Gibson, P.E.
 Approved: R. Dorn, P.E.

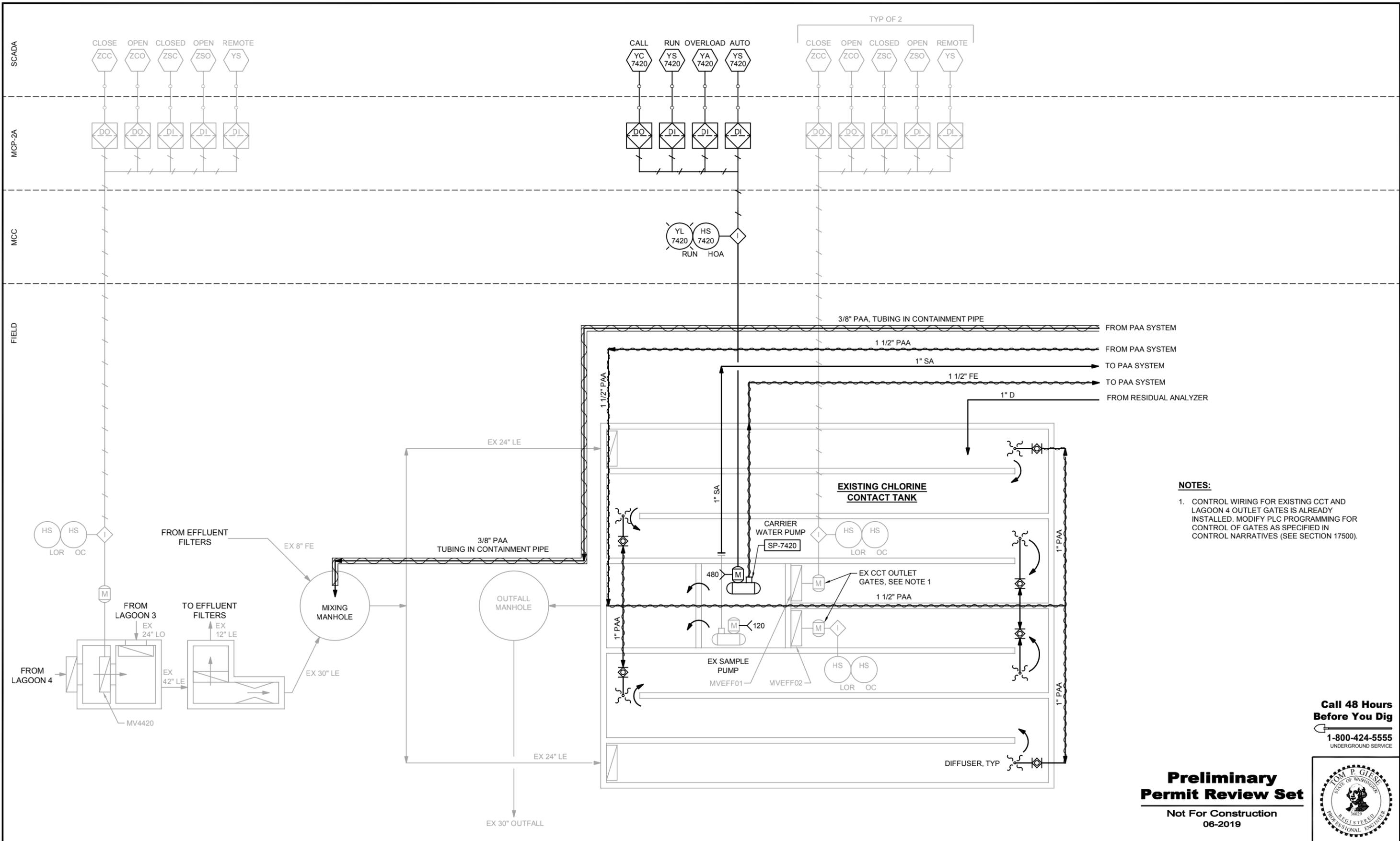
Scale:
 NTS
 One Inch at Full Scale
 If Not One Inch Scale Accordingly

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PERACETIC ACID DISINFECTION SYSTEM
PAA SYSTEM P&ID

Drawing: **I-2**
 Sheet: **X** of **X**
 File: P19-10615_I-2
 Date: June 2019

Path: S:\Cad\Snohomish\19-10615 PAAD System\19-10615_I3 Plot.dwg, May 30, 2019 04:04:19pm, CAD User: soisze.
 Xref Filename: | X19-10615_TB | X19-10615_Prelim | Gray | Giese | Franco



- NOTES:**
- CONTROL WIRING FOR EXISTING CCT AND LAGOON 4 OUTLET GATES IS ALREADY INSTALLED. MODIFY PLC PROGRAMMING FOR CONTROL OF GATES AS SPECIFIED IN CONTROL NARRATIVES (SEE SECTION 17500).

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PERACETIC ACID DISINFECTION SYSTEM
CHLORINE CONTACT TANK P&ID

Drawing: **I-3**
 Sheet: **X** of **X**
 File: P19-10615_I-3
 Date: June 2019