PLANNING AND ZONING
Cerro Gordo County Courthouse

220 N Washington Ave Mason City, IA 50401-3254 (641) 421-3075
John Robbins, Planning & Zoning Administrator FAX (641) 421-3088
Michelle Rush, Executive Assistant

NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that the Cerro Gordo County Zoning Board of Adjustment will hold a public hearing on **January 30, 2018, at 4:00 p.m.** in the meeting room of the Board of Supervisors at the Courthouse in Mason City, Iowa. Said Board of Adjustment will consider the application of Clear Lake Sanitary District, for a variance to the A-1 Agricultural District and General requirements of the Zoning Ordinance.

The request, if approved, would allow a 42'x28.67' ultra-violet disinfection building to be constructed 170' from the rear lot line and 195' from the east side lot line. The Zoning Ordinance requires that any structure that is part of a sewage treatment plant be constructed 200' from any lot line.

Said property is located at 5631 235th St, Clear Lake, IA.

Any person interested in this matter may be present at this time and place to be heard thereon. Copies of this application, along with the Board of Adjustment's Policies and Procedures, may be obtained by contacting the Cerro Gordo County Planning & Zoning Administrator.

Notice dated this 12th day of January, 2018.

Jack Davis, Chairman
Cerro Gordo County Zoning Board of Adjustment

Publish in the Mason City Globe-Gazette January 16, 2018

Bill & Proof of Publication to Cerro Gordo County Planning & Zoning

APPLICATION/APPEAL FORM

[For Completion by All Applicants]

Date December 18, 2017

TO: ZONING BOARD OF ADJUSTMENT
CERRO GORDO COUNTY, IOWA

I (WE), Clear Lake Sanitary District
(NAME)

OF P.O. Box 282, 5631 235th St, Clear Lake, IA 50428
(MAILING ADDRESS)

respectfully request that a determination be made by the Board of Adjustment on this Application/Appeal based on the letter written by the Zoning Administrator dated December 15, 2017 for the reason that it was a matter which, in his/her opinion, should come before the Board of Adjustment.

This Application/Appeal is: (Please Check One)

☐ A Variance to a Zoning District requirement where there are unusual conditions or circumstances which cause a hardship when the provisions of Zoning are strictly applied.

☑ A Special Use listed in Article 20.2 of the Zoning Ordinance upon which the Board is required to act under the Ordinance.

☐ An Appeal where it is alleged there is error in any order, requirement, decision or determination made by the Zoning Administrator in the enforcement of the Zoning Ordinance.

The property affected is located in Section 26 of Clear Lake Township. The property affected is zoned A-1 Agricultrual according to the Cerro Gordo County Zoning District Maps. Legal description of the property is: E 14 AC N 20 AC NW SE 26-96-22

I am the ☐ Owner ☐ Contract Purchaser ☑ Other (Explain) _____

Clear Lake Sanitary District Administrator/Superintendent (representative) of the property affected.

Describe what you are proposing to do on the property affected.

We are constructing an Ultra Violet disinfection building in accordance with our NPDES permit issued by EPA and the Iowa Department of Natural Resources.

I (We) grant permission to the Planning & Zoning staff and Board of Adjustment members to enter onto the above described property for purposes of review.

I (We) further state that if this request is granted, I (We) will proceed with the actual construction in accordance with the purposes herein stated and any conditions and/or requirements the Board of Adjustment may stipulate.

Signature of Applicant _____

OFFICE USE ONLY

Date Filed 12-18-17 Case Number 18-28

Date Set for Hearing 1- Fee Paid _____

Application/Appeal was ☐ Granted ☐ Denied ☐ Tabled

VARIANCE CRITERIA SUPPLEMENTAL INFORMATION

Cerro Gordo County Zoning Board of Adjustment

[For completion by Variance Applicants Only]

This attachment is intended to supplement the Appeal to the Board of Adjustment Application for requests for variances. This attachment shall be submitted as a part of and attached to the Appeal Application and serve to enable the Board to make fair and equitable decisions. Failure to complete this form in its entirety may result in postponing the request until adequate information is submitted.

The Board of Adjustment shall authorize upon appeal, in specific cases, such variance from the terms of the Ordinance as will not be contrary to the public interest, where owing to special conditions a literal enforcement of the provisions of the Ordinance will result in unnecessary hardship, and so that the spirit of the Ordinance shall be observed and substantial justice done.

The Applicant shall be held responsible to provide adequate evidence that the literal enforcement of the Ordinance will result in unnecessary hardship. "Hardship" as used in connection with the granting of a variance means the property in question cannot be put to a reasonable use if used under the conditions allowed by the provisions of the Ordinance, the plight of the landowner is due to circumstances unique to his property not created by the landowner; and the variance, if granted, will not alter the essential character of the locality.

The Board shall ensure that their decision shall not be contrary to the public interest, that the spirit of the Ordinance shall be observed, and substantial justice done.

Applicant(s) Clear Lake Sanitary District

Type of Variance Requested Encroachment

1. The land in question cannot yield a reasonable use for the following reasons:

The building we intend to construct has been sited with respect to the location of existing buildings, structures and utilities.

2. What is unique about this property compared to other properties in the vicinity?

This property is the site of the Clear Lake Sanitary District's sewage treatment plant that serves the citizens of the cities of Clear Lake and Ventura as well as the residents along the south side of Clear Lake.

3. Explain how the variance will fit in with the character of the area (i.e., size, height, scale, etc.):

The 42'x28.67'x12' proposed building will be shorter and encompass a smaller footprint compared to the adjacent tertiary treatment building. The façade of the proposed building will match the adjacent building and all other treatment buildings situated on this property.

4. The need for the variance cannot be attributed to the present or past property owner for the following reasons:

The variance is requested due to the Special Use Permit conditions applied to Sewage Treatment Plant sites.

5. The Zoning Ordinance requirements have resulted in a need for a variance for the following reasons:

Article 20.2(K) of the Zoning Ordinance requires that any structure that is part of a sewage treatment plant shall not be closer than 200 feet from any property line or right-of-way. The proposed building site is 170 feet from the rear property line and 195 feet from the east side property line.

6. The variance is in accord with the purposes and intent of the Zoning Ordinance and Comprehensive Plan for the following reasons:

Article 24, Board of Adjustment, Section E of the Zoning Ordinance states, 'Appeals to the Board of Adjustment may be taken by any person aggrieved by the P&Z Administrator's denial if done so within 30 days of the date of Administrator's denial letter. We have filed this appeal within the 30 day time frame.

7. The variance will not impair the public health, safety and general welfare of the residents of the County for the following reasons:

The UV disinfection process to be constructed within the UV disinfection building consists of multiple light bulbs that emit UV light which is the source of disinfection. The bulbs are situated in the flow channel within the building. The process of emitting light does not produce noise, odor, or any other noticeable effect as may be observed from standing adjacent to the exterior of the UV disinfection building.

I, _____ ***certify that***

all of the above statements are true to the best of my knowledge and belief.

Case No. 18-28
Clear Lake Sanitary District (5631 235th Street)
Figure 1
Looking at the proposed location of the disinfection building

January 8, 2018, J. Robbins

Figure 2
Looking slightly west-southwest along the south (rear) property line. The back of the proposed building is marked by the orange cones on the right side of the photo.

January 8, 2018, J. Robbins

Figure 3

Looking east toward the east side property line. The southeast corner of the proposed building is visible in the bottom center of the photo.

January 8, 2018, J. Robbins

Figure 4

Looking at the closest building to the location of the proposed building

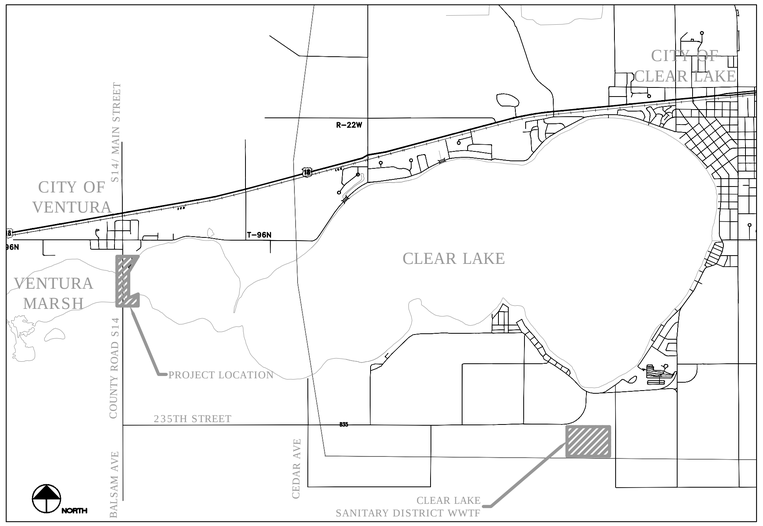
January 8, 2018, J. Robbins

UV DISINFECTION PROJECT

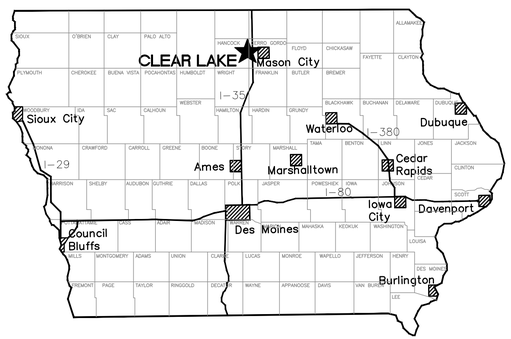
CLEAR LAKE SANITARY DISTRICT

CLEAR LAKE, IOWA

2017



VICINITY MAP
NO SCALE



IOWA ONE CALL SM
1-800-292-8989
www.iowaonecall.com
811 Know what's below. Call before you dig.

GENERAL NOTE: ALL UTILITIES ARE ONLY GENERALLY LOCATED. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND EXPOSING ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION BEFORE CONSTRUCTION BEGINS.

SHEET INDEX

BOARD OF TRUSTEES

TRUSTEES: *TIMOTHY R. CLARK*
LOTHAR MEYER
STEVE NICKLAUS
ROBERT WOLFRAM, JR.

ADMINISTRATOR/
SUPERINTENDENT: *KEVIN MOLER*

FOX engineering

LICENSED PROFESSIONAL ENGINEER — LAURIE A. TWITCHELL 14861 — IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

LAURIE A. TWITCHELL, P.E. DATE 11/3/17
License number 14861

My license renewal date is December 31, 2018.

Pages or sheets covered by this seal:
ALL G, C, AND P SHEETS

LICENSED PROFESSIONAL ENGINEER — MARC W. RIETZ 13188 — IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

MARC W. RIETZ, P.E. DATE 3 NOV 2017
License number 13188

My license renewal date is December 31, 2018.

Pages or sheets covered by this seal:
ALL S SHEETS

LICENSED PROFESSIONAL ENGINEER — J. KEVIN MEREDITH 18686 — IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

J. KEVIN MEREDITH, P.E. DATE 11-3-2017
License number 18686

My license renewal date is December 31, 2017.

Pages or sheets covered by this seal:
ALL M SHEETS

LICENSED PROFESSIONAL ENGINEER — ANDREW R. VENZKE 17764 — IOWA

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

ANDREW R. VENZKE, P.E. DATE 11/3/17
License number 17764

My license renewal date is December 31, 2017.

Pages or sheets covered by this seal:
ALL ME AND E SHEETS

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LAYOUT NAME	

REVISION	DATE	BY	DATE
	DESIGNED:	LAT	
	DRAWN:	JTP	
	CHECKED:		
	LAST UPDATE: 11/3/17		

FOX Engineering Associates, Inc.
414 South 17th Street, Suite 107
Ames, Iowa 50010
Phone: (515) 233-0000
FAX: (515) 233-0103

FOX engineering

COVER SHEET
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
G1

ABBREVIATIONS

AB	ANCHOR BOLT
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
AUTO	AUTOMATIC
AVG	AVERAGE
B/	BOTTOM OF
BF	BLIND FLANGE
BFP	BACKFLOW PREVENTER
BLDG	BUILDING
BM	BENCH MARK
BOT	BOTTOM
BU	BELL-UP
℄	CENTERLINE
CIP	CAST IRON PIPE
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CO	CLEAN OUT
CONT	CONTINUATION
CPVC	CHLORINATED POLYVINYL CHLORIDE
DEG or °	DEGREE
DET	DETAIL
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DO	DISSOLVED OXYGEN
DWG	DRAWING
EA	EACH
ECC	ECCENTRIC
EF	EACH FACE
EL	ELEVATION
ELL	ELBOW
EQUIP	EQUIPMENT
EW	EACH WAY
EX	EXISTING
EXP	EXPANSION
FCA	FLANGED COUPLING ADAPTER
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FES	FLARED END SECTION
FF/FFE	FINISHED FLOOR ELEVATIONS
FH	FIRE HYDRANT
FLG	FLANGE
FL	FLOOR/FLOW LINE
FM	FORCE MAIN
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FOOT
GA	GAUGE
GALV	GALVANIZED
HB	HOSE BIBB
HOA	HAND OFF AUTO
HP	HIGH POINT
HWL	HIGH WATER LEVEL
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
INV	INVERT
LF	LINEAR FEET
LP	LOW POINT
LR	LONG RADIUS
LWL	LOW WATER LEVEL
MATL	MATERIAL
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
NO	NUMBER
NPT	NATIONAL PIPE THREADS
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
P&ID	PROCESS AND ISTRUMENTATION DIAGRAM
PCP	PRESTRESSED CONCRETE PIPE
PE	PLAIN END
PL	PLATE
PP	POWER POLE
PRS	PRESSURE REDUCING STATION
PRV	PRESSURE REDUCING VALVE
PS	PIPE SUPPORT/PRESSURE SWITCH
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
RED	REDUCER
REINF	REINFORCING
RJ	RESTRAINED JOINT
ROW	RIGHT OF WAY
RR	RAILROAD
R/W	RIGHT OF WAY
SAN	SANITARY
SPCP	SUPERVISORY PROCESS CONTROL PANEL
SPEC	SPECIFICATION
SR	SHORT RADIUS
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
STL	STEEL
T/	TOP OF
TC	TOP OF CURB
TEL	TELEPHONE
TOS	TOP OF SLAB
TS	TRANSFER SWITCH
TYP	TYPICAL
UH	UNIT HEATER
VCP	VITRIFIED CLAY PIPE
VTR	VENT THROUGH ROOF
W/	WITH

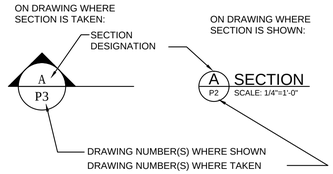
FLOW STREAM IDENTIFIERS

THE FOLLOWING IS A STANDARD LISTING OF FLOW STREAM IDENTIFIERS. NOT ALL FLOW STREAM IDENTIFIERS ARE USED ON THIS PROJECT.

ACS	ACID SOLUTION
AHP	AIR, HIGH PRESSURE
AI	AIR, INSTRUMENT
AL	ALUM
ALP	AIR, LOW PRESSURE
ALS	ALUM SOLUTION
AM	LIQUID AMMONIA
AMG	AMMONIA GAS-PRESSURE
AMS	AMMONIA SOLUTION
AMV	AMMONIA GAS-VACUUM
BD	BASIN DRAIN
BPW	BELT PRESS WASH WATER
BWS	BACK WASH SUPPLY
BYP	BYPASS
CFE	CHLORINATED FINAL EFFLUENT
CG	CHLORINE GAS-PRESSURE
CGV	CHLORINE GAS-VACUUM
CHS	CHEMICAL SLUDGE
CL	LIQUID CHLORINE
CNT	CENTRATE
CRS	CARBON SLURRY
CS	CHLORINE SOLUTION
CW	COOLING WATER/COLD WATER
CWR	COOLING WATER RETURN
CWS	COOLING WATER SUPPLY
D	DRAIN
DCT	DECANT
DCW	DOMESTIC COLD WATER
DFE	DECHLORINATED FINAL EFFLUENT
DG	DIGESTER GAS
DHW	DOMESTIC HOT WATER
DS	DIGESTED SLUDGE
F	FILTRATE
FA	FLY ASH
FB	FILTER BACKWASH WASTE WATER
FC	FERRIC CHLORIDE
FCE	FINAL CLARIFIER EFFLUENT
FCI	FINAL CLARIFIER INFLUENT
FCS	FINAL CLARIFIER SCUM
FE	FILTER EFFLUENT
FEQ	FLOW EQUALIZATION
FM	FORCE MAIN
FW	FINISHED WATER
G	NATURAL GAS
GAS	NATURAL GAS
GR	GRIT
GRS	GRIT SUPPLY
GS	GREASE
GTS	GRAVITY THICKENED SLUDGE
HF	HYDRAULIC FLUID
HP	HYDROGEN PEROXIDE
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HW	HOT WATER
LD	LIME DRY
LOC	LUBE OIL CLEAN
LOD	LUBE OIL DIRTY
LPO	LIQUID POLYMER
LS	LIME SLURRY
LSD	LIME SLUDGE
ML	MIXED LIQUOR
NA	SODIUM HYDROXIDE
NG	NATURAL GAS
NML	NITRIFIED MIXED LIQUOR
NPW	NON POTABLE WATER
OA	ODOROUS AIR
OF	OVERFLOW
PD	PROCESS DRAIN
PDG	PURIFIED DIGESTER GAS
PE	PRIMARY EFFLUENT
PI	PRIMARY INFLUENT
PL	PICKLE LIQUOR
PLE	PLANT EFFLUENT
PLI	PLANT INFLUENT
PO	POLYMER SOLUTION
PSD	PRIMARY SLUDGE
PSM	PRIMARY SCUM
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RCS	RECARBONATION SLUDGE
RCY	RECYCLE
RNS	RETURN NITRIFIED SLUDGE
RSD	RECIRCULATED SLUDGE
RW	RAW WATER
RWW	RAW WASTEWATER
SA	SAMPLE
SAS	SODA ASH SOLUTION
SAN	SANITARY
SBE	SEDIMENTATION BASIN EFFLUENT
SBN	SUBNATANT
SC	SLUDGE COLD
SCE	SOLIDS CONTACT EFFLUENT
SCI	SOLIDS CONTACT INFLUENT
SDG	SULFUR DIOXIDE GAS-PRESSURE
SDL	SULFUR DIOXIDE-LIQUID
SDS	SULFUR DIOXIDE SOLUTION
SDV	SULFUR DIOXIDE GAS-VACUUM
SE	SECONDARY EFFLUENT
SH	SLUDGE HOT
SHC	SODIUM HYPOCHLORITE SOLUTION
SI	SECONDARY INFLUENT
SL	SLUDGE
SS	SANITARY SEWER
SSM	SECONDARY SCUM
SPN	SUPERNATANT
SW2	SOFTENED WATER
SWR	STORMWATER
TAS	THICKENED ACTIVATED SLUDGE
TBS	THICKENED BOTTOM SLUDGE
TDS	THICKENED DIGESTED SLUDGE
TFE	TRICKLING FILTER EFFLUENT
TFI	TRICKLING FILTER INFLUENT
TFR	TRICKLING FILTER INFLUENT
TOF	THICKENER OVERFLOW
TPS	THICKENED PRIMARY SLUDGE
TUF	THICKENER UNDERFLOW
UD	UNDERDRAIN
UV	ULTRAVIOLET
V	VENT
VAC	VACUUM
PW	WATER (POTABLE)
W2	WATER (POTABLE WATER AFTER A BACKFLOW PREVENTER)
W3	WATER (PROCESS EFFLUENT USED FOR FLUSHING WATER OR OTHER UTILITY REQUIREMENTS
W4	CHEMICAL FEED SOLUTION WATER
WAS	WASTE ACTIVATED SLUDGE
WNS	WASTE NITRIFIED SLUDGE

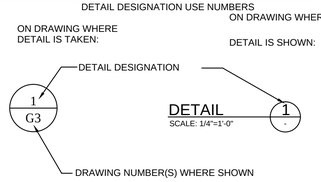
SECTION DESIGNATION

SECTION DESIGNATION USE LETTERS

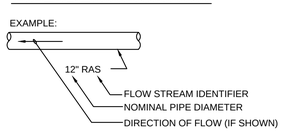


STANDARD DETAIL DESIGNATION

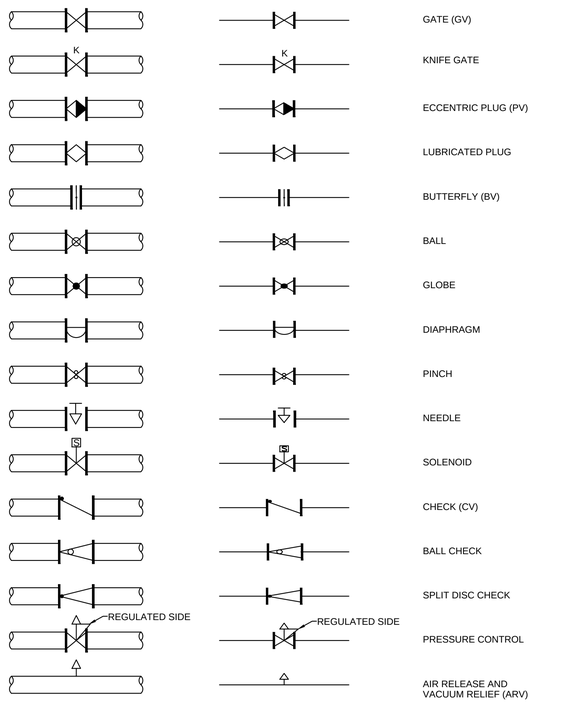
DETAIL DESIGNATION USE NUMBERS



PIPE IDENTIFICATION



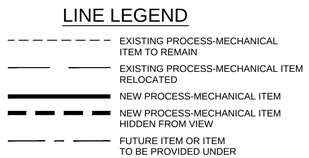
VALVE SYMBOLS



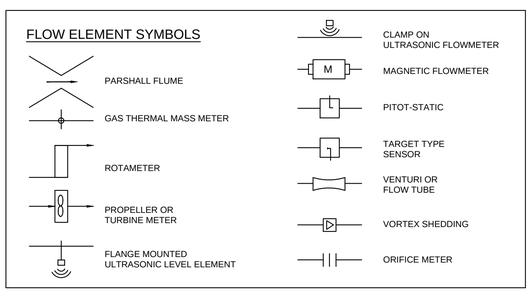
NOTES:

1) THIS IS A STANDARD LEGEND. NOT ALL THE INFORMATION SHOWN ON THIS LEGEND IS USED ON THIS PROJECT.
2) ONLY FLANGED END CONNECTIONS FOR VALVES ARE SHOWN HERE. VALVES WITH OTHER END CONNECTIONS ARE SHOWN SIMILARLY ON THE C AND P DRAWINGS.

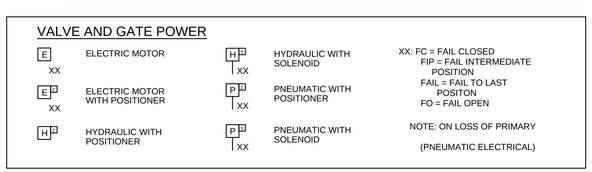
LINE LEGEND



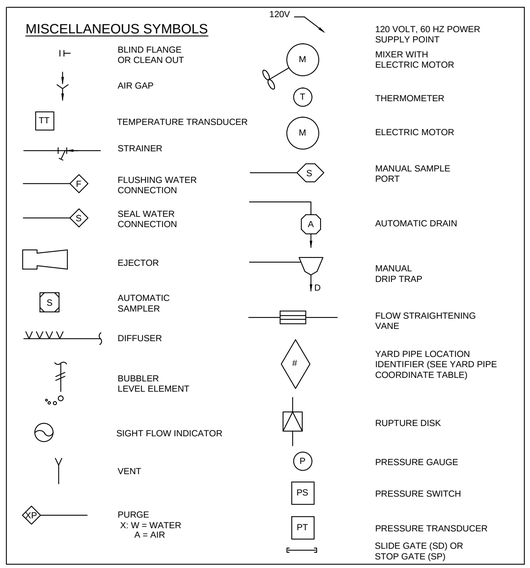
FLOW ELEMENT SYMBOLS



VALVE AND GATE POWER



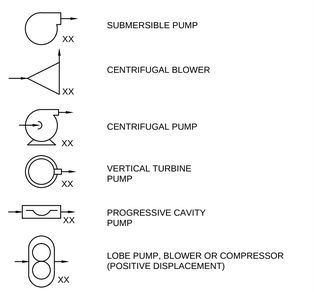
MISCELLANEOUS SYMBOLS



DISCIPLINE IDENTIFIER

DISCIPLINE	DISCIPLINE IDENTIFIER
GENERAL	G
CIVIL	C
STRUCTURAL	S
PROCESS	P
ELECTRICAL	E
MECHANICAL	M

PUMP & COMPRESSOR SYMBOLS



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LAYER MNGR NAME
LAYOUT NAME: G2

DATE	BY	REVISION	DATE

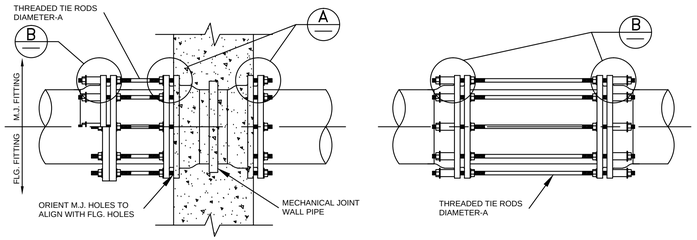
DESIGNED: LAT
DRAWN: JTP
CHECKED:
LAST UPDATE: 11/3/17

FOX Engineering Associates, Inc.
414 South 17th Street, Suite 107
Ames, Iowa 50010
Phone: (515) 233-0000
FAX: (515) 233-0103
FOX engineering

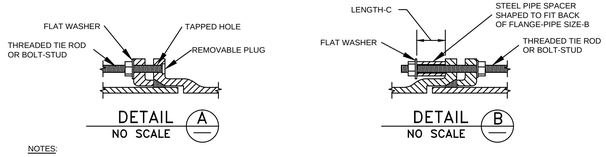
PROCESS LEGEND
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
G2



PIPE SIZE	A TIE ROD DIAMETER	B SPACER NOM. DIA.	C SPACER LENGTH	NO. OF TIE RODS
4" TO 12"	5/8"	3/4"	2.1/2"	2
14" TO 24"	5/8"	3/4"	3.1/2"	NOTE 3
30" & 36"	7/8"	1"	4"	6
42" & 48"	1.1/8"	1.1/4"	4"	6



DETAIL A
NO SCALE

DETAIL B
NO SCALE

NOTES:

1. EXCEPT WHERE TIE RODS ARE REQUIRED, BOLTS FOR FOLLOWER RINGS SHALL BE BOLT-STUDS ON WALL PIPES AND TEE HEAD BOLTS IN OTHER LOCATIONS.

2. ALL BOLT HOLES IN WALL PIPES SHALL BE TAPPED AND SIZED IN ACCORDANCE WITH COLUMN A. WALL PIPES SHALL BE ORIENTED SUCH THAT THE BOLT HOLES STRADDLE THE TOP (SIDE IN VERTICAL PIPING) CENTERLINE.

3. 14" PIPE SHALL USE A MINIMUM OF 2 TIE RODS & 16" - 24" PIPE SHALL USE A MINIMUM OF 4 TIE RODS.

4. DETAIL FOR FLANGED FITTING APPLIES ONLY TO 8" & SMALLER PIPING UNLESS SPECIAL PROVISION IS MADE TO MATCH BOLT CIRCLE DIAMETER & TIE ROD DIAMETER.

5. CONTRACTOR MAY ALSO PLACE PIPES THROUGH P.C.C. WALLS & FLOORS IN A BOX-OUT AS LONG AS THE BOX-OUT IS PROPERLY WATERSTOPPED AND THE PIPE HAS THE 1½" COLLAR IN THE CENTER OF THE WALL. CORE DRILLED HOLES SEALED WITH LINK SEAL AND NON-SHRINK GROUT MAY ALSO BE USED.

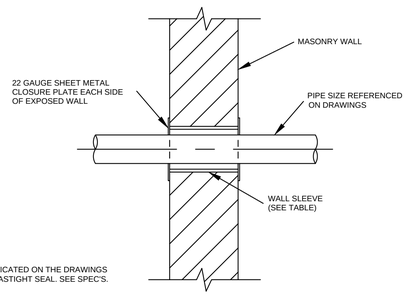
C.I.P. MECHANICAL JOINTS WITH TIE RODS 1
NO SCALE

WALL SLEEVE TABLE	
PIPE SIZE	SLEEVE SIZE (UNLESS OTHERWISE INDICATED)
1" & SMALLER	3" (1)
1.1/4" & 1.1/2"	3.1/2" (1)
2"	4" (1)
3"	6" (1), (3)
4"	6" (1), (3)
6"	8" (1), (3)
8" & LARGER	PIPE O.D. + 2"Ø (2), (3)

(1) SCH. 40 STEEL PIPE

(2) STEEL PIPE, 1/4" MIN. WALL THICKNESS

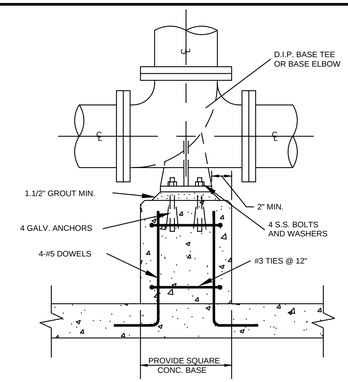
(3) IF PIPE IS FLANGED, USE SLEEVE LARGE ENOUGH FOR FLANGE TO PASS THROUGH



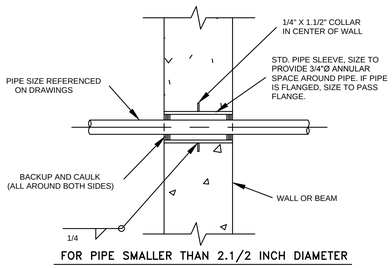
NOTE:

WHERE INDICATED ON THE DRAWINGS PROVIDE GASTIGHT SEAL. SEE SPEC'S.

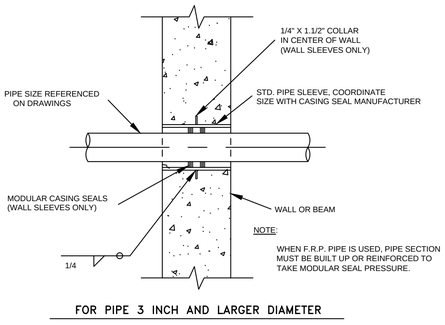
MASONRY WALL SLEEVE 5
NO SCALE



CAST IRON PIPE
BASE TEE OR BASE ELBOW 2
NO SCALE



FOR PIPE SMALLER THAN 2.1/2 INCH DIAMETER

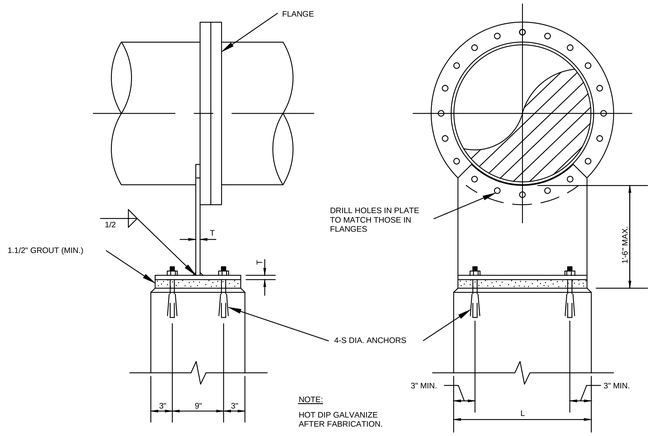


NOTE:

WHEN F.R.P. PIPE IS USED, PIPE SECTION MUST BE BUILT UP OR REINFORCED TO TAKE MODULAR SEAL PRESSURE.

FOR PIPE 3 INCH AND LARGER DIAMETER

CONCRETE WALL OR BEAM SLEEVE 6
NO SCALE

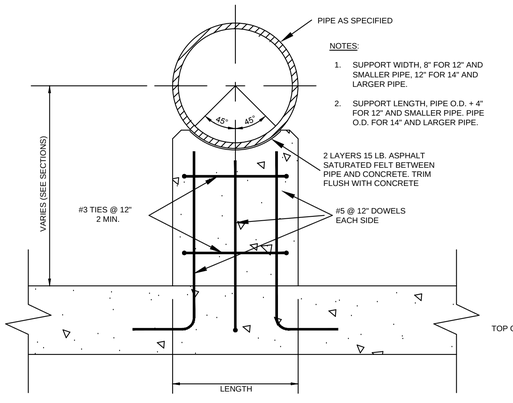


NOTE:

HOT DIP GALVANIZE AFTER FABRICATION.

PIPE SIZE	T	S	L
< 24"	3/4"	5/8"	PIPE O.D.
24"-48"	1"	3/4"	PIPE O.D.
48" >	1.1/4"	1"	PIPE O.D. LESS 6"

STEEL PIPE SUPPORT 3
NO SCALE

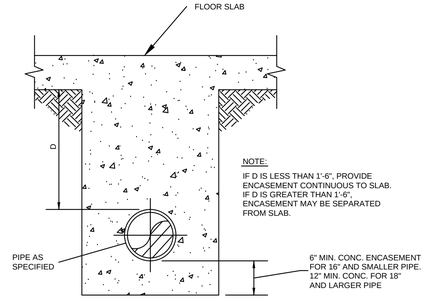


NOTES:

1. SUPPORT WIDTH, 8" FOR 12" AND SMALLER PIPE, 12" FOR 14" AND LARGER PIPE.

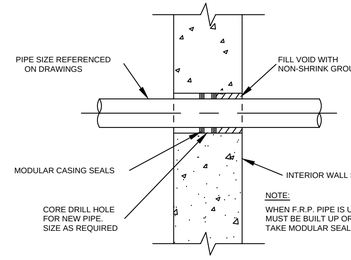
2. SUPPORT LENGTH, PIPE O.D. + 4" FOR 12" AND SMALLER PIPE. PIPE O.D. FOR 14" AND LARGER PIPE.

CONCRETE PIPE SUPPORT 7
NO SCALE



CONCRETE ENCASEMENT 4
NO SCALE

– USE THIS DETAIL WHEN CALLED FOR ON PLANS –



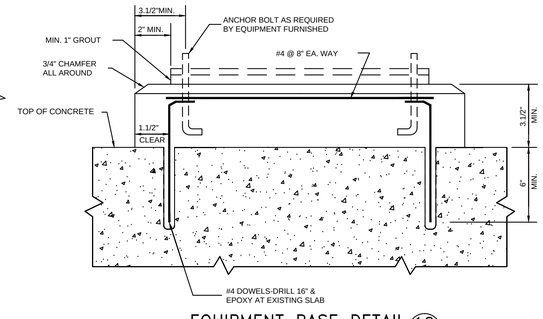
EXISTING CONCRETE WALL PENETRATION DETAIL 8
NO SCALE

NOTES:

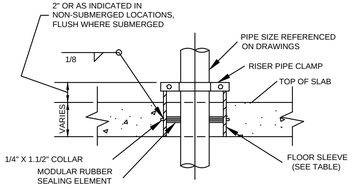
1. HEIGHT, WIDTH AND LENGTH OF BASE VARIES AS REQUIRED FOR INDIVIDUAL EQUIPMENT INSTALLATIONS. INDICATED LOCATIONS AND HEIGHTS ARE APPROXIMATE AND SHALL BE FIELD DETERMINED AS REQUIRED FOR EQUIPMENT AND PIPING.

2. THIS DETAIL IS TYPICAL FOR EQUIPMENT BASE INSTALLATION UNLESS SPECIFICALLY DETAILED AND DESCRIBED OTHERWISE.

3. VERTICAL BARS SHALL BE STANDARD HOOK INTO BASE SLAB FOR NEW CONCRETE.



EQUIPMENT BASE DETAIL 12
NO SCALE

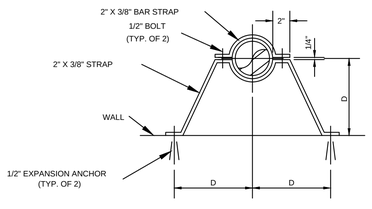


PIPE SIZE	SLEEVE SIZE (UNLESS OTHERWISE INDICATED)
1" & SMALLER	3" (1)
1.1/4" & 1.1/2"	3.1/2" (1)
2"	4" (1)
3"	8" (1)
4"	10" (1)
6"	12" (1)
8" & LARGER	PIPE O.D. + 2"Ø (2)

(1) SCH. 40 STD. STEEL PIPE

(2) STEEL PIPE, 1/4" WALL

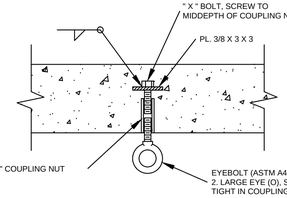
FLOOR SLEEVE 9
NO SCALE



NOTE:

D-DISTANCE FROM WALL SHOWN ON PLAN OR SECTION.

VERTICAL PIPE SUPPORT 10
NO SCALE



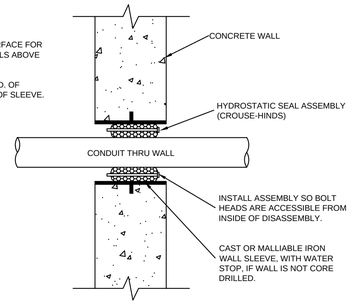
BOLT SIZE DIA. X LENGTH (IN.)	SLAB THICKNESS IN. (MINIMUM)	PL. EMBEDDED DEPTH IN. (MINIMUM)	COUPLING NUT SIZE DIA. X LENGTH IN.	EYEBOLT SIZE IN.
3/4" X 3.1/4"	6	4	3/4" X 2.1/4"	3/4"
3/4" X 5.1/4"	8	6	3/4" X 2.1/4"	3/4"
1" X 5"	8	6	1" X 3"	1"

TYPICAL EYEBOLT 11
NO SCALE

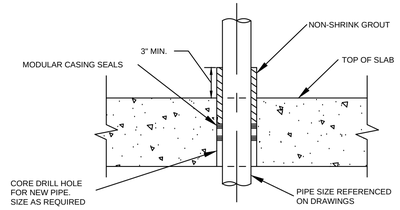
NOTES:

1. APPLY CAULK FLUSH WITH SURFACE FOR FINISHED APPEARANCE IN WALLS ABOVE GRADE.

2. SEAL SELECTION BASED ON O.D. OF CONDUIT THRU WALL AND I.D. OF SLEEVE.



CONDUIT EXTERIOR WALL PENETRATION 13
NO SCALE



EXISTING CONCRETE FLOOR PENETRATION DETAIL 14
NO SCALE

DRAWING FILENAME: K:\proj\2000\2433-17A CLSD Disinfection Project\Drawings\General\G Sheets.dwg
LAYER MNGR NAME | LAYOUT NAME: G3
PLOT STYLE TABLE: Fox GrayScale Process.ctb

DATE	BY	REVISION	DATE

DESIGNED: LAT
DRAWN: JTP
CHECKED:
LAST UPDATE: 11/3/17

FOX Engineering Associates, Inc.
414 South 17th Street, Suite 107
Ames, Iowa 50010
Phone: (515) 233-0000
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STANDARD DETAILS
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
G3

CIVIL LEGEND

LINEWORK

EXISTING	PROPOSED	
		BUILDING
		CONCRETE PAVING
		ASPHALT PAVING
		SIDEWALK
		GRAVEL SURFACING
		PROPERTY LINE
		EASEMENT
		BUILDING SETBACK LINE
x x x	x x x	FENCE -BARBED WIRE
o	o	FENCE -CHAIN LINK
		FENCE -VINYL
		FENCE -WOOD
		FENCE -SILT
W	W	WATER MAIN
W 3	W 3	NON-POTABLE WATER LINE
		STORM SEWER / CULVERT
		STORM SEWER SUBDRAIN
SAN	SAN	SANITARY SEWER
FM	FM	FORCE MAIN
		PROCESS PIPING
OHP	OHE	ELECTRIC -OVERHEAD
UGP	UGE	ELECTRIC -UNDERGROUND
OT		TELEPHONE -OVERHEAD
T	UGT	TELEPHONE -UNDERGROUND
FO	FO	FIBER OPTIC
G	G	NATURAL GAS
		TREE LINE
		CROP LINE
		RAIL ROAD TRACK
881 880	880 881	GROUND SURFACE CONTOURS
	LOC	LIMITS OF CONSTRUCTION
	SAL	SITE ACCESS LIMITS

SYMBOLS

EXISTING	PROPOSED		EXISTING	PROPOSED	
o	o	BOLLARD			STORM SEWER INTAKE, SW-501/ 502
		BUSH			
		CABLE TV PEDESTAL			STORM SEWER INTAKE, SW-503/ 504
		CONTROL/ TRAVERSE POINT			
		CURB STOP			STORM SEWER INTAKE, SW-505
		ELECTRICAL PEDESTAL			
		ELECTRICAL MANHOLE			STORM SEWER INTAKE, SW-506
		ELECTRICAL TRANSFORMER			
		FIBER OPTIC PEDEDSTAL			STORM SEWER INTAKE, SW-507/ 508
		GAS METER			
		GAS VALVE			STORM SEWER INTAKE, SW-509/ 510
		FIRE HYDRANT			STORM SEWER INTAKE, SW-511
		JUNCTION BOX			STORM SEWER INTAKE, SW-512/ BEEHIVE
		LIGHT POLE			STORM SEWER INTAKE, SW-513
		MAIL BOX			
		MANHOLE (UNKNOWN)			STORM SEWER, FLARED END SECTION
		PROPERTY CORNER -FOUND			
		POWER POLE			STORM SEWER MANHOLE
		RIGHT OF WAY RAIL			STORM SEWER SUBDRAIN CLEANOUT
		SANITARY CLEANOUT			TELEPHONE MANHOLE
		SANITARY MANHOLE			TELEPHONE PEDESTAL
		SECTION CORNER -FOUND			TRAFFIC POLE
		SIGN			WATER MANHOLE
		STUMP			WATER METER
		TREE -DECIDUOUS			WATER VALVE
					WITNESS POST
		TREE -EVERGREEN			YARD HYDRANT
					CAP EXISTING UTILITIES
		APPROXIMATE SOIL BORING LOCATION			GRADE TO DRAIN

ABBREVIATIONS

FG -	FORM GRADE (GUTTER)	FL -	FLOWLINE	BOP -	BEGINNING OF PROJECT
TOC -	TOP OF CURB	INV -	INVERT	EOP -	END OF PROJECT
TOW -	TOP OF WALK	PL -	PROPERTY LINE	PC -	POINT OF CURVATURE
FFE -	FINISH FLOOR ELEVATION	ROW -	RIGHT OF WAY	PT -	POINT OF TANGENCY
TOB -	TOP OF BANK	PUE -	PUBLIC UTILITY EASEMENT	PI -	POINT OF INTERSECTION
TOE -	TOE OF SLOPE	CL -	CENTER LINE	ACOE -	ARMY CORP OF ENGINEERS
				FAD -	FOUL AIR DUCT

CIVIL SHEET INDEX

VIEW KEY

x
00Cxxxx
(TYP)

INDICATES DETAIL REFERENCED

SHEET DETAIL IS LOCATED ON

INDICATES SIMILAR DETAIL REFERENCED IN MULTIPLE LOCATIONS

1
101

INDICATES DETAIL REFERENCED BY SECTION CUT

SHEET DETAIL IS LOCATED ON

1

PLAN OR DETAIL NUMBER OR LETTER

PLAN OR DETAIL NAME

VIEW TITLE

ADDITIONAL INFORMATION

ADDITION INFORMATION ABOUT VIEW

x

INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED. SPECIFIC TO THE SHEET AND OR DETAIL.

GRADE NOTE:

ALL GRADES ARE FORM GRADE (FG) (TOP OF PAVEMENT) UNLESS NOTED OTHERWISE.

TOC = TOP OF CURB (FG + 0.50')

ME = MATCH EXISTING

HP = HIGH POINT

GENERAL CONSTRUCTION NOTES:

1. UTILITY FACILITIES SHOWN ARE FROM LOCATES OR RECORDS PROVIDED BY OTHERS AND SHALL BE CONSIDERED APPROXIMATE. OTHER UTILITIES MAY EXIST, EITHER IN SERVICE OR ABANDONED, AND THEIR LOCATION MAY NOT BE PRESENTLY KNOWN OR IDENTIFIED ON THE DRAWINGS. THE ENGINEER MAKES NO GUARANTEE THAT THE UTILITIES SHOWN COMPRISE ALL UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE ENGINEER FURTHER DOES NOT WARRANT THAT THE UTILITIES SHOWN ARE IN THE LOCATION INDICATED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UTILITIES LOCATED WITHIN THE CONSTRUCTION AREA BY ANY MEANS NECESSARY TO AVOID DAMAGE IN ACCORDANCE WITH SECTION 480.4 OF THE IOWA CODE. DAMAGE TO UTILITIES DUE TO THE CONTRACTOR'S ACTIONS SHALL BE REPAIRED OR REPLACED WITHOUT COST TO THE OWNER OR ENGINEER.

   WHERE EXISTING UTILITY FACILITIES ARE SHOWN IN THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, THE CONTRACTOR SHALL NOTIFY UTILITY COMPANY PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING UTILITIES AND CONDUCTING WORK NEAR UTILITY FACILITIES.

2. REMOVALS OF ABANDONED UTILITIES THAT ARE SHOWN ON THE PLANS AND ENCOUNTERED DURING TRENCH EXCAVATION SHALL BE INDICENTAL AND SHALL BE COMPLETED BY THE CONTRACTOR.

3. CONTRACTOR SHALL SUBMIT TO THE ENGINEER A PLAN FOR REVIEW FOR ALL BYPASS PUMPING, TRENCH SHORING, JACKING AND BORING, DEWATERING, TRAFFIC CONTROL, AND PROVIDE SHORING OR SUPPORT DETAILS FOR UTILITY LINES REQUIRED TO COMPLETE THE WORK.

4. ALL DISTURBED SURFACES IN THE PROJECT AREA THAT ARE NOT TO BE PAVED, OR HAVE OTHER SURFACES INDICATED ON THE PLANS, SHALL BE FERTILIZED, SEEDED, AND MULCHED. ALL WORK SHALL COMPLY WITH SECTION 32 92 00, USING TYPE 1 SEED MIXTURE. MEASUREMENT AND PAYMENT PROVISIONS DO NOT APPLY.

5. FERTILIZER AND MULCH SHALL BE APPLIED TO SEEDED AREAS AS REQUIRED BY HYDRAULIC SEEDING METHODS & SECTION 32 92 00.

6. WATER AND WARRANTY SEEDED AREAS IN ACCORDANCE WITH SECTION 32 92 00.

DRAWING FILENAME
K:\proj\2000\2433-17A CLSD Disinfection Project\Drawings\Civil\2433-17A CIVIL COVER AND DETAILS.dwg

PLOT STYLE TABLE	LAYER MNGR NAME	LAYOUT NAME
FoxGrayScale.ctb		C1

REVISION	DATE	BY	DATE
	DESIGNED:	LAT	11/17
	DRAWN:	SRS	11/17
	CHECKED:		
			LAST UPDATE: 11/03/17
			PLAN FILE NO.
			PROJECT NUMBER

414 S. 17th St., Ste 107
Ames, Iowa 50010
515.232.1000
www.foxeng.com
FOX engineering

CIVIL COVER SHEET

UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
C1

SITE ACCESS LIMITS

SITE ACCESS

SITE ACCESS

EXISTING UTILITY CABINET

40
ADMINISTRATION BLDG AND DIGESTER BLDG

10
PRELIMINARY FACILITIES

80
MAINTENANCE GARAGE

GARAGE

GARAGE

50
WEST SLUDGE STORAGE TANK 2

50
WEST SLUDGE STORAGE TANK 1

20
SBR–4

20
SBR–3

20
SBR–2

20
SBR–1

60
EAST SLUDGE STORAGE TANK 2

60
EAST SLUDGE STORAGE TANK 1

EFFLUENT CHANNEL

EFFLUENT SAMPLING BUILDING

DIVERSION BOX

30
TERTIARY BUILDING

35
UV BUILDING

METER STRUCTURE

STAGING AREA

FILL EXISTING 24" FE PIPE WITH GROUT

CUT AND CAP EXISTING 24" FE PIPE

EFFLUENT MANHOLE

LIMITS OF CONSTRUCTION

REMOVE AND REPLACE FENCE AND GATE AS REQUIRED FOR CONSTRUCTION

UV BYPASS STRUCTURE

0 40' 80'

GENERAL NOTES:

1. **ALL UTILITIES ARE GENERALLY LOCATED. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND EXPOSING ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION BEFORE CONSTRUCTION BEGINS.**
2. **IN LOCATIONS OF PROPOSED IMPROVEMENTS, RELOCATE EXISTING UTILITIES AS REQUIRED TO CONSTRUCT THE IMPROVEMENTS AS INDICATED IN THE CONTRACT DOCUMENTS.**
3. **PIPING ABANDONED IN THE PAST IS NOT SHOWN.**
4. **SEE PROCESS DRAWINGS FOR MODIFICATIONS TO EXISTING WET WELLS, VALVE VAULTS, PIPING, VALVES, EQUIPMENT, AND STRUCTURES.**
5. **ELEVATIONS FOR THE SITE ARE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88). HORIZONTAL CONTROL IS BASED ON STATE PLANE COORDINATE SYSTEM.**

DATE	REVISION	BY	DATE

DESIGNED: LAT 11/17
DRAWN: SRS 11/17
CHECKED:
LAST UPDATE: 11/03/17

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FOX engineering

OVERALL SITE PLAN

UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
C2

DRAWING FILENAME
K:\proj\2000\2433-17A CLSD Disinfection Project\Drawings\Civil\2433-17A Base.dwg

PLOT STYLE TABLE	LAYER MNGR NAME	LAYOUT NAME
FoxGreyScale.ctb		C2

EXISTING BORING

EFFLUENT SAMPLING BUILDING

EFFLUENT CHANNEL

8" EQR

12" EQR

2" D

12"

24" FE

24" SE

BUILDING 30
TERTIARY BUILDING

8" SAN

6" SAN

2 / C7 CORE DRILL INTO EX MH AND CONNECT FORCE MAIN WITH LINK SEAL.
FL = 1233.5
(SEE NOTE 4, THIS SHEET)

SANITARY DROP MANHOLE
RIM =1239.05

2" PVC SDR 21 SANITARY FORCE MAIN

30" FE

CONNECT 1 ½" WATER SERVICE TO EXISTING 4" W1 WATER LINE

EXISTING BORING

GRAVEL DRIVE

27.5'

61'

4" W1

INSTALL 1 ½" CURB STOP

14" CWS

12" CWR

22'

METER STRUCTURE

TWO 1-INCH FIBEROPTIC AND TELEPHONE CONDUIT (SEE MECH. AND ELEC. DWGS)

GAS METER (SEE MECH.AND ELEC. DWGS FOR GAS SERVICE ROUTING, METER INFORMATION, AND CONNECTION TO BUILDING)

N=3,865,135.50
E=4,946,804.15

10.5' x 5' APPROACH SLAB
(SEE STRUCTURAL DRAWINGS)

R10'

ELECTRICAL PULL BOX (SEE ELECTRICAL DRAWINGS) (TYP)

1 ½" WATER SERVICE (SEE MECH. DWGS)

B-1 (APPROX)

BUILDING 35
UV BUILDING

ELEV = 1230.33
(SEE MECH DWGS FOR LOCATION & ELEV)

SEE STRUCTURAL DRAWINGS FOR BOLLARD DETAILS AND LOCATIONS

16.5'

1 / C7 INSTALL GRAVEL DRIVE

MAINTAIN 12" MIN VERTICAL CLEARANCE W/ PIPE (TYP)

RE-ROUTED PRIMARY ELECTRIC (SEE ELECTRICAL DRAWINGS)

CONCRETE UTILITY PAD

CONNECT TO EXISTING UGE CONDUIT (SEE ELECTRICAL DRAWINGS)

B-2 (APPROX)

R20'

N=3,865,106.83
E=4,946,846.15

UV BYPASS STRUCTURE (SEE SHEET P6)

12'

CONNECT TO EXISTING UGE CONDUIT (SEE ELECTRICAL DRAWINGS)

30" FE

INTAKE
RIM =1229.32
FL OUT =1225.32 (S)

REMOVE SECTION OF EX PIPING AND CAP EXISTING FE WITH CONCRETE PLUG AND WATER TIGHT END SEAL

10'

TRANSFORMER PAD (SEE ELEC DWGS)

30" FE

5' BARBED WIRE FENCE

REMOVE/ REPLACE FENCE AS REQUIRED FOR CONSTRUCTION

GATE

NEW 480V FEEDER TO UV BLDG FROM DIGESTER MCC (SEE ELECTRICAL DRAWINGS)

SEE SHEET C4 FOR PROCESS PIPING PLAN AND PROFILE (TYP)

SEE NOTE 6, THIS SHEET

EFFLUENT MANHOLE
72" SW-303
(SEE SHEETS C4 & C7)

GATE
(REMOVE/ REPLACE)

30" RJ MJ DIP TEE

LIMITS OF CONSTRUCTION

STORM MH
RIM = 1227.78

18" BYP

18" BYP (DEAD)

EDGE OF DITCH

24" FE
FL =1219.79

DRAINAGE DITCH

18" BYP
FL = 1220.26 (REC)

24" BYP (DEAD)
FL = 1218.77 (REC)

60" RCP

0 10' 20'

GENERAL NOTES:

1. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR UTILITY CONSTRUCTION INFORMATION.
2. PRIMARY UNDERGROUND POWER TO BE RELOCATED BY UTILITY OUTSIDE OF CONTRACT. SEE ELECTRICAL DRAWINGS FOR ROUTING.
3. ALL UTILITIES ARE GENERALLY LOCATED. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND EXPOSING ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION BEFORE CONSTRUCTION BEGINS.
4. FORCE MAIN SHALL BE INSTALLED TO PREVENT SAGS AND SHALL BE PLACED SO THAT A MINIMUM OF 2% OF POSITIVE GRADE IS PROVIDED TO THE OUTLET. INSTALL A 90° BEND IN THE MANHOLE AND INSTALL 2-INCH SCH 80 PVC PIPE, ALONG THE WALL WITH SUPPORTS. (SEE DETAIL 2, SHEET C7)
5. CONTRACTOR SHALL COORDINATE ALL CONNECTION LOCATION AND ELEVATIONS WITH BUILDING SERVICE AND UTILITY CONNECTION LOCATIONS.
6. CONTRACTOR SHALL SUPPORT ALL BUILDING FOUNDATIONS, ACCESSORIES, MANHOLES, AND 30" FE PIPING WITH GEOPIERS WITHIN AREA INDICATED ON THE PLANS AND AS SPECIFIED IN SPECIFICATION SECTION 31 6613.13. CONTRACTORS SHALL SUBMIT DESIGN FOR REVIEW BY THE ENGINEER PRIOR TO CONSTRUCTION.

DRAWING FILENAME: K:\proj\2000\2433-17A CLSD Disinfection Project\Drawings\Civil\2433-17A_Base.dwg
PLOT STYLE TABLE: FoxGrayScale.ctb
LAYER MNGR NAME:
LAYOUT NAME: C3

DATE	BY	REVISION	DATE
	DESIGNED: LAT		
11/1/17	DRAWN: SRS		
11/1/17	CHECKED:		
LAST UPDATE: 11/03/17			

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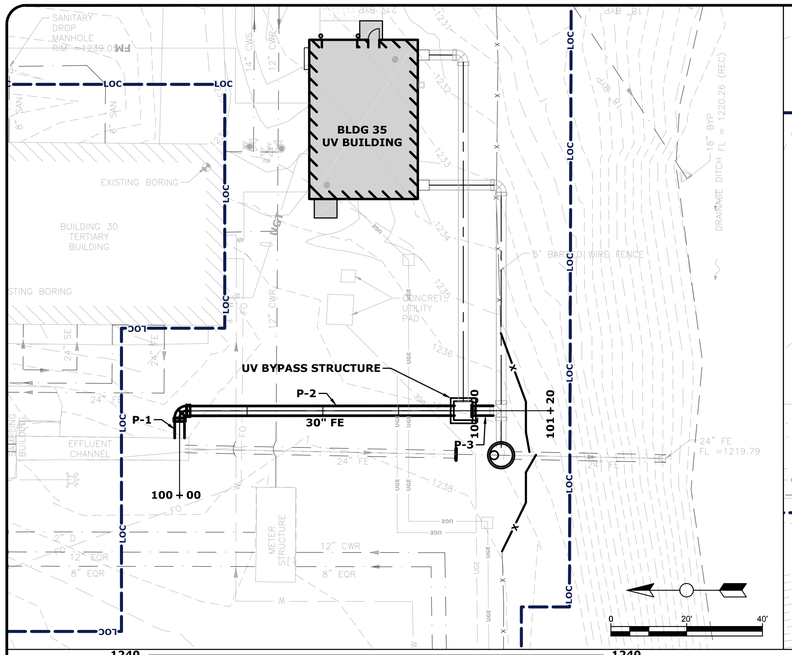
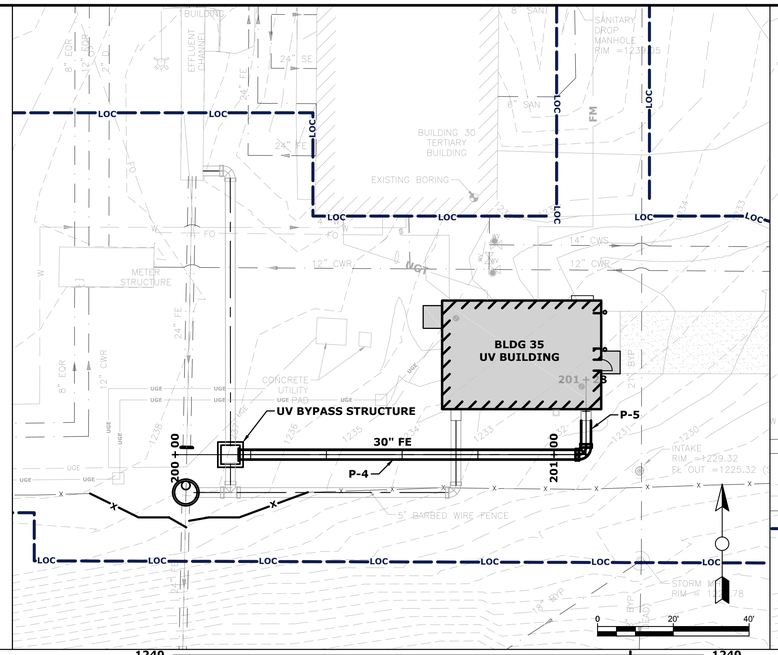
SITE LAYOUT AND PIPING PLAN

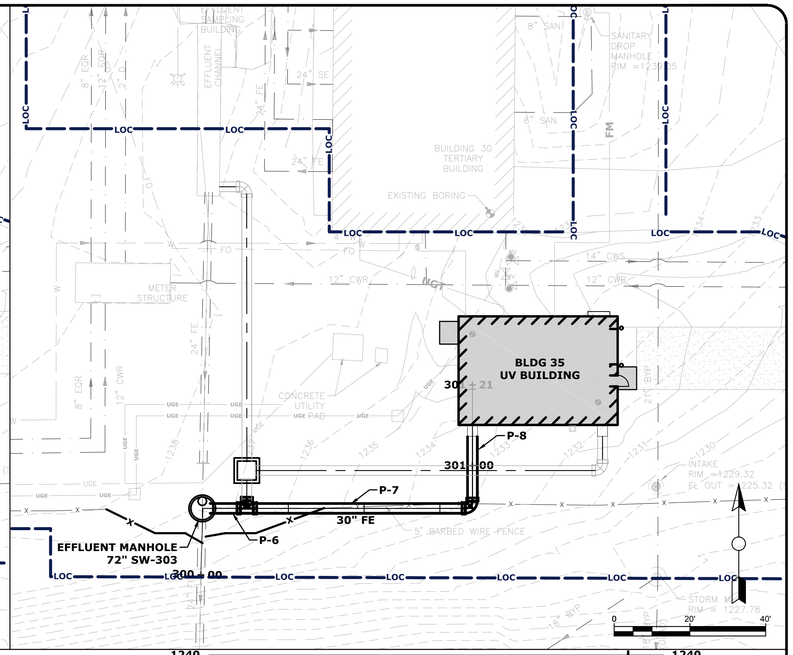
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

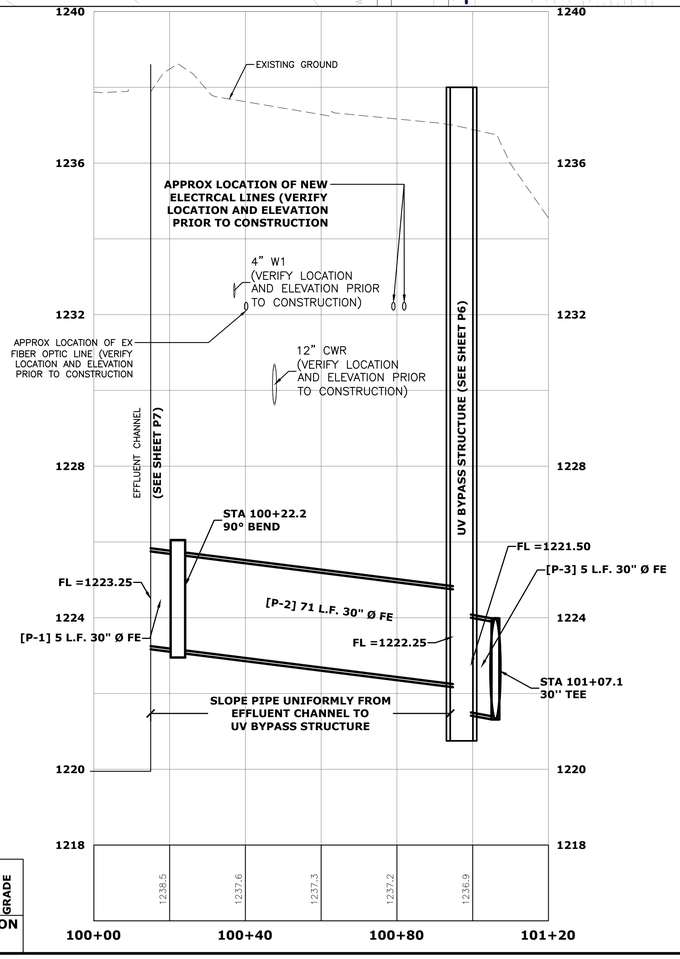
PROJECT NO.
2433-17A

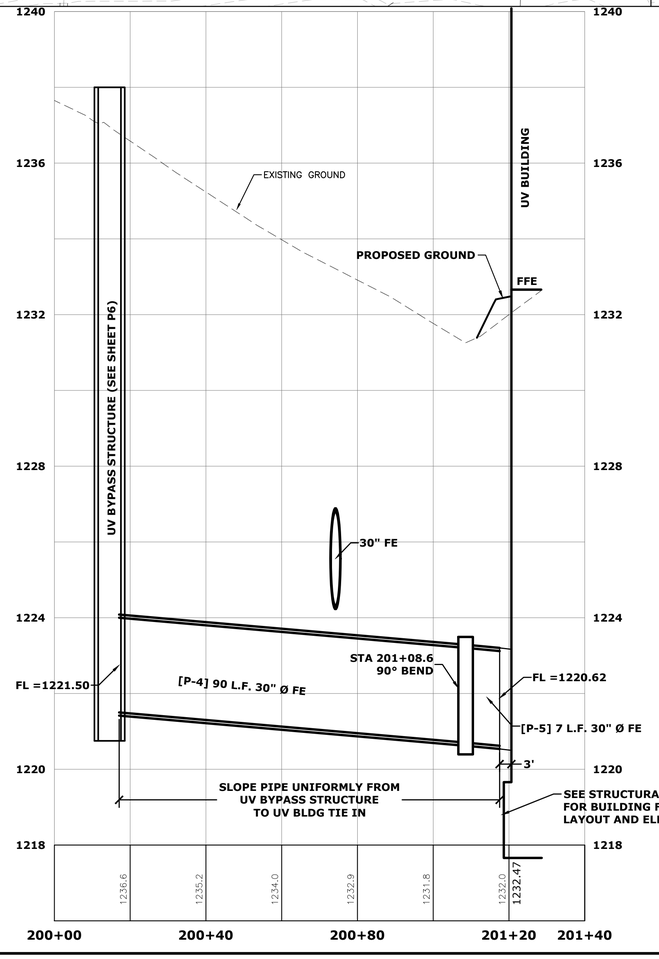
SHEET
C3

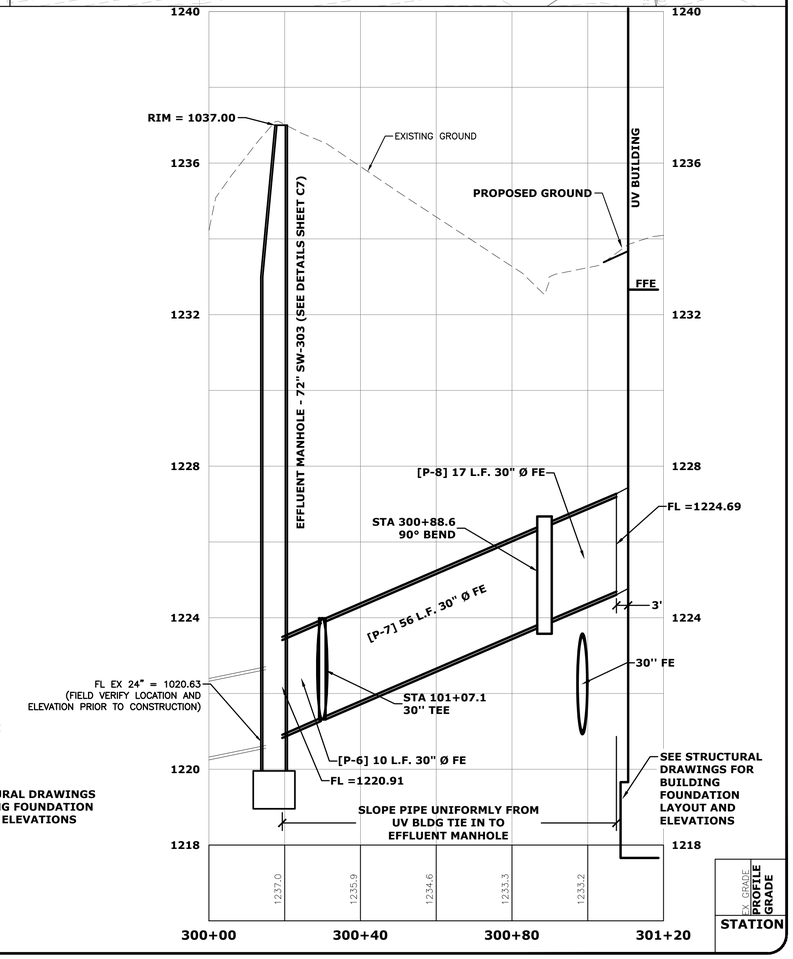












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PLOT STYLE TABLE	LAYER MNGR NAME	LAYOUT NAME
FoxGrayScale.ctb		C4

DATE	BY	REVISION	DATE
11/17	LAT	DESIGNED:	
11/17	SRS	DRAWN:	
		CHECKED:	

LAST UPDATE: 11/03/17

FOX Engineering Associates, Inc.
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PROCESS PIPING PLAN & PROFILES

UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
C4

EXISTING BORING
EFFLUENT SAMPLING BUILDING
EFFLUENT CHANNEL
BUILDING 30
TERTIARY BUILDING
SANITARY DROP MANHOLE
RIM =1239.05
EXISTING BORING
GRAVEL DRIVE
METER STRUCTURE
BUILDING 35
UV BUILDING
DOOR 1236.67
DOOR 1232.67
DOOR 1232.67
1236.67
1236.62
1236.62
1236.67
1236.23
1232.42
1232.67
1232.62
1232.62
1232.67
1234.06
1232.48
5.71%
10.1%
CONCRETE UTILITY PAD
ELEC PULL BOX
UV BYPASS STRUCTURE
ELEC PULL BOX
EFFLUENT MANHOLE
TOP OF PAD
1232.67
INTAKE
RIM =1229.32
FL OUT =1225.32 (S)
5' BARBED WIRE FENCE
SILT FENCE
GATE
GRAVEL DRIVE
LIMITS OF CONSTRUCTION
STORM MH
RIM = 1227.78
24" FE
FL =1219.79
DRAINAGE DITCH
18" BYP
FL = 1220.26 (REC)
24" BYP (DEAD)
FL = 1218.77 (REC)
60" RCP
PIG
LOC
SOT
WV
1235
1233
1234
1232
1231
1230
1236
1237
0
10'
20'

DRAWING FILENAME
K:\Proj\2000\2433-17A CLSD Disinfection Project\Drawings\Civil\2433-17A Base.dwg
PLOT STYLE TABLE | LAYER MNGR NAME | LAYOUT NAME
FoxGreyScale.ctb | | C5

DATE	BY	REVISION	DATE
	DESIGNED:		
11/1/17	LAT		
	DRAWN:		
11/1/17	SRS		
	CHECKED:		
LAST UPDATE: 11/03/17			

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SITE GRADING & EROSION CONTROL PLAN

UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
C5

Refer to the contract documents for specific material and placement requirements.

(1) Required only when specified in the contract documents or when directed by the Engineer.

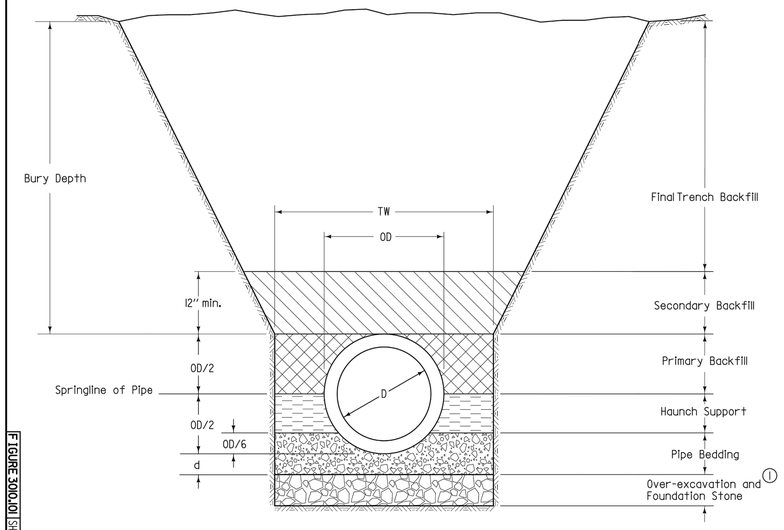
Key

OD = Outside diameter of pipe

D = Inside diameter of pipe

TW = Trench width at top of pipe

d = Depth of bedding material below pipe



SUDAS	Iowa Department of Transportation	REVISION NEW 04-21-09
FIGURE 3010.101	STANDARD ROAD PLAN	SW-101 SHEET 1 of 1

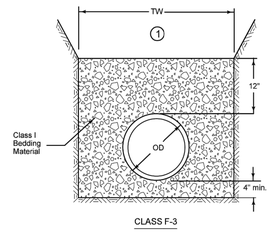
REVISIONS: New. Replaces SUDAS Figure 3010.1.

SUDAS DIRECTOR — DESIGN METHODS ENGINEER: Deanna Maifield

TRENCH BEDDING AND BACKFILL ZONES

FIGURE 3000.01 SHEET 1 OF 1

BEDDING CLASSES



CLASS F-3

(1) Place remainder of bedding and backfill materials as specified in the contract documents.

(2) Minimum depth of bury 12 inches or as specified by the manufacturer.

ALLOWABLE BEDDING CLASSES

PIPE MATERIAL	STORM SEWER	SANITARY SEWER
Ductile Iron	F-1, F-2, F-3	F-1, F-2, F-3
HDPE	F-2, F-3	Not allowed
Polypropylene	F-2, F-3	F-3
PVC	F-2, F-3	F-3

Key

OD = Outside diameter of pipe

TW = Trench width at top of pipe:
Min. = OD+18 inches OR 1.25xOD+12 inches
(whichever is greater)

ALLOWABLE BURY DEPTH (2)

PVC PIPE

Pipe Diameter (in)	ASTM D 3034			ASTM F 679	ASTM F 949	ASTM F 1803	ASTM D 2680
	Solid Wall			Solid Wall	Corrug. Exterior	Closed Profile	Composite (Truss Type)
	SDR 23.5	SDR 26	SDR 35	SDR 35			
8	30'	28'	24'	---	24'	---	32'
10	30'	28'	24'	---	24'	---	32'
12	30'	28'	24'	---	24'	---	32'
15	30'	28'	24'	---	24'	---	32'
18	---	---	---	24'	24'	---	---
21	---	---	---	24'	24'	24'	---
24	---	---	---	24'	24'	24'	---
27	---	---	---	24'	---	24'	---
30	---	---	---	24'	24'	24'	---
33	---	---	---	24'	---	---	---
36	---	---	---	24'	24'	24'	---
42	---	---	---	24'	---	24'	---
48	---	---	---	24'	---	24'	---
54	---	---	---	---	---	24'	---
60	---	---	---	---	---	24'	---

DUCTILE IRON, AWWA C151, CLASS 52

Pipe Diameter (in)	Class F-1 Bedding	Class F-2 Bedding	Class F-3 Bedding
4	40'	40'	40'
6	40'	40'	40'
8	40'	40'	40'
10	40'	40'	40'
12	37'	40'	40'
14	31'	40'	40'
16	28'	37'	40'
18	25'	34'	40'
20	23'	32'	40'
24	20'	29'	38'
30	18'	23'	31'
36	18'	22'	30'
42	17'	21'	29'
48	16'	19'	27'
54	16'	19'	27'

HDPE PIPE

Pipe Diameter (in)	AASHTO M 294
12	8'
15	9'
18	9'
24	9'
30	9'
36	9'
42	8'
48	8'
54	8'
60	8'

POLYPROPYLENE PIPE

Pipe Diameter (in)	ASTM F 2736	ASTM F 2764
12	24'	---
15	25'	---
18	22'	---
24	20'	---
30	22'	22'
36	---	21'
42*	---	22'
48*	---	23'
54*	---	21'
60*	---	21'

*Storm Sewer Only

SUDAS	IOWA DOT	REVISION 2 10-18-16
FIGURE 3010.103	STANDARD ROAD PLAN	SW-103 SHEET 1 of 1

REVISIONS: Added polypropylene pipe for storm sewer applications.

SUDAS DIRECTOR — DESIGN METHODS ENGINEER: Brian Smith

FLEXIBLE GRAVITY PIPE TRENCH BEDDING

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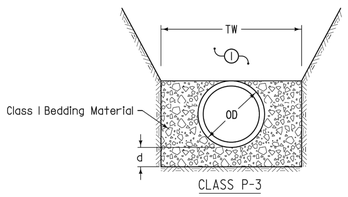
PLOT STYLE TABLE	LAYER MNGR NAME	LAYOUT NAME
FoxGrayScale.ctb		C6

BEDDING CLASSES



CLASS P-3

ALLOWABLE BURY DEPTH

DUCTILE IRON, AWWA C151, CLASS 52

Pipe Diameter (Inches)	Class P-1 Bedding	Class P-2 Bedding	Class P-3 Bedding
4	40'	40'	40'
6	40'	40'	40'
8	40'	40'	40'
10	36'	40'	40'
12	31'	40'	40'
14	26'	40'	40'
16	23'	37'	40'
18	20'	34'	40'
20	18'	32'	40'
24	16'	29'	38'
30	13'	23'	31'
36	13'	22'	30'
42	13'	21'	29'
48	13'	19'	27'
54	13'	19'	27'

PVC, AWWA C900 & C905, DR18

Pipe Diameter (Inches)	Class P-1 Bedding	Class P-2 Bedding	Class P-3 Bedding
4	19'	23'	40'
6	19'	23'	40'
8	19'	23'	40'
10	19'	23'	40'
12	19'	23'	40'
14	19'	23'	40'
16	19'	23'	40'
18	19'	23'	40'
20	19'	23'	40'
24	19'	23'	40'

(1) Place remainder of bedding and backfill material as specified in the contract documents.

Key

OD = Outside diameter of pipe

TW = Trench width at top of pipe:
Min. = OD+18 inches OR 1.25xOD+12 inches
(whichever is greater)

d = Depth of bedding material below pipe:
Min. = OD/8 OR 4 inches
(whichever is greater)

SUDAS	Iowa Department of Transportation	REVISION NEW 04-21-09
FIGURE 3010.104	STANDARD ROAD PLAN	SW-104 SHEET 1 of 1

REVISIONS: New.

SUDAS DIRECTOR — DESIGN METHODS ENGINEER: Deanna Maifield

PRESSURE PIPE TRENCH BEDDING

FIGURE 3000.04 SHEET 1 OF 1

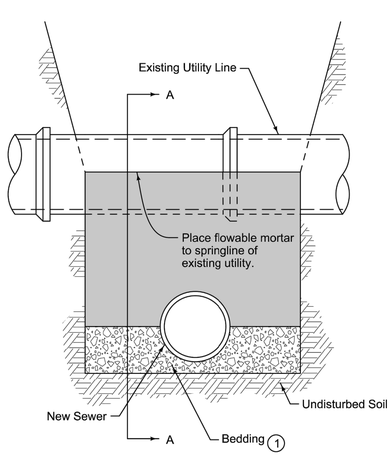
Use flowable mortar utility line support when new utility excavation is crossing under an existing utility line (sewer lines, water lines, gas lines, etc.) as directed by the Engineer.

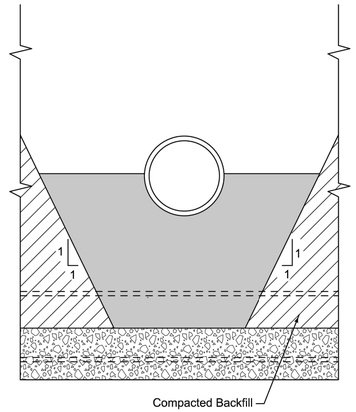
Allow flowable mortar fill to cure a minimum of 24 hours before placing backfill material.

Trim uncompacted backfill material away from slopes before pouring flowable mortar.

Side slopes of flowable mortar fill to be 1:1 or greater. See Section A-A

(1) Comply with Figure 3010.101





SECTION A-A

SUDAS	REVISION 1 10-21-14
SUDAS Standard Specifications	3010.903 SHEET 1 of 1

FLOWABLE MORTAR FILL UTILITY LINE SUPPORT

FIGURE 3010.903 SHEET 1 OF 1

REVISION	BY	DATE
	DESIGNED: LAT	11/17
	DRAWN: SRS	11/17
	CHECKED:	

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PLAN HOLDER PROJECT NUMBER

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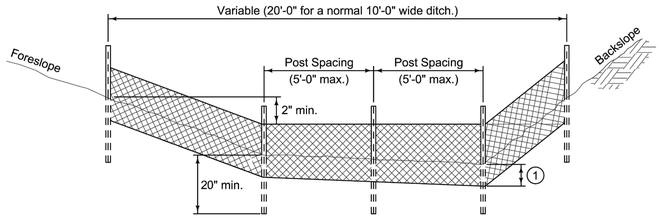
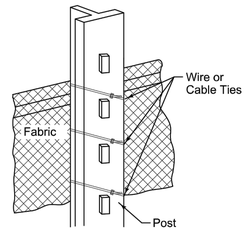
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
C6



TYPICAL SILT FENCE DITCH CHECK



ATTACHMENT TO POST

1 Insert 12 inches of fabric a minimum of 6 inches deep (fabric may be folded below the ground line).

SUDAS

REVISION	
2	10-21-14

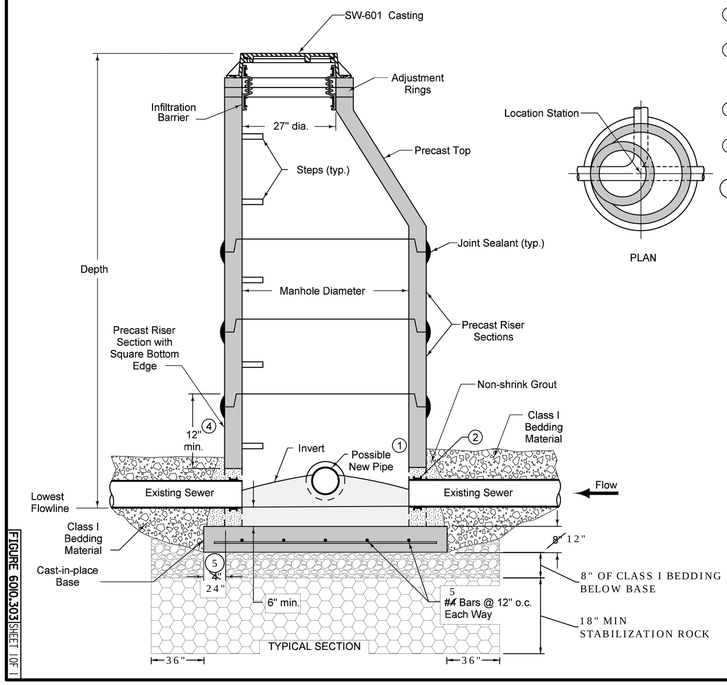
9040.119

SHEET 1 of 2

SUDAS Standard Specifications

SILT FENCE

FIGURE 9040.119 | SHEET 1 OF 2



PLAN

1 For new pipe connections, provide cored opening with flexible pipe connector.

2 For existing pipe connections, provide an arched opening with a diameter up to 6 inches larger than outside diameter of pipe. Install waterstop around existing pipe. Fill void between pipe and opening with non-shrink grout.

3 For additional configurations, maintain a minimum of 12 inches of concrete between vertical edges of pipe openings.

4 12 inch minimum riser height above all pipe openings.

5 CONTRACTOR SHALL EXTEND THE CAST IN PLACE BASE A MINIMUM OF 24-INCHES OUTSIDE OF THE MANHOLE WALL.

Manhole Diameter (inches)	Maximum Pipe Diameter (inches) for 2 Pipes (3)	
	At 180° Separation	At 90 ° Separation
48	24	18
60	36	24
72	42	30
84	48	36
96	60	42

SUDAS | IOWADOT

REVISION	
1	10-21-14

FIGURE 6010.303 | STANDARD ROAD PLAN | SW-303

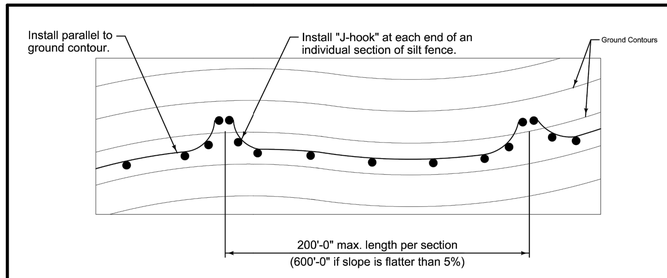
SHEET 1 of 1

REVISIONS: Changed "Chimney Seal" to "Infiltration Barrier" MODIFIED

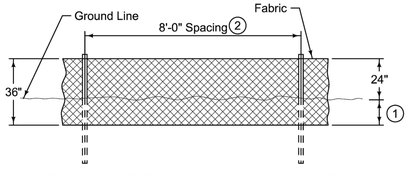
Paul D. Wiegand, SUDAS DIRECTOR | Brian Smith, DESIGN MS / TODOS ENGINEER

SANITARY SEWER MANHOLE OVER EXISTING SEWER

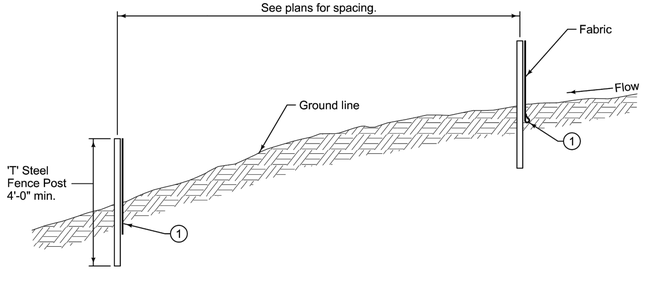
FIGURE 600.303 | SHEET 1 OF 1



TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(Plan View)



DETAILS OF SILT FENCE ON LONGITUDINAL SLOPES



TYPICAL SILT FENCE INSTALLATION ON LONGITUDINAL SLOPES
(Profile View)

1 Insert 12 inches of fabric a minimum of 6 inches deep (fabric may be folded below the ground line).

2 Reduce post spacing to 5'-0" at water concentration areas, or as required to adequately support fence.

SUDAS

REVISION	
2	10-21-14

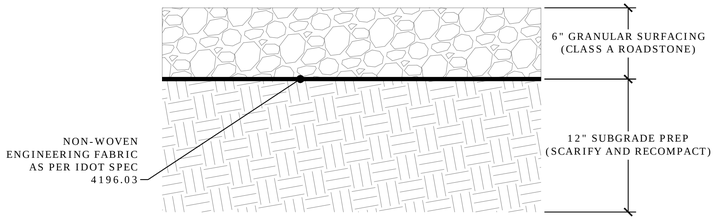
9040.119

SHEET 2 of 2

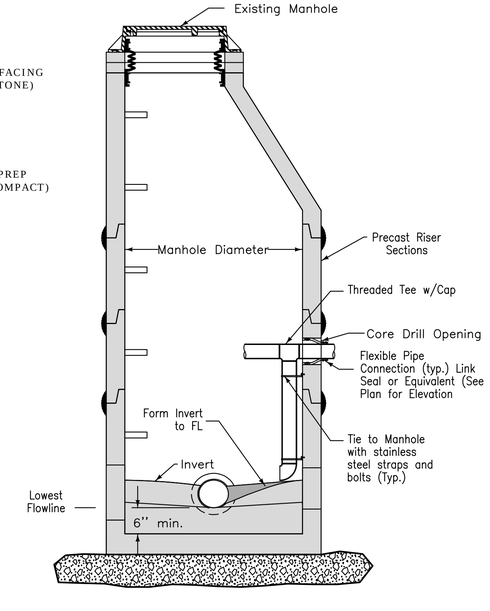
SUDAS Standard Specifications

SILT FENCE

FIGURE 9040.119 | SHEET 2 OF 2



1 GRAVEL DRIVE SECTION
NOT TO SCALE



2 FM CONNECTION TO EX MH
NOT TO SCALE

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PLOT STYLE TABLE	LAYER MNGR NAME	LAYOUT NAME
FoxGrayScale.ctb		C7

DATE	REVISION	BY	DATE
	DESIGNED:	LAT	11/17
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PROJECT NUMBER

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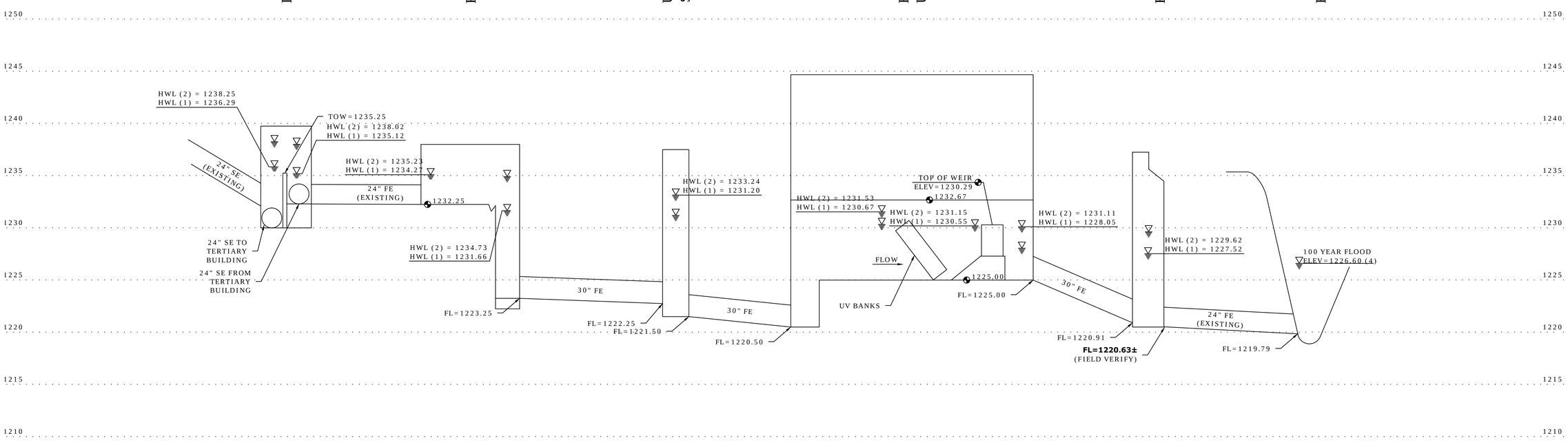
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
C7



HYDRAULIC PROFILE

NO SCALE

NOTES:

1) HWL (1) BASED ON NORMAL OPERATION WITH 1 SBR IN DECANT MODE AT 9.4 MGD + 2 MGD CWR (11.4 MGD TOTAL).

2) HWL (2) BASED ON EMERGENCY OPERATION WITH 2 SBRS IN DECANT MODE AT 18.8 MGD + 2 MGD CWR (20.8 MGD TOTAL).

3) HYDRAULIC PROFILE SHOWS ELEVATIONS WHEN NO FLOW IS DIRECTED TO TERTIARY BUILDING.

4) FLOOD ELEVATION FROM CLEAR LAKE SANITARY DISTRICT - WWTF PHASE II IMPROVEMENTS 1996.

DRAWING FILENAME
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PLOT STYLE TABLE	LAYER MNGR NAME	LAYOUT NAME
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DATE	REVISION		DATE
		DESIGNED:	LAT 11/17
		DRAWN:	JTP 11/17
		CHECKED:	
		LAST UPDATE:	11/3/17

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HYDRAULIC PROFILE

UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

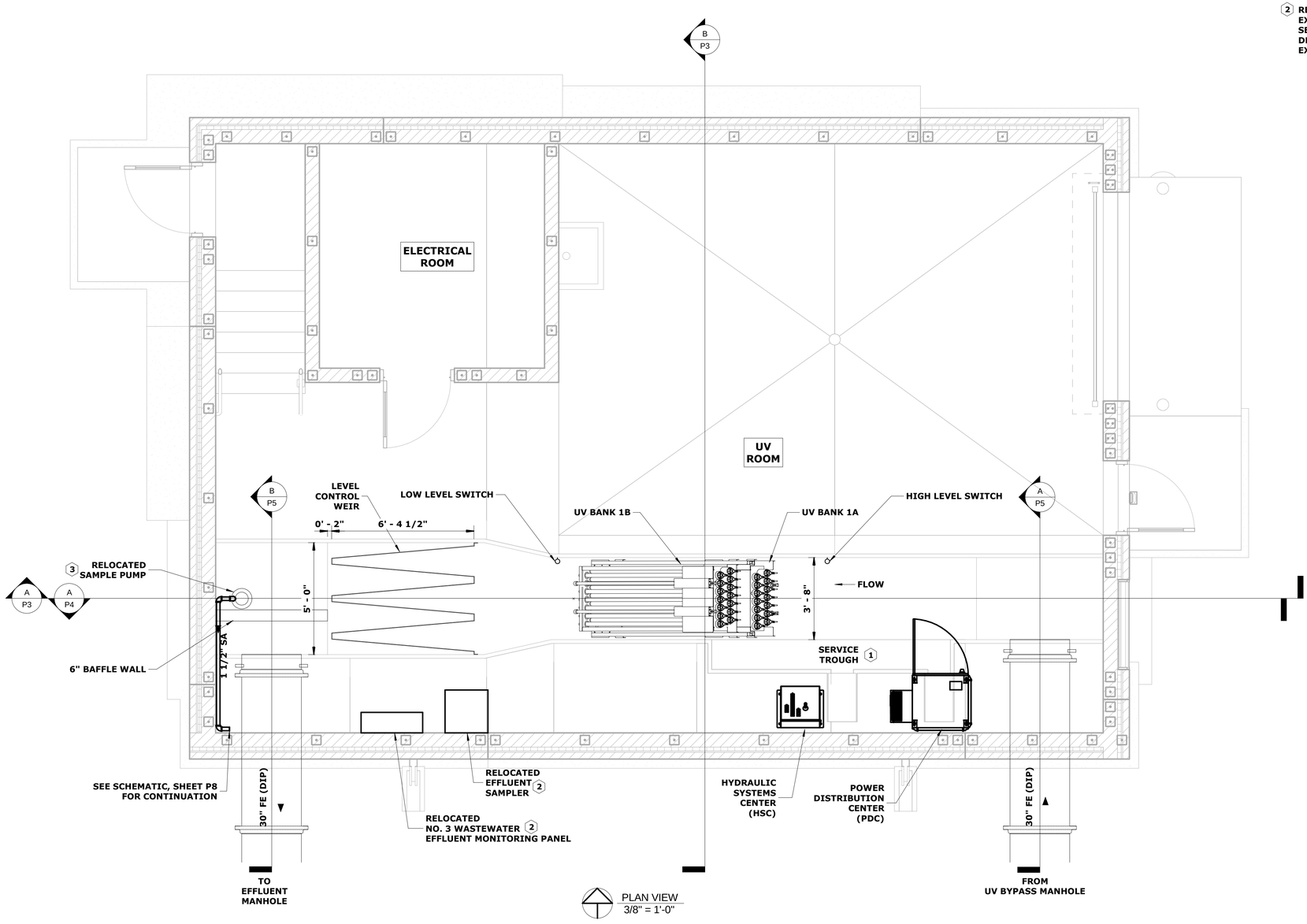
PROJECT NO.
2433-17A

SHEET
P1

K:\1proj\2000\2433-17A CLSD Disinfection Project\Drawings\Revit\Process\2433-17A UV Building R17.rvt

TAGGED NOTES:

1. ROUTE HYDRAULIC HOSES FROM HSC TO UV BANKS AND UV POWER CABLES IN SERVICE TROUGH AS RECOMMENDED BY UV MANUFACTURER.
2. RELOCATE EXISTING EQUIPMENT FROM EXISTING EFFLUENT SAMPLING BUILDING SEE SPECIFICATIONS FOR ADDITIONAL DETAILS. CONSULT WITH OWNER FOR EXACT LOCATION.



PLAN VIEW
3/8" = 1'-0"

DATE	BY	REVISION	DATE

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LAST UPDATE: 11/3/17

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UV BUILDING
PLAN VIEW
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
P2

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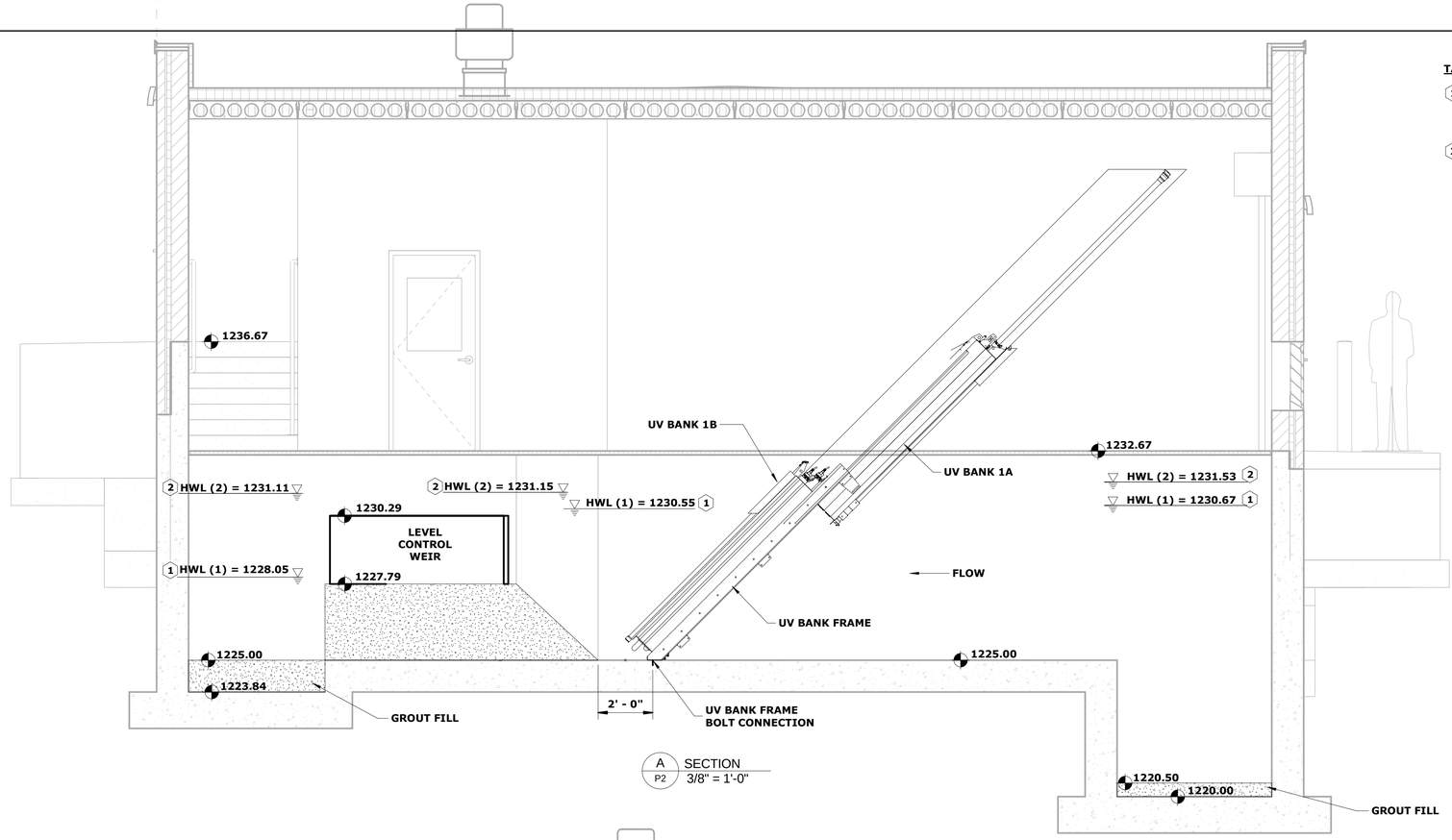
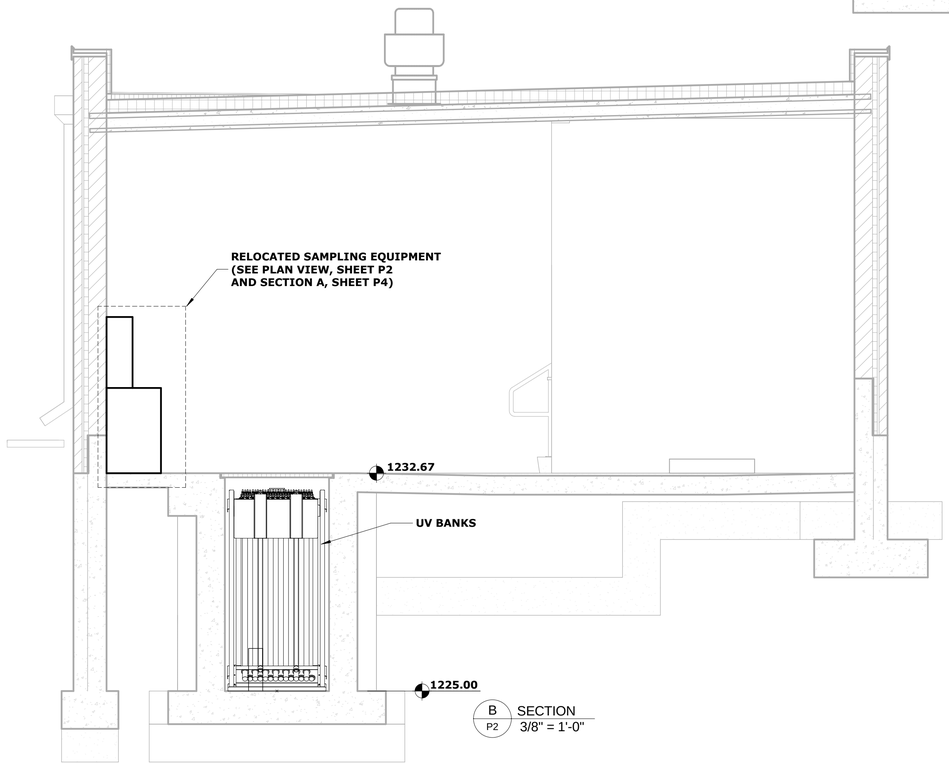
TAGGED NOTES:

1. **HWL (1) BASED ON NORMAL OPERATION WITH 1 SBR IN DECANT MODE AT 9.4 MGD + 2 MGD CWR (11.4 MGD TOTAL) DURING 100 YEAR FLOOD.**
2. **HWL (2) BASED ON EMERGENCY OPERATION WITH 2 SBRS IN DECANT MODE AT 18.8 MGD + 2 MGD CWR (20.8 MGD TOTAL) DURING 100 YEAR FLOOD.**



A P2 SECTION 3/8" = 1'-0"



B P2 SECTION 3/8" = 1'-0"

DATE	BY	REVISION	DATE

DESIGNED: LAT
DRAWN: JTP
CHECKED:
LAST UPDATE: 11/3/17

FOX Engineering Associates, Inc.
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Ames, Iowa 50010
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FOX engineering

UV BUILDING SECTIONS

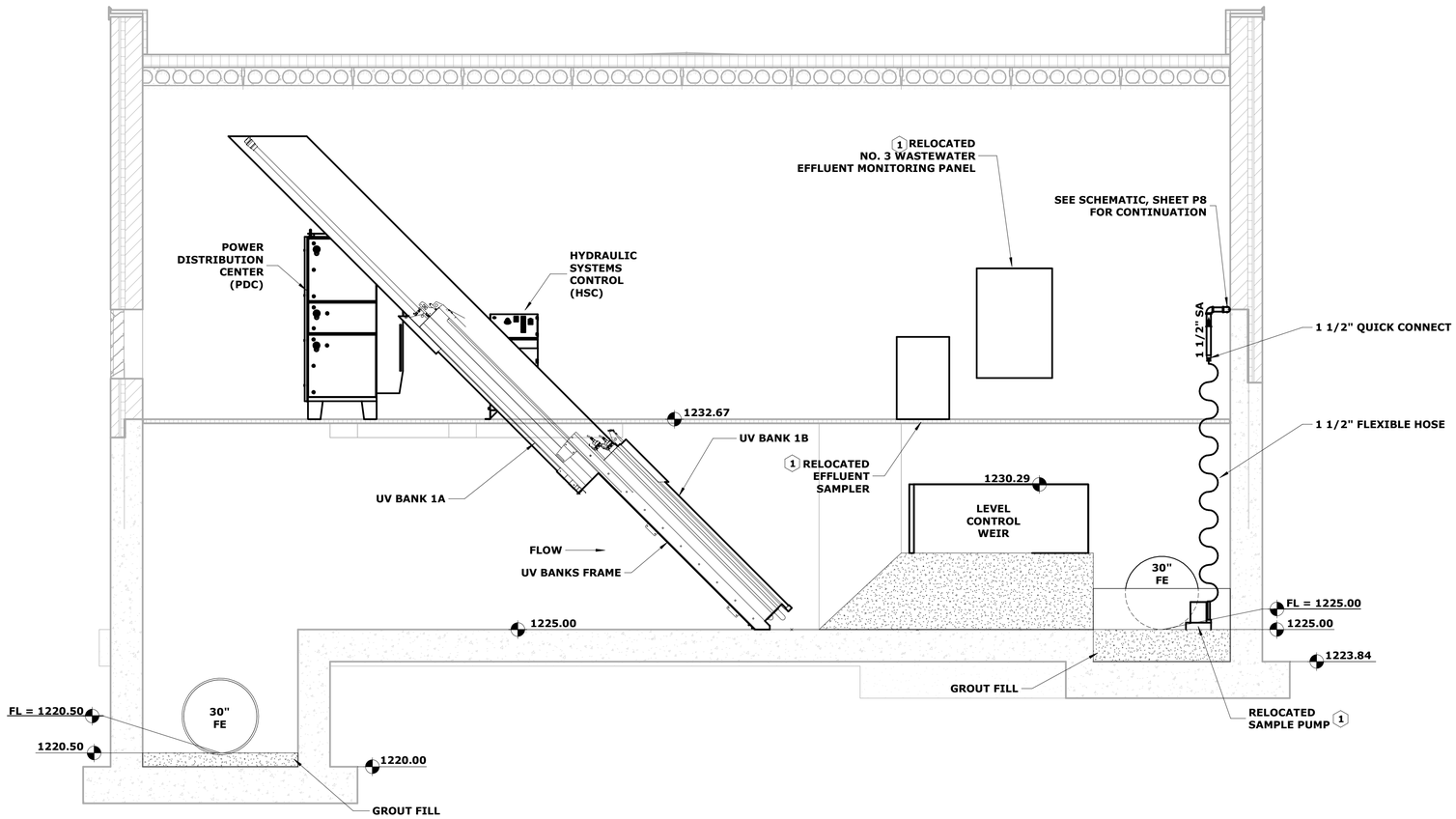
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
P3

TAGGED NOTES:

1. **RELOCATE EXISTING EQUIPMENT FROM EXISTING EFFLUENT SAMPLING BUILDING.**
   SEE SPECIFICATIONS FOR ADDITIONAL DETAILS.
   CONSULT WITH OWNER FOR EXACT LOCATION.



A / P2 SECTION
3/8" = 1'-0"

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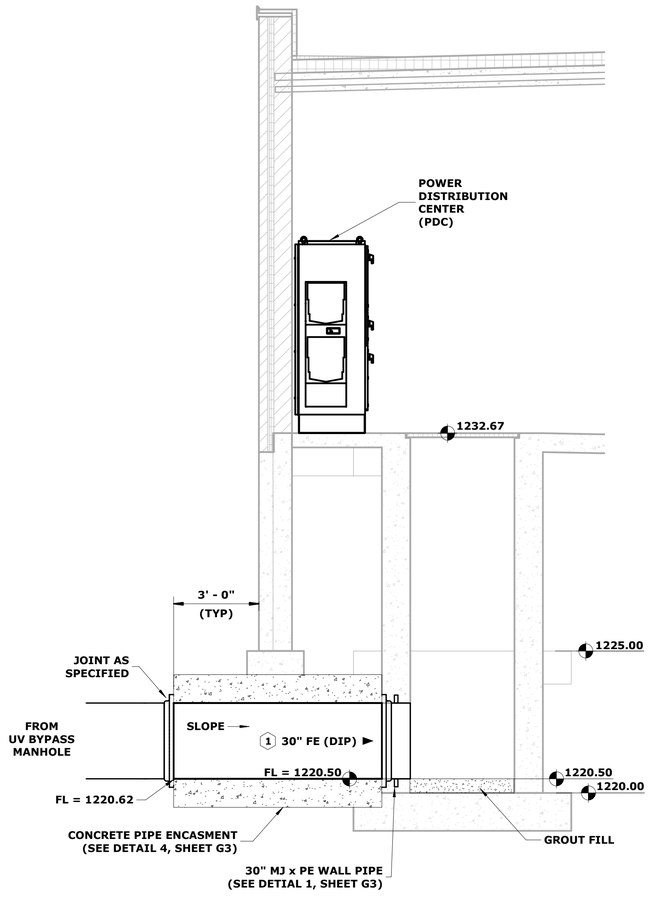
UV BUILDING SECTIONS
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

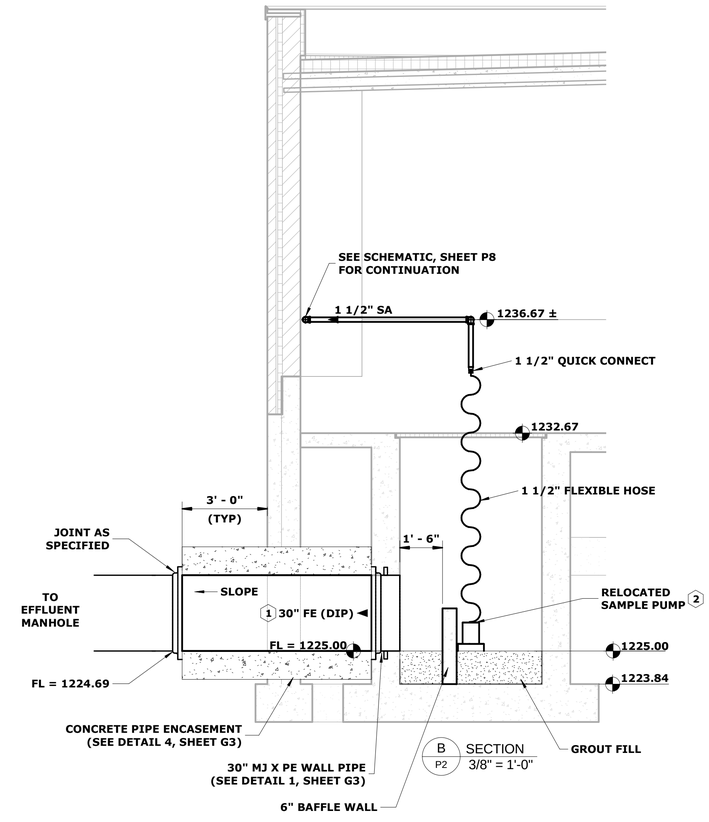
SHEET
P4

TAGGED NOTES:

1. ALL DIP JOINT CONNECTIONS SHALL BE RESTRAINED JOINTS.



A / P2 SECTION 3/8" = 1'-0"



B / P2 SECTION 3/8" = 1'-0"

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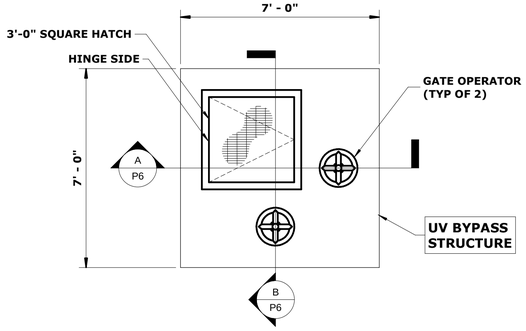
UV BUILDING SECTIONS

UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

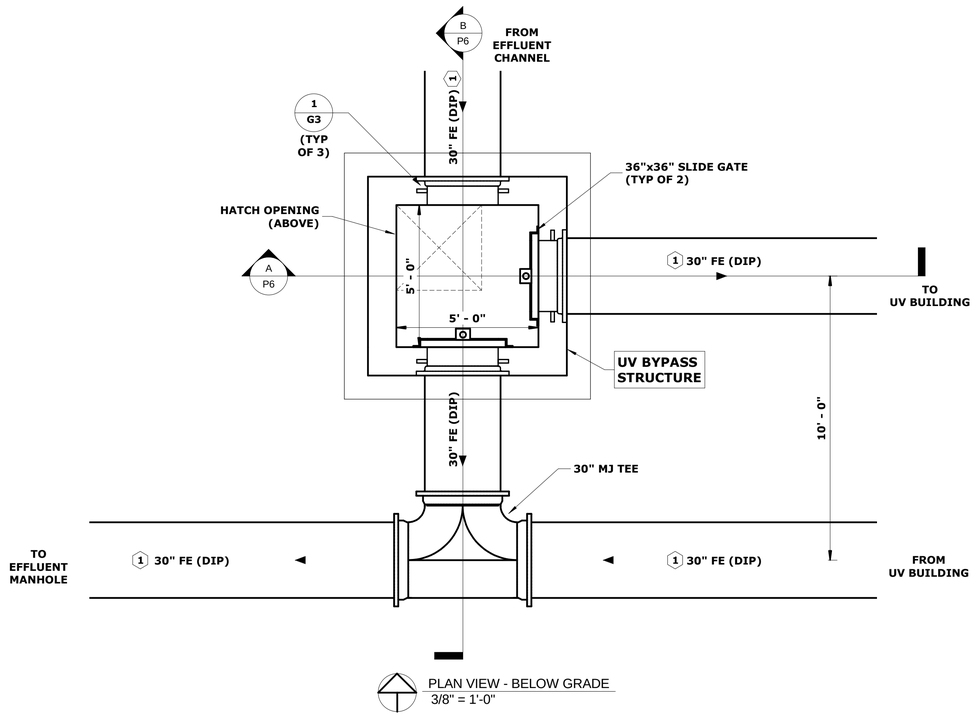
PROJECT NO.
2433-17A

SHEET
P5

K:\proj\2000\2433-17A CLSD Disinfection Project\Drawings\Revit\Process\2433-17A UV Bypass Structure R17.rvt



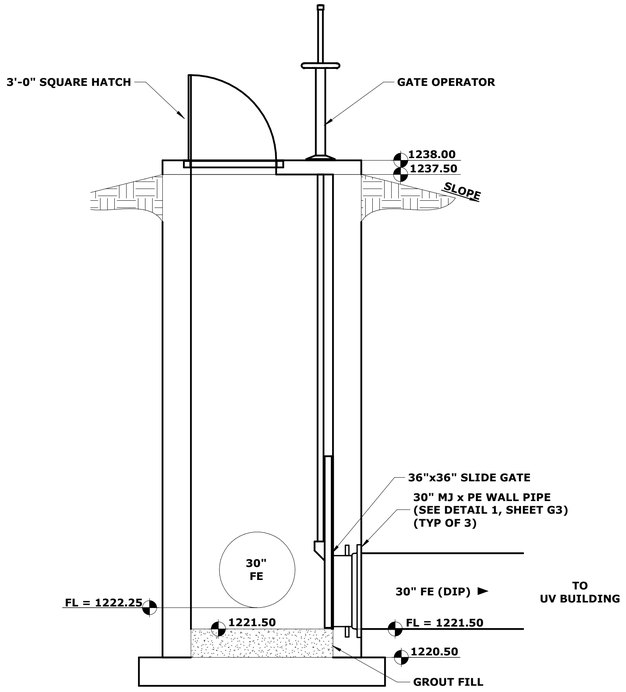
PLAN VIEW - ABOVE GRADE
3/8" = 1'-0"



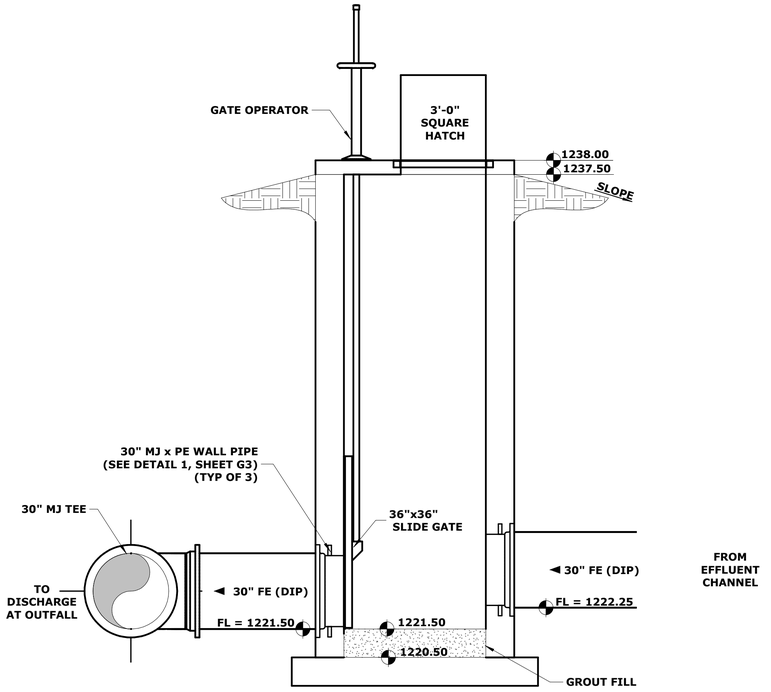
PLAN VIEW - BELOW GRADE
3/8" = 1'-0"

TAGGED NOTES:

1. ALL DIP JOINT CONNECTIONS SHALL BE RESTRAINED JOINTS.



A
P6
SECTION
3/8" = 1'-0"



B
P6
SECTION
3/8" = 1'-0"

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	LAST UPDATE:11/3/17			

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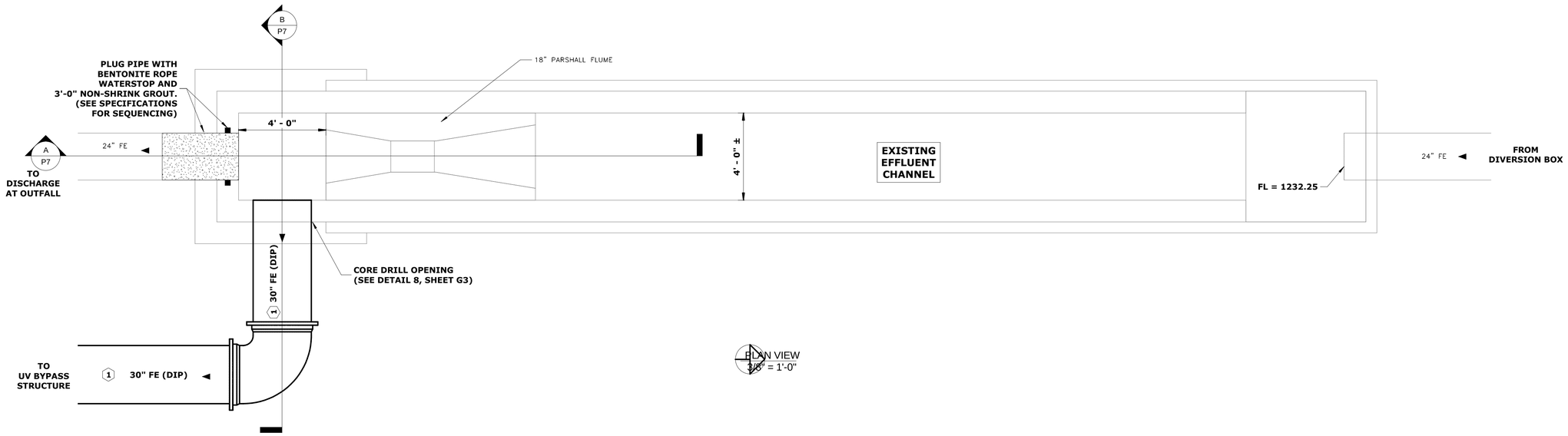
UV BYPASS STRUCTURE
PLAN AND SECTIONS

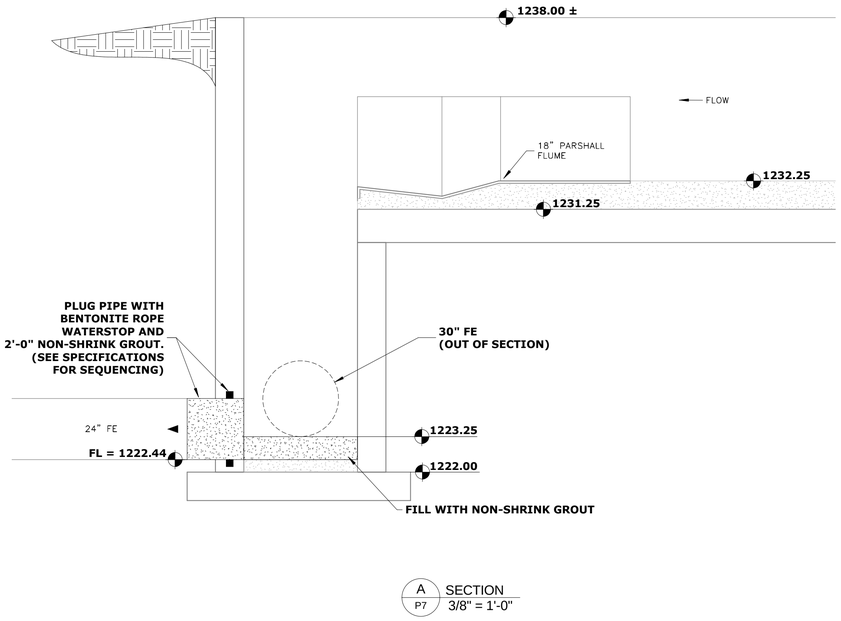
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

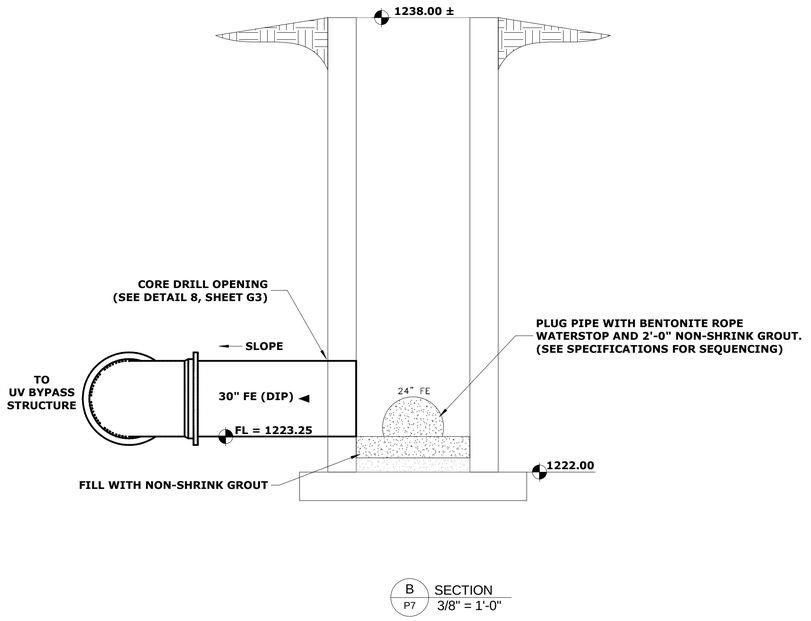
SHEET
P6



PLAN VIEW
3/8" = 1'-0"



A P7 SECTION
3/8" = 1'-0"



B P7 SECTION
3/8" = 1'-0"

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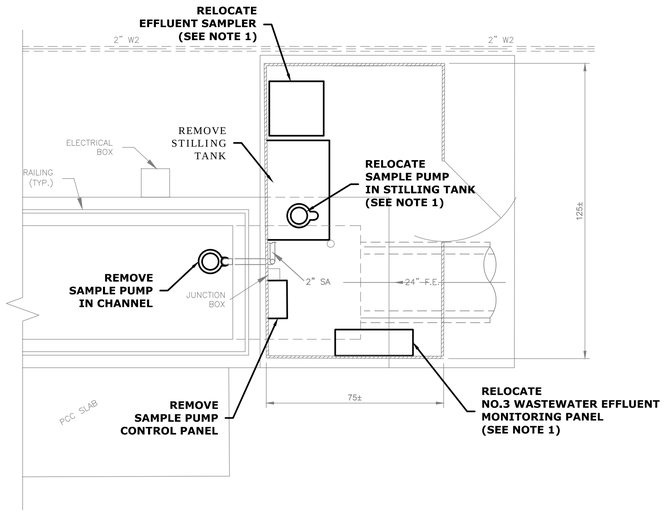
EFFLUENT SAMPLING AND METERING STRUCTURE
PLAN AND SECTIONS
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

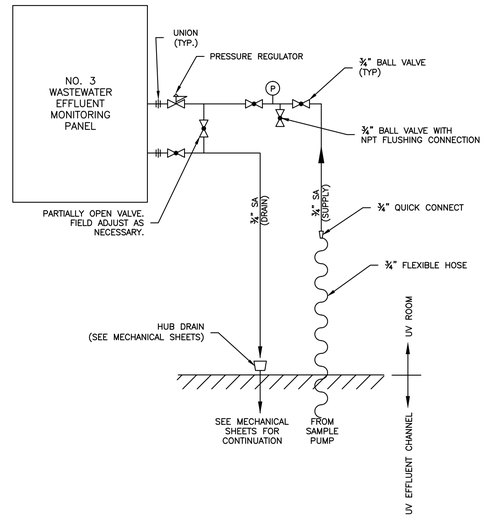
SHEET
P7

NOTE:

1. CONTRACTOR SHALL RELOCATE EXISTING SAMPLING PIPING AND EQUIPMENT FROM EXISTING EFFLUENT SAMPLING BUILDING TO NEW UV BUILDING, NOT ALL PIPING AND ACCESSORIES MAY BE SHOWN OR ACCURATELY REPRESENTED. CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH ENGINEER AND OWNER TO PROVIDE A RELOCATED SYSTEM THAT IS FULLY OPERATIONAL WITH ALL MISCELLANEOUS ACCESSORIES AS REQUIRED.



EXISTING EFFLUENT SAMPLING BUILDING - PLAN VIEW
SCALE: 3/8"=1'-0"



RELOCATED EFFLUENT SAMPLING SCHEMATIC
NO SCALE

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DRAWING FILENAME	LAYOUT NAME
PLOT STYLE TABLE	LAYER MNGR NAME
FoxGray5Scale.ctb	P8

DATE	REVISION		BY	DATE
		DESIGNED:	LAT	11/17
		DRAWN:	JTP	11/17
		CHECKED:		
		LAST UPDATE: 11/3/17		

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FOX engineering

MISCELLANEOUS PROCESS DETAILS AND SCHEMATICS
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
P8

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STRUCTURAL GENERAL NOTES

GENERAL

1101 THESE STRUCTURES HAVE BEEN DESIGNED FOR LOADS ON THE COMPLETED STRUCTURES AS LISTED IN THE DESIGN DATA. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO ADEQUATELY BRACE THE INCOMPLETE STRUCTURES UNTIL SUCH TIME AS THE PROJECT HAS BEEN COMPLETED AND ACCEPTED BY THE OWNER.

1102 SEE PROCESS PIPING/MECHANICAL/ELECTRICAL FOR EXACT SIZE AND LOCATION OF ALL OPENINGS REQUIRED THROUGH THE STRUCTURE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE PLACEMENT OF ALL LINES TO AVOID CONFLICTS WITH THE STRUCTURE. ANY OPENING REQUIRED THOUGH A FRAMING MEMBER SHALL BE VERIFIED WITH THE ENGINEER.

CODES & STANDARDS

1201 THE FOLLOWING CODES & STANDARDS SHALL APPLY:

- IBC 2015 INTERNATIONAL BUILDING CODE
- ACI 301-10 SPECIFICATIONS FOR STRUCTURAL CONCRETE
- ACI 318-14 BUILDING CODE REQ. FOR STRUCTURAL CONCRETE
- ACI 350-06 ENVIRONMENTAL STRUCTURES: CODE REQUIREMENTS
- ACI 530.1-13 SPECIFICATIONS FOR MASONRY STRUCTURES
- MNL 120-10 PCI DESIGN HANDBOOK, 7TH EDITION
- AISC 303-10 CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES
- AISC 348-14 RCSC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS
- AISC 360-10 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
- AWS D1.1-11 STRUCTURAL WELDING CODE - STEEL
- AWS D1.6-07 STRUCTURAL WELDING CODE - STAINLESS STEEL

EARTHWORK AND FOUNDATIONS

2301 A SUBSURFACE EXPLORATION FOR THIS PROJECT WAS COMPLETED BY ALLENDER BUTZKE ENGINEERS, HEREINAFTER REFERRED TO AS THE GEOTECHNICAL ENGINEER.

2302 THE OWNER WILL RETAIN THE GEOTECHNICAL ENGINEER TO PROVIDE INSTRUCTIONS FOR EXCAVATION AND FOUNDATION CONSTRUCTION AT THE SITE AND TO TEST AND OBSERVE THE SOILS AT THE BASE OF ALL FOUNDATIONS BEFORE CASTING CONCRETE.

2303 FINAL EXCAVATION DEPTH SHALL BE VERIFIED IN THE FIELD BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACING FORMS AND REINFORCING.

2304 FOOTINGS SHALL CENTER UNDER WALLS AND COLUMNS UNLESS NOTED OR DETAILED OTHERWISE.

2305 FOOTINGS SHALL BEAR ON GEOPIERS AND ENGINEERED FILL AS RECOMMENDED, TESTED, AND APPROVED BY THE GEOTECHNICAL ENGINEER.

STRUCTURAL CONCRETE

CONCRETE CONSTRUCTION

3301 MEASURE, BATCH, MIX, AND DELIVER READY-MIXED CONCRETE ACCORDING TO ASTM C94. FURNISH BATCH TICKET INFORMATION UPON DELIVERY.

3302 DESIGN, CONSTRUCT, ERECT, SHORE, BRACE, AND MAINTAIN FORMWORK ACCORDING TO ACI 301, TO SUPPORT VERTICAL, LATERAL, STATIC, DYNAMIC, AND CONSTRUCTION LOADS THAT MIGHT BE APPLIED UNTIL CONCRETE STRUCTURE CAN SUPPORT SUCH LOADS.

3303 PLACE AND SECURE ANCHORAGE DEVICES AND OTHER EMBEDDED ITEMS REQUIRED FOR ADJOINING WORK ATTACHED TO AND SUPPORTED BY CAST-IN-PLACE CONCRETE. USE SETTING DRAWINGS, TEMPLATES, DIAGRAMS, INSTRUCTIONS AND DIRECTIONS FURNISHED WITH ITEMS TO BE EMBEDDED.

3304 ALL EXPOSED CONCRETE CORNERS OF PIERS, COLUMNS, WALLS, SLABS, CURBS, BEAMS, ETC. SHALL HAVE A 3/4" FORMED CHAMFER.

3305 PROVIDE SLAB CONTROL JOINTS AT LOCATIONS SHOWN ON PLAN. SLAB CONTROL JOINTS MAY BE CONSTRUCTION JOINTS OR SAWN JOINTS. SAWN JOINTS SHALL BE A MINIMUM OF 1/8" WIDE BY 2" DEEP. UNLESS DETAILED OTHERWISE, SLAB REINFORCING STEEL SHALL BE CONTINUOUS THROUGH CONTROLS JOINTS. PROVIDE POLYURETHANE JOINT SEALANT IN ALL CONTROL JOINTS.

3306 PROVIDE 1/2" PREFORMED ISOLATION JOINT MATERIAL BETWEEN SLABS AND COLUMNS.

REINFORCING STEEL

3307 ALL REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND INSTALLED IN ACCORDANCE WITH ACI 318, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY.

3308 PROVIDE MINIMUM CONCRETE COVER FOR REINFORCING STEEL AS INDICATED IN THE CONCRETE COVER SCHEDULE.

3309 ALL REINFORCING IN FOOTINGS, WALLS, SLABS, ETC., INCLUDING DOWELS, SHALL BE SECURELY ANCHORED IN PROPER POSITION PRIOR TO CASTING CONCRETE. "WET STICKING" OR "FLOATING IN" WILL NOT BE ALLOWED FOR ANY CONSTRUCTION IN THIS CONTRACT.

3310 DETAIL AND PROVIDE SUITABLE WIRE SPACERS, CHAIRS, OR TIES, TO MAINTAIN REINFORCING STEEL IN THE PROPER POSITION WHILE PLACING CONCRETE.

3311 ALL CHAIRS SUPPORTED BY GRADE SHALL INCLUDE SAND PLATES. CONCRETE BRICK MAY BE USED IN LIEU OF CHAIRS WITH SAND PLATES.

3312 BAR SUPPORTS WHICH COME INTO CONTACT WITH EXPOSED SURFACES SHALL HAVE PLASTIC TIPS OR SHALL BE STAINLESS STEEL OR OTHER NON-CORROSIVE MATERIAL.

3313 UNLESS NOTED OTHERWISE, MINIMUM DOWELS FROM FOOTINGS INTO CONCRETE WALLS AND PIERS SHALL BE AS FOLLOWS:
- DOWELS TO BE SAME SIZE & SPACING AS WALL OR PIER VERTS.
- LAP DOWELS AS INDICATED ON DRAWINGS WITH VERT. REINF.
- EXTEND DOWELS TO WITHIN 3" OF THE FOOTING BOTTOM AND TERMINATE WITH A STANDARD 90 DEG. HOOK.

3314 PROVIDE CORNER BARS AT THE INTERSECTION OF ALL FOOTINGS. BARS SHALL BE THE SAME SIZE AS THE LARGER OF THE INTERSECTING BARS AND SHALL LAP USING THE MINIMUM LAP SPLICE LENGTH OF THE LARGER BAR, AS LISTED IN THE LAP SPLICE SCHEDULE.

3315 PROVIDE CORNER BARS AT THE INTERSECTION OF ALL HORIZONTAL BARS IN THE OUTSIDE FACE OF WALLS. UNLESS DETAILED OTHERWISE, BARS SHALL BE THE SAME SIZE AS THE LARGER OF THE INTERSECTING BARS AND SHALL LAP EACH BAR BY THE MINIMUM LAP SPLICE LENGTH OF THE LARGER BAR, AS LISTED IN THE LAP SPLICE SCHEDULE.

3316 FORM TIES SHALL LEAVE NO METAL OR OTHER MATERIAL WITHIN 1" OF THE SURFACE. THE ASSEMBLY SHALL PROVIDE CONE-SHAPED DEPRESSIONS AT LEAST 1" IN DIAMETER AT THE FORM FACE AND BE 1" DEEP TO ALLOW FILLING AND PATCHING. FILLING OF TIE HOLES SHALL BE ACCOMPLISHED BY PACKING CLEANED AND DAMPENED HOLES SOLID WITH NON-METALLIC, NON-SHRINK GROUT.

3317 UNLESS DETAILED OTHERWISE, AT OPENINGS THROUGH CONCRETE WALLS AND SLABS, TERMINATE THE INTERRUPTED WALL OR SLAB REINFORCING 2" CLEAR OF THE OPENING. PLACE ADDITIONAL REINFORCING ON EACH SIDE OF THE OPENING EQUAL TO ONE HALF OF THE REINFORCING THAT IS INTERRUPTED OR 2-#5, WHICHEVER IS GREATEST. MAIN STEEL ADDED ON EACH SIDE OF THE OPENING SHALL BE THE SAME LENGTH AS ADJACENT FULL LENGTH BARS. TEMPERATURE STEEL ADDED ON EACH SIDE OF THE OPENING SHALL EXTEND BEYOND EACH SIDE OF THE OPENING BY THE LAP SPLICE LENGTH INDICATED IN THE LAP SPLICE SCHEDULE. WHERE A FULL LAP SPLICE LENGTH CANNOT BE PROVIDED, TERMINATE REINFORCING STEEL 2" CLEAR OF THE OBSTRUCTION WITH A STANDARD HOOK.

CONCRETE PLACING/FINISHING

3318 SPREAD CONCRETE EVENLY AHEAD OF THE STRIKE-OFF AND WORK AS LITTLE AS POSSIBLE DURING EARLY FINISHING OPERATIONS. ANY WATER BROUGHT TO THE SURFACE BY THE STRIKE-OFF OR ROUGH FLOATING SHALL BE ALLOWED TO EVAPORATE. IF THE AMOUNT OF WATER OR LAITANCE IS EXCESSIVE IT SHOULD BE REMOVED BEFORE THE SURFACE IS FLOATED OR TROWELED AGAIN. FINAL TROWELING SHALL BE DONE WHEN SURFACE WATER HAS DISAPPEARED AND WHEN THE SURFACE CANNOT BE DENTED EASILY WITH THE FINGER. FINAL TROWELING SHALL BE ONLY AS REQUIRED TO PRODUCE A SMOOTH DENSE FINISH AND CLOSE ANY SURFACE CRACKS THAT MAY HAVE DEVELOPED.

3319 PROVIDE TROWEL FINISH ON INTERIOR SLABS.

3320 PROVIDE BROOM FINISH ON EXTERIOR SLABS.

3321 CONTINUOUSLY CURE ALL CONCRETE SURFACES FOR A MINIMUM OF SEVEN DAYS.

PRECAST-PRESTRESSED CONCRETE NOTES

3401 PRECAST-PRESTRESSED CONCRETE SHALL BE DESIGNED, DETAILED, FABRICATED & ERECTED IN ACCORDANCE WITH ACI 318 AND PCI MNL 120.

3402 PRECAST-PRESTRESSED CONCRETE SHALL BE SUPPLIED BY A PCI CERTIFIED PLANT.

3404 ALL FIELD WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.

3405 REMOVE ALL SLAG FROM WELDS AS ERECTION PROGRESSES TO PERMIT VISUAL INSPECTION OF WELDS.

3406 TEMPORARILY BRACE ALL WALLS & PRECAST ROOF STRUCTURE UNTIL THE STRUCTURE IS COMPLETE.

MASONRY

4801 MASONRY CONSTRUCTION SHALL COMPLY WITH THE REQUIREMENTS OF THE IBC, SECTION 2104 & ACI 530.1.

4802 VERTICAL REINFORCING SHALL CENTER IN CELLS UNLESS DETAILED OTHERWISE.

4803 GROUTED CELLS AND VERTICAL REINFORCING SHALL BE CONTINUOUS FROM FOUNDATION TO BOND BEAM AT TOP OF WALL.

4804 UNLESS NOTED OR DETAILED OTHERWISE, IN ALL CONCRETE MASONRY WALLS PROVIDE ONE VERTICAL #5 REINFORCING BAR IN GROUTED CELLS AT 48" C.C. MAXIMUM SPACING.

4805 UNLESS DETAILED OTHERWISE, PROVIDE TWO FULL HEIGHT GROUTED CELLS WITH VERTICAL REINFORCING, AS NOTES ABOVE, AT EACH JAMB OF EACH DOOR AND WINDOW OPENING.

4806 MAXIMUM VERTICAL GROUT POUR HEIGHT SHALL BE IN ACCORDANCE WITH ACI 530.1, 3.5 D, BUT SHALL NOT EXCEED 5'-4". GROUT SHALL BE RODDED DURING PLACEMENT. STOP INTERMEDIATE POUTS 1.1/2" BELOW TOP OF MASONRY UNITS.

4807 BOND BEAM REINFORCING SHALL BE CONTINUOUS ACROSS ALL MASONRY CONTROL JOINTS. PROVIDE CORNER BARS AT THE INTERSECTION OF ALL BOND BEAM REINFORCING.

4808 PROVIDE HOHMANN & BARNARD, INC. (H&B) HOT-DIP GALVANIZED 220 LADDER MESH REINFORCEMENT WITH 9 GA. SIDE RODS @ 16" C.C. MAXIMUM VERTICAL SPACING IN ALL SINGLE WYTHE CONCRETE MASONRY WALLS.

4809 PROVIDE H&B HOT-DIP GALVANIZED 270 LADDER EYE-WIRE HORIZONTAL JOINT REINFORCING W/ 9 GA. SIDE RODS & 3/16" DIA. PINTLES @ 16" C.C. MAX. VERTICAL SPACING IN ALL MULTI-WYTHE MASONRY WALLS.

4810 ANCHOR MASONRY VENEER TO CAST-IN-PLACE WALLS USING H&B HOT-DIP GALVANIZED 18 GA. 305 DOVETAIL ANCHOR SLOTS AND 315 DOVETAIL TRIANGULAR TIES. PROVIDE ONE TIE PER EACH 2.67 SF OF WALL AREA.

4811 PROVIDE H&B C-FAB 7 OZ. COPPER FABRIC THRU-WALL FLASHING CONTINUOUS IN ALL MULTI-WYTHE WALL CONSTRUCTION. PROVIDE H&B 341 ROUND WEEP TUBES AT 32" C.C. MAX. SPACING. PROVIDE H&B MORTAR TRAP CONTINUOUS ABOVE THRU-WALL FLASHING MATERIALS.

4812 PROVIDE COLD-APPLIED, EMULSIFIED-ASPHALT DAMPPROOFING (ASTM D 1227, TYPES II & III, CLASS 1). APPLY TO EXTERIOR FACE OF INNER WYTHE OF EXTERIOR CAVITY WALLS AND TO EXTERIOR BELOW-GRADE SURFACES OF CONCRETE AND MASONRY FOUNDATION WALLS.

4813 PROVIDE EXTRUDED-POLYSTYRENE CAVITY-WALL INSULATION (ASTM C 578, TYPE IV) IN THICKNESS INDICATED IN ALL MULTI-WYTHE WALL CONSTRUCTION.

4814 PROVIDE CONTROL JOINTS IN MASONRY WALLS AT LOCATIONS SHOWN ON PLAN AND/OR IN ELEVATION VIEWS.

4815 PROVIDE LINTELS FOR MASONRY OPENINGS NOT OTHERWISE NOTED OR SCHEDULED AS INDICATED IN THE LINTEL SCHEDULE BY OPENING SIZE.

STRUCTURAL STEEL

5101 THE FOLLOWING CODES AND STANDARDS SHALL APPLY:

- AISC 303-10, CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES
- AISC 348-09, SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS
- AISC 360-10, SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS
- AWS D1.1-2010, STRUCTURAL WELDING CODE - STEEL

5102 ALL WELDING OF STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH AWS D1.1 AND SHALL BE PERFORMED BY AWS CERTIFIED WELDERS.

5103 SLAG SHALL BE REMOVED FROM ALL COMPLETED WELDS, AND THE WELD AND ADJACENT BASE METAL SHALL BE CLEANED BY BRUSHING OR OTHER SUITABLE MEANS. ERECTOR SHALL REMOVE SLAG FROM FIELD WELDS AS ERECTION PROGRESSES TO ALLOW FOR VISUAL INSPECTION.

5104 UNLESS NOTED OTHERWISE HOT-DIP GALVANIZE ALL STRUCTURAL STEEL.

DESIGN DATA

DESIGN DATA - FOUNDATIONS		
ALLENDER BUTZKE ENGINEERS, INC.	PN	171354
ALLOW. BRG PRESSURE (ON GEOPIERS)	3000	PSF
LAT. EARTH PRESSURE (AT-REST, UNDR)	110	PCF
MINIMUM FROST PROTECTION	48	IN

DESIGN DATA - STRUCTURAL CONCRETE		
DESIGN IN ACCORDANCE WITH:	ACI	318-11
DEFORMED REINFORCING BARS	ASTM A615	GRADE 60
28 DAY COMPRESSIVE STRENGTHS		
- FOOTINGS	f`c	3000 PSI
- FOUNDATION WALLS	f`c	4500 PSI
- INTERIOR SLABS ON GRADE	f`c	4000 PSI
- WATER RETAINING STRUCTURES & EXTERIOR CONCRETE	f`c	4500 PSI
ALL CONCRETE		
- CRUSHED STONE COARSE AGG. SIZE	ASTM C33	#57
- CRUSHED STONE COARSE AGG. QUALITY	ASTM C33	CLASS 4S
- AIR ENTRAIN WHEN EXPOSED TO WEATHER	4.5% MIN	7.5% MAX

DESIGN DATA - PRECAST PRESTRESSED CONCRETE		
DESIGN IN ACCORDANCE WITH:	ACI	318-14
FAB., ERECT & DETAIL IN ACCORDANCE W/	PCI	DH 7th Ed
DEFORMED REINFORCING BARS	ASTM A615	Grade 60
WELDED DEFORMED WIRE REINF.	ASTM A497	fy = 70 KSI
PRESTRESSING STRAND	ASTM A416	fy = 270 KSI
CONCRETE		
- MINIMUM STRENGTH AT RELEASE	f'ci	3,500 PSI
- MINIMUM 28 DAY STRENGTH	f'c	5,000 PSI
GROUT FOR SLAB JOINTS	ASTM C476	
- MINIMUM 28 DAY STRENGTH	f'c	2,000 PSI

DESIGN DATA - CONCRETE MASONRY		
DESIGN IN ACCORDANCE WITH:	ACI	530-13
MASONRY UNITS (GRADE N ASTM C90)	f'm	1500 PSI
GROUT (ASTM C476)	f'c	2000 PSI
MORTAR (MASONRY BELOW GRADE)	ASTM C270	Type M
MORTAR (REINF. MAS. ABOVE GRADE)	ASTM C270	Type S
MORTAR (NON-REINF MAS. ABOVE GRADE)	ASTM C270	Type N

DESIGN DATA - STRUCTURAL STEEL		
DESIGN IN ACCORDANCE WITH:	AISC	360-10
WIDE FLANGE SHAPES	ASTM A992	50 KSI
PIPE	ASTM A53	GR. B
RECTANGULAR HSS	ASTM A500	GR. B
OTHER ROLLED SHAPES & PLATES	ASTM A36	36 KSI
ANCHOR RODS	ASTM F1554	36 KSI
HIGH STRENGTH BOLTS	ASTM A325N	SNUG-TIGHT
WELD METAL	AWS D1.1	CLASS E70

DESIGN DATA - ALUMINUM		
DESIGN IN ACCORDANCE W/ IBC 2015 &	AA	ADM 1-2015
STANDARD STRUCTURAL PROFILES	ASTM B308	6061-T6
TREAD PLATE	ASTM B632	6061-T6
GRATING	ASTM B221	6061-T6
WELD METAL	AWS	D1.2
STAINLESS STEEL CONNECTION BOLTS	ASTM F593	TYPE 316

STRUCTURAL LOADS - ROOF DEAD		
ADHERED ROOF MEMBRANE	1	PSF
INSULATION	2	PSF
SUPERIMPOSED HANGING DEAD LOAD	10	PSF
--	--	--
SUBTOTAL (SUPERIMPOSED DL)	13	PSF
10" HOLLOWCORE	64	PSF
--	--	--
TOTAL ROOF DEAD LOAD	77	PSF

STRUCTURAL LOADS - ROOF LIVE & SNOW		
IN ACCORDANCE W/ IBC 2015	ASCE	7-10
RISK CATEGORY	CAT	III
ROOF LIVE LOAD	IBC 1607.12	20 PSF
GROUND SNOW LOAD	Pg	40 PSF
SNOW EXPOSURE FACTOR	Ce	1.0
THERMAL FACTOR	Ct	1.0
SNOW IMPORTANCE FACTOR	Is	1.1
FLAT ROOF SNOW LOAD	Pf	31 PSF
DRIFT LOAD	ASCE 7-10	Sec 7.10
MAX. INTENSITY OF DRIFT SURCHARGE	Pd	8
DRIFT WIDTH	W	3
RAIN ON SNOW SURCHARGE	R	0 PSF

STRUCTURAL LOADS - WIND		
IN ACCORDANCE W/ IBC 2015 &	ASCE	7-10
DESIGN WIND SPEED - ULTIMATE	Vult	120 MPH
DESIGN WIND SPEED - NOMINAL	Vasd	93 MPH
RISK CATEGORY	CAT	III
EXPOSURE CATEGORY	EXP	C
INTERNAL PRESSURE COEFFICIENT	GCpi	+/- 0.18
MWFRS (ULTIMATE)	+GCpi (PSF)	-GCpi (PSF)
+ WALLS		
- WINDWARD	13.3	22.9
- LEEWARD	-14.0	-4.4
- SIDE	-20.6	-11.0
+ ROOF		
- 0 to h/2	-25.1 / -8.9	-15.6 / +0.7
- h/2 to h	-25.1 / -8.9	-15.6 / +0.7
- h to 2h	-16.1 / -8.9	-6.5 / +0.7
- > 2h	-11.6 / -8.9	-2.0 / +0.7
COMPONENTS & CLADDING (ULTIMATE)	Toward (PSF)	Away (PSF)
+ 10 SF EFFECTIVE AREA (a = 3')		
- ZONE 1 ROOF FIELD	+16.0	-31.4
- ZONE 2 ROOF EDGE	+16.0	-52.7
- ZONE 3 ROOF CORNER	+16.0	-79.3
- ZONE 4 WALL FIELD	+28.7	-31.1
- ZONE 5 WALL END	+28.7	-38.3
+ 100 SF EFFECTIVE AREA (a = 3')		
- ZONE 1 ROOF FIELD	+16.0	-28.7
- ZONE 2 ROOF EDGE	+16.0	-34.1
- ZONE 3 ROOF CORNER	+16.0	-34.1
- ZONE 4 WALL FIELD	+24.5	-26.9
- ZONE 5 WALL END	+24.5	-29.9

STRUCTURAL LOADS - SEISMIC		
IN ACCORDANCE W/ IBC 2015 &	ASCE	7-10
IMPORTANCE FACTOR (ASCE 7-10)	I	1.25
MAPPED SPECTRAL RESPONSE ACCEL'S		
- SHORT PERIOD	S.s	0.052g
- ONE SECOND	S.1	0.037g
SITE CLASS		D
DESIGN SPECTRAL RESPONSE ACCEL'S		
- SHORT PERIOD	S.DS	0.056g
- ONE SECOND	S.D1	0.059g
SEISMIC DESIGN CATEGORY	SDC	A
BASIC SEISMIC FORCE RESISTING SYSTEM	ORD. MAS.	SHEAR WALLS
DESIGN BASE SHEAR	V	3K
ANALYSIS PROCEDURE USED (ASCE 7-10)	SECTION	1.4-1

STRUCTURAL SCHEDULES

STRUCTURAL SCHEDULE - CONCRETE COVER	
CONDITION OR USE	COVER
CAST AGAINST EARTH	3"
ALL OTHER CONDITIONS	2"

STRUCTURAL SCHEDULE - LAP SPLICES			
BAR SIZE		SPLICE LENGTHS	
INCH POUND	SOFT METRIC	STD BARS	TOP BARS
#3	#10	19"	24"
#4	#13	25"	32"
#5	#16	31"	40"
#6	#19	37"	48"
#7	#22	54"	70"
#8	#25	62"	80"
#9	#29	70"	91"
#10	#32	79"	102"
#11	#36	97"	113"

WHERE BARS OF DIFFERENT SIZE LAP, PROVIDE LAP SPLICE LENGTHS BASED UPON LARGER BAR SIZE.

STANDARD BAR LAP SPLICE LENGTHS SHALL APPLY TO BOTTOM MATS OF SLAB ON GRADE, WALL VERTICALS, TOP & BOTTOM MATS OF SUPPORTED SLABS, AND BEAM BOTTOM BARS. ALL OTHER LAP SPLICES SHALL BE TOP BAR LAP SPLICES.

STRUCTURAL SCHEDULE - LINTELS	
MARK OR OPENING SIZE	LINTEL
2'-0"	5/16" STEEL PLATE
4'-0"	L3.1/2x3.1/2x5/16 PER 4" WYTHE
6'-0"	L5x3.1/2x5/16 PER 4" WYTHE
L1	2L3.1/2x3.1/2x5/16
L2	W8x15 W/ PL-5/16x13.1/2

HOT-DIP GALVANIZE ALL LINTELS.

LINTELS SHALL BEAR 8" EACH END ON GROUTED CELLS.

PLAN & DETAIL NOTES

NOTE	DESCRIPTION
301	8" SLAB W/ #5@16" C.C. E.W. CENTERED OVER 6" MIN. GRANULAR BASE
302	6" SLAB W/ #4@16" C.C. E.W. CENTERED OVER 6" MIN. GRANULAR BASE
303	#5@10" C.C. HORIZ.
304	#5@10" C.C. VERTICAL
305	#5@6" C.C. VERTICAL
306	#5@10" C.C. DOWELS W/ STD HOOK BOTTOM
307	#6@6" C.C. DOWELS W/ STD HOOK BOTTOM
308	#5@10" C.C. E.W. TOP
309	#5@10" C.C. LONGITUDINAL BOTTOM
310	#6@6" C.C. TRANSVERSE BOTTOM
312	4" PVC WATERSTOP CONTINUOUS
313	GROUT CORES @ BEARING LOCATIONS
314	TOP OF FOUNDATION WALL INSIDE TYP.
315	BRICK LEDGE ELEVATION BELOW GRADE
316	8" PRECAST HOLLOWCORE - SOLID GROUT CORES AT BRG
317	#5@14" C.C. TRANSVERSE BOTTOM
318	#5@14" C.C. DOWELS W/ STD HOOK BOTTOM
319	#5@14" C.C. VERTICAL
320	6" BIODEGRADABLE VOID FORM
321	#5@12" C.C. EACH WAY BOTTOM
322	#4@10" C.C. HORIZONTAL
323	#4@16" C.C. VERTICAL
324	PL-3/8x6x0'-6 @ 48" C.C. MAX. TOP SIDE OF HOLLOWCORE - ANCHORAGE DESIGN BY PRECAST SUPPLIER
325	LOOSE L5x3.1/2x0'-4 LLV W/ VERT. LONG SLOTTED HOLE FOR 5/8" DIA. x 6" ALL-THREAD ANCHOR SET IN EPOXY ADHESIVE
326	PL-3/8x4x0'-6 MINIMUM @ 96" C.C. MAX. - ANCHORAGE DESIGN BY PRECAST SUPPLIER
327	LOOSE PL-3/8x4x1'-0 @ 96" C.C. MAX.
328	GROUT ALL KEYWAYS
329	CONTINUOUS BEARING PAD
330	WEIR PEDESTAL W/ #5@12" C.C. E.W. ALONG SIDES AND TOP
401	8" CONCRETE MASONRY, RUNNING BOND, WITH HORIZONTAL JOINT REINFORCING AT 16" C.C. MAX. - SEE PLAN FOR VERTICAL REINFORCING AND GROUTED CELL LOCATIONS
402	4" SPLIT FACE CONCRETE MASONRY VENEER TYP., STACK BOND, UNIT COLOR, TEXTURE AND MORTAR COLOR TO MATCH ADJACENT BUILDING
403	4" SMOOTH FACE CONCRETE MASONRY VENEER HORIZONTAL BANDS, STACK BOND, UNIT COLOR, TEXTURE AND MORTAR COLOR TO MATCH ADJACENT BUILDING
404	#5 VERT. CENTERED IN GROUTED CELLS @ 48" C.C. MAX. TYP.
405	UNLESS NOTED OTHERWISE, PROVIDE 2 REINFORCED & GROUTED CELLS @ EACH JAMB OF EACH DOOR
406	CONTROL JOINT W/ BACKER ROD & SEALANT TYP. - INSIDE AND OUT
407	SOLID GROUT ALL MASONRY ABOVE HOLLOWCORE
408	8" CONCRETE MASONRY BOND BEAM W/ 2-#5 CONTINUOUS - BOND BEAM REINFORCING SHALL BE CONTINUOUS THRU ALL CONTROL JOINTS
409	2" EXTRUDED POLYSTYRENE INSULATION OVER DAMPPROOFING
410	THRU-WALL FLASHING W/ WEEPS @ 32" C.C. MAX.
411	#5x48" DOWEL @ EACH MASONRY WALL VERTICAL BAR - SEE PLAN FOR LOCATIONS
412	#5x32" DOWEL @ EACH MASONRY WALL VERTICAL BAR - DRILL 6" INTO SLAB AND SET IN EPOXY ADHESIVE - SEE PLAN FOR LOCATIONS
413	8" CONCRETE MASONRY W/ HORIZONTAL JOINT REINFORCING AT 16" C.C. MAX. - SEE PLAN FOR VERTICAL REINFORCING AND GROUTED CELL LOCATIONS
414	CONTINUE VERTICAL WALL REINFORCING THROUGH HOLLOWCORE AND EXTEND TO BOND BEAM AT TOP OF WALL
415	HORIZONTAL JOINT REINFORCING SHALL TERMINATE 1" CLEAR OF CONTROL JOINT. BOND BEAM REINFORCING SHALL CONTINUE THRU ALL CONTROL JOINTS
416	GROUT AND REINFORCE CELL EACH SIDE OF JOINT. BAR SIZE TO MATCH TYP. WALL REINFORCEMENT
417	SASH BLOCK EACH SIDE OF JOINT
418	RUBBER CONTROL JOINT - HB RS STD OR APPROVED EQUAL
419	2-#5 VERTICALS IN GROUTED CELLS - THREE AT EACH JAMB OF OVERHEAD DOOR
501	REMOVABLE EDGE BANDED ALUMINUM BAR GRATING W/ 1.3/4"x3/16" BEARING BARS AT 1.3/16" C.C. AND CROSS BARS AT 4" C.C. - LIMIT SIZE OF GRATING SECTIONS TO 50# MAX.
502	316 S.S. L2x2x1/4xCONT. W/ 3/8" DIA. x 4" HEADED STUDS @ 18" C.C. MAX.
503	LINTEL - SEE DOOR SCHEDULE
504	1.1/2" DIA. ALUMINUM HANDRAIL
505	BOLLARD EACH SIDE OF OVERHEAD DOOR OPENING - SEE DETAIL E/S10
601	WOOD BLOCKING
701	60 MIL FULLY ADHERED EPDM MEMBRANE OVER 5 1/2" MINIMUM POLYISOCYANURATE RIGID INSULATION WITH FULL SPREAD ADHESIVE OVER 30 MIL SELF-ADHERING VAPOR BARRIER MEMBRANE
702	TAPERED POLYISOCYANURATE CRICKETS TYP. ADJACENT TO SCUPPERS
703	COMPOSITE BOARD ROOF INSULATION - 1.1/2" POLYISOCYANURATE 7/16" OSB - CONTINUOUS ALONG BACK SIDE OF PARAPETS TYP.
704	CONTINUOUS PREFINISHED 5.1/2"x24 GA. FASCIA COVER ON CONTINUOUS ANCHOR BAR
705	PREFINISHED 24 GA. SCUPPER AND OPEN FACE DOWNSPOUT W/ CONCRETE SPLASHBLOCK
706	1/2" PREFORMED ISOLATION JOINT W/ SEALANT
707	2" EXTRUDED POLYSTYRENE FOUNDATION INSULATION
708	SEALANT JOINT TYPICAL BETWEEN HOLLOCORE PLANK AND BETWEEN PLANK AND WALL
709	1/2" JOINT W/ BACKER ROD & SEALANT CONTINUOUS
710	PROVIDE SEALANT JOINT BETWEEN HOLLOWCORE PLANK ALONG BOTTOM SIDE TYPICAL
801	FLUSH ANODIZED ALUMINUM DOOR & FRAME
802	STAINLESS STEEL COILING OVERHEAD DOOR
1501	LOUVER - SEE MECHANICAL. PROVIDE L2 LINTEL ABOVE.
1502	PLUMBING VENT - SEE MECHANICAL
1503	VENT - SEE MECHANICAL
1504	EXHAUST FAN - COORDINATE CURB SIZE AND ROOF PENETRATION WITH MECHANICAL
1601	WALL PACK - SEE ELECTRICAL

DATE	BY	REVISION	DATE
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GENERAL NOTES
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
S1

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FLOOR PLAN
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
S2

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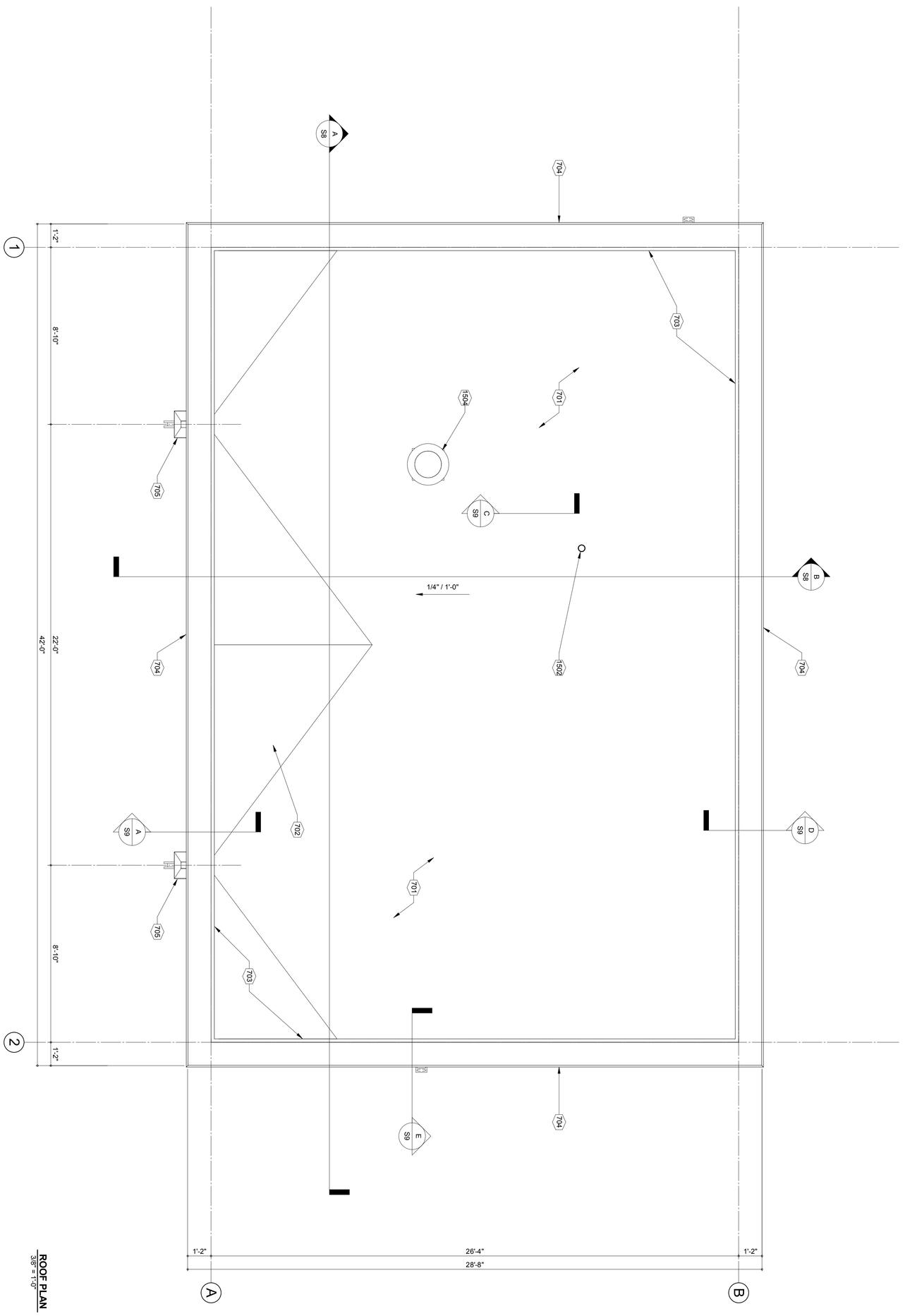

ROOF PLAN
3/8" = 1'-0"

ROOF PLAN

UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
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S3

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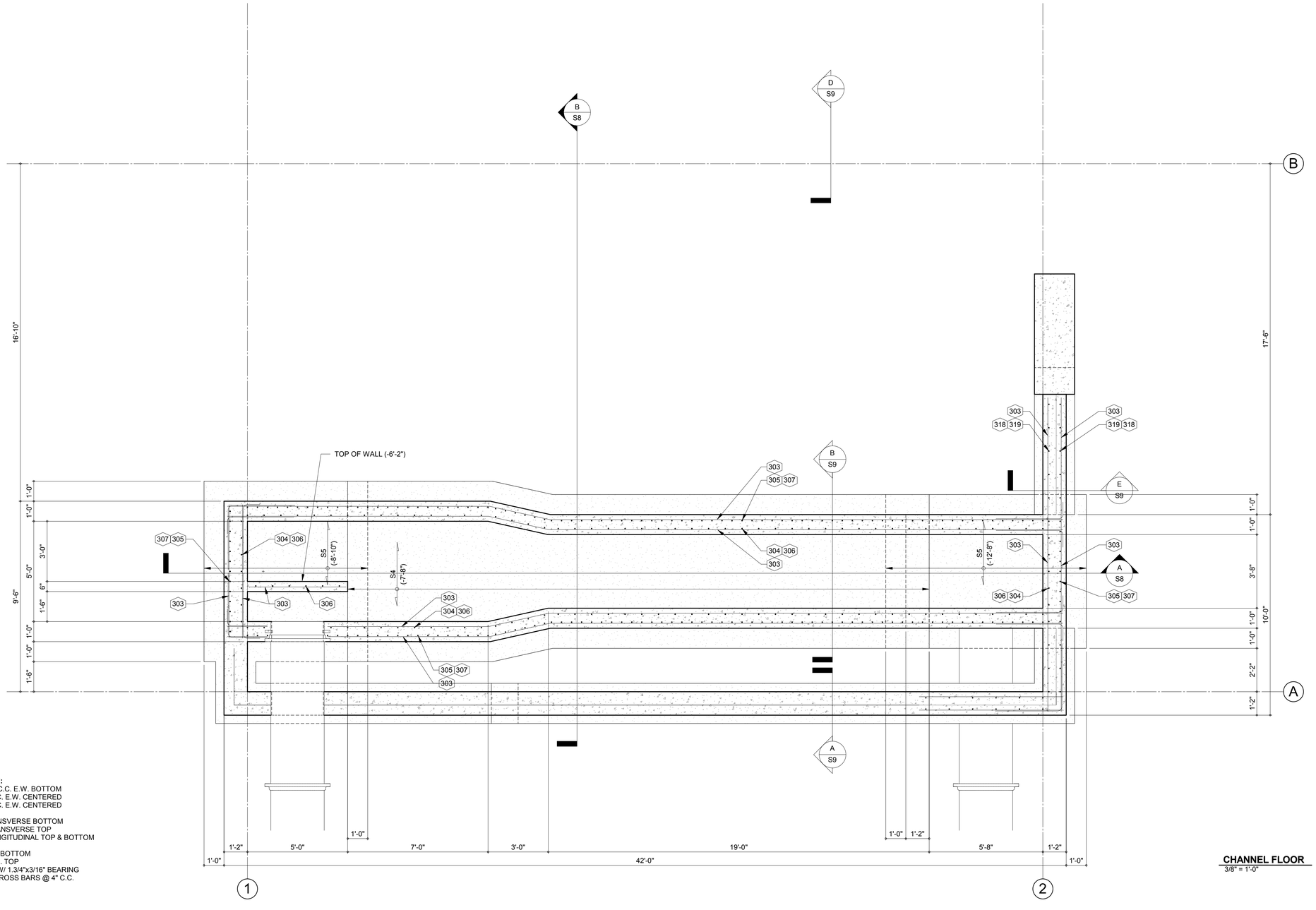

CHANNEL FLOOR
3/8" = 1'-0"

STRUCTURAL SLAB SCHEDULE:

S1 = 8"/7" SLAB W/ #5@12" C.C. E.W. BOTTOM
S2 = 8" SLAB W/ #5@16" C.C. E.W. CENTERED
S3 = 6" SLAB W/ #4@16" C.C. E.W. CENTERED
S4 = 14" MAT W/
#6@6" C.C. TRANSVERSE BOTTOM
#5@10" C.C. TRANSVERSE TOP
#5@10" C.C. LONGITUDINAL TOP & BOTTOM
S5 = 16" MAT W/
#6@6" C.C. E.W. BOTTOM
#5@10" C.C. E.W. TOP
G1 = ALUMINUM GRATING W/ 1.3/4"x3/16" BEARING BARS @ 1.3/16" C.C. & CROSS BARS @ 4" C.C.

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CHANNEL FLOOR FRAMING PLAN

UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

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2433-17A

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S4

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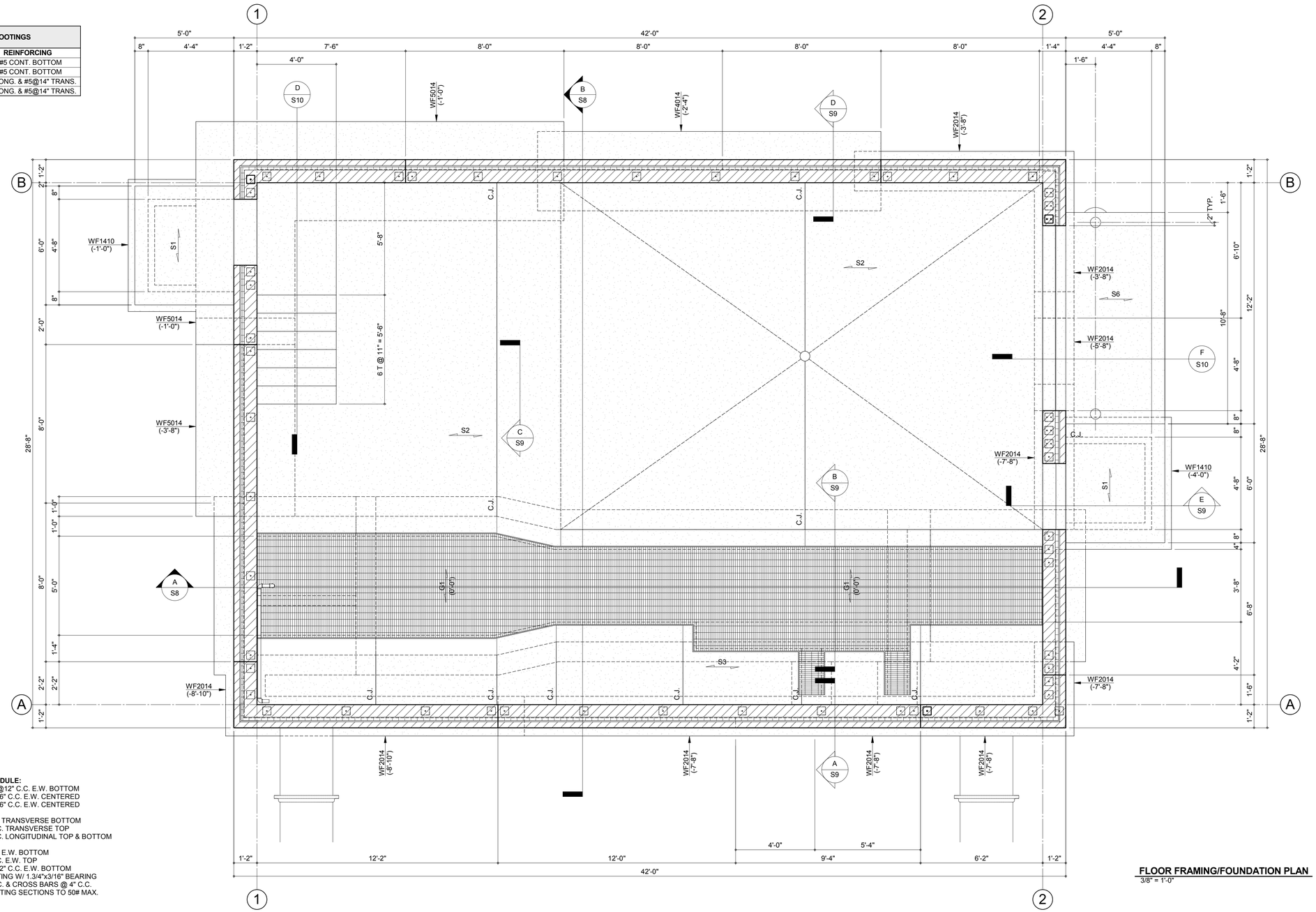
STRUCTURAL SCHEDULE - WALL FOOTINGS			
MARK	WIDTH	THICKNESS	REINFORCING
WF1410	1'-4"	1'-0"	2-#5 CONT. BOTTOM
WF2014	2'-0"	1'-4"	3-#5 CONT. BOTTOM
WF4014	4'-0"	1'-4"	5-#5 LONG. & #5@14" TRANS.
WF5014	5'-0"	1'-4"	6-#5 LONG. & #5@14" TRANS.



STRUCTURAL SLAB SCHEDULE:

S1 = 8"/7" SLAB W/ #5@12" C.C. E.W. BOTTOM
S2 = 8" SLAB W/ #5@16" C.C. E.W. CENTERED
S3 = 6" SLAB W/ #4@16" C.C. E.W. CENTERED
S4 = 14" MAT W/
#6@6" C.C. TRANSVERSE BOTTOM
#5@10" C.C. TRANSVERSE TOP
#5@10" C.C. LONGITUDINAL TOP & BOTTOM
S5 = 14" MAT W/
#6@6" C.C. E.W. BOTTOM
#5@10" C.C. E.W. TOP
S6 = 8" SLAB W/ #5@12" C.C. E.W. BOTTOM
G1 = ALUMINUM GRATING W/ 1.3/4"x3/16" BEARING BARS @ 1.3/16" C.C. & CROSS BARS @ 4" C.C. LIMIT SIZE OF GRATING SECTIONS TO 50# MAX.

FLOOR FRAMING/FOUNDATION PLAN
3/8" = 1'-0"

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FLOOR FRAMING/FDTN PLAN
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
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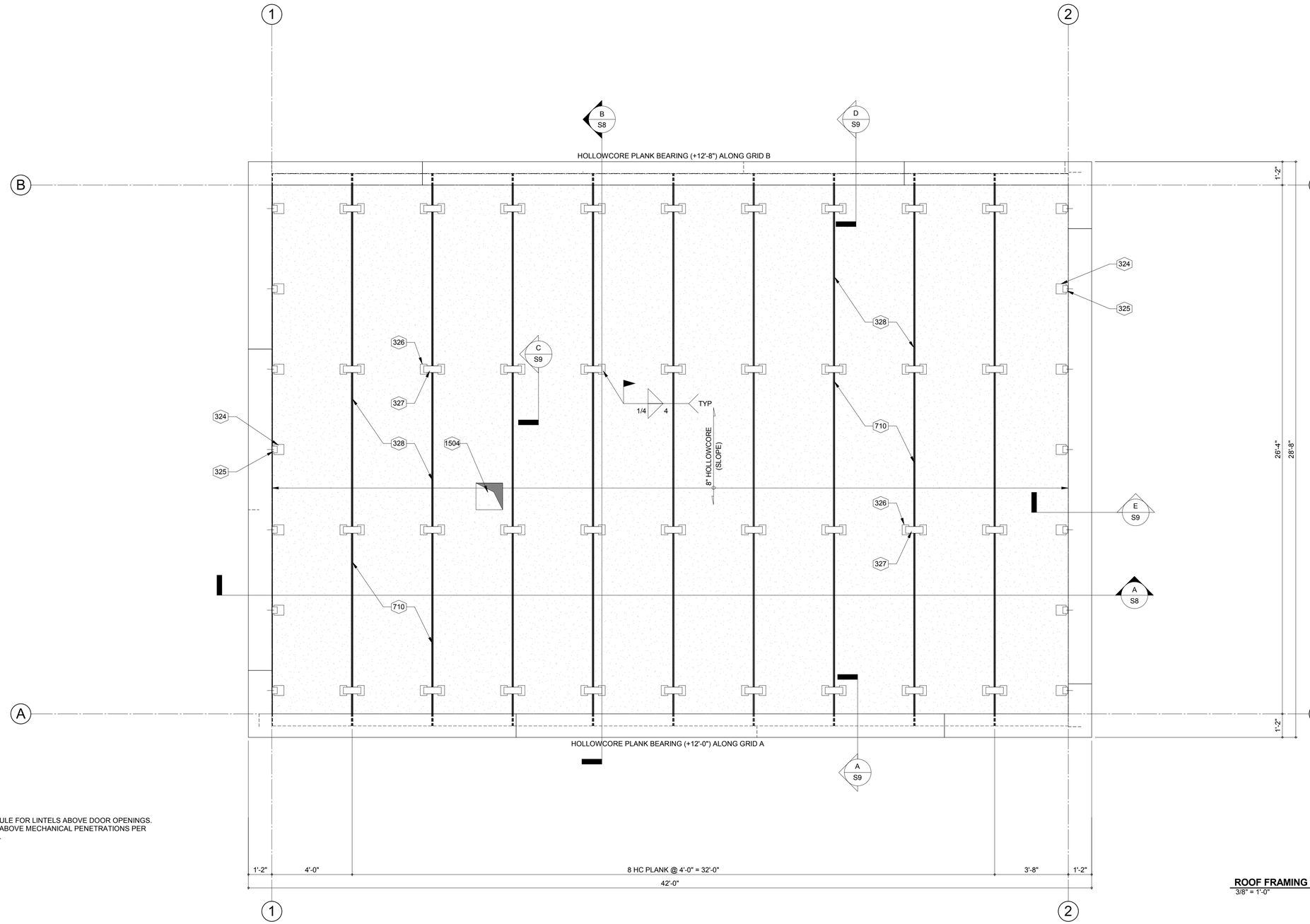

NOTES:
1. SEE DOOR SCHEDULE FOR LINTELS ABOVE DOOR OPENINGS.
2. PROVIDE LINTELS ABOVE MECHANICAL PENETRATIONS PER LINTEL SCHEDULE.

ROOF FRAMING PLAN
3/8" = 1'-0"

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ROOF FRAMING PLAN
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

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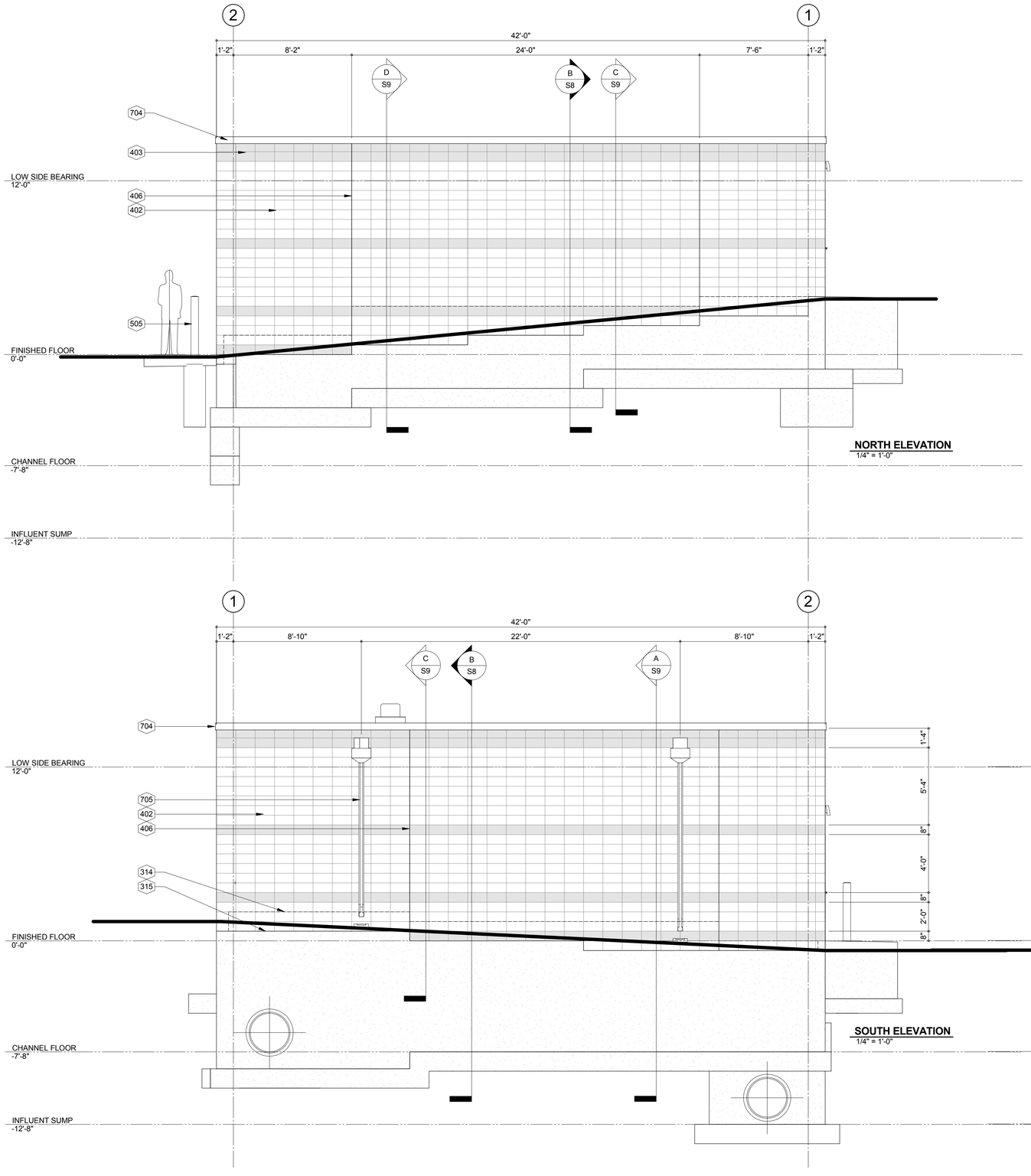
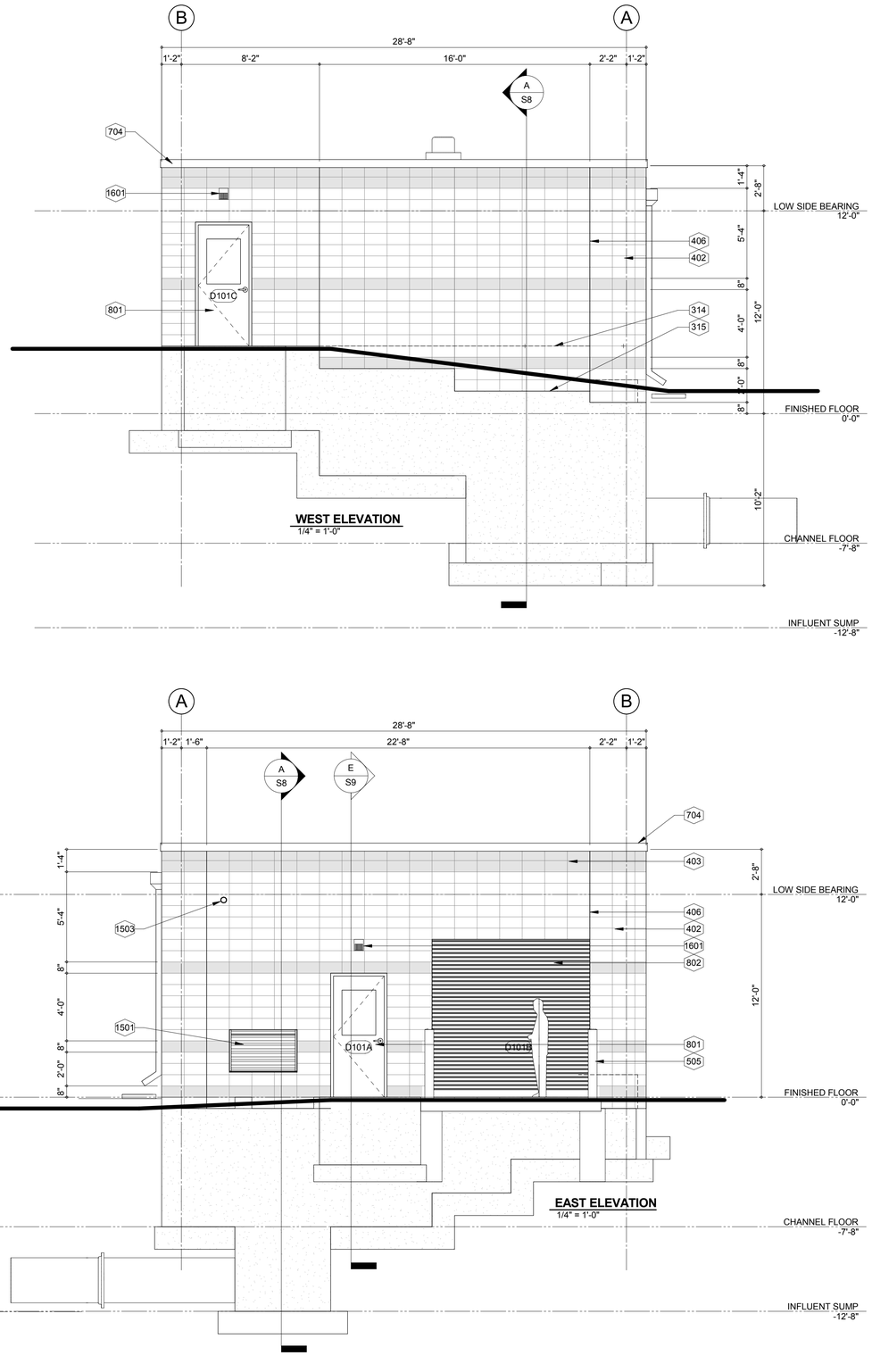


NORTH ELEVATION
1/4" = 1'-0"



WEST ELEVATION
1/4" = 1'-0"

SOUTH ELEVATION
1/4" = 1'-0"

EAST ELEVATION
1/4" = 1'-0"

	BY	DATE
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BUILDING ELEVATIONS

UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
S7

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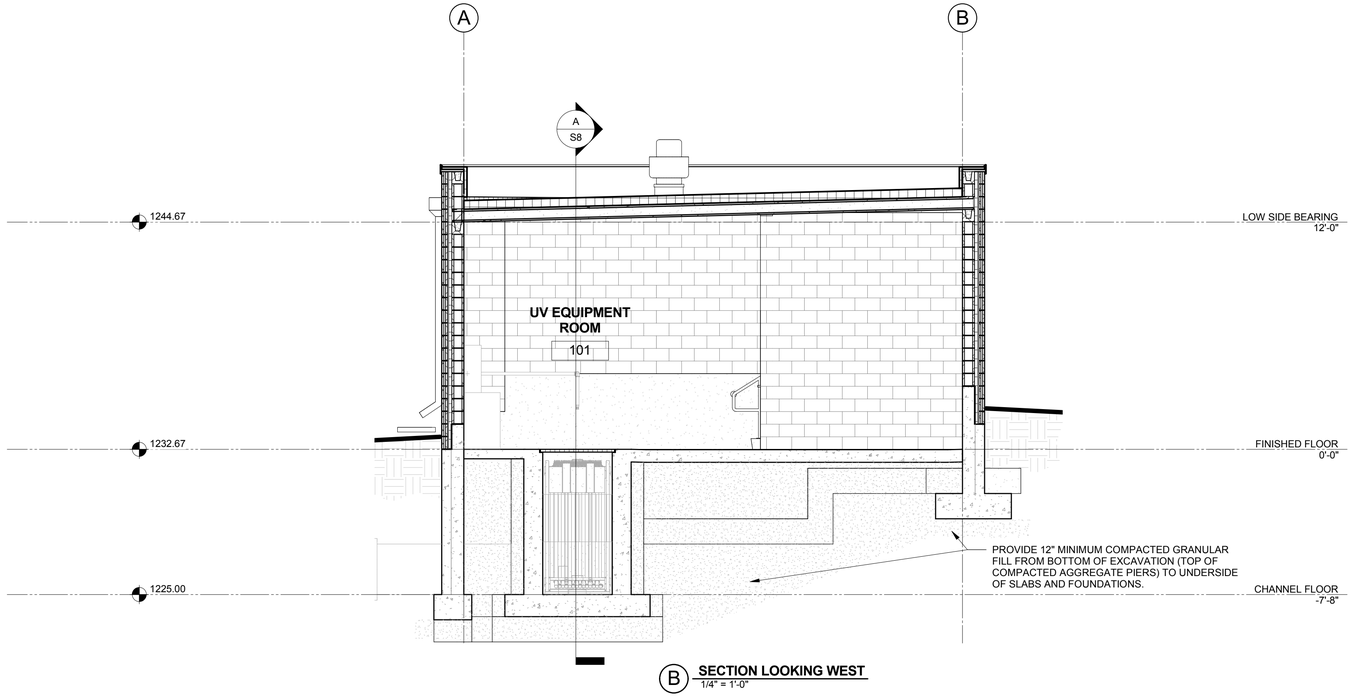
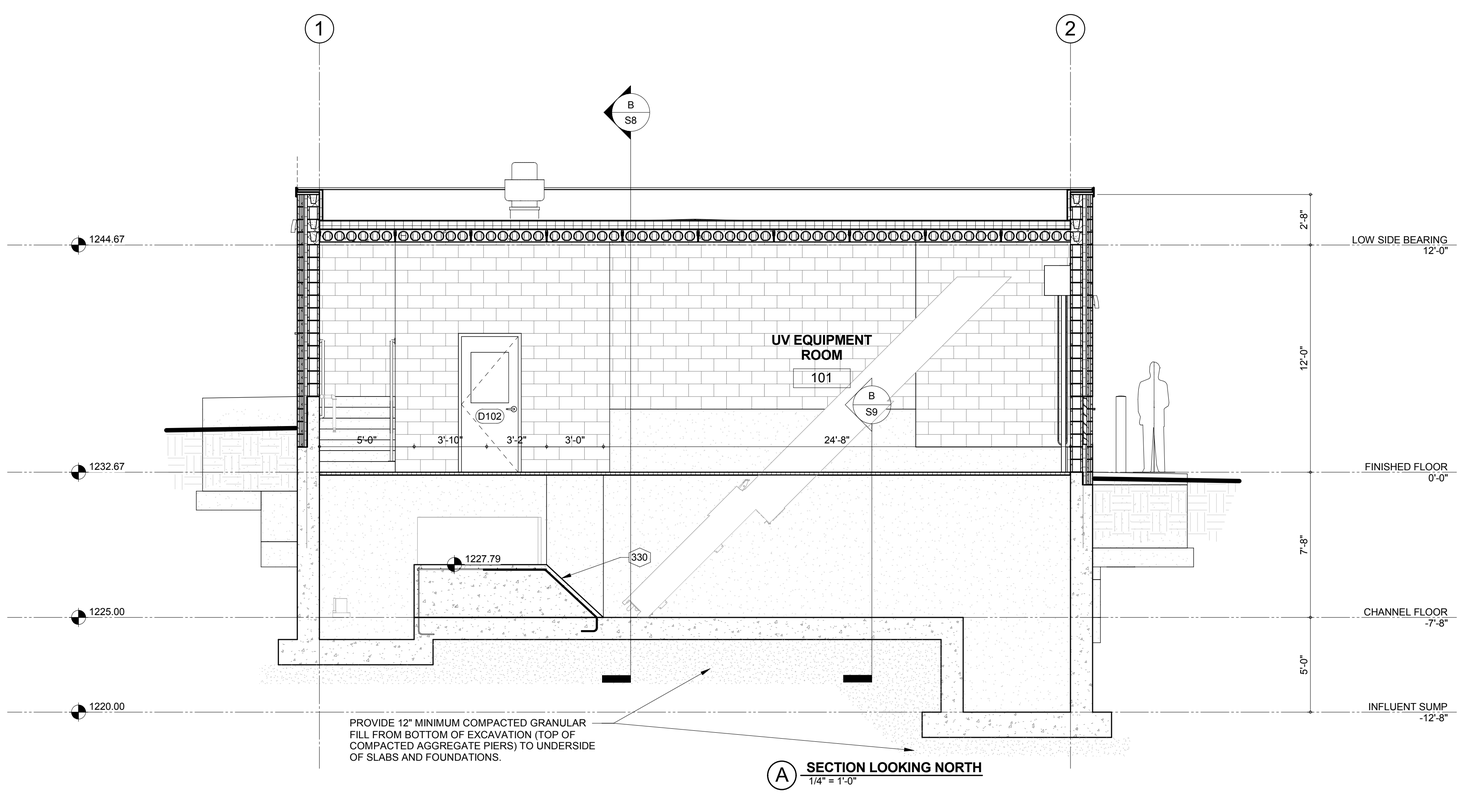


B SECTION LOOKING WEST
1/4" = 1'-0"



A SECTION LOOKING NORTH
1/4" = 1'-0"

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9/17			
9/17			

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BUILDING SECTIONS
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
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SHEET
S8

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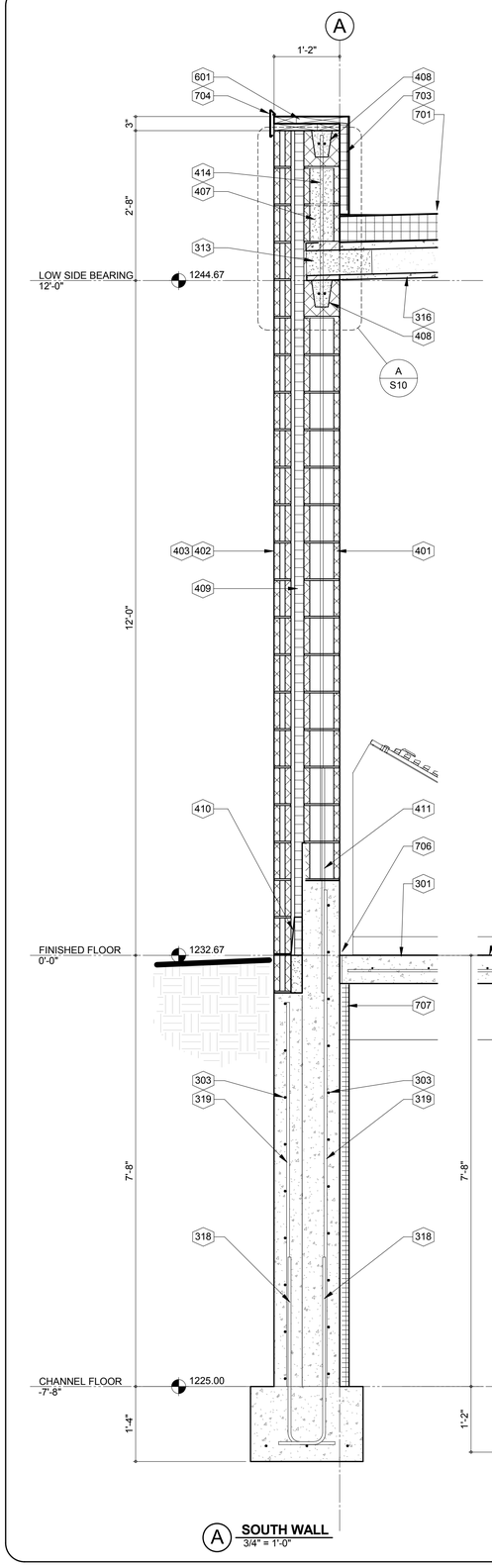
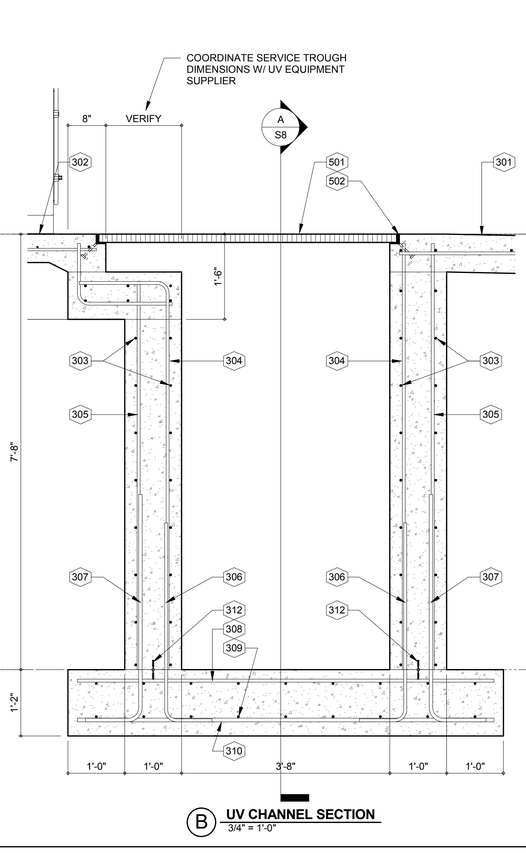
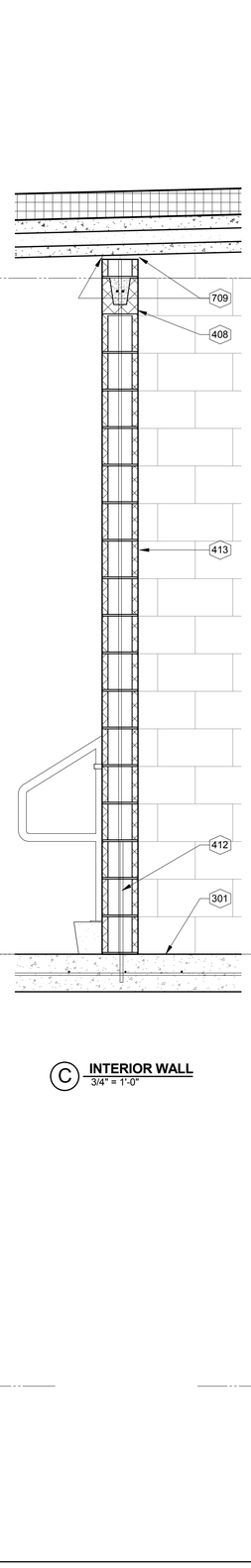


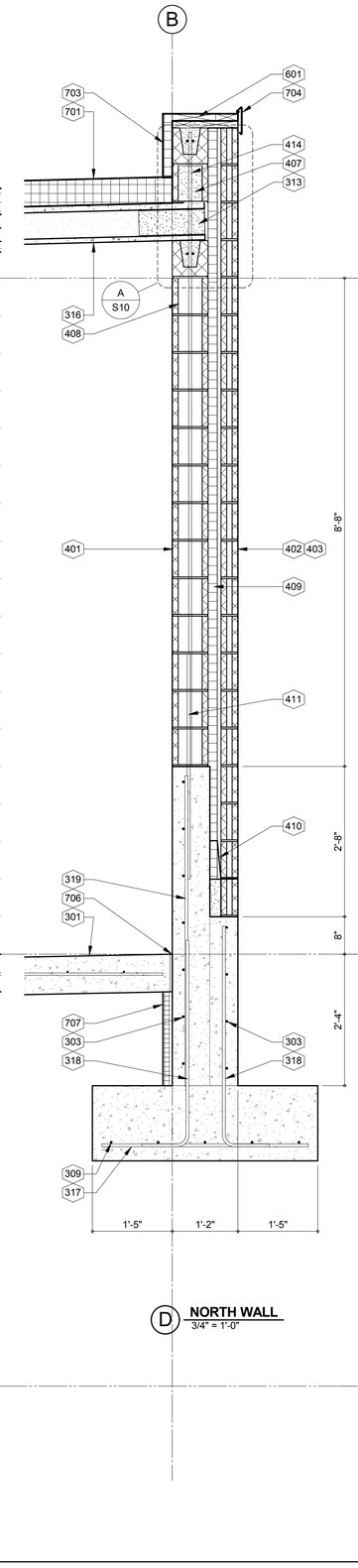
A **SOUTH WALL**
3/4" = 1'-0"



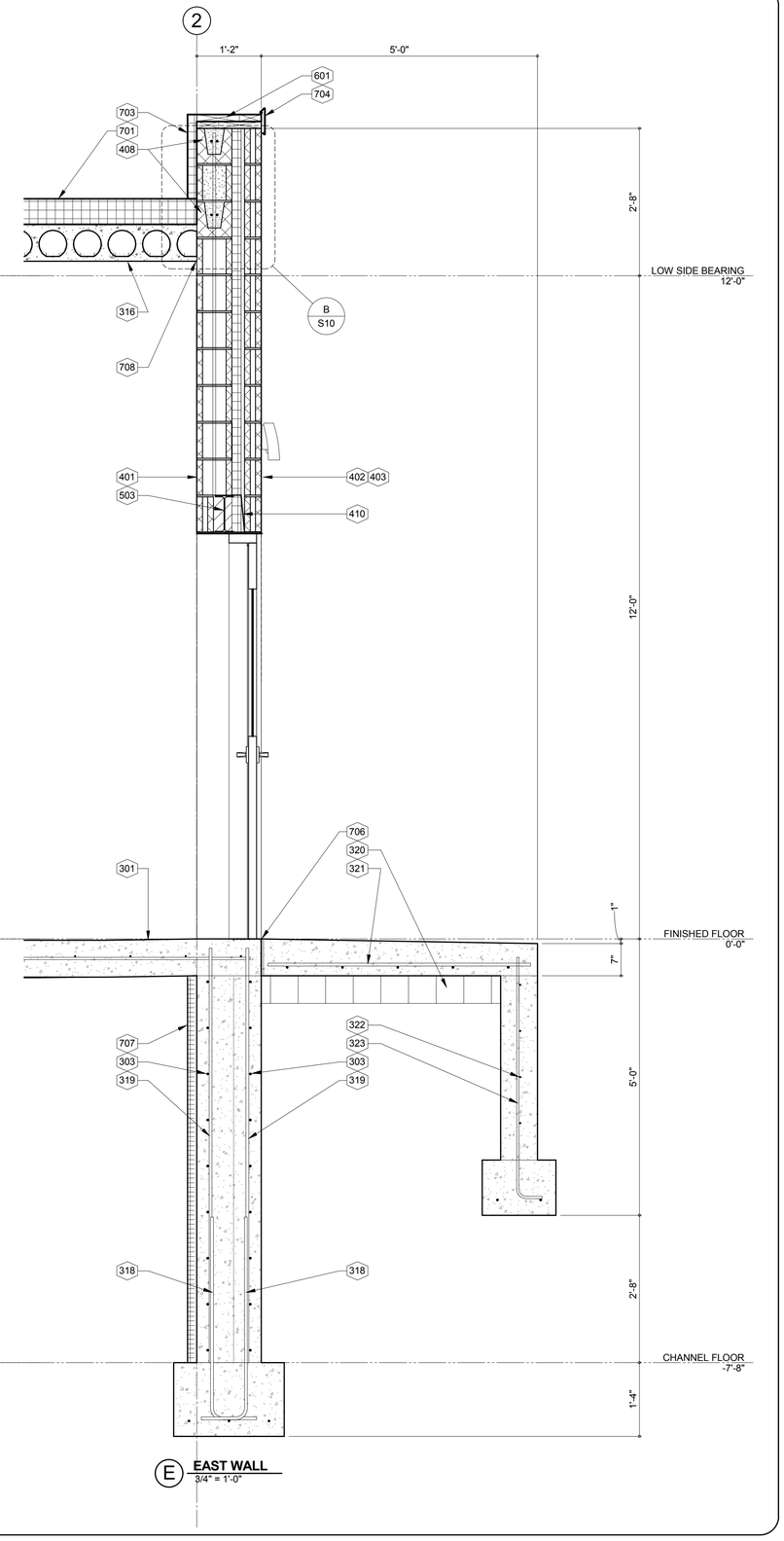
B **UV CHANNEL SECTION**
3/4" = 1'-0"



C **INTERIOR WALL**
3/4" = 1'-0"



D **NORTH WALL**
3/4" = 1'-0"



E **EAST WALL**
3/4" = 1'-0"

REVISION	BY	DATE
	DESIGNED:	9/17
	DRAWN:	9/17
	CHECKED:	

LAST UPDATE: 11/02/17

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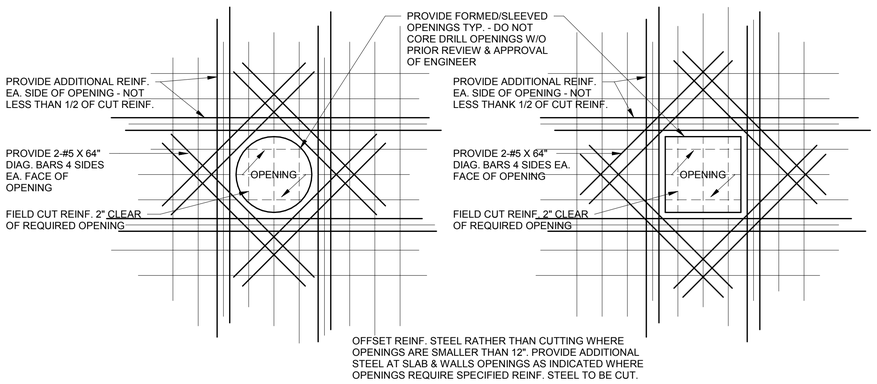
FOX engineering

WALL SECTIONS

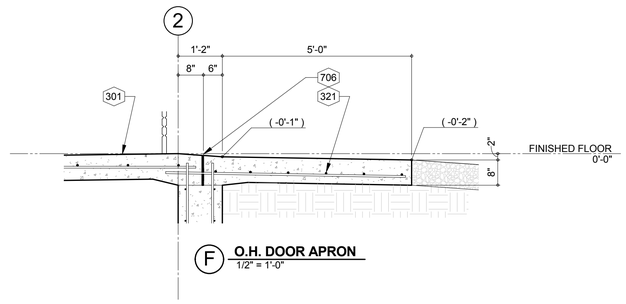
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

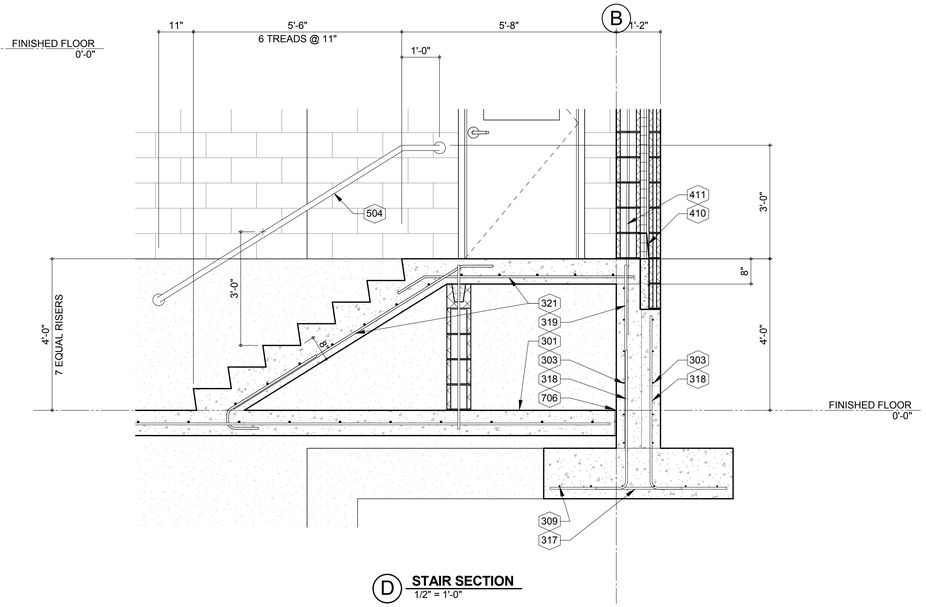
SHEET
S9



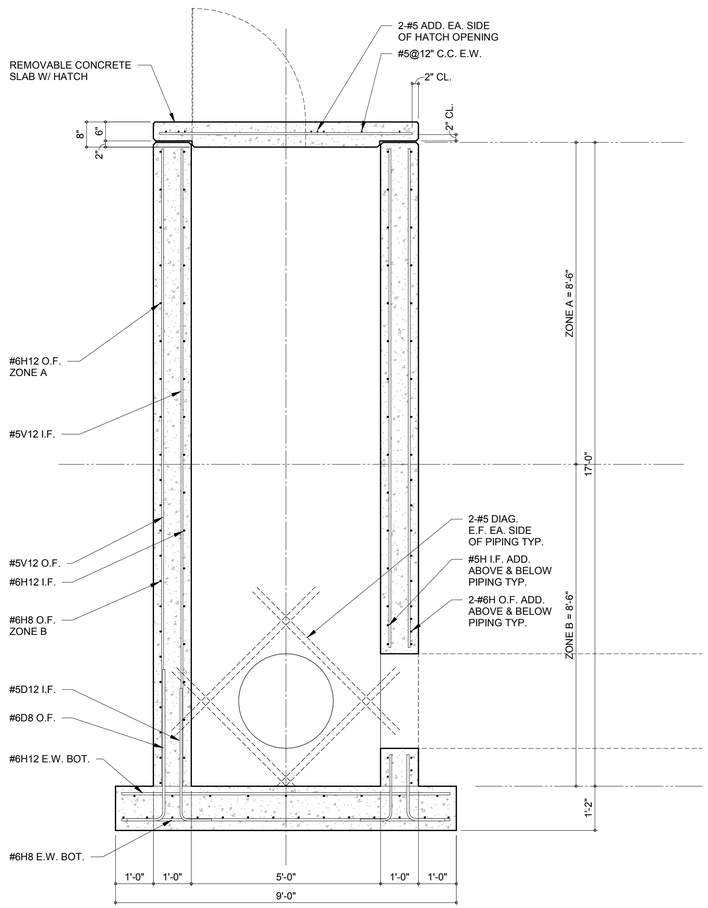
H **TYP. REINF. @ CONC. OPENINGS**
1/2" = 1'-0"



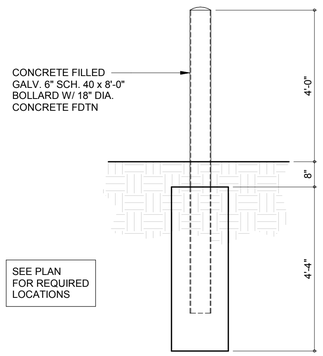
F **O.H. DOOR APRON**
1/2" = 1'-0"



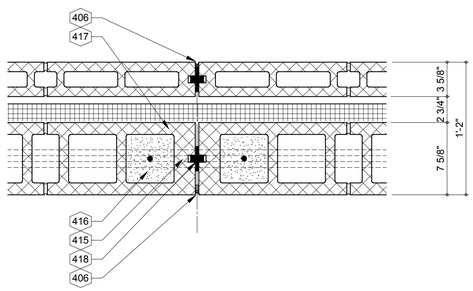
D **STAIR SECTION**
1/2" = 1'-0"



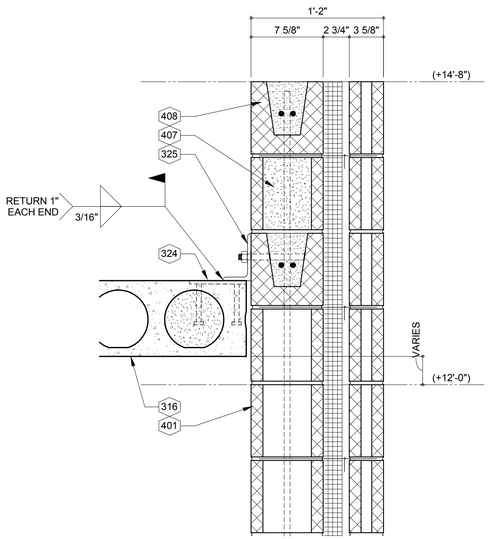
G **BYPASS STRUCTURE SECTION**
1/2" = 1'-0"



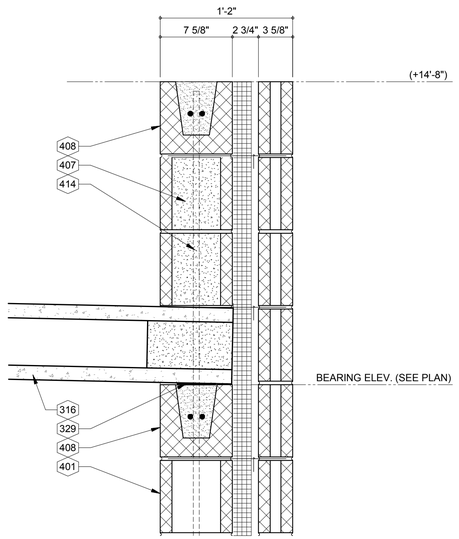
E **BOLLARD DETAIL**
1/2" = 1'-0"



C **MASONRY CONTROL JOINT**
1 1/2" = 1'-0"



B **HOLLOWCORE NON-BRG CONNECTION**
1 1/2" = 1'-0"



A **HOLLOWCORE BEARING CONNECTION**
1 1/2" = 1'-0"

DATE	BY	REVISION
9/17	DESIGNED:	
9/17	DRAWN:	
	CHECKED:	

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DETAILS
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
S10

T:\17\17-005-01 FOX CLSD UV-Storage\5.cd\revit\17-005-01 FOX CLSD UV Bldg.rvt

GC SCHEDULE --- DOORS														
DOOR NO.	TYPE	DOOR				HDWR GROUP	FRAME				FRAME DETAILS		LINTEL	COMMENT
		WIDTH	HEIGHT	THICKNESS	MATERIAL		MATERIAL	JAMB	HEAD	DEPTH	JAMB	HEAD		
D101A	FHG	3'-0"	7'-2"	0'-1 3/4"	ALUM	H1	ALUM	0'-2"	0'-2"	0'-6"	3	1	L2	
D101B	OHC	9'-4"	9'-4"	0'-0 1/2"	SS		SS				5	1 SIM	L2	ELECTRIC OPERATOR
D101C	FHG	3'-0"	7'-2"	0'-1 3/4"	ALUM	H1	ALUM	0'-2"	0'-2"	0'-6"	3	1	L2	
D102	FHG	3'-0"	7'-2"	0'-1 3/4"	ALUM	H2	ALUM	0'-2"	0'-2"	0'-6"	4	2	L1	

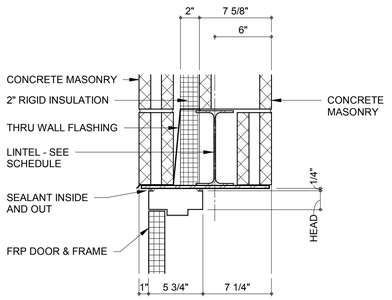
GC SCHEDULE --- HARDWARE GROUPS													
GROUP	HINGES	CYLINDRICAL LOCKSET	EXIT DEVICE	FLUSH BOLTS	CLOSER	KICK PLATE	KICK DOWN HOLDER	WALL STOP	DRIP CAP	SEALS	ASTRAGAL	THRESHOLD	SWEEP
H1	3	ENTRANCE/OFFICE			1	1			1	1 SET		1	1
H2	3		PASSAGE			1							

GC SCHEDULE --- ROOM FINISHES				
ROOM	NAME	FLOOR	WALLS	CEILING
101	UV EQUIPMENT ROOM	SCONC	CMU	PC
102	OFFICE/LAB	SCONC	CMU	PC
102	ELECTRIC ROOM	SCONC	CMU	PC
103	ELECTRICAL	SCONC	CMU	PC
105	R.R.	SCONC	CMU	PC

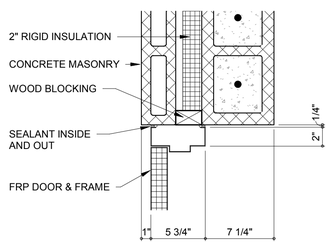
ROOM FINISH ABBREVIATIONS:
CMU = EXPOSED CONCRETE MASONRY
PC = EXPOSED PRECAST CONCRETE
SCONC = SEALED CONCRETE

GC SCHEDULE --- DOOR HARDWARE	
ITEM	DESCRIPTION *
HINGES	MCKINNEY, T4A3386, 4.5X4.5, NRP, BHMA 630
CYL. LOCKSET	SARGENT, 10 SERIES LL, BHMA 626
EXIT DEVICE	SARGENT, 80 SERIES, 8800 ETL, BHMA 630
CLOSER	NORTON, P7500 SS, BHMA 689
FLUSH BOLTS	IVES, 458B, BHMA 626
KICK PLATE	ROCKWOOD, K1050 B4E, 8" x WIDTH - 2", BHMA 630
WALL STOP	IVES, WS443, BHMA 626
KICK DN HOLDER	IVES, FS452, BHMA 626
DRIP CAP	REESE, R201A, ALUMINUM
SEALS	REESE, 769A, ALUMINUM
ASTRAGAL	NGP, 600(SET), ALUMINUM
THRESHOLD	REESE, S473A, ALUMINUM
SWEEP	REESE, 323A, ALUMINUM

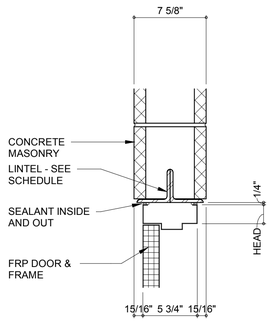
GC SCHEDULE --- DOOR HARDWARE FUNCTIONS		
FUNCTION	CYLINDRICAL ANSI NO.	MORTISE ANSI NO.
PASSAGE	F75	F01
PRIVACY	F76	F02
ENTRANCE/OFFICE	F82	F08



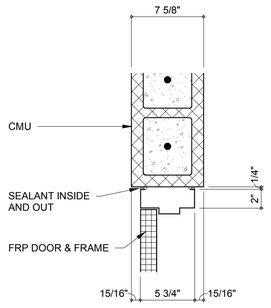
1 **DOOR HEAD - EXTERIOR**
1 1/2" = 1'-0"



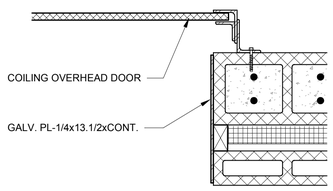
3 **DOOR JAMB - EXTERIOR**
1 1/2" = 1'-0"



2 **DOOR HEAD - INTERIOR**
1 1/2" = 1'-0"

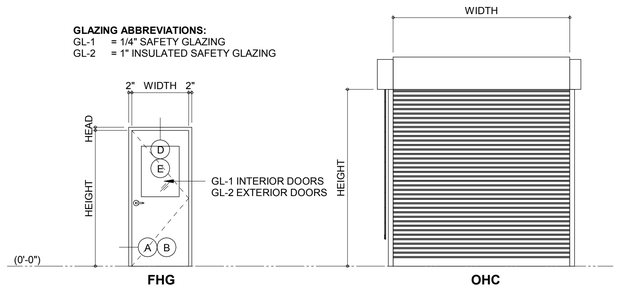


4 **DOOR JAMB - INTERIOR**
1 1/2" = 1'-0"



5 **DOOR JAMB - O.H. COILING**
1 1/2" = 1'-0"

GLAZING ABBREVIATIONS:
GL-1 = 1/4" SAFETY GLAZING
GL-2 = 1" INSULATED SAFETY GLAZING



DOOR LEGEND
1/4" = 1'-0"

REVISION	BY	DATE
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SCHEDULES
UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
S11

MECHANICAL SYMBOLS

PLUMBING

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	EXISTING SANITARY DRAIN (ABOVE FLOOR)	V	VENT	CO OR CO	CLEAN OUT
	EXISTING SANITARY SEWER (BELOW FLOOR)		COLD WATER (CW)	GCO	GRADE CLEAN OUT
S	EXISTING STORM DRAIN (ABOVE FLOOR)		HOT WATER (HW)		DOUBLE GRADE CLEAN OUT
S	EXISTING STORM DRAIN (BELOW FLOOR)		HOT WATER CIRCULATING (HWC)	HB	HOSE BIBB
SS	EXISTING SUB SOIL DRAIN	140°	HOT WATER 140°	WH	WALL HYDRANT (NON-FREEZE TYPE)
AW	EXISTING ACID WASTE (ABOVE FLOOR)	140°	HOT WATER CIRCULATING 140°	YH	YARD HYDRANT
AW	EXISTING ACID WASTE (BELOW FLOOR)	PSAN	PUMPED SANITARY	BFP	BACK FLOW PREVENTER
	NEW SANITARY DRAIN (ABOVE FLOOR)	SAN	SITE SANITARY SEWER	FD-X	FLOOR DRAIN SIZE-TYPE
	NEW SANITARY SEWER (BELOW FLOOR)	SS	SITE STORM SEWER	FS-X	FLOOR SINK SIZE-TYPE
S	NEW STORM DRAIN (ABOVE FLOOR)	W	SITE WATER PIPING	RD-X	ROOF DRAIN SIZE-TYPE
S	NEW STORM DRAIN (BELOW FLOOR)	G	GAS	OS	DOWN SPOUT NOZZLE
OF	NEW OVERFLOW STORM DRAIN (ABOVE FLOOR)	S	COLD SOFT WATER		MANHOLE
OF	NEW OVERFLOW STORM DRAIN (BELOW FLOOR)	S	HOT SOFT WATER	VTR	VENT THROUGH ROOF ON RISER
SS	NEW SUB SOIL DRAIN	S	HOT SOFT WATER RECIRCULATING		
AW	NEW ACID WASTE (ABOVE FLOOR)	A	COMPRESSED AIR		PLUMBING RISER NUMBER
AW	NEW ACID WASTE (BELOW FLOOR)	V	VACUUM BREAKER		
AV	ACID VENT		GAS COCK	SH	SHOWER
G	NATURAL GAS		RUNNING TRAP		

HEATING - VENTILATING - AIR-CONDITIONING

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
CWS	CHILLED WATER SUPPLY		AUTOMATIC CONTROL VALVE, 2-WAY		TURNING VANES
CWR	CHILLED WATER RETURN		AUTOMATIC CONTROL VALVE, 3-WAY		SUPPLY, OUTDOOR, OR MIXED AIR DUCT END OR RISER (SA) (OA) (MA)
PC	CONDENSATE OR BOILER FEED PUMP DISCHARGE		PRESSURE REGULATING VALVE (PRV)		RETURN, EXHAUST, OR RELIEF AIR DUCT END OR RISER (RA) (EA) (RLFA)
CS	CONDENSER WATER SUPPLY FROM TOWER		PIPE IN SLEEVE	X / X	RECTANGULAR DUCTWORK (FIRST NUMBER IS THE SIDE SHOWN)
CR	CONDENSER WATER RETURN TO TOWER		VALVE IN VERTICAL PIPE	X Ø	ROUND DUCT
CD	COIL OR EQUIPMENT DRAIN	#H R	F AND T TRAP CAP LBS/HR	X / X Φ	FLAT OVAL (FIRST NUMBER IS THE SIDE SHOWN)
GS	GLYCOL SUPPLY	#H R	BUCKET TRAP CAP LBS/HR		VOLUME DAMPER
GR	GLYCOL RETURN	AQ	AIR QUALITY SENSOR	M	MOTORIZED DAMPER
FOS	FUEL OIL SUPPLY	A	AQUASTAT	FRD	FIRE DAMPER WITH ACCESS DOOR
FOR	FUEL OIL RETURN	CO2	CO2 SENSOR	FSD M	COMBINATION FIRE AND SMOKE DAMPER WITH ACCESS DOOR
FOV	FUEL OIL VENT	H	HUMIDISTAT	SD M	SMOKE DAMPER WITH ACCESS DOOR
G	NATURAL GAS	S	REMOTE SENSOR	SA	SOUND ATTENUATOR
HPWS	HEAT PUMP WATER SUPPLY	T	THERMOSTAT		FLEX CONNECTION
HPWR	HEAT PUMP WATER RETURN	T RS	THERMOSTAT WITH REMOTE SENSOR	SIZE TYPE CFM	SUPPLY REGISTER OR GRILLE
HPR	HIGH PRESSURE CONDENSATE RETURN		SOLENOID VALVE (REFRIG)	SIZE TYPE CFM	RETURN REGISTER OR GRILLE
HPS	HIGH PRESSURE STEAM		THERMOSTATIC EXPANSION VALVE (REFRIG)	X X X	TYP DIFFUSER — NECK SIZE, MARK, CFM
HWS	HOT WATER SUPPLY		SIGHT GLASS	X X X	TYP EXHAUST/RETURN GRILLE — NECK SIZE, MARK, CFM
HWR	HOT WATER RETURN		MANUAL AIR VENT		
LPR	LOW PRESSURE CONDENSATE RETURN	P T	PRESSURE OR TEMPERATURE MEASURING POINTS		
LPS	LOW PRESSURE STEAM	FS	FLOW SWITCH		
MPR	MEDIUM PRESSURE CONDENSATE RETURN		HEATING RISER		
MPS	MEDIUM PRESSURE STEAM	AD	ACCESS DOOR - SIZE AS SHOWN OR PER SPEC		
RL	REFRIGERANT LIQUID	W D	EXPANSION LOOP, WIDTH AND LENGTH		
RS	REFRIGERANT SUCTION	FT-1 MBH	FINTUBE-TYPE CAPACITY MBH (SHADED AREA INDICATES ELEMENT LOCATION)		
RD	REFRIGERANT HOT GAS DISCHARGE				
B.D.D.	BACK-DRAFT DAMPER (COUNTER BALANCED)		NEW TO EXISTING CONNECTION		
			POINT OF DISCONNECT		

MECHANICAL SYMBOLS

PIPING

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	TEE		GLOBE VALVE		CONCENTRIC REDUCER
	ELBOW	PTT	PRESS / TEMP TEST PORT		ECCENTRIC REDUCER
	UNION		GATE VALVE		PRESSURE GAUGE WITH GAUGE COCK
	STRAINER WITH BLOW-OFF VALVE		CHECK VALVE (ARROW INDICATES FLOW)		THERMOMETER, SIDE FEED
	BALANCING VALVE		FLEXIBLE PIPING		THERMOMETER, BOTTOM FEED
	ISOLATION VALVE (BALL OR BUTTERFLY)		AUTOMATIC AIR VENT		ARROW INDICATES FLOW DIRECTION
	PRESSURE RELIEF VALVE				ARROW INDICATES DOWNWARD PIPE PITCH
	ELBOW UP		MANUAL AIR VENT WITH ISOLATION VALVE	M	WATER METER
	ELBOW DOWN				

SYMBOLS INDICATED HERE AND NOT USED IN THE CONTRACT DOCUMENTS DO NOT APPLY TO THIS PROJECT. ADDITIONAL SYMBOLS AND ABBREVIATIONS MAY BE INDICATED IN THE CONTRACT DOCUMENTS.

HVAC GENERAL NOTES:

1. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT DIFFUSER, REGISTER, GRILLE, AND CEILING MOUNTED DEVICE LOCATIONS.
2. DO NOT RUN DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR IN CODE REQUIRED CLEARANCE SPACES. COORDINATE ALL ROUTING WORK WITH ALL TRADES. DRAWINGS ARE DIAGRAMMATIC AND DO NOT NECESSARILY SHOW ALL OFFSETS REQUIRED FOR COMPLETE SYSTEM.
3. CONTRACTOR SHALL COORDINATE LOCATION OF DUCTWORK IN CEILING SPACE WITH ALL TRADES PRIOR TO FABRICATION AND INSTALLATION OF DUCTWORK.
4. FOR GENERAL DUCTWORK CONSTRUCTION, SEE DUCT FITTING DETAILS.
5. DUCTWORK AND EQUIPMENT SHOWN WITH THIN LINES INDICATES EXISTING TO REMAIN. DUCTWORK AND EQUIPMENT SHOWN WITH BOLD LINES INDICATES NEW.
6. PROVIDE VOLUME DAMPER IN ALL BRANCH TAKEOFFS CONNECTING TO DIFFUSERS, REGISTERS, OR GRILLES AND IN LOCATIONS INDICATED.
7. PROVIDE CLEARANCES TO ALL EQUIPMENT AS REQUIRED BY MANUFACTURERS' INSTALLATION AND OPERATION REQUIREMENTS AND/OR BY CODE.
8. INSTALL ALL DUCT AND PIPING IN MECHANICAL ROOMS AS HIGH AS POSSIBLE. PROVIDE 7'-0" MINIMUM HIGH ACCESS PATHWAYS TO ALL EQUIPMENT.
9. COORDINATE LOCATIONS OF ALL EQUIPMENT HOUSEKEEPING PADS WITH GENERAL CONTRACTOR. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF EQUIPMENT HOUSEKEEPING PADS.
10. DUCTWORK SHALL NOT BE FABRICATED UNTIL ALL COORDINATION CONFLICTS HAVE BEEN RESOLVED.
11. CAP ENDS OF ALL INSTALLED DUCTWORK DURING CONSTRUCTION TO MINIMIZE DIRT, DEBRIS, AND FOREIGN OBJECTS FROM ENTERING THE DUCT SYSTEM.
12. COORDINATE SCHEDULE OF SHUTDOWN FOR EXISTING HVAC SYSTEMS, FOR INSTALLATION OF NEW HVAC SYSTEMS, WITH THE OWNER'S REPRESENTATIVE PRIOR TO SHUTDOWN.
13. COORDINATE LOCATION OF DUCTWORK WITH ELECTRICAL CABLE TRAYS.
14. ALL INSULATION SHALL MEET THE ENERGY CODE'S INSTALLED R VALUE REQUIREMENTS.

PLUMBING GENERAL NOTES:

1. DO NOT RUN PIPING ABOVE ELECTRICAL PANEL OR IN CODE REQUIRED CLEARANCE SPACES. COORDINATE ALL ROUTES WITH ALL TRADES PRIOR TO INSTALLATION.
2. DO NOT RUN PLUMBING, PIPING, AND DUCTWORK ABOVE OR THROUGH INFORMATION TECHNOLOGY DATA CLOSETS, IDF, AND MDF ROOMS. COORDINATE ALL ROUTING WITH ALL OTHER TRADES.
3. DRAWINGS, PLANS, SCHEMATICS, AND DIAGRAMS INDICATE THE GENERAL LOCATIONS AND THE ARRANGEMENT OF SYSTEMS. WHEREVER PRACTICAL, INSTALL SYSTEMS AS INDICATED. PROVIDE OFFSETS AND ELEVATION CHANGES TO PLUMBING, PIPING, AND DUCTWORK AS REQUIRED TO COMPLETE THE LAYOUT AND COORDINATION PROCESS AS WELL AS MEET ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS.
4. SEE WASTE AND VENT RISER DIAGRAMS ON SHEET Mxx FOR ADDITIONAL PIPE SIZES.
5. SEE WATER RISER DIAGRAMS ON SHEET Mxx FOR ADDITIONAL PIPE SIZES.
6. CLEAN EXISTING UNDERGROUND SANITARY PIPING TO MANHOLE CONNECTION WITH CABLE AND BLADE PRIOR TO INSTALLATION AND CONNECTION OF NEW PIPING.
7. SEE SPECIFICATIONS OR PLUMBING FIXTURE SCHEDULE FOR ALL PLUMBING CONNECTION SIZES TO ALL PLUMBING FIXTURES.
8. LOCATE PLUMBING VENTS THROUGH THE ROOF AT A MINIMUM OF 10'-0" AWAY FROM ALL OUTDOOR AIR INTAKES ON HVAC EQUIPMENT OR OPERABLE WINDOWS.
9. PROVIDE WALL AND FLOOR MOUNTED SEWER CLEANOUTS AS REQUIRED BY CODE AND AS INDICATED. COORDINATE LOCATION IN FIELD.
10. INSTALL AND ROUTE ALL FUEL GAS PIPING AS REQUIRED BY CODE.
11. TERMINATE ALL NATURAL GAS FLUE VENTS A MINIMUM OF 2'-0" HIGHER THAN ANY SURFACE OR EQUIPMENT WITHIN 10'-0" OR AS REQUIRED BY CODE.
12. PROVIDE GAS PRESSURE REGULATORS ON ALL GAS FIRED EQUIPMENT, INCLUDING REGULATOR VENT PIPING, SHUTOFF VALVE, DIRT LEG, AND UNION. REGULATE GAS PRESSURE AS REQUIRED FOR EACH SPECIFIC PIECE OF GAS FIRED EQUIPMENT AND PER MANUFACTURER'S RECOMMENDATIONS.
13. DO NOT ROUTE PLUMBING BRANCHES OR MAINS WITHIN SPACE REQUIRED TO SERVICE ALL HVAC EQUIPMENT ABOVE CEILINGS.
14. PIPING AND FIXTURES SHOWN WITH THIN LINES INDICATES EXISTING TO REMAIN. PIPING AND FIXTURES SHOWN WITH BOLD LINES INDICATES NEW.
15. COORDINATE SHUT DOWN OF EXISTING WATER SERVICE WITH OWNERS REPRESENTATIVE.
16. REFER TO FOOD SERVICE PLAN FOR ROUGH-IN SIZES AND LOCATIONS.
17. FURNISH AND INSTALL SHUT-OFF VALVES FOR WATER SUPPLY AT ALL EQUIPMENT ITEMS.
18. COORDINATE FINISH FLOOR ELEVATIONS TO SET FLOOR DRAINS AND FLOOR SINKS.
19. SAW CUT AND REMOVE FLOOR AS REQUIRED FOR INSTALLATION OF NEW PIPING.
20. WALL HYDRANTS SHALL BE INSTALLED BETWEEN 18" AND 24" ABOVE FINISHED GRADE. PROVIDE ACCESSIBLE SHUTOFF VALVE LOCATED INDOOR FOR EACH WALL HYDRANT.
21. PIPING IN EXTERIOR BUILDING WALLS SHALL BE LOCATED ON THE WARM SIDE OF BUILDING INSULATION AND VAPOR BARRIER. BUILDING INSULATION SHALL RUN CONTINUOUS BETWEEN PIPING AND EXTERIOR OF BUILDING.
22. PVC PIPING SHALL NOT BE INSTALLED IN RETURN AIR PLENUMS.

PIPING GENERAL NOTES:

1. ALL HWS AND HWR BRANCH RUNOUTS TO TERMINAL UNITS SHALL BE 3/4" UNLESS NOTED OTHERWISE. SIZE AND ROUTE REFRIGERANT PIPING PER MANUFACTURERS' RECOMMENDATIONS.
2. DO NOT RUN DUCTWORK OR PIPING ABOVE ELECTRICAL PANELS OR IN CODE REQUIRED CLEARANCE SPACES. COORDINATE ALL ROUTING WORK WITH ALL TRADES.
3. DO NOT RUN PLUMBING, PIPING, AND DUCTWORK ABOVE OR THROUGH INFORMATION TECHNOLOGY DATA CLOSETS, IDF, AND MDF ROOMS. COORDINATE ALL ROUTING WITH ALL OTHER TRADES.
4. ROUTE ALL HORIZONTAL HVAC PIPING IN MECHANICAL ROOMS AT A MINIMUM OF 7'-6" ABOVE FINISHED FLOOR.
5. INSTALL PIPING TO TERMINAL UNIT REHEAT COILS AND/OR HEAT PUMPS TO PROVIDE EASY ACCESS AND REMOVAL OF REHEAT COIL OR HEAT PUMP. DO NOT ROUTE PIPING UNDER TERMINAL UNIT OR HEAT PUMP.
6. PIPING AND EQUIPMENT SHOWN WITH THIN LINES INDICATES EXISTING TO REMAIN. PIPING AND EQUIPMENT SHOWN WITH BOLD LINES INDICATES NEW.
7. SEE SCHEDULES FOR SIZES OF BRANCH RUNOUTS TO EQUIPMENT.
8. ALL PIPING INSULATION SHALL MEET THE ENERGY CODE'S INSTALLED R VALUE REQUIREMENTS.
9. DIELECTRIC NIPPLES OR FLANGE INSULATION KITS SHALL BE UTILIZED FOR ALL DISSIMILAR PIPE CONNECTIONS. DIELECTRIC UNIONS WILL NOT BE ACCEPTED.

ABBREVIATIONS

A	AMP	C	CONDUIT	DWG	DRAWING	FO	FIBER OPTIC	IP	INTERNET PROTOCOL
	ALTERNATING CURRENT	CAB	CABINET	DX	DIRECT EXPANSION	FOV	FIELD OF VIEW	ISP	INSIDE PLANT
ACEG	AC EQUIPMENT GROUND	CATV	CABLE TELEVISION	EA	EXHAUST AIR	FP	FIBER PANEL	J-BOX	JUNCTION BOX
AFF	ABOVE FINISHED FLOOR	CB	CIRCUIT BREAKER	EAC	ELECTRONIC ACCESS CONTROL	FT	FEET	KCMIL	THOUSAND CIRCULAR MILS
AHJ	AUTHORITY HAVING JURISDICTION	CCTV	CLOSED CIRCUIT TELEVISION	EC	ELECTRICAL CONTRACTOR	FUR	FURNISHED	KV	KILOVOLT
ALF	ALUMINUM FRAME DOOR	CFH	CUBIC FEET PER HOUR	EHC	ELECTRIC HEATING COIL	FW	FILTERED WATER	KVA	KILOVOLT AMPERE
APPROX	APPROXIMATELY	CFM	CUBIC FEET PER MINUTE	EL	ELEVATION	G	GAS	KW	KILOWATT
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS	CKT	CIRCUIT	ELEC	ELECTRICAL	GA	GAGE	LAN	LOCAL AREA NETWORK
		CL	CENTER LINE	EMD	ESTIMATED MAXIMUM DEMAND	GALV	GALVANIZED	LBM	LATCH BOLT MONITOR
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	CLEC	COMPETITIVE LOCAL EXCHANGE CARRIER	EMI	ELECTROMAGNETIC INTERFERENCE	GC	GENERAL CONTRACTOR	LBS	POUNDS
		CLG	CEILING	EMS	ENERGY MANAGEMENT SYSTEM	GEC	GROUNDING ELECTRODE CONDUCTOR	LEC	LOCAL EXCHANGE BRANCH
ASTM	STANDARD SPECIFICATIONS OF THE AMERICAN SOCIETY FOR TESTING MATERIALS	CLR	CLEAR	EMT	ELECTRICAL METALLIC TUBING	GEN	GENERATOR	LTG	LIGHTING
		CM	COMMUNICATIONS CABLE	EOA	ECONOMIZER OUTDOOR AIR	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	MA	MAKEUP AIR
ATS	AUTOMATIC TRANSFER SWITCH	CMP	COMMUNICATIONS PLENUM CABLE	EPO	EMERGENCY POWER OFF	GND	GROUND	MATV	MASTER ANTENNA TELEVISION
AUX	AUXILIARY	CMR	COMMUNICATIONS RISER CABLE	EQUIP	EQUIPMENT	GPM	GALLONS PER MINUTE	MAU	MAKEUP AIR UNIT
AV	ACID VENT, AUDIOVISUAL	CO-OSP	CUSTOMER OWNED-OUTSIDE PLANT	ER	EQUIPMENT ROOM	HGT	HEIGHT	MAX	MAXIMUM
AVG	AVERAGE	COAX	COAXIAL CABLE	ES	EMERGENCY SHOWER	HH	HANDHOLE	MBH	1000 BTU/HOUR
AVI	AUTOMATIC VEHICLE IDENTIFICATION	CPVC	CHLORINATED POLYVINYL CHLORIDE	EXH	EXHAUST	HMF	HOLLOW METAL FRAME DOOR	MC	MAIN CROSS CONNECT
AW	ACID WASTE	CRAC	COMPUTER ROOM AIR CONDITIONER	EXIST	EXISTING	HP	HORSEPOWER, HEAT PUMP	MCB	MAIN CIRCUIT BREAKER
AWG	AMERICAN WIRE GAUGE	CT	CABLE TRAY	F	FIRE WATER	HTG	HEATING	MDF	MAIN DISTRIBUTION FRAME
BAS	BUILDING AUTOMATION SYSTEM	CV	CONSTANT VOLUME	FA	FIRE ALARM	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	MECH	MECHANICAL
BFP	BACKFLOW PREVENTER	DAS	DISTRIBUTED ANTENNA SYSTEM	FAAP	FIRE ALARM ANNUNCIATOR PANEL			MERV	MINIMUM EFFICIENCY REPORTING VALUE
BICSI	BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL	DD	DOUBLE DUCT	FACP	FIRE ALARM CONTROL PANEL	HW	HOT WATER		
		DIA	DIAMETER	FB	FLOOR BOX	HWC	HOT WATER CIRCULATING	MIN	MINIMUM
BLDG	BUILDING	DISC	DISCONNECT	FDC	FIRE DEPARTMENT CONNECTION	HZ	HERTZ	MISC	MISCELLANEOUS
BTC	BONDING CONDUCTOR FOR TELECOMMUNICATION	DIST	DISTRIBUTION	FHC	FIRE HOSE CABINET	IC	INTERCOM	MLO	MAIN LUGS ONLY
		DN	DOWN	FL	FLOOR	IDC	INSULATION DISPLACEMENT CONNECTOR	MM	MULTIMODE
BTU	BRITISH THERMAL UNIT	DP	DEMARCATION POINT	FLA	FULL LOAD AMPS			MOA	MINIMUM OUTDOOR AIR
BTUH	BRITISH THERMAL UNIT PER HOUR	DPS	DOOR POSITION SWITCH	FM	FACTOR MUTUAL ENGINEERING CORPORATION	IDF	INTERMEDIATE DISTRIBUTION FRAME	MPOE	MAIN POINT OF ENTRANCE
		DVR	DIGITAL VIDEO RECORDER	FMG	FACTORY MUTUAL GLOBAL	IDS	INTRUSION DETECTION SYSTEM	MTD	MOUNTED
						IE	INVERT ELEVATION	MTG	MOUNTING

MUTOA	MULTI USER TELECOMMUNICATIONS OUTLET ASSEMBLY	PNL	PANEL	SM	SPRINKLER MAIN, SINGLE MODE	TR	TELECOMMUNICATIONS ROOM
MXA	MIXED AIR	POE	POWER OVER ETHERNET	SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION	TTB	TELEPHONE TERMINAL BOARD
NC	NORMALLY CLOSED	POP	POINT OF PRESENCE			TV	TELEVISION
NEC	NATIONAL ELECTRICAL CODE	PP	PATCH PANEL	SPD	SURGE PROTECTIVE DEVICE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION	PRV	PRESSURE REGULATING VALVE	SPECS	SPECIFICATIONS	TYP	TYPICAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	PS	PLASTER SINK	SS	STAINLESS STEEL	UG	UNDERGROUND
NIC	NOT IN CONTRACT	PSF	POUNDS PER SQUARE FOOT	SSD	SUB SOIL DRAIN	UL	UNDERWRITERS LABORATORY
NO	NORMALLY OPEN	PSI	POUNDS PER SQUARE INCH	SSI	SECURITY SYSTEMS INTEGRATOR	UNO	UNLESS NOTED OTHERWISE
NOM	NOMINAL	PSTN	PUBLIC SWITCHED TELEPHONE NETWORK	SSS	SURGEON SCRUB SINK	UPS	UNINTERRUPTIBLE POWER SUPPLY
NPW	NON-POTABLE WATER	PTAC	PACKAGED TERMINAL AIR CONDITIONER	ST	STORM	US	UTILITY SINK
NTS	NOT TO SCALE	PTZ	PAN-TILT-ZOOM	STD	STANDARD	UTP	UNSHIELDED TWISTED PAIR
NVE	NETWORK VIDEO ENCODER	PVC	POLYVINYL CHLORIDE	STP	SHIELDED TWISTED PAIR	V	VOLT, VENT
NVR	NETWORK VIDEO RECORDER	PWR	POWER	SW	SWITCH	VD	VOLUME DAMPER
OA	OUTSIDE AIR	RA	RETURN AIR	SWBD	SWITCHBOARD	VERT	VERTICAL
OC	ON CENTER	REQD	REQUIRED	SWGR	SWITCHGEAR	VFC	VARIABLE FREQUENCY CONTROL
OPE	OWNER PROVIDED ELECTRONICS	RGS	RIGID GALVANIZED STEEL	T	TRANSFORMER	VOIP	VOICE OVER INTERNET PROTOCOL
OR	OPERATOR ROOM	RH	RELATIVE HUMIDITY	T-1	TRUNK LEVEL 1	VTR	VENT THROUGH ROOF
OSP	OUTSIDE PLANT	RLFA	RELIEF AIR	TBB	TELECOMMUNICATIONS BONDING BACKBONE	W	WATER, WATT
PABX	PRIVATE AUTOMATIC BRANCH EXCHANGE	RM	ROOM	TBBIBC	TELECOMMUNICATIONS BONDING BACKBONE INTERCONNECTING BONDING CONDUCTOR	WAN	WIDE AREA NETWORK
PB	PULLBOX	RO	REVERSE OSMOSIS WATER			WAP	WIRELESS ACCESS POINT
PBO	PROVIDED BY OTHERS	RPBFP	REDUCED PRESSURE BACKFLOW PREVENTER			WG	WATER GAUGE
PBX	PRIVATE BRANCH EXCHANGE	RQE	REQUEST TO EXIT	TC	TELECOMMUNICATIONS CLOSET	WMP	WIRE MANAGEMENT PANEL
PDU	POWER DISTRIBUTION UNIT	SA	SUPPLY AIR, SOUND ATTENUATOR	TEL	TELEPHONE	WP	WEATHERPROOF
PERP	PERPENDICULAR	SAN	SANITARY	TELECOM	TELECOMMUNICATIONS	WSA	WIRE SIZING AMPS
PIC	PLASTIC INSULATED CABLE	SCH	SCHEDULE	TEMP	TEMPERATURE	WSHP	WATER SOURCE HEAT PUMP
PIV	POST INDICATOR VALVE	SCTP	SCREENED TWISTED PAIR	TGB	TELECOMMUNICATIONS GROUNDING BUSBAR	WTH	WIRE TRANSFER HINGE
PLBG	PLUMBING	SCW	SOFT COLD WATER	TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR	XFMR	TRANSFORMER
		SHW	SOFT HOT WATER				
		(SIM)	SIMILAR				
		SLAB	SEALED LEAD ACID BATTERY				

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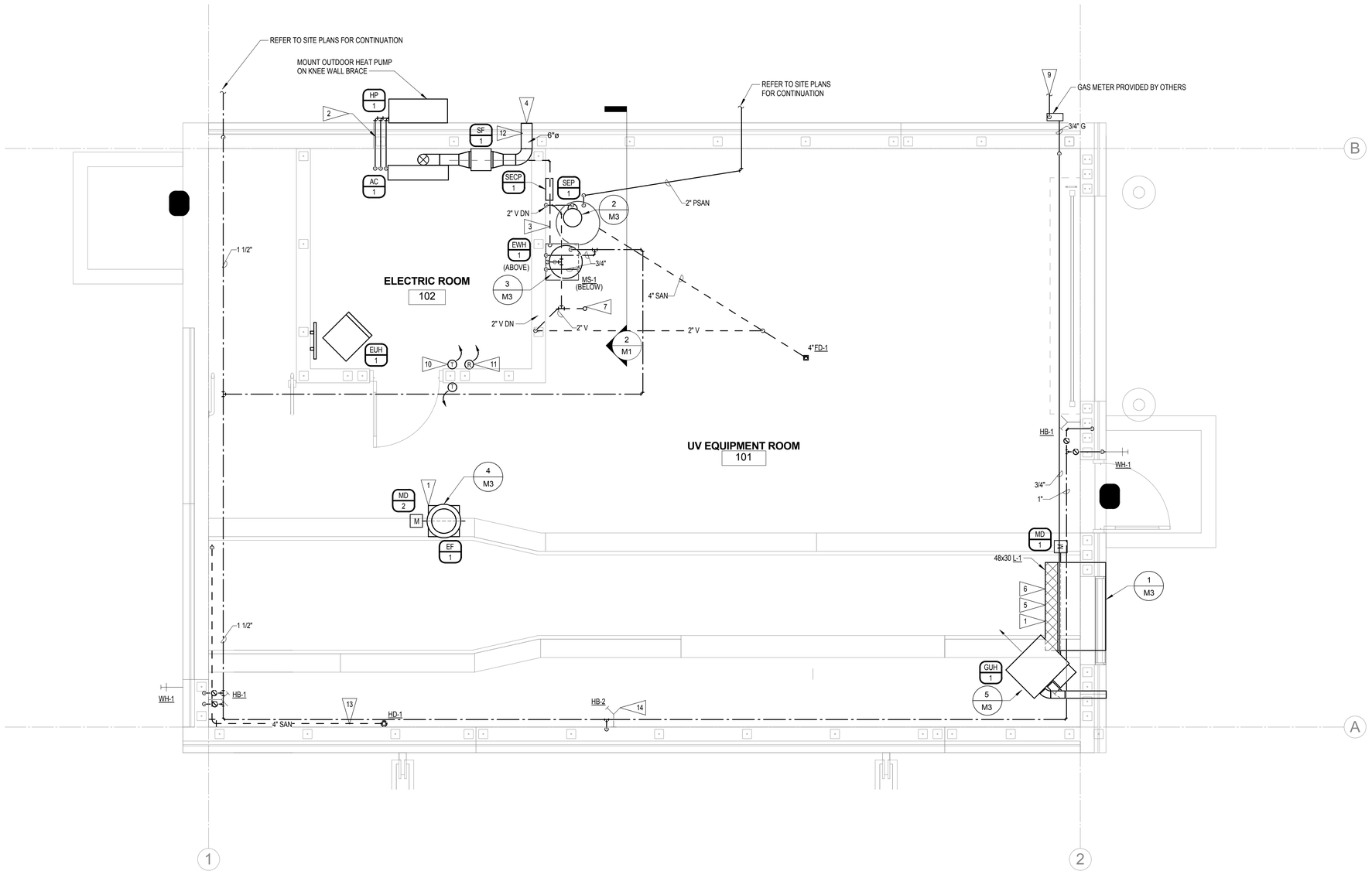
MECHANICAL SYMBOLS AND ABBREVIATIONS

2017 UV IMPROVEMENTS
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

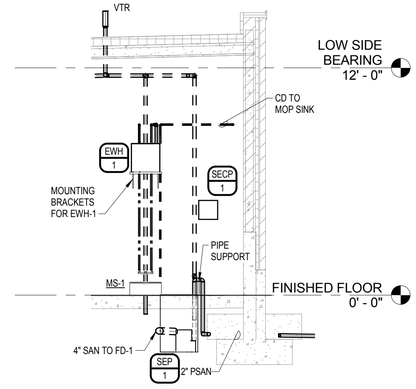
PROJECT NO. 2433-17A

SHEET M0



1 **HVAC FLOOR PLAN**
3/8" = 1'-0"

1'-6" 3' 6' 9' 12'



2 **SUMP PIT ELEVATION**
1/4" = 1'-0"

FLAG NOTES

1. MERV 8, 2 CELL HIGH X 1 CELL WIDE PLEATED 24X24X2 THROW AWAY FILTER BANK, FACE OR SIDE LOADING BOT @ 24" AFF. FILTERS TO BE FOT WITH TRANSITION TO LOUVER/DAMPER
2. REFRIGERANT PIPING. SIZE PER MANUFACTURER'S RECOMMENDATIONS.
3. 3/4' CONDENSATE FROM AC-1, ROUTE THRU ELECTRICAL ROOM WALL TO MS-1 AND TERMINATE VIA AIR GAP. SEAL WALL PENETRATION AND SUPPORT PIPING ALONG WALL.
4. PROVIDE WITH STAINLESS STEEL (SS) WALL INTAKE HOOD WITH SS WIRE CLOTH OVER INLET.
5. PROVIDE WITH REMOVABLE ALUMINUM INSECT SCREEN WITH 1" STAINLESS STEEL FRAME ON EXTERIOR OF LOUVER FRAME.
6. FURNISH DWYER MAGNAHELIC (0-1.0" WC) TO MONITOR FILTER F-1 CONDITION.
7. 2" V RISER UP TO 3" VTR.
8. EXTEND 4" SAN UNDERFLOOR FROM HUB DRAIN AT 1/2" PER FOOT AND TERMINATE INTO FE STRUCTURE.
9. REFER TO SITE PLAN - MECHANICAL & ELECTRICAL - EAST ON SHEET ME1. NEW 1" UNDERGROUND PLASTIC GAS PIPING WITH TRACER EXTENSION FROM PUMP HOUSE TO AND INCLUDING NEW METER TO BE FURNISHED BY UTILITY COMPANY VIA SUBCONTRACT. ALL GAS UTILITY COSTS TO BE INCLUDED UNDER CONTRACT.
10. MECHANICAL CONTRACTOR SHALL FURNISH ALL CONTROLS INCLUDING THERMOSTAT, WIRING AND CONDUIT FOR AC-1/HP-1 SYSTEM.
11. FAN SF-1 SOLID STATE SPEED CONTROLLER.
12. ALL INTERIOR OA DUCT SHALL BE INSULATED WITH 2" FIBERGLASS DUCT WRAP WITH FSK VAPOR BARRIER.
13. S80 STAINLESS STEEL DISCHARGE PIPING SHALL BE USED FROM HD-1 TO DISCHARGE POINT. COORDINATE LOCATION OF HD-1 WITH SAMPLING EQUIPMENT INSTALLERS. RUN S80 PIPING FROM HD-1 OUTLET ALONG SOUTH AND WEST WALLS AND ELBOW OUTWARDS TO DISCHARGE INTO SUBMERGED TESTING PUMP'S BAFFLED CONTAINMENT AREA WHICH IS LOCATED IN FAR NW CORNER OF UV CHANNEL.
14. EXTEND 1" CW DOWN TO WITHIN 48" OF FLOOR. TERMINATE WITH 1-INCH BALL VALVE WITH 1" FNPT TO 1" NHT OR NPSH HOSE THREADED END ADAPTER ON OUTLET FOR A 1' HOSE CONNECTION.

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FLOOR PLAN - MECHANICAL

2017 UV IMPROVEMENTS
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
M1

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1 **SITE PLAN - MECHANICAL - EAST**
1" = 30'-0"

20' 40' 80' 120' 160' 200'

FLAG NOTES - SITE UTILITY SERVICE

THE CONTRACTOR SHALL CONTRACT WITH ALLIANT ENERGY. THE GAS UTILITY SERVICE PROVIDER, TO FURNISH THE FOLLOWING SITE GAS UTILITY SERVICE WORK. THE ALLIANT ENERGY CONTACT WILL BE MR. JUSTIN VERHALEN, (641) 422-1720. ALL COSTS ASSOCIATED WITH THE SITE GAS UTILITY SERVICE WORK SHALL BE INCLUDED IN CONTRACTOR'S BID AMOUNT.

1. FURNISH NEW UNDERGROUND 1" DIA. 60 PSI PLASTIC GAS SERVICE PIPING WITH TRACER WIRE FROM SITE PUMP HOUSE TO NEW UV BUILDING. PIPING SHALL BE ROUTED TOWARDS EAST AND CLEAR OF EXISTING EAST SLUDGE STORAGE TANKS 1 AND 2.
2. FURNISH METER AND PRESSURE REGULATOR TO PROVIDE 2 PSI OUTLET PRESSURE WHILE DELIVERING 300 CFH (MIN) VOLUME.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR PIPING CONNECTIONS TO AND OUTWARDS FROM CUSTOMER SIDE OF METER, INCLUDING ALL ABOVE GRADE AND INTERIOR DISTRIBUTION GAS PIPING, VALVES AND EQUIPMENT CONNECTIONS INCLUDING SYSTEM GROUNDING AND BONDING.
4. CONTRACTOR SHALL COMPLETE SERVICE APPLICATION FORMS AND STATEMENT CERTIFYING NEW GAS PIPING SYSTEMS HAVE BEEN PRESSURE TESTED TO THE SATISFACTION OF ALLIANT ENERGY.

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SITE PLAN - MECHANICAL

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CLEAR LAKE, IOWA

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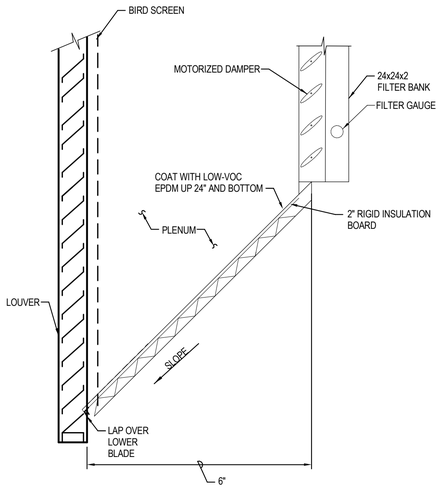
M2



AIR INTAKE LOUVER

1 / M3

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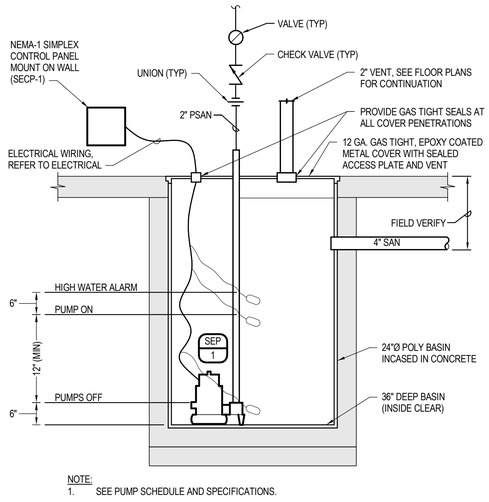
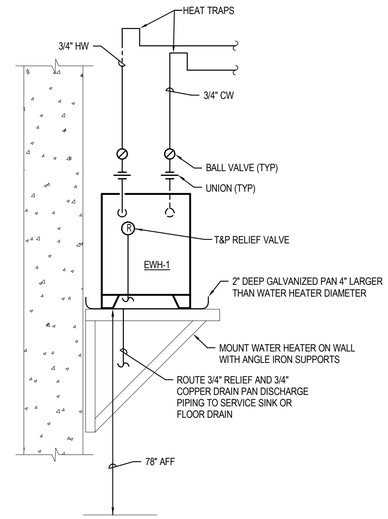


NOTE:
1. SEE PUMP SCHEDULE AND SPECIFICATIONS.

SIMPLEX SEWAGE PUMP SEP-1

2 / M3

NO SCALE



WATER HEATER

3 / M3

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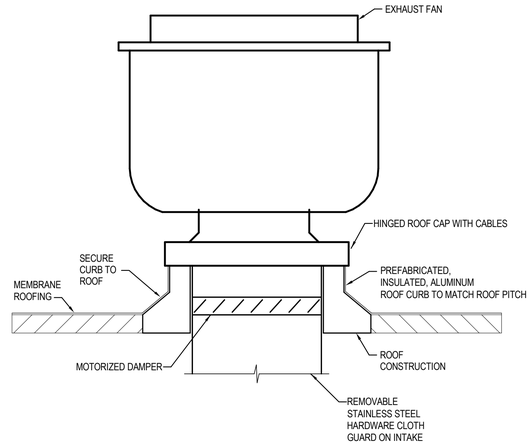

EXHAUST FAN MOUNTING

4 / M3

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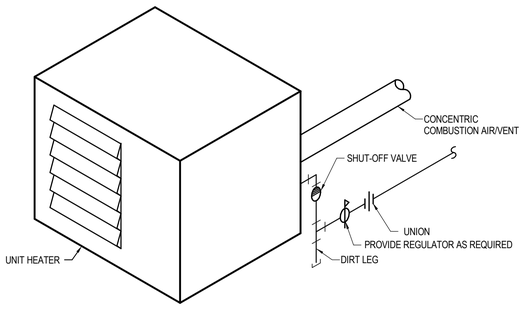

GAS UNIT HEATER

5 / M3

NO SCALE

SEQUENCES OF OPERATION -

UV ROOM 101:

UV ROOM 101 TEMPERATURE AND VENTILATION COOLING CONTROL SHALL BE VIA WALL MOUNTED PROGRAMMABLE THERMOSTAT, TO BE LOCATED ON THE SOUTH WALL ADJACENT TO ELECTRICAL ROOM 102 DOOR. SPACE IS NOT CLASSIFIED AND FULL TIME OUTDOOR AIR VENTILATION WILL NOT BE PROVIDED.

HEATING - GAS UNIT HEATER (GUH-1)

THERMOSTAT SHALL BE SET IN "AUTO" OR "HEATING" MODE. UPON CALL FOR SPACE HEATING, AS DETERMINED BY THE SENSED UV ROOM 101 SPACE TEMPERATURE BEING LESS THAN THE THERMOSTAT HEATING SET-POINT OF 55°F (ADJ.) GUH-1 SHALL START AND RUN. SELF-CONTAINED UNITARY CONTROLS SHALL ENERGIZE ITS CIRCULATION FAN AND START AND MODULATE ITS GAS BURNER. CIRCULATION FAN SHALL RUN FOR A BRIEF PERIOD OF TIME AFTER ROOM HAS ACHIEVED SET-POINT AND GAS BURNER HAS STOPPED.

VENTILATION COOLING - EXHAUST FAN (EF-1) AND OUTSIDE AIR INTAKE LOUVER (L-1) WITH MOTORIZED ISOLATION DAMPERS (MD-1, MD-2)

THERMOSTAT SHALL BE SET IN "AUTO" OR "COOLING" MODE. UPON CALL FOR SPACE COOLING, AS DETERMINED BY THE SENSED UV 101 ROOM SPACE TEMPERATURE BEING GREATER THAN THE THERMOSTAT COOLING SET-POINT OF 80°F (ADJ.), MD-1 AND MD-2 SHALL BE POWERED OPEN AND PROVEN OPEN VIA END SWITCH CLOSURES. AFTER BOTH DAMPERS ARE OPEN ROOF MOUNTED, CONSTANT VOLUME EXHAUST FAN EF-1 SHALL START AND RUN TO EXCHANGE AIR INSIDE OF ROOM IN A CROSS FLOW TYPE PATTERN.

OUTSIDE AIR INTAKE FILTERS

A MAGNAHELIC DIFFERENTIAL PRESSURE GAUGE SHALL BE INSTALLED ON INTERIOR SIDE OF F-1 FILTER HOUSING TO MEASURE PRESSURE DROP ACROSS THE DISPOSABLE FILTERS WHICH ARE LOCATED ON INTERIOR ROOM SIDE OF OUTDOOR AIR INTAKE LOUVER L-1. FILTERS MUST BE CHANGED ONCE PRESSURE DROP EXCEEDS 0.40-0.50 IN.W.C. (ADJ.).

ELECTRICAL ROOM 102:

ELECTRICAL ROOM 102 TEMPERATURE AND VENTILATION COOLING CONTROL SHALL BE VIA WALL MOUNTED PROGRAMMABLE THERMOSTAT, TO BE LOCATED ON THE NORTH WALL ADJACENT TO ROOM DOOR. HEATING AND COOLING FOR THE ROOM WILL BE PROVIDED BY A MINI-SPLIT ELECTRIC AIR-TO-AIR HEAT PUMP WITH INTERIOR UNIT (AC-1) AND EXTERIOR WALL MOUNTED (HP-1).

HEATING

THERMOSTAT SHALL BE SET IN "AUTO" OR "HEATING" MODE. UPON CALL FOR SPACE HEATING, AS DETERMINED BY THE SENSED ELECTRICAL ROOM 102 SPACE TEMPERATURE BEING LESS THAN THE THERMOSTAT HEATING SET-POINT OF 50°F (ADJ.) AC-1/HP-1 SHALL START AND RUN. SELF-CONTAINED UNITARY CONTROLS SHALL MODULATE DIRECT EXPANSION (DX) HEAT PUMP SYSTEM AS REQUIRED TO HEAT ROOM.

IF AC-1/HP-1 CANNOT MAINTAIN HEATING SET-POINT AND SPACE TEMPERATURE FALLS TO LESS THAN 45° F (ADJ.) THE SPACE MOUNTED ELECTRIC UNIT HEATER EUH-1 SHALL BE ENERGIZED TO MAINTAIN MINIMUM SPACE TEMPERATURE OF 45°F (ADJ.) VIA EUH-1 FACE MOUNTED INTEGRAL ROTARY DIAL THERMOSTAT.

COOLING

THERMOSTAT SHALL BE SET IN "AUTO" OR "COOLING" MODE. UPON CALL FOR SPACE COOLING, AS DETERMINED BY THE SENSED ELECTRICAL ROOM 102 SPACE TEMPERATURE BEING GREATER THAN THE THERMOSTAT COOLING SET-POINT OF 80°F (ADJ.) AC-1/HP-1 DIRECT EXPANSION (DX) SHALL START AND RUN. SELF-CONTAINED UNITARY CONTROLS SHALL CYCLE AND MODULATE HEAT PUMP SYSTEM AS REQUIRED TO COOL ROOM.

CONDENSATION

CONDENSATION FROM INTERIOR AC-1 SHALL DRAIN TO NEAREST MOP SINK (MS-1).

SPACE PRESSURIZATION

CIRCULATION AC-1 FAN SHALL RUN CONTINUOUSLY 24/7/365. AN INLINE FAN (SF-1) SHALL START AND RUN CONTINUOUSLY TO SLIGHTLY PRESSURIZE ROOM (≥ 0.01 IN.W.C.). A WALL MOUNTED SPEED CONTROLLER SHALL BE USED TO HARD BALANCE SYSTEM DURING INITIAL SET-UP AND BALANCE.

SEQUENCE OF OPERATION

6 / M3

NO SCALE

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	DRAWN: Author	7/17
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MECHANICAL DETAILS

2017 UV IMPROVEMENTS
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
M3

PLUMBING EQUIPMENT AND CONNECTION SCHEDULE

SEE SPECIFICATIONS FOR APPROVED MANUFACTURERS

MARK	DESCRIPTION	BASIS OF DESIGN	CONNECTION DETAILS
FD-1 FLOOR DRAIN	COMPLY WITH ASME A112.6.3. CAST IRON BODY AND TRAP, AND MEDIUM DUTY 8" DIAMETER CAST IRON GRATE. (UTILITY ROOM)	JR SMITH 2110	WASTE: 4" | VENT: 3" | CW: - | HW: - REMARKS: . 
HB-1 HOSE BIBB	ASSE 1052. CHROME WITH CHROME BACKFLOW PREVENTER COMPLYING WITH ASSE 1052. LOCATE HOSE BIBB A MINIMUM OF 12" AFF.	WOODFORD 26	WASTE: - | VENT: - | CW: 3/4" | HW: - REMARKS: . 
WH-1 WALL HYDRANT	ASSE 1052, SELF DRAINABLE WITH INTEGRAL NON-REMOVABLE HOSE CONNECTION BACKFLOW PREVENTER, CASING AND OPERATING ROD TO MATCH WALL THICKNESS, PROJECTING OUTLET, AND WALL CLAMP. CLASSIFICATION: [TYPE A, FOR AUTOMATIC DRAINING WITH HOSE REMOVED OR] TYPE B, FOR AUTOMATIC DRAINING WITH HOSE REMOVED OR WITH HOSE ATTACHED AND NOZZLE CLOSED. NOZZLE AND WALL PLATE FINISH: [ROUGH] [POLISHED] [POLISHED NICKEL] [BRONZE] [OR] [BRASS]. (NONFREEZE EXPOSED OUTLET)	WOODFORD 67	WASTE: - | VENT: - | CW: 3/4" | HW: - REMARKS: . 
MS-1 MOP SINK	FIXTURE: FLOOR MOUNTED, PRECAST TERRAZZO BASIN WITH 20 GAUGE STAINLESS STEEL RIM GUARD, TILING FLANGES WHERE REQUIRED, CAST BRASS 3" DRAIN WITH STAINLESS STEEL STRAINER. SIZE: 24"x24"x12" DEEP. FAUCET: CHROME PLATED WITH 6 1/2" INCH THREADED SPOUT, LEVER HANDLES, VACUUM BREAKER, LOOSE KEY CHECK STOPS IN SHANKS, PAIL HOOK, WALL BRACE, RUBBER HOSE, AND WALL HOOK. (24x24)	FIXTURE: STERN-WILLIAMS "SERVICEPTOR" SB-900 FAUCET: ZURN Z843M1-XL-CS	WASTE: 3" | VENT: 1 1/2" | CW: 3/4" | HW: 3/4" REMARKS: . 
TMV-1 WATER TEMPERING EQUIPMENT	COMPLY WITH ASSE 1017. THERMOSTATIC MIXING VALVE CAPABLE OF CONTROLLING WATER TEMPERATURES DOWN TO A MINIMUM FLOW OF 1/2 GPM. PROVIDE WITH A BRONZE BODY, OUTLET THERMOMETER, AND OUTLET ISOLATION VALVE. CABINET: SURFACE [RECESSED] MOUNTING STEEL BOX WITH HINGED DOOR, WHITE ENAMELED FINISH. [STAINLESS STEEL BOX WITH STAINLESS STEEL HINGED DOOR]. FLOW RATE: [__] GPM AT [__] PSI PRESSURE DROP. (SINGLE MASTER MIXER, UP 5.5 GPM @ 10 PSI WITH 1/2 GPM MINIMUM FLOW)	LAWLER SERIES 61	WASTE: - | VENT: - | CW: 1/2" | HW: 1/2" REMARKS: . 
HD-1 HUB DRAIN	TYPE 304 STAINLESS STEEL HUB DRAIN WITH SCHEDULE 10 BUTTWELD OUTLET.	JR SMITH D9654	WASTE: 4" | VENT: - | CW: - | HW: - REMARKS: . 

FAN SCHEDULE

MARK	SERVES	LOCATION	TYPE	CLASS	AIRFLOW (CFM)	EXT S.P. (IN. W.C.)	WHEEL TYPE	WHEEL DIAMETER (IN)	FAN RPM	DRIVE	MAX SONES	CONTROL	WEIGHT (LBS)	MANUFACTURER	MODEL	REFERENCE SPECIFICATION	REMARKS
EF-1	GEN EXH	ROOF	CENT UB	I	1650	0.5	BI	---	1600	BELT	16	ON/OFF	110	GREENHECK	CUBE-121-5		1,2,3
SF-1	OA	ELEC RM 102	CENT INLINE	N/A	100	0.1	BI		VARIABLE	DIRECT		SOLID STATE SPD	10	FANTECH	FR100		SEE BELOW

REMARKS:

1. SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE ON SHEET E4 FOR ELECTRICAL DATA.
2. FURNISH WITH INSULATED ALUMINUM 18" ROOF CURB TO MATCH ROOF PITCH, HINGED CURB CAP W CABLES, DAMPER TRAY, CORROSION RESISTANT FASTENERS
3. FAN SHALL BE COATED WITH CORROSION RESISTANT PERMATECTOR (CONCRETE GREY)
4. FURNISH WITH WALL MOUNTED, SOLID STATE VARIABLE SPEED CONTROLLER AND SIDEWALL STAINLESS STEEL DISCHARGE HOOD. BALANCE TO ESTABLISH 0.01 IN.W.C. ROOM PRESSURE TO ADJACENT RM 101.

AIR TO AIR HEAT PUMP INSIDE UNIT SCHEDULE

MARK	SERVES	LOCATION	CONFIGURATION	AIRFLOW (CFM)	MAX OUTSIDE AIRFLOW (CFM)	MIN OUTSIDE AIRFLOW (CFM)	SUPPLY FAN DATA: EXT S.P. (IN. W.C.)	DIAMETER (IN)	FAN RPM	FAN BHP	FAN MOTOR HP	DIMENSIONS (LxWxH) (IN)	WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
AC-1	ELEC RM 102	CEILING	HIGH WALL HORIZONTAL	450-600	100	0	NA	NA	NA	NA	NA	33" X 33" X 10"	50	CARRIER	RAV-SP180UT-UL	SEE BELOW

REMARKS:

1. SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE ON SHEET E4 FOR ELECTRICAL DATA.
2. PROVIDE COIL TO MATCH OUTSIDE AIR CAPACITY. FURNISH WITH OA FRESH AIR KIT.
3. PROGRAMMABLE THERMOSTAT WITH LOCKING COVER. WIRELESS REMOTE THERMOSTAT
4. PROVIDE OUTSIDE AIR LOCKOUT SET AT 20°F. THIS SHALL DISABLE THE OA FAN
5. MOUNT UNITS ON RUBBER-IN-SHEER VIBRATION MOUNTINGS.
6. SINGLE-POINT POWER CONNECTION. INTERIOR UNIT IS FED 208/230 V 1 PH. FROM EXTERIOR UNIT.
7. PROVIDE INSULATED LINE SET AND CONDENSATE PIPING ROUTED TO EXTERIOR OF BUILDING.

AIR TO AIR HEAT PUMP OUTSIDE UNIT SCHEDULE

MARK	SERVES	COOLING CAPACITY (TONS) [2]	AMBIENT TEMP (°F) (COOLING)	AMBIENT TEMP (°F) (HEATING)	HEATING CAPACITY (MBH)	NO. REFRIG. CIRCUITS	MIN EER (AHRI)	DIMENSIONS (LxWxH) (IN)	WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
HP-1	ELEC RM 102	1.50	-13 UP TO 122	-22 UP TO 86	18,800	1	10.70	11" X 31" X 22"	120	CARRIER	RAV-SP180AT2-UL	SEE BELOW

REMARKS:

1. SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE ON SHEET E4 FOR ELECTRICAL DATA.
2. CAPACITY BASED ON 80-67 ENTERING AIR CONDITIONS. RATINGS 20.5 SEER 11.5 HSPF
3. MOUNT TO WALL ON WELDED, PAINTED STEEL KNEE BRACE.

ELECTRIC UNIT HEATER SCHEDULE

MARK	SERVES	LOCATION	CONFIGURATION	HEATING CAPACITY (KW)	AIRFLOW (CFM)	DIMENSIONS (LxWxH) (IN)	MANUFACTURER	MODEL	REMARKS
EUH-1	ELEC RM 102	ELEC RM 102	HORZ - CEILING MTD.	5	270	18X16X18	BERKO	HUH-548SA	SEE BELOW

REMARKS:

1. SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE ON SHEET E4 FOR ELECTRICAL DATA.
2. INDIVIDUALLY ADJUSTABLE FRONT LOUVERS, COMBINATION CELING WALL BARACKET, SINGLE POLE BUILT IN THERMOSTAT

PLUMBING PUMP SCHEDULE

MARK	SERVES	TYPE	GPM	HEAD FT.	RPM	EFFICIENCY AT DESIGN	MANUFACTURER	MODEL NO.	REMARKS
SEP-1	UV BUILDING	SIMPLEX	45	15	1,750	N/A	ZOELLER	267	SEE BELOW

REMARKS:

1. SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE ON SHEET E4 FOR ELECTRICAL DATA
2. FURNISH WITH TOPPS 24"X36" POLY BASIN WITH 12 GA. VAPOR TIGHT COVER WITH PUMP ACCESS PLATE, SEALS AND GROMMETS
3. FURNISH WITH WALL MOUNTED SIMPLEX CONTROLLER WITH MULTIPLE TETHERED CONTROL FLOATS. NEMA 4X ENCLOSURE. ZOELLER M/N 1037.

GAS FIRED UNIT HEATER SCHEDULE

MARK	SERVES	LOCATION	INPUT (BTUH)	OUTPUT (BTUH)	AIRFLOW (CFM)	EXT S.P. (IN. W.C.)	FLUE SIZE (IN)	EAT (°F)	LAT (°F)	DIMENSIONS (LxWxH) (IN)	OPERATING WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
GUH-1	UV RM 101	NE CORNER	60,000	49,800	770	N/A	4	40.0	100.0	27 X 27 X 16	80	REZNOR	UDAS-60	SEE BELOW

REMARKS:

1. SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE ON SHEET E4 FOR ELECTRICAL DATA.
2. SEPERATED COMBUSTION, PROVIDE COMBUSTION AIR AND VENT PIPING, HORIZONTAL THRU THE WALL CONCENTRIC VENT KIT, DOWNTURN NOZZLE KIT, 409 SS HEAT EXCHANGER, 2-STAGE GAS VALVE AND TRIM, REMOVE THERMOSTAT.

FILTER SCHEDULE

MARK	LOCATION	TYPE	THICKNESS (IN)	MAX FACE VELOCITY (FPM)	MAX INITIAL APD (IN. W.C.)	EFFICIENCY (ASHRAE 52-76)	MERV RATING	QTY	SIZE (IN)	MANUFACTURER	MODEL	REMARKS
F-1	UV RM 102 - L-1	PANEL	2"	210	0.3	30%	8	2	24 X 24	CAMFIL	30/30	

REMARKS:

1. FURNISH WITH GALVANIZED SIDE LOADING C-CHANNEL FILTER RACK ASSEMBLY WITH CLOSABLE ENDS TO PREVENT FILTER BYPASS.
2. FURNISH ONE ADDITIONAL SET OF FILTERS AT PROJECT CLOSE OUT

ELECTRIC WATER HEATER SCHEDULE

MARK	SERVES	LOCATION	STORAGE CAPACITY	RECOVERY (GPH @ 100°F RISE)	TOTAL KILOWATTS (KW)	NUMBER OF ELEMENTS	DIMENSIONS (LxWxH) (IN.)	OPERATING WEIGHT (LBS)	MANUFACTURER	MODEL NUMBER	REMARKS
EWH-1	UV	UV RM 101	10	12	3	1	18" DIA X 18"H	140	AO SMITH	DEL-10	SEE BELOW

REMARKS:

1. SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE ON SHEET E4 FOR ELECTRICAL DATA.
2. FACTORY INSTALLED TERMINAL BLOCK, ASME RATED T&P RELIEF VALVE, SIDE PIPING INLET/OUTLET
3. FURNISH WITH WELDED, PAINTED MILD STEEL KNEE BRACE SUPPORT ANCHORED TO WALL WITH DRAIN PAN
4. ADJ TEMPERATURE CONTROLS 110 ° - 170° F

CONTROL DAMPER SCHEDULE

MARK	SERVICE	BLADE CONFIGURATION	SIZE (LxW) (IN)	CFM RANGE	MAX S.P. (IN. W.G.)	CONSTRUCTION MATERIAL	FAILURE POSITION: N.O.	FAILURE POSITION: N.C.	MANUFACTURER	MODEL	REMARKS
MD-1	L-1	OPPOSED	48" X 30"	0-1650	0.01	GALVANIZED		X	GREENHECK	VCD-34	SEE BELOW
MD-2	EF-1	OPPOSED	12" X 12"	0-1650	0.06	GALVANIZED		X	GREENHECK	VCD-34	SEE BELOW

REMARKS:

1. SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE ON SHEET E4 FOR ELECTRICAL DATA.
2. 120 V 2-POS ACTUATOR WITH END SWITCH, SS AXLE AND JAMB SEALS, SILICONE BLADE SEALS

LOUVER SCHEDULE

MARK	SERVES	CFM	SIZE (LxH) (IN)	FREE AREA (FT^2)	FREE AREA VELOCITY (FPM)	AIR PD (IN. W.G.)	FINISH	MANUFACTURER	MODEL	REMARKS
L-1	UV RM 101 OA INTAKE	1,650	48 X 30	4.68	360	0.02	2 COAT 70% KYNAR	GREENHECK	ESD-603	1,2

REMARKS:

1. COLOR SELECTION BY ARCHITECT FROM STANDARD COLOR OPTIONS
2. FIXED BLADE FLANGED,EXTENDED SILL WITH END DAMS, INTERIOR ALUM BIRD SCREEN, VERTICAL SECURITY BARS
3. PROVIDE WITH REMOVEABLE ALUMINUM INSECT SCREEN WITH 1" STAINLESS STEEL (SS) SUPPORT FRAME ON EXTERIOR OF LOUVER FRAME.

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MECHANICAL SCHEDULES

2017 UV IMPROVEMENTS
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
M4

SITE UTILITY PLAN GENERAL NOTES:

1. VERIFY EXACT LOCATION OF EXISTING UTILITIES IN THE FIELD PRIOR TO EXCAVATION. REPORT DISCREPANCIES BETWEEN CONSTRUCTION DOCUMENTS AND ACTUAL CONDITIONS PRIOR TO PROCEEDING WITH WORK.

2. ANY UTILITY SHUTDOWN SHALL BE SCHEDULED AND COORDINATED WITH THE OWNER PRIOR TO SHUTDOWN.

FLAG NOTES

1. ROUTE CONDUIT TO CONTROL PANEL 30-LCP-1 IN TERTIARY BUILDING ELECTRICAL ROOM. REFER TO SECTION 26 2418.
2. ROUTE CONDUIT TO NEW UV SPCP PANEL IN UV BUILDING ELECTRICAL ROOM. REFER TO SECTION 262418.
3. BURIED PULL BOX (TYP). PROVIDE ADDITIONAL PULL BOXES LOCATED AS REQUIRED FOR CABLE PULLING AND MEETING NEC REQUIRED CONDUIT BENDING LIMITS. PROVIDE BOLT-ON COVER LABELED "ELECTRIC".
4. (1) FIBER OPTIC CABLE IN 1" CONDUIT. CABLE SHALL BE CORNING FREEDOM LST, GEL-FREE, NO. 006KSF-T4130020, OR EQUAL. TERMINATE CABLE AT PATCH PANEL IN EACH BUILDING'S CONTROL PANEL. PROVIDE CORNING UNICAM, TYPE ST COMPATIBLE CONNECTORS, NO. 95-000-50, OR EQUAL AND CORNING INDOOR BUFFER TUBE NO. FAN-BT25-06, OR EQUAL, FAN OUT KITS AS REQUIRED. COORDINATE WITH SPCP SUPPLIER.
5. ROUTE CONDUIT TO NEW MCC IN ELECTRICAL ROOM. SEE E2.
6. 1 - 1" CONDUIT WITH PULLSTRING FOR FUTURE PHONE CABLING.
7. STUB PHONE CONDUIT INTO SOUTH WALL OF TERTIARY BUILDING ELECTRICAL ROOM. TERMINARE IN JUNCTION BOX WITH BLANK COVER AT 48" AFF.
8. EFFLUENT SAMPLING AND MONITORING EQUIPMENT TO BE RELOCATED TO NEW UV BUILDING. DISCONNECT EQUIPMENT AND REMOVE CONDUCTORS BACK TO CONTROL PANEL 30-LCP-1. SEE SHEET E2 FOR EQUIPMENT RECONNECTIONS. COORDINATE WITH SPCP SUPPLIER.
9. PROVIDE LB WHERE CONDUIT PENETRATES EXISTING WALL.

FLAG NOTES - MEDIUM VOLTAGE WORK

THE CONTRACTOR SHALL CONTRACT WITH ALLIANT ENERGY TO PROVIDE THE FOLLOWING MEDIUM VOLTAGE WORK. THE ALLIANT CONTACT IS JUSTIN VERHALEN, 641-422-1720. THE COST FOR THIS WORK SHALL BE INCLUDED IN THE CONTRACTOR'S BID.

- A1 REMOVE EXISTING 15KV CONDUCTORS BETWEEN TERTIARY BUILDING TRANSFORMER AND EXISTING JUNCTION CABINET WEST OF ADMIN. BUILDING.
- A2 PROVIDE NEW 4" CONDUIT TO REROUTE PATHWAY AS INDICATED. PROVIDE PULLBOX(ES) AS REQUIRED.
- A3 PROVIDE NEW 25KV CONDUCTORS BETWEEN TERTIARY BUILDING TRANSFORMER AND EXISTING JUNCTION CABINET WEST OF ADMIN. BUILDING IN EXISTING AND NEW CONDUITS. PROVIDE TERMINATIONS AT EACH END AS REQUIRED.
- A4 CONNECT NEW TO EXISTING CONDUIT.

1 **SITE PLAN - MECHANICAL AND ELECTRICAL - EAST**
1" = 20'-0"
10' 20' 40' 60' 80' 100'

INSTALL GREEN INSULATED GROUND WIRE WITH EACH LIGHTING, RECEPTACLE, AND EQUIPMENT BRANCH CIRCUIT.

PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT REQUIRING A NEUTRAL, UNLESS OTHERWISE NOTED.

WARNING - CALL 48 HOURS BEFORE YOU DIG

IOWA LAW REQUIRES ANYONE DOING ANY EXCAVATION, FENCING, PLANTING OR DRILLING TO CALL 48 HOURS IN ADVANCE. HAND DIG WITHIN 18 INCHES OF ANY LOCATE MARK OR FLAG.

CALL: IOWA ONE-CALL 800-292-8989

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SITE PLAN - MECHANICAL & ELECTRICAL

2017 UV IMPROVEMENTS
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
ME1

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1 **SITE PLAN - MECHANICAL AND ELECTRICAL - WEST**
1" = 20'-0"

10' 20' 40' 60' 80' 100'

2 **DIGESTER BUILDING - WEST EXTERIOR WALL**
NO SCALE

3 **EXISTING ELECTRIC UTILITY EQUIPMENT WEST OF DIGESTER BUILDING**
NO SCALE

SITE UTILITY PLAN GENERAL NOTES:

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FLAG NOTES

1 TO NEW 200A BREAKER IN DIGESTER MCC. REFER TO SECTION 262418.

2 ROUTE CONDUIT UP EXTERIOR WALL OF BUILDING AND PENETRATE WALL WITH LB ADJACENT TO OTHER EXISTING CONDUITS. SEE PHOTO 2/ME2.

INSTALL GREEN INSULATED GROUND WIRE WITH EACH LIGHTING, RECEPTACLE, AND EQUIPMENT BRANCH CIRCUIT.

PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT REQUIRING A NEUTRAL, UNLESS OTHERWISE NOTED.

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SITE PLAN - MECHANICAL & ELECTRICAL

2017 UV IMPROVEMENTS
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
ME2

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ELECTRICAL SYMBOLS

LIGHTING AND POWER

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
# / #	SURFACE MOUNTED CEILING FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)	# / #	SURFACE MOUNTED WALL FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)	#	CEILING MOUNTED EXIT LIGHT WITH DIRECTIONAL ARROW, SHADING INDICATES FACE (# INDICATES FIXTURE NUMBER IN SCHEDULE)
# / #	RECESSED MOUNTED CEILING FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)	# / #	RECESSED MOUNTED WALL FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)	#	WALL OR END MOUNTED EXIT LIGHT WITH DIRECTIONAL ARROW, SHADING INDICATES FACE (# INDICATES FIXTURE NUMBER IN SCHEDULE)
· # · / #	PENDANT MOUNTED CEILING FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)	#	STRIP LIGHT (# INDICATES FIXTURE NUMBER IN SCHEDULE)	#	COMBINATION CEILING MOUNTED EXIT / EMERGENCY BATTERY LIGHT WITH DIRECTIONAL ARROW, SHADING INDICATES FACE (# INDICATES FIXTURE NUMBER IN SCHEDULE)
		#	BRACKET FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)		
# / #	IN GRADE/FLOOR FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)	#	FIXTURE TRACK (# INDICATES FIXTURE NUMBER IN SCHEDULE)	#	COMBINATION WALL MOUNTED EXIT / EMERGENCY BATTERY LIGHT WITH DIRECTIONAL ARROW, SHADING INDICATES FACE (# INDICATES FIXTURE NUMBER IN SCHEDULE)
		#	TRACK MOUNTED FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)		
	SHADING INDICATES FIXTURE ON EMERGENCY CIRCUIT OR WITH BATTERY BACKUP	#	CEILING FAN - NUMBER OF BLADES IN SCHEDULE (# INDICATES FIXTURE NUMBER IN SCHEDULE)	#	EMERGENCY BATTERY LIGHT (# INDICATES FIXTURE NUMBER IN SCHEDULE)
#	UNDERCABINET LIGHT (# INDICATES FIXTURE NUMBER IN SCHEDULE)			#	ABOVE GRADE FIXTURE (# INDICATES FIXTURE NUMBER IN SCHEDULE)
	ARROW INDICATES WALL WASH FIXTURE	#	THEATER SPOT LIGHT (# INDICATES FIXTURE NUMBER IN SCHEDULE)	#	POLE LUMINAIRE(S) (# INDICATES FIXTURE NUMBER IN SCHEDULE)
S	SINGLE POLE SWITCH		SIMPLEX RECEPTACLE		LIGHTING PANEL
S_2	DOUBLE POLE SWITCH	G,T,U	DUPLEX RECEPTACLE "G" SUBSCRIPT INDICATES GFCI,"T" SUBSCRIPT INDICATES TAMPER RESISTANT TYPE, "U" SUBSCRIPT INDICATES COMBINATION USB CHARGING STATION		DIMMING/RELAY PANEL
S_3	3-WAY SWITCH				DISTRIBUTION PANEL, SWITCHBOARD, OR MOTOR CONTROL CENTER
S_4	4-WAY SWITCH		AUTOMATICALLY CONTROLLED DUPLEX RECEPTACLE	T	TRANSFORMER
S_D	DOOR SWITCH		ISOLATED GROUND DUPLEX RECEPTACLE	ATS	AUTOMATIC TRANSFER SWITCH
S_{MC}	MOMENTARY CONTACT SWITCH		HOSPITAL GRADE DUPLEX RECEPTACLE		ENCLOSED CIRCUIT BREAKER
S_T	TIMER SWITCH		RED DUPLEX RECEPTACLE		SINGLE PHASE MAGNETIC MOTOR STARTER
S_{TE}	SINGLE POLE MANUAL MOTOR STARTER WITH THERMAL OVERLOAD AND PILOT LIGHT		DUPLEX RECEPTACLE - SPLIT WIRED		THREE PHASE MAGNETIC MOTOR STARTER
	SWITCH AND FUSE		DRYER RECEPTACLE NEMA 14-30 (125/250V 30A)		COMBINATION MAGNETIC STARTER/DISCONNECT
	SWITCH AND FUSTAT		SPECIAL PURPOSE RECEPTACLE (NEMA CONFIGURE AS NOTED)		SAFETY SWITCH (FUSED UNLESS OTHERWISE NOTED)
#	MANUAL DIMMER OR FAN SPEED CONTROL (# INDICATES WATTAGE: "6"-600W, "10"-1000W, "15"-1500W, "20"-2000W, "F"-FAN SPEED CONTROL)		HORIZONTAL MOUNTED DUPLEX RECEPTACLE	M #	MOTOR (# INDICATES HORSEPOWER)
			RANGE RECEPTACLE NEMA 14-50 (125/250V 50A)	PB	PULL BOX
#	CEILING MOUNTED OCCUPANCY SENSOR (# INDICATES SENSOR TYPE IN SCHEDULE)	W	WELDER RECEPTACLE NEMA 6-50 (250V 50A)		WALL MOUNTED JUNCTION BOX
#	WALL MOUNTED OCCUPANCY SENSOR / SWITCH (# INDICATES SENSOR TYPE IN SCHEDULE)		DOUBLE DUPLEX RECEPTACLE	J X	JUNCTION BOX ("F" INDICATES FLOOR, "C" INDICATES CEILING)
	PUSH BUTTON STATION		(1) DUPLEX, (1) DUPLEX AUTOMATICALLY CONTROLLED		BRANCH CIRCUIT - EXPOSED
P	PHOTOCELL CEILING MOUNTED		ISOLATED GROUND DOUBLE DUPLEX RECEPTACLE		BRANCH CIRCUIT - CONCEALED IN CEILING OR WALL
P	PHOTOCELL WALL MOUNTED		RED DOUBLE DUPLEX RECEPTACLE		BRANCH CIRCUIT CONCEALED IN FLOOR (UNDERGROUND IF EXTERIOR)
	TIME SWITCH	#	COMBINATION POWER/DATA/AV WALL RECEPTACLE (# INDICATES TYPE IN SCHEDULE)		HOMERUN TO PANEL (NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS)
R	RELAY		WALL CLOCK HANGER RECEPTACLE		SPECIAL PURPOSE HOMERUN AS INDICATED
ER	EMERGENCY LIGHTING RELAY		CEILING MOUNTED DUPLEX RECEPTACLE		CONDUIT SEAL
	LIGHTING CONTACTOR		CEILING MOUNTED DOUBLE DUPLEX RECEPTACLE		CIRCUIT DOWN
#	COMBINATION POWER/DATA FLOOR OUTLET ("#" INDICATES DEVICE TYPE IN SCHEDULE)		CEILING MOUNTED RED DUPLEX RECEPTACLE		CIRCUIT UP
AV #	COMBINATION POWER/AV FLOOR OUTLET ("#" INDICATES DEVICE TYPE IN SCHEDULE)		CEILING MOUNTED SPECIAL PURPOSE RECEPTACLE		CONDUIT STUB-OUT
AV #	COMBINATION POWER/DATA/AV FLOOR OUTLET ("#" INDICATES DEVICE TYPE IN SCHEDULE)		CEILING MOUNTED SIMPLEX RECEPTACLE		CIRCUIT BREAK
	MULTI-OUTLET ASSEMBLY - LENGTH AS INDICATED		FLOOR MOUNTED DUPLEX RECEPTACLE		CORD AND PLUG
X	MECH EQUIPMENT WITH ELEC CONNECTION, SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE	XX-##	LIGHTING ZONE CIRCUIT DESIGNATION, "XX" INDICATES PANEL NAME, "##" INDICATES CIRCUIT NUMBER		LIGHTING CIRCUIT/ZONE BOUNDARY
PT	PRESSURE TRANSDUCER	CS	CONDUCTIVITY SENSOR	TM	TURBIDIMETER
CA	CHLORINE ANALYZER	PH	PH SENSOR	TS	TEMPERATURE SENSOR

SUBSCRIPTS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
EP	SUBSCRIPT "EP" APPLIED TO ANY SYMBOL INDICATES EXPLOSION PROOF, CLASS, GROUP AND DIVISION AS NOTED	RT	SUBSCRIPT "RT" APPLIED TO ANY SYMBOL INDICATES RAIN TIGHT NEMA 3R OR EQUIVALENT	WP	SUBSCRIPT "WP" APPLIED TO ANY SYMBOL INDICATES WEATHERPROOF NEMA TYPE 4 OR EQUIVALENT
E	SUBSCRIPT "E" ADDED TO ANY SYMBOL INDICATES EXISTING	K	SUBSCRIPT "K" ADDED TO ANY SYMBOL INDICATES KEY OPERATED	P	SUBSCRIPT "P" ADDED TO ANY SYMBOL INDICATES PILOT LIGHT
PD	SUBSCRIPT "PD" ADDED TO ANY FLOOR OUTLET INDICATES PEDESTAL MOUNTED	WG	SUBSCRIPT "WG" ADDED TO ANY SYMBOL INDICATES WIRE GUARD		
AC	SUBSCRIPT "AC" ADDED TO ANY SYMBOL INDICATES ABOVE COUNTER. LOCATE CENTER OF DEVICE 4" ABOVE COUNTER SURFACE OR WHERE PRESENT, 4" ABOVE BACKSPLASH. WHERE INDICATED ADJACENT TO LAVATORY WITHOUT COUNTER, LOCATE CENTER OF DEVICE 8" ABOVE RIM OF LAVATORY.				

SYMBOLS INDICATED HERE AND NOT USED IN THE CONTRACT DOCUMENTS DO NOT APPLY TO THIS PROJECT. ADDITIONAL SYMBOLS AND ABBREVIATIONS MAY BE INDICATED IN THE CONTRACT DOCUMENTS.

GENERAL NOTES

1. MINIMUM SIZE FOR BRANCH CIRCUIT CONDUITS SHALL BE 3/4". MINIMUM DATA/COMMUNICATIONS CONDUIT SIZE SHALL BE 1". SEE DRAWINGS FOR AREAS WHERE LARGER CONDUITS ARE REQUIRED.
2. THICK LINEWEIGHT INDICATES NEW WORK. THINK LINEWEIGHT INDICATES EXISTING TO REMAIN.
3. THE SPECIFICATIONS LIST ACCEPTABLE WIRING METHODS AND MATERIALS. OTHER WIRING METHODS AND MATERIALS NOT LISTED IN THE SPECIFICATIONS ARE NOT ACCEPTABLE.

ABBREVIATIONS

A	AMP	C	CONDUIT	DWG	DRAWING	FO	FIBER OPTIC	IP	INTERNET PROTOCOL	MUTOA	MULTI USER TELECOMMUNICATIONS OUTLET ASSEMBLY
	ALTERNATING CURRENT	CAB	CABINET	DX	DIRECT EXPANSION	FOV	FIELD OF VIEW	ISP	INSIDE PLANT	MXA	MIXED AIR
ACEG	AC EQUIPMENT GROUND	CATV	CABLE TELEVISION	EA	EXHAUST AIR	FP	FIBER PANEL	J-BOX	JUNCTION BOX	NC	NORMALLY CLOSED
AFF	ABOVE FINISHED FLOOR	CB	CIRCUIT BREAKER	EAC	ELECTRONIC ACCESS CONTROL	FT	FEET	KCMIL	THOUSAND CIRCULAR MILS	NEC	NATIONAL ELECTRICAL CODE
AHJ	AUTHORITY HAVING JURISDICTION	CCTV	CLOSED CIRCUIT TELEVISION	EC	ELECTRICAL CONTRACTOR	FUR	FURNISHED	KV	KILOVOLT	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
ALF	ALUMINUM FRAME DOOR	CFH	CUBIC FEET PER HOUR	EHC	ELECTRIC HEATING COIL	FW	FILTERED WATER	KVA	KILOVOLT AMPERE	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
APPROX	APPROXIMATELY	CFM	CUBIC FEET PER MINUTE	EL	ELEVATION	G	GAS	KW	KILOWATT	NIC	NOT IN CONTRACT
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS	CKT	CIRCUIT	ELEC	ELECTRICAL	GA	GAGE	LAN	LOCAL AREA NETWORK	NO	NORMALLY OPEN
		CL	CENTER LINE	EMD	ESTIMATED MAXIMUM DEMAND	GALV	GALVANIZED	LBM	LATCH BOLT MONITOR	NOM	NOMINAL
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	CLEC	COMPETITIVE LOCAL EXCHANGE CARRIER	EMI	ELECTROMAGNETIC INTERFERENCE	GC	GENERAL CONTRACTOR	LBS	POUNDS	NPW	NON-POTABLE WATER
		CLG	CEILING	EMS	ENERGY MANAGEMENT SYSTEM	GEC	GROUNDING ELECTRODE CONDUCTOR	LEC	LOCAL EXCHANGE BRANCH	NTS	NOT TO SCALE
ASTM	STANDARD SPECIFICATIONS OF THE AMERICAN SOCIETY FOR TESTING MATERIALS	CLR	CLEAR	EMT	ELECTRICAL METALLIC TUBING	GEN	GENERATOR	LTG	LIGHTING	NVE	NETWORK VIDEO ENCODER
		CM	COMMUNICATIONS CABLE	EOA	ECONOMIZER OUTDOOR AIR	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	MA	MAKEUP AIR	NVR	NETWORK VIDEO RECORDER
ATS	AUTOMATIC TRANSFER SWITCH	CMP	COMMUNICATIONS PLENUM CABLE	EPO	EMERGENCY POWER OFF	GND	GROUND	MATV	MASTER ANTENNA TELEVISION	OA	OUTSIDE AIR
AUX	AUXILIARY	CMR	COMMUNICATIONS RISER CABLE	EQUIP	EQUIPMENT	GPM	GALLONS PER MINUTE	MAU	MAKEUP AIR UNIT	OC	ON CENTER
AV	ACID VENT, AUDIOVISUAL	CO-OSP	CUSTOMER OWNED-OUTSIDE PLANT	ER	EQUIPMENT ROOM	HGT	HEIGHT	MAX	MAXIMUM	OPE	OWNER PROVIDED ELECTRONICS
AVG	AVERAGE	COAX	COAXIAL CABLE	ES	EMERGENCY SHOWER	HH	HANDHOLE	MBH	1000 BTU/HOUR	OR	OPERATOR ROOM
AVI	AUTOMATIC VEHICLE IDENTIFICATION	CPVC	CHLORINATED POLYVINYL CHLORIDE	EXH	EXHAUST	HMF	HOLLOW METAL FRAME DOOR	MC	MAIN CROSS CONNECT	OSP	OUTSIDE PLANT
AW	ACID WASTE	CRAC	COMPUTER ROOM AIR CONDITIONER	EXIST	EXISTING	HP	HORSEPOWER, HEAT PUMP	MCB	MAIN CIRCUIT BREAKER	PABX	PRIVATE AUTOMATIC BRANCH EXCHANGE
AWG	AMERICAN WIRE GAUGE	CT	CABLE TRAY	F	FIRE WATER	HTG	HEATING	MDF	MAIN DISTRIBUTION FRAME	PB	PULLBOX
BAS	BUILDING AUTOMATION SYSTEM	CV	CONSTANT VOLUME	FA	FIRE ALARM	HVAC	HEATING, VENTILATING AND AIR CONDITIONING	MECH	MECHANICAL	PBO	PROVIDED BY OTHERS
BFP	BACKFLOW PREVENTER	DAS	DISTRIBUTED ANTENNA SYSTEM	FAAP	FIRE ALARM ANNUNCIATOR PANEL			MERV	MINIMUM EFFICIENCY REPORTING VALUE	PBX	PRIVATE BRANCH EXCHANGE
BICSI	BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL	DD	DOUBLE DUCT	FACP	FIRE ALARM CONTROL PANEL	HW	HOT WATER	MIN	MINIMUM	PDU	POWER DISTRIBUTION UNIT
BLDG	BUILDING	DIA	DIAMETER	FB	FLOOR BOX	HWC	HOT WATER CIRCULATING	MISC	MISCELLANEOUS	PERP	PERPENDICULAR
BTC	BONDING CONDUCTOR FOR TELECOMMUNICATION	DISC	DISCONNECT	FDC	FIRE DEPARTMENT CONNECTION	HZ	HERTZ	MLO	MAIN LUGS ONLY	PIC	PLASTIC INSULATED CABLE
BTU	BRITISH THERMAL UNIT	DIST	DISTRIBUTION	FHC	FIRE HOSE CABINET	IC	INTERCOM	MM	MULTIMODE	PIV	POST INDICATOR VALVE
BTUH	BRITISH THERMAL UNIT PER HOUR	DN	DOWN	FL	FLOOR	IDC	INSULATION DISPLACEMENT CONNECTOR	MOA	MINIMUM OUTDOOR AIR	PLBG	PLUMBING
		DP	DEMARCATION POINT	FLA	FULL LOAD AMPS	IDF	INTERMEDIATE DISTRIBUTION FRAME	MPOE	MAIN POINT OF ENTRANCE	PNL	PANEL
		DPS	DOOR POSITION SWITCH	FM	FACTOR MUTUAL ENGINEERING CORPORATION	IDS	INTRUSION DETECTION SYSTEM	MTD	MOUNTED	POE	POWER OVER ETHERNET
		DVR	DIGITAL VIDEO RECORDER	FMG	FACTORY MUTUAL GLOBAL	IE	INVERT ELEVATION	MTG	MOUNTING	POP	POINT OF PRESENCE
										PP	PATCH PANEL
										PRV	PRESSURE REGULATING VALVE
										PS	PLASTER SINK
										PSF	POUNDS PER SQUARE FOOT
										PSI	POUNDS PER SQUARE INCH
										PSTN	PUBLIC SWITCHED TELEPHONE NETWORK
										PTAC	PACKAGED TERMINAL AIR CONDITIONER
										PTZ	PAN-TILT-ZOOM
										PVC	POLYVINYL CHLORIDE
										PWR	POWER
										RA	RETURN AIR
										REQD	REQUIRED
										RGS	RIGID GALVANIZED STEEL
										RH	RELATIVE HUMIDITY
										RLFA	RELIEF AIR
										RM	ROOM
										RO	REVERSE OSMOSIS WATER
										RPBFP	REDUCED PRESSURE BACKFLOW PREVENTER
										RQE	REQUEST TO EXIT
										SA	SUPPLY AIR, SOUND ATTENUATOR
										SAN	SANITARY
										SCH	SCHEDULE
										SCTP	SCREENED TWISTED PAIR
										SCW	SOFT COLD WATER
										SHW	SOFT HOT WATER
										(SIM)	SIMILAR
										SLAB	SEALED LEAD ACID BATTERY
										SM	SPRINKLER MAIN, SINGLE MODE
										SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
										SPD	SURGE PROTECTIVE DEVICE
										SPECS	SPECIFICATIONS
										SS	STAINLESS STEEL
										SSD	SUB SOIL DRAIN
										SSI	SECURITY SYSTEMS INTEGRATOR
										SSS	SURGEON SCRUB SINK
										ST	STORM
										STD	STANDARD
										STP	SHIELDED TWISTED PAIR
										SW	SWITCH
										SWBD	SWITCHBOARD
										SWGR	SWITCHGEAR
										T	TRANSFORMER
										T-1	TRUNK LEVEL 1
										TBB	TELECOMMUNICATIONS BONDING BACKBONE
										TBBIBC	TELECOMMUNICATIONS BONDING BACKBONE INTERCONNECTING BONDING CONDUCTOR
										TC	TELECOMMUNICATIONS CLOSET
										TEL	TELEPHONE
										TELECOM	TELECOMMUNICATIONS
										TEMP	TEMPERATURE
										TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
										TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
										TR	TELECOMMUNICATIONS ROOM
										TTB	TELEPHONE TERMINAL BOARD
										TV	TELEVISION
										TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
										TYP	TYPICAL
										UG	UNDERGROUND
										UL	UNDERWRITERS LABORATORY
										UNO	UNLESS NOTED OTHERWISE
										UPS	UNINTERRUPTIBLE POWER SUPPLY
										US	UTILITY SINK
										UTP	UNSHIELDED TWISTED PAIR
										V	VOLT, VENT
										VD	VOLUME DAMPER
										VERT	VERTICAL
										VFC	VARIABLE FREQUENCY CONTROL
										VOIP	VOICE OVER INTERNET PROTOCOL
										VTR	VENT THROUGH ROOF
										W	WATER, WATT
										WAN	WIDE AREA NETWORK
										WAP	WIRELESS ACCESS POINT
										WG	WATER GAUGE
										WMP	WIRE MANAGEMENT PANEL
										WP	WEATHERPROOF
										WSA	WIRE SIZING AMPS
										WSHP	WATER SOURCE HEAT PUMP
										WTH	WIRE TRANSFER HINGE
										XFMR	TRANSFORMER

NOTE:

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ELECTRICAL SYMBOLS AND ABBREVIATIONS

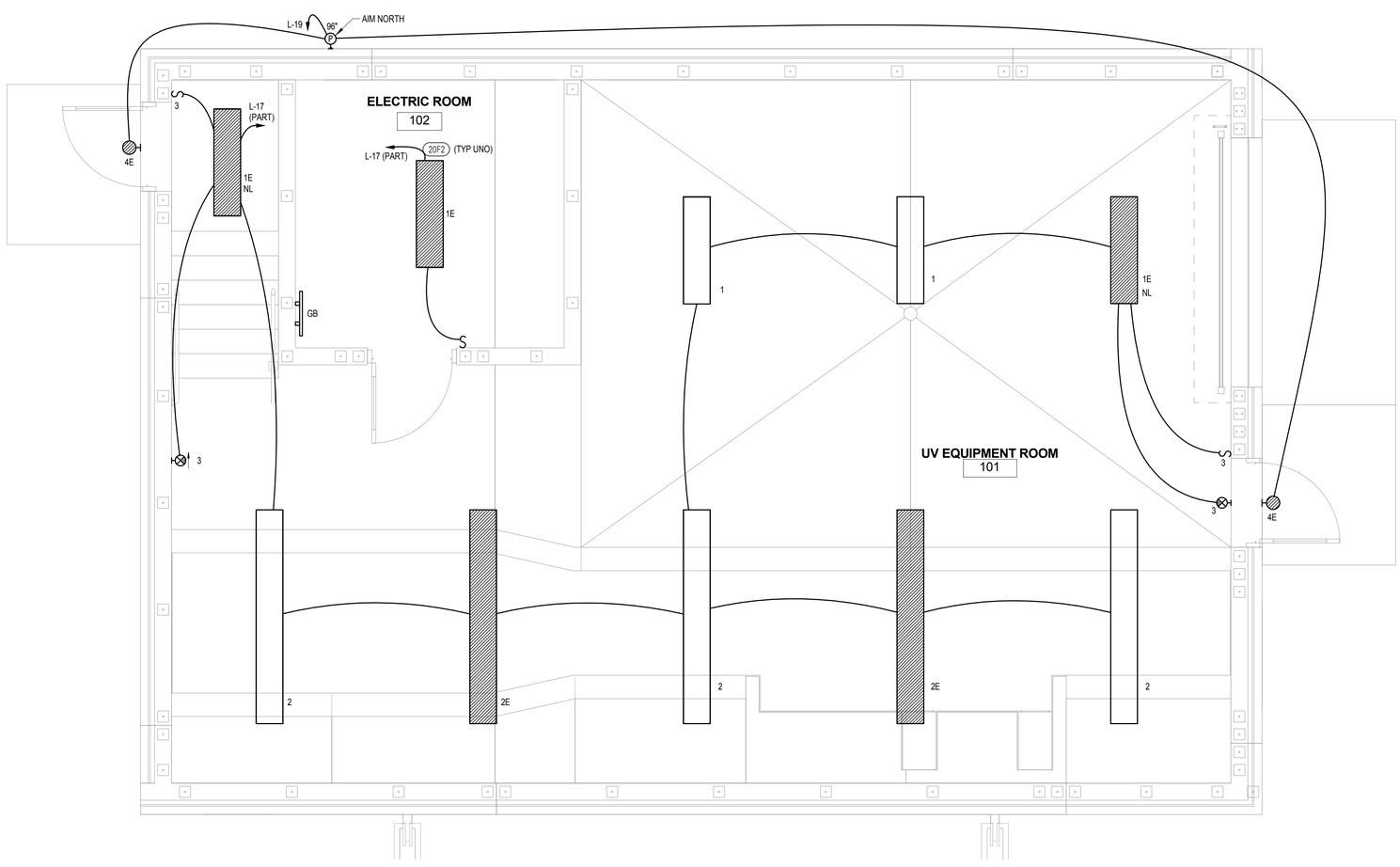
2017 UV IMPROVEMENTS
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
E0

LIGHTING GENERAL NOTES

1. CONNECT EXIT LIGHTS, EMERGENCY BATTERY PACKS, AND EMERGENCY BATTERY UNIT FIXTURES TO NEAREST UNSWITCHED NORMAL LIGHTING CIRCUIT SERVING CORRESPONDING AREA, UNLESS OTHERWISE INDICATED. CONNECT BATTERY PACKS SO THAT ASSOCIATED LUMINAIRES ARE CONTROLLED WITH OTHER LUMINAIRES IN THE SAME SPACE, AND ARE ENERGIZED UPON POWER FAILURE.
2. "NL" DESIGNATES NIGHTLIGHT OPERATION. CONNECT FIXTURE UNSWITCHED TO CIRCUIT INDICATED.



1 FLOOR PLAN - LIGHTING
3/8" = 1'-0"
1'-6" 3' 6' 9' 12'

INSTALL GREEN INSULATED GROUND WIRE WITH EACH LIGHTING, RECEPTACLE, AND EQUIPMENT BRANCH CIRCUIT.

PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT REQUIRING A NEUTRAL, UNLESS OTHERWISE NOTED.

NOTE:

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FLOOR PLAN - LIGHTING
2017 UV IMPROVEMENTS
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

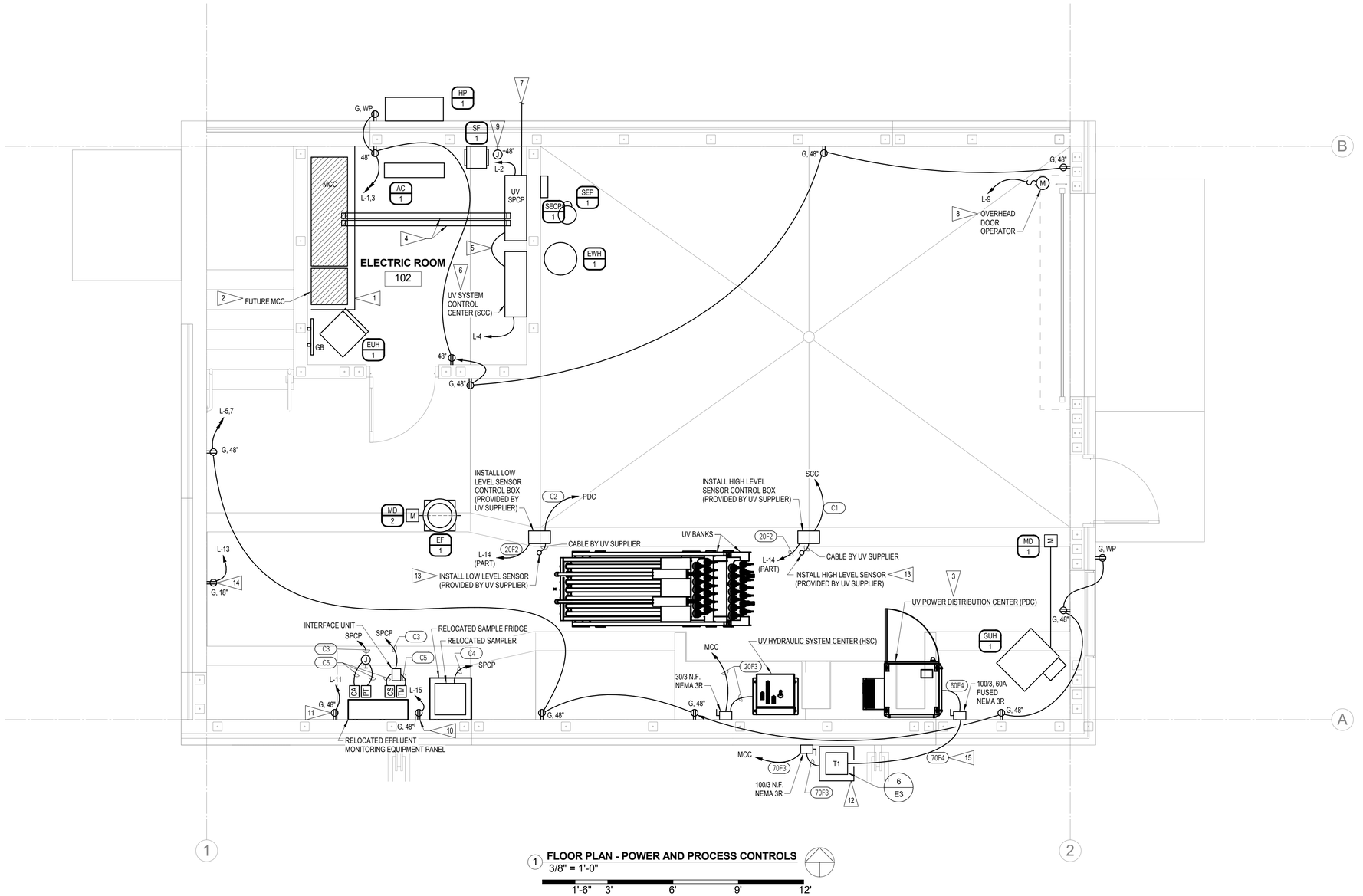
SHEET
E1

POWER GENERAL NOTES

1. LABEL RECEPTACLE WALL PLATES WITH THE CORRESPONDING PANEL AND CIRCUIT NUMBER.

FLAG NOTES

1. PROVIDE 3-1/2" THICK CONCRETE PAD WITH 3/4" CHAMFER ON EDGES NOT ABUTTING A PARTITION. EXTEND 2" PAST MCC AND FUTURE MCC.
2. DO NOT ROUTE CONDUIT THROUGH SPACE RESERVED FOR FUTURE MCC.
3. PROVIDE #8 BONDING CONDUCTOR IN 3/4" PVC FROM UNDERSIDE OF PDC TO EACH UV BANK. COORDINATE WITH UV SUPPLIER.
4. PROVIDE (2) 4" X 4" WIREWAYS WITH HINGED COVERS BETWEEN THE MCC AND THE UV SPCP- (1) FOR CONTROL CONDUCTORS AND (1) FOR ANALOG SIGNALS. PROVIDE INTERCONNECTIONS AS REQUIRED.
5. 1 - ETHERNET CABLE IN 1" CONDUIT. REFER TO SECTION 262418.
6. PROVIDE (1) BELDEN #3106A CABLE IN 3/4" CONDUIT FROM SCC TO HSC AND FROM HSC TO PDC. COIL SUFFICIENT CABLE LENGTH AT EACH OF THE THREE PANEL LOCATIONS FOR TERMINATIONS BY UV SYSTEM SUPPLIER.
7. CONDUIT WITH FIBER OPTIC CABLE TO TERTIARY BUILDING. SEE SHEET ME1.
8. CONNECT CONTROLS AND SAFETY DEVICES PROVIDED WITH DOOR OPERATOR.
9. PROVIDE 1" CONDUIT WITH PULL STRING TO TERTIARY BUILDING FOR FUTURE PHONE. SEE SHEET ME1. PROVIDE BLANK COVER ON JUNCTION BOX.
10. COORDINATE EXACT LOCATION WITH SAMPLING EQUIPMENT. LABEL RECEPTACLE "SAMPLING EQUIPMENT".
11. COORDINATE EXACT LOCATION WITH MONITORING EQUIPMENT PANEL. LABEL RECEPTACLE "MONITORING EQUIPMENT".
12. PROVIDE 3-1/2" CONCRETE PAD FOR TRANSFORMER. EXTEND 3" PAST TRANSFORMER ALL AROUND.
13. REFER TO PROCESS DRAWINGS FOR EXACT LOCATION. SEE 7/E3 FOR INSTALLATION DETAILS.
14. LABEL RECEPTACLE "SAMPLE PUMP".
15. MAXIMUM CONDUCTOR LENGTH 25'-0".



1 **FLOOR PLAN - POWER AND PROCESS CONTROLS**
3/8" = 1'-0"

1'-6" 3' 6' 9' 12'

COORDINATE CONNECTION REQUIREMENTS OF UV EQUIPMENT WITH UV MANUFACTURER'S INSTALLATION INSTRUCTIONS.

INSTALL GREEN INSULATED GROUND WIRE WITH EACH LIGHTING, RECEPTACLE, AND EQUIPMENT BRANCH CIRCUIT.

PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT REQUIRING A NEUTRAL, UNLESS OTHERWISE NOTED.

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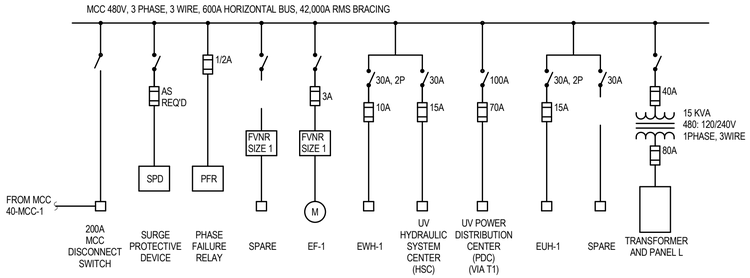
FLOOR PLAN - POWER AND PROCESS CONTROLS
2017 UV IMPROVEMENTS
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

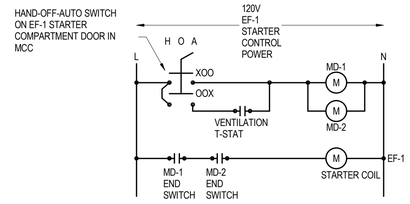
SHEET
E2



MCC ONE-LINE DIAGRAM

NO SCALE

1 / E3



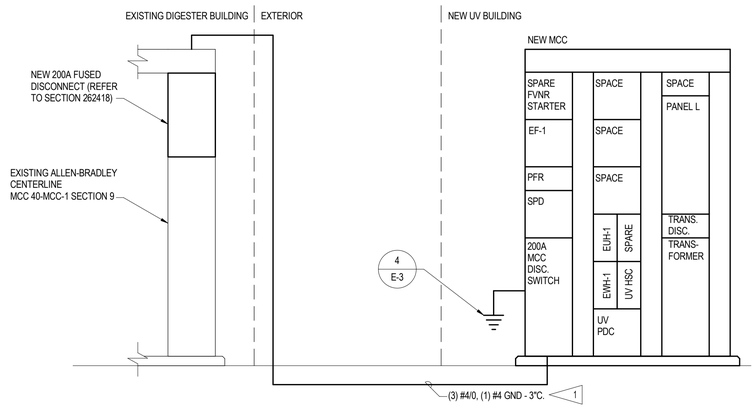
VENTILATION CONTROL ELEMENTARY

NO SCALE

2 / E3

FLAG NOTES

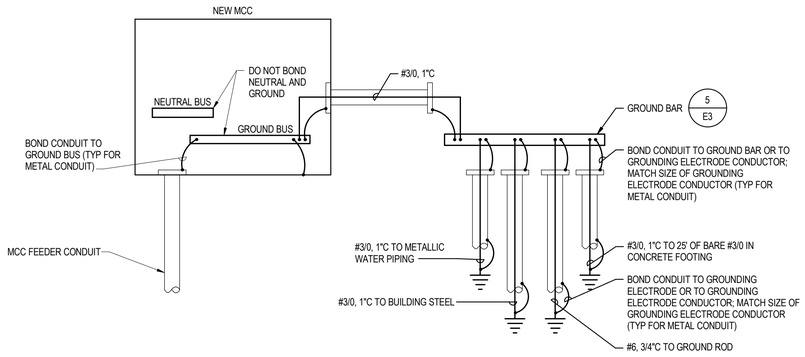
1 NOTE: FEEDER SIZE HAS BEEN INCREASED FOR VOLTAGE DROP.



POWER RISER DIAGRAM

NO SCALE

3 / E3

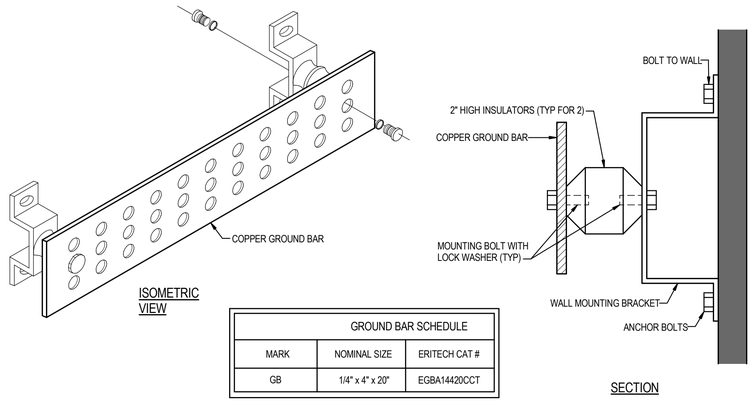


SUPPLEMENTAL GROUNDING

NO SCALE

4 / E3

05_ServiceGrounding2014-06-11



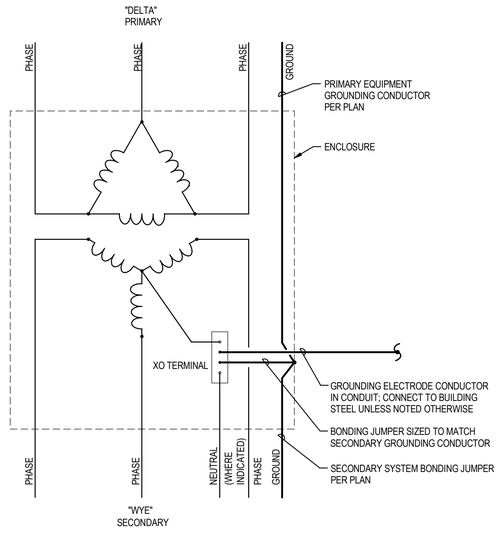
GROUND BAR SCHEDULE		
MARK	NOMINAL SIZE	ERITECH CAT #
GB	1/4" x 4" x 20'	EGBA14420CCT

GROUND BAR

NO SCALE

5 / E3

05_GroundBar2014-06-11

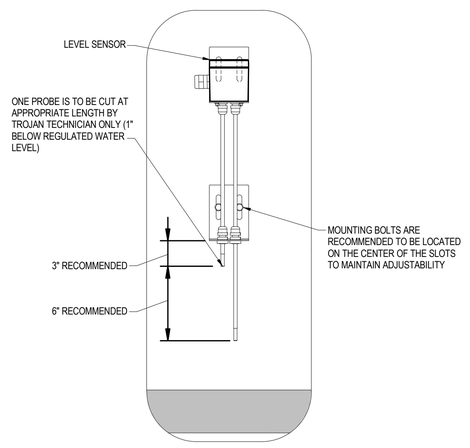


DRY-TYPE TRANSFORMER GROUNDING

NO SCALE

6 / E3

05_DryTypeTransformerGrounding2014-06-11



NOTE: CONFIRM ALL DIMENSIONS AND ELEVATIONS WITH UV SUPPLIER

UV CHANNEL LEVEL SENSOR

NO SCALE

7 / E3

NOTE:

DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS and clearances from ARCHITECTURAL, STRUCTURAL, shop and other appropriate drawing or at site. Lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

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DATE	BY	REVISION
7/17	ARV	
7/17	ADH	

DESIGNED:
DRAWN:
CHECKED:
LAST UPDATE: 11/01/17

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FOX engineering

ELECTRICAL DETAILS

2017 UV IMPROVEMENTS
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
E3

11/6/2017 11:26:40 AM C:\Users\lkward\Documents\20176092_MEP_v17_lkward.rvt

LUMINAIRE SCHEDULE

LUM. NO.	MANUFACTURER	CATALOG NO.	LAMP DATA	VOLTAGE	DESCRIPTION	MOUNTING	ALTERNATE MANUFACTURERS	REMARKS
1/1E	ILP	WTZ-44WLED-UNIV-40-RAFL-SS	5000 LUMEN 4000K LED	120	4' ENCLOSED & GASKETED, WET LOCATION, 40 DEGREE C RATED	SURFACE, CEILING		2, 3
2/2E	ILP	WTZ8-88WLED-UNIV-40-RAFL-SS	10,000 LUMEN 4000K LED	120	8' ENCLOSED & GASKETED, WET LOCATION, 40 DEGREE C RATED	SURFACE, CEILING		2, 3
3	DUAL-LITE	SEWLSRWE	LED	120	BATTERY-BACKED, WET LOCATION EXIT LIGHT, 50 DEGREE C RATED	SURFACE, WALL		1
4E	DUAL-LITE	PGZ-HTR	4000K LED	120	BATTERY-BACKED, WET LOCATION, NORMAL & EMERGENCY EGRESS LIGHT, 50 DEGREE C RATED, BATTERY HEATER	SURFACE, WALL		2

NOTES

a SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR LUMINAIRES, LAMPS, AND BALLASTS.
b CONTRACTOR TO VERIFY LUMINAIRE CATALOG NUMBER AND INSTALLATION REQUIREMENTS PRIOR TO ORDERING.

REMARKS

1 CONNECT UNSWITCHED TO ROOM LIGHTING CIRCUIT.
2 PROVIDE SWITCHED AND UNSWITCHED CONNECTIONS TO CIRCUIT INDICATED FOR 'E' DESIGNATED LUMINAIRES.
3 PROVIDE FACTORY INSTALLED 10W BATTERY BACKUP FOR 'E' DESIGNATED LUMINAIRES.

MECHANICAL / ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS:

A	AMPS	BAS	BUILDING AUTOMATION SYSTEM	S	SWITCH	N1	NEMA 1
ENCL	ENCLOSURE	C	COMBINATION STARTER AND SAFETY SWITCH	SF	SWITCH AND FUSTAT	N3R	NEMA 3R
HP	HORSEPOWER	CB	CIRCUIT BREAKER	SS	SAFETY SWITCH	N4X	NEMA 4X
KW	KILOWATTS	CP	CONTROL PANEL	VFC	VARIABLE FREQUENCY CONTROLLER		
PH	PHASE	C+P	CORD AND PLUG				
V	VOLTAGE	I	INTEGRAL WITH EQUIPMENT				
W	WATTS	NF	NON-FUSED	EC	ELECTRICAL CONTRACTOR		
		OS	OCCUPANCY SENSOR	MC	MECHANICAL CONTRACTOR		

EQUIPMENT			ELECTRICAL SYSTEM				DISCONNECT				CONTROLLER			
MARK	DESCRIPTION	LOAD	V	PH	FEEDER OR BRANCH CIRCUIT	PANEL - CIRCUIT	FURNISHED BY/ INSTALLED BY	TYPE	RATING (AMPS)	ENCL	FURNISHED BY/ INSTALLED BY	TYPE	ENCL	REMARKS
AC-1	AIR CONDITIONING UNIT	-	240	1	30F2	L-10, 12	EC/EC	SS, NF	30	N1	MC/-	I	-	4, 5, 8
EF-1	EXHAUST FAN	1/2 HP	480	3	20F3	MCC	EC/EC	SS, NF	20	N3R	EC/EC	C	-	2, 3, 7
EUH-1	ELECTRIC UNIT HEATER	5 KW	480	1	20F2	MCC	EC/EC	SS, NF	30	N1	MC/-	-	-	5
EWH-1	ELECTRIC WATER HEATER	3 KW	480	1	20F2	MCC	EC/EC	SS, NF	30	N1	MC/-	I	-	
GUH-1	GAS UNIT HEATER	155 W	120	1	20F2	L-6	EC/EC	S	20	N1	MC/-	-	-	5
HP-1	HEAT PUMP	3264 W	240	1	30F2	L-10, 12	EC/EC	SS, NF	30	N3R	MC/-	I	-	4
MD-1	MOTORIZED DAMPER	120 W	120	1	20F2	L-8	EC/EC	S	20	N1	MC/EC	-	-	3
MD-2	MOTORIZED DAMPER	120 W	120	1	20F2	L-8	EC/EC	S	20	N1	MC/EC	-	-	3
SEP-1	SEWAGE EJECTOR PUMP	1/2 HP	120	1	-	-	-	-	-	-	MC/EC	CP	N4X	1, 7
SECP-1	SEWAGE EJECTOR CONTROL PANEL	-	120	1	20F2	L-18	EC/EC	S	20	N1	-	-	-	1
SF-1	SUPPLY FAN	120 W	120	1	20F2	L-16	EC/EC	S	20	N1	MC/MC	-	-	6, 7

GENERAL NOTES:

a VERIFY/COORDINATE RATINGS FOR EQUIPMENT SUPPLIED BY THE SELECTED MANUFACTURER. WHERE RATINGS ARE OTHER THAN AS REQUIRED FOR SPECIFIED UNIT, DISCONNECTS, MOTOR STARTERS, OVERCURRENT DEVICES AND RELATED REVISIONS SHALL BE PROVIDED ACCORDINGLY. THE CONTRACTOR THAT FURNISHES EQUIPMENT WITH RATINGS OTHER THAN AS NOTED SHALL BE RESPONSIBLE FOR COORDINATION AND COSTS FOR REVISIONS TO ACCOMMODATE SELECTED EQUIPMENT.
b FRACTIONAL HORSEPOWER SINGLE PHASE MOTORS SHALL BE PROVIDED WITH INTEGRAL OVERLOAD PROTECTION.
c DISCONNECTS SHALL BE FUSIBLE UNLESS NOTED OTHERWISE.
d ELECTRICAL CONTRACTOR SHALL PROVIDE CIRCUIT TO EQUIPMENT AS INDICATED.
e WHERE DISCONNECT IS NOT INDICATED ON PLANS, LOCATE AT EQUIPMENT PER NEC.
f EQUIPMENT IDs THAT END IN ".X" INDICATE THAT THERE ARE MULTIPLE UNITS THAT ARE IDENTICAL AND PROVIDED ON THE PROJECT. SEE PLANS FOR THE UNIQUE SEQUENTIAL DESIGNATION.

REMARKS

1 INTERCONNECT SEP-1 WITH SECP-1 AS REQUIRED BY MANUFACTURER.
2 STARTER IS FURNISHED AS PART OF MCC.
3 CONTROL IS BY THERMOSTAT. REFER TO MECHANICAL DRAWINGS AND VENTILATION CONTROL ELEMENTARY 2/E3.
4 PROVIDE INTERCONNECTIONS BETWEEN AC-1 AND HP-1 AS REQUIRED BY MANUFACTURER.
5 CONTROL IS BY THERMOSTAT. REFER TO MECHANICAL DRAWINGS.
6 CONTROL IS BY SOLID STATE CONTROLLER. REFER TO MECHANICAL DRAWINGS.
7 ROUTE CIRCUIT THROUGH ASSOCIATED CONTROLLER.
8 INDOOR UNIT IS POWERED FROM OUTDOOR UNIT.

PANEL L

240/120V 1 PHASE 3 WIRE
100 AMP MLO W/GROUND BAR
10,000 AMPS AVAIL FAULT
30 POLES ONE SECTION

NOTE: PANEL IS PROVIDED AS PART OFF MCC.

DESCRIPTION	LOAD VA	REMARKS	O/C	CKT #	PH	CKT #	O/C	REMARKS	LOAD VA	DESCRIPTION
ELECTRICAL RM & N. EXT. RECEPTS.	540		20/1	1	A	2	15/1		180	UV SPCP CABINET
N. WALL RECEPTS.	540		20/1	3	B	4	20/1		1800	UV SYSTEM CONTROL CENTER (SCC)
S. WALL RECEPTS.	540		20/1	5	A	6	15/1		155	GAS UNIT HEATER GUH-1
S. WALL & E. EXT. RECEPTS.	540		20/1	7	B	8	15/1		240	MOTORIZED DAMPERS MD-1 & MD-2
OVERHEAD DOOR OPERATOR	1176		20/1	9	A	10	30/2		3264	HP-1/AC-1
MONITORING EQUIP. RECEPT.	180		20/1	11	B	12	*			*
SAMPLER PUMP RECEPTACLE	180		20/1	13	A	14	15/1		72	UV LEVEL SENSOR CONTROL BOX
SAMPLING EQUIP. RECEPT.	180		20/1	15	B	16	15/1		120	SUPPLY FAN SF-1
INTERIOR LIGHTING	900		20/1	17	A	18	20/1		1248	SEWAGE EJECTOR PUMP SEP-1
EXTERIOR LIGHTING	31		20/1	19	B	20				
				21	A	22				
				23	B	24	20/1			SPARE
				25	A	26	20/1			SPARE
SPARE			15/1	27	B	28	20/1			SPARE
SPARE			15/1	29	A	30	20/1			SPARE

INSTRUMENTATION & CONTROL CONDUIT SCHEDULE

MARK	SIZE IN.	CONDUCTORS QTY.	CONDUCTORS SIZE	FUNCTION	REMARKS
C1	3/4"	2	14	SIGNAL	HIGH LEVEL SENSOR
		1	12	GND	
C2	3/4"	2	14	SIGNAL	LOW LEVEL SENSOR
		1	12	GND	
C3	3/4"	2	#8760	ANALOG SIGNAL	
		1	12	GND	
C4	3/4"	2	14	SIGNAL	FLOW RATE PULSE
		1	12	GND	
C5	3/4"	1	#8760	ANALOG SIGNAL	
		1	12	GND	

NOTE: #8760 IS A BELDEN NUMBER.

FEEDER AND BRANCH CIRCUIT SCHEDULE

MARK	CONDUCTORS AND CONDUIT
2 WIRE PLUS GROUND	
20F2	2 #12, #12 GND. 3/4" C.
30F2	2 #10, #10 GND. 3/4" C.
3 WIRE PLUS GROUND	
20F3	3 #12, #12 GND. 3/4" C.
70F3	3 #4, #8 GND. 1-1/2" C.
4 WIRE PLUS GROUND	
60F4	4 #6, #10 GND. 1-1/2" C.
70F4	4 #4, #8 GND. 1-1/2" C.

TRANSFORMER SCHEDULE

TRANSFORMER	VOLTAGE	KVA RATING	MOUNTING	CONDUCTORS PRIMARY	CONDUCTORS SECONDARY	CONDUCTORS GROUNDING ELECTRODE CONDUCTOR	REMARKS
T1	480V DELTA 480Y/277V	45	FLOOR	70F3	70F4	#8 3/4"C	NEMA 3R

NOTE:

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DATE	BY	DESCRIPTION

DESIGNED: Designer 7/17
DRAWN: Author 7/17
CHECKED:
LAST UPDATE: 11/01/17

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FOX engineering

ELECTRICAL SCHEDULES

2017 UV IMPROVEMENTS
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
E4

EFFLUENT SAMPLING BUILDING

EFFLUENT CHANNEL

EXISTING BORING

BUILDING 30
TERTIARY BUILDING

SANITARY DROP MANHOLE
RIM =1239.05

EXISTING BORING

GRAVEL DRIVE

METER STRUCTURE

1236.67
1236.62
1236.23
1236.62
1236.67
DOOR 1236.67

BUILDING 35
UV BUILDING

DOOR 1232.67
DOOR 1232.67
1232.42
1232.67
1232.62
1232.62
1232.67
1232.48

5.71%

GRAVEL DRIVE

CONCRETE UTILITY PAD

ELEC PULL BOX

1234.06

TOP OF PAD
1232.67

UV BYPASS STRUCTURE

ELEC PULL BOX

EFFLUENT MANHOLE

5' BARBED WIRE FENCE

INTAKE
RIM =1229.32
FL OUT =1225.32 (S)

SILT FENCE

GATE

LIMITS OF CONSTRUCTION

STORM MH
RIM = 1227.78

24" FE
FL =1219.79

DRAINAGE DITCH

18" BYP
FL = 1220.26 (REC)

24" BYP (DEAD)
FL = 1218.77 (REC)

60" RCP

0 10' 20'

DRAWING FILENAME
K:\Projs\2000\2433-17A CLSD Disinfection Project\Drawings\Civil\2433-17A_Base.dwg

PLOT STYLE TABLE	LAYER MNGR NAME	LAYOUT NAME
FoxGrayScale.ctb		C5

DATE	REVISION	BY	DATE
		DESIGNED: LAT	11/17
		DRAWN: SRS	11/17
		CHECKED:	
		LAST UPDATE:	11/03/17

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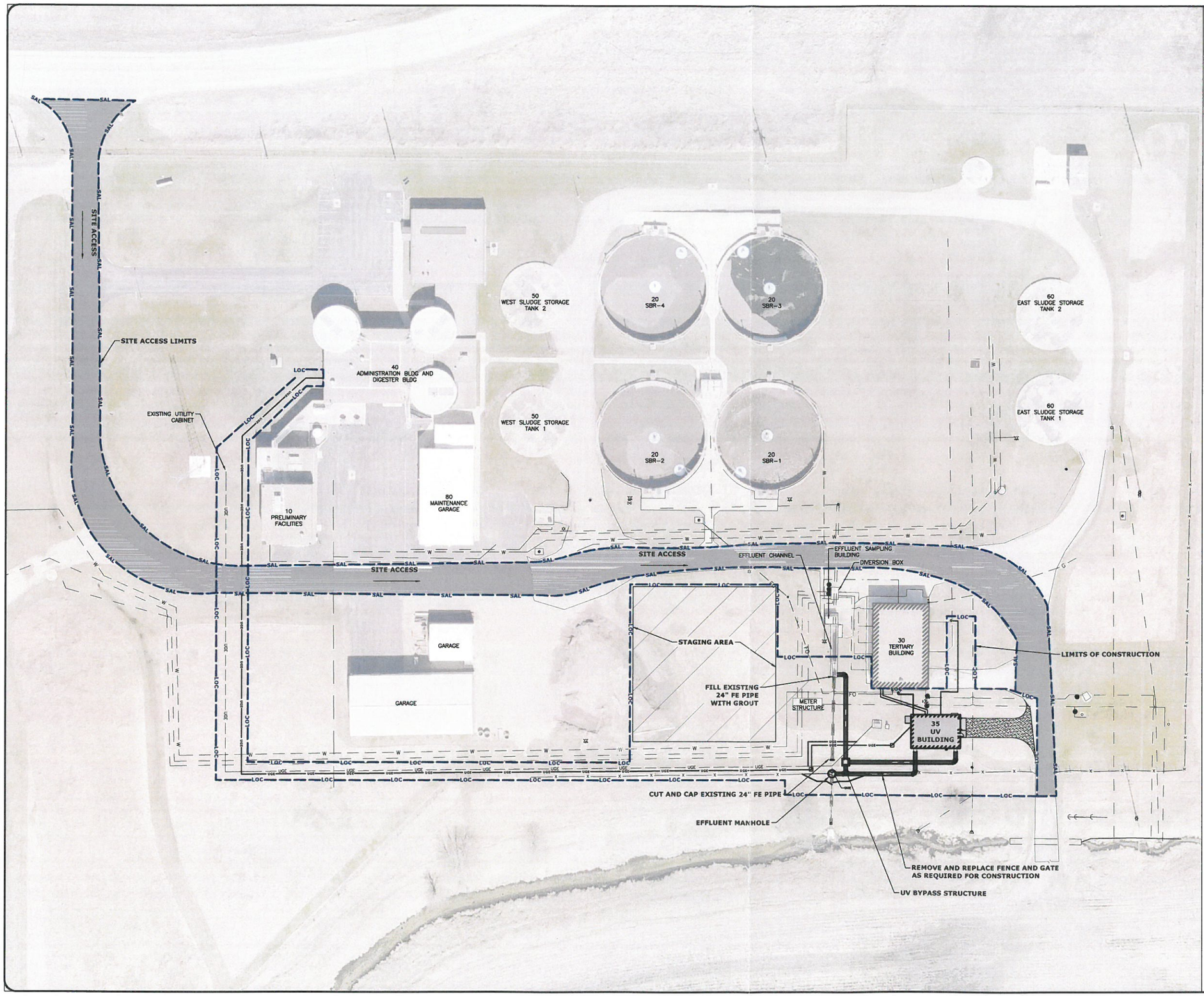
FOX engineering

SITE GRADING & EROSION CONTROL PLAN

UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
C5



GENERAL NOTES:

1. ALL UTILITIES ARE GENERALLY LOCATED. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND EXPOSING ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION BEFORE CONSTRUCTION BEGINS.
2. IN LOCATIONS OF PROPOSED IMPROVEMENTS, RELOCATE EXISTING UTILITIES AS REQUIRED TO CONSTRUCT THE IMPROVEMENTS AS INDICATED IN THE CONTRACT DOCUMENTS.
3. PIPING ABANDONED IN THE PAST IS NOT SHOWN.
4. SEE PROCESS DRAWINGS FOR MODIFICATIONS TO EXISTING WET WELLS, VALVE VAULTS, PIPING, VALVES, EQUIPMENT, AND STRUCTURES.
5. ELEVATIONS FOR THE SITE ARE NORTH AMERICAN VERTICAL DATUM 88 (NAVD 88). HORIZONTAL CONTROL IS BASED ON STATE PLANE COORDINATE SYSTEM.

DATE	REVISION	DATE	BY
		DESIGNED:	LAT 11/17
		DRAWN:	SRS 11/17
		CHECKED:	
		LAST UPDATE:	11/03/17

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OVERALL SITE PLAN

UV DISINFECTION PROJECT
CLEAR LAKE SANITARY DISTRICT
CLEAR LAKE, IOWA

PROJECT NO.
2433-17A

SHEET
C2

DRAWING FILENAME
K:\Upo\2000\2433-17A CLSD Disinfection Project\Drawings\Civil\2433-17A Base.dwg

PLOT STYLE TABLE	LAYER MNGR NAME	LAYOUT NAME
FoxGrayScale.ctb		C2