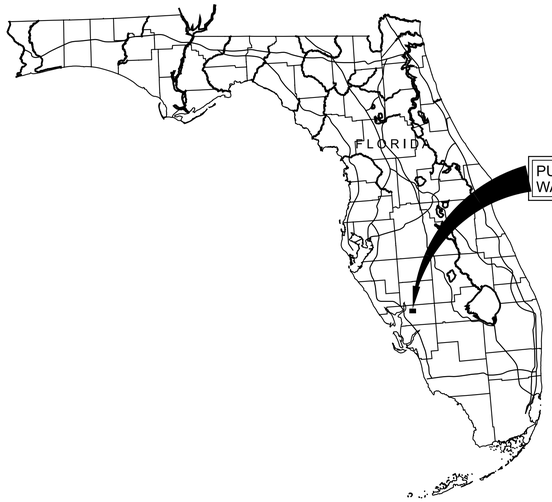
CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WATER TREATMENT PLANT
ALUM & AMMONIA SYSTEM IMPROVEMENTS

BID SET
APRIL 2024



LOCATION MAP

ERICA DIANE STONE LICENSE STATE OF FLORIDA PROFESSIONAL ENGINEER
Digitally signed by Erica Diane Stone
Contact Info: Carollo Engineers
Date: 2024.04.08 13:01:03 -04'00'

ALEKSANDAR D. STOJANOVIC LICENSE No 61220 STATE OF FLORIDA PROFESSIONAL ENGINEER
Digitally signed by Aleksandar D. Stojanovic
Date: 2024.04.08 13:14:11 -04'00'

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VICINITY MAP

carollo®
301 NORTH CATTLEMEN ROAD, SUITE 302
SARASOTA, FL. 343232
PHONE: (941) 371-9832 FAX: (941) 371-9873
CA 00008571

JOB NO. 202333
DRAWING NO. G01
SHEET NO. 1 OF XX

SHEET NO.	DRAWING NO.	DESCRIPTION
		(G) - GENERAL
1	G01	TITLE SHEET
2	G02	DRAWING INDEX
3	G03	GENERAL NOTES, LEGEND AND SYMBOLS
4	G04	GENERAL ABBREVIATIONS
5	G05	GENERAL SITE PLAN
6	G06	DESIGN CRITERIA
7	G07	ALUM PROCESS FLOW DIAGRAM
8	G08	LAS PROCESS FLOW DIAGRAM
9	G09	PIPE AND MATERIAL SCHEDULE
		(D) - DEMOLITION
10	DM01	EXISTING ALUM AND AMMONIA DEMOLITION PLAN 1
11	DM02	EXISTING ALUM AND AMMONIA DEMOLITION PLAN 2
		(C) - CIVIL
12	C01	YARD PIPING AND KEY PLAN 1
13	C02	YARD PIPING PLAN 2
14	TC01	TYPICAL CIVIL DETAILS 1
		(M) - MECHANICAL
15	GM01	GENERAL MECHANICAL LEGEND AND SYMBOLS
16	M01	ALUM BULK STORAGE MODIFICATIONS PLAN
17	M02	ALUM BULK STORAGE MODIFICATIONS SECTIONS
18	M03	ALUM FEED SYSTEM MODIFICATIONS PLAN AND SECTIONS
19	M04	LAS STORAGE AND FEED SYSTEM MODIFICATIONS PLAN AND SECTIONS 1
20	M05	LAS STORAGE AND FEED SYSTEM MODIFICATIONS PLAN AND SECTIONS 2
21	M06	LAS STORAGE AND FEED SYSTEM MODIFICATIONS PLAN AND SECTIONS 3
22	TM01	TYPICAL MECHANICAL DETAILS 1
		(E) - ELECTRICAL
23	GE01	LEGEND
24	GE02	NOTES
25	E00	SITE PLAN
26	E01	ONE LINE - 1
27	E02	PANELBOARD HF AND PANEL F
28	E03	PANELBOARD PB-2 AND FILL PANELS
29	E04	RISER SHEET NO.1
30	E05	SCHEDULES SHEET NO.1
31	E06	SCHEDULES SHEET NO.2
32	E07	SCHEDULES SHEET NO.3
33	E08	SCHEMATICS 01
34	E09	ELECTRICAL ROOM PLAN
35	E10	CHEM STORAGE PLAN
36	E11	ALUM FEED SYSTEM PLAN
37	TE01	DETAILS SHEET NO.1
38	TE02	DETAILS SHEET NO.2
		(N) - INSTRUMENTATION AND CONTROL
39	GN01	INSTRUMENTATION LEGEND SHEET NO.1
40	GN02	INSTRUMENTATION LEGEND SHEET NO.2
41	N00	BLOCK DIAGRAM
42	N01	ALUM PROCESS FLOW P&ID
43	N02	LIQUID AMMONIUM SULFATE STORAGE AND FEED PROCESS FLOW P&ID
44	TN01	INSTRUMENTATION DETAILS SHEET NO.1
45	TN02	INSTRUMENTATION DETAILS SHEET NO.2

REV	DATE	BY	DESCRIPTION
			BID SET

DESIGNED BH
DRAWN HV
CHECKED ES
DATE APRIL 2024

ERICA DIANE STONE LICENSE No 75487 STATE OF FLORIDA PROFESSIONAL ENGINEER

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CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

GENERAL

DRAWING INDEX

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. G02
SHEET NO. OF

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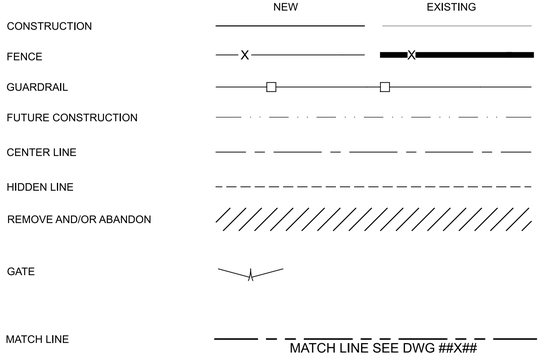
Model: Layout1
LAST SAVED BY: hvo

PROJECT NO. 202333-100000 FILE NAME: 202333_00G002.dgn

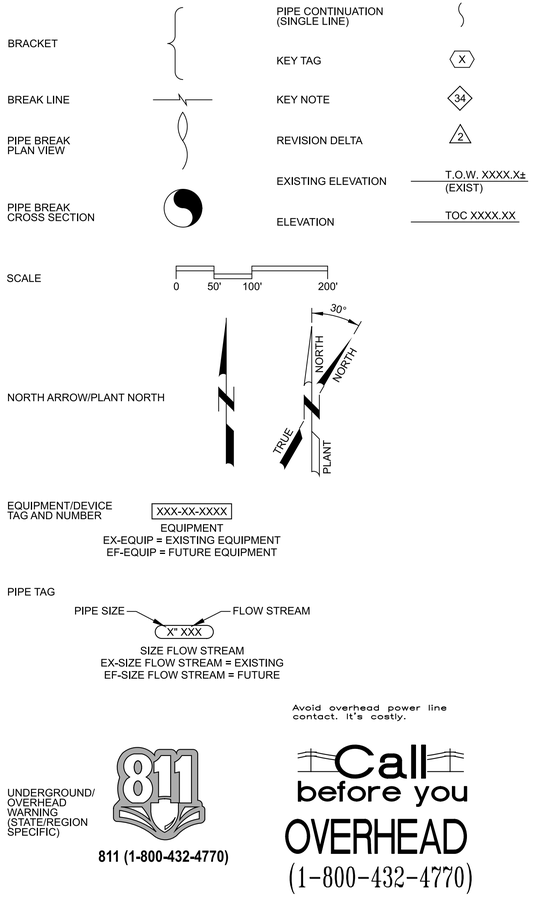
GENERAL NOTES

1. FOLLOWING NOTES ARE GENERAL AND APPLY TO ALL SHEETS OF THESE CONTRACT DOCUMENTS AS IF THEY WERE WRITTEN IN THEIR ENTIRETY ON EACH SHEET.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK AND SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING CONDITIONS INCLUDING LOCATION AND DIMENSIONS OF ALL EXISTING CONSTRUCTION AND UTILITIES. CONTRACTOR SHALL NOTIFY ENGINEER IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
3. UNLESS DETAILED, SPECIFIED, OR OTHERWISE INDICATED ON THE DRAWINGS, CONSTRUCTION SHALL BE AS INDICATED IN THE APPLICABLE TYPICAL DETAILS AND GENERAL NOTES. TYPICAL DETAILS SHALL APPLY EVEN THOUGH NOT REFERENCED AT SPECIFIC LOCATIONS ON DRAWINGS.
4. WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF WORK, DETAILS SHALL BE IN THE SAME AS FOR OTHER SIMILAR WORK.
5. CONTRACTOR SHALL COMPLY WITH LOCAL CONSTRUCTION STORM WATER DISCHARGE REGULATIONS AND REQUIREMENTS.
6. PRIOR TO EXCAVATION FOR NEW STRUCTURES, ELECTRICAL CONDUIT, FABRICATION OF NEW PIPING AND/OR OTHER PROPOSED UTILITIES, CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL EXISTING PIPING AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR SHALL TEMPORARILY RELOCATE CONFLICTING EXISTING UTILITIES AT TIE-IN/CONNECTION LOCATIONS AND REINSTALL THEM AS REQUIRED TO ELIMINATE THE CONFLICT AT NO ADDITIONAL COST TO THE OWNER.
7. ALL PIPELINES 12" AND LARGER SHALL HAVE A MINIMUM COVER OF 36" UNLESS THE COVER DEPTH IS SPECIFICALLY INDICATED ON THE DRAWINGS. PIPE SMALLER THAN 12" SHALL HAVE A MINIMUM COVER OF 30" UNLESS NOTED OTHERWISE. PIPES SHALL BE ROUTED AS SHOWN UNLESS MINOR REVISIONS ARE NECESSARY TO MISS EXISTING PIPES, STRUCTURES, ETC. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL FITTINGS AND ADAPTERS REQUIRED TO MAKE THE ROUTING CHANGES AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL INCLUDE COST FOR THIS IN THE BID.
8. EXISTING FACILITY AND UTILITY INFORMATION SHOWN ON THE DRAWINGS WAS OBTAINED FROM AVAILABLE RECORDS OR ELECTRONIC FILES. NEITHER THE OWNER NOR ENGINEER ASSUMES ANY RESPONSIBILITY FOR FACILITIES AND UTILITIES NOT SHOWN OR NOT IN THE LOCATION SHOWN. THE CONTRACTOR SHALL FIELD VERIFY ALL LOCATIONS, SIZES, MATERIAL TYPES, AND ELEVATIONS SHOWN AROUND OR NEAR AREAS OF NEW CONSTRUCTION PRIOR TO START OF CONSTRUCTION.
9. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT FROM DAMAGE EXISTING FACILITIES AND UTILITIES SHOWN OR NOT SHOWN THAT ARE TO REMAIN IN PLACE. ALL FACILITIES DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED TO THE ORIGINAL OR BETTER CONDITION AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
10. CONTRACTOR SHALL MAKE CONNECTIONS TO EXISTING PIPE, EQUIPMENT, ETC, AS REQUIRED AND SHALL PROVIDE ALL FITTINGS, ADAPTERS, AND APPURTENANCES REQUIRED TO MAKE THE CONNECTIONS. PROVIDE ALL SUPPORTS REQUIRED FOR A RIGIDLY SUPPORTED COMPLETE AND WORKING SYSTEM.
11. ADJUST ALL VALVE BOXES, VAULTS, PULL BOXES, AND MANHOLES TO FINISHED GRADE UNLESS OTHERWISE SHOWN OR DIRECTED. MANHOLES IN OPEN FIELDS SHALL BE SET TWELVE INCHES ABOVE FINISHED GRADE AND VAULTS SHALL BE SIX INCHES ABOVE FINISHED GRADE.
12. THE CONTRACTOR SHALL CONTACT THE PROPER UTILITY REPRESENTATIVE AS FOLLOWS FOR QUESTIONS OR COORDINATION OF CONSTRUCTION RELATED TO EXISTING UTILITIES. STATE/REGION/MUNICIPALITY SPECIFIC: 1-800-432-4770
13. CONTRACTOR SHALL VERIFY THAT PIPING SHOWN TO BE ABANDONED OR AS ABANDONED PREVIOUSLY IS NO LONGER IN SERVICE. LINES IN SERVICE SHALL BE MAINTAINED UNTIL NO LONGER REQUIRED BY THE PLANT.
14. ALL EXISTING PIPES THAT ARE TO BE ABANDONED IN PLACE OR REMOVED MAY NOT BE SHOWN. WHERE PIPING IS TO BE ABANDONED AND MUST REMAIN IN SERVICE UNTIL COMPLETION OF OTHER PHASES OF WORK, AND IT CONFLICTS WITH NEW PIPING, TEMPORARILY RELOCATE PIPING AS REQUIRED TO MAINTAIN SERVICE BY THE PLANT.
15. CONTRACTOR SHALL REROUTE THE EXISTING PIPING IF REQUIRED TO MISS THE PROPOSED STRUCTURES. THE EXISTING PIPE SHALL REMAIN IN SERVICE UNTIL NEW PIPING IS READY TO BE PLACED INTO SERVICE. DOWNTIME SHALL BE A MAXIMUM OF 2 HOURS, UNLESS SPECIFIED OR SHOWN OTHERWISE.
16. ALL SIDEWALKS TO BE 3'-0" WIDE UNLESS SHOWN OTHERWISE.
17. THE CONTRACTOR SHALL TAKE SPECIAL PRECAUTIONS IN THE VICINITY OF ANY OVERHEAD ELECTRIC LINES. CONTRACTOR SHALL ABIDE BY THE NATIONAL ELECTRIC CODE AND ANY REQUIREMENT BY THE OWNER OF THE ELECTRIC LINES.
18. PROVIDE ALL SHEETING/SHORING REQUIRED TO PROTECT EXISTING STRUCTURES, PIPES AND FACILITIES.
19. CONTRACTOR SHALL VERIFY LOCATION OF ALL ARCHITECTURAL, MECHANICAL, AND ELECTRICAL ITEMS BEFORE PLACING ANY STRUCTURAL STEEL OR CONCRETE. ALSO, STRUCTURAL DIMENSIONS AND OPENINGS CONTROLLED BY ARCHITECTURAL, MECHANICAL, OR ELECTRICAL EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
20. MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES, AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS, THAT ARE REQUIRED BY OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.

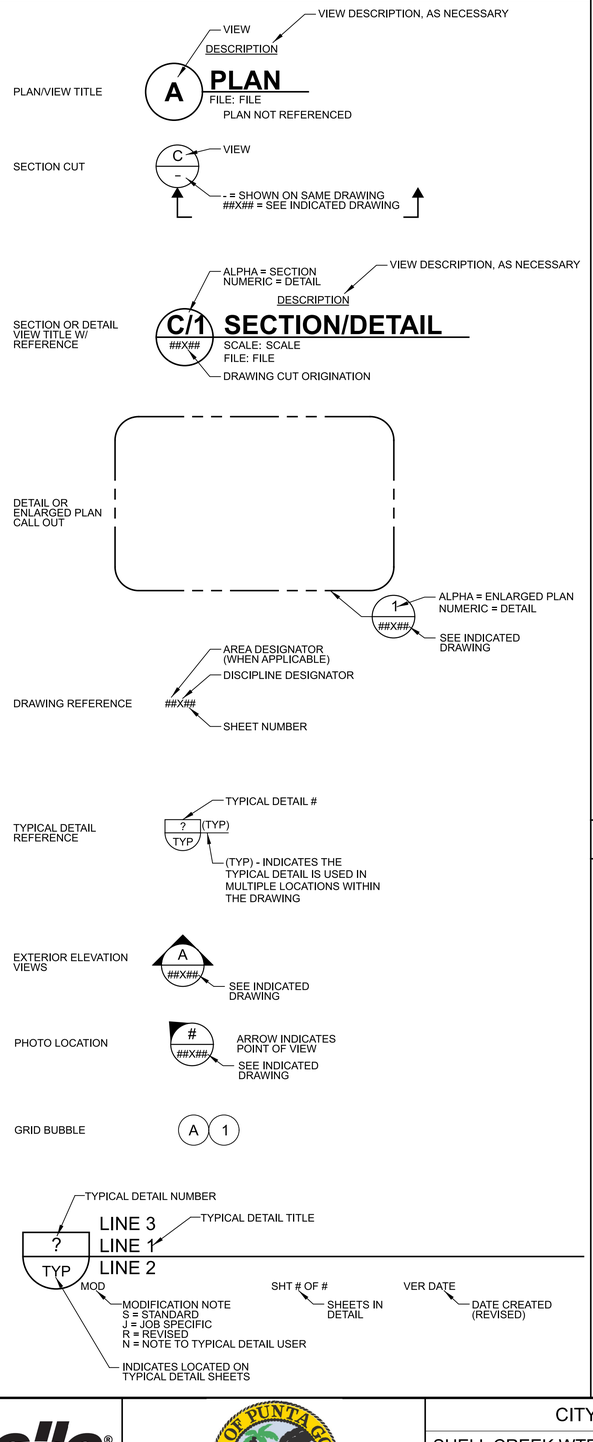
LINE WORK



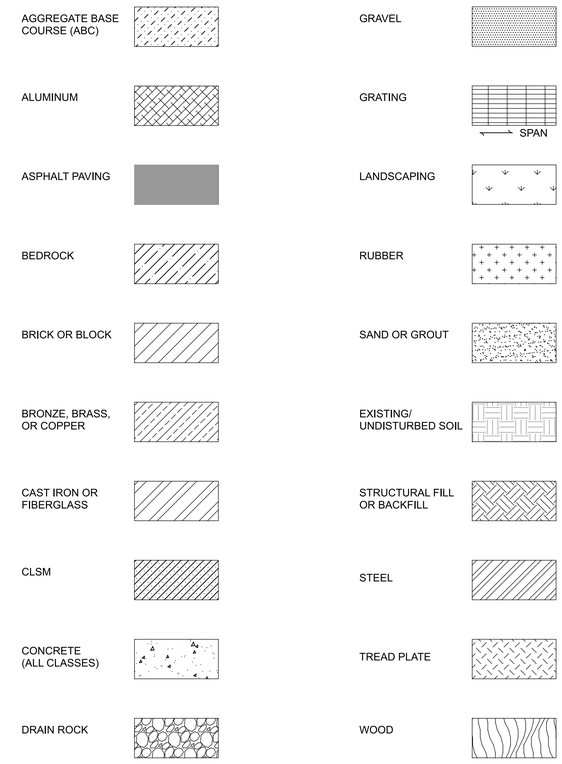
SYMBOLS



DETAIL REFERENCES



HATCH PATTERNS



MISCELLANEOUS

REV	DATE	BY	DESCRIPTION
			BID SET

DESIGNED BH
DRAWN HV
CHECKED ES
DATE APRIL 2024

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

GENERAL

GENERAL NOTES, LEGEND AND SYMBOLS

VERIFY SCALES
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0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. G03
SHEET NO. OF

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ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: hvo
PROJECT NO. 202333-100000 FILE NAME: 202333_00G003.dgn

@	AT (MEASUREMENT)
△	DEFLECTION ANGLE, CENTRAL ANGLE
#	NUMBER (REBAR Ø)

A

AB	ANCHOR BOLT
ABC	AGGREGATE BASE COURSE
ABS	ACRYLONITRILE BUTADIENE STYRENE
AC	ASPHALTIC CONCRETE
ACB	AIR CIRCUIT BREAKER
ACI	AMERICAN CONCRETE INSTITUTE
ACP	ASBESTOS CEMENT PIPE
ACU	AIR CONDITIONING UNIT
AD	AREA DRAIN
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJUST, ADJUSTABLE
ADMIN	ADMINISTRATION
ADR	ACCESS DOOR
AED	AREA EQUIPMENT DRAIN
AER	AERAT(ION)(OR)
AFC	AFTERCOOLER
AFF	ABOVE FINISHED FLOOR
AFM	AIR FLOW MONITOR
AHU	AIR HANDLING UNIT
AIC	AIR COMPRESSOR
AIL	AIR INTAKE LOUVER
ALT	ALTERNATE
AL	ALUMINUM
ALUM	ALUMINUM SULFATE
ANCH	ANCHOR
ANV	ANGLE VALVE
APPROX	APPROXIMATE, APPROXIMATELY
ARCH	ARCHITECTURAL
ARV	AIR RELEASE VALVE
ASSY	ASSEMBLY
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AV	ACID VENT
AVG	AVERAGE
AVV	AIR AND VACUUM VALVE
AW	ACID WASTE

B

BC	BEGIN CURVE, BRASS CAP, BACK OF CURB, BOLT CIRCLE
BCKR	BACKER BOARD
BCM	BATCHMETER
BD	BOARD
BDD	BACKDRAFT DAMPER
BDR	BASIN DRAIN LINE
BF	BLIND FLANGE
BFG	BELOW FINISHED GRADE
BFP	BELT FILTER PRESS
BFV	BUTTERFLY VALVE
BG	BREAK GLASS HAND SWITCH
BKW	BACKWASH
BLDG	BUILDING
BLK	BLOCK
BLKHD	BULKHEAD
BLR	PROCESS BLOWER
BM	BEAM, BENCH MARK
BO	BOTTOM OF
BOTT	BOTTOM
BOTTS	BOTTOM SLUDGE
BPV	BACK PRESSURE VALVE
BRG	BEARING
BSP	BLACK STEEL PIPE
BTU	BRITISH THERMAL UNITS
BTWN	BETWEEN
BV	BALL VALVE
BWCCP	BAR-WRAPPED CONCRETE CYLINDER PIPE

C

C	CLOSE, CONDUIT CHANNEL (STRUCTURAL)
CA	CONCRETE ANCHOR
CAUSTIC	CAUSTIC SOLUTION (CONCENTRATED OR DILUTE)
CB	CATCH BASIN
CC	CENTER OF CURVATURE, CENTER TO CENTER
CCB	CHLORINE CONTACT BASIN
CD	CEILING DIFFUSER, CONDENSATE DRAIN
CDL	CHEMICAL DRAIN LINE
CDT	CONDUIT
CEF	CEILING EXHAUST FAN
CF	CUBIC FEET
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CHEMD	CHEMICAL DRAIN
CHF	CHEMICAL FEEDER
CHKD PL	CHECKERED PLATE
CI	CAST IRON
CIP	CAST IRON PIPE
CIRC	CIRCUMFERENTIAL/CIRCUMFERENCE
CJ	CONSTRUCTION JOINT
CKA	CHECK VALVE, ANGLE
CKB	CHECK VALVE, BALL
CKF	CHECK VALVE, FLAP
CKS	CHECK VALVE, SWING
CL	CENTER LINE
CLK	CHAIN LINK
CLD	CHLORINE LEAK DETECTOR
CLL	CHLORINE LIQUID
CLP	CHLORINE GAS (PRESSURE)
CLR	CLEAR
CLS	CHLORINE SOLUTION
CLSM	CONTROLLED LOW STRENGTH MATERIAL
CLV	CHLORINE GAS (VACUUM)
CML	CEMENT MORTAR LINED
CMLC	CEMENT MORTAR LINED AND COATED
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CNV	CONVEYOR
CO	CLEANOUT
COL(S)	COLUMN(S)
CONC	CONCRETE
CONN	CONNECT, CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS OR CONTINUATION OR (D) (OUS)
CORR	CORRUGATE(D), CORROSION
CP	CONTROL POINT
CPLG	COUPLING
CPT	CARPET
CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CARBON STEEL, CIRCULATING SLUDGE
CSP	CHEMICAL SUMP PUMP, CORRUGATED STEEL PIPE
CT	CURRENT TRANSFORMER, CERAMIC TILE
CTJ	CONTROL JOINT
CTL	CONTROL
CTR	CENTER, CENTERED
CTSK	COUNTERSUNK
CU	CUBIC
CUP	COPPER PIPE
CV	CHECK VALVE
CW	COLD WATER
CWV	COMBINATION WASTE AND VENT
CY	CUBIC YARD

D

D	DEPTH, DIGITAL OR DISCRETE, DRAIN
D/W	DRIVEWAY
DBL	DOUBLE
DDR	DESICCANT DRYER
DEG or °	DEGREE
DEMO	DEMOLISH, DEMOLITION
DET	DETAIL
DFL	DECANT/FILTRATE
DG	DOOR GRILLE
DIA or Ø	DIAMETER
DIAG	DIAGONAL
DIF	DIFFUSER
DIG	DIGESTER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DIW	DEIONIZED WATER
DL	DEAD LOAD, DRAIN LINE
DLV	DOOR LOUVER
DMP	DAMPER
DMS	DIAPHRAGM SEAL
DN	DOWN
do	DITTO
DO	DOOR OPENING
DP	DEEP (OR DEPTH)
DPV	DIAPHRAGM VALVE
DR	DOOR, DRAIN
DRT	DRIP TRAP
DRV	DRAIN VALVE
DS	DIGESTED SLUDGE, DOWN SPOUT
DSW	DISTILLED WATER, DOOR SWITCH
DUC	DUST COLLECTOR
DUH	DUCT HEATER UNIT
DW	DISTILLED WATER
DWD	DEWATERING DRAIN
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)

E

E	EAST
EA	EACH
EC	END OF CURVE
ECC RED	ECCENTRIC REDUCER
ECU	EVAPORATOR COOLING UNIT
ED	EQUIPMENT DRAIN
EF	EXHAUST FAN, EACH FACE
EFF	EFFLUENT
EG	EXHAUST GRILLE
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EJR	INJECTOR/EDUCTOR
EL	ELEVATION
ELEC	ELECTRICAL
ELL	ELBOW
EMBED	EMBEDMENT
EMH	ELECTRICAL MANHOLE
EP	EDGE OF PAVEMENT
EPS	EXPANDED POLYSTYRENE
EPV	ECCENTRIC PLUG VALVE
EQ	EQUAL
EQUIP	EQUIPMENT
ER	EXHAUST REGISTER
ES	EACH SIDE
ESEW	EMERGENCY SHOWER AND EYE WASH
ESS	EMERGENCY HAND SWITCH
ET	ELECTRICALLY HEAT TRACED
EUH	ELECTRIC UNIT HEATER
EVR	EVAPORATOR
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWEF	EACH WAY EACH FACE
EWH	ELECTRIC WATER HEATER, EXHAUST
EX	EXISTING
EXIST	EXISTING
EXP	EXPANSION, EXPANSION TANK
EXPO	EXPOSED
EXT	EXTERIOR

F

FACT	FACTORY
FAD	FOUL AIR DUCT
FB	FLAT BAR
FBW	FILTER BACKWASH
FC	FACE OF CURB, FLEXIBLE COUPLING
FCA	FLANGE COUPLING ADAPTER
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FIRE DAMPER, FLOOR DRAIN, FOUND
FDC	FIRE DEPARTMENT CONNECTION
FDL	FLOOR DRAIN LINE
FDR	FEEDER
FEFF	FINAL EFFLUENT
FG	FLAP GATE
FH	FIRE HYDRANT
FILT	FILTRATE
FIN	FINISH
FIN FL	FINISHED FLOOR
FIN GR	FINISHED GRADE
FL	FLOOR, FLOW LINE
FLA	FOUL AIR
FLD	FILTER DRAIN
FLE	FILTER EFFLUENT
FLEX	FLEXIBLE
FLG	FLANGE, OR FLANGED
FLR	FILTER
FM	FORCE MAIN
FND	FOUNDATION
FO	FUEL OIL
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FPP	FLEXIBLE PLASTIC PIPE
FRP	FIBERGLASS REINFORCED PLASTIC
FRPP	FIBERGLASS REINFORCED PLASTIC PIPE
FRS	FROTH SPRAY
FS	FAR SIDE
FSTN	FASTEN(ED)
FT or '	FOOT, FEET
FTG	FOOTING
FUP	FUEL DISPENSER
FV	FLAP VALVE
FW	FLUSHING WATER, FINISHED WATER
FX	FIRE EXTINGUISHER
FXC	FIRE EXTINGUISHER CABINET
FXE	FIRE EXTINGUISHER - ELECTRICAL

G

G	GAS, GROUND, GUTTER
GA	GAUGE or GAGE
GAL	GALLONS
GALV	GALVANIZE(D)
GAV	GRAVITY VENTILATOR
GB	GRADE BREAK
GBT	GRAVITY BELT THICKENER
GC	GROOVED COUPLING
GEL	GRAVITY EXHAUST LOUVER
GEN	GENERAL, GENERATOR
GL	GLASS
GLV	GLOBE VALVE
GM	GAS METER
GND	GROUND
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GR	GRADE
GRTG	GRATING
GRV	GRAVITY VENTILATOR
GSP	GALVANIZED STEEL PIPE
GV	GATE VALVE
GYP	GYPSUM

H

H	EXPLOSION-PROOF, HIGH, HORIZONTAL
H1E	HOOK ONE END
H2E	HOOK TWO ENDS
HAS	HEADED ANCHOR STUD
HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
HDW	HARDWARE
HDWL	HEADWALL
HEF	HOOD EXHAUST FAN
HGT	HEIGHT
HORIZ	HORIZONTAL
HP	HEAT PUMP, HORSEPOWER, HIGH PRESSURE
HPA	HIGH PRESSURE AIR
HPT	HIGH POINT
HPU	HEAT PUMP UNIT AIR
HR	HANDRAIL, HOSE REEL, HOUR
HSF	HOOD SUPPLY FAN
HSS	HOLLOW STRUCTURAL SECTION (STEEL)
HTX	HEAT EXCHANGER
HV	HOSE VALVE
HW	HOT WATER
HWL	HIGH WATER LEVEL
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HxW	HEIGHT BY WIDTH
HYD	HYDRANT

I

IA	INSTRUMENT AIR
ID	INSIDE DIAMETER, INSIDE DIMENSION, IDENTIFICATION
I.F.	INSIDE FACE
IN or "	INCHES
INCL	INCLUDE, INCLUDING
INF	INFLUENT
INJ	INJECTOR
INSTR	INSTRUMENTATION
INSUL	INSULATE(ED)(ING)(ION)
INT	INTERIOR
INV	INVERT
IP	IRON PIPE
ISR	INTRINSICALLY SAFE RELAY

J

JST	JOIST
JT	JOINT

K

KGV	KNIFE GATE VALVE

L

L	ANGLE (STRUCTURAL), LENGTH, LOUVER
LAB	LABORATORY
LAS	LIQUID AMMONIUM SULFATE
LAV	LAVATORY
LB(S)	POUND(S)
LD	LEAK DETECTION
LDF	LIQUID DIESEL FUEL
LDFR	LIQUID DIESEL FUEL RETURN
LF	LINEAL FEET
LG	LONG
LH	LEFT HAND
LHR	LEFT HAND REVERSE
LHRA	LEFT HAND REVERSE ACTIVE
LHRB	LEFT HAND REVERSE BEVEL
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW PRESSURE
LPA	LOW PRESSURE AIR
LPG	LIQUIFIED PROPANE GAS
LPT	LOW POINT
LR	LONG RADIUS
LS	LAB SINK
LT	LEFT
LWL	LOW WATER LEVEL

M

M	MOTOR
MAINT	MAINTENANCE
MAN	MANUAL
MASY	MASONRY
MATL	MATERIAL
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MB	MACHINE BOLT
MC	MECHANICAL COUPLING
MCJ	MASONRY CONTROL JOINT
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MET	METAL
MFR	MANUFACTURER
MG/L	MILLIGRAMS PER LITER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MIX	MIXER
MJ	MECHANICAL JOINT
MK	MARK
ML	MIXED LIQUOR
MO	MASONRY OPENING
MOD	MODIFIED
MOIST	MOISTURE
MON	MONUMENT
MOS	MOISTURE SEPARATOR
MPM	METERING PUMP
MS	MOP SINK
MTD	MOUNTED

N

N	NORTH, NEUTRAL
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEV	VALVE, NEEDLE
NG	NATURAL GRADE, NATURAL OR LP GAS
NIC	NOT IN CONTRACT
NO., #	NUMBER
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NPW	NON-POTABLE WATER
NS	NEAR SIDE
NTS	NOT TO SCALE

O

O	OPEN
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER
OD	OUTSIDE DIAMETER, OUTSIDE DIMENSION
OED	OPEN EQUIPMENT DRAIN
O.F.	OUTSIDE FACE
OFL	OVERFLOW
OPNG	OPENING
OPP	OPPOSITE
OPP HND	OPPOSITE HAND
OVFL	OVERFLOW
OZ	OUNCE

P

P	POLE
PBL	POLYMER BLENDER
PC	POINT OF CURVATURE
PCC	PLANT CONTROL CENTER
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PCP	PROGRESSIVE CAVITY PUMP
PD	POSITIVE DISPLACEMENT, PLANT DRAIN
PD, PLD	PULSATION DAMPENER
PDP	POSITIVE DISPLACEMENT PUMP
PE	PLAIN END
PERP	PERPENDICULAR
PG	PRESSURE GAUGE
PH	PHASE, PHYSICALLY HANDICAPPED
PI	POINT OF INTERSECTION
PIT	PRESSURE INDICATING TRANSMITTER
PIV	POST INDICATOR VALVE
PL	PLATE, PROPERTY LINE
PLAS	PLASTIC
PLCS	PLACES
PLS	POLYMER SOLUTION
PLWD	PLYWOOD
PMP	PUMP
PNL(S)	PANEL(S)
POL	POLYMER
POLY	POLYETHYLENE
POS	POSITION
POW	POTABLE WATER
PP	POWER POLE
PPMV	PARTS PER MILLION (VOLUME)
PRC	POINT OF REVERSE CURVATURE
PREFAB	PREFABRICATED
PRG	PRESSURE REGULATOR
PRI	PRIMARY
PROJ	PROJECTION
PRR	PRESSURE OR VACUUM RELIEF VALVE
PRV	PRESSURE REDUCING VALVE, PRESSURE REGULATION VALVE, PRESSURE RELIEF VALVE
PS	PUMP STATION, PIPE SUPPORT
PSF	POUNDS PER SQUARE FOOT
PSG	PRESSURE GAUGE
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PT	POINT, POINT OF TANGENCY
PV	PLUG VALVE
PVC	POINT OF VERTICAL CURVATURE, POLYVINYL CHLORIDE
PVDF	POLYVINYLIDENE FLUORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVMT	PAVEMENT
PVT	POINT OF VERTICAL TANGENCY
PLW	PLANT WATER

Q

QTY	QUANTITY

R

R/W	RIGHT OF WAY
RAD	RADIUS, RADIAL
RAS	RETURN ACTIVATED SLUDGE
RCP	REINFORCED CONCRETE PIPE
RCCP	REINFORCED CONCRETE CYLINDER PIPE
RD	ROOF DRAIN
RDL	ROOF DRAIN LINE
RDOF	ROOF DRAIN OVERFLOW
RECIRC	RECIRCULATING
RED	REDUCER, ROOF EQUIPMENT DRAIN
REF	REFERENCE
REG	REGULATOR, REGULATING
REINF	REINFORCE(D)(ING)(MENT)
REJ	RUBBER EXPANSION JOINT
REQD	REQUIRED
RER	REACTOR
RES	RESERVOIR
REV	REVISION, REVERSE
RF	RETURN FAN
RG	RETURN GRILLE RUBBER GASKET
RH	RIGHT HAND
RHR	RIGHT HAND REVERSE
RHRA	RIGHT HAND REVERSE ACTIVE
RHRB	RIGHT HAND REVERSE BEVEL
RLS	REGISTERED LAND SURVEYOR
RM	ROOM
RO	ROUGH OPENING
ROT	ROTAMETER
RP	RADIUS POINT
RPM	REVOLUTIONS PER MINUTE
RPMP	REINFORCED PLASTIC MORTAR PIPE
RR	RETURN REGISTER
RSR	RISER
RT	RIGHT
RTF	ROTARY FEEDER
RTU	ROOF TOP UNIT
RUD	RUPTURE DISK
RW	RECLAIMED WATER, REUSE WATER
RWR	RECLAIMED WATER RETURN
RWW	RAW WASTEWATER

S

S/W	SIDEWALK
S	SOUTH, SWITCH, SLOPE
SA	SAMPLE
SC	SECONDARY CLARIFIER
SCB	SCRUBBER
SCD	SMOKE CONTROL DAMPER
SCFM	STANDARD CUBIC FEET PER MINUTE
SCH	SCHEDULE
SCO	SURFACE CLEANOUT
SCR	BAR SCREEN
SCR	SILICON CONTROL RECTIFIER
SD	SMOKE DETECTOR, SPLITTER DAMPER, STORM DRAIN
SDL	SUMP DISCHARGE DRAIN LINE
SDO	SLUDGE DRAWOFF
SE	SECONDARY EFFLUENT
SEC	SECONDARY, SECOND
SECT	SECTION
SED	SEDIMENTATION
SEP	SEPTAGE
SF	SUPPLY FAN
SFW	SOFTENED WATER
SG	SUPPLY GRILLE
SGS	STORE FRONT GLAZING SYSTEM
SHC	SODIUM HYPOCHLORITE
SHD	SHOWER DRAIN
SHDR	SOLIDS HANDLING-RECYCLE
SHR	SHOWER
SHT	SHEET
SIM	SIMILAR
SK	SKIMMINGS
SL	SLOPE, SLUDGE
SLC	SLUDGE COLLECTOR DRIVE
SLG	SLIDE GATE
SLV	SLEEVE VALVE
SMP	SAMPLER, SUMP PUMP
SN	SUPERNATANT OR SUBNATANT
SOL	SOLUTION
SP	STATIC PRESSURE, SET POINT
SPD	SUMP PUMP DRAIN
SPDT	SINGLE POLE DOUBLE THROW
SPEC(S)	SPECIFICATION(S)
SPL	SPLITTER BOX
SPR	SPARE
SPS	SAMPLE SINK
SPW	SAMPLE WATER
SQ	SQUARE
SQ FT	SQUARE FEET
SQ IN(S)	SQUARE INCH(ES)
SR	SHORT RADIUS, SUPPLY REGISTER
SRL	SCRUBBER RECIRCULATION LIQUID (CAUSTIC)
SS	SANITARY SEWER, SELECTOR SWITCH
SSK	SERVICE SINK
SSL	SECONDARY SLUDGE
SST	STAINLESS STEEL
ST	SLUDGE TRANSFER
STA	STATION
STB	STABILIZER
STD(S)	STANDARDS(S)
STIFF	STIFFENER
STIR	STIRRUPS
STL	STEEL
STM	STEAM
STP	STEEL PIPE
STR	STRAINER
STRUCT	STRUCTURAL
SUG	SLUICE GATE
SUPT	PIPE SUPPORT, SUPPORT
SV	SERVICE VALVE, SHUTOFF VALVE, SOLENOID VALVE
SW	SANITARY WASTE
SWR	SEAL WATER
SYM	SYMMETRICAL
SYN	SYNTHETIC

T

T	TANGENT LENGTH, THERMOSTAT, TIMER
T&B	TOP AND BOTTOM
TAS	THREADED ANCHOR STUD
TBM	TEMPORARY BENCHMARK
TC	TOP OF CURB
TCV	TEMPERATURE CONTROL VALVE
TDH	TOTAL DYNAMIC HEAD
TDR	TIME DELAY RELAY, TOWEL DISPENSER/RECEPTACLE
TEL	TELEPHONE
TH	TEST HOLE
THK	THICKENER, THICKNESS, THICK
TKS	THICKENED SLUDGE
TLV	TELESCOPING VALVE
TMH	TELEPHONE MANHOLE
TMP	TEMPERATURE
TNK	TANK
T.O.	TOP OF
TOC	TOP OF CONCRETE
TOG	TOP OF GRATING
TOM	TOP OF MASONRY
TOS	TOP OF STEEL
T.O.W.	TOP OF WALL
TR	TRIAD (THREE CONDUCTOR SHIELDED CABLE), TIMING RELAY
TRD	TREAD
TS	THICKENER SUPERNATANT OR SUBNATANT
TSD	THICKENED SLUDGE DECANT
TSPL	TURBIDIMETER SAMPLE
TSTAT	THERMOSTAT
TTB	TELEPHONE TERMINAL BOARD
TUR	TURBINE
TV	TURNING VANES
TWV	THREE-WAY VALVE
TYP	TYPICAL

U

UC	UNDERCUT
UG	UNDERGROUND
UHMWPE	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE
UHMW	ULTRA HIGH MOLECULAR WEIGHT
UNO	UNLESS NOTED OTHERWISE
US	UTILITY SINK

V

V	VALVE
VAR	VARIES
VB	VALVE BOX
VCP	VITRIFIED CLAY PIPE
VEC	VINYL ESTER COATING
VERT	VERTICAL
VFR	VOLUMETRIC FEEDER
VG	VACUUM GAUGE, VALLEY GUTTER
VOL	VOLUME
VRV	VACUUM REGULATING VALVE
VTR	VENT THROUGH ROOF

W

W	WEST, WIDTH
W/	WITH
W/O	WITHOUT
WAS	WASTE ACTIVATED SLUDGE
WCO	WALL CLEANOUT
WEF	WALL EXHAUST FAN
WF	WALL FITTING, WASH FOUNTAIN
WH	WATER HEATER
WI	WEIGHT INDICATOR
WL	WALL LOUVER, WATER LEVEL
WM	WATER METER
WOD	WASTE OIL DRAIN
WP	WEATHERPROOF, WATERPROOF
WPT	WORKING POINT
WRG	WEIR GATE
WRS	WATER SOFTENER
WS	WATER SURFACE
WSTP	WATERSTOP
WT	WALK THROUGH, WEIGHT
WTF	WATER TREATMENT FACILITY
WTP	WATER TREATMENT PLANT
WTR	WATER
WV	WATER CONTROL VALVE
WW	WASTEWATER
WWF	WELDED WIRE FABRIC
WWTF	WASTEWATER TREATMENT FACILITY
WWTP	WASTEWATER TREATMENT PLANT

Y

Y	WYE
YCO	YARD CLEANOUT
YH	YARD HYDRANT

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CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

GENERAL

GENERAL ABBREVIATIONS

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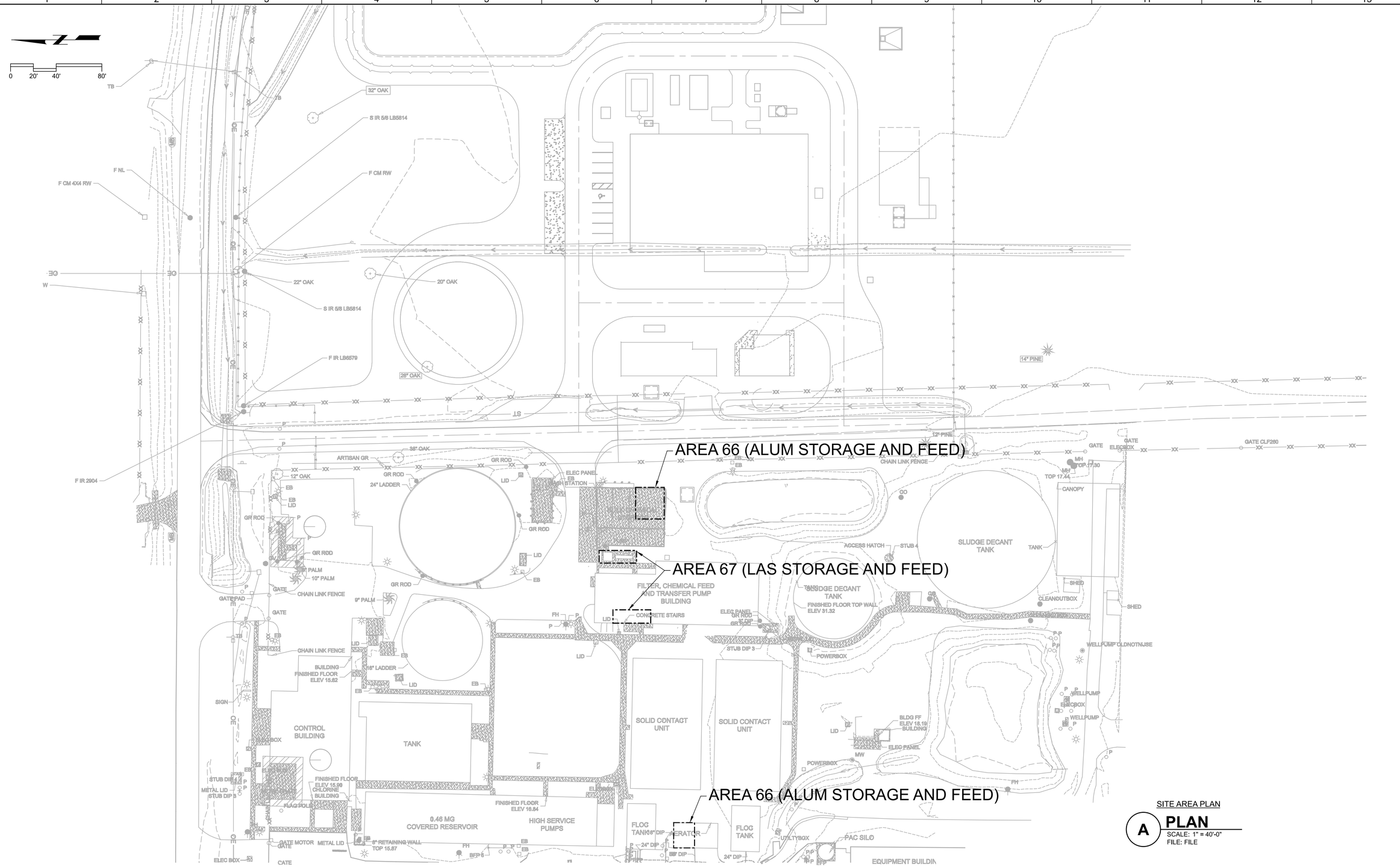

SITE AREA PLAN

A PLAN

SCALE: 1" = 40'-0"
FILE: FILE

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

GENERAL

GENERAL SITE PLAN

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Plot Date: 8-APR-2024 11:56:58 AM

PROJECT NO. 202333-100000 FILE NAME: 202333_00G005.dgn

ALUM SULFATE DESIGN CRITERIA

ALUM CHARACTERISTICS

CONCENTRATION	%	48.7
SPECIFIC GRAVITY		1.33
SOLUTION STRENGTH	LB/GAL	5.40

PARAMETER	UNITS	PROPOSED MIN	PROPOSED AVG	PROPOSED MAX
LOCATION: FLASH MIXER				
CHEMICAL USAGE				
PROCESS FLOW	MGD	1.7	6.0	10.0
CHEMICAL USAGE	LB/DAY	964	7,406	17,347
CHEMICAL DOSE	MG/L	68	148	208
CHEMICAL FEED RATE	GPD	178	1,371	3,211
REQUIRED FEED RATE	GPH	7	57	134
BULK STORAGE				
NUMBER OF TANKS	NO.		2	
STORAGE CAPACITY (EACH TANK)	GAL		21,000	
STORAGE CAPACITY (TOTAL)	GAL		42,000	
STORAGE TIME	DAYS	235	31	13
DAY TANK STORAGE				
NUMBER OF TANKS	NO.		1	
STORAGE CAPACITY (EACH TANK)	GAL		1,550	
STORAGE CAPACITY (TOTAL)	GAL		1,550	
STORAGE TIME	HOURS	208.4	27.1	11.6
TRANSFER PUMPS				
QUANTITY OF PUMPS	NO.		2	
QUANITY OF PUMPS IN SERVICE	NO.		1	
PUMP TYPE			CENTRIFUGAL	
PUMP MODEL NUMBER, OR EQUAL				
RATED PUMP CAPACITY	GPM		50	
DISCHARGE HEAD	FT		45	
DAY TANK FILL TIME	MIN		31	
METERING PUMPS				
QUANTITY OF PUMPS	NO.		2	
QUANITY OF PUMPS IN SERVICE	NO.		1	
PUMP TYPE			MOTOR DRIVEN DIAPHRAGM	
PUMP MODEL NUMBER, OR EQUAL			PROMINENT SIGMA SERIES	
RATED PUMP CAPACITY	GPH		177	
MAXIMUM MOTOR SPEED	SPM		120	
MINIMUM MOTOR SPEED	SPM		12	
MOTOR SPEED TURNDOWN	RATIO		10:1	

LIQUID AMMONIUM SULFATE (LAS) DESIGN CRITERIA

LAS CHARACTERISTICS

CONCENTRATION	%	40
SPECIFIC GRAVITY		1.22
SOLUTION STRENGTH	LB/GAL as N	0.86

PARAMETER	UNITS	PROPOSED PRE-FILTERS INJECTION MIN	PROPOSED PRE-FILTERS INJECTION AVG	PROPOSED PRE-FILTERS INJECTION MAX	PROPOSED RO PERMEATE CLEARWELL MIN	PROPOSED RO PERMEATE CLEARWELL AVG	PROPOSED RO PERMEATE CLEARWELL MAX
CHEMICAL USAGE							
PROCESS FLOW	MGD	3.1	6.0	10.0	2.0	5.0	8.0
CHEMICAL USAGE	LB/DAY as N	18	75	200	1.3	67	414
CHEMICAL DOSE	MG/L as N	0.7	1.5	2.4	0.08	1.6	6.2
CHEMICAL FEED RATE	GPD	21	87	232	1.5	77	479
REQUIRED FEED RATE	GPH	0.9	3.6	9.7	0.06	3.2	20.0
BULK STORAGE							
NUMBER OF TANKS	NO.		2				
STORAGE CAPACITY (EACH TANK)	GAL		2550			THE (2) BULK STORAGE TANKS ACCOMMODATE BOTH LAS INJECTION POINTS.	
STORAGE CAPACITY (TOTAL)	GAL		5100				
STORAGE TIME	DAYS	227	31	7			
DAY TANK STORAGE							
NUMBER OF TANKS	NO.		1				
STORAGE CAPACITY (EACH TANK)	GAL		165			THE (1) DAY TANK ACCOMODATES BOTH LAS INJECTION POINTS.	
STORAGE CAPACITY (TOTAL)	GAL		165				
STORAGE TIME	HOURS	175.9	24.1	5.6			
TRANSFER PUMPS							
QUANTITY OF PUMPS	NO.		2				
QUANITY OF PUMPS IN SERVICE	NO.		1				
PUMP TYPE			CENTRIFUGAL			THE (2) CENTRIFUGAL TRANSFER PUMPS ACCOMMODATE BOTH LAS INJECTION POINTS.	
PUMP MODEL NUMBER, OR EQUAL							
RATED PUMP CAPACITY	GPM		6				
DISCHARGE HEAD	FT		16				
DAY TANK FILL TIME	MIN		27.5				
METERING PUMPS							
QUANTITY OF PUMPS	NO.		2			2	
QUANITY OF PUMPS IN SERVICE	NO.		1			1	
PUMP TYPE			SOLENOID DRIVEN DIAPHRAGM			SOLENOID DRIVEN DIAPHRAGM	
PUMP MODEL NUMBER, OR EQUAL			PROMINENT GAMMA SERIES			PROMINENT GAMMA SERIES	
RATED PUMP CAPACITY	GPH		12.95			12.95	
MAXIMUM MOTOR SPEED	SPM		200			200	
MINIMUM MOTOR SPEED	SPM		20			20	
MOTOR SPEED TURNDOWN	RATIO		10:1			10:1	

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

GENERAL

DESIGN CRITERIA

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Model: Layout1 ColorTable: gshade.ctb DesignScript: Carollo_Std_Pen_v0905.pen PlotScale: 1:1
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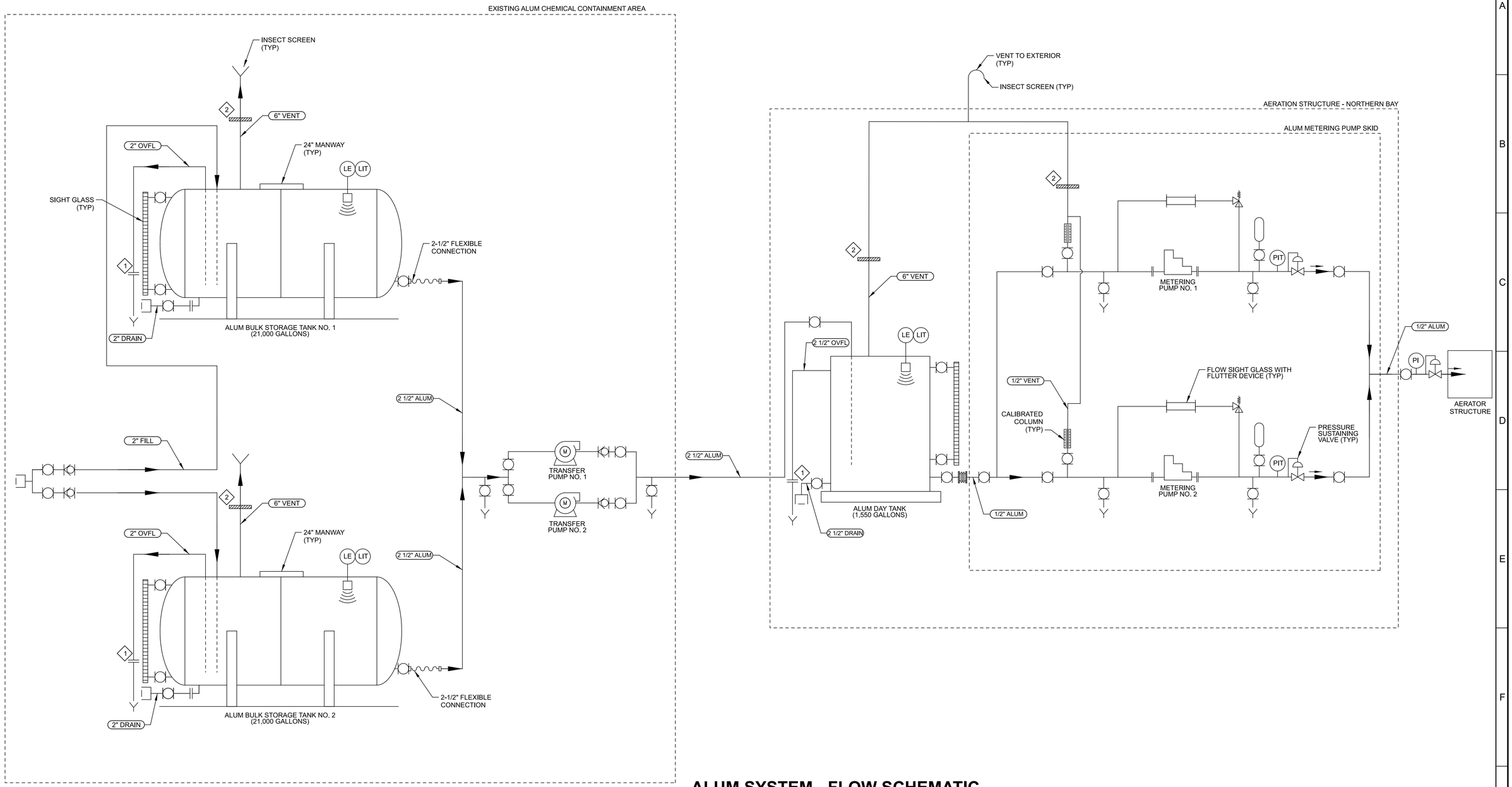
KEY NOTES:

1. FLANGES WITH ALUM RESISTANT VAPOR PAPER.
2. INSTALL CARTRIDGE TYPE VAPOR LOCK.



ALUM SYSTEM - FLOW SCHEMATIC

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

GENERAL

ALUM PROCESS FLOW DIAGRAM

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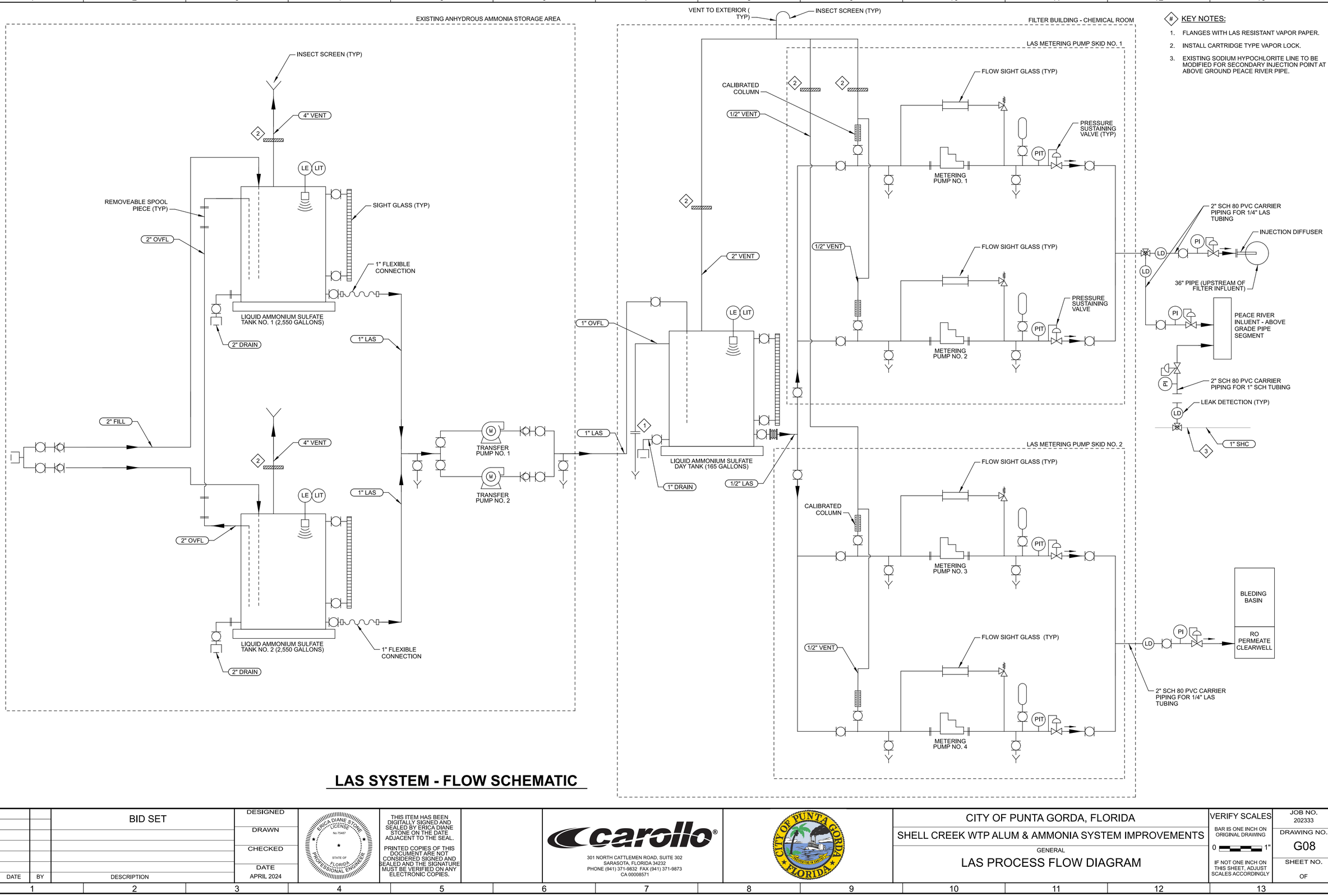

LAS SYSTEM - FLOW SCHEMATIC

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

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LAS PROCESS FLOW DIAGRAM

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PIPE SCHEDULE

Process Abbrev.	Service	Nominal Diameter (inches)	Material	Pressure Class Special Thickness Class Schedule Wall Thickness	Pipe Spec. Section	Joints/ Fittings	Test Pressure/ Method	Lining	Coating	Service Conditions	Comments
ALUM	Alum Solution										
	Aboveground	1/2 - 6	PVC	SCH 80	15249 PVC Pipe: Schedule Type	SW	125 psig/HH	None	EPP		
LAS	Liquid Ammonium Sulfate										
	Underground	1-3/4	PVC	SCH 80	15230 Plastic Piping and Tubing	SW	125 psig/HH	None	None		1/4" tubing in 2" carrier pipe
	Aboveground	1-3/4	PVC	SCH 80	15230 Plastic Piping and Tubing	SW	125 psig/HH	None	EPP		1/4" tubing in 2" carrier pipe
	Aboveground	1/2 - 4	PVC	SCH 80	15249 PVC Pipe: Schedule Type	SW	125 psig/HH	None	EPP		
SHC	Sodium Hypochlorite										
	Underground	2	PVC	SCH 80	15230 Plastic Piping and Tubing	SW	125 psig/HH	None	None		1" tubing in 2" carrier pipe
	Aboveground	1	PVC	SCH 80	15249 PVC Pipe: Schedule Type	SW	125 psig/HH	None	EPP		

Notes:

1 Long radius 90-degree elbows shall be used for containment piping.

Abbreviations:

1. The following abbreviations used in the column of test method refer to the respective methods as specified in Section 15956 - Piping Systems Testing.

AM	Air method
GR	Gravity method
HH	High head method
LH	Low head method
SC	Special case

2. Abbreviations to designate piping include the following:

B&SP	Bell and spigot
BSP	Black Steel Pipe
CE	Ceramic epoxy lining
CI	Cast Iron
CISP	Cast iron soil pipe
CL	Class, followed by the designation
CM	Cement mortar
CTp	Coal tar pitch
DIP	Ductile iron piping
EPP	Epoxy polyurethane coating
FL	Flange
GA	Gauge, preceded by the designation
GE	Grooved end joint
GL	Glass lined
GSP	Galvanized steel pipe
MJ	Mechanical joint
MWA	Mechanical wedge action
NPS	Nominal pipe size, followed by the number in inches
psi	pounds per square inch
psig	pounds per square inch gauge
PE	Polyethylene
PEE	Polyethylene encasement
PTW	Polyethylene tape wrap
PVC	Polyvinyl Chloride
RPO	Restrained push-on
SCH	Schedule, followed by the designation
SCRD	Screwed-on
SST	Stainless steel
SW	Solvent welded
VCP	Vitrified clay piping
WLD	Weld

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SARASOTA, FLORIDA 34232
PHONE (941) 371-9832 FAX (941) 371-9873
CA 00008571

CITY OF PUNTA GORDA, FLORIDA

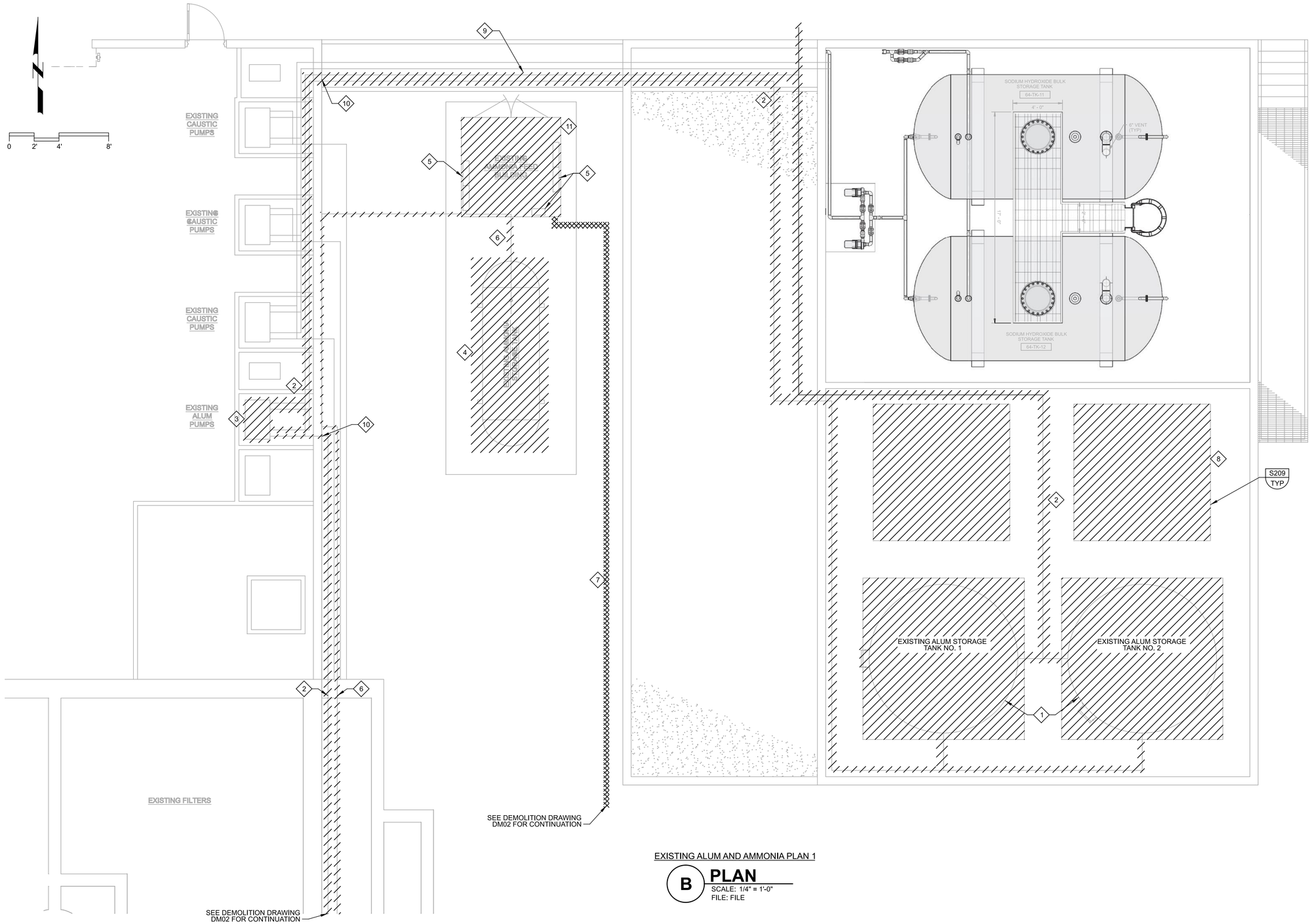
SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

GENERAL

PIPE AND MATERIAL SCHEDULE

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. G09
SHEET NO.
OF



EXISTING ALUM AND AMMONIA PLAN 1

B PLAN

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

GENERAL NOTES:

1. CHEMICAL PIPING SHOWN ON THIS DRAWING AS SCHEMATIC ONLY. FIELD LOCATE AND VERIFY EXISTING PIPING TO BE REMOVED OR ABANDONED.
2. ALUM SHALL REMAIN IN SERVICE DURING MODICATIONS. AT LEAST ONE ALUM STORAGE TANK AND PIPING SHALL REMAIN IN SERVICE WHILE A NEW STORAGE TANK, TRANSFER PUMPS, AND PIPING IS BEING CONSTRUCTED. CONTRACTOR SHALL PROVIDE SEQUENCING PLAN FOR REVIEW.
3. AMMONIA SHALL REMAIN IN SERVICE DURING MODIFICATIONS. A SUPPLEMENTARY AMMONIA SUPPLY SHALL BE UTILIZED WHILE IMPROVEMENTS ARE CONSTRUCTED. CONTRACTOR SHALL PROVIDE SEQUENCING PLAN FOR REVIEW.

KEY NOTES:

1. REMOVE AND DISPOSE EXISTING ALUM BULK STORAGE TANK (TYP OF 2).
2. REMOVE AND DISPOSE ALL EXISTING ALUM PROCESS PIPING INTERIOR TO THE CHEMICAL CONTAINMENT AREA, INTERIOR TO THE FILTER BUILDING, AND EXTERIOR LEADING TO THE POINT OF ALUM INJECTION.
3. REMOVE AND DISPOSE EXISTING ALUM FEED EQUIPMENT.
4. REMOVE AND DISPOSE EXISTING AMMONIA STORAGE TANK.
5. REMOVE AND DISPOSE EXISTING AMMONIA FEED EQUIPMENT.
6. REMOVE AND DISPOSE ALL EXISTING ABOVE-GROUND AMMONIA PROCESS PIPING.
7. ABANDON IN PLACE EXISTING BELOW-GRADE AMMONIA PIPING.
8. REMOVE EXISTING CONCRETE EQUIPMENT PAD AND REPAIR CONCRETE SLAB AS NECESSARY (TYP OF 4).
9. REMOVAL ALL EXISTING ALUM PIPING FROM EXISTING PIPE TRENCH.
10. CONTRACTOR TO BE RESPONSIBLE FOR SEALING ALL EXISTING PIPE PENETRATIONS AS REQUIRED.
11. REMOVE AND DISPOSE EXISTING AMMONIA STORAGE SHED.

LEGEND:

DEMOLITON

ABANDON IN PLACE

REV	DATE	BY	DESCRIPTION
			BID SET

DESIGNED BH
DRAWN HV
CHECKED ES
DATE APRIL 2024

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CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

DEMOLITION

EXISTING ALUM AND AMMONIA DEMOLITION PLAN 1

VERIFY SCALES
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0 1"
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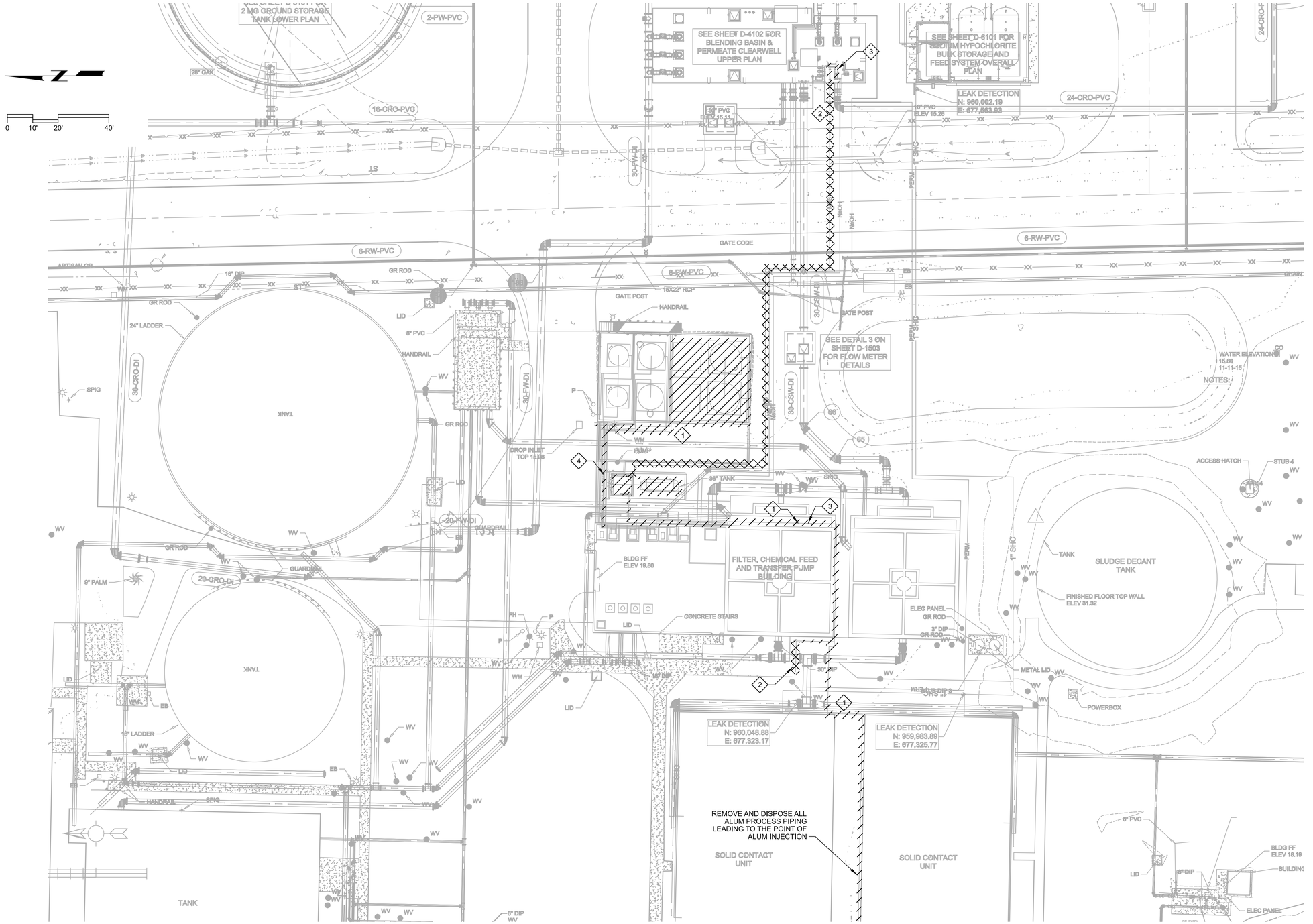
JOB NO. 202333
DRAWING NO. DM01
SHEET NO. OF

Plot Date: 8-APR-2024 11:57:02 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: hvo

PROJECT NO. 202333-100000 FILE NAME: 202333_00DM001.dgn



GENERAL NOTES:

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2. ALUM SHALL REMAIN IN SERVICE DURING MODICATIONS. AT LEAST ONE ALUM STORAGE TANK AND PIPING SHALL REMAIN IN SERVICE WHILE A NEW STORAGE TANK, TRANSFER PUMPS, AND PIPING IS BEING CONSTRUCTED. CONTRACTOR SHALL PROVIDE SEQUENCING PLAN FOR REVIEW.
3. AMMONIA SHALL REMAIN IN SERVICE DURING MODIFICATIONS. A SUPPLEMENTARY AMMONIA SUPPLY SHALL BE UTILIZED WHILE IMPROVEMENTS ARE CONSTRUCTED. CONTRACTOR SHALL PROVIDE SEQUENCING PLAN FOR REVIEW.

(#) KEY NOTES:

1. REMOVE AND DISPOSE ALL EXISTING ALUM PROCESS PIPING INTERIOR TO THE CHEMICAL CONTAINMENT AREA, INTERIOR TO THE FILTER BUILDING, AND EXTERIOR LEADING TO THE POINT OF ALUM INJECTION.
2. ABANDON IN PLACE EXISTING BELOW-GRADE AMMONIA PIPING.
3. REMOVE AND DISPOSE ALL EXISTING ABOVE-GROUND AMMONIA PROCESS PIPING.
4. REMOVE ALL EXISTING ALUM PIPING FROM EXISTING PIPE TRENCH.

LEGEND:

DEMOLITON

ABANDON IN PLACE

EXISTING ALUM AND AMMONIA PLAN 2

C PLAN
SCALE: 1" = 20'-0"
FILE: FILE

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			BID SET

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

DEMOLITION

EXISTING ALUM AND AMMONIA DEMOLITION PLAN 2

VERIFY SCALES
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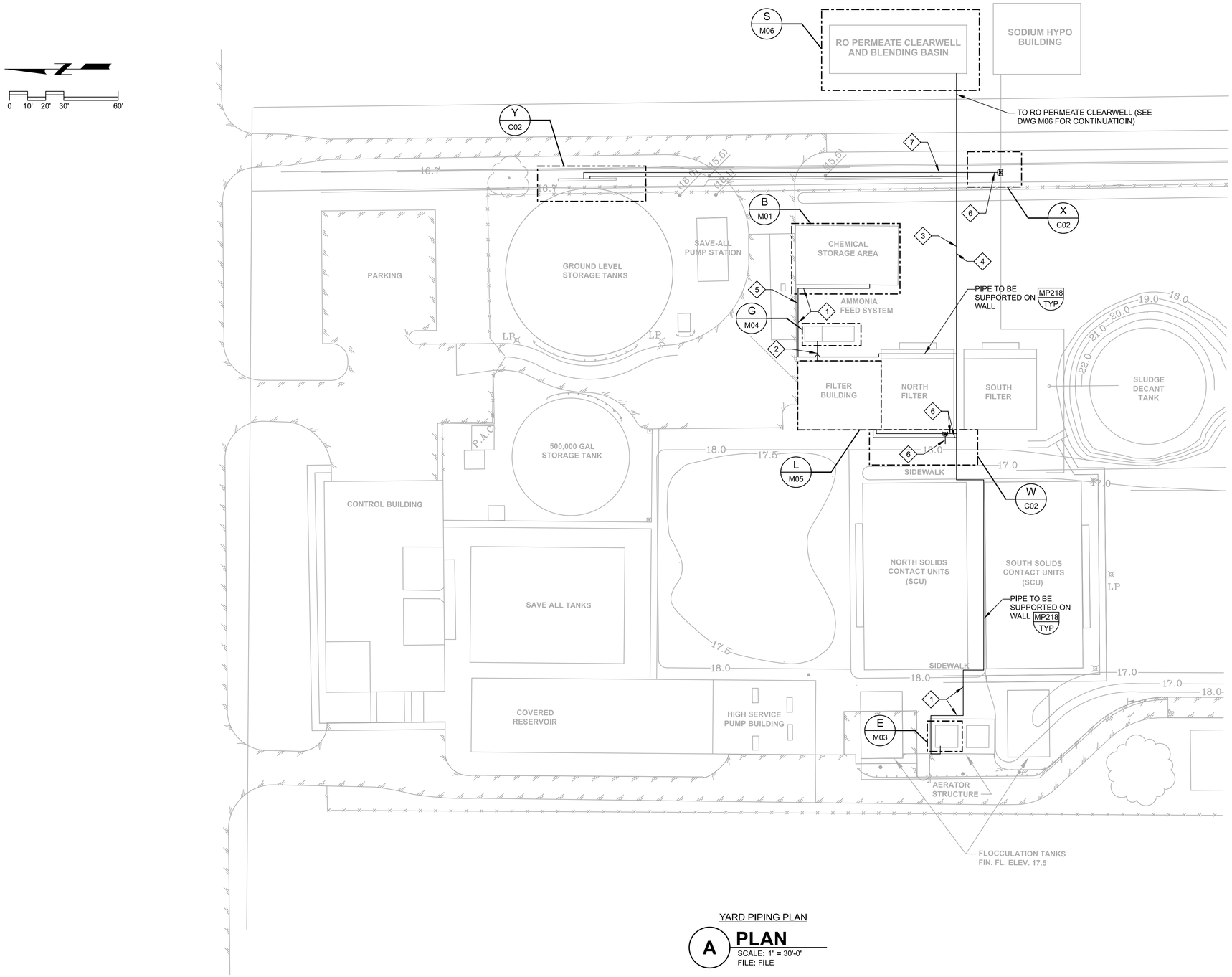
JOB NO. 202333
DRAWING NO. DM02
SHEET NO. OF



YARD PIPING PLAN

A PLAN

SCALE: 1" = 30'-0"
FILE: FILE

GENERAL NOTES:

1. CHEMICAL PIPING SHOWN ON THIS DRAWING AS SCHEMATIC ONLY. FIELD LOCATE AND VERIFY EXISTING PIPING TO BE REMOVED OR ABANDONED.
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3. AMMONIA SHALL REMAIN IN SERVICE DURING MODIFICATIONS. A SUPPLEMENTARY AMMONIA SUPPLY SHALL BE UTILIZED WHILE IMPROVEMENTS ARE CONSTRUCTED. CONTRACTOR SHALL PROVIDE SEQUENCING PLAN FOR REVIEW.

KEY NOTES:

1. INSTALL 2.5" SCH 80 PVC ALUM TRANSFER PIPING (APPROXIMATELY 500 LF).
2. INSTALL 1" SCH 80 PVC LAS TRANSFER PIPING (APPROXIMATELY 110 LF).
3. DIRECT BURY 2" SCH 80 PVC LAS CARRIER PIPING FOR CONTAINMENT OF 1/4" LAS FEED TUBING FOR INJECTION AT THE ABOVE GRADE PEACE RIVER INFLUENT PIPING SEGMENT.
4. DIRECT BURY 2" SCH 80 PVC LAS CARRIER PIPING FOR CONTAINMENT OF 1/4" LAS FEED TUBING FOR INJECTION INTO THE EXISTING AMMONIA INJECTION PORTS AT RO PERMEATE CLEARWELL.
5. ROUTE ALUM PROCESS PIPING THROUGH EXISTING PIPE TRENCH.
6. PROVIDE LEAK DETECTION ON DOUBLE CONTAINED PIPING PER TYPICAL DETAIL M497. CONTRACTOR TO DETERMINE LOW SPOT OF PIPING FOR INSTALLATION OF LEAK DETECTION.
7. DIRECT BURY 2" SCH 80 PVC SHC PIPING FOR CONTAINMENT OF 1" SHC FEED TUBING FOR INJECTION INTO EXISTING ABOVE GRADE PEACE RIVER INFLUENT PIPING.

REV	DATE	BY	DESCRIPTION
			BID SET

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DRAWN HV
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DATE APRIL 2024

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

CIVIL

YARD PIPING AND KEY PLAN 1

VERIFY SCALES
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0 1"
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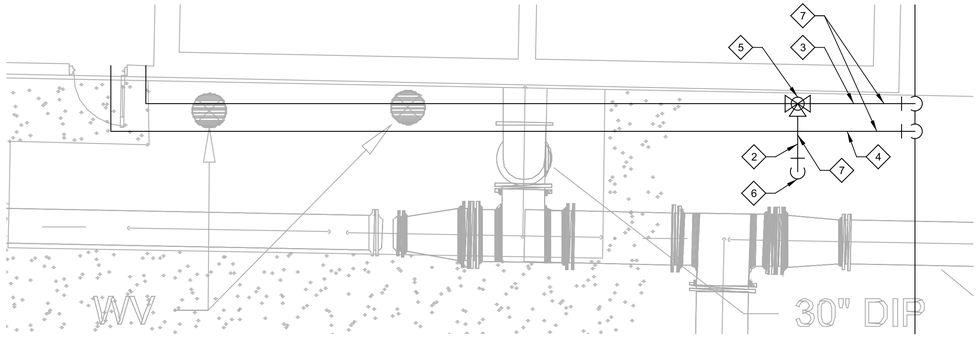
JOB NO. 202333
DRAWING NO. C01
SHEET NO. OF

Plot Date: 8-APR-2024 11:57:13 AM
User: svcPW
PlotScale: 1:1
DesignScript: Carollo_Std_Pen_v0905.pen
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: hvo

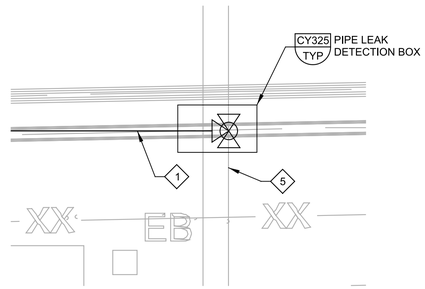
PROJECT NO. 202333-100000 FILE NAME: 202333_00C001.dgn



W ENLARGED PLAN

C01

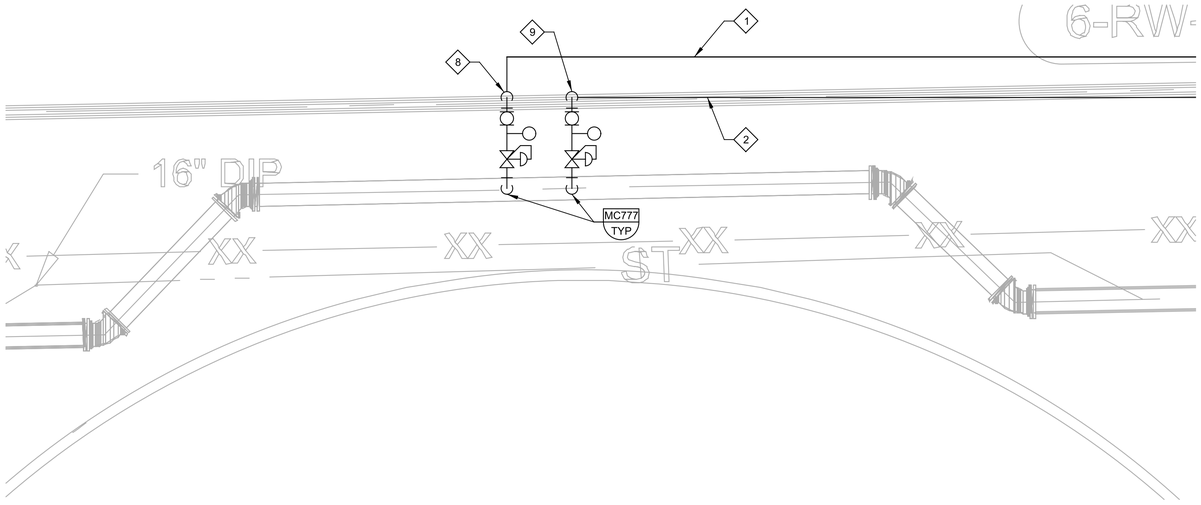
SCALE: 1/4" = 1'-0"
FILE: FILE



X ENLARGED PLAN

C01

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



Y ENLARGED PLAN

C01

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

GENERAL NOTES:

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2. ALUM SHALL REMAIN IN SERVICE DURING MODICATIONS. AT LEAST ONE ALUM STORAGE TANK AND PIPING SHALL REMAIN IN SERVICE WHILE A NEW STORAGE TANK, TRANSFER PUMPS, AND PIPING IS BEING CONSTRUCTED. CONTRACTOR SHALL PROVIDE SEQUENCING PLAN FOR REVIEW.
3. AMMONIA SHALL REMAIN IN SERVICE DURING MODIFICATIONS. A SUPPLEMENTARY AMMONIA SUPPLY SHALL BE UTILIZED WHILE IMPROVEMENTS ARE CONSTRUCTED. CONTRACTOR SHALL PROVIDE SEQUENCING PLAN FOR REVIEW.

KEY NOTES:

1. PROVIDE 2" SCH 80 PVC SHC PIPING FOR CONTAINMENT OF 1" SHC FEED TUBING FOR INJECTION INTO EXISTING ABOVE GRADE PEACE RIVER INFLUENT PIPING.
2. PROVIDE 2" SCH 80 PVC LAS CARRIER PIPING FOR CONTAINMENT OF 1/4" LAS FEED TUBING FOR INJECTION INTO EXISTING 36" FILTER INFLUENT PIPE IMMEDIATELY UPSTREAM OF FILTERS.
3. PROVIDE 2" SCH 80 PVC LAS CARRIER PIPING FOR CONTAINMENT OF 1/4" LAS FEED TUBING FOR INJECTION INTO EXISTING ABOVE GRADE PEACE RIVER INFLUENT PIPING.
4. PROVIDE 2" SCH 80 PVC LAS CARRIER PIPING FOR CONTAINMENT OF 1/4" LAS FEED TUBING FOR INJECTION AT EXISTING AMMONIA INJECTION POINTS AT THE RO PERMEATE CLEARWELL.
5. TRANSITION TO PVC FOR CONNECTION OF 3-WAY VALVE. SEE TYPICAL M500.
6. UTILIZE EXISTING INJECTION PORTS FOR INJECTION OF LAS INTO EXISTING 36" FILTER INFLUENT PIPING.
7. PROVIDE LEAK DETECTION ON DOUBLE CONTAINED PIPING PER TYPICAL DETAIL M497. CONTRACTOR TO DETERMINE LOW SPOT OF PIPING FOR INSTALLATION OF LEAK DETECTION.
8. TRANSITION FROM CONTAINED TUBING TO 1" PVC FOR ABOVE GRADE SHC CHEMICAL INJECTION PIPE SEGMENT. SEE DETAIL M500 FOR TRANSITION.
9. TRANSITION FROM CONTAINED TUBING TO 1" PVC FOR ABOVE GRADE LAS CHEMICAL INJECTION PIPE SEGMENT. SEE DETAIL M500 FOR TRANSITION.

REV	DATE	BY	DESCRIPTION
			BID SET

DESIGNED BH
DRAWN HV
CHECKED ES
DATE APRIL 2024

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

CIVIL

YARD PIPING PLAN 2

VERIFY SCALES
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JOB NO. 202333
DRAWING NO. C02
SHEET NO. OF

Plot Date: 8-APR-2024 11:57:49 AM
User: svcPW
PlotScale: 1:1
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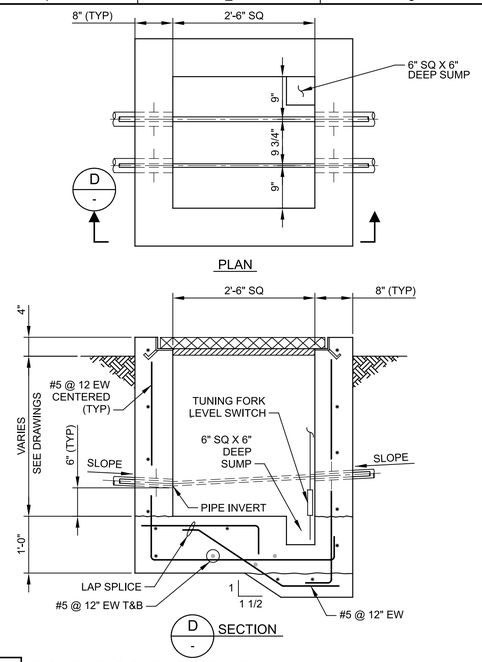
LAST SAVED BY: hvo

PROJECT NO. 202333-100000 FILE NAME: 202333_00C002.dgn



CY325 TYP J — DOUBLE CONTAINMENT PIPE LEAK DETECT BOX

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			BID SET

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ERICA DIANE STONE LICENSE NO. 75497 STATE OF FLORIDA PROFESSIONAL ENGINEER

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

TYPICAL

TYPICAL CIVIL DETAILS 1

VERIFY SCALES
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0 1"
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JOB NO. 202333
DRAWING NO. TC01
SHEET NO. OF

Plot Date: 8-APR-2024 11:59:45 AM
User: svcPW
DesignScript: Carollo_Std_Pen_v0905.pen
PlotScale: 1:1
ColorTable: gshade.ctb
Model: Layout1
LAST SAVED BY: hvo
PROJECT NO. 202333-100000
FILE NAME: 202333_00TC01.dgn

VALVES

	ONE LINE PIPE	THREE LINE PIPE
ANGLE VALVE		
BALL VALVE		
BUTTERFLY VALVE		
4-WAY VALVE		
GATE VALVE		
KNIFE GATE VALVE	K	
GLOBE VALVE		
NEEDLE VALVE		
PINCH VALVE		
SEATING PORT		
ECCENTRIC PLUG VALVE		
CONCENTRIC PLUG VALVE		
3-WAY VALVE		
MOTOR OPERATED VALVE	M	M
PNEUMATIC VALVE	P	P
SAMPLE VALVE	S	
SOLENOID VALVE	S	S
DIAPHRAGM VALVE		
AIR-RELIEF / VACUUM RELIEF VALVE		
PUMP DISCHARGE		
BUTTERFLY VALVE (BURIED)		
CONE VALVE		
MUD VALVE		

CHECK VALVES

	ONE LINE PIPE	THREE LINE PIPE
BACK FLOW PREVENTOR (REDUCED PRESSURE)		
BALL CHECK VALVE		
SWING CHECK VALVE		
DIAPHRAGM CHECK VALVE		
DOUBLE FLAP CHECK VALVE		
FLAPPER CHECK VALVE		
GENERAL SPRING LOADED CHECK VALVE		

PRESSURE VALVES

BACKPRESSURE REG EXTERNAL TAP VALVE	
PRESSURE REDUCING EXTERNAL PRESSURE TAP VALVE	
RELIEF VALVE	OR
VACUUM VALVE	OR
CONTROL VALVE	

PIPING

	ONE LINE PIPE	THREE LINE PIPE
AIR GAP		
VENT TO ATMOSPHERE		
BLIND FLANGE		
CAPPED OR PLUGGED		
DRAIN		
FLEXIBLE CONNECTION		
QUICK DISCONNECT OR FLUSH CONNECTION		
FLUSHING CONNECTION		
DOUBLE CONTAINMENT		

GATES

FLAP	
SLIDE	
SLUICE	
STOP	
SLIDE	
SLUICE	
STOP	
WEIR	

PUMPS

METERING PUMP	
HOSE PUMP	
HORIZONTAL OR SPLIT-CASE CENTRIFUGAL	OR
VERTICAL TURBINE	
VERTICAL SUBMERSIBLE	
SUBMERSIBLE	OR
DIAPHRAGM	
MAGNETIC DRIVE	

PUMPS CON'T

GEAR	
PROGRESSIVE CAVITY/POSITIVE DISPLACEMENT	
AIR DRIVEN DIAPHRAGM PUMP	

BLOWERS/COMPRESSORS

CENTRIFUGAL MULTI-STAGE	
COMPRESSOR RECIPROCATING	
FAN	
ROTARY	

MECHANICAL NOTES:

1. MECHANICAL NOTES APPLY TO ALL MECHANICAL DRAWINGS AND PIPING.
2. SUCTION AND DISCHARGE PIPING OF PUMPS SHALL BE INSTALLED AND SUPPORTED IN SUCH A MANNER SO THAT THEY SHALL NOT IMPART STRAIN ON PUMPS.
3. WARNING SIGNS SHALL BE PROVIDED PER BID DOCUMENTS ON FRONT AND BACK OF ALL REMOTELY CONTROLLED EQUIPMENT.
4. ALL FLEXIBLE COUPLINGS SHALL BE RESTRAINED, UNLESS NOTED OTHERWISE.

MISCELLANEOUS

BASKET STRAINER	
CALIBRATION-COLUMN	
DIAPHRAGM SEAL	
ANNULAR SEAL	
SANITARY SEAL	
EDUCTOR/EJECTOR	
INLINE STATIC MIXER	
PULSATION DAMPENER	
SIGHT TUBE	
PIPE DIFFUSER	OR
CORP STOP ASSEMBLY	
CORIOLIS FLOW METER	
MAGNETIC FLOW METER	M OR FM
ROTOMETER	
VENTURI METER	OR
PROPELLER METER	
PRESSURE GAUGE	
MIXER	
ROTARY CHEMICAL FEEDER	
CHANNEL AIR/CHEMICAL DIFFUSER	
BLOW-OFF SILENCER	
AIR DRYER	
FLOOR DRAIN OR HUB DRAIN	OR

FLOOR SINK	
COALESCER	
DESSICANT DRYER	
FILTER	
FILTER SEPARATOR	
HOSE CONNECTION	
ORIFICE RESTRICTION	
REFRIGERATED DRYER	
RUPTURE DISK	
SAMPLE PORT	
STRAINER WYE TYPE	
STRAINER - MECHANICALLY CLEANED	
STRAINER WITH BLOW OFF	
VAPOR HEATER	
VAPORIZER	
PIPE MATERIAL TRANSITION	
FLOW ARROW	
ULTRASONIC FLOWMETER (CLAMP ON) OR ULTRASONIC SENSOR	
RADAR LEVEL SENSOR	
SURGE TANK	
THERMOMETER	
AIR/CHEMICAL DIFFUSER	
HOSE RACK - WALL MOUNT	
HOSE RACK - STAND	

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

MECHANICAL

GENERAL MECHANICAL LEGEND AND SYMBOLS

VERIFY SCALES
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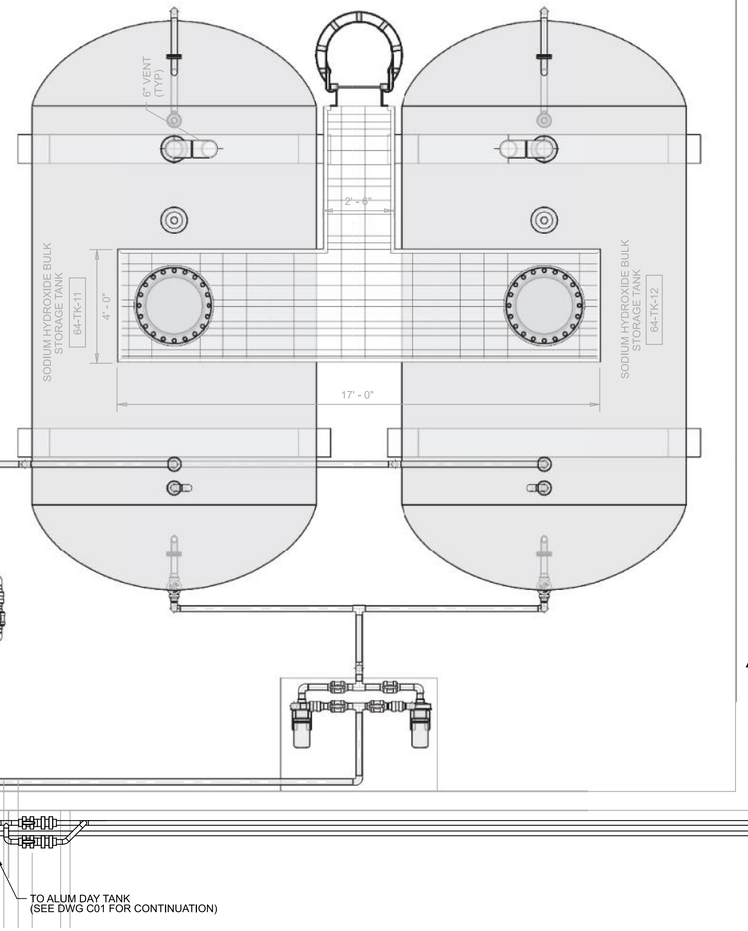
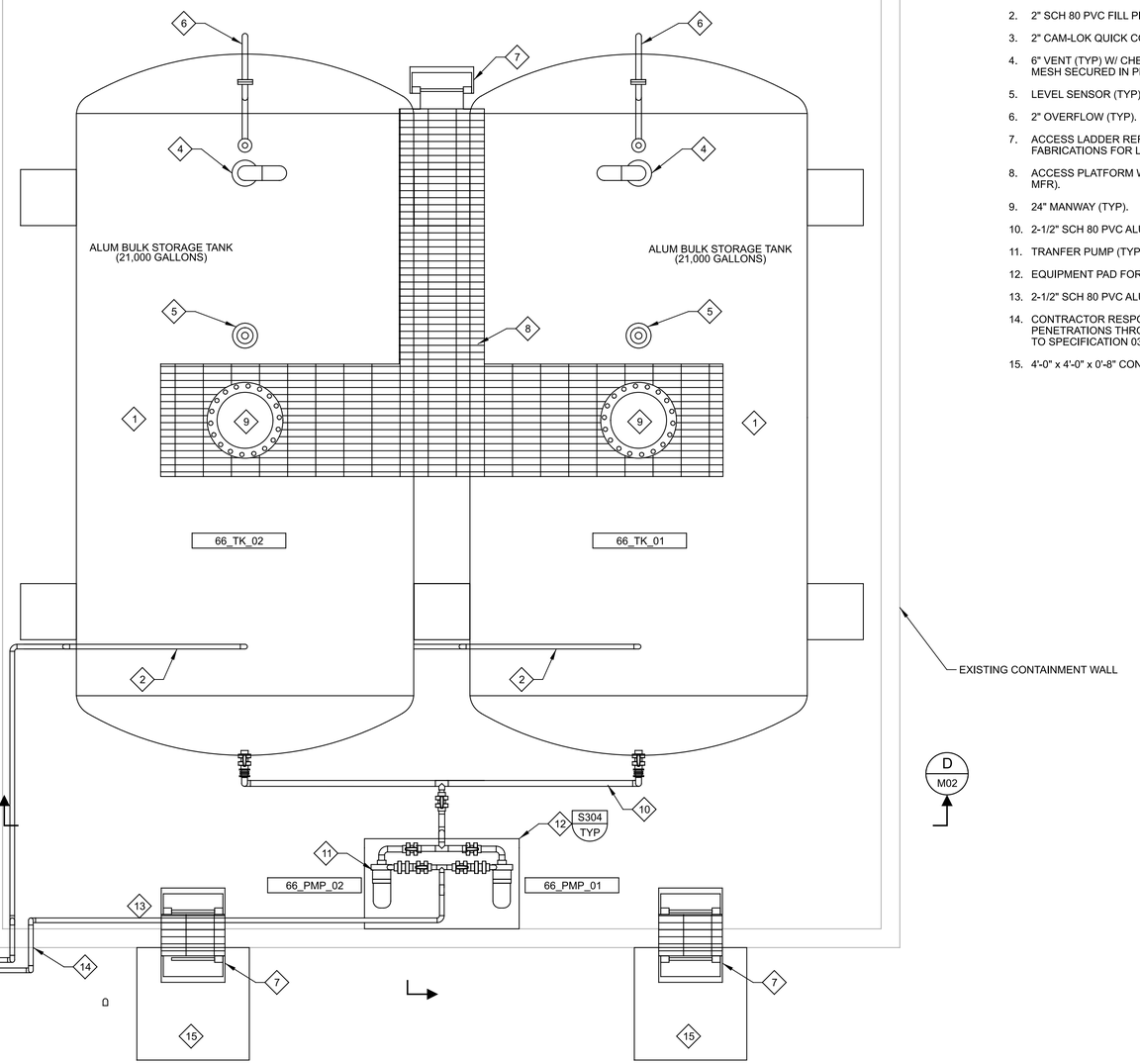
JOB NO. 202333
DRAWING NO. GM01
SHEET NO.
OF

0 2' 4' 6'





C M02

D M02

EXISTING ALUM AND AMMONIA PLAN 1

B PLAN
SCALE: 3/8" = 1'-0"
FILE: FILE

GENERAL NOTES:

1. PIPE SUPPORTS NOT SHOWN FOR CLARITY. THE CONTRACTOR SHALL PROVIDE PIPE SUPPORTS PER SPECIFICATION SECTION 15120. PIPE SUPPORTS WITHIN CHEMICAL CONTAINMENT SHALL BE NON-METALLIC TYPE. CONTACTOR SHALL USE FRP UNISTRUT AND FRP STRUCUTURAL MEMBERS AS NEEDED TO SUPPORT PIPING.
2. ALUM SHALL REMAIN IN SERVICE DURING MODICATIONS. AT LEAST ONE ALUM STORAGE TANK AND PIPING SHALL REMAIN IN SERVICE WHILE A NEW STORAGE TANK, TRANSFER PUMPS, AND PIPING IS BEING CONSTRUCTED. CONTRACTOR SHALL PROVIDE SEQUENCING PLAN FOR REVIEW.

KEY NOTES:

1. 21,000 GALLON ALUM BULK STORAGE TANK (TYP OF 2).
2. 2" SCH 80 PVC FILL PIPING (TYP).
3. 2" CAM-LOK QUICK CONNECT FILL STATION
4. 6" VENT (TYP) W/ CHEMICALLY COMPATIBLE INSECT SCREEN, NO. 24 MESH SECURED IN PLACE WITH BOLTED RETAINER RING.
5. LEVEL SENSOR (TYP).
6. 2" OVERFLOW (TYP).
7. ACCESS LADDER REFER TO SPECIFICATION 05500 METAL FABRICATIONS FOR LADDER REQUIREMENTS.
8. ACCESS PLATFORM W/HANDRAIL. (PLATFORM SUPPORTS PER TANK MFR).
9. 24" MANWAY (TYP).
10. 2-1/2" SCH 80 PVC ALUM TRANSFER PUMP SUCTION PIPING (TYP).
11. TRANFER PUMP (TYP OF 2).
12. EQUIPMENT PAD FOR TRANSFER PUMPS.
13. 2-1/2" SCH 80 PVC ALUM TRANSFER PUMP DISCHARGE PIPING.
14. CONTRACTOR RESPONSBILE FOR GRUTING/FILLING EXISTING PIPE PENETRATIONS THROUGH THE ALUM CONTAINMENT AREA. REFER TO SPECIFICATION 03600.
15. 4'-0" x 4'-0" x 0'-8" CONCRETE LANDING PAD W/ #5 @ 12" OC, MID.

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CA 00008571

CITY OF PUNTA GORDA, FLORIDA
SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS
MECHANICAL
ALUM BULK BULK STORAGE MODIFICATIONS PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. M01
SHEET NO. OF

GENERAL NOTES:

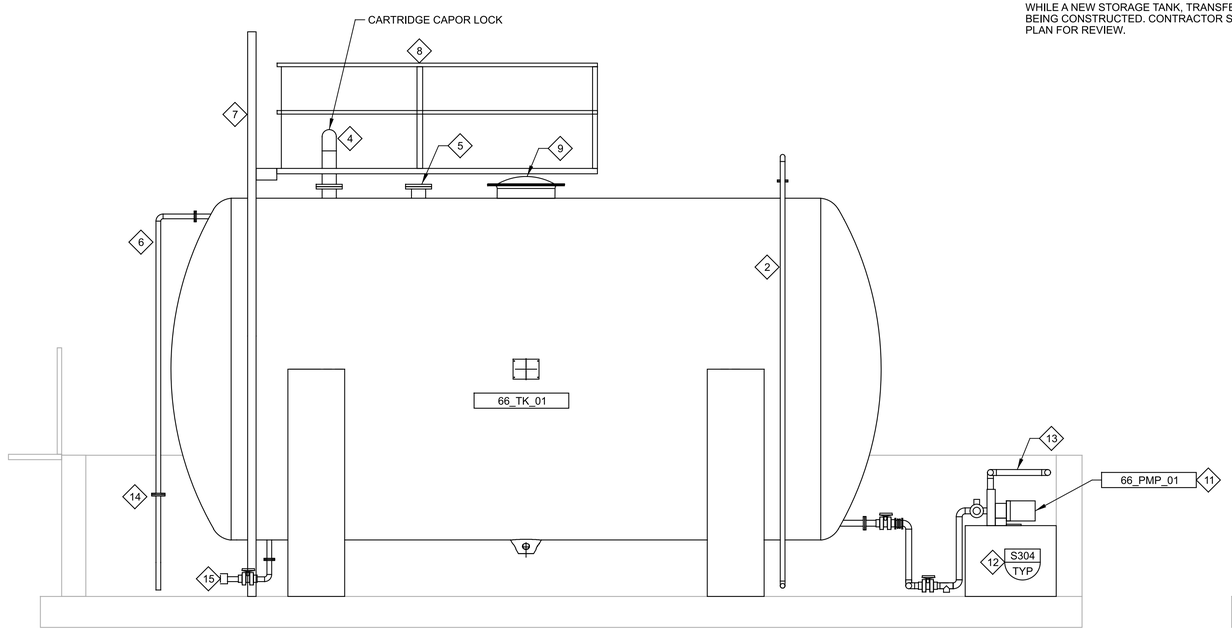
1. PIPE SUPPORTS NOT SHOWN FOR CLARITY. THE CONTRACTOR SHALL PROVIDE PIPE SUPPORTS PER SPECIFICATION SECTION 15120. PIPE SUPPORTS WITHIN CHEMICAL CONTAINMENT SHALL BE NON-METALLIC TYPE. CONTACTOR SHALL USE FRP UNISTRUT AND FRP STRUCUTURAL MEMBERS AS NEEDED TO SUPPORT PIPING.
2. ALUM SHALL REMAIN IN SERVICE DURING MODICATIONS. AT LEAST ONE ALUM STORAGE TANK AND PIPING SHALL REMAIN IN SERVICE WHILE A NEW STORAGE TANK, TRANSFER PUMPS, AND PIPING IS BEING CONSTRUCTED. CONTRACTOR SHALL PROVIDE SEQUENCING PLAN FOR REVIEW.

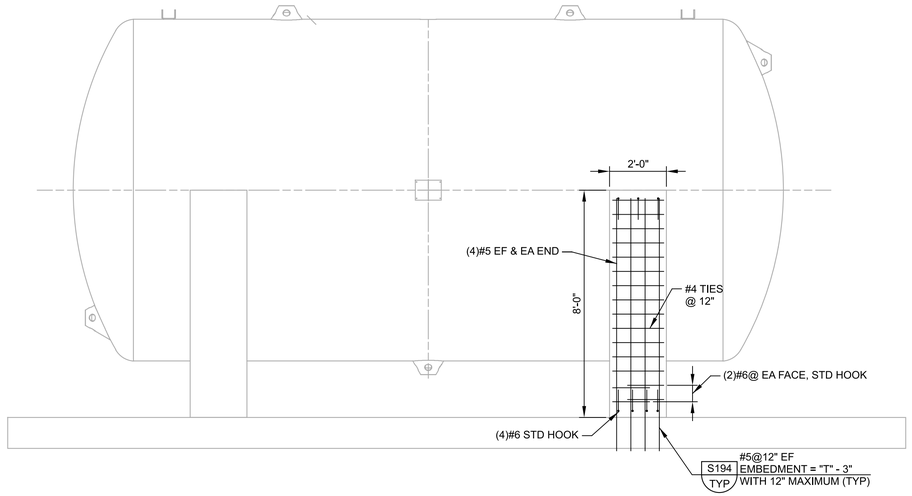
KEY NOTES:

1. 21,000 GALLON ALUM BULK STORAGE TANK (TYP OF 2).
2. 2" SCH 80 PVC FILL PIPING (TYP).
3. 2" CAM-LOK QUICK CONNECT FILL STATION
4. 6" VENT (TYP) W/ CHEMICALLY COMPATIBLE INSECT SCREEN, NO. 24 MESH SECURED IN PLACE WITH BOLTED RETAINER RING. .
5. LEVEL SENSOR (TYP).
6. 2" OVERFLOW (TYP).
7. ACCESS LADDER. REFER TO SPECIFICATION 0550 METAL FABRICATIONS FOR LADDER REQUIREMENTS.

KEY NOTES:

8. ACCESS PLATFORM W/HANDRAIL. (PLATFORM SUPPORTS PER TANK MFR).
9. 24" MANWAY (TYP).
10. 2-1/2" SCH 80 PVC ALUM TRANSFER PUMP SUCTION PIPING (TYP).
11. TRANFER PUMP (TYP OF 2).
12. EQUIPMENT PAD FOR TRANSFER PUMPS.
13. 2-1/2" SCH 80 PVC ALUM TRANSFER PUMP DISCHARGE PIPING.
14. FLANGES WITH ALUM RESISTANT VAPOR PAPER.
15. 2" DRAIN (TYP).





C M01 SECTION

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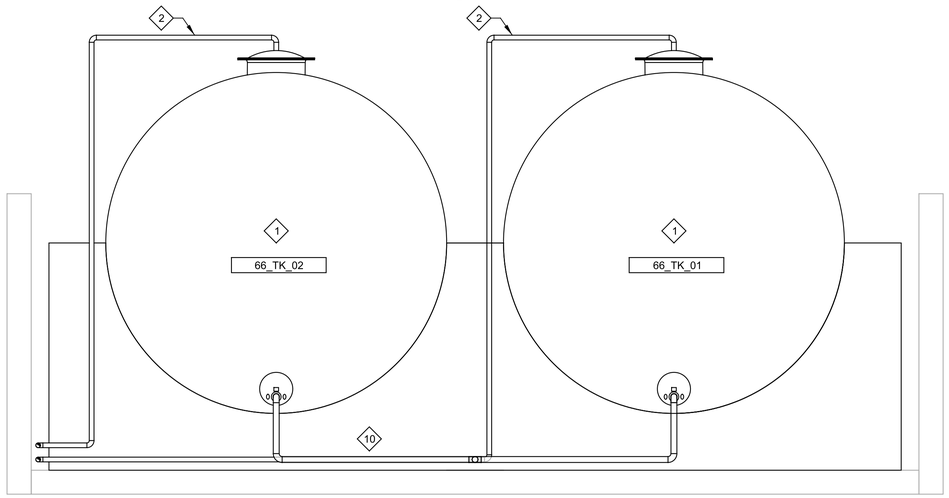
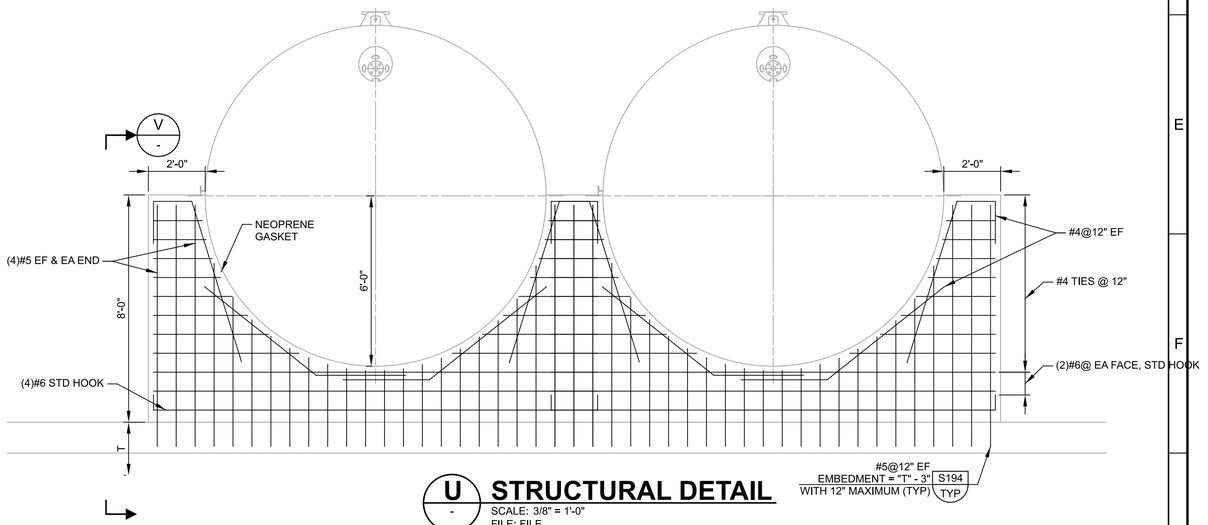


D M01 SECTION

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

V - STRUCTURAL DETAIL SECTION

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



U - STRUCTURAL DETAIL

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

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			BID SET

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DATE APRIL 2024

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CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

MECHANICAL

ALUM BULK BULK STORAGE MODIFICATIONS SECTIONS

VERIFY SCALES
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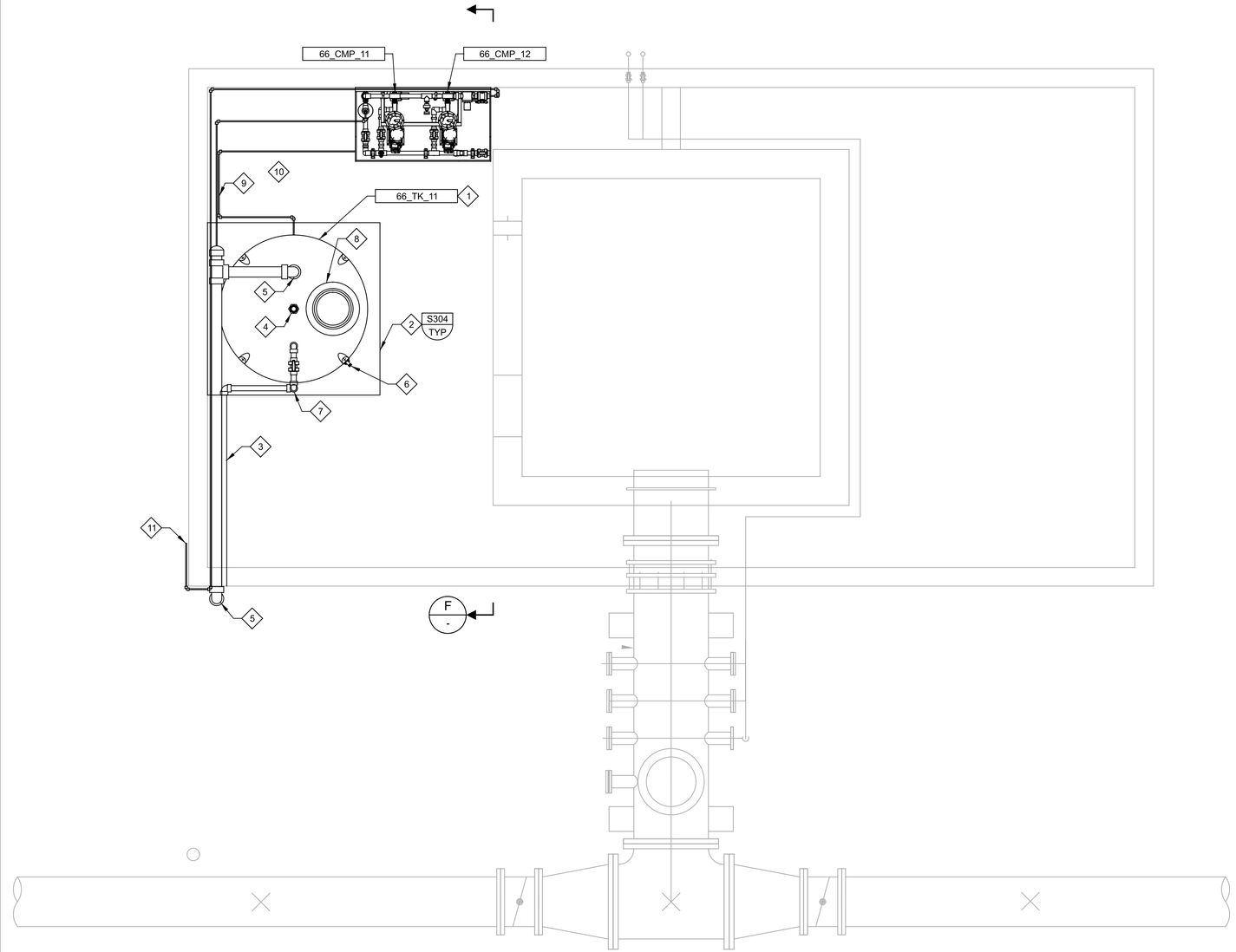
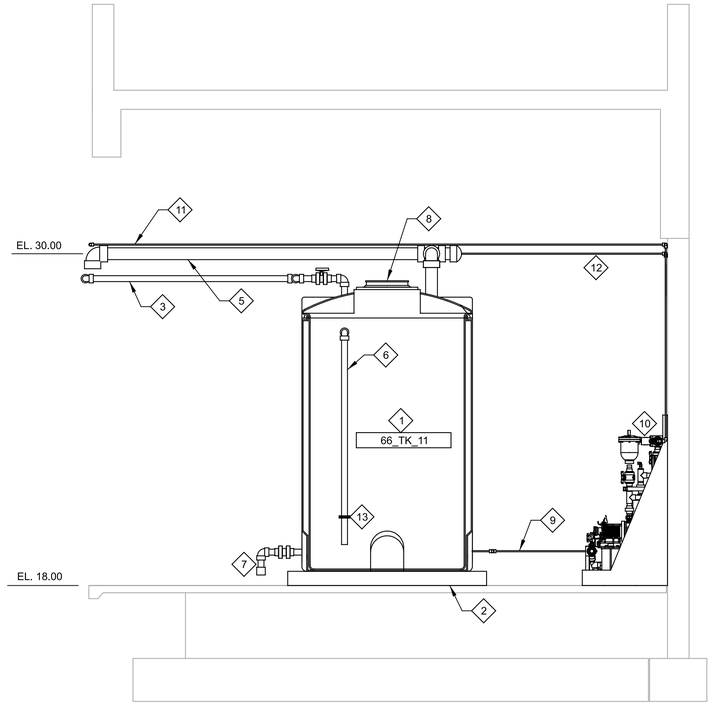
JOB NO. 202333
DRAWING NO. M02
SHEET NO.
OF

0 2' 4' 8'



EXISTING ALUM FLAX MIX AERATION STRUCTURE

E PLAN
SCALE: 3/8" = 1'-0"
FILE: FILE



F SECTION
SCALE: 3/8" = 1'-0"
FILE: FILE

GENERAL NOTES:

1. PIPE SUPPORTS NOT SHOWN FOR CLARITY. THE CONTRACTOR SHALL PROVIDE PIPE SUPPORTS PER SPECIFICATION SECTION 15120. PIPE SUPPORTS WITHIN CHEMICAL CONTAINMENT SHALL BE NON-METALLIC TYPE. CONTACTOR SHALL USE FRP UNISTRUT AND FRP STRUCUTURAL MEMBERS AS NEEDED TO SUPPORT PIPING.
2. ALUM SHALL REMAIN IN SERVICE DURING MODICATIONS. AT LEAST ONE ALUM STORAGE TANK AND PIPING SHALL REMAIN IN SERVICE WHILE A NEW STORAGE TANK, TRANSFER PUMPS, AND PIPING IS BEING CONSTRUCTED. CONTRACTOR SHALL PROVIDE SEQUENCING PLAN FOR REVIEW.

KEY NOTES:

1. 1550 GALLON ALUM DAY TANK.
2. EQUIPMENT PAD FOR DAY TANK.
3. 2-1/2" SCH 80 PVC FILL PIPING (TYP).
4. LEVEL SENSOR (TYP).
5. 5" VENT (TYP) W/ CHEMICALLY COMPATIBLE INSECT SCREEN, NO. 24 MESH SECURED IN PLACE WITH BOLTED RETAINER RING..
6. 2-1/2" OVERFLOW (TYP).
7. 2-1/2" DRAIN (TYP).
8. 16" MANWAY W/ LEVER LOCK COVER.
9. 1/2" SCH 80 PVC ALUM METERING PUMP SUCTION PIPING.
10. DUPLEX METERING PUMP SKID.
11. 1/2" SCH 80 PVC ALUM FEED PIPING TO ALUM INJECTION POINT.
12. 1/2" VENT.
13. FLANGES WITH ALUM RESISTANT VAPOR PAPER.

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CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

MECHANICAL

ALUM FEED SYSTEM MODIFICATIONS PLAN AND SECTIONS

VERIFY SCALES
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JOB NO. 202333
DRAWING NO. M03
SHEET NO. OF

PROJECT NO. 202333-100000 FILE NAME: 202333_00M003.dgn

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Model: Layout1
LAST SAVED BY: hvo

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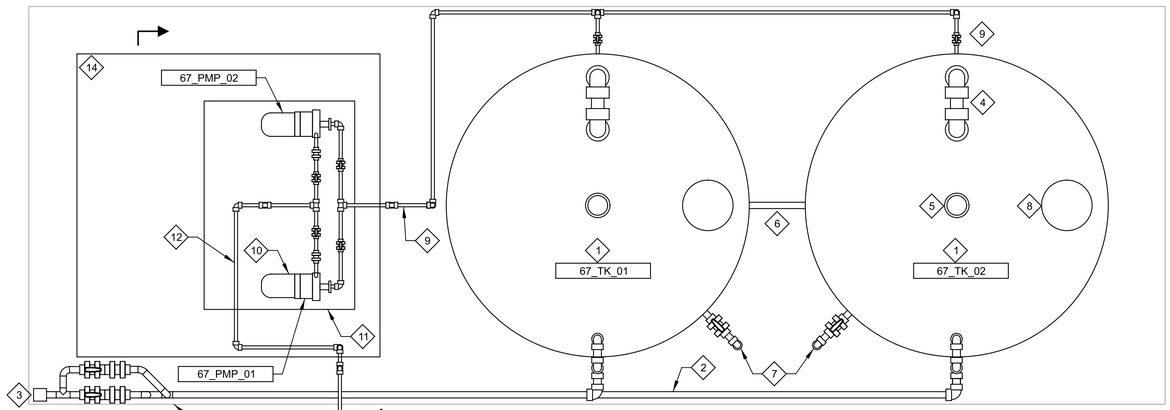
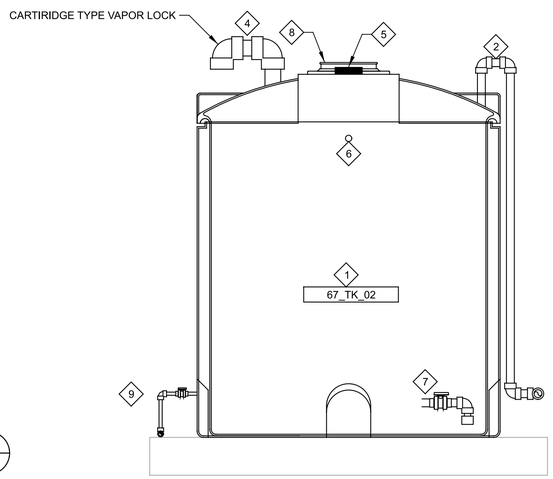


EXISTING AMMONIA STORAGE AREA

G PLAN
SCALE: 1/2" = 1'-0"
FILE: FILE



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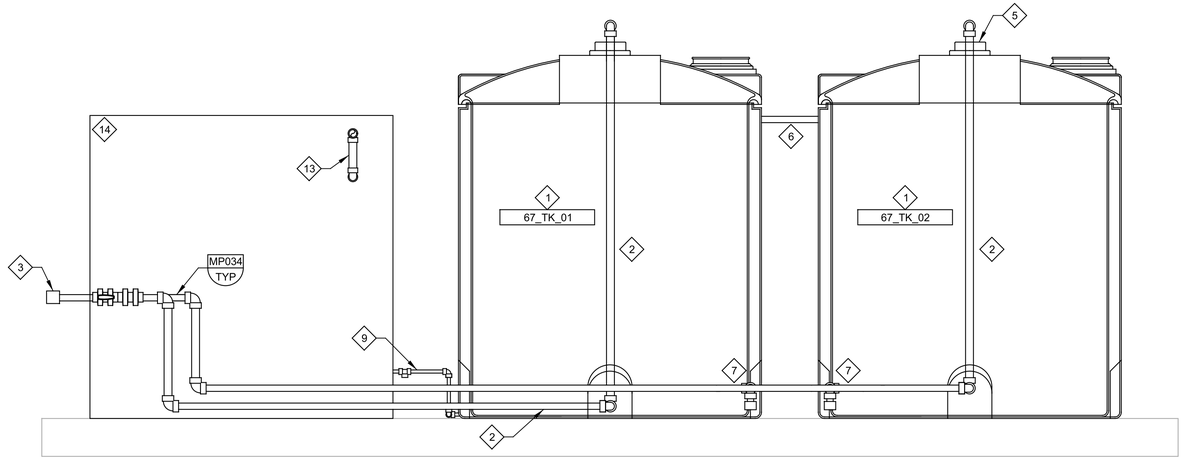

J SECTION
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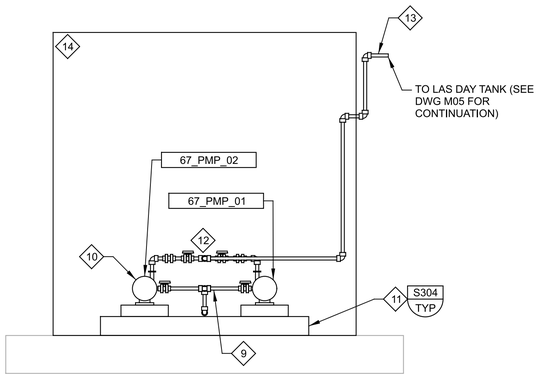

K SECTION
SCALE: 1/2" = 1'-0"
FILE: -

GENERAL NOTES:

1. PIPE SUPPORTS NOT SHOWN FOR CLARITY. THE CONTRACTOR SHALL PROVIDE PIPE SUPPORTS PER SPECIFICATION SECTION 15120.

KEY NOTES:

1. 2550 GALLON LAS BULK STORAGE TANK (TYP OF 2).
2. 2" SCH 80 PVC FILL PIPING (TYP).
3. 2" CAM-LOK QUICK CONNECT FILL STATION.
4. 4" VENT (TYP) W/ CHEMICALLY COMPATIBLE INSECT SCREEN, NO. 24 MESH SECURED IN PLACE WITH BOLTED RETAINER RING. .
5. LEVEL SENSOR (TYP).
6. 2" OVERFLOW TO BULK STORAGE TANK.
7. 2" DRAIN (TYP).
8. 16" MANWAY W/ LEVEL LOCK COVER (TYP).
9. 1" SCH 80 PVC LAS TRANSFER PUMP SUCTION PIPING (TYP).
10. TRANFER PUMP (TYP OF 2).
11. EQUIPMENT PAD FOR TRANSFER PUMPS.
12. 1" SCH 80 PVC LAS TRANSFER PUMP DISCHARGE PIPING.
13. 1" PIPE TO PENETRATE THROUGH STORAGE SHED WALL. CONTRACTOR RESPONSIBLE FOR SEALING PIPE PENETRATIONS AS REQUIRED. PIPE TO BE ROUTED ALONG SUPPORT BEAM BETWEEN THE FRP SHED AND FILTER BUILDING.
14. NEW FRP SHED FOR PROTECTION OF NEW LAS TRANSFER PUMPS. REFER TO SPECIFICATION 13121.

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			BID SET

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DATE APRIL 2024

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CA 00008571

CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

MECHANICAL

LAS STORAGE AND FEED SYSTEM MODIFICATIONS PLAN AND SECTIONS 1

VERIFY SCALES
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0 1"
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JOB NO. 202333
DRAWING NO. M04
SHEET NO. OF

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User: svcPW
PlotScale: 1:1
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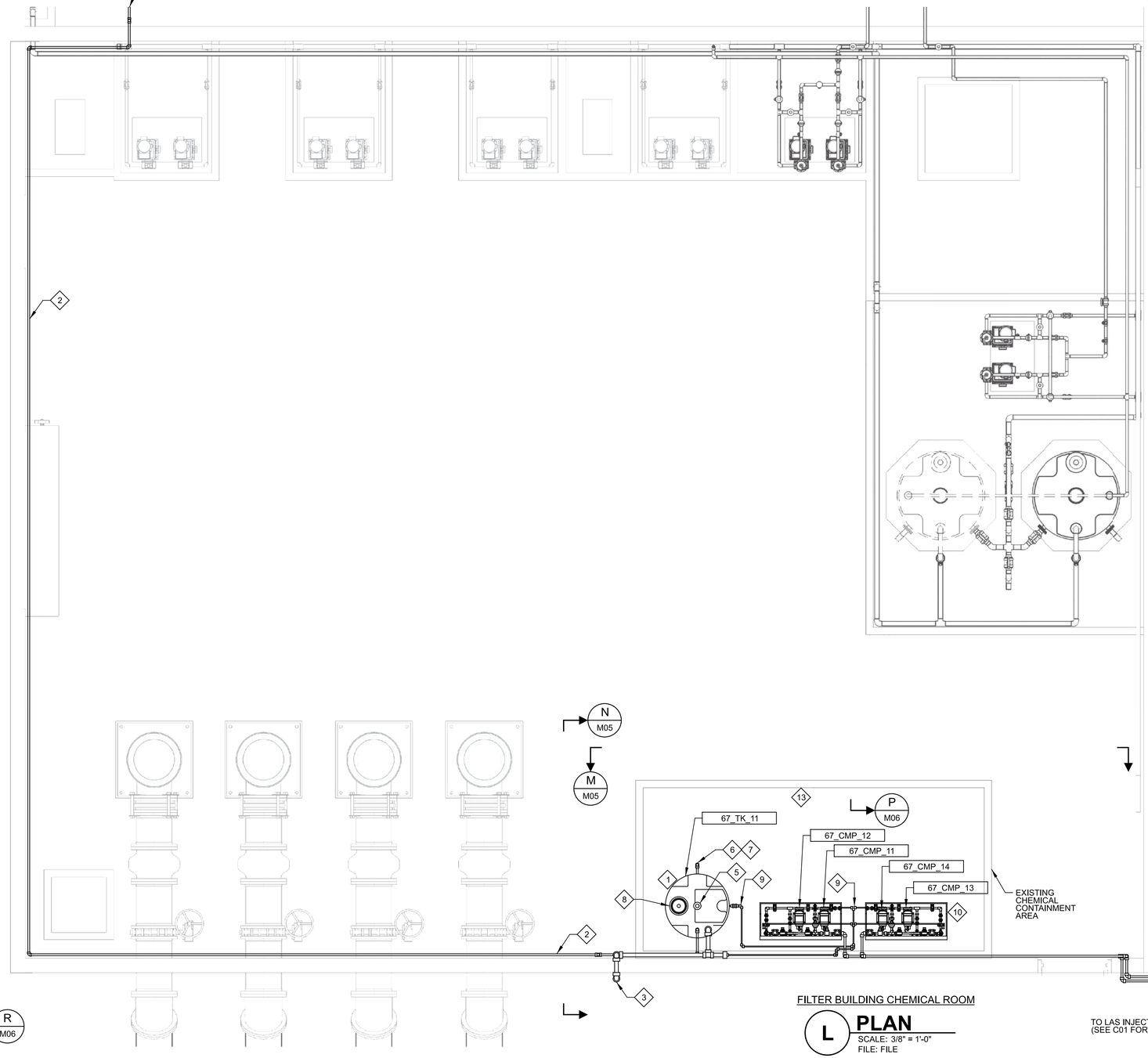
Model: Layout1
LAST SAVED BY: hvo

FROM LAS TRANSFER PUMPS
(SEE M04 FOR CONTINUATION)



FILTER BUILDING CHEMICAL ROOM

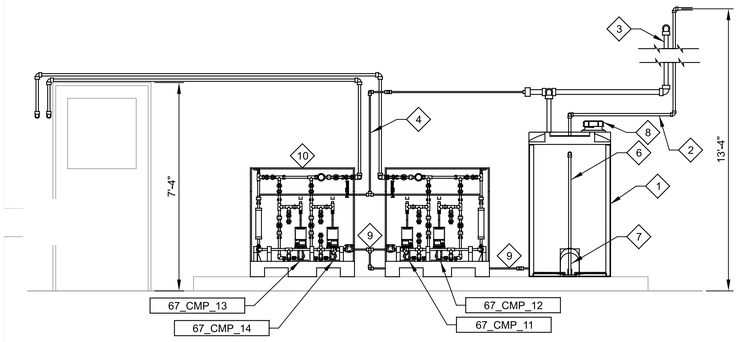
L PLAN
SCALE: 3/8" = 1'-0"
FILE: FILE

GENERAL NOTES:

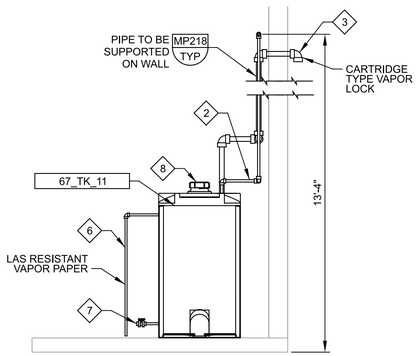
1. PIPE SUPPORTS NOT SHOWN FOR CLARITY. THE CONTRACTOR SHALL PROVIDE PIPE SUPPORTS PER SPECIFICATION SECTION 15120.

KEY NOTES:

1. 165 GALLON LAS DAY TANK.
2. 1" SCH 80 PVC FILL PIPING.
3. 2" VENT (TYP) W/ CHEMICALLY COMPATIBLE INSECT SCREEN, NO. 24 MESH SECURED IN PLACE WITH BOLTED RETAINER RING.
4. 1/2" VENT (TYP) W/ CHEMICALLY COMPATIBLE INSECT SCREEN, NO. 24 MESH SECURED IN PLACE WITH BOLTED RETAINER RING.
5. LEVEL SENSOR (TYP).
6. 1" OVERFLOW TO EXISTING CONTAINMENT AREA.
7. 1" DRAIN (TYP).
8. 7" MANWAY W/ THREADED LID.
9. 1/2" SCH 80 PVC LAS METERING PUMP SUCTION PIPING.
10. LAS DUPLEX METERING PUMP SKID (TYP OF 2).
11. 2" SCH 80 PVC LAS CARRIER PIPING FOR CONTAINMENT OF 1/4" LAS FEED TUBING FOR INJECTION AT THE ABOVE GRADE PEACE RIVER INFLUENT PIPING SEGMENT.
12. 2" SCH 80 PVC LAS CARRIER PIPING FOR CONTAINMENT OF 1/4" LAS FEED TUBING. ROUTE PIPING ALONG EXISTING 1" PVC AMMONIA PIPING FOR CONNECTION AT THE EXISTING AMMONIA INJECTION POINTS AT RO PERMEATE CLEARWELL.
13. REMOVE EXISTING CONTAINEMENT AREA FRP MESH FOR PLACEMENT OF NEW EQUIPMENT ON CONTAINMENT AREA SLAB.



M SECTION
SCALE: 3/8" = 1'-0"
FILE: FILE



N SECTION
SCALE: 3/8" = 1'-0"
FILE: FILE

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			BID SET

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

MECHANICAL

LAS STORAGE AND FEED SYSTEM MODIFICATIONS PLAN AND SECTIONS 2

VERIFY SCALES
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0 1"
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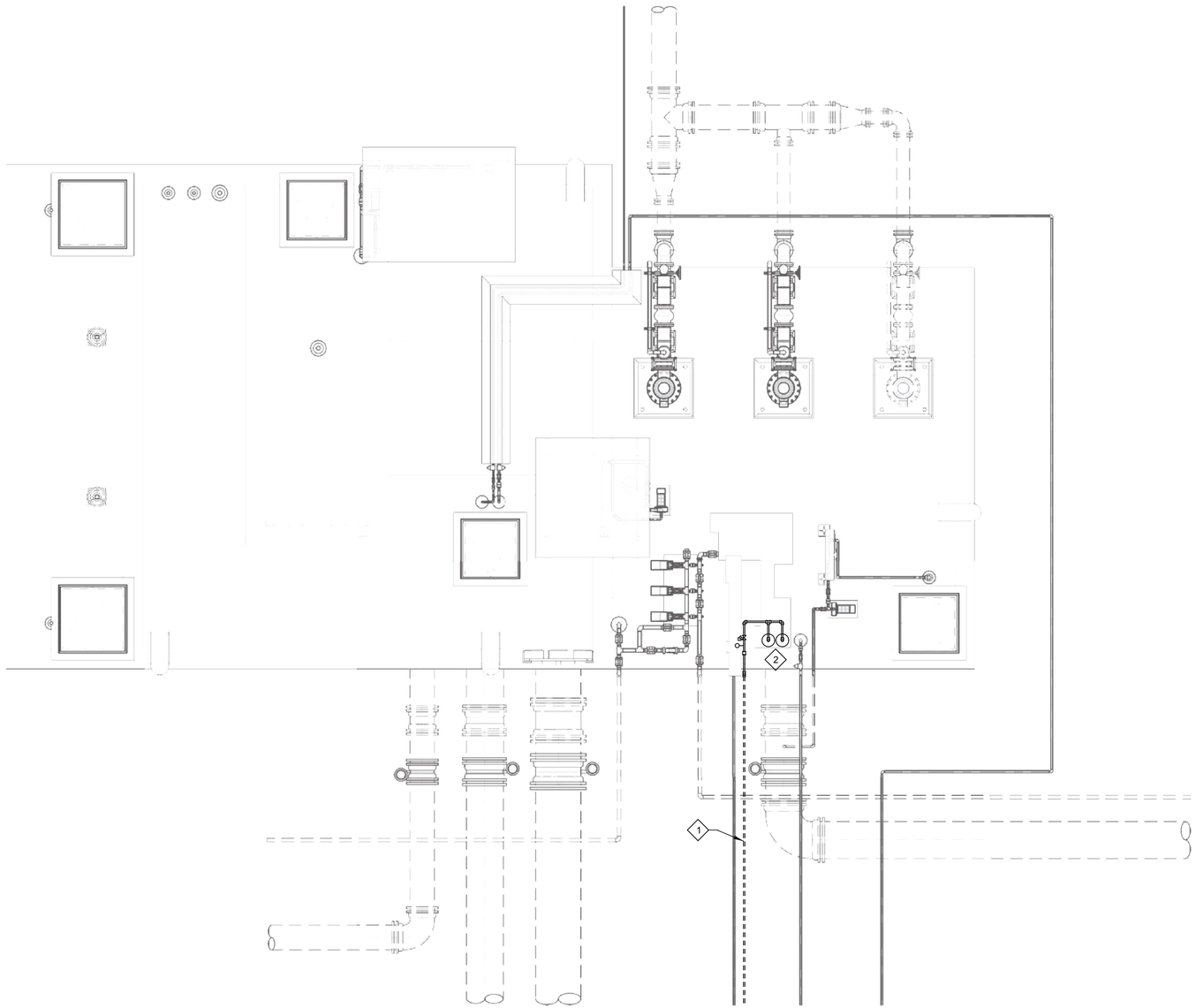
JOB NO. 202333
DRAWING NO. M05
SHEET NO. OF

0 2' 4' 8'



KEY NOTES:

1. 2" SCH 80 PVC LAS CARRIER PIPING FOR CONTAINMENT OF 1/4" LAS FEED TUBING FOR CONNECTION AT THE EXISTING AMMONIA INJECTION PORTS AT RO PERMEATE CLEARWELL.
2. EXISTING AMMONIA INJECTION PORTS FOR INJECTION OF LAS INTO RO PERMEATE CLEARWELL.

EXISTING ALUM AND AMMONIA PLAN 1

S **PLAN**
SCALE: 1/4" = 1'-0"
FILE: FILE

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CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

MECHANICAL

LAS STORAGE AND FEED SYSTEM MODIFICATIONS PLAN AND SECTIONS 3

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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JOB NO. 202333
DRAWING NO. M06
SHEET NO. OF

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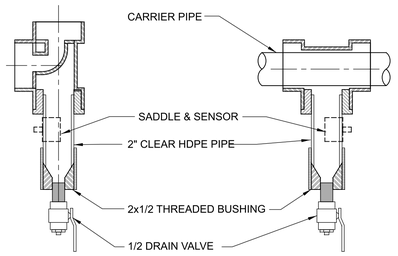
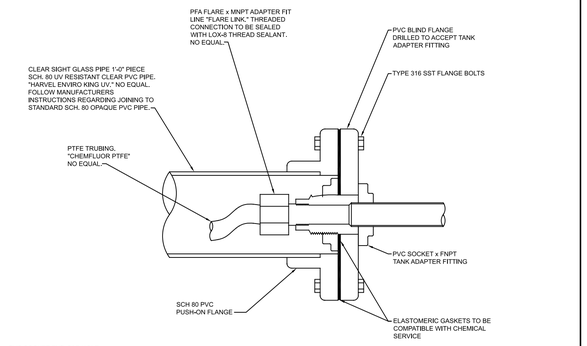
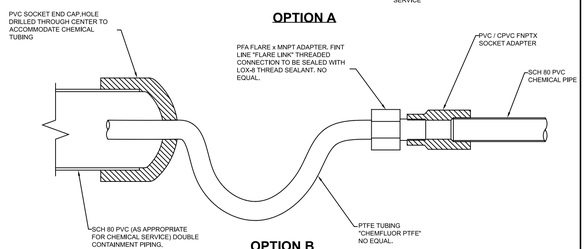


DETAIL 'A' DETAIL 'B'

M497 TYP — PIPING LEAK DETECTION

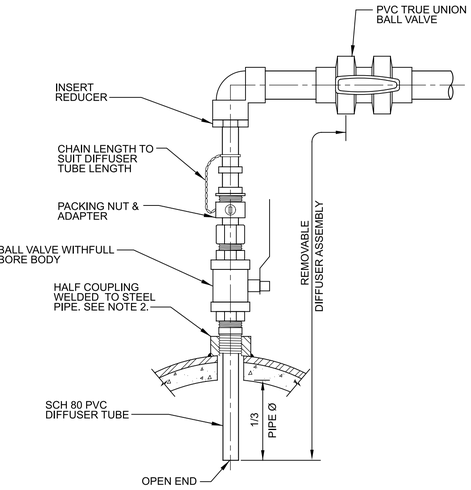


OPTION A



OPTION B

M500 TYP J — DETAIL - TRANSITION TO/FROM DOUBLE CONTAINMENT



NOTES:

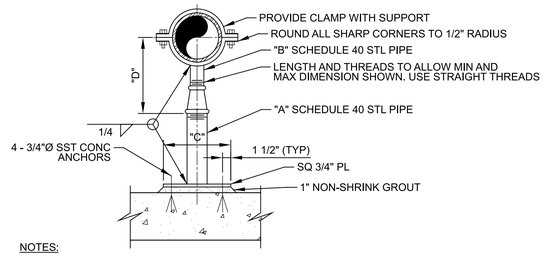
1. DIFFUSER AND DIFFUSER MATERIALS AS SPECIFIED IN SECTION 15120.
2. USE SERVICE SADDLE FOR PIPE CONNECTION FOR DUCTILE IRON PIPE.

MC777 TYP — DIFFUSER - "STAB TUBE" AT WELDOLET

12/01/22

ADJUSTABLE PIPE SADDLE SUPPORT SCHEDULE (INCHES)

SIZE OF SUPPORTED PIPE **	PIPE SIZE "A"	PIPE SIZE "B"	"C"	"D" MINIMUM	"D" MAXIMUM
2 1/2 *	2 1/2	1 1/2	12	8	13
3	2 1/2	1 1/2	12	8 1/2	13 1/2
3 1/2	2 1/2	1 1/2	12	8 1/2	13 1/2
4	3	2 1/2	12	9 1/2	14
6	3	2 1/2	12	10 1/2	15 1/2
8	3	2 1/2	12	11 1/2	16 1/2
10	3	2 1/2	12	13 1/2	18 1/2
12	3	2 1/2	12	15	19 1/2
14	4	3	12	16 1/2	20 1/2
16	4	3	12	17 1/2	22 1/2
18	6	3 1/2	14	19 1/2	24
20	6	3 1/2	14	21	25 1/2
24	6	4	14	23 1/2	28 1/2
30	6	4	14	27	31 1/2
32	6	4	14	28 1/2	32 1/2
36	6	4	14	30 1/2	34 1/2

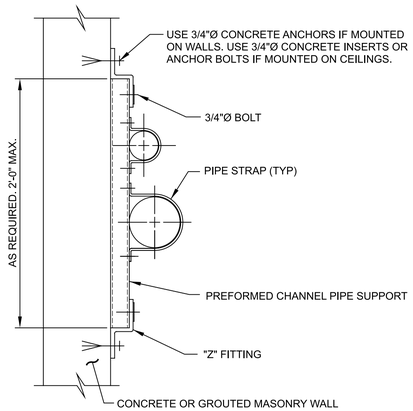


NOTES:

1. REFER TO THE SPECIFICATIONS FOR MATERIAL REQUIREMENTS.
2. * = USE 2 1/2" SUPPORTS FOR PIPES LESS THEN 2 1/2"Ø.
3. ** = NOMINAL PIPE SIZE.

MP034 TYP — PIPE SUPPORT - POST ON CONCRETE: ADJUSTABLE HEIGHT STEEL W/ TOP SADDLE

NS 10/12/23

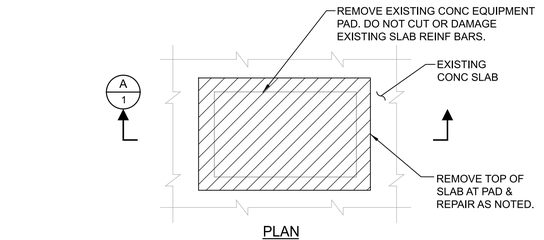


NOTES:

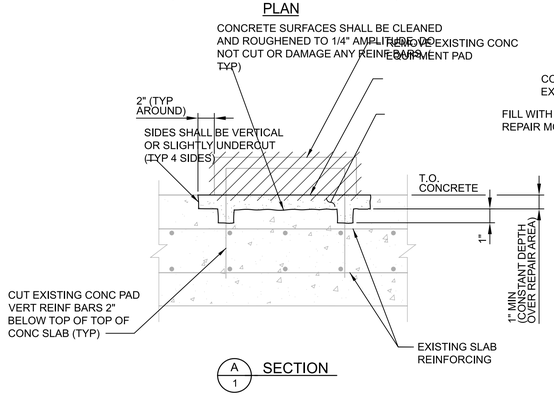
1. REFER TO THE SPECIFICATIONS FOR MATERIAL REQUIREMENTS.
2. SPACE PREFORMED CHANNEL PIPE SUPPORTS AT MAXIMUM 5'-0" O.C.

MP218 TYP N — PIPE SUPPORT - WALL - PREFORMED CHANNEL W/ PIPE CLIPS

10/05/23



PLAN



SECTION

S209 TYP N — CONCRETE REPAIR: SLAB AT REMOVED EQUIPMENT PAD

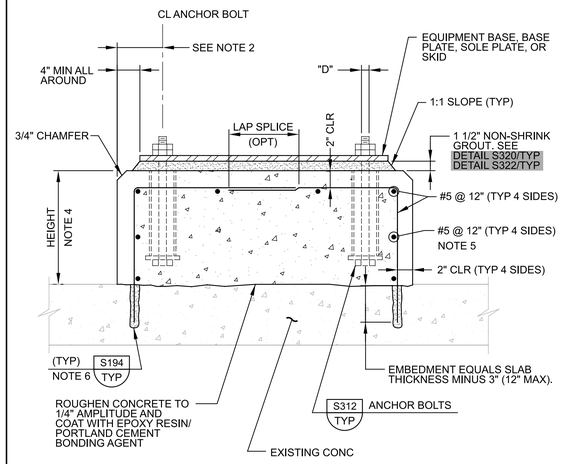
SHEET 1 OF 2 08/07/14

NOTES:

1. SAW CUT EDGES OF AREA WHERE CONCRETE WILL BE REMOVED A MINIMUM OF 1/2" DEEP. DO NOT CUT REINFORCING BARS. DO NOT CUT PAST OUTSIDE CORNERS.
2. CHIP OUT CONCRETE WITH A HAND HELD PNEUMATIC CHIPPING DEVICE. DO NOT CUT OR DAMAGE REINFORCING BARS.
3. ROUGHEN BONDING SURFACES TO 1/4" AMPLITUDE. CLEAN PREPARED SURFACES.
4. SOAK CONCRETE SURFACES IN AND 12" BEYOND REPAIR AREA WITH WATER FOR MINIMUM 24 HOURS JUST BEFORE PLACING CONCRETE REPAIR MORTAR. AREA TO BE REPAIRED SHALL BE SATURATED AND SURFACE DRY WHEN BONDING AGENT AND REPAIR MORTAR IS PLACED.
5. COAT CONCRETE SURFACES RECEIVING REPAIR WITH EPOXY RESIN/PORTLAND CEMENT BONDING AGENT JUST BEFORE PLACING REPAIR MORTAR.
6. WATER CURE REPAIR FOR MINIMUM OF 7 DAYS. KEEP REPAIR AREA AND SURFACES 12" BEYOND PERIMETER CONTINUOUSLY WET.

S209 TYP N — CONCRETE REPAIR: SLAB AT REMOVED EQUIPMENT PAD

SHEET 2 OF 2 08/01/14



NOTES:

1. "D" = DIAMETER OF ANCHOR BOLT.
2. THE EDGE DISTANCE ON THE ANCHOR BOLTS SHALL NOT BE LESS THAN 6" OR 8 x "D".
3. PAD DIMENSIONS AND ANCHOR BOLT SIZE SHALL CONFORM TO EQUIPMENT MANUFACTURER'S REQUIREMENTS.
4. HEIGHT TO SUIT EQUIPMENT FURNISHED OR AS INDICATED ON THE DRAWINGS.
5. PROVIDE HOOPS OR CORNERS PER DETAIL S144/TYP.
6. FIELD LOCATE EXISTING REINFORCEMENT IN SLAB BEFORE DRILLING. ADJUST DOWEL LOCATIONS TO AVOID REINFORCEMENT.

S304 TYP N — EQUIPMENT BASE ON EXISTING CONCRETE

07/07/2023

REV	DATE	BY	DESCRIPTION
			BID SET

DESIGNED BH
DRAWN HV
CHECKED ES
DATE APRIL 2024

ERICA DIANE STONE — LICENSE — No. 75487 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ERICA DIANE STONE ON THE DATE ADJACENT TO THE SEAL.

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CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

TYPICAL

TYPICAL MECHANICAL DETAILS 1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. TM01
SHEET NO. OF

ELECTRICAL PLAN/LAYOUT

SYMBOL	DESCRIPTION
TTC	TELEPHONE TERMINAL CABINET
	TERMINAL JUNCTION BOX
	ELECTRICAL EQUIPMENT
X	CEILING MOUNTED DOWNLIGHT LUMINAIRE - SEE SCHEDULE FOR TYPE
X	FLUORESCENT LUMINAIRE, SURFACE OR LAY IN TYPE SEE SCHEDULE FOR TYPE
X	LUMINAIRE AND POLE - SEE SCHEDULE FOR TYPE
X	WALL MOUNTED LUMINAIRE - SEE SCHEDULE FOR TYPE
X	FLOOD LIGHTS - AIM IN THE DIRECTION SHOWN SEE SCHEDULE FOR TYPE
X	EXIT LIGHTS - SOLID SECTION IS DIRECTION OF FACE SEE SCHEDULE FOR TYPE
X	EMERGENCY LIGHT WITH BATTERY PACK SEE SCHEDULE FOR TYPE
	LIGHTING FIXTURE POWER AND SWITCHING LEGEND
X Y Z (TYP)	X=FIXTURE TYPE Y=PANEL-CIRCUIT BRKR Z=SWITCH IF NO Z INDICATED, CONNECT DIRECTLY TO CIRCUIT BREAKER.
[B2] LPA-2	CONDUIT/CONDUCTOR - REFER TO CIRCUIT SCHEDULE
	HOME RUN - PANEL AND CIRCUIT NUMBER SHOWN
	EXPOSED CONDUIT AND CONDUCTORS*
	UNDERGROUND CONDUIT AND CONDUCTORS* NOTE: * ALL UNMARKED CONDUIT RUNS CONSIST OF 2#12, 1#12G IN 3/4"C.
YCX	YARD CONDUIT. REFER TO YARD CONDUIT SCHEDULE
	DIRECT BURIED CONDUIT
	CONDUIT, STUBBED AND CAPPED AS SHOWN
G	GROUND WIRE, 4/O UNLESS OTHERWISE NOTED
	6 FOOT GROUND WIRE PIGTAIL, 4/O UNLESS OTHERWISE NOTED
	GROUND ROD - 5/8" x 20' COPPER CLAD UNLESS OTHERWISE NOTED. COUPLING TWO 10' RODS IS ACCEPTABLE.
	GROUND TEST WELL, SEE DETAIL
S	WALL SWITCH: 2- DOUBLE POLE, 3- THREE WAY, 4- FOUR WAY, WP- WEATHERPROOF, P- PILOT LIGHT, K- KEY OPERATED, D- DIMMER, CRE- CORROSION RESISTANT
	CONVENIENCE RECEPTACLE - 20A DUPLEX UNLESS SPECIFIED OTHERWISE WP- WEATHERPROOF, TL- TWIST LOCK, C- CLOCK HANGER, CRE- CORROSION RESISTANT, GFI-GROUND FAULT INTERRUPTER
	CONVENIENCE RECEPTACLE - 20A QUADROPLEX UNLESS SPECIFIED OTHERWISE
	CONVENIENCE RECEPTACLE - 20A DUPLEX UNLESS SPECIFIED OTHERWISE. LOCATED ABOVE COUNTER TOP GFI-GROUND FAULT INTERRUPTER
	CONVENIENCE RECEPTACLE - 20A DUPLEX UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
30	RECEPTACLE, SPECIAL PURPOSE - AMPERAGE AS INDICATED.
	TELEPHONE/DATA RECEPTACLE (OUTLET BOX, 18" AFF) W - WALL MOUNTED, 54" AFF
	TELEPHONE/DATA RECEPTACLE MOUNTED FLUSH IN FLOOR
J	JUNCTION BOX NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. 4X = NEMA 4X SS
F	FIRE ALARM PULL STATION
F	FIRE ALARM HORN/STROBE LIGHT
F	FIRE ALARM STROBE LIGHT
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL
CAM X	SURVEILLANCE CAMERA X - 90, 180 OR 360 CAMERA
DS	SECURITY SYSTEM DOOR SWITCH

SYMBOL	DESCRIPTION
SD	FIRE ALARM SMOKE DETECTOR EC- MOUNTED TO EXPOSED CEILING H- HARSH ENVIRONMENT RATED
HD	FIRE ALARM HEAT DETECTOR EC- MOUNTED TO EXPOSED CEILING
BD R	BEAM DETECTOR, T=TRANSMITTER, R=RECEIVER
SD D	DUCT SMOKE DETECTOR
RTU	REMOTE TELEMETRY UNIT
CR	SECURITY CARD READER

ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
A	AMMETER, AMPERE
AC	ALTERNATING CURRENT
AF	AMPERE FRAME
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AS	AMMETER SWITCH, AMPERE SENSOR
ASU	AIR SUPPLY UNIT
ATS	AUTOMATIC TRANSFER SWITCH
BC	BYPASS CONTACTOR
BRKR	BREAKER
C	CONDUIT, CONTACTOR
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CMS	COMBINATION MOTOR STARTER
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY
CRE	CORROSION RESISTANT
CT	CURRENT TRANSFORMER
DC	DIRECT CURRENT
DIV	DIVISION
DP	DISTRIBUTION PANEL (480V)
EF	EXHAUST FAN
EG	ELECTRICAL GROUND
ETM	ELAPSED TIME METER
EXST	EXISTING
FDR	FEEDER
F, FU	FUSE
FI	FLOW INDICATOR
FLR	FLOOR
FLUOR	FLUORESCENT
FM	FLOW METER
FO	FIBER OPTIC
FS	FLOAT SWITCH, FLOW SWITCH
FT	FLOW TRANSMITTER
FUT	FUTURE
FVNR	FULL VOLTAGE NON-REVERSING STARTER
G	GREEN, GROUND
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFR	GROUND FAULT RELAY
GND	GROUND
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND/OFF/AUTO
HOR	HAND/OFF/REMOTE
HPS	HIGH PRESSURE SODIUM
HVAC	HEATING, VENTILATING & AIR CONDITIONING
IC	INTERRUPTING CAPACITY
I & C	INSTRUMENTATION AND CONTROL
IMH	INSTRUMENTATION MANHOLE
INST	INSTANTANEOUS
IP	INSTRUMENT PANEL (PANELBOARD)
J, J-BOX	JUNCTION BOX
K	KEY INTERLOCK
KK	KIRK KEY INTERLOCK
LA	LIGHTNING ARRESTER
LC	LIGHTING CONTACTOR
LP	LIGHTING PANEL (PANELBOARD)
LR	LOCAL/REMOTE, LATCHING RELAY
LS	LIMIT SWITCH
LT FLEX	LIQUID TIGHT FLEX CONDUIT
LTG	LIGHTING
M	MAGNETIC CONTACTOR COIL OR MOTOR
MA	MILLIAMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MERC	MERCURY VAPOR
MH	MOTOR HEATER, MANHOLE
MLO	MAIN LUGS ONLY
MPZ	MINI POWER ZONE
MPR	MOTOR PROTECTION RELAY
MS	MOTOR STARTER
MSC	MANUFACTURER SUPPLIED CABLE
MT	MOUNT
MTD	MOTOR TEMPERATURE DETECTOR
N	NEUTRAL
NC	NORMALLY CLOSED
NEMA	NATIONAL ELECTRIC MANUFACTURER'S ASSOCIATION
NO	NORMALLY OPEN
NP	NAMEPLATE
NTS	NOT TO SCALE
OL	OVERLOAD RELAY
OLM	OPTICAL LINK MODULE
P	POLE
PB	PULL BOX
PC	PHOTOCELL
PH	PHASE
PM	PHASE MONITOR, POWER METER
PNL	PANEL
PP	POWER PANEL (480VAC)
PR	PAIR
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE CONDUIT
RCPT	RECEPTACLE
RMS	ROOT MEAN SQUARE
RS	RIGID STEEL CONDUIT
RGS	RIGID GALVANIZED STEEL CONDUIT
RTU	REMOTE TELEMETRY UNIT
SC	SURGE CAPACITOR
SF	SUPPLY FAN
SH	SPACE HEATER
S/N	SOLID NEUTRAL
SPD	SURGE PROTECTION DEVICE
SSRVS	SOLID STATE REDUCED VOLTAGE STARTER
SS	STAINLESS STEEL
SV	SOLENOID VALVE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
T	THERMOSTAT
TB	TERMINAL BOARD
TDR	TIME DELAY RELAY
TJB	TERMINAL JUNCTION BOX
TS	THERMAL SWITCH
TSP	TWISTED SHIELDED PAIR
TYP	TYPICAL
UPS	UNINTERRUPTIBLE POWER SUPPLY
UVR	UNDER VOLTAGE RELAY
V	VOLTMETER, VOLT
VFD	VARIABLE FREQUENCY DRIVE
VS	VOLTMETER SWITCH
W	WATT
WHD	WATTHOUR DEMAND METER
WP	WEATHERPROOF
XFMR	TRANSFORMER

ONE LINE DIAGRAMS, RISER DIAGRAMS AND SCHEMATICS

SYMBOL	DESCRIPTION
5	MOTOR, SQUIRREL CAGE INDUCTION UNLESS OTHERWISE NOTED - HORSEPOWER INDICATED
	OVERLOAD RELAY HEATER
1	MAGNETIC STARTER WITH NEMA SIZE INDICATED
M	MOTOR CIRCUIT PROTECTOR, MAGNETIC, 3 POLE UNLESS INDICATED OTHERWISE.
400	CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE UNLESS INDICATED OTHERWISE.
400 225	FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.
100	SWITCH - CURRENT RATING INDICATED, 3 POLE UNLESS INDICATED OTHERWISE.
400 600	DRAWOUT CIRCUIT BREAKER, LOW VOLTAGE 600= FRAME RATING, 400=TRIP SETTING
1200 1200	DRAWOUT CIRCUIT BREAKER, MEDIUM VOLTAGE 1200= FRAME RATING, 1200=TRIP SETTING
600 400	DRAWOUT FUSED SWITCH, LOW OR MEDIUM VOLTAGE 600= FRAME RATING, 400=FUSE RATING
(3)	CURRENT TRANSFORMER, NUMBER OF WINDINGS INDICATED
480-120 /208V 15 KVA, 3Ø K-4 RATED	TRANSFORMER, VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE
	LIGHTNING ARRESTER
	CAPACITOR OR SURGE CAPACITOR
M	UTILITY METER
G	GENERATOR
X 0-600V	METER SCALE RANGE SHOWN IF REQUIRED A - AMPS, PM - PHASE MONITOR V - VOLTS, P - POWER METER
	FUSE
SPD	SURGE PROTECTION DEVICE
	GROUND
CPT 120V	CONTROL TRANSFORMER
GFR	GROUND FAULT RELAY WITH C.T.
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED
	PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK
	REMOTE DEVICE
A	INDICATING LIGHT - LETTER INDICATES COLOR A - AMBER, G - GREEN B - BLUE, R - RED C - CLEAR, W - WHITE
A	PUSH TO TEST AND CONNECT INDICATING LIGHT SCHEMATIC DIAGRAMS ONLY A - AMBER, G - GREEN B - BLUE, R - RED C - CLEAR, W - WHITE

SYMBOL	DESCRIPTION
S M	MANUAL MOTOR STARTER SWITCH, NEMA 4X SS UNLESS OTHERWISE NOTED. NUMBER OF POLES AS REQUIRED
PB 4X	PUSH-BUTTON STATION, NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. 4X = NEMA 4X 316 STAINLESS STEEL ENCLOSURE. SEE CONTROL DIAGRAMS FOR TYPE PUSH BUTTON REQUIRED
30 4X	NONFUSED DISCONNECT SWITCH, SIZE INDICATED, 3 POLE UNLESS INDICATED OTHERWISE, NEMA 12 ENCLOSURE, 4X = NEMA 4X 316 STAINLESS STEEL
F 60 40 4X	FUSED DISCONNECT SWITCH, SIZE INDICATED (60 = SWITCH RATING; 40 = FUSE RATING) 3 POLE UNLESS INDICATED OTHERWISE, NEMA 12 ENCLOSURE, 4X = NEMA 4X 316 STAINLESS STEEL
LC 30 4X	LIGHTING CONTACTOR, CURRENT RATING INDICATED, NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM FOR NUMBER OF POLES. 4X = NEMA 4X 316 STAINLESS STEEL
2 4X	MAGNETIC STARTER, NEMA SIZE INDICATED, NEMA 12 ENCLOSURE, UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM. 4X = NEMA 4X 316 STAINLESS STEEL
2 4X	COMBINATION (FUSE OR CIRCUIT BREAKER AS INDICATED). MAGNETIC STARTER, NEMA SIZE INDICATED, NEMA 12 ENCLOSURE UNLESS INDICATED OTHERWISE. SEE CONTROL SCHEMATIC DIAGRAM. 4X = NEMA 4X 316 STAINLESS STEEL
	ELECTRIC RESISTANCE HEATER
ETM	ELAPSED TIME METER
CRX	CONTACT - NORMALLY OPEN WITH COIL INDICATED
CRX	CONTACT - NORMALLY CLOSED WITH COIL INDICATED
CRX	CONTROL RELAY, X=SEQUENTIAL NUMBER
LRX (L)	LATCHING RELAY, X=SEQUENTIAL NUMBER L - LATCH, U - UNLATCH
TDX NOTC	TIME DELAY RELAY, X=SEQUENTIAL NUMBER NOTC=NORMALLY OPEN TIMED CLOSED NOTO=NORMALLY OPEN TIMED OPEN AFTER CLOSE NCTO=NORMALLY CLOSED TIMED OPEN NCTC=NORMALLY CLOSED TIMED CLOSED AFTER OPEN
	TEMPERATURE
	OPENS ON RISING TEMPERATURE, CLOSES ON FALLING TEMPERATURE
	CLOSES ON RISING TEMPERATURE, OPENS ON FALLING TEMPERATURE
H O A XOO OOX	SELECTOR SWITCH: MAINTAINED CONTACT WITH CONTACT POSITION INDICATED, CHART IDENTIFIES OPERATION

POSITION			
CKT.	HAND	OFF	AUTO
1	X	O	O
2	O	O	X

X - CLOSED CONTACT
O - OPEN CONTACT

GENERAL

SYMBOL	DESCRIPTION
	CONNECTION POINT TO EQUIPMENT SPECIFIED, FURNISHED AND INSTALLED UNDER OTHER SECTIONS. RACEWAY, CONDUCTOR AND CONNECTION IN THIS SECTION.
1"C,2#12,1#12G 1"C,1-25/C TYPE 1	INDICATES RACEWAY AND CIRCUIT CONDUCTORS. FIRST NUMBER IS RACEWAY SIZE. THE FOLLOWING NUMBERS ARE THE CONDUCTOR QUANTITIES, SIZES, AND TYPES.
	DEMOLITION TO BE REMOVED OR DELETED

LINE WEIGHT

NEW

EXISTING

NOTE:
THIS IS A STANDARD LEGEND SHEET. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT BE UTILIZED ON PROJECT.

ADS Engineering
4701 N FEDERAL HWY, SUITE 390
POMPANO BEACH, FL 33064

REV	DATE	BY	DESCRIPTION
			BID SET

DESIGNED MDG
DRAWN SIDZ
CHECKED ADS
DATE APRIL 2024

ALEKSANDAR D. STOJANOVIC LICENSE No 60269 STATE OF FLORIDA PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ALEKSANDAR D. STOJANOVIC ON THE DATE ADJACENT TO THE SEAL.

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CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

ELECTRICAL

LEGEND

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. GE-01
SHEET NO. OF

GENERAL NOTES AND SPECIFICATIONS:

1. NOT USED.
2. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR TO INSTALL THE ELECTRICAL SYSTEMS AS INDICATED ON THE DRAWINGS. ITEMS NOT SHOWN BUT OBVIOUSLY NECESSARY FOR COMPLETION OF THE WORK SHALL BE INCLUDED.
3. THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE 2017 (NFPA 70), ELECTRICAL SAFETY IN THE WORKPLACE (NFPA 70E), ALL MONROE COUNTY CODES AND LATEST FLORIDA BUILDING CODE.
4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS TO INCLUDE, BUT ARE NOT LIMITED TO, INSPECTIONS AND APPROVALS AND TO INCLUDE ALL FEES AS PART OF HIS BID IF NOT OTHERWISE NOTED. THE FOLLOWING PERMITS ARE REQUIRED: POWER, LIGHTING, INSTRUMENTATION, LIGHTNING PROTECTION, FIBER OPTIC, LOW VOLTAGE AND ELECTRICAL DEMOLITION.
5. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE ENGINEER AND THE OWNER.
6. THE CONTRACTOR SHALL, BEFORE SUBMITTING HIS BID, VISIT THE SITE OF THE PROJECT AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS. NO ALLOWANCE WILL BE MADE FOR EXISTING CONDITIONS OR FAILURE OF THE CONTRACTOR TO OBSERVE THEM.
7. ALL EQUIPMENT AND MATERIAL SHALL BE NEW AND U.L. LISTED WHERE APPLICABLE.
8. THE CONTRACTOR IS RESPONSIBLE TO TEST ALL SYSTEMS INSTALLED OR MODIFIED UNDER THIS PROJECT AND REPAIR OR REPLACE ALL DEFECTIVE WORK TO THE SATISFACTION OF THE ENGINEER AND OWNER.
9. ALL EQUIPMENT FURNISHED AND INSTALLED BY THE CONTRACTOR SHALL BE GUARANTEED AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE.
10. ALL CONDUCTORS SHALL BE COPPER. NO ALUMINUM ALLOWED UNLESS SPECIFICALLY INDICATED ON DRAWINGS.
11. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL ELECTRICAL & CONTROL EQUIPMENT AND MATERIAL.
12. ALL CONTROL PANELS SHALL BE CONSTRUCTED BY A UL 508A APPROVED PANEL VENDOR AND SHALL BEAR A UL 508A LABEL ON THE PANEL.
13. THE DRAWINGS ARE NOT INTENDED TO SHOW THE EXACT LOCATION OF CONDUIT RUNS. THESE ARE TO BE COORDINATED WITH THE OTHER TRADES SO THAT CONFLICTS ARE AVOIDED PRIOR TO INSTALLATIONS.
14. ALL LOCATIONS OF EQUIPMENT, PANELS ETC. ARE SHOWN FOR ILLUSTRATION PURPOSES. CONTRACTOR SHALL VERIFY AND COORDINATE EXACT LOCATION AND SIZE WITH ALL SUBCONTRACTORS AND EQUIPMENT SUPPLIERS PRIOR TO ANY INSTALLATION AND THEN INSTALL AS SUCH WITH CORRESPONDING CONDUIT STUB-UPS.
15. SEE OTHER DISCIPLINE DRAWINGS FOR COORDINATION OF ALL DRAWINGS. ANY CONFLICTS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION AND MOVEMENT OF CONDUITS OR OTHER ELECTRICAL EQUIPMENT SHALL BE ACCOMPLISHED WITHOUT ANY ADDITIONAL COST FOR THE OWNER.
16. LOCATIONS OF MANHOLES, HANDHOLES AND PULL BOXES ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE EXACT LOCATION WITH EXISTING AND NEW PIPING OR CONDUIT AND ADJUST ACCORDINGLY.
17. NOT ALL CONDUITS SHOWN ON RISER AND ONE-LINE DIAGRAMS ARE SHOWN ON BUILDING LAYOUTS. CONTRACTOR SHALL SUPPLY ALL CONDUITS AND CABLES AS SHOWN ON RISER AND ONE-LINE DIAGRAMS.
18. ALL CIRCUITS SHALL BE IDENTIFIED IN JUNCTION BOXES, PULL BOXES, CONTROL PANELS, PANELBOARDS, LIGHTING POLES, CONTROLLERS AND SERVICE POINTS. IDENTIFICATION SHALL MATCH PANELBOARD SCHEDULES.
19. EXPOSED RUNS OF CONDUITS SHALL BE INSTALLED WITH RUNS PARALLEL OR PERPENDICULAR TO WALLS, STRUCTURAL MEMBERS OR INTERSECTIONS OF VERTICAL PLANES AND CEILINGS, WITH RIGHT ANGLE TURNS CONSISTING OF SYMMETRICAL BENDS OR PULL BOXES AS INDICATED ON THE DRAWINGS. BENDS AND OFFSETS SHALL BE AVOIDED WHERE POSSIBLE.
20. INSTRUMENTATION IS LOW VOLTAGE SIGNALS SUCH AS 4-20MA, TELEPHONE COMMUNICATION, FIRE ALARM COMMUNICATION. POWER CONDUIT SHALL ONLY CROSS INSTRUMENTATION CONDUIT PERPENDICULARLY AT RIGHT ANGLES WITH 6" SEPARATION.
21. CONDUCTOR PULLING TENSIONS SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION. CONTRACTOR SHALL INSTALL PULL BOXES TO MEET MANUFACTURER'S REQUIREMENTS.
22. MINIMUM DISTANCE ALLOWED BETWEEN POWER CONDUITS AND INSTRUMENTATION CONDUITS SHALL BE:

VOLTAGE	DISTANCE
4160V - 15KV TO INST. CONDUIT	3 FT
480V - 600V TO INST CONDUIT	2 FT
120V TO INST. CONDUIT	1 FT

23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONDUIT AND WIRING INSTALLATION FOR ALL VENDOR PROVIDED EQUIPMENT (PACKAGE SYSTEMS). IF THE SHOP DRAWINGS DIFFER FROM THE DESIGNED FACILITIES, THE CONTRACTOR SHALL REDESIGN THE FACILITIES AND SUBMIT THE REVISED DESIGN FOR THE ENGINEER'S APPROVAL ALONG WITH THE SHOP DRAWINGS. THERE SHALL BE NO ADDITIONAL COST TO THE OWNER FOR THE REDESIGN NOR FOR ANY ADDITIONAL CONDUITS AND WIRING. DURING SUBMITTAL THE CONTRACTOR SHALL VERIFY ALL SUPPLIED BREAKER SIZES FOR ALL PACKAGED SYSTEMS SUCH AS HVAC, EXHAUST FANS, MIXERS, CHEMICAL PUMPS ETC. AND MODIFY ALL BREAKERS IN MCC'S AND PANELBOARDS ACCORDINGLY WITHOUT ANY ADDITIONAL COST TO THE OWNER.
24. ALL EXCAVATIONS FOR CONDUITS, HANDHOLES, MANHOLES AND PULLBOXES NEAR EXISTING PIPING, CONDUIT AND EQUIPMENT SHALL BE HAND EXCAVATED AND COORDINATED WITH THE OWNER.
25. MINIMUM DEPTH FROM TOP OF DUCT BANKS OR CONDUITS TO FINISHED GRADE SHALL BE 24" UNLESS OTHERWISE NOTED.
26. COLORED WARNING TAPE 6" WIDE SHALL BE INSTALLED 8" BELOW FINISHED GRADE DIRECTLY ABOVE ALL UNDERGROUND YARD CONDUITS ACCORDING TO THE FOLLOWING SCHEDULE:
    POWER: RED
    ALL OTHER CONDUITS: GREEN
27. CONTRACTOR SHALL RESTORE SIDEWALKS, ROADWAYS, SOD AND SPRINKLER SYSTEM PIPING TO MATCH EXISTING, AFTER THE COMPLETION OF THE CONDUIT AND PULLBOX INSTALLATION.
28. GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH NEC 2017, ARTICLE 250. THE GROUNDING SYSTEM TEST SHALL NOT EXCEED A 48 HOUR SPAN DRY RESISTANCE OF 10 OHMS. ADDITIONAL GROUNDING TO MEET THIS REQUIREMENT SHALL BE INSTALLED AT NO EXTRA COST. GROUNDING AND BONDING CONNECTIONS SHALL NOT BE PAINTED. ALL GROUNDING CONNECTIONS SHALL BE EXOTHERMIC UNLESS SPECIFICALLY INDICATED OTHERWISE.
29. AN EQUIPMENT GROUND WIRE SIZED PER NEC SHALL BE PULLED IN ALL ELECTRICAL CONDUITS, POWER AND CONTROL, AS SHOWN ON PLANS.
30. ALL ENCLOSURES, TJB, WIREWAY, PULL BOXES (EXCEPT IN-GROUND PULL BOXES AND MANHOLES) ETC. SHALL CONTAIN A GROUNDING BUS. CONNECT ALL RACEWAY BONDS TO THIS BUS VIA GROUNDING BUSHING AND EXTEND BONDING JUMPER FROM THIS BUS TO THE ENCLOSURE.
31. PRIMARY BUILDING GROUNDING SHALL BE AN EMBEDDED GRID OF MINIMUM #4/0 AWG WIRE INSTALLED IN THE FOUNDATION AND AROUND THE BUILDING PERIMETER TO FORM A COMPLETE LOOP. SECONDARY GROUND CONNECTIONS TO ALL METAL EQUIPMENT, HAND RAILS, STRUCTURAL STEEL, CONCRETE PADS, REBAR ETC. SHALL HAVE A MINIMUM #4 STRANDED COPPER CONDUCTOR BONDED USING APPROVED LUGS OR EXOTHERMIC CONNECTIONS. ALL EQUIPMENT GROUNDING CONDUCTORS PENETRATING CONCRETE SLABS OR FINISHED GRADE SHALL HAVE A 72" CONDUCTOR PIGTAIL AT EACH LOCATION FOR CONNECTION TO EQUIPMENT.
32. ALL CONCRETE ENCASED DUCTBANKS SHALL CARRY A MINIMUM #4/0 AWG BARE COPPER GROUND WIRE, OVER THE ENTIRE LENGTH, WHICH SHALL BE CONNECTED TO THE SITE GROUNDING GRID AND GROUND RODS LOCATED CONNECTING MANHOLES, HANDHOLES OR PULL BOXES.
33. CONTRACTOR SHALL CORE DRILL EXISTING CONCRETE WALLS, FLOORS, MANHOLES, HANDHOLES AND PULL BOXES FOR CONDUIT PENETRATIONS. SEAL PENETRATIONS WITH NON-SHRINK GROUT OR APPROPRIATE FIRE RATED DEVICES WHERE APPLICABLE.
34. ALL CONDUITS PENETRATING RATED FIRE WALLS OR RATED FIRE FLOORS SHALL BE INSTALLED WITH U.L. APPROVED DEVICES TO MAINTAIN THE FIRE RATING OF THE WALL OR FLOOR PENETRATED.
35. PROVIDE CONDUIT DUCT SEAL AT ALL CONDUIT ENDS.
36. ALL SPARE CONDUITS SHALL BE SEALED WITH A CAP AT BOTH ENDS AND A PULL STRING INSTALLED WITH IDENTIFICATION ON BOTH ENDS.
37. ALL RECEPTACLES SHALL BE INSTALLED 18" AFF UNLESS OTHERWISE NOTED. LIGHT SWITCHES SHALL BE MOUNTED 48" AFF UNLESS OTHERWISE NOTED.
38. ALL RECEPTACLES WITHIN 6' OF A SINK SHALL BE GFI.
39. FLEXIBLE CONDUITS SHALL BE USED TO TERMINATE ALL MOTORS AND OTHER VIBRATING EQUIPMENT AND SHALL BE BETWEEN 18" AND 3' IN LENGTH.
40. TYPEWRITTEN PANEL SCHEDULES SHALL BE INSTALLED IN EACH PANELBOARD, AND TYPEWRITTEN TERMINAL BLOCK SCHEDULES IN EACH CONTROL CABINET.
41. ALL SPD'S SHALL BE INTEGRAL TO THE NEW EQUIPMENT SHOWN AND SUPPLIED AS ONE UNIT AND ONE U.L. ENTITY.
42. ALL MATERIAL IN DESIGNATED CORROSIVE AREAS SHALL BE NEMA 4X STAINLESS STEEL OR NON-METALLIC.
43. ALL OUTDOOR LIGHTING FIXTURES SHALL BE OF COPPER FREE CONSTRUCTION.
44. ALL REFERENCES TO SS OR STAINLESS STEEL SHALL BE 316 STAINLESS STEEL.
45. CONTRACTOR SHALL BALANCE PANELBOARD LOADS AT THE END OF THE PROJECT.
46. ALL YARD CONDUITS SHALL BE CONCRETE ENCASED UNLESS NOTED OTHERWISE. REFER TO DRAWING 00GE33 FOR INSTALLATION DETAILS.
47. ALL CONDUIT CONNECTIONS TO NEMA 4X PANELS/ENCLOSURES SHALL USE MYERS HUBS (OR EQUAL) TO MAINTAIN 4X RATING.
48. PROVIDE ARMORED CABLE FOR ALL VFD'S FROM VFD TO MOTOR WHERE INDICATED ON DRAWINGS PER SPECIFICATION 26_05_05. INSTALL ARMORED CABLE PER MANUFACTURER'S INSTRUCTIONS AND SPECIFICATION 26_05_05.
49. CONTRACTOR SHALL PROVIDE FOR A SATISFACTORY NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) INSPECTION FOR ALTERATIONS TO CONTROL PANELS, ELECTRICAL EQUIPMENT, OR ASSEMBLIES TO MAINTAIN THE ORIGINAL UL RATING.
50. PROVIDE AS-BUILT DRAWINGS AND MANUALS IN ACCORDANCE WITH THE FLORIDA BUILDING CODE 13-413.ABC.2.1 & 13-413.ABC.2.2
51. CONDUCTORS SHALL BE STRANDED COPPER, NO ALUMINUM ALLOWED UNLESS SPECIFICALLY INDICATED ON DRAWINGS. POWER CONDUCTORS SHALL BE XHHW IN WET LOCATIONS OR IN UNDERGROUND RACEWAYS AND SHALL BE THWN/THHN IN DRY LOCATIONS.
52. INSTRUMENTATION AND CONTROL CIRCUITS ORIGINATING FROM CONTROL PANELS CONTAINING A PLC ARE CLASSIFIED AS CLASS 1 POWER-LIMITED CIRCUITS PER NEC ARTICLE 725. CONTROL AND INSTRUMENTATION AND CONTROL CIRCUITS ORIGINATING FROM CONTROL PANELS WITHOUT A PLC OR FROM A MOTOR CONTROL CENTER ARE CLASSIFIED AS CLASS 1 REMOTE CONTROL AND SIGNALING CIRCUITS PER NEC ARTICLE 725.
53. ALL VERTICAL CONDUIT PENETRATIONS FROM CONCRETE SLAB SHALL HAVE A MAINTENANCE PAD TO PREVENT CORROSION.
54. AFFIX NAMEPLATES TO ALL DISCONNECT SWITCHES WITH THE NAME OF THE EQUIPMENT SERVED BY THE DISCONNECT SWITCH IN ACCORDANCE WITH NEC ARTICLE 110.22. NAMEPLATES SHALL BE AS DESCRIBED IN SPECIFICATION 26_05_04.
55. THERE ARE NO CLASSIFIED AREAS PERTAINING TO NEC ARTICLE 500 IN THIS FACILITY.
56. ALL CONDUITS SHALL BE MEGGER TESTED AFTER INSTALLATION AND INSULATION MUST BE IN COMPLIANCE WITH THE INSULATED POWER CABLE ENGINEERS ASSOCIATION MINIMUM VALUES OF INSULATION RESISTANCE. MEGGER TEST RESULTS SHALL BE SUBMITTED TO ENGINEER FOR APPROVAL.

NOTE:

THE EXISTING ELECTRICAL INFORMATION IS OBTAINED FROM "RECORD DRAWINGS" AND OTHER "AS-BUILT DRAWINGS". CONTRACTOR SHALL VERIFY THE INFORMATION PROVIDED IN THESE DRAWINGS AND ADJUST ACCORDINGLY. ANY CONFLICTS SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION BEFORE SUBMITTING HIS BID.

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			BID SET

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DRAWN SIDZ
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DATE APRIL 2024

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CITY OF PUNTA GORDA, FLORIDA

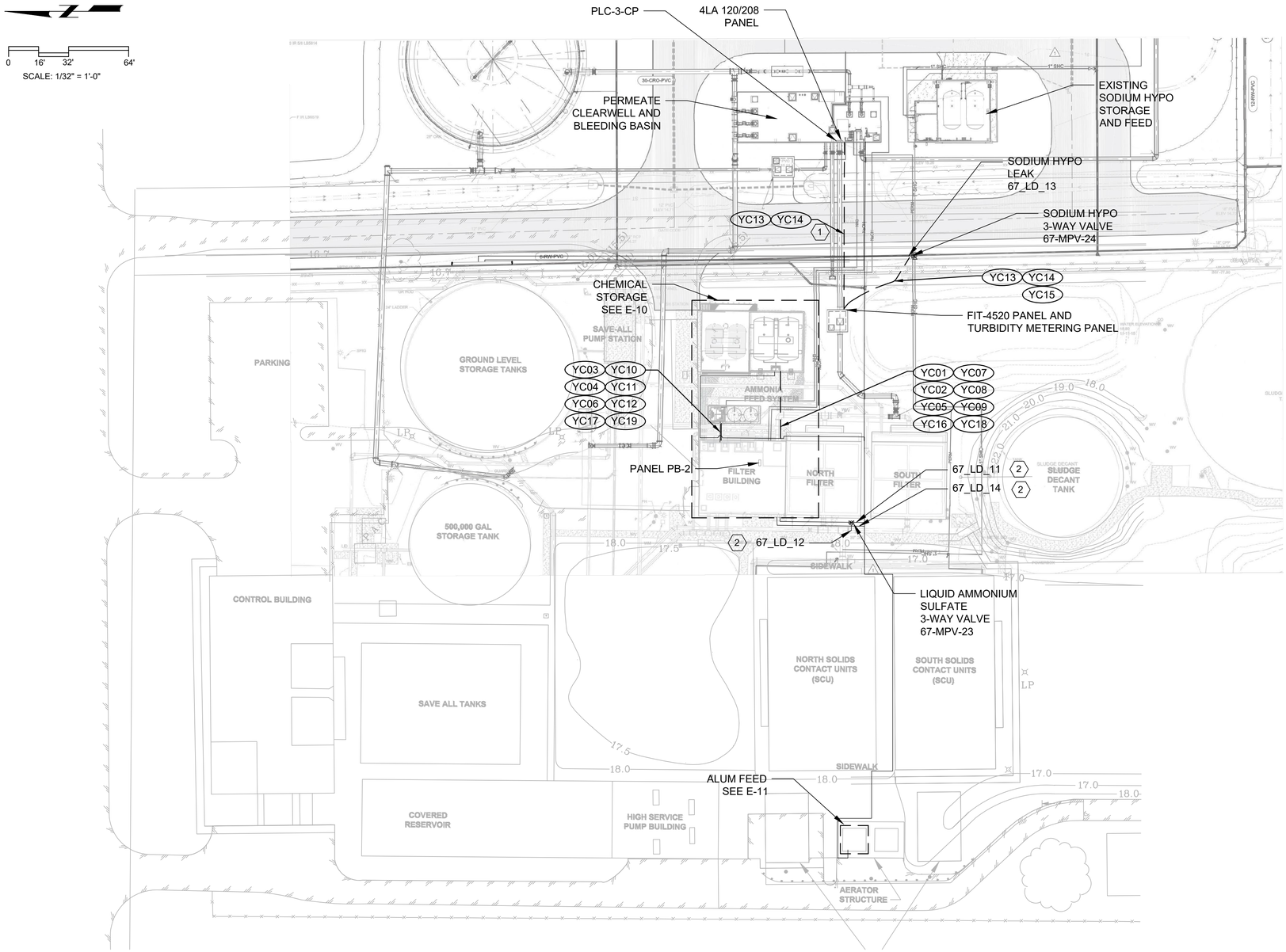
SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

ELECTRICAL

NOTES

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. GE-02
SHEET NO. OF



ELECTRICAL NOTES

1. YARD CONDUIT ROUTINGS AND EQUIPMENT LOCATIONS ARE FOR ILLUSTRATION PURPOSE ONLY. CONTRACTOR SHALL VERIFY AND COORDINATE WITH OTHER DISCIPLINES TO AVOID CONFLICTS AND ADJUST ACCORDINGLY. CONCRETE DUCTBANK CROSSING ABOVE THE PIPING SHALL AVOID CROSSING AT THE JOINTS, VALVES, ETC.
2. CONTRACTOR SHALL HAND DIG THE GROUND FOR INSTALLATION OF CONDUITS AND MANHOLES INSIDE THE PLANT, UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL KEEP THE SEPARATION BETWEEN POWER AND INSTRUMENTATION YARD CONDUITS AS PER NOTE DRAWING 00GE02 NOTE 22 FOR ALL YARD CONDUIT DUCTBANKS.
4. CONTRACTOR SHALL RESTORE SIDEWALK, WALKWAY, ETC. AFTER THE COMPLETION OF THE PROJECT.

GROUNDING NOTES

1. CONTRACTOR SHALL INSTALL GROUNDING CONDUCTORS FROM THE GROUNDING GRID TO ALL NEW INSTALLED EQUIPMENT INCLUDING CONTROL PANELS, PUMPS, DISCONNECTS, TRANSMITTERS, TANKS, HANDRAILS, LADDERS, ETC. FIELD LOCATE THE EXISTING GROUNDING FOR THE EXPOSED CONNECTION POINTS IF AVAILABLE. OTHERWISE PROVIDE AND INSTALL NEW GROUNDING RODS AND CONNECTIONS PER SPECIFICATION 16450.

KEYED NOTES:

1. FIELD INVESTIGATE AND UTILIZE AVAILABLE SPARE CONDUITS AND REUSE IF FEASIBLE. OTHERWISE PROVIDE NEW AS SHOWN ON E-03 AND E-04.
2. APPROXIMATE LOCATION FOR BIDDING PURPOSES. COORDINATE THE EXACT LOCATION WITH OTHER DISCIPLINES AND ADJUST CONDUIT AND WIRE ROUTING ACCORDINGLY.

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

ELECTRICAL

SITE PLAN

VERIFY SCALES
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0 1"
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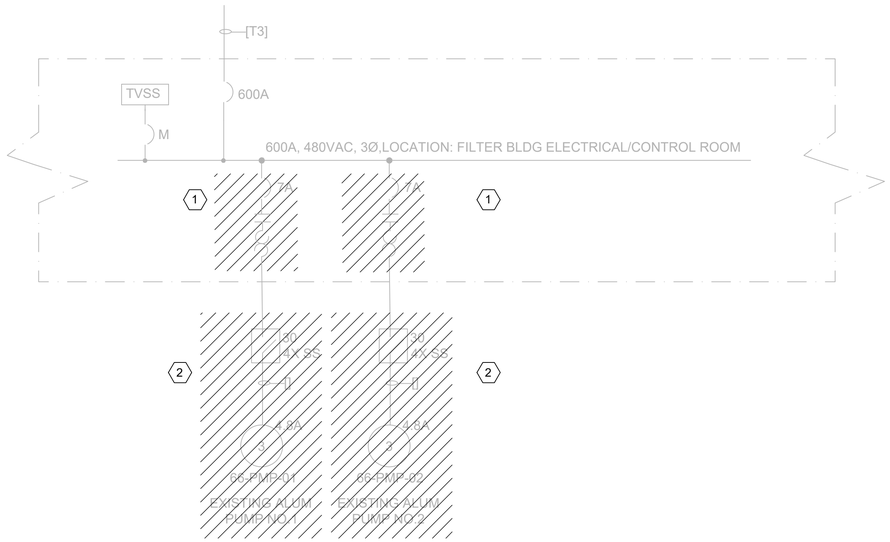
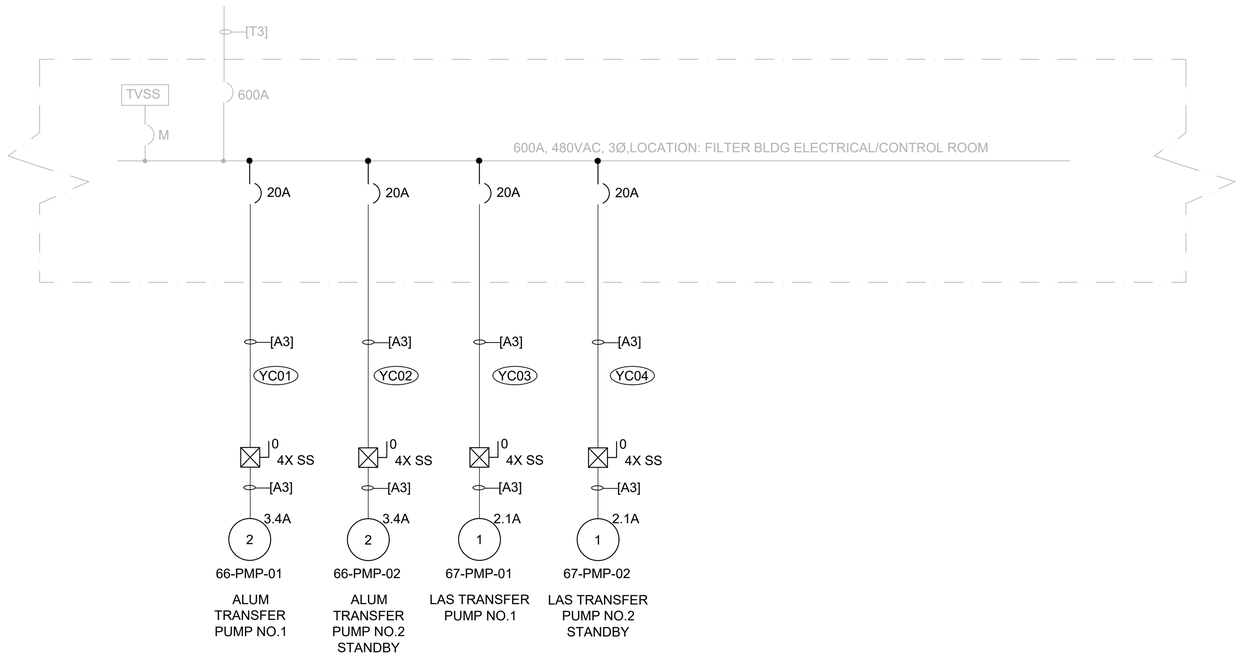
JOB NO. 202333
DRAWING NO. E-00
SHEET NO. OF



EXISTING MCC-B DEMO



EXISTING MCC-B

KEYED NOTES:

1. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING STARTERS FROM MCC-B, TO MAKE ROOM FOR NEW EQUIPMENT INSTALLATION.
2. DISCONECT AND REMOVE EXISTING ALUM PUMPS AND ASSOCIATED ELECTRICAL EQUIPMENT.

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

ELECTRICAL

ONE LINE - 1

VERIFY SCALES
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0 1"
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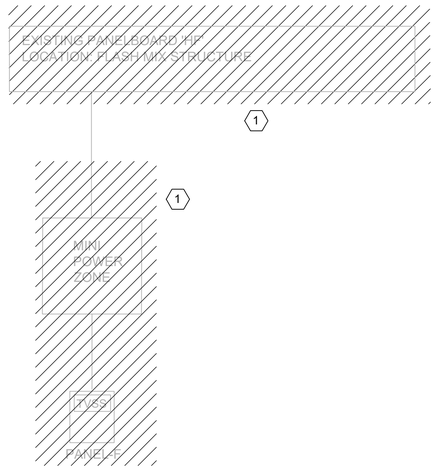
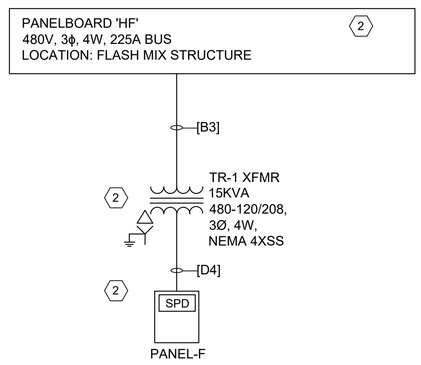
JOB NO. 202333
DRAWING NO. E-01
SHEET NO.
OF



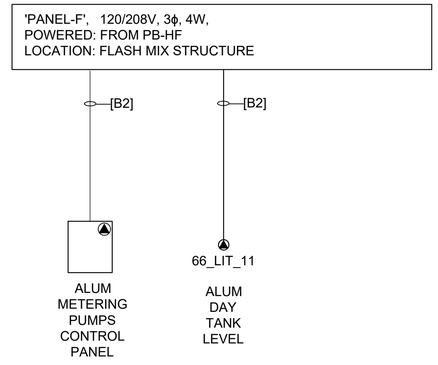
PB - HF DEMO

KEYED NOTES:

1. CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING PANELBOARDS. PRIOR DISCONNECTING THE EXISTING PANEL ALL WIRES SHALL BE RELABELED AND PRESERVED.
2. CONTRACTOR SHALL PROVIDE AND INSTALL NEW PANELBOARDS AND TRANSFORMERS IN PLACE OF EXISTING. CONTRACTOR SHALL RECONNECT ALL EXISTING WIRES PER PANEL SCHEDULE AND PROVIDE NEW WIRES AND CONDUITS FOR NEW EQUIPMENT PER RISER DIAGRAM.



PB - HF



PANEL F

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PANELBOARD HF AND PANEL F

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JOB NO. 202333
DRAWING NO. E-02
SHEET NO. OF

'PB-2', 120/208V, 3ϕ, 4W, 225A BUS, 150A MCB, 42 CIRCUITS
POWERED: 45KVA XFMR, 480-120/208V
LOCATION: FILTER BLDG CHEMIICAL ROOM

[B2]	[B2]	[B2]	[B2]	[B2]	[B2]	[B2]	[B2]	[B2]
YC05	YC06						YC16	YC17
ALUM BULK STORAGE FILL PANEL	LIQUID AMMONIA SULFATE BULK STORAGE FILL PANEL	67_LIT_11 LIQUID AMMONIA SULFATE DAY TANK LEVEL	LAS_LCP_RIO LIQUID AMMONIA SULFATE RIO	LIQUID AMMONIA SULFATE METERING PUMPS CONTROL PANEL NO.1	LIQUID AMMONIA SULFATE METERING PUMPS CONTROL PANEL NO.2	67_MPV_23 AMMONIA INJECTION 3WAY VALVE	66_FSL_01 ALUM XFER PUMPS LOW SUCTION FLOW	67_FSL_01 LAS XFER PUMPS LOW SUCTION FLOW

MINI POWER ZONE '4LA', 120/208V, 1ϕ, 3W, 60A MCB, 42 CIRCUITS
POWERED: FROM 4HA
LOCATION: PERMEATE CLEARWELL AND BLEEDING BASIN

[B2] YC13
1
EXISTING TURBIDITY ANALYZER PANEL / FIT-4520 PANEL
[B2] YC13

67_MPV_24
SODIUM HYPOCHLORITE INJECTION 3WAY VALVE

KEYED NOTES:

1. CONTRACTOR SHALL SELECT ONE OF THE TWO AVAILABLE OPTIONS:
   1. FIELD INVESTIGATE FOR THE AVAILABLE SPARE CONDUIT BETWEEN 4LA AND THE EXISTING TURBIDITY ANALYZER PANEL (LOCATED AT THE FIT-4520 VAULT) AND REUSE IF FEASIBLE. OTHERWISE PROVIDE NEW AS SHOWN. PROVIDE NEW YARD CONDUIT BETWEEN THE ANALYZER PANEL / FIT LOCATION AND THE NEW 2WAY VALVE 67-MPV-24. FURNISH AND INSTALL NEW 1-PHASE 20A BREAKER IN THE AVAILABLE SPACE IN 4LA PANEL.
   2. UTILIZE POWER FED TO THE EXISTING TURBIDITY ANALYZER PANEL. FIELD INVESTIGATE THE EXISTING POWER FEED CIRCUIT FOR THE TURBIDITY/FIT TRANSMITTER. FURNISH AND INSTALL ADDITIONAL BREAKER IN THE EXISTING ANALYZER PANEL TO PROVIDE POWER FEED FOR THE 3-WAY VALVE IF FEASIBLE. PROVIDE NEW YARD CONDUIT BETWEEN THE ANALYZER PANEL / FIT LOCATION AND THE NEW 2WAY VALVE 67-MPV-24.

EXISTING PANELBOARD PB-2

CHEMICAL PANELS

ALUM CONTROL PANEL

[B2]	[B2]
66_CMP_11 ALUM METERING PUMP NO.1	66_CMP_12 ALUM METERING PUMP NO.2

LIQUID AMMONIUM SULFATE CONTROL PANEL NO.1

[B2]	[B2]
67_CMP_11 LAS METERING PUMP NO.1	67_CMP_12 LAS METERING PUMP NO.2

LIQUID AMMONIUM SULFATE CONTROL PANEL NO.2

[B2]	[B2]
67_CMP_13 LAS METERING PUMP NO.3	67_CMP_14 LAS METERING PUMP NO.4

FILL PANELS

ALUM BULK STORAGE FILL PANEL

[B2]	[B2]
66_LIT_01 ALUM BULK STORAGE NO.1 LEVEL	66_LIT_02 ALUM BULK STORAGE NO.2 LEVEL

LAS BULK STORAGE FILL PANEL

[B2]	[B2]
67_LIT_01 LAS BULK STORAGE NO.1 LEVEL	67_LIT_02 LAS BULK STORAGE NO.2 LEVEL

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS
ELECTRICAL
PANELBOARD PB-2 AND FILL PANELS

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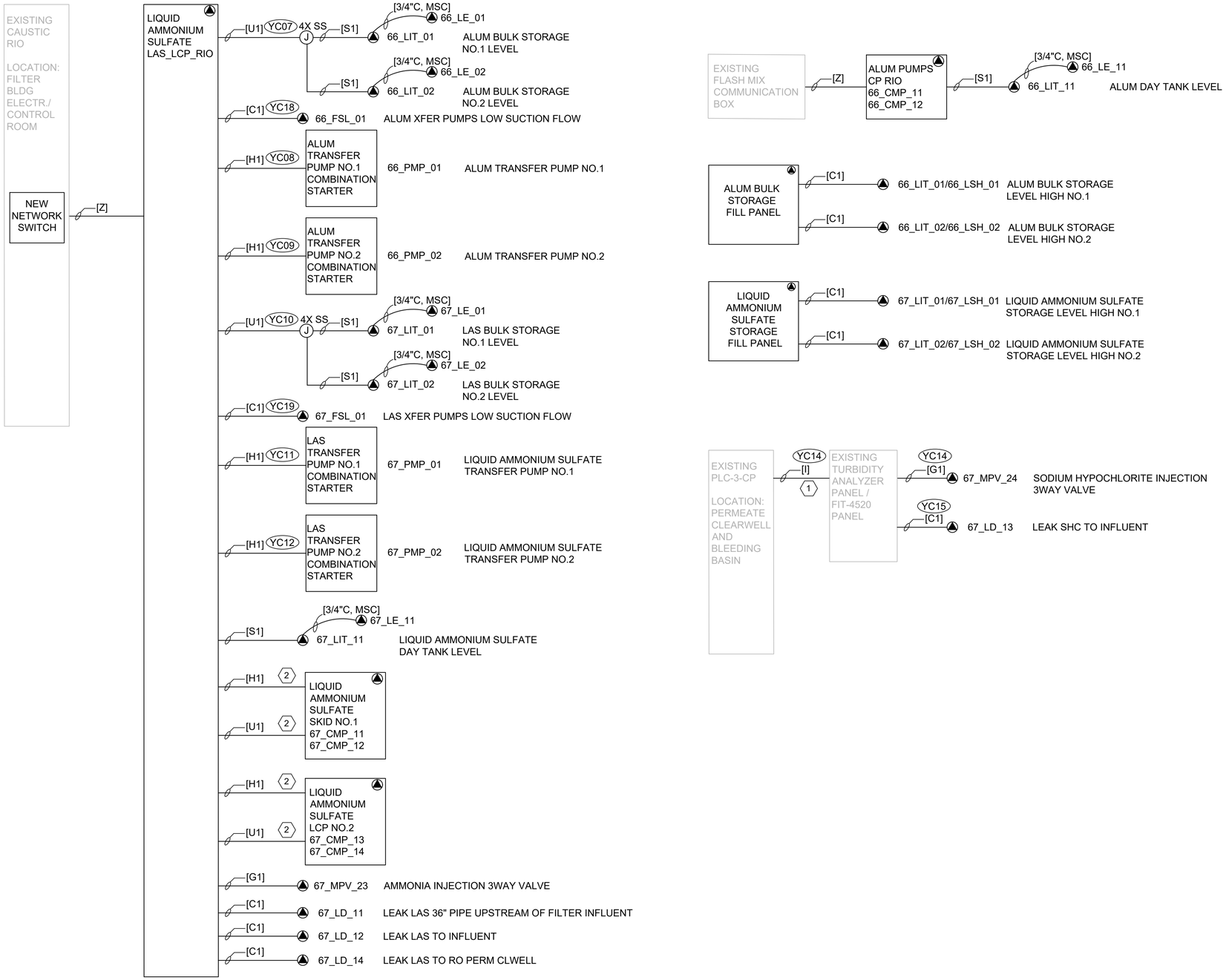
DRAWING NO. E-03
SHEET NO. OF



KEYED NOTES:

1. CONTRACTOR SHALL FIELD INVESTIGATE FOR THE AVAILABLE SPARE CONDUIT BETWEEN EXISTING PLC-3-CP AND THE EXISTING TURBIDITY ANALYZER PANEL (LOCATED AT THE FIT-4520 VAULT) AND UTILIZE IT IF FEASIBLE. OTHERWISE PROVIDE NEW AS SHOWN. PROVIDE NEW YARD CONDUIT BETWEEN THE ANALYZER PANEL / FIT LOCATION AND THE NEW 2WAY VALVE 67-MPV-24 AND LEAK DETECTION SENSOR 67-LD-13
2. COORDINATE WITH SUPPLIED EQUIPMENT SKID. IF NOT VENDOR PROVIDED CONTRACTOR IS RESPONSIBLE TO FURNISH AND INSTALL CONDUITS AND WIRES TO THE RIO PANEL.

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

ELECTRICAL

RISERS SHEET NO.1

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JOB NO. 202333
DRAWING NO. E-04
SHEET NO. OF

	CIRCUIT SCHEDULE 3PH, 3W OR 1PH, 3W
CKT I.D.	CONDUIT AND CONDUCTOR SIZE
[A3]	[3/4 ”C, 3#12, 1#12G]
[B3]	[3/4 ”C, 3#10, 1#10G]
[C3]	[1”C, 3#8, 1#10G]
[D3]	[1”C, 3#6, 1#10G]
[E3]	[1 1/4 ”C, 3#4, 1#10G]
[F3]	[1 1/4 ”C, 3#4, 1#8G]
[G3]	[1 1/4 ”C, 3#3, 1#8G]
[H3]	[1 1/2 ”C, 3#2, 1#8G]
[J3]	[1 1/2 ”C, 3#1, 1#8G]
[K3]	[2 ”C, 3#1/O, 1#6G]
[L3]	[2”C, 3#2/O, 1#6G]
[M3]	[2”C, 3#3/O, 1#6G]
[N3]	[2 1/2 ”C, 3#4/O, 1#4G]
[P3]	[2 1/2 ”C, 3-250KCMIL, 1#4G]
[Q3]	[3 1/2”C, 3-500KCMIL, 1#3G]
[R3]	2 EA.[2 ”C, 3-3/O, 1#3G]
[S3]	2 EA.[2 1/2 ”C, 3-250KCMIL, 1#2G]
[T3]	2 EA.[3”C, 3-350KCMIL, 1#1G]
[U3]	2 EA.[4”C, 3-500KCMIL, 1#1/OG]
[V3]	2 EA.[4”C, 3-600KCMIL, 1#1/OG]
[W3]	3 EA.[3 1/2”C, 3-500KCMIL, 1#2/OG]
[X3]	4 EA.[3”C, 3-350KCMIL, 1#3/OG]
[Y3]	5 EA.[4”C, 3-500KCMIL, 1#4/OG]
[Z3]	6 EA.[4”C,3-500KCMIL, 1 -250KCMIL G]
[ZA3]	6 EA.[4”C,3-600KCMIL,1 -250KCMIL G]
[ZB3]	8 EA.[4”C,3-600KCMIL, 1 -600KCMIL G]
[ZC3]	8 EA.[4”C,3-600KCMIL, 1 -600KCMIL G/N]
[ZD3]	10 EA.[4”C,3-600KCMIL, 1 -600KCMILG]

	CIRCUIT SCHEDULE - CONTROL, INSTRUMENTATION
CKT I.D.	CONDUIT AND CONDUCTOR SIZE
[A1]	[3/4 ”C, 2#14, 1#14G]
[B1]	[3/4 ”C, 3#14, 1#14G]
[C1]	[3/4 ”C, 4#14, 1#14G]
[D1]	[3/4 ”C, 5#14, 1#14G]
[E1]	[3/4 ”C, 6#14, 1#14G]
[F1]	[3/4 ”C, 7#14, 1#14G]
[G1]	[1 ”C, 9#14, 1#14G]
[H1]	[1”C, 11#14, 1#14G]
[J1]	[2”C, 30#14, 1#14G]
[K1]	[1 1/4”C, 7/C TYPE A]
[LI]	[1 1/4”C, 12/C TYPE A]
[M1]	[1 1/2 ”C, 19/C TYPE A]
[N1]	[2”C, 25/C TYPE A]
[P1]	[2”C, 37/C TYPE A]
[Q1]	[3/4 ”C, 1#16, TW PR]
[R1]	[3/4 ”C, 1-TYPE B, TW SHLD PR]
[S1]	[1 ”C, 2-TYPE B, TW SHLD PR]
[T1]	[1 1/4 ”C, 3-TYPE B, TW SHLD PR]
[U1]	[1 1/4 ”C, 4-TYPE B, TW SHLD PR]
[V1]	[2 ”C, 8-TYPE B, TW SHLD PR]
[W1]	[T'C. 1-BELDEN 3092A CONTROLNET]
[X1]	[3 ”C, 100#14, 1#12G]
[Y1]	[2"C, 22#14, 1#14G]
[Z1]	[2”C, 14-TYPE B, TW SHILD PR]

	CIRCUIT SCHEDULE 3PH, 4W
CKT I.D.	CONDUIT AND CONDUCTOR SIZE
[A4]	[3/4 ”C, 4#12, 1#12G]
[B4]	[3/4 ”C, 4#10, 1#10G]
[C4]	[1”C, 4#8, 1#10G]
[D4]	[1 1/4”C, 4#6, 1#10G]
[E4]	[1 1/4 ”C, 4#4, 1#10G]
[F4]	[1 1/4 ”C, 4#4, 1#8G]
[G4]	[1 1/2 ”C, 4#3, 1#8G]
[H4]	[1 1/2”C, 4#2, 1#8G]
[J4]	[2”C, 4#1, 1#8G]
[K4]	[2”C, 4#1/O, 1#6G]
[L4]	[2 1/2”C, 4#2/O, 1#6G]
[M4]	[2 1/2 ”C, 4#3/O, 1#6G]
[N4]	[3 ”C, 4#4/O, 1#4G]
[P4]	[3”C, 4-250KCMIL, 1#4G]
[Q4]	[3 1/2”C, 4-350KCMIL, 1#3G]
[R4]	2 EA.[2 1/2 ”C, 4#3/O, 1#3G]
[S4]	2 EA.[3”C, 4-250KCMIL, 1#2G]
[T4]	2 EA.[4”C, 4-350KCMIL, 1#1G]
[U4]	2 EA.[4”C, 4-500KCMIL, 1#1/O G]
[V4]	3 EA.[4”C, 4-350KCMIL, 1#1/O G]
[W4]	3 EA.[4”C, 4-500KCMIL, 1#2/O G]
[X4]	4 EA.[4”C, 4-350KCMIL, 1#3/O G]
[Y4]	5 EA.[4”C, 4-500KCMIL, 1#4/O G]
[Z4]	6 EA.[4”C, 4-500KCMIL, 1-250KCMIL G]

	CIRCUIT SCHEDULE 1PH, 2W
CKT I.D.	CONDUIT AND CONDUCTOR SIZE
[A2]	[3/4 ”C, 2#12, 1#12G]
[B2]	[3/4 ”C, 2#12, 1#12G]
[C2]	[3/4 ”C, 2#10, 1#10G]
[D2]	[3/4 ”C, 2#8, 1#10G]
[E2]	[1 ”C, 2#6, 1#10G]
[F2]	[1”C, 2#4, 1#10G]
[G2]	[1”C, 2#4, 1#8G]
[H2]	[1 1/4 ”C, 2#3, 1#8G]
[J2]	[1 1/4 ”C, 2#2, 1#8G]
[K2]	[1 1/4 ”C, 2#1, 1#8G]
[L2]	[1 1/2 ”C, 2#1/O, 1#6G]
[M2]	[1 1/2 ”C, 2#2/O, 1#6G]
[N2]	[2”C, 2#3/O, 1#6G]
[P2]	[2”C, 2#4/O, 1#4G]
[Q2]	[2 1/2 ”C, 2-250KCMIL, 1#4G]
[R2]	[2 1/2 ”C, 2-350KCMIL, 1#4G]
[S2]	
[T2]	
[U2]	
[V2]	
[W2]	
[X2]	
[Y2]	
[Z2]	

[A]	[3/4”C, EMPTY]
[B]	[2”C, EMPTY]
[C]	[2 1/2”C, EMPTY]
[D]	[1 1/4”C, 4#12, 1 #12G]
[E]	[1 1/4”C, 8#14, 2#12, 1#12G]
[F]	[1 1/4”C, 3#8, 1 #10G]
[G]	[1 1/4”C, 5-TYPE B, TW SHLD PR]
[H]	[2 1/2”C, 15-TYPE B, TW SHLD PR]
[I]	[1”C, 14#14, 1 #14G]
[J]	[2 1/2”C, 3-2/0, 3#6G VFD CABLE]
[K]	[1”C, EMPTY]
[L]	[4”C, WITH INNERDUCT FOR FO]
[M]	[1”C, 4-CAT 6e]
[N]	[2”C, FOR FIBER OPTIC CABLES]
[O]	[3”C, 3-350KCMIL, 1#3G]
[P]	[3"C, 4#300KCMIL, 1#3G]
[Q]	8EA.[4"C, 3-500KCM, 1-350KCMG]
[R]	[11/2"C, 40#14, 1#14G]
[S]	[11/4"C, 20#14, 2#12, 1#12G]
[T]	[4"C-3#600KCM, 1#2G]
[U]	[1"C, CAT 6]
[V]	[1"C, I&C SUPPLIED CABLE, 1#14G]
[W]	[2"C, 60#14, 1#14G]
[Y]	[3"C, 18-TYPE B, TW SHILD PR]
[Z]	[1"C, 1-CAT 6e]
[A6]	[1 1/4”C, 3#12, 3#16G ARMORED CABLE]
[B6]	[1 1/4”C, 3#10, 3#14G ARMORED CABLE]
[C6]	[1 1/4”C, 3#8, 3#14G ARMORED CABLE]
[D6]	[2”C, 3#6, 3#12G VFD CABLE]
[E6]	[2”C, 3#4, 3#12G VFD CABLE]
[G6]	[2”C, 3#3, 3#10G VFD CABLE]
[H6]	[2 1/2"C, 3#2, 3#10G VFD CABLE]
[J6]	[2 1/2"C, 3#1, 3#10G VFD CABLE]
[K6]	[2 1/2"C, 3#1/O, 3#10G VFD CABLE]
[L6]	[3"C, 3#2/O, 3#8G VFD CABLE]
[M6]	[3 1/2"C, 3#3/O, 1#4G VFD CABLE]
[N6]	[3 1/2"C, 3#4/O, 3#4G VFD CABLE]
[R6]	2 EA.[3”C, 3#3/O, 3#4G]
[S6]	2 EA.[3”C, 3-250KCMIL, 3#4G]
[Q6]	[4"C, 3#500KCM, 3#1G VFD CABLE]

ADS Engineering
4701 N FEDERAL HWY, SUITE 390
POMPANO BEACH, FL 33064

REV	DATE	BY	DESCRIPTION
			BID SET

DESIGNED MDG
DRAWN SIDZ
CHECKED ADS
DATE APRIL 2024

ALEKSANDAR D. STOJANOVIC LICENSE No 60269 STATE OF FLORIDA PROFESSIONAL ENGINEER

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CA 00008571

CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

ELECTRICAL

SCHEDULES SHEET NO.1

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. E-05
SHEET NO. OF

PANELBOARD HF SCHEDULE

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A	BUS B	BUS C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
			NORTH SCU	3	25	1	A		2	30	3	SLUDGE PIT		
			‖	‖	‖	3		B	4	‖	‖	‖		
			‖	‖	‖	5			C 6	‖	‖	‖		
			SOUTH SCU	3	50	7	A		8	40	3	POLY #2		
			‖	‖	‖	9		B	10	‖	‖	‖		
			‖	‖	‖	11			C 12	‖	‖	‖		
			COMPRESSOR	3	30	13	A		14	30	3	PANEL F		
			‖	‖	‖	15		B	16	‖	‖	‖		
			‖	‖	‖	17			C 18	‖	‖	‖		
			POLY #1	3	40	19	A		20	20	1	EXISTING LOAD (N.SLU.LIGHT)		
			‖	‖	‖	21		B	22	20	1	SPARE		
			‖	‖	‖	23			C 24	20	1	EXISTING LOAD (NSIDE.LIGHT)		
			SPARE	3	30	25	A		26	20	1	SPARE		
			‖	‖	‖	27		B	28	20	1	EXISTING LOAD (LIGHT)		
			‖	‖	‖	29			C 30	20	1	EXISTING LOAD (LIGHT)		

TOTAL AMPS: | BUS A: | BUS B: | BUS C: | CONNECTED KVA: | RUNNING KVA:

RATED VOLTAGE: ☐ 120/208 ■ 480 3 PHASE, 4 WIRE | BRANCH POLES ☐ 12 ☐ 24 ■ 30 ☐ 42 54 ☐ 66 ☐ 72
RATED AMPS:☐ 100■ 225 ☐ 400 ☐ _____ | CABINET: ■ SURFACE ☐ FLUSH
NEUTRAL BUS ☐ 100% ■ 150%☐ 200% | ■ GROUND BUS | ☐ HINGED DOOR | ■ KEYED DOOR LATCH | LOCATION: ELECTRICAL ROOM
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES | ■ SPD | ENCLOSURE TYPE: NEMA 1 ☐ NEMA 3R ■ NEMA 4X ☐ _____
☐ MAIN LUGS ONLY | MAIN 150 AMPS ■ BREAKER | ☐ _____ TO BE GFI BREAKERS
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 42,000 AMPS SYMMETRICAL.
APPROVED MF'RS. SEE SPECIFICATION. | COPPER BUSSES | MAIN LUGS _____ SETS SIZE: _____

PANELBOARD HF SCHEDULE
NOT TO SCALE

PANELBOARD PB-2 SCHEDULE

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A	BUS B	BUS C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
			TANK HEATER	1	20	1	A		2	20	1	LIT 6431		
			HEAT TRACE	1	20	3		B	4	20	1	UPS RECEPT/RO/BLENDED PNLS		
			HEAT TRACE	1	20	5			C 6	20	1	SPARE		
			HEAT TRACE	1	20	7	A		8	20	1	SPARE		
			ALUM BULK STORAGE FILL PANEL	1	20	9		B	10	20	1	LAS BULK STORAGE FILL PNL		
			67_LIT_11 LAS DAY TANK LEVEL	1	20	11			C 12	20	1	LAS METERING PUMPS CONTROL PANEL NO.2		
			LAS METERING PUMPS CONTROL PANEL NO.1	1	20	13	A		14	20	1	67_MPV_23 AMMONIA INJECTION 3-WAY VALVE		
			66_FSL_01 ALUM XFER PUMPS FSL	1	20	15		B	16	20	1	LAS_LCP_RIO		
			67_FSL_01 LAS XFER PUMPS FSL	1	20	17			C 18			SPACE		
			SPACE			19	A		20			SPACE		
			SPACE			21		B	22			SPACE		
			SPACE			23			C 24			SPACE		
			SPACE			25	A		26			SPACE		
			SPACE			27		B	28			SPACE		
			SPACE			29			C 30			SPACE		
			SPACE			31	A		32			SPACE		
			SPACE			33		B	34			SPACE		
			SPACE			35			C 36			SPACE		
			SPACE			37	A		38			SPACE		
			SPACE			39		B	40			SPACE		
			SPACE			41			C 42			SPACE		

TOTAL AMPS: | BUS A: | BUS B: | BUS C: | CONNECTED KVA: | RUNNING KVA:

RATED VOLTAGE: ■ 120/208 ☐ 480 3 PHASE, 4 WIRE | BRANCH POLES ☐ 12 ☐ 24 ☐ 30 ■ 42 ☐ 54 ☐ 60 ☐ 72
RATED AMPS:☐ 100■ 225 ☐ 400 ☐ _____ | CABINET: ■ SURFACE ☐ FLUSH
NEUTRAL BUS ☐ 100% ■ 150% ☐ 200% | ■ GROUND BUS | ☐ HINGED DOOR | ■ KEYED DOOR LATCH | LOCATION: ELECTRICAL ROOM
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES | ■ TVSS | ENCLOSURE TYPE: ■ NEMA 1 ☐ NEMA 3R ☐ NEMA 4X ☐ _____
☐ MAIN LUGS ONLY | MAIN 150 AMPS ■ BREAKER | ☐ _____ TO BE GFI BREAKERS
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF _____ AMPS SYMMETRICAL.
APPROVED MF'RS. SEE SPECIFICATION. | COPPER BUSSES | MAIN LUGS _____ SETS SIZE: _____

PANELBOARD PB-2 SCHEDULE
NOT TO SCALE

PANELBOARD 4LA SCHEDULE

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A	BUS B	BUS C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
			63-PMP-61	2	20	1	A		2	20	2	63-PMP-62		
			II	II	II	3		B	4	II	II	II		
			63-PMP-63	2	20	5	A		6	20	1	SAMPLE PUMP 45-PMP-30		
			II	II	II	7		B	8	20	1	SAMPLE PUMP 45-PMP-20		
			RECEPTACLES	1	20	9	A		10	20	1	SAMPLE PUMP 45-PMP-3-		
			HEAT TRACE	1	20	11		B	12	20	1	VAULT RECEPT		
			HEAT TRACE	1	20	13	A		14	15	1	VAULT RECEPT		
			67-MPV-24 - HYPO INJECTION 3-WAY VALVE	1	20	15		B	16			SPACE		
			SPACE			17	A		18			SPACE		
			SPACE			19		B	20			SPACE		
			SPACE			21	A		22			SPACE		
			SPACE			23		B	24			SPACE		

TOTAL AMPS: | BUS A: | BUS B: | BUS C: | CONNECTED KVA: | RUNNING KVA:

RATED VOLTAGE: ■ 120/208 ☐ 480 1 PHASE, 3 WIRE | BRANCH POLES ☐ 12 ■ 24 ☐ 30 ☐ 42 ☐ 54 ☐ 60 ☐ 72
RATED AMPS:☐ 100■ 225 ☐ 400 ☐ _____ | CABINET: ■ SURFACE ☐ FLUSH
NEUTRAL BUS ☐ 100% ■ 150% ☐ 200% | ■ GROUND BUS | ☐ HINGED DOOR | ■ KEYED DOOR LATCH | LOCATION: ELECTRICAL ROOM
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES | ■ SPD | ENCLOSURE TYPE: ☐ NEMA 1 ☐ NEMA 3R ■ NEMA 4X ☐ _____
☐ MAIN LUGS ONLY | MAIN 60 AMPS ■ BREAKER | ☐ _____ TO BE GFI BREAKERS
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF _____ AMPS SYMMETRICAL.
APPROVED MF'RS. SEE SPECIFICATION. | COPPER BUSSES | MAIN LUGS _____ SETS SIZE: _____

PANELBOARD 3LA SCHEDULE
NOT TO SCALE

PANELBOARD F SCHEDULE

BUS AMPS A	BUS AMPS B	BUS AMPS C	LOAD	POLES	AMPS	BUS A	BUS B	BUS C	AMPS	POLES	LOAD	BUS AMPS A	BUS AMPS B	BUS AMPS C
			RECEPTICLES IN POLES ON SCU	1	20	1	A		2	20	1	POLY MIXERS		
			RECEPTICLES N.WALL OF AERATOR	1	20	3		B	4	20	1	POLY MIXERS		
			RECEPTICLES S.WALL OF AERATOR	1	20	5			C 6	20	1	POLY MIXERS		
			RECEPTICLES ON WALL OF SCU FOR PH	1	20	7	A		8	20	1	AIR DRYER		
			EXISTING LOAD (N L SLO REC)	1	20	9		B	12	20	1	AIR COMPRESSOR CONTROL		
			SPARE	1	30	11			C 12	20	1	ACID INJECT.		
			ALUM METERING PUMPS CONTROL PANEL	1	20	13	A		14	20	1	66_LIT_11 ALUM DAY TANK LEVEL		
			SPARE	1	20	15		B	16	20	1	SPARE		
			SPARE	1	20	17			C 18	20	1	SPARE		
			SPARE	1	20	19	A		20	20	1	SPARE		
			SPARE	1	20	21		B	22	20	1	SPARE		
			SPARE	1	20	23			C 24	20	1	SPARE		

TOTAL AMPS: | BUS A: | BUS B: | BUS C: | CONNECTED KVA: | RUNNING KVA:

RATED VOLTAGE: ■ 120/208 ☐ 480 3 PHASE, 4 WIRE | BRANCH POLES ☐ 12 ■ 24 ☐ 30 ☐ 42 ☐ 54 ☐ 60 ☐ 72
RATED AMPS:☐ 100■ 225 ☐ 400 ☐ _____ | CABINET: ■ SURFACE ☐ FLUSH
NEUTRAL BUS ☐ 100% ■ 150% ☐ 200% | ■ GROUND BUS | ☐ HINGED DOOR | ■ KEYED DOOR LATCH | LOCATION: ELECTRICAL ROOM
■ CIRCUIT BREAKER (BOLT-IN) BRANCH DEVICES | ■ SPD | ENCLOSURE TYPE: ■ NEMA 1 ☐ NEMA 3R ☐ NEMA 4X ☐ _____
☐ MAIN LUGS ONLY | MAIN 50 AMPS ■ BREAKER | ☐ _____ TO BE GFI BREAKERS
PANELBOARD MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL.
APPROVED MF'RS. SEE SPECIFICATION. | COPPER BUSSES | MAIN LUGS _____ SETS SIZE: _____

PANELBOARD F SCHEDULE
NOT TO SCALE

ADS Engineering
4701 N FEDERAL HWY, SUITE 390
POMPANO BEACH, FL 33064

REV	DATE	BY	DESCRIPTION
			BID SET

DESIGNED MDG
DRAWN SIDZ
CHECKED ADS
DATE APRIL 2024

ALEKSANDAR D. STOJANOVIC LICENSE No 60269 STATE OF FLORIDA PROFESSIONAL ENGINEER

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CA 00008571

CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

ELECTRICAL

SCHEDULES SHEET NO.2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. E-06
SHEET NO. OF

YARD CONDUIT SCHEDULE				
YC #	CONDUIT AND WIRES	FROM	TO	REMARKS
YC01	E-01	MCC-B@ELECTRICAL/CONTROL ROOM	ALUM TRANSFER PUMP NO.1 66-PMP-01	E-00
YC02	E-01	MCC-B@ELECTRICAL/CONTROL ROOM	ALUM TRANSFER PUMP NO.2 66-PMP-02	E-00
YC03	E-01	MCC-B@ELECTRICAL/CONTROL ROOM	LAS TRANSFER PUMP NO.1 67-PMP-01	E-00
YC04	E-01	MCC-B@ELECTRICAL/CONTROL ROOM	LAS TRANSFER PUMP NO.2 67-PMP-02	E-00
YC05	E-03	PB-2 @ FILTER BLDG CHEMICAL ROOM	ALUM BULK STORAGE FILL PANEL	E-00
YC06	E-03	PB-2 @ FILTER BLDG CHEMICAL ROOM	LAS BULK STORAGE FILL PANEL	E-00
YC07	E-04	LAS LCP RIO @ FILTER BLDG CHEMICAL ROOM	JUNCTION BOX ALUM BULK STORAGE LEVEL	E-00
YC08	E-04	LAS LCP RIO @ FILTER BLDG CHEMICAL ROOM	66_PMP_01 ALUM XFER PMP NO.1 COMB. START.	E-00
YC09	E-04	LAS LCP RIO @ FILTER BLDG CHEMICAL ROOM	66_PMP_02 ALUM XFER PMP NO.2 COMB. START.	E-00
YC10	E-04	LAS LCP RIO @ FILTER BLDG CHEMICAL ROOM	JUNCTION BOX LAS BULK STORAGE LEVEL	E-00
YC11	E-04	LAS LCP RIO @ FILTER BLDG CHEMICAL ROOM	67_PMP_01 LAS XFER PMP NO.1 COMB. START.	E-00
YC12	E-04	LAS LCP RIO @ FILTER BLDG CHEMICAL ROOM	67_PMP_02 LAS XFER PMP NO.2 COMB. START.	E-00
YC13	E-03	4LA @ PERM. CLEARWELL AND BLEEDING BASIN	67_MPV_24 HYPO INJECTION 3WAY VALVE	E-00
YC14	E-04	PLC-3 CP @ PERM. CLWLL AND BLEEDING BASIN	67_MPV_24 HYPO INJECTION 3WAY VALVE	E-00
YC15	E-04	PLC-3 CP @ PERM. CLWLL AND BLEEDING BASIN	67_LD_13 LEAK SHC TO INFLUENT	E-00
YC16	E-03	PB-2 @ FILTER BLDG CHEMICAL ROOM	66_FSL_01 ALUM XFER PUMPS FSL	E-00
YC17	E-03	PB-2 @ FILTER BLDG CHEMICAL ROOM	67_FSL_01 LAS XFER PUMPS FSL	E-00
YC18	E-04	LAS LCP RIO @ FILTER BLDG CHEMICAL ROOM	66_FSL_01 ALUM XFER PUMPS FSL	E-00
YC19	E-04	LAS LCP RIO @ FILTER BLDG CHEMICAL ROOM	67_FSL_01 LAS XFER PUMPS FSL	E-00

YARD CONDUIT SCHEDULE

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			BID SET

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DRAWN SIDZ
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DATE APRIL 2024

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CA 00008571

CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

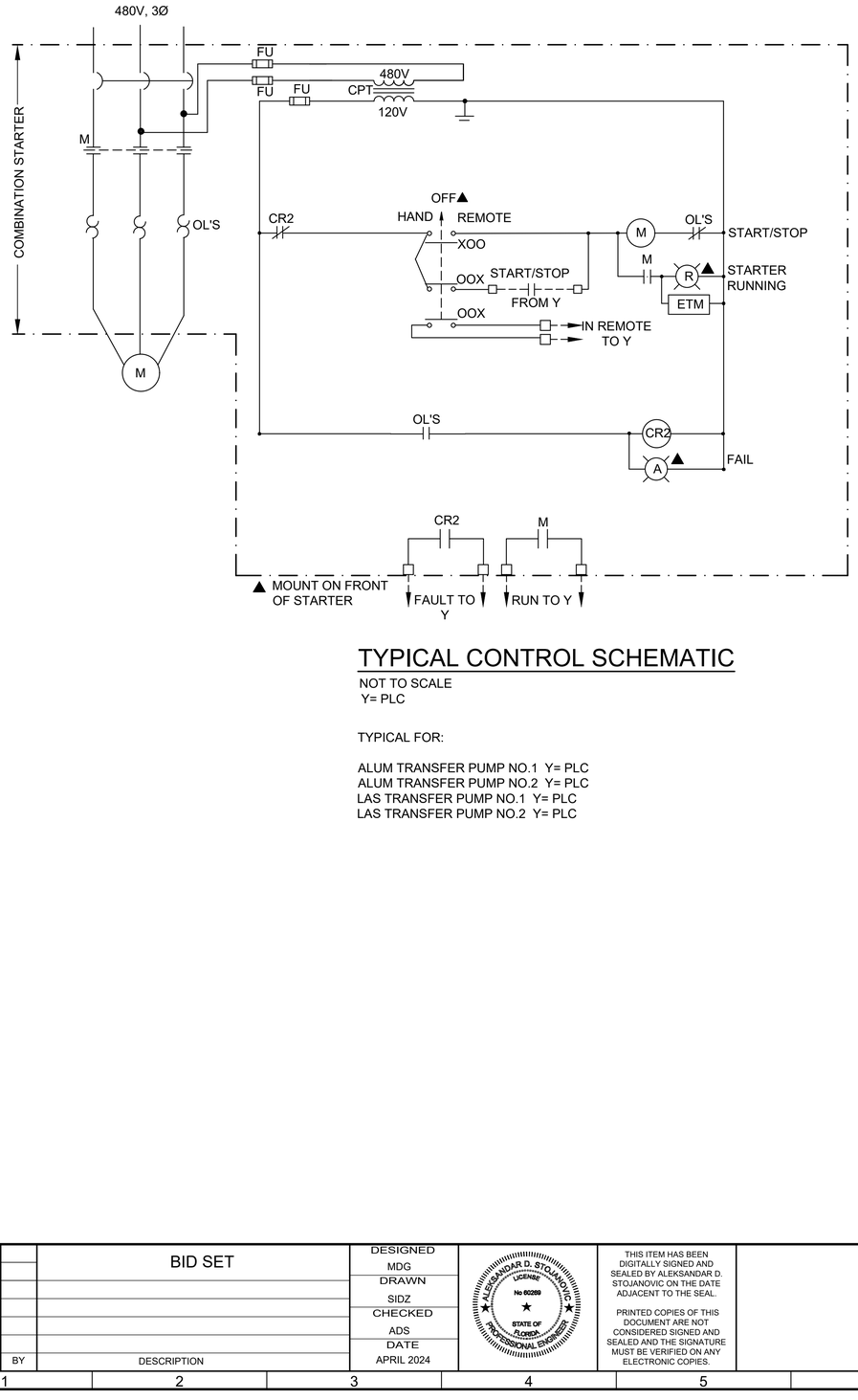
ELECTRICAL

SCHEDULES SHEET NO.3

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. E-07
SHEET NO. OF

ADS Engineering
4701 N FEDERAL HWY, SUITE 390
POMPANO BEACH, FL 33064



TYPICAL CONTROL SCHEMATIC

NOT TO SCALE
Y= PLC

TYPICAL FOR:

ALUM TRANSFER PUMP NO.1 Y= PLC
ALUM TRANSFER PUMP NO.2 Y= PLC
LAS TRANSFER PUMP NO.1 Y= PLC
LAS TRANSFER PUMP NO.2 Y= PLC

ADS Engineering
4701 N FEDERAL HWY, SUITE 390
POMPANO BEACH, FL 33064

REV	DATE	BY	DESCRIPTION
			BID SET

DESIGNED MDG
DRAWN SIDZ
CHECKED ADS
DATE APRIL 2024

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CITY OF PUNTA GORDA, FLORIDA

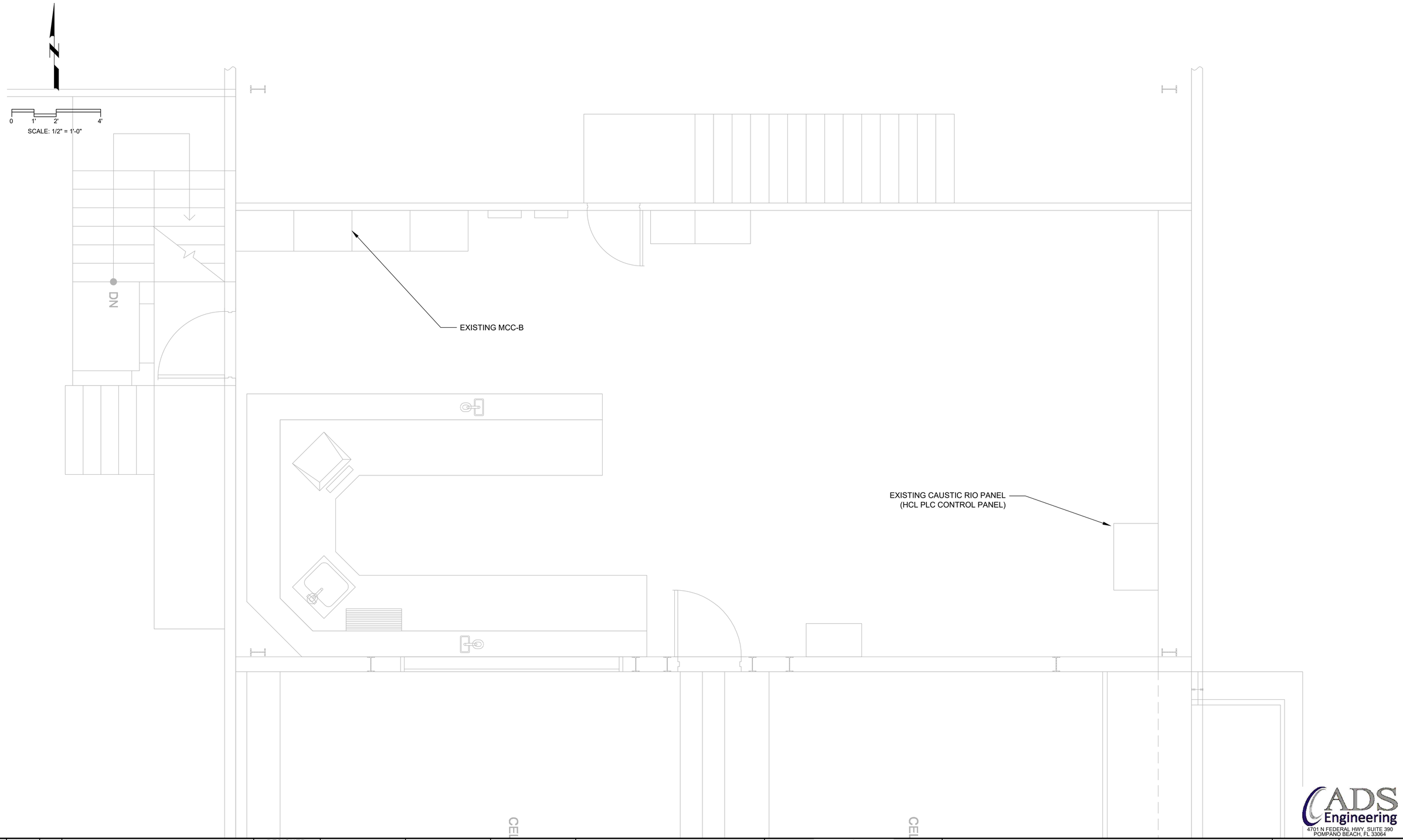
SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

ELECTRICAL

SCHEMATICS 01

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. E-08
SHEET NO. OF



REV	DATE	BY	DESCRIPTION
			BID SET

DESIGNED MDG
DRAWN SIDZ
CHECKED ADS
DATE APRIL 2024

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CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

ELECTRICAL

ELECTRICAL ROOM PLAN

ADS Engineering
4701 N FEDERAL HWY, SUITE 390
POMPANO BEACH, FL 33064

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0 1"
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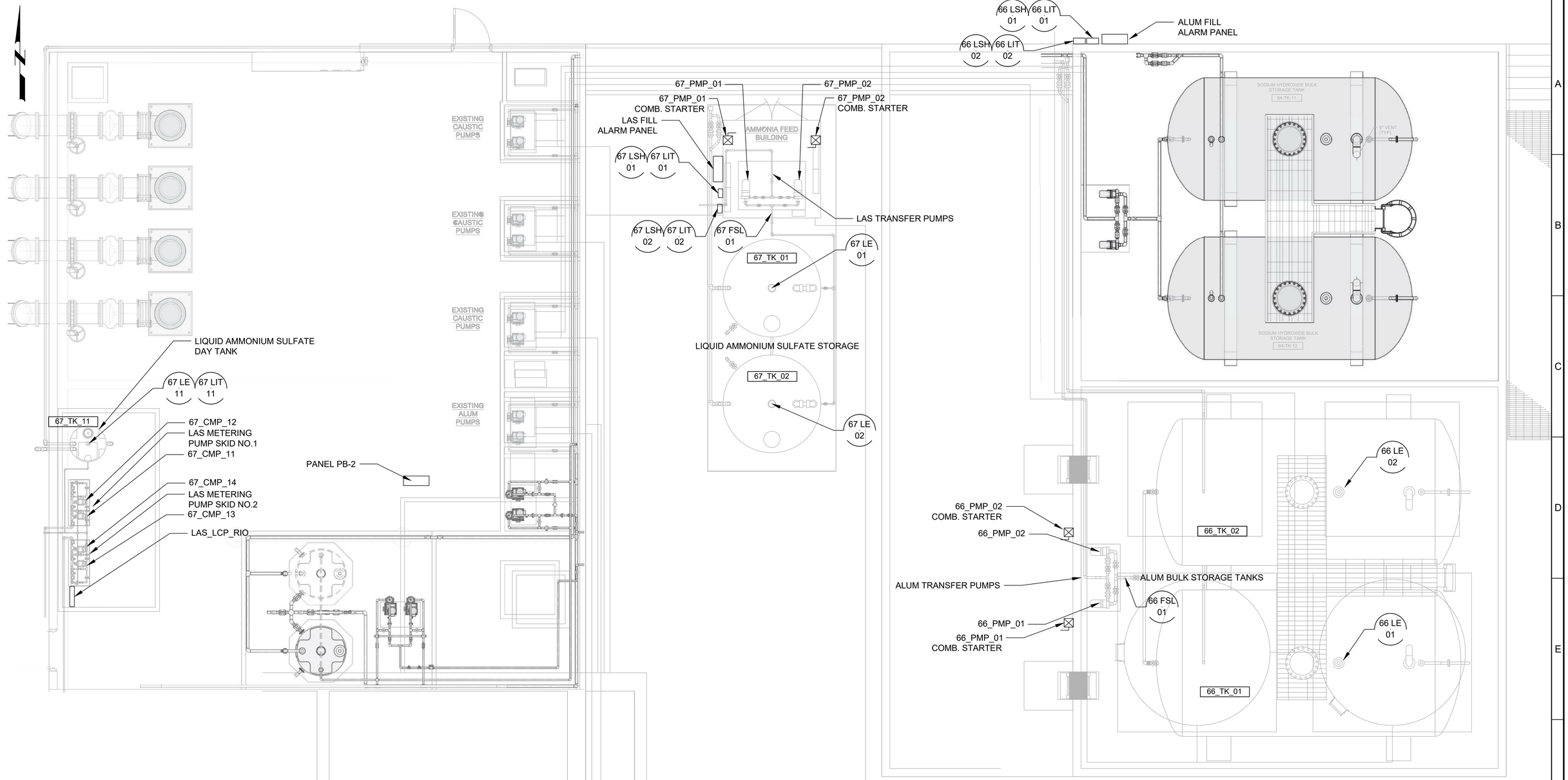
JOB NO. 202333
DRAWING NO. E-09
SHEET NO. OF



NOTES:

1. CONTRACTOR SHALL INSTALL GROUNDING CONDUCTOR FROM THE GROUNDING GRID TO ALL NEW EQUIPMENT AND STRUCTURES. BOND TO THE EXISTING GROUNDING GRID IF FEASIBLE. OTHERWISE PROVIDE GROUNDING AS SPECIFIED IN 16450.

0 2' 4' 8'

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

ADS Engineering
4701 N FEDERAL HWY, SUITE 390
POMPANO BEACH, FL 33064

REV	DATE	BY	DESCRIPTION
			BID SET

DESIGNED MDG
DRAWN SIDZ
CHECKED ADS
DATE APRIL 2024

ALEKSANDAR D. STOJANOVIC LICENSE No 60269 STATE OF FLORIDA PROFESSIONAL ENGINEER

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301 NORTH CATTLEMEN ROAD, SUITE 302
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CITY OF PUNTA GORDA, FLORIDA

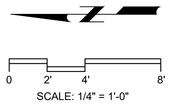
SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

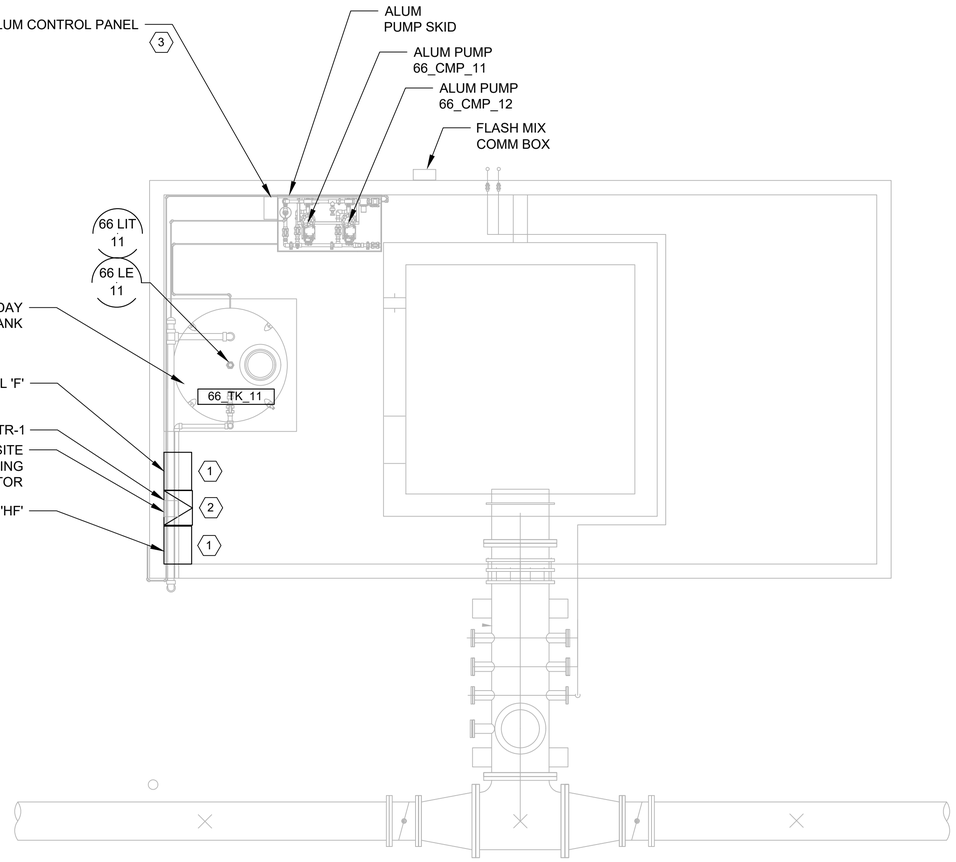
ELECTRICAL

CHEM STORAGE PLAN

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. E-10
SHEET NO. OF





KEYED NOTES:

1. LOCATION OF THE EXISTING PANEL. CONTRACTOR SHALL INSTALL NEW PANEL IN PLACE OF THE EXISTING AND RECONNECT ALL EXISTING AND CONNECT NEW EQUIPMENT AS SHOWN ON THE PANEL SCHEDULE ON E-06.
2. COORDINATE THE EXACT MOUNTING LOCATION ON THE FIELD. IF THE TRANSFORMER CAN NOT FIT INTO THE SPACE BETWEEN THE PANELS, THEN WALL MOUNT THE TRANSFORMER ABOVE THE PANEL 'F'.
3. COORDINATE THE EXACT SKID CONTROL PANEL LOCATION ON THE FIELD.

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

ELECTRICAL

ALUM FEED SYSTEM PLAN

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DRAWING NO. E-11
SHEET NO. OF

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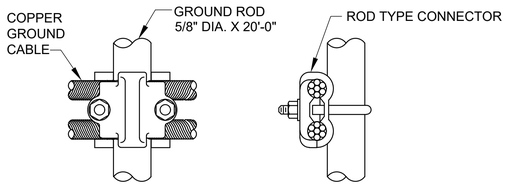
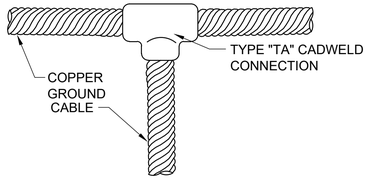


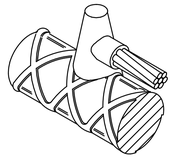
CABLE TO ROD CONNECTION

SCALE: NTS



GROUND CABLE CONNECTION

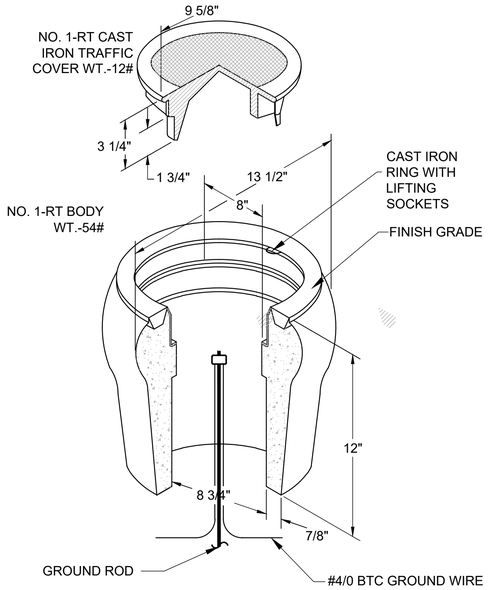
SCALE: NTS



COPPER CONDUCTOR TAP TO HORIZONTAL REINFORCING BAR (REBAR) LOCATED NEAR THE BOTTOM OR VERTICALLY, WITHIN THAT PORTION OF CONCRETE FOUNDATION OR FOOTING. MAXIMUM CONDUCTOR SIZE IS 4/0 AWG. MINIMUM DIAMETER OF REBAR IS 1/2". MINIMUM LENGTH OF REBAR IS 20'.

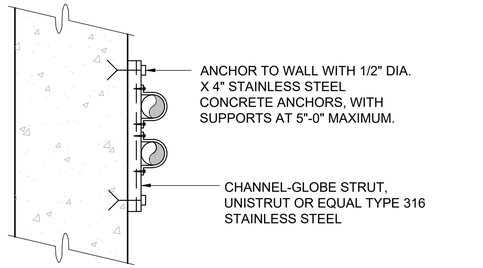
GROUND CABLE CADWELDED TO REBAR

SCALE: NTS



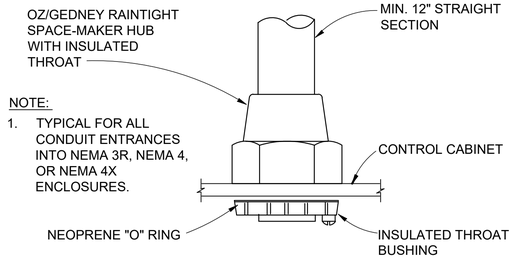
GROUND TEST WELL

SCALE: NTS



CONDUIT SUPPORT

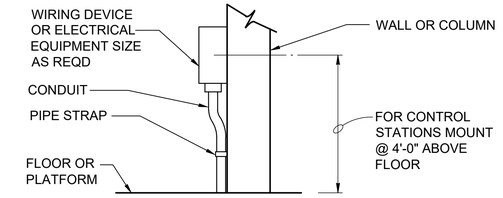
SCALE: NTS



NOTE:
1. TYPICAL FOR ALL CONDUIT ENTRANCES INTO NEMA 3R, NEMA 4, OR NEMA 4X ENCLOSURES.

CONDUIT HUB

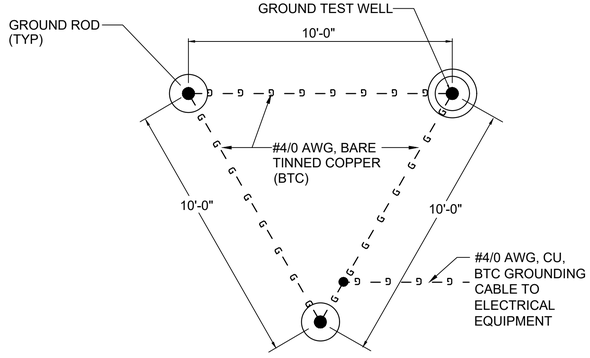
SCALE: NTS



NOTE:
1. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL 316. ON CONCRETE WALLS, USE MALLEABLE IRON INSERTS, MOUNT ENCLOSURE ON 1/4" SPACERS OF 1/2" RIGID CONDUIT.

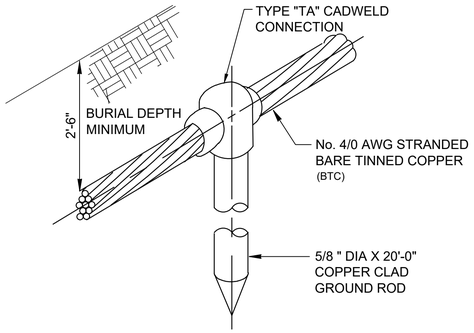
WALL OR COLUMN MOUNTED DEVICE

SCALE: NTS



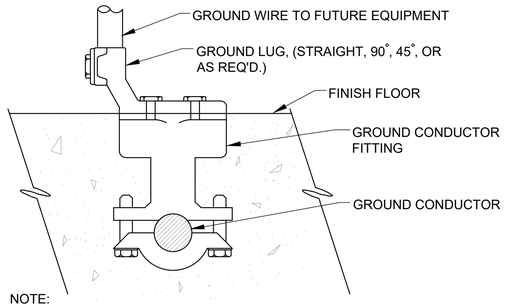
GROUND TRIANGLE

SCALE: NTS



GROUND ROD

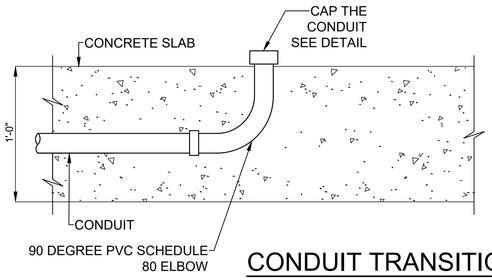
SCALE: NTS



NOTE:
1. BOLTS SHALL BE INSERTED IN BOLT HOLES BEFORE CONNECTOR IS EMBEDDED.

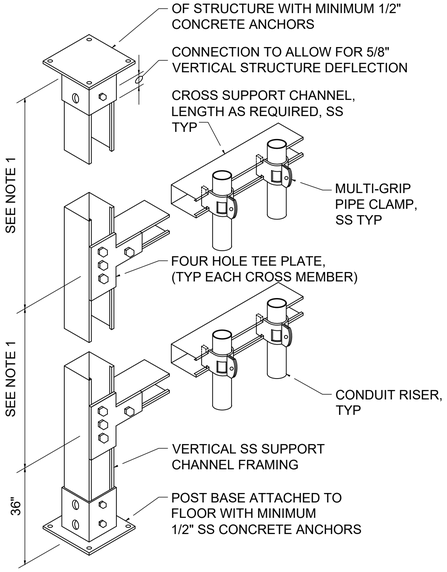
GROUNDING INSERT

SCALE: NTS



CONDUIT TRANSITION UP DETAIL

SCALE: NTS



NOTES:
1. LENGTH AS REQUIRED TO LIMIT UNSUPPORTED CONDUIT LENGTH TO MAXIMUM VALUES ALLOWED BY NEC.
2. ALL MATERIALS AND FASTENING HARDWARE SHALL BE TYPE 316 STAINLESS STEEL (SS).

VERTICAL CONDUIT SUPPORT

SCALE: NTS

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CITY OF PUNTA GORDA, FLORIDA

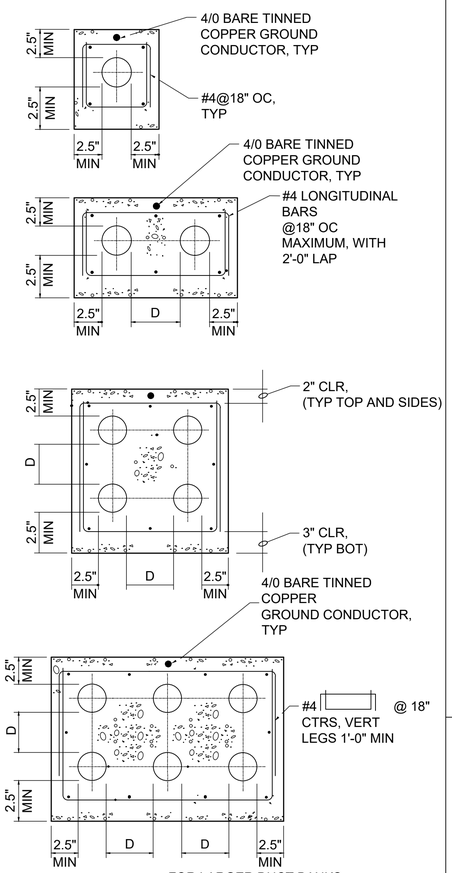
SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

ELECTRICAL

DETAILS SHEET NO.1

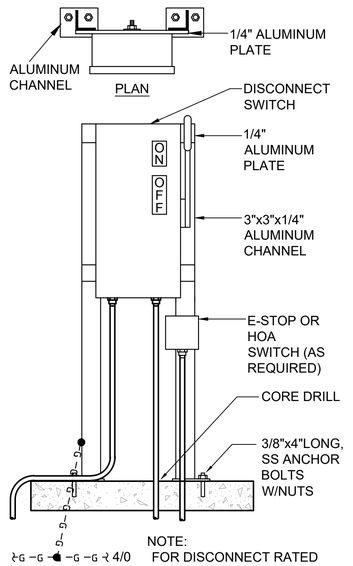
VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. TE-01
SHEET NO. OF



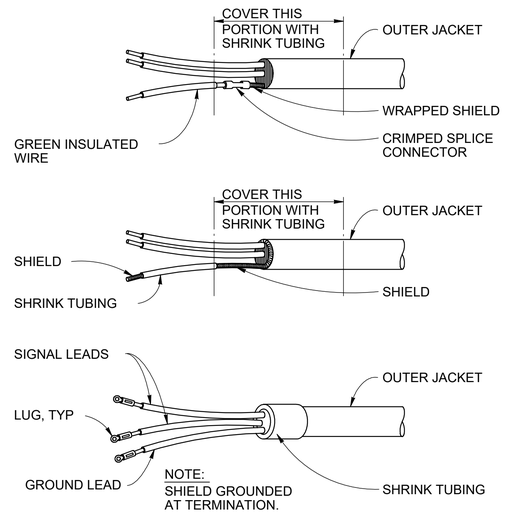
NOTE:
1. PROVIDE 6" MINIMUM COMPACTED GRAVEL, 3/4" MINUS,
2. UNDER ALL CONCRETE ENCASED DUCT RUNS. PROVIDE CLASS CE CONCRETE PER SPECIFICATION SECTION 03300.

CONCRETE ENCASED DUCTBANK DETAIL SCALE: NTS



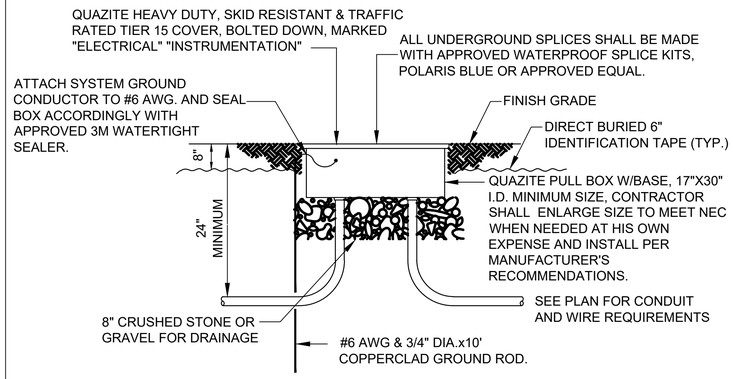
NOTE:
FOR DISCONNECT RATED 200A AND ABOVE, PROVIDE 5"x5"x1/2" ALUMINUM CHANNEL.

DISCONNECT MOUNTING SCALE: NTS

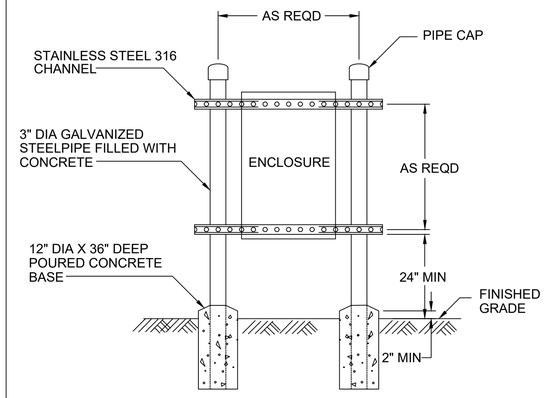


NOTE:
SHIELD GROUNDED AT TERMINATION.

TERMINATION OF SHIELDED CONTROL CABLE SCALE: NTS

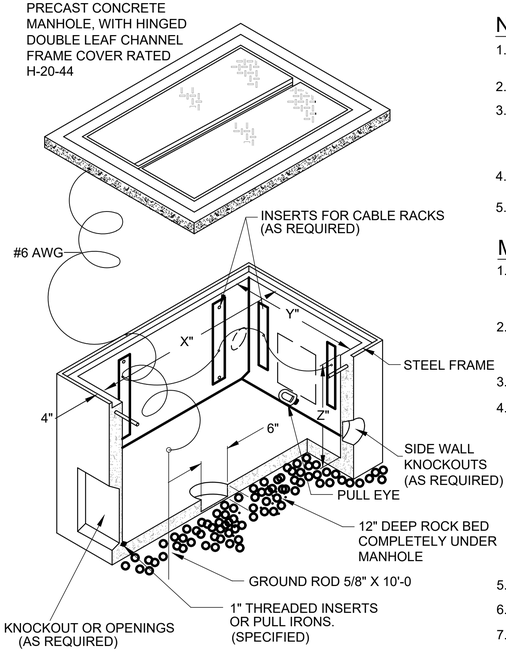


QUAZITE PULL BOX DETAIL SCALE: NTS



NOTE:
1. PROVIDE CLASS A CONCRETE PER SPECIFICATION SECTION 03300.

ENCLOSURE MOUNTING STAND SCALE: NTS



NOTE : COVER AND STEEL FRAME SHALL BE GROUNDED. REFER TO HANDHOLE SCHEDULE FOR ACTUAL DIMENSIONS.

MANHOLE DETAIL SCALE: NTS

NOTES FOR ALL MANHOLES:

1. CONTRACTOR SHALL PROVIDE REQUIRED END BELL LOCATIONS TO MANHOLE MANUFACTURER BEFORE MANUFACTURING.
2. ALL MANHOLES SHALL BE H-20-44 TRAFFIC RATED.
3. THE HEIGHT OF CONDUIT ENTRANCES SHALL BE COORDINATED BY THE CONTRACTOR TO ACCOMMODATE OTHER UTILITIES IN THE AREA. SEE CIVIL AND ELECTRICAL SITE PLANS FOR ELEVATIONS REQUIREMENTS.
4. CONTRACTOR SHALL COORDINATE CONDUIT ENTRY REQUIREMENTS WITH SITE PLAN, PRIOR TO ORDERING MANHOLES.
5. FOR MANHOLE DIMENSIONS REFER TO MANHOLE SCHEDULE ON DRAWING 70Exx.

MANHOLE NOTES:

1. CABLE RACK, JOSLYN J-5126 OR EQUAL
   CABLE HOOKS, JOSLYN J-5131A OR EQUAL
   CABLE RACK INSULATORS, JOSLYN J-5120
2. PULLING-IN-IRONS INSTALL OPPOSITE CONDUIT ENTRANCE. POSITION BELOW LEVEL OF CONDUIT ENTRANCE. HUBBART & CO. CATALOG 9119 OR EQUAL.
3. TERMINATE ALL DUCTS IN MANHOLE WITH END BELLS.
4. MANHOLE COVERS SHALL BE MARKED "ELECTRICAL" OR "INSTRUMENTATION" BY THE MANUFACTURER, WITH RAISED LETTERS. THE CONTRACTOR SHALL STAMP IN THE MANHOLE COVERS THE IDENTIFICATION NUMBER OF THE MANHOLE, LETTERS AND NUMBERS SHALL BE 2" HIGH.
   AS AN ALTERNATE THE CONTRACTOR MAY INSTALL SST NAMEPLATES ATTACHED WITH FOUR SST BOLTS TO THE MANHOLE. COVERS INDICATING THE MANHOLE NUMBER. LETTERS AND NUMBERS TO BE RAISED AND 2" HIGH. SUBMIT ONE SAMPLE NAMEPLATE FOR ENGINEER'S APPROVAL PRIOR TO INSTALLATION.
5. GROUND ROD, 5/8"X20'-0, COPPER CLAD.
6. BOND ALL METALLIC PARTS TO GROUNDING SYSTEM.
7. PRECAST CONCRETE MANHOLE WITH COVER, U.S. PRECAST CORP. OR EQUAL.
8. MH-I - INSTRUMENTATION MANHOLE
   MH-E - ELECTRICAL MANHOLE

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POMPANO BEACH, FL 33064

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS
ELECTRICAL
DETAILS SHEET NO.2

VERIFY SCALES
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DRAWING NO. TE-02
SHEET NO. OF

INSTRUMENT IDENTIFICATION

EXAMPLE SYMBOLS

UP	UNIT PROCESS NUMBER
F	FIRST LETTER(S)
IT	SUCCEEDING LETTER(S)
BB	CLARIFYING ABBREVIATIONS
LLL	LOOP NUMBER
UU	UNIT NUMBER

GENERAL INSTRUMENT OR FUNCTIONAL SYMBOLS


FIELD MOUNTED


REAR-OF-PANEL MOUNTED (OPERATOR INACCESSIBLE)


PANEL MOUNTED (OPERATOR ACCESSIBLE)


MCC MOUNTED


COMPUTER FUNCTION


PLC FUNCTION


SHARED DISPLAY, SHARED CONTROL

INSTRUMENT IDENTIFICATION LETTERS TABLE

LETTER	FIRST-LETTER: PROCESS OR INITIATING VARIABLE	FIRST-LETTER: MODIFIER	SUCCEEDING-LETTERS: READOUT OR PASSIVE FUNCTION	SUCCEEDING-LETTERS: OUTPUT FUNCTION	SUCCEEDING-LETTERS: MODIFIER
A	ANALYSIS (+)		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE (*)	USER'S CHOICE (*)	USER'S CHOICE (*)
C	USER'S CHOICE(*)			CONTROL	
D	DENSITY (S.G)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT, SENSOR		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE(*)		GLASS, GAUGE VIEWING DEVICE	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOISTURE	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		USER'S CHOICE (*)	USER'S CHOICE (*)	USER'S CHOICE (*)
O	USER'S CHOICE(*)		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RUN		RECORD OR PRINT		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED (+)	X AXIS	UNCLASSIFIED (+)	UNCLASSIFIED (+)	UNCLASSIFIED (+)
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION	Z AXIS		DRIVE, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

TABLE BASED ON THE INSTRUMENTATION, SYSTEMS, AND AUTOMATION SOCIETY (ISA) STANDARD.

(+) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.

(*) WHEN USED, DEFINE THE MEANING HERE FOR THE PROJECT

EXAMPLES

ON EVENT LIGHT

ON AND OFF EVENT LIGHTS (TWO LIGHTS TOTAL)

OPENED AND CLOSED POSITION LIGHTS

OPENED AND CLOSED POSITION SWITCHES

ON-OFF HAND SWITCH. MAINTAINED CONTACT SWITCH (CONTROLLED DEVICE WILL RESTART ON RETURN OF POWER AFTER POWER FAILURE).

STOP-START HAND SWITCH MOMENTARY CONTACT SWITCHES (CONTROLLED DEVICE WILL NOT RESTART ON RETURN OF POWER AFTER POWER FAILURE).

ELECTRIC ACTUATOR WITH INTEGRAL OPEN-STOP-CLOSE MOMENTARY CONTACT CONTROL SWITCH

LOCK-OUT-SWITCH


DENOTES EQUIPMENT SPECIFIED UNDER OTHER SECTION OF THIS CONTRACT


DENOTES EXISTING EQUIPMENT OR EQUIPMENT PROVIDED BY OTHERS UNDER A SEPARATE CONTRACT

OTHER DEVICES

SSX	SURGE SUPPRESSOR TYPE X
ISX	INTRINSIC SAFETY BARRIER TYPE X
UPS	UNINTERRUPTABLE POWER SUPPLY
	"X" = IDENTIFIED IN SECTION 13411
FOPP	FIBER OPTIC PATCH PANEL
FOMC	FIBER OPTIC MEDIA CONVERTER

TRANSDUCERS

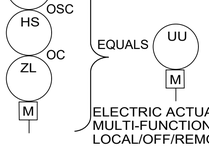
A	ANALOG	I	CURRENT
D	DIGITAL	P	PNEUMATIC
E	VOLTAGE	PF	PULSE FREQUENCY
F	FREQUENCY	PD	PULSE DURATION
H	HYDRAULIC	R	RESISTANCE

EXAMPLE:

CURRENT TO PNEUMATIC TRANSDUCER (BACK OF PANEL, IN A FLOW LOOP)

DIGITAL SYSTEM INTERFACES

▲	ANALOG INPUT	WHERE X=
▼	ANALOG OUTPUT	A = ALARM
▲X	DISCRETE INPUT	H = MAINTAINED
▼X	DISCRETE OUTPUT	M = MOMENTARY
		S = STATUS



ELECTRIC ACTUATOR WITH MULTI-VARIABLE, MULTI-FUNCTION OPERATOR STATION, INCLUDING LOCAL/OFF/REMOTE HANDSWITCH, OPEN/STOP/CLOSE PUSHBUTTON AND OPEN CLOSED STATUS LIGHTS

LINE LEGEND

PROCESS (CLOSED CONDUIT, DASHED LINE INDICATES ALTERNATE FLOW STREAM)

PROCESS (OPEN CHANNEL)

ELECTRICAL SIGNAL

PNEUMATIC SIGNAL

FILLED SYSTEM SIGNAL

HYDRAULIC SYSTEM SIGNAL

DATA LINK

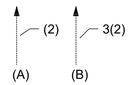
PWR — POWER

MSC — MANUFACTURER SUPPLIED CABLE

SIMILAR PROCESS OR FACILITY BOUNDARY

PACKAGE SYSTEM EQUIPMENT

PARALLELING LINES



(A) TOTAL OF 2 SIGNALS

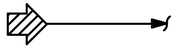
(B) 3 TYPICAL SETS OF 2 SIGNALS EACH. TOTAL OF 6 SIGNALS.

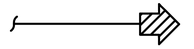
CONNECTING LINES

NON-CONNECTING LINES

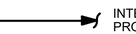
INTERFACE SYMBOLS

LINE CONTENTS IN OR OUT OF DRAWING


INTERFACE TO OR FROM PROCESS EXTERNAL TO PROJECT



SELF CONTAINED VALVE & EQUIPMENT TAG NUMBERS



W = UNIT PROCESS NUMBER

D:
- ARV = AIR RELEASE VALVE
- AVRV = AIR AND VACUUM RELEASE VALVE
- E = EJECTOR
- GTE = GATE
- M = MECHANICAL EQUIPMENT
- MXR = MIXER
- PMP = PUMP
- T = TANK

X = LOOP NUMBER

Y = UNIT NUMBER

GENERAL NOTES

1. COMPONENTS AND PANELS SHOWN WITH A ASTERISK (**) ARE PART OF A PACKAGE SYSTEM; SEE EQUIPMENT SPECIFICATIONS. FOR MULTIPLE PACKAGES ON SAME DRAWING, USE * , * 2, *3, ETC.
2. COMPONENTS SHOWN WITH A DIAMOND (◆) ARE PART OF DIVISION 40 INSTRUMENTATION AND CONTROLS
3. THIS IS A STANDARD LEGEND. THEREFORE, NOT ALL OF THIS INFORMATION MAY BE USED ON THIS PROJECT.

ABBREVIATIONS & LETTER SYMBOLS

AC	ALTERNATING CURRENT
ACK	ACKNOWLEDGE
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AS	ADJUSTABLE SPEED
BFP	BACK FLOW PREVENTER
BW	BACKWASH
CK	CLOSE COMMAND
CL_2 etc.	CHLORINE (TYPICAL: USE STANDARD CHEMICAL ELEMENT ABBREVIATION)
CTRL	CONTROL
COND	CONDUCTIVITY
CPX	CONTROL PANEL NO. X
CPOL	CATIONIC POLYMER
CR	CHLORINE RESIDUAL
CS	CONSTANT SPEED
CTU	CENTRAL TELEMETRY UNIT
D	DRAIN
DCU	DISTRIBUTED CONTROL UNIT
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DC	DIRECT CURRENT
ETM	ELPASET TIME METER
FA	FAIL ALARM
FB	FIBER
FC	FAIL CLOSED
FCL	FREE CHLORINE
FCL_2	FREE CHLORINE RESIDUAL
HMI	HUMAN MACHINE INTERFACE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
IP	IN PLC REMOTE
IR	IN REMOTE
ISR	INTRINSICALLY SAFE RELAY
LCP	LOCAL CONTROL PANEL
LR	LOCAL-REMOTE
M	MODULATE
MC	MOTOR CONTROLLER
MCC	MOTOR CONTROL CENTER
MCC-X	MOTOR CONTROL CENTER NO. X
MOV	MOTOR OPERATED VALVE
MSC	MANUFACTURER SUPPLIED CABLE
MTD	MOTOR TEMPERATURE DETECTOR
MTS	MANUAL TRANSFER SWITCH
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
OC	OPEN-CLOSE(D)
OCK	OPEN & CLOSE COMMANDS
OCM	OPTICAL COMMUNICATION MODULE
OCR	OPEN-CLOSE-REMOTE
OIU	OPERATOR INTERFACE UNIT
OK	OPEN COMMAND
OO	ON-OFF
OOA	ON-OFF-AUTO
ORP	OXIDATION REDUCTION POTENTIAL
OSC	OPEN-STOP-CLOSE
pH	HYDROGEN ION CONCENTRATION
PLC	PROGRAMMABLE LOGIC CONTROLLER
RIO	REMOTE I/O UNIT
RTU	REMOTE TERMINAL UNIT
RK	RUN COMMAND
SP	SET POINT
SS	START-STOP
TCL	TOTAL CHLORINE
TCL_2	TOTAL CHLORINE RESIDUAL
TOC	TOTAL ORGANIC CARBON
TOD	TOTAL OXYGEN DEMAND
TURB	TURBIDITY
USP	UPSTREAM SETPOINT
VFD	VARIABLE FREQUENCY DRIVE
VIB	VIBRATION
ZK	ON STATUS
YS	POSITION ADJUST
ZR	ZERO DIFFERENCE

Δ	DIFFERENCE
Σ	SUM
X	MULTIPLY
÷	DIVIDE
f(x)	CHARACTERIZED
X^n	RAISE TO THE Nth POWER
√‾	SQUARE ROOT
AVG	AVERAGE
1:1	REPEAT OR BOOST
>	SELECT HIGHEST SIGNAL
<	SELECT LOWEST SIGNAL
}	BIAS
%	GAIN OR ATTENUATE

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CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

INSTRUMENTATION

INSTRUMENTATION LEGEND SHEET NO.1

VERIFY SCALES
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VALVE SYMBOLS

- GATE
- KNIFE GATE
- BUTTERFLY
- GLOBE
- BALL
- VEE- BALL
- PLUG
- SEAT PORT ECCENTRIC PLUG
- DIAPHRAGM
- PINCH
- NEEDLE
- SWING CHECK
- BALL CHECK
- ROTARY
- 4-WAY SOLENOID VALVE
- PRESSURE RELIEF
- AIR AND/OR VACUUM RELEASE
- REGULATED SIDE PRESSURE CONTROL
- PRESSURE REGULATING (CLAY-TYPE)
- MULTI-PORT VALVES (GATE VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN.) SEAT PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
- ANGLE GATE
- TELESCOPE
- SAMPLE
- MUD
- BACKFLOW PREVENTER

GATE SYMBOLS

- SLUICE
- BUTTERFLY
- FABRICATED SLIDE
- FLAP
- STOP LOG
- SHEAR

ACTUATOR SYMBOLS

- PNEUMATIC WITH POSITIONER
- PNEUMATIC WITH SOLENOID
- ELECTRIC
- ELECTRIC WITH POSITIONER
- HYDRAULIC
- PNEUMATIC WITH VOLUME BOOSTER
- SOLENOID
- MANUAL
- ELECTROHYDRAULIC
- HYDRAULIC

NOTE:
ON LOSS OF PRIMARY POWER (PNEUMATIC, ELECTRICAL OR HYDRAULIC)

XX: FO =FAIL OPEN, FC =FAIL CLOSED, FLP=FAIL TO LAST POSITION; NO = NORMALLY OPEN, NC = NORMALLY CLOSED, O/C=OPEN/CLOSE, MOD=MODULATING

PRIMARY ELEMENT SYMBOLS

- PARSHALL FLUME
- WEIR
- ORIFICE PLATE
- FLOW TUBE (VENTURI)
- PITOT-STATIC
- VORTEX METER
- ULTRASONIC FLOWMETER
- FLOW SWITCH
- ELECTROMAGNETIC FLOWMETER
- PROPELLER OR TURBINE METER
- THERMAL FLOWMETER
- LEVEL (ULTRASONIC)
- LEVEL (RADAR)
- LEVEL SWITCH (FLOAT)
- DENSITY METER
- GENERIC
- ROTAMETER
- CORIOLIS FLOWMETER

MISCELLANEOUS SYMBOLS

- DIAPHRAGM SEAL
- BLIND FLANGE
- AIR GAP
- VENT TO ATMOSPHERE
- AERATOR
- PLUG
- RECEPTACLE
- SELF CONTAINED AIR SUPPLY
- COMPOSITE SAMPLER (DIPPER TYPE)
- COMPOSITE SAMPLER (SUCTION TYPE)
- TV CAMERA
- INTERLOCK. SEE CONTROL DIAGRAMS
- PURGE SET X : W = WATER, A = AIR
- SEE
- AIR SET XX= SUPPLY PRESSURE IN PSIG.
- FILTER/ REGULATOR/ GAUGE SET
- FLEXIBLE CONNECTOR
- PULSATION DAMPENER
- AIR FILTER
- DRIP TRAP
- FLAME TRAP
- STRAINER
- HORN
- CHLORINE INJECTOR
- 120 VOLT, 60 HZ POWER
- 480 VOLT, 3-PHASE, 60 HZ POWER
- ANNULAR DIAPHRAGM SEAL
- RUPTURE DISK (PRESSURE)
- RUPTURE DISK (VACUUM)
- PIG INSERT POINT
- PIG CATCH POINT
- MIXER
- ELECTRIC MOTOR SINGLE SPEED
- ELECTRIC MOTOR ADJUSTABLE SPEED
- TV MONITOR
- LOGIC ELEMENT: IF A AND NOT B THEN C
- LOGIC ELEMENT: IF A OR B THEN C
- FLUSHING CONNECTION
- HOSE ADAPTOR
- SEAL WATER SET
- SIGHT GLASS
- PANEL CONTINUED ON SAME OR OTHER DRAWING
- PANEL OUTLINE
- PANEL NAME
- SKIMMING MECHANISM
- SCREW
- SCREW CONVEYOR
- PIPE CAP
- CALIBRATION COLUMN
- EXPANSION COUPLING
- SIMPLEX BASKET

PUMP AND COMPRESSOR SYMBOLS

NOTE: XX: AS ADJUSTABLE SPEED; CS-1 CONSTANT SPEED (SINGLE SPEED); CS-2 CONSTANT SPEED (TWO SPEED)

- CENTRIFUGAL PUMP (DRY PIT)
- CENTRIFUGAL WET PIT PUMP OR TURBINE PUMP
- RECIPROCATING OR METERING PUMP (POSITIVE DISPLACEMENT)
- DIAPHRAGM PUMP
- GEAR PUMP OR BLOWER (POSITIVE DISPLACEMENT)
- PISTON PUMP
- PROGRESSIVE CAVITY PUMP
- COMPRESSOR (CENTRIFUGAL)
- COMPRESSOR (PISTON)
- BLOWER OR FAN (CENTRIFUGAL)
- EJECTOR
- ENERGY RECOVERY DEVICE
- SUBMERSIBLE SUMP PUMP
- VACUUM PUMP
- ROTARY PUMP
- SCREW PUMP
- VERTICAL PUMP

FLOW STREAM IDENTIFICATION

- AH — AMMONIUM SULFATE
- ALP — AIR, LOW PRESSURE
- BWW — BACKWASH WASTE
- CCR — CLEANING CONCENTRATE RETURN
- CF — CLEANING FEED
- CFR — CLEANING FEED RETURN
- CFI — CARTRIDGE FILTER INFLUENT
- CF/W — SPENT CLEANING SOLUTION
- CPR — CLEANING PERMEATE RETURN
- D — DRAIN, SANITARY
- DMP — DEGASIFIED MEMBRANE PERMEATE
- DR — DRAIN, PROCESS
- FS — FIRE SPRINKLER
- FW — FINISHED WATER
- HW — TEMPERED POTABLE WATER
- MC — MEMBRANE CONCENTRATE
- MF — MEMBRANE FEED
- MF/B — MEMBRANE FEED BYPASS
- MF/W — MEMBRANE FEED WASTE
- MP — MEMBRANE PERMEATE
- NA — SODIUM HYDROXIDE
- OF — OVERFLOW
- PMS — PERMEATE MAKEUP SUPPLY
- PP — POLYPHOSPHATE
- RWB — RAW WATER - BISCAYNE
- SA — SAMPLE
- SH — SODIUM HYPOCHLORITE
- SI — SCALE INHIBITOR
- SPD — SUMP PUMP DISCHARGE
- SSI — SAND STRAINER INFLUENT
- SU — SULFURIC ACID
- V — VENT
- W1 — POTABLE WATER
- W2 — BACKFLOW PREVENTED POTABLE WATER

- CARTRIDGE FILTER
- STATIC MIXER
- AIR VENT
- FLAP GATE
- HEATER INLINE
- QUICK CONNECT COUPLING
- HEAT ELEMENT
- EYEWASH SHOWER
- CHEMICAL INJECTION ASSEMBLY
- BLADDER TANK

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

INSTRUMENTATION

INSTRUMENTATION LEGEND SHEET NO.2

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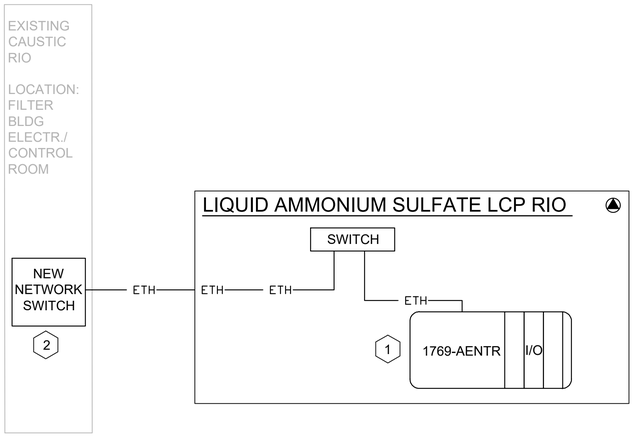
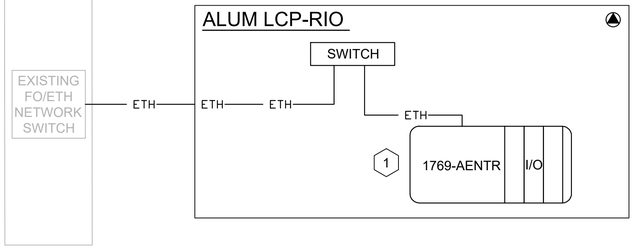
SHEET NO.
OF





KEYED NOTES

1. CONTRACTOR SHALL CONFIGURE THE NEW RIO PANEL TO BE A PART OF THE PLC-2 REMOTE I/O NETWORK.
2. PROVIDE AND INSTALL NEW NETWORK SWTICH, ALLEN BRADLEY STRATIX SERIES WITH MINIMUM 3 SFP PORTS AND 8 RJ45 PORTS IN PLACE OF THE EXISTING NETWORK SWITCH. COORDINATE THE EXACT FIBER OPTIC TYPE USED (SINGLE MODE / MULTIMODE) AT THE EXISTING FIBER OPTIC NETWORK AND PROVIDE CORRECT SFP MODULES ACCORDINGLY.

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

INSTRUMENTATION

BLOCK DIAGRAM

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DRAWING NO. N-00
SHEET NO. OF

SCADA

PLC-2-CP

66 LIR 01
66 LIR 02
TANK 1 LEVEL
TANK 2 LEVEL

X=1,2
TYPICAL OF TWO

66 YN 0X
66 HS 0X
66 YI 0X
66 XA 0X
66 FAL 01
IN REMOTE
START/STOP
RUNNING
FAIL
LOW PUMPS SUCTION FLOW

X=1,2
TYPICAL OF TWO

66 LIR 11
66 FI 1X
66 HS 1X
66 YN 1X
66 YI 1X
66 XA 1X
66 SK 1X
66 SI 1X
66 ZIO 1X
LEVEL
FLOW
START/STOP
IN REMOTE
RUNNING
FAIL
SPEED CONTROL
SPEED INDICATION
PRESSURE HIGH ALARM

COMM.

LIQUID AMMONIUM SULFATE CONTROL PANEL RIO

HORN
66 LX 0X
FILL ALARM PANEL
SILENCE
STROBE
66 HS 0X
66 LA 0X
X=1,2

TRANSFER PUMP STARTER NO.X
X=1,2
RUN
FAIL
RESET
HOR
66 YL 0X
66 XL 0X
66 HS 0XA
66 HS 0XB

COMM.

ALUM CONTROL PANEL RIO

EXISTING ALUM CHEMICAL CONTAINMENT AREA

INSECT SCREEN (TYP.)
6" VENT
24" MANWAY (TYP)
2" OVFL
66 LI 01
66 LE 01
66 LIT 01
66 LSH 01
66_TK_01
2" DRAIN
ALUM BULK STORAGE TANK NO.1

2-1/2" FLEXIBLE CONNECTION

2" FILL
2" FILL
6" VENT
24" MANWAY (TYP)
2" OVFL
66 LI 02
66 LE 02
66 LIT 02
66 LSH 02
66_TK_02
2" DRAIN
ALUM BULK STORAGE TANK NO.2

2-1/2" FLEXIBLE CONNECTION

66 FSL 01
2 1/2" ALUM
2.1/2" ALUM
66_PMP_01
TRANSFER PUMP NO.1
66_PMP_02
TRANSFER PUMP NO.2

VENT TO EXTERIOR (TYP.)
INSECT SCREEN (TYP.)
4" VENT
66 LIT 11
66 LE 11
66 LI 11
2" OVFL
66_TK_11
2" DRAIN
ALUM DAY TANK
1/2" ALUM

AERATION STRUCTURE - NORTHERN BAY

ALUM METERING PUMP SKID

FLOW SIGHT GLASS WITH FLUTTER DEVICE (TYP)
1/2" VENT
66_CMP_11
METERING PUMP NO.1
66_CMP_12
METERING PUMP NO.2
66 PIT 11
66 PIT 12
1/2" ALUM
66 PI 11

AERATION BASIN

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ALUM PROCESS FLOW P&ID

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OF

SCADA

PLC-2-CP

67 LIR 01 / 67 LIR 02 — TANK 1 LEVEL, TANK 2 LEVEL

X=1,2 TYPICAL OF TWO

67 YN 0X — IN REMOTE
67 HS 0X — START/STOP
67 YI 0X — RUNNING
67 XA 0X — FAIL
67 FAL 01 — LOW PUMPS SUCTION FLOW
67 LIR 11 — DAY TANK LEVEL

LAS PUMP SKID NO. 2
TYPICAL OF TWO (X=3,4)

67 FI 1X — FLOW
67 HS 1X — START/STOP
67 YN 1X — IN REMOTE
67 YI 1X — RUNNING
67 XA 1X — FAIL
67 SK 1X — SPEED CONTROL
67 SI 1X — SPEED INDICATION
67 ZIO 1X — PRESSURE HIGH ALARM

LAS PUMP SKID NO. 1
TYPICAL OF TWO (X=1,2)

67 FI 1X — FLOW
67 HS 1X — START/STOP
67 YN 1X — IN REMOTE
67 YI 1X — RUNNING
67 XA 1X — FAIL
67 SK 1X — SPEED CONTROL
67 SI 1X — SPEED INDICATION
67 ZIO 1X — PRESSURE HIGH ALARM
67 ZCC 23 / 67 ZCO 23 — VALVE OPEN COMMAND
67 ZIC 23 / 67 ZIO 23 — VALVE CLOSE COMMAND, VALVE OPEN, VALVE CLOSE
67 LA 11 — LEAK LAS 36" PIPE (UP OF FI)
67 LA 12 — LEAK LAS TO INFLUENT, LEAK LAS TO RO PERM CLWELL

COMM

LIQUID AMMONIUM SULFATE CONTROL PANEL RIO *

SCADA

PLC-3-CP

67 ZCC 24 / 67 ZCO 24 — VALVE OPEN COMMAND
67 ZIC 24 / 67 ZIO 24 — VALVE CLOSE COMMAND, VALVE OPEN, VALVE CLOSE
67 LA 13 — LEAK SHC TO INFLUENT

HORN
67 LX 0X

FILL ALARM PANEL
SILENCE — 67 HS 0X
STROBE — 67 LA 0X
X=1,2

* TRANSFER PUMPS STARTER NO.X X=1,2
RUN — 67 YL 0X
FAIL — 67 XL 0X
RESET — 67 HS 0XA
HOR — 67 HS 0XB

EXISTING ANHYDROUS AMMONIA STORAGE AREA

INSECT SCREEN (TYP.)
4" VENT
67 LE 01
67 LIT 01
67 LSH 01
67 LI 01 **
REMOVEABLE SPOOL PIECE (TYP)
2" OVFL
67_TK_01
LIQUID AMMONIUM SULFATE TANK NO.1
2" DRAIN
2" FILL
1" FLEXIBLE CONNECTION
1" LAS
67 FSL 01
67_PMP_01
TRANSFER PUMP NO.1
67_PMP_02
TRANSFER PUMP NO.2
67 LE 02
67 LIT 02
67 LSH 02
67 LI 02 **
67_TK_02
LIQUID AMMONIUM SULFATE TANK NO.2

1" VENT (TYP.)
VENT TO EXTERIOR (TYP.)
INSECT SCREEN (TYP.)
2" VENT
67 LIT 11
67 LE 11
67 LI 11 **
1" OVFL
67_TK_11
LIQUID AMMONIUM SULFATE DAY TANK
1" DRAIN
1/2" LAS

FILTER BUILDING - CHEMICAL ROOM

LAS METERING PUMP SKID NO.1
1/2" VENT
67_CMP_11
METERING PUMP NO.1
67_CMP_12
METERING PUMP NO.2
67 PIT 11 **
67 PIT 12 **

LAS METERING PUMP SKID NO.2
1/2" VENT
67_CMP_13
METERING PUMP NO.3
67_CMP_14
METERING PUMP NO.4
67 PIT 13 **
67 PIT 14 **
FLOW SIGHT GLASS (TYP)

67_MPV_23
67 LD 11 **
67 PI 11
INJECTION DIFFUSER
36" PIPE (UPSTREAM OF FILTER INFLUENT)
67 LD 12 **
67 PI 12
PEACE RIVER INFLUENT - ABOVE GRADE PIPE SEGMENT
67 LD 13 **
67 PI 13
67_MPV_24
1" EXISTING SODIUM HYPOCHLORITE
67 LD 14 **
67 PI 14
BLEEDING BASIN
RO PERMEATE CLEARWELL

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SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

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LIQUID AMMONIUM SULFATE STORAGE AND FEED PROCESS FLOW P&ID

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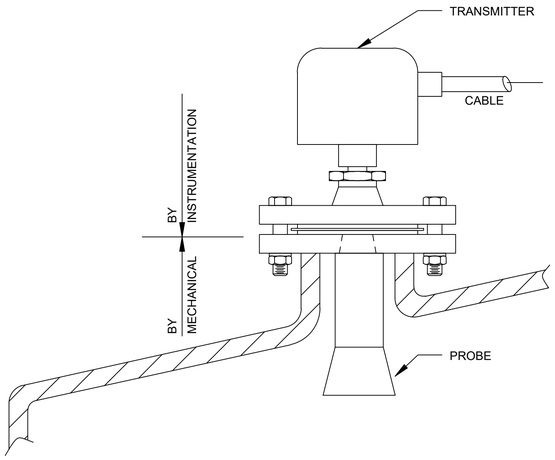
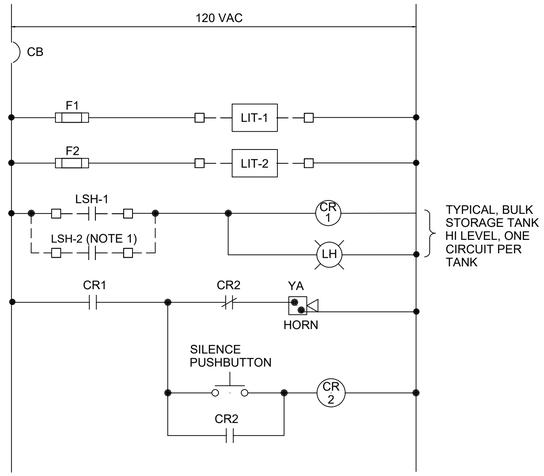


N001 TYP

RADAR LEVEL ELEMENT INSTALLATION - TANK

NTS



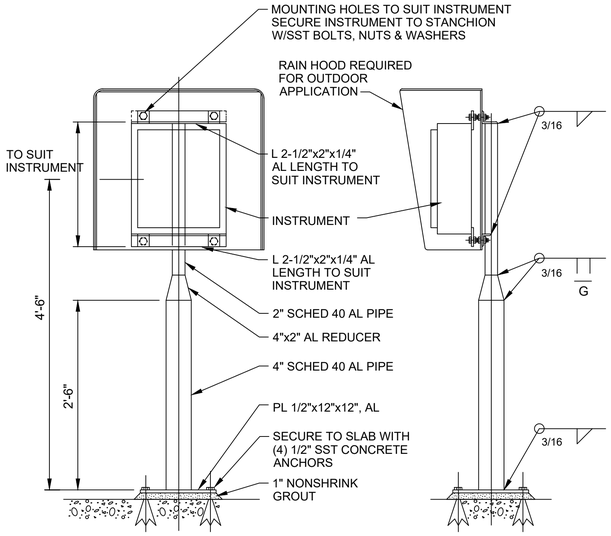
NOTES:

1. ADDITIONAL LEVEL SWITCHES WHERE APPLICABLE

N002 TYP

CHEMICAL TANK FILL ALARM PANEL

NTS



NOTES:

1. ROUND OFF ALL EXPOSED EDGES AND CORNERS.
2. PAINT ALUMINUM IN CONTACT WITH CONCRETE ACCORDING TO SPECIFICATIONS FOR PAINTING.

N003 TYP

STANCHION SUPPORT FOR CASE MOUNTED INSTRUMENTS

NTS

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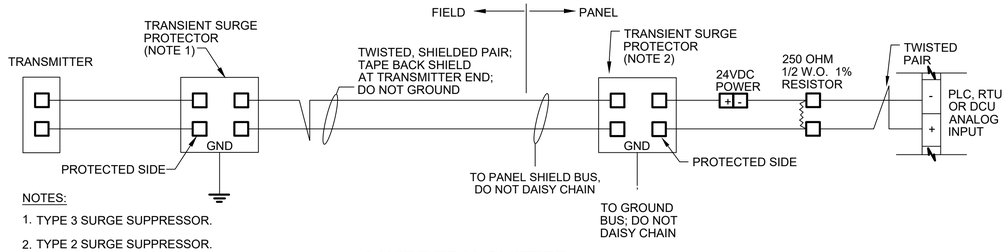
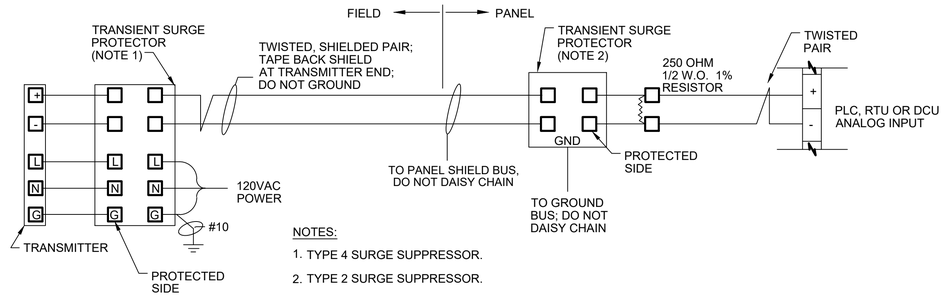


2-WIRE TRANSMITTER

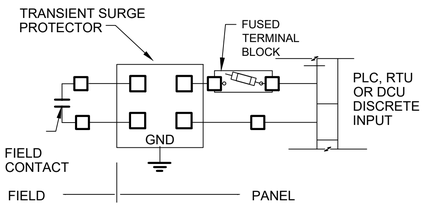


4-WIRE TRANSMITTER

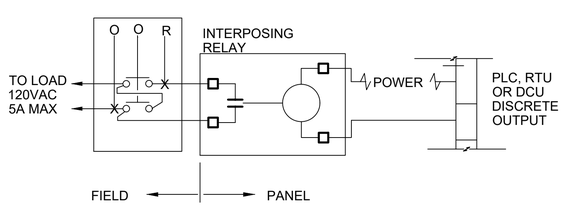
N005 / TYP

TYPICAL OUTDOOR TRANSMITTERS

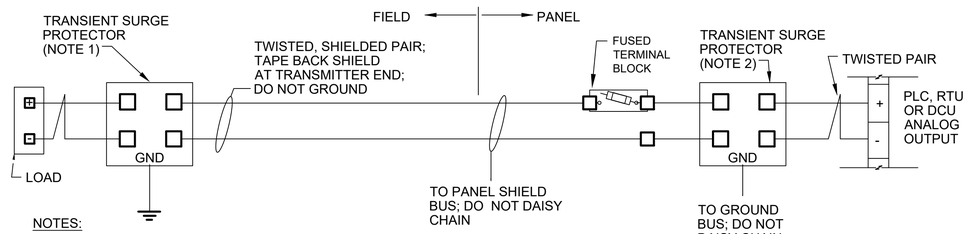
NTS



TYPICAL DISCRETE INPUT



TYPICAL DISCRETE OUTPUT



N006 / TYP

TYPICAL OUTDOOR ANALOG OUTPUT

SCALE: NTS

ADS Engineering
4701 N FEDERAL HWY, SUITE 390
POMPANO BEACH, FL 33064

REV	DATE	BY	DESCRIPTION
			BID SET

DESIGNED MDG
DRAWN SIDZ
CHECKED ADS
DATE APRIL 2024

ALEKSANDAR D. STOJANOVIC LICENSE No 60269 STATE OF FLORIDA PROFESSIONAL ENGINEER

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ALEKSANDAR D. STOJANOVIC ON THE DATE ADJACENT TO THE SEAL.

PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

carollo
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CA 00008571

CITY OF PUNTA GORDA, FLORIDA

SHELL CREEK WTP ALUM & AMMONIA SYSTEM IMPROVEMENTS

INSTRUMENTATION

INSTRUMENTATION DETAILS SHEET NO.2

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

JOB NO. 202333
DRAWING NO. TN-02
SHEET NO.
OF