

JEA  
JACKSONVILLE, FLORIDA



# LAKE SHORE WATER TREATMENT PLANT WELLHEAD NO. 2 REHABILITATION

HAZEN CONTRACT No. 42015-008  
JEA PROJECT No. 8003982  
MAY 2019



HAZEN AND SAWYER  
6675 CORPORATE CENTER PKWY, SUITE 330  
JACKSONVILLE, FLORIDA 32216

File: C:\MSH\HAZEN\PROJECTS\3276\G02\_42015-008\W2 Saved by: GDWZ Save Date: 5/2/2019 8:54 PM  
PLOT DATE: 5/6/2019 5:35 AM BY: GDWZ

ABBREVIATIONS

VALVES, FITTINGS, ETC.

ARV	AIR RELIEF VALVE
AVRV	AIR VACUUM RELIEF VALVE
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
CV	CHECK VALVE
CPLG	COUPLING
EXP JT	EXPANSION JOINT
FTG	FITTING
FLG	FLANGE
GV	GATE VALVE
HB	HOSE BIBB
MJ	MECHANICAL JOINT
NPT	NATIONAL PIPE THREAD
PE	PLAIN END
PO	PUSH ON
PV	PLUG VALVE
PRV	PRESSURE RELIEF VALVE, PRESSURE REDUCING VALVE
PS	PUMP STATION
RJ	RESTRAINED MECHANICAL JOINT
THD	THREADED

EA	EACH
ECC	ECCENTRIC
EE	EACH END
EF	EACH FACE
EFF	EFFLUENT
ELEC	ELECTRIC
EL, ELEV	ELEVATION
EOP	EDGE OF PAVEMENT
EQUIP	EQUIPMENT
EW	EACH WAY
EXIST, EX.	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FIG	FIGURE
FIN	FINISH
FL	FLOOR
FT	FOOT/FEET
FTG	FOOTING
GAL	GALLON
GALV	GALVANIZED
GR	GRADE
H	HIGH
HB	HOSE BIBB
HORIZ	HORIZONTAL

OD	OUTSIDE DIAMETER
OF	OVERFLOW
OW	OBSERVATION WELL
PP	POWER PANEL
PS	PUMP STATION
PSI	POUNDS PER SQUARE INCH
LBS/FT	POUNDS PER FOOT
P/L	PROPERTY LINE
RAD, R	RADIUS
RECIR	RECIRCULATION
RED	REDUCER/REDUCING
REINF	REINFORCING
REQ'D	REQUIRED
RVSS	REDUCED VOLTAGE SOFT STARTER
SCH	SCHEDULE
SECT	SECTION
SPEC	SPECIFICATION
STL	SQUARE SQ STEEL
STRUC	STRUCTURAL
SYMM	SYMMETRICAL
TEMP	TEMPORARY
THK	THICK
T&B	TOP AND BOTTOM
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL/TOP OF SLAB
TYP	TYPICAL
UGE	UNDERGROUND ELECTRIC
V	VENT
VERT	VERTICAL
WTR	WATER
W/L	WATER LEVEL
WWF	WELDED WIRE FABRIC
W	WIDE
W/	WITH
W/O	WITHOUT

ML	MIXED LIQUOR
NPW	NON POTABLE WATER
OF	OVERFLOW
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PD	PLANT DRAIN
PLW	PLANT WATER
PSW	PLANT SERVICE WATER
PLW	PLANT WATER
POT	POTABLE WATER
PVC	POLYVINYLCHLORIDE
RAS	RETURN ACTIVATED SLUDGE
RCP	REINFORCED CONCRETE PIPE
REUSE	PLANT REUSE/ SERVICE WATER
RW	REUSE WATER
SAN	SANITARY
SA	SAMPLE
SCE	SECONDARY CLARIFIER EFFLUENT
SCI	SECONDARY CLARIFIER INFLUENT
SCM	SCUM
STM	STORM DRAIN
SL	SLUDGE
SS, SST	STAINLESS STEEL
STL	STEEL
WAS	WASTE ACTIVATED SLUDGE

INDEX OF DRAWINGS

DRAWING NO.	TITLE
GENERAL	
G01	COVER SHEET AND LOCATION MAP
G02	INDEX, GENERAL NOTES AND ABBREVIATIONS
G03	LEGEND AND SYMBOLS
CIVIL	
C01	CIVIL NOTES
C02	SITE PLAN DEMOLITION
C03	SITE PLAN PROPOSED
C04	CIVIL DETAILS
MECHANICAL	
M01	WELL NO. 2 - DEMOLITION PLAN AND SECTION
M02	WELL NO. 2 - PROPOSED PLAN AND SECTION
M03	WELL NO. 2 DETAILS SHEET 1
M04	WELL NO. 2 DETAILS SHEET 2
ELECTRICAL	
E01	ELECTRICAL NOTES
E02	ELECTRICAL LEGEND AND SYMBOLS
E03	WELLHEAD NO.2 SINGLE LINE DIAGRAM
E04	WELLHEAD NO.2 P&ID
E05	WELLHEAD NO.2 SITE ELECTRICAL PLAN
E06	WELLHEAD NO.2 LOCAL CONTROL PANEL LCP-WH2 SCHEMATICS AND NOTES
E07	JEA ELECTRIC SERVICE DETAILS
E08	ELECTRICAL DETAILS SHEET 1
E09	ELECTRICAL DETAILS SHEET 2
E10	JEA STANDARD SCADA PANEL DETAILS SHEET 1
E11	JEA STANDARD SCADA PANEL DETAILS SHEET 2
E12	JEA STANDARD SCADA PANEL DETAILS SHEET 3
E13	JEA STANDARD SCADA PANEL DETAILS SHEET 4
E14	JEA STANDARD SCADA PANEL DETAILS SHEET 5
STANDARD DETAILS	
D01	MISCELLANEOUS STANDARD DETAILS

GENERAL

AB	ANCHOR BOLT
AL, ALUM	ALUMINUM
APPROX	APPROXIMATE
BLK	BLOCK
BLDG	BUILDING
BOTT	BOTTOM
CB	CATCH BASIN
CC	CENTER TO CENTER
CL,	CENTER LINE
CLDI	CEMENT LINED DUCTILE IRON
CLR	CLEAR
CNR	CORNER
CO	CLEAN OUT, COMPANY
COL	COLUMN
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
CU	COPPER OR CUBIC
DET	DETAIL
DI	DUCTILE IRON
DIAG	DIAGONAL
DIA	DIAMETER
DIM	DIMENSION
DISCH	DISCHARGE
DN	DOWN
DRN	DRAINS
DWG(S)	DRAWING(S)
DW	DEWATERING WELL

HPT	HIGH POINT
HR	HANDRAIL
HWL	HIGH WATER LEVEL
IE	INVERT ELEVATION
INFL	INFLUENT
INJ	INJECTION
ID	INSIDE DIAMETER
IF	INSIDE FACE
INT	INTERIOR
INV	INVERT
JT	JOINT
LF	LINEAL FEET
LG	LONG
LN	LINE
LPT	LOW POINT
LR	LONG RADIUS
LWL	LOW WATER LEVEL
MFG	MANUFACTURER
MAX	MAXIMUM
MECH	MECHANICAL
NAVD	NORTH AMERICAN VERTICAL DATUM
MIN	MINIMUM
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NIC	NOT IN CONTRACT
No.	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OPNG	OPENING

PIPING

AIR	AIR, LOW PRESSURE PROCESS
ARI	AERATION BASIN INFLUENT
CIP	CAST IRON PIPE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CHLORINE SOLUTION
D	DRAIN, SANITARY
DIP	DUCTILE IRON PIPE
DR	DRAIN (PROCESS)
EFF	EFFLUENT
FA	FOUL AIR
FM	FORCE MAIN
FRP	FIBERGLASS REINFORCED PIPE
GSP	GALVANIZED STEEL PIPE
HDPE	HIGH DENSITY POLYETHYLENE
IPS	IRON PIPE SIZE
IRR	IRRIGATION

INSTRUMENTATION IDENTIFICATION LETTERS

FIRST LETTERS			SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	VARIABLE MODIFIER	READOUT/ PASSIVE FUNCTION	OUTPUT/ ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	CONDUCTIVITY			CONTROL	CLOSE
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENCE, DIFFERENTIAL			DEVIATION
E	VOLTAGE (EMF)		SENSOR, PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO			
G	USER'S CHOICE		GLASS, GAUGE, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER		SCAN		
K	TIME, SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE OR HUMIDITY	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE, RESTRICTION		OPEN
P	PRESSURE		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE, TOTALIZE	INTEGRATE, TOTALIZE		
R	RADIATION		RECORD		RUN
S	SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL PROBE		
X	UNCLASSIFIED	X-AXIS	ACCESSORY DEVICES, UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	Y-AXIS		AUXILIARY DEVICES.	
Z	POSITION, DIMENSION	Z-AXIS, SAFETY INSTRUMENTED SYSTEM		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

GENERAL NOTES

1. JEA STAFF ONLY ARE TO OPERATE VALVES.

				PROJECT ENGINEER:	J.P.S.
				DESIGNED BY:	S.C.R.
				DRAWN BY:	J.M.J.
				CHECKED BY:	C.T.K.
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	BID	05/19	J.P.S.	0 1/2" 1"	
REV	ISSUED FOR	DATE	BY		

BID SET

STEVEN C. ROBERTI, PE NO. 51492



HAZEN AND SAWYER  
6675 CORPORATE CENTER PKWY, SUITE 330  
JACKSONVILLE, FLORIDA 32216



LAKESHORE WATER TREATMENT PLANT  
WELLHEAD NO. 2 REHABILITATION

INDEX, GENERAL NOTES  
AND ABBREVIATIONS

DATE:	MAY 2019
HAZEN NO.:	42015-008
CONTRACT NO.:	8003982
DRAWING NUMBER:	G02

SYMBOLS

SECTION AND DETAIL IDENTIFICATION

GENERAL/CIVIL

	AERIAL TARGET
BSMH	BELLSOUTH MANHOLE
	BENCH MARK
	EXISTING CATCH BASIN
	CAPPED IRON ROD (AS NOTED)
	CHISEL SQUARE
CO	CLEAN OUT
	CONCRETE MONUMENT (AS NOTED)
CUP	CONCRETE UTILITY POLE
	ELECTRICAL TRANSFORMER PAD
	ELECTRIC BOX
	ELECTRIC MANHOLE
	ELECTRIC METER/SERVICE
	FIRE HYDRANT
	GAS RISER
	GUY ANCHOR AND WIRE
GRD	GROUND ROD
HB	HOSE BIBB
LP	IRON PIPE (I.P.)
	LIGHT POLE
	MANHOLE
	P.K. NAIL
	SANITARY MANHOLE
	SIGN
	STORM MANHOLE
	SOIL BORING LOCATION
	TEST HOLE LOCATION
	TELEPHONE CABLE RISER
	TELEPHONE MANHOLE
	TELEPHONE RISER
	TRAVERSE POINT
YD	YARD DRAIN
	VALVE BOX
VP	VALVE PIPE
	WATER METER
	WELL
WUP	WOOD UTILITY POLE
	PROPOSED SPOT ELEVATION
+ 6.6	EXISTING SPOT ELEVATION
	CONTOUR LINE ELEVATION

MECHANICAL

	MAGNETIC METER (SINGLE LINE)
	MAGNETIC METER (DOUBLE LINE)
	VENTURI METER
	GAUGE
	PNEUMATIC VALVE
	SOLENOID
	MOTOR OPERATED
	BALL VALVE
	BUTTERFLY VALVE / DAMPER
	BALL CHECK VALVE
	CHECK VALVE (SINGLE LINE)
	CHECK VALVE (DOUBLE LINE)
	PUMP CONTROL VALVE
	PLUG VALVE
	GATE VALVE
	DIAPHRAGM VALVE
	THROUGH PLUG VALVE
	THREE WAY VALVE
	PRESSURE REDUCING/RELIEF VALVE
	BACKPRESSURE REGULATOR
	HOSE BIBB (PLAN)
	HOSE BIBB (ELEVATION)
	MECHANICAL COUPLING
	HARNESSED MECHANICAL COUPLING
	GROOVED COUPLING OR ARCHED BAND
	HARNESSED EXPANSION JOINT
	EXPANSION JOINT
	UNION
	WELDED JOINT
	FLANGED JOINT
	MECHANICAL JOINT
	PUSH-ON JOINT
	THREADED JOINT

MECHANICAL CONT.

	SOCKET WELDED JOINT
	PIPE MATERIAL CHANGE
	REDUCER (SINGLE LINE)
	REDUCER (DOUBLE LINE)
	CONCRETE PIPE SUPPORT
	PRESSURE GAUGE WITH DIAPHRAGM SEAL
	QUICK DISCONNECT COUPLER
	CAPPED END OR PLUGGED END
	STATIC MIXER
	Y- STRAINER
	PULSATION DAMPENER
	PRESSURE RELIEF VALVE
	DIAPHRAGM SEAL
	BACKFLOW PREVENTER
	METERING PUMP
	ROTAMETER
	PUMP

GENERAL NOTES:

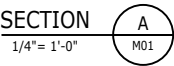
1. ELECTRICAL AND INSTRUMENTATION SYMBOLS SHOWN ON ELECTRICAL SHEETS.
2. FOR WELDING SYMBOLS USE AMERICAN WELDING SOCIETY STANDARD SYMBOLS. SEE AMERICAN INSTITUTE OF STEEL CONSTRUCTION MANUAL.
3. \* SYMBOL INDICATES A DIMENSION OR ELEVATION DEPENDENT ON EQUIPMENT SUPPLIED.
4. \*\* SYMBOL INDICATES A DIMENSION TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
5. ELEVATIONS ARE SHOWN IN NAVD 88.

SECTION IDENTIFICATION

(1) SECTION CUT ON DRAWING 1M-200:

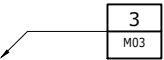


(2) ON DRAWING M-AEB-02 THIS SECTION IS IDENTIFIED AS:

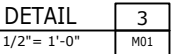


DETAIL IDENTIFICATION

(1) DETAIL CALL-OUT ON DRAWING 1M-204 AS:

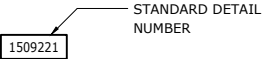


(2) ON DRAWING S-HDW-10 THIS DETAIL IDENTIFIED AS:



STANDARD DETAIL IDENTIFICATION

STANDARD DETAILS ARE REFERENCED BY A UNIQUE SEVEN DIGIT NUMBER AND ARE SHOWN ON THE CONTRACT DRAWINGS AS SHOWN:



STANDARD DETAILS ARE ARRANGED IN NUMERICAL ORDER ON THE STANDARD DETAIL SHEETS

\* NOTE: IF PLAN AND SECTION (OR DETAIL CALL-OUT AND DETAIL) ARE SHOWN ON SAME DRAWING, DRAWING NUMBER MAY BE REPLACED BY A LINE.

1	BID	05/19	J.P.S.
REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J.P.S.
DESIGNED BY:	S.C.R.
DRAWN BY:	J.M.J.
CHECKED BY:	C.T.K.
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

BID SET

STEVEN C. ROBERTI, PE NO. 51492



HAZEN AND SAWYER  
6675 CORPORATE CENTER PKWY, SUITE 330  
JACKSONVILLE, FLORIDA 32216



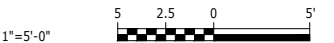
LAKESHORE WATER TREATMENT PLANT  
WELLHEAD NO. 2 REHABILITATION

LEGEND AND SYMBOLS

DATE:	MAY 2019
HAZEN NO.:	42015-008
CONTRACT NO.:	8003982
DRAWING NUMBER:	G03



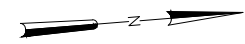
1. EXISTING CONDITIONS, PIPES, AND UTILITIES HAVE BEEN PREPARED FROM THE MOST RELIABLE INFORMATION AVAILABLE TO THE ENGINEER. THE INFORMATION IS NOT GUARANTEED, THEREFORE, THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF EXISTING CONDITIONS, PIPES AND UTILITIES IN THE FIELD PRIOR TO ANY CONSTRUCTION ACTIVITIES.



				PROJECT ENGINEER: J.P.S.	BID SET	<div>Hazen</div> <div>HAZEN AND SAWYER 6675 CORPORATE CENTER PKWY, SUITE 330 JACKSONVILLE, FLORIDA 32216</div>	<div>JEA</div> <div>LAKESHORE WATER TREATMENT PLANT WELLHEAD NO. 2 REHABILITATION</div>	SITE PLAN DEMOLITION	DATE: MAY 2019
				DESIGNED BY: S.C.R.					HAZEN NO.: 42015-008
				DRAWN BY: J.M.J.					CONTRACT NO.: 8003982
				CHECKED BY: C.T.K.					DRAWING NUMBER:  C02
1	BID	05/19	J.P.S.	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	<div><div></div><div>0</div><div>1/2"</div><div>1"</div></div>				
REV	ISSUED FOR	DATE	BY		STEVEN C. ROBERTI, PE NO. 51492				

File: C:\BMS\HAZEN-P\WDMS38276\CO2\_42015-008N2 Saved by GDIAZ Save date: 4/24/2019 5:32 PM  
PLOT DATE: 5/6/2019 5:35 AM BY: GDIAZ

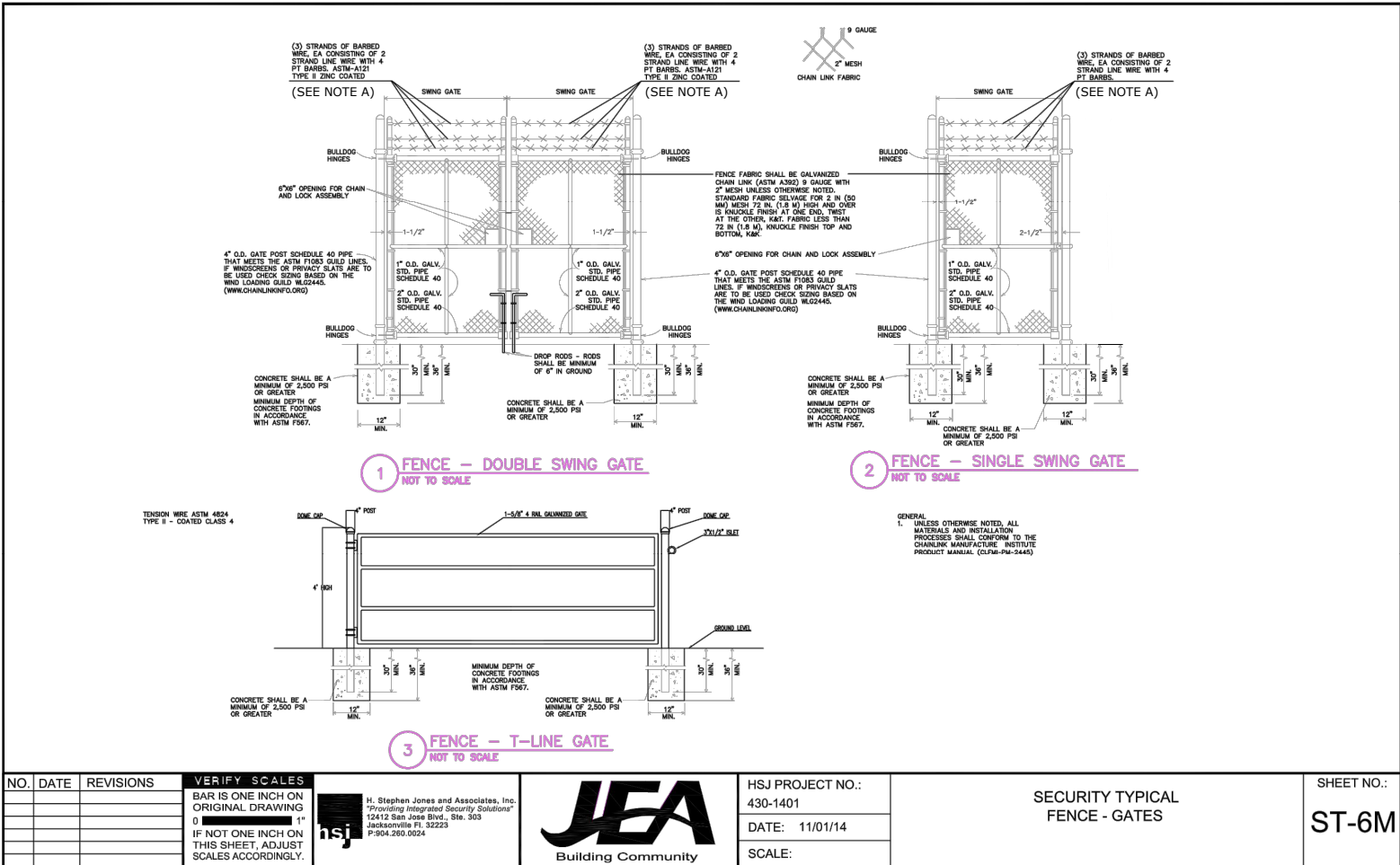
1. EXISTING CONDITIONS, PIPES, AND UTILITIES HAVE BEEN PREPARED FROM THE MOST RELIABLE INFORMATION AVAILABLE TO THE ENGINEER. THE INFORMATION IS NOT GUARANTEED, THEREFORE, THE CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF EXISTING CONDITIONS, PIPES AND UTILITIES IN THE FIELD PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. FENCE OFFSET FROM WEST PROPERTY BOUNDARY TO AVOID LARGE TREES.



LEGEND:

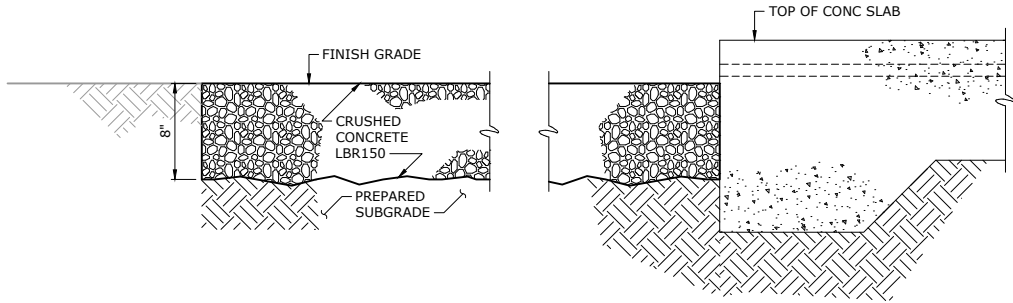
302.00 EXISTING SPOT ELEVATION  
 X00.00 PROPOSED SPOT ELEVATION

File: C:\BMS\HAZEN-P\BMS38276\CO3\_42015-08W2 Saved by GDIAZ Save date: 4/30/2019 5:11 PM  
PLOT DATE: 5/6/2019 5:36 AM BY: GDIAZ



NOTES:

A. 6' FENCE SHALL HAVE BLACK VINYL COATING AND VINYL SLATS. BARB WIRE AND GROUNDING NOT REQUIRED FOR LAKESHORE WTP WELLHEAD No. 2 REHABILITATION.

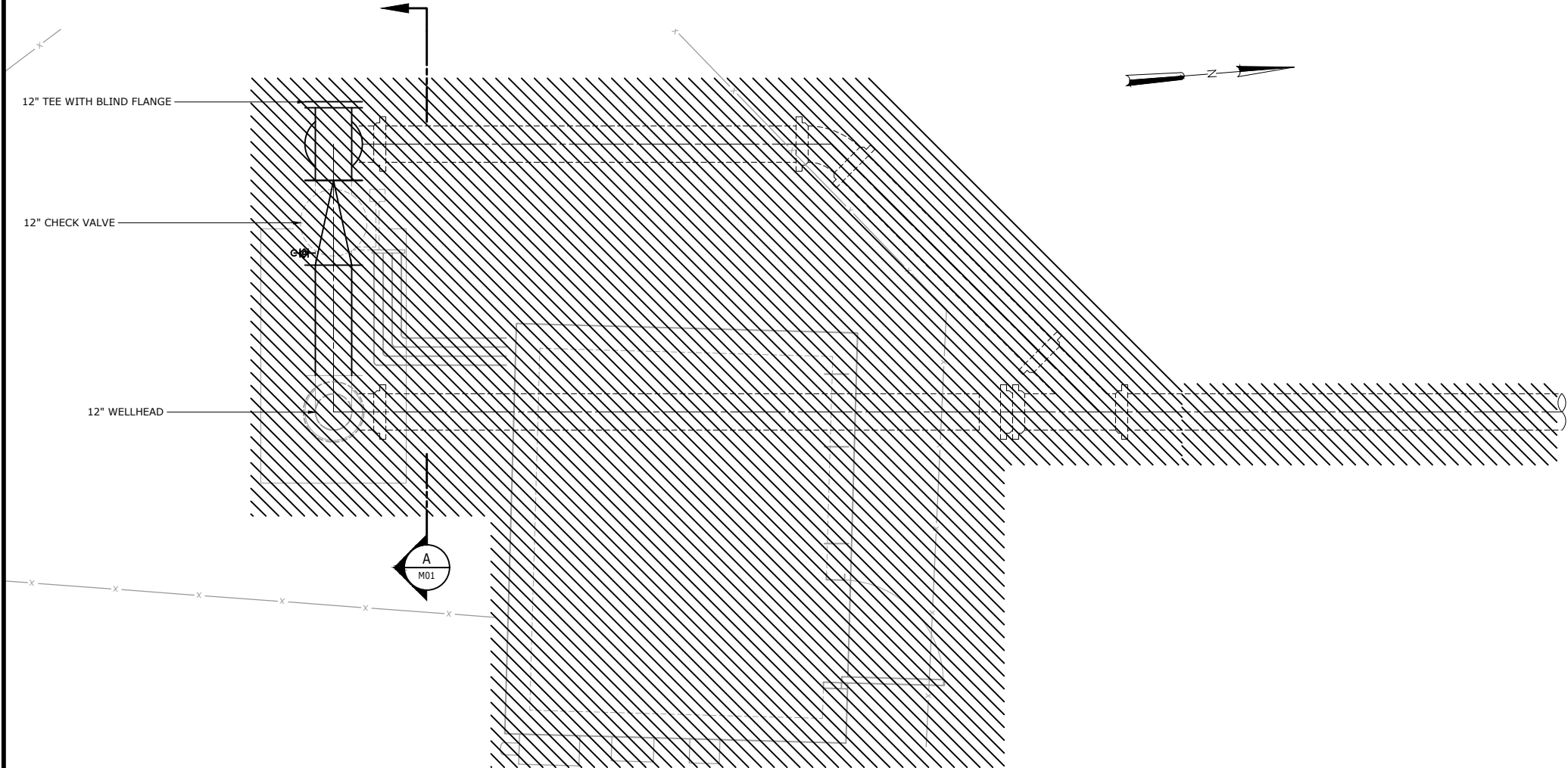


CRUSHED CONCRETE SURFACING

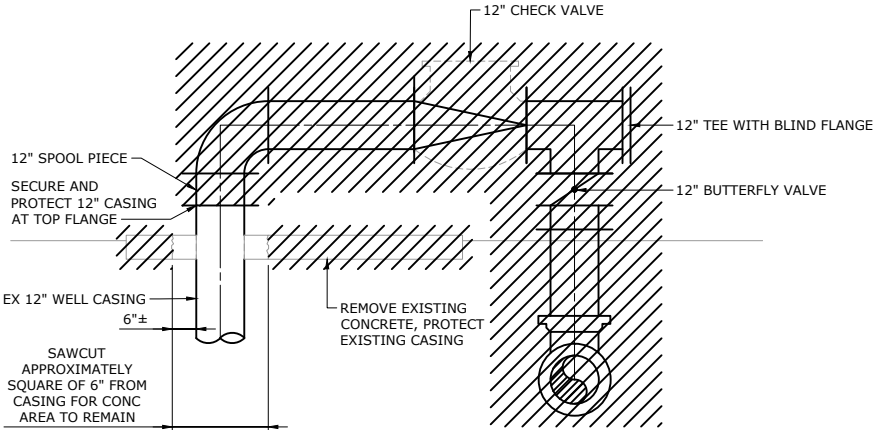
DETAIL	1
1 1/2" = 1'-0"	C03

				PROJECT ENGINEER: J.P.S.	BID SET	<b>Hazen</b> HAZEN AND SAWYER 6675 CORPORATE CENTER PKWY, SUITE 330 JACKSONVILLE, FLORIDA 32216	<b>JEA</b> sm LAKESHORE WATER TREATMENT PLANT WELLHEAD NO. 2 REHABILITATION	CIVIL DETAILS	DATE: MAY 2019
				DESIGNED BY: S.C.R.					HAZEN NO.: 42015-008
				DRAWN BY: G.H.D.					CONTRACT NO.: 8003982
				CHECKED BY: C.T.K.					DRAWING NUMBER:
1	BID	05/19	J.P.S.	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE					C04
REV	ISSUED FOR	DATE	BY		STEVEN C. ROBERTI, PE NO. 51492				





- NOTES:**
1. CONTRACTOR SHALL ANTICIPATE FREE FLOW FROM THE WELL AT APPROXIMATELY 1,100 GAL/MIN.
  2. CONTRACTOR MAY CONSIDER DELAYING REMOVAL OF EXISTING EQUIPMENT BETWEEN THE 12-INCH BUTTERFLY VALVE AND THE CASING FLANGE UNTIL THE WELLHEAD MAINTENANCE TEE HAS BEEN FABRICATED AND IS READY TO INSTALL.
  3. CONTRACTOR SHALL TAKE ALL STEPS NECESSARY TO MINIMIZE THE IMPACT OF UNCONTROLLED ARTESIAN FLOW TO ADJACENT PROPERTIES.
  4. WHEN DEMOLISHING THE EXISTING CONCRETE WELLHEAD SLAB, CONTRACTOR SHALL MAKE EVERY EFFORT NECESSARY TO PREVENT DAMAGE TO THE EXISTING WELL CASING. CONTRACTOR TO COORDINATE WITH FIELD INSPECTOR TO DETERMINE THE CONDITION OF THE BELOW-GRADE PORTION OF THE CASING WHEN THE CONCRETE SLAB IS DEMOLISHED.



**SECTION A**  
1/2" = 1'-0"

**WELLHEAD NO. 2 PLAN**  
1/2" = 1'-0"

**LEGEND**

ITEMS TO BE DEMOLISHED

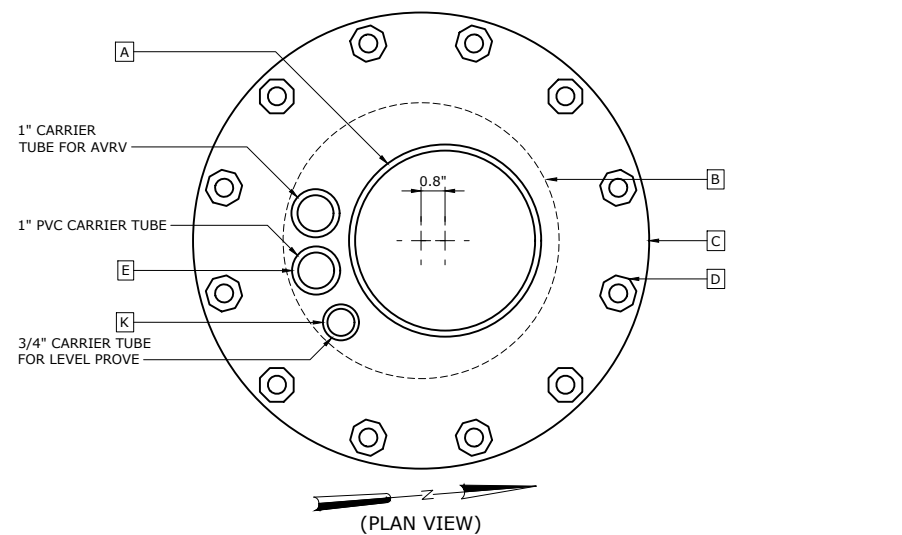


--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

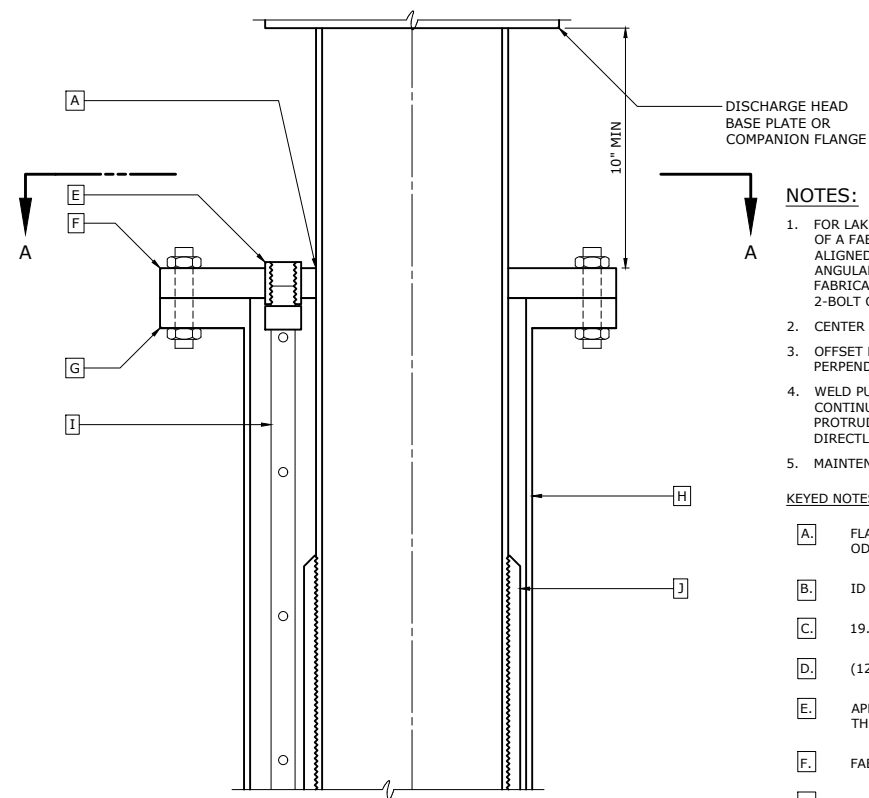




(ELEVATION VIEW)



SECTION A-A  
NTS



(SECTION VIEW)

## CASING TOP FLANGE FABRICATION

DETAIL	2
NTS	M02

NOTES:

1. FOR LAKESHORE WELL NO. 2, THE FABRICATED CASING FLANGE WILL BE MOUNTED ON TOP OF A FABRICATED 12-INCH X 10-INCH TEE. IF THE EXISTING CASING FLANGE IS NOT ALIGNED CORRECTLY WITH THE REQUIRED DISCHARGE PIPEWORK DIRECTION, AN ANGULAR ADJUSTMENT SHALL BE MADE AT THE LOWER FLANGE OF THE TEE DURING FABRICATION. ALL FLANGE BOLTS ABOVE THE LOWER FLANGE OF THE TEE SHALL BE 2-BOLT ORIENTED WITH RESPECT TO THE DISCHARGE PIPEWORK.
2. CENTER OFFSET FOR COLUMN PIPE 0.80-INCH FROM THE CENTER OF THE FLANGE.
3. OFFSET DIRECTION TO BE TOWARD THE DIRECTION OF PIPE DISCHARGE AND PERPENDICULAR TO 2-HOLE DIRECTION.
4. WELD PUMP COLUMN PIPE TO CASING FLANGED PERPENDICULAR TO CASING FLANGE. USE CONTINUOUS FILLET WELD ON TOP AND BOTTOM OF CASING FLANGE. COLUMN PIPE TO PROTRUDE ABOVE TOP FLANGE SUCH THAT 10-INCHES OF VERTICAL CLEARANCE EXISTS DIRECTLY ABOVE THE 1-INCH NPT COUPLINGS AFTER THE DISCHARGE HEAD IS INSTALLED.
5. MAINTENANCE TEE SIDE OUTLET NOT SHOWN FOR DETAIL CLARITY.

KEYED NOTES:

A. FLANGE PENETRATION TO ALLOW THRU-INSTALLATION AND WELDING OF 8.625-INCH OD SCHEDULE 40 PUMP COLUMN. FILLET WELD TO BOTH SIDES OF FLANGE.

B. ID OF 12.0-INCH WELL CASING.

C. 19.0 INCH OD OF 150# 12-INCH BLIND FLANGE.

D. (12) 1.0 INCH DIAMETER BOLT HOLES ON 17.0-INCH DIAMETER BOLT CIRCLE.

E. APPROXIMATELY 1-3/4-INCH DIAMETER PENETRATIONS TO ALLOW THRU-INSTALLATION OF 1-INCH NPT 304 SS COUPLINGS. USE 309 ROD FOR CS-SS.

F. FABRICATED CASING TOP FLANGE.

G. TOP FLANGE OF FABRICATED 12 X 10 MAINTENANCE TEE.

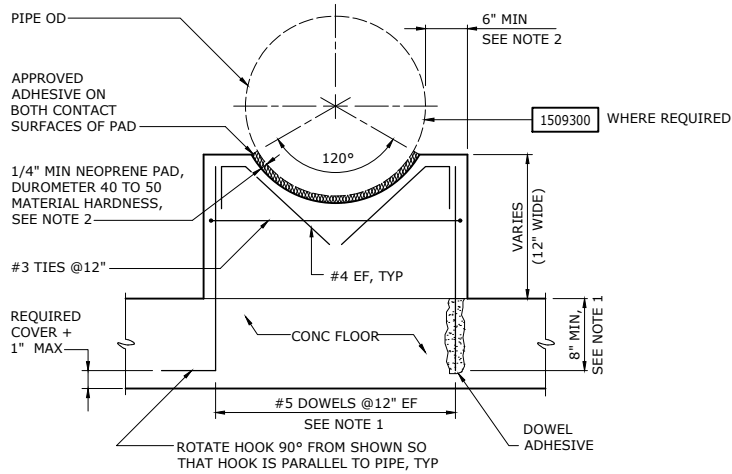
H. FABRICATED 12 X 10 MAINTENANCE TEE (SIDE OUTLET NOT SHOWN).

I. INSTALL (1) 1-INCH SCH 40 PVC CARRIER TUBE PLUS (1) 3/4-INCH SCH 40 PVC CARRIER TUBE. 3/8-INCH HOLES DRILLED THROUGH ENTIRE LENGTH AT 12-INCH INTERVALS. USE MALE THREADED ADAPTOR. USE REMAINING 1-INCH PORT FOR AVRV.

J. APPROXIMATE 9.7-INCH OD OF 8-INCH COLUMN PIPE COUPLINGS.

K. APPROX. 1-13/32 INCH DIA PENETRATION TO ALLOW THROUGH INSTALLATION OF 3/4-INCH NPT 304 SS COUPLING. USE 309 ROD CS-SS.

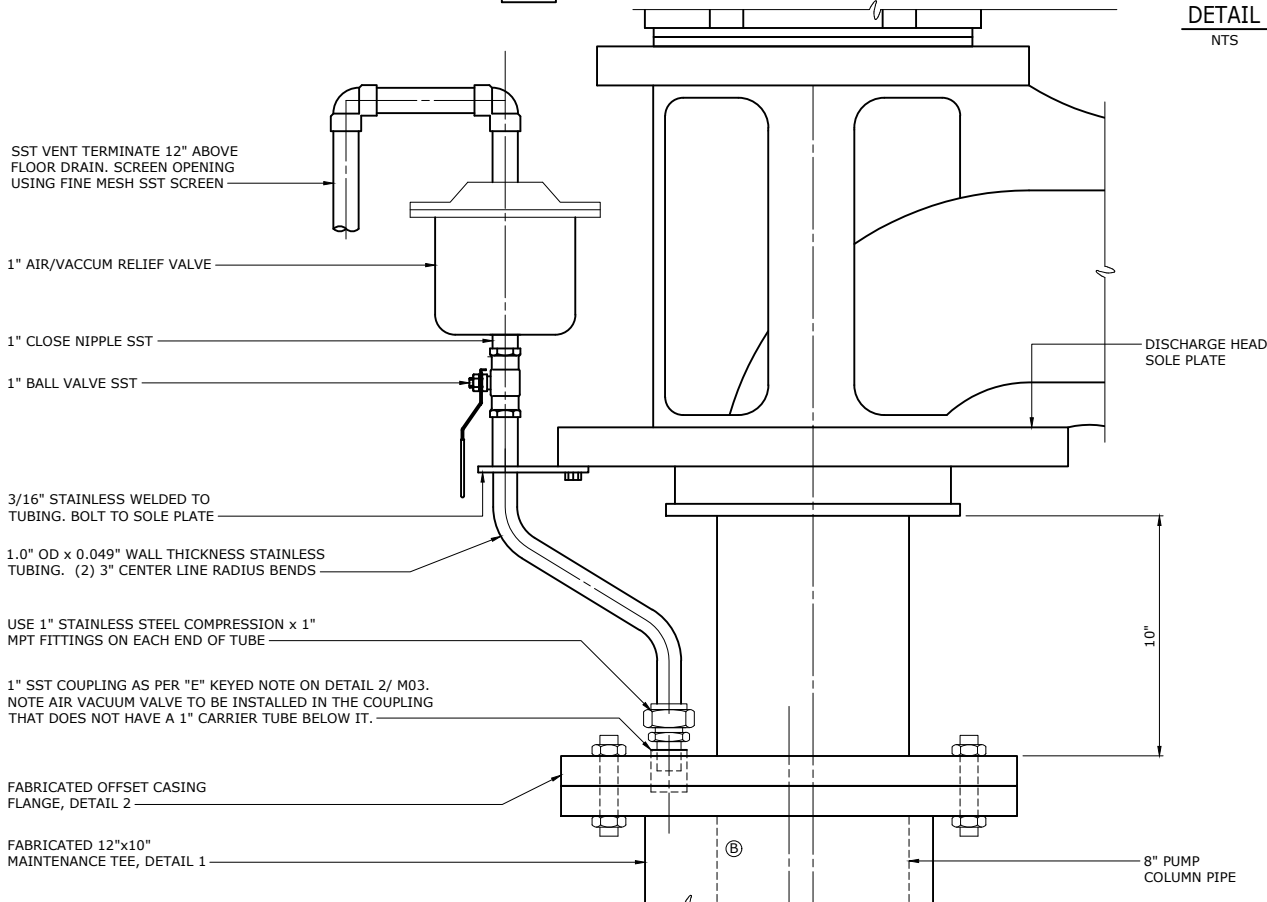
				PROJECT ENGINEER:	J.P.S.	BID SET	 HAZEN AND SAWYER 6675 CORPORATE CENTER PKWY, SUITE 330 JACKSONVILLE, FLORIDA 32216	 LAKESHORE WATER TREATMENT PLANT WELLHEAD NO. 2 REHABILITATION	WELL NO. 2 DETAILS SHEET 1	DATE:	MAY 2019
				DESIGNED BY:	S.C.R.					HAZEN NO.:	42015-008
				DRAWN BY:	J.M.J.					CONTRACT NO.:	8003982
				CHECKED BY:	C.T.K.					DRAWING NUMBER:	M03
1	BID	05/19	J.P.S.	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE							
REV	ISSUED FOR	DATE	BY			STEVEN C. ROBERTI, PE NO. 51492					



- NOTES:
1. DOWELS MAY BE CAST IN WITH 90° HOOK OR ANCHORED WITH DOWEL ADHESIVE AT CONTRACTORS OPTION. WHERE FLOOR IS 8" THICK OR LESS, USE #4 DOWELS EMBEDDED TO WITHIN 2" OF BOTTOM OF FLOOR SLAB.
  2. COORDINATE SUPPORT WIDTH WITH PIPE STRAP ANCHORAGE REQUIREMENTS. PROVIDE 6" MINIMUM, FROM CENTER OF PIPE STRAP ANCHOR ROD TO EDGE OF CONCRETE.

#### CRADLE PIPE SUPPORT

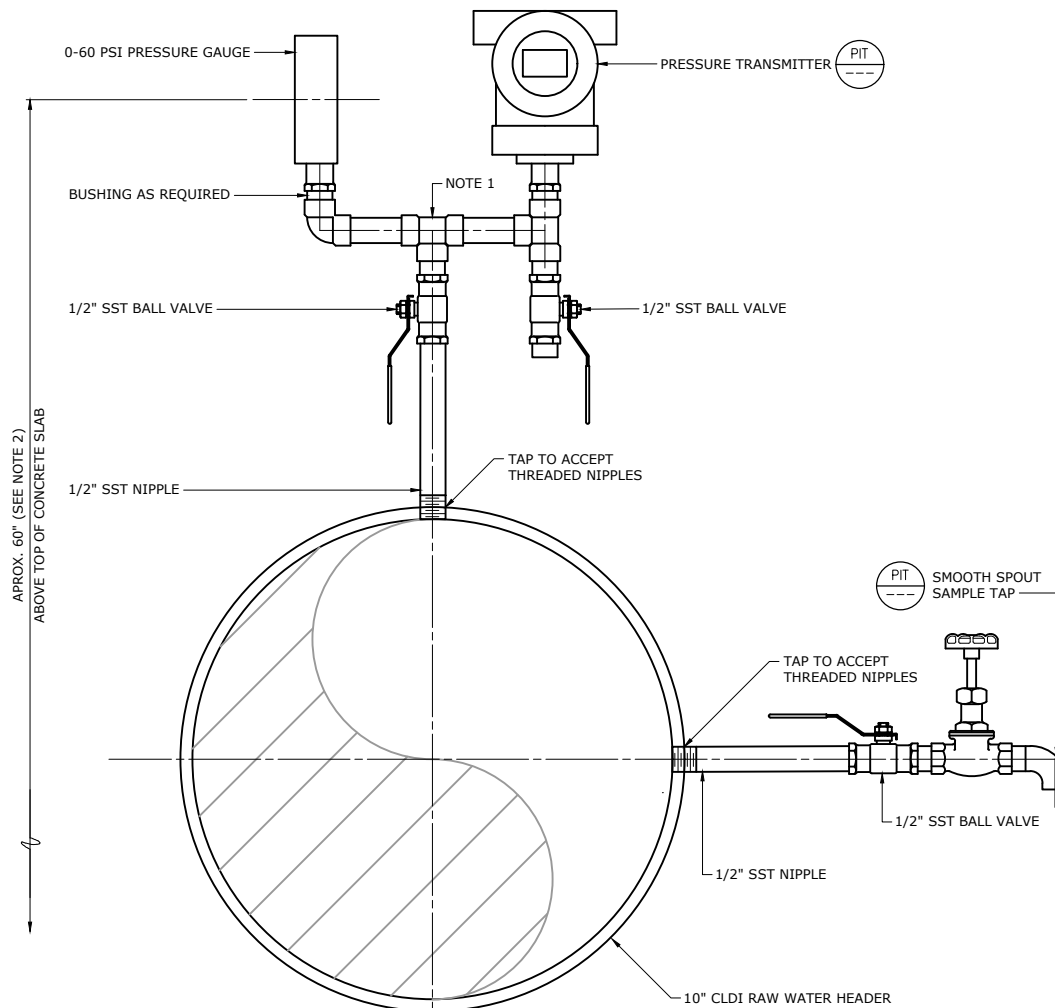
DETAIL 3  
NTS M02



- NOTES:
1. PROVIDE MINIMUM 14" CLEARANCE ABOVE JUNCTGION BOX FOR PROBE REMOVAL IF REQUIRED.
  2. CONDUCTIVITY ANALYZER AND PROBE TO BE FURNISHED BY ELECTRICAL CONTRACTOR. COORDINATE PROBE LENGTH WITH JEA.

#### CONDUCTIVITY ANALYZER INSTALLATION

DETAIL 4  
NTS M02



- NOTES:
1. ALL PIPE/FITTINGS SHALL BE 316 SST.
  2. TO THE EXTENT POSSIBLE CONTRACTOR SHALL KEEP GAUGE VISIBLE AT DIMENSION SHOWN.
  3. TAPS FOR DIP TO BE SHOP FABRICATED PERPENDICULAR TO THE CENTER LINE OF PIPE.

#### PRESSURE CONNECTION INSTALLATION

DETAIL 5  
NTS M02

#### ATTACHMENT OF 1" AIR/VACUUM VALVE TO 1" CASING FLANGE

DETAIL 6  
NTS M02

- Ⓢ NOTES:  
NO PVC CARRIER PIPE BELOW AVR

**Hazen**

HAZEN AND SAWYER  
6675 CORPORATE CENTER PKWY, SUITE 330  
JACKSONVILLE, FLORIDA 32216

**JEA**<sup>sm</sup>

LAKESHORE WATER TREATMENT PLANT  
WELLHEAD NO. 2 REHABILITATION

WELL NO. 2  
DETAILS SHEET 2

DATE: MAY 2019  
HAZEN NO.: 42015-008  
CONTRACT NO.: 8003982  
DRAWING NUMBER: M04

1	BID	05/19	J.P.S.
REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J.P.S.
DESIGNED BY:	S.C.R.
DRAWN BY:	J.M.J.
CHECKED BY:	C.T.K.
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

BID SET
STEVEN C. ROBERTI, PE NO. 51492

File: C:\MSWHAZEN\PROJECTS\12611\_42015\00002.dwg, saved by JBR/AD Save date: 4/29/2019 4:18 PM  
PLOT DATE: 5/6/2019 9:04 AM BY: GDZ

	<b>BASIC ELECTRICAL REQUIREMENTS:</b>		
<b>1.0</b>	<b>Scope of Work</b>		
1.1	THE SCOPE OF WORK SHALL BE AS DESCRIBED IN SPECIFICATION SECTION 16010.		
1.2	THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS AND APPROVALS AND TO INCLUDE ALL FEES AS PART OF HIS BID IF NOT OTHERWISE NOTED.		
1.3	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.		
1.4	IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH ALL LOCAL UTILITIES, INCLUDING THE POWER AND TELEPHONE UTILITIES TO MEET ALL OF THEIR INSTALLATION REQUIREMENTS. ALL FEES, LABOR, EQUIPMENT OR MATERIALS NECESSARY TO MEET THESE REQUIREMENTS IS TO BE INCLUDED IN THE BID. THE CONTRACTOR SHALL OBTAIN, DELIVER AND INSTALL ALL CONDUITS, PULL-BOXES AND EQUIPMENT AS REQUIRED BY THE UTILITIES TO THEIR SPECIFICATIONS. THE TELEPHONE UTILITY REPRESENTATIVE IS THE CITY'S TELEPHONE CONTRACTOR.		
1.5	THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THE ENGINEER AND OWNER.		
1.6	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.		
1.7	ALL EQUIPMENT AND MATERIAL SHALL BE NEW, UNUSED AND U.L. LISTED. ALL REFERENCES TO A PARTICULAR MANUFACTURER ARE GIVEN ON AN "APPROVED EQUAL" BASIS.		
1.8	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.		
1.9	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 UNLESS OTHERWISE NOTED.		
1.10	SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL ELECTRICAL & CONTROL EQUIPMENT AND MATERIAL.		
<b>2.0</b>	<b>Codes and Standards</b>		
2.1	THE INSTALLATION SHALL BE IN ACCORDANCE WITH THE MINIMUM FOLLOWING STANDARDS AND CODES:		
2.2	NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)		
2.3	NATIONAL ELECTRICAL CODE (NEC), (NFPA 70 2014 EDITION)		
2.4	NATIONAL ELECTRICAL SAFETY CODE, (NFPA 70E 2012 EDITION)		
2.5	STANDARD FOR FIRE PROTECTION IN WASTEWATER TREATMENT AND COLLECTION FACILITIES, (NFPA 820 2012 EDITION)		
2.6	OTHER NFPA CODES AS APPLICABLE		
2.7	FLORIDA BUILDING CODE (FBC 2010 EDITION)		
2.8	LOCAL CODES, CITY CODES REQUIRED BY THE AUTHORITY HAVING JURISDICTION.		
2.9	AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)		
2.10	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)		
2.11	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)		
2.12	INSULATED CABLE ENGINEERS ASSOCIATION (ICEA)		
2.13	OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)		
2.14	AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)		
2.15	UNDERWRITERS LABORATORIES (UL) LISTING AND LABELING FOR ALL MATERIALS AND EQUIPMENT WHERE APPLICABLE STANDARDS EXIST		
<b>3.0</b>	<b>General Items</b>		
3.1	ALL CIRCUITS SHALL BE IDENTIFIED IN JUNCTION BOXES, PULL BOXES, CONTROL PANELS, PANELBOARDS, LIGHTING POLES, CONTROLLERS AND SERVICE POINTS. IDENTIFICATION SHALL MATCH PANELBOARD SCHEDULES.		
3.2	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.		

<b>3.3</b>	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.								
<b>3.4</b>	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.								
<b>3.5</b>	CONTRACTOR SHALL RESTORE SIDEWALKS, ROADWAYS, SOD AND SPRINKLER SYSTEM PIPING TO MATCH EXISTING, AFTER THE COMPLETION OF THE CONDUIT AND PULLBOX INSTALLATION.								
<b>3.6</b>	ELECTRICAL EQUIPMENT SHALL BE DEFINED AS ANY ELECTRICAL DEVICE USED IN CONJUNCTION WITH OTHER EQUIPMENT REQUIRING ELECTRICITY FOR OPERATION. THIS INCLUDES BUT IS NOT LIMITED TO: DISCONNECT SWITCHES, JUNCTION BOXES, PANELBOARDS, TRANSFORMERS, LIGHTING FIXTURES, MOTOR STARTERS, SWITCHGEAR, MOTOR CONTROL CENTERS, CONTROLS, LOCAL CONTROL PANELS.								
<b>3.7</b>	ALL REFERENCES TO STAINLESS STEEL (SS) SHALL MEAN TYPE 316 STAINLESS STEEL UNLESS OTHERWISE NOTED.								
<b>3.8</b>	ALL ELECTRICAL EQUIPMENT IN DESIGNATED CORROSIVE AREAS SHALL BE NEMA 4X 316 STAINLESS STEEL OR NON-METALLIC (FRP).								
<b>3.9</b>	OUTDOOR LIGHTING FIXTURES SHALL BE COPPER FREE ALUMINUM.								
<b>3.10</b>	CONTRACTOR SHALL PROVIDE AS PART OF THE ELECTRICAL SUBMITTAL, A LAYOUT OF THE ELECTRICAL ROOM SHOWING SIZES OF ALL EQUIPMENT INCLUDING LIGHTING, AND HVAC WITH THEIR SPATIAL RELATIONSHIPS.								
<b>3.11</b>	CONTRACTOR SHALL PROVIDE AND INSTALL WIRE ID TAGS ON ALL WIRING THAT INTERFACES WITH OTHER EQUIPMENT. INSTRUMENTATION WIRING SHALL USE SIGNAL ID TAG FROM I/O LIST UNLESS OTHERWISE NOTED.								
<b>4.0</b>	<b>Operation and Maintenance Manuals</b>								
<b>4.1</b>	CONTRACTOR SHALL PROVIDE AN OPERATION AND MAINTENANCE MANUAL PER FBC EC C405.7.4.2 INCLUDING: 1. SUBMITTAL DATA STATING EQUIPMENT RATING AND SELECTED OPTION FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. 2. OPERATION AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED 3. NAMES AND ADDRESSES OF AT LEAST ONE QUALIFIED SERVICE AGENCY								
<b>4.2</b>	SEE SPECIFICATIONS FOR ADDITIONAL DETAILS								
<b>5.0</b>	<b>Project Coseout</b>								
<b>5.1</b>	CONTRACTOR SHALL PROVIDE RECORD DRAWINGS TO THE OWNER AND ENGINEER WITHIN 30 DAYS OF PUMP STATION ACCEPTANCE. THESE SHALL INCLUDE PER FBC EC C405.7.4.1:								
<b>5.2</b>	A LAMINATED AND FRAMED MINIMUM 11X17 INCH SINGLE LINE DIAGRAM OF THE SITE ELECTRICAL SYSTEM SHALL BE PROVIDED FOR INSTALLATION ADJACENT TO THE MAIN ELECTRICAL GEAR.								
<b>5.3</b>	PLAN VIEWS OF COMPLETE PUMP STATION								
<b>6.0</b>	<b>Raceways</b>								
<b>6.1</b>	CONDUITS RUN IN PARALLEL: INSTRUMENTATION CONDUITS SHALL HAVE A MINIMUM SEPARATION FROM POWER CONDUITS AS INDICATED IN TABLE WHETHER CONCRETE ENCASED DUCT BANKS, DIRECT BURIED, SURFACE OR RACKS: <table><tr><td>VOLTAGE</td><td>DISTANCE</td></tr><tr><td>4160V</td><td>3 FT</td></tr><tr><td>480V</td><td>2 FT</td></tr><tr><td>120V</td><td>1 FT</td></tr></table>	VOLTAGE	DISTANCE	4160V	3 FT	480V	2 FT	120V	1 FT
VOLTAGE	DISTANCE								
4160V	3 FT								
480V	2 FT								
120V	1 FT								
<b>6.2</b>	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 RISERS AND ONE-LINE DIAGRAMS.								

<b>6.3</b>	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.
<b>6.4</b>	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.
<b>6.5</b>	CONTRACTOR SHALL CORE DRILL EXISTING CONCRETE WALLS, FLOORS, MANHOLES, HAND HOLES AND PULL BOXES FOR CONDUIT PENETRATIONS. SEAL PENETRATIONS WITH NON-SHRINK GROUT OR APPROPRIATE FIRE RATED DEVICES WHERE APPLICABLE.
<b>6.6</b>	ALL CONDUITS PENETRATING RATED FIRE WALLS OR RATED FIRE FLOORS SHALL BE INSTALLED WITH U.L. APPROVED DEVICES AND OR FIRE RATED SEALING COMPOUND TO MAINTAIN THE FIRE RATING OF THE WALL OR FLOOR PENETRATED.
<b>6.7</b>	PROVIDE CONDUIT DUCT SEAL AT ALL CONDUIT ENDS.
<b>6.8</b>	ALL SPARE, ABANDONED, OR EMPTY CONDUITS SHALL BE SEALED WITH A CAP AT BOTH ENDS AND A PULL STRING INSTALLED WITH IDENTIFICATION OF OTHER END LOCATION AT BOTH ENDS.
<b>6.9</b>	FLEXIBLE CONDUITS SHALL BE USED TO TERMINATE ALL MOTORS AND OTHER VIBRATING EQUIPMENT AND SHALL BE BETWEEN 18" AND 36" IN LENGTH.
<b>6.10</b>	ALL METALLIC CONDUITS BELOW GRADE TO A MINIMUM ELEVATION OF 12 INCHES ABOVE GRADE SHALL BE ASPHALT COATED ALUMINUM RIGID METAL CONDUIT (RMC).
<b>6.11</b>	ALL METALLIC CONDUITS 12 INCHES AND GREATER ABOVE GRADE SHALL BE ALUMINUM RMC.
<b>6.12</b>	ALL REFERENCES TO RMC SHALL MEAN RIGID ALUMINUM CONDUIT UNLESS OTHERWISE NOTED.
<b>6.13</b>	NOT USED THIS PROJECT
<b>6.14</b>	RIGID GALVANIZED STEEL CONDUIT SHALL BE USED FOR INSTRUMENTATION WIRING.
<b>7.0</b>	<b>Duct Banks &amp; Manholes</b>
<b>7.1</b>	LOCATIONS OF MANHOLES, HANDHOLES AND PULL BOXES ARE APPROXIMATE. CONTRACTOR SHALL COORDINATE EXACT LOCATION WITH EXISTING AND NEW PIPING OR CONDUIT AND ADJUST ACCORDINGLY.
<b>7.2</b>	COLORLED WARNING TAPE 6" WIDE SHALL BE INSTALLED 8" BELOW FINISHED GRADE DIRECTLY ABOVE ALL UNDERGROUND YARD CONDUITS ACCORDING TO THE FOLLOWING SCHEDULE:
<b>7.3</b>	POWER: RED
<b>7.4</b>	ALL OTHER CONDUITS: GREEN
<b>7.5</b>	ALL EXCAVATIONS FOR CONDUITS, HANDHOLES, MANHOLES AND PULLBOXES NEAR EXISTING PIPING, CONDUIT AND EQUIPMENT SHALL BE HAND EXCAVATED AND COORDINATED WITH PLANT ENGINEER AT JEA.
<b>7.6</b>	MINIMUM DEPTH FROM TOP OF DUCT BANKS OR CONDUITS TO FINISHED GRADE SHALL BE 24" UNLESS OTHERWISE NOTED.
<b>7.7</b>	IF CONCRETE ENCASED DUCT BANKS INCLUDE POWER WITH ANY TYPE OF SIGNALS EXCEPT FIBER OPTIC CABLE, ALL CONDUITS SHALL BE METALLIC.
<b>7.8</b>	CONCRETE DUCT BANKS WITH POWER ONLY WIRING MAY BE PVC UNLESS OTHERWISE NOTED ON THE DRAWINGS.
<b>7.9</b>	SLOPE DUCT BANKS A MINIMUM 3 INCHES PER 100 FEET DOWN AWAY FROM BUILDINGS.
<b>7.10</b>	DUCT BANK CONCRETE SHALL BE MINIMUM CLASS C 2500 PSI
<b>8.0</b>	<b>Conductors</b>
<b>8.1</b>	ALUMINUM CONDUCTORS SHALL NOT BE USED FOR THIS PROJECT.
<b>8.2</b>	CONDUCTOR PULLING TENSIONS SHALL NOT EXCEED MANUFACTURER'S RECOMMENDATION. CONTRACTOR SHALL INSTALL PULL BOXES TO MEET MANUFACTURER'S REQUIREMENTS.
<b>8.3</b>	COPPER CONDUCTORS FOR POWER WIRING WITH A VOLTAGE GREATER THAN 240V TO GROUND SHALL BE XHHW-2. OTHER POWER WIRING SHALL BE EITHER XHHW OR THWN STRANDED COPPER WIRING.
<b>8.4</b>	BRANCH CIRCUITS EXCEEDING 100 FT IN LENGTH SHALL BE WIRED WITH MINIMUM #10 AWG COPPER WIRES. CONTRACTOR SHALL VERIFY REQUIRED WIRE SIZE WITH VOLTAGE DROP CALCULATIONS.
<b>9.0</b>	<b>Boxes</b>

<b>9.1</b>	ALL ENCLOSURES, TJB, WIREWAY, PULL BOXES 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.
<b>9.2</b>	ALL JUNCTIONS BOXES, LOCAL CONTROL PANELS, DISCONNECT SWITCHES AND INSTALLATION HARDWARE INSTALLED OUTDOORS SHALL BE 316 STEEL.
<b>10.0</b>	<b>Panels</b>
<b>10.1</b>	ALL CONTROL PANELS SHALL BE CONSTRUCTED BY A UL 508A APPROVED PANEL VENDOR AND SHALL BEAR A UL 508A LABEL ON THE PANEL.
<b>10.2</b>	TYPEWRITTEN AND LAMINATED PANEL SCHEDULES SHALL BE INSTALLED IN EACH PANELBOARD, AND TYPEWRITTEN TERMINAL BLOCK SCHEDULES IN EACH CONTROL CABINET.
<b>10.3</b>	ALL PANELBOARDS SHALL INCLUDE AN INTEGRAL FACTORY INSTALLED SURGE PROTECTION DEVICES (SPD AKA TVSS).
<b>10.4</b>	CONTRACTOR SHALL BALANCE PANELBOARD LOADS AT THE END OF THE PROJECT.
<b>11.0</b>	<b>Grounding</b>
<b>11.1</b>	GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH NEC, 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.
<b>11.2</b>	AN EQUIPMENT GROUND WIRE SIZED PER NEC SHALL BE PULLED IN ALL ELECTRICAL CONDUITS, POWER AND CONTROL, WHETHER OR NOT INDICATED ON THE PLANS.
<b>12.0</b>	<b>Instrumentation</b>
<b>12.1</b>	INSTRUMENTATION IS LOW VOLTAGE SIGNALS SUCH AS 4-20MA, TELEPHONE COMMUNICATION, FIRE ALARM COMMUNICATION. POWER CONDUITS SHALL ONLY CROSS INSTRUMENTATION CONDUIT PERPENDICULARLY AT RIGHT ANGLES WITH 6" SEPARATION.
<b>12.2</b>	THE POWER AND SIGNAL SIDES OF ALL EXTERIOR INSTALLED INSTRUMENTATION SHALL HAVE SURGE PROTECTION AND SHALL BE GROUNDED TO A SEPARATE GROUND ROD AT THE INSTRUMENT.
<b>12.3</b>	INSTRUMENTATION GROUND SHALL BE A #6 AWG COPPER CONNECTED TO THE GROUND GRID OR CONNECTED TO A DRIVEN GROUND. #6 GROUND WIRE SHALL BE INSTALLED IN CONDUIT WHERE EXPOSED. GROUND RODS SHALL BE 5/8" OR 3/4" BY A MINIMUM OF 20' IN LENGTH, AS INDICATED ON THE DRAWINGS.
<b>12.4</b>	CONTRACTOR SHALL INSTALL A SWITCH TO DISCONNECT POWER AT EACH FOUR WIRE INSTRUMENT.
<b>13.0</b>	<b>Signage</b>
<b>13.1</b>	CONTRACTOR SHALL PROVIDE SIGNAGE PER NEC 110.24 AND NEC 702.7 AT THE SERVICE ENTRANCE EQUIPMENT.
<b>13.2</b>	CONTRACTOR SHALL PROVIDE SIGNAGE PER NFPA 110 FOR THE EMERGENCY SHUT-OFF BUTTON LOCATED ON THE NORTH EAST OUTSIDE CORNER OF THE ELECTRICAL BUILDING.
<b>13.3</b>	CONTRACTOR SHALL PROVIDE SIGNAGE PER NFPA 704 FOR THE FUEL SUPPLY.
<b>13.4</b>	CONTRACTOR SHALL PROVIDE AND INSTALL ARC-FLASH HAZARD WARNING LABELS PER NEC 110.16 AND 110.21. THESE RULES APPLY AS A MINIMUM TO SWITCHBOARDS, SWITCHGEAR, PANELBOARDS, MOTOR CONTROL CENTERS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND ENCLOSED CIRCUIT BREAKERS. CONTRACTOR SHALL SUBMIT SHORT CIRCUIT AND ARC FLASH CALCULATIONS FOR REVIEW.
<b>14.0</b>	<b>Electrical Devices (Sw and Recp)</b>
<b>14.1</b>	ALL RECEPTACLES SHALL BE INSTALLED 18" AFF UNLESS OTHERWISE NOTED. LIGHT SWITCHES SHALL BE MOUNTED 48" AFF UNLESS OTHERWISE NOTED.
<b>14.2</b>	ALL RECEPTACLES WITHIN 6" OF A SINK SHALL BE GFI.
<b>14.3</b>	CONTRACTOR SHALL PROVIDE, INSTALL, TERMINATE AND TEST NEW STATION TELEMETRY EQUIPMENT. SEE DATA FLOW SCADA SYSTEMS (DFS) NOTES BELOW.

				PROJECT ENGINEER:	J.P.S.
				DESIGNED BY:	J.M.B
				DRAWN BY:	J.M.B
				CHECKED BY:	J.C.B
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	BID	05/19	J.P.S.		
REV	ISSUED FOR	DATE	BY		

BID SET

JOHN C. BURKE, PE NO. 17301



HAZEN AND SAWYER  
6675 CORPORATE CENTER PKWY, SUITE 330  
JACKSONVILLE, FLORIDA 32216



LAKE SHORE WATER TREATMENT PLANT  
WELLHEAD NO. 2 REHABILITATION

ELECTRICAL NOTES

DATE: MAY 2019



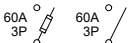




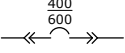
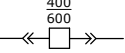

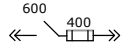


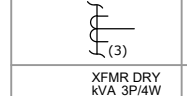
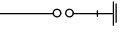

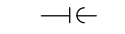


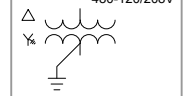














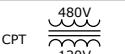





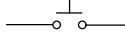


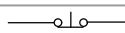


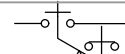


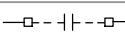
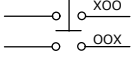

























































HAZEN NO.: 42015-008

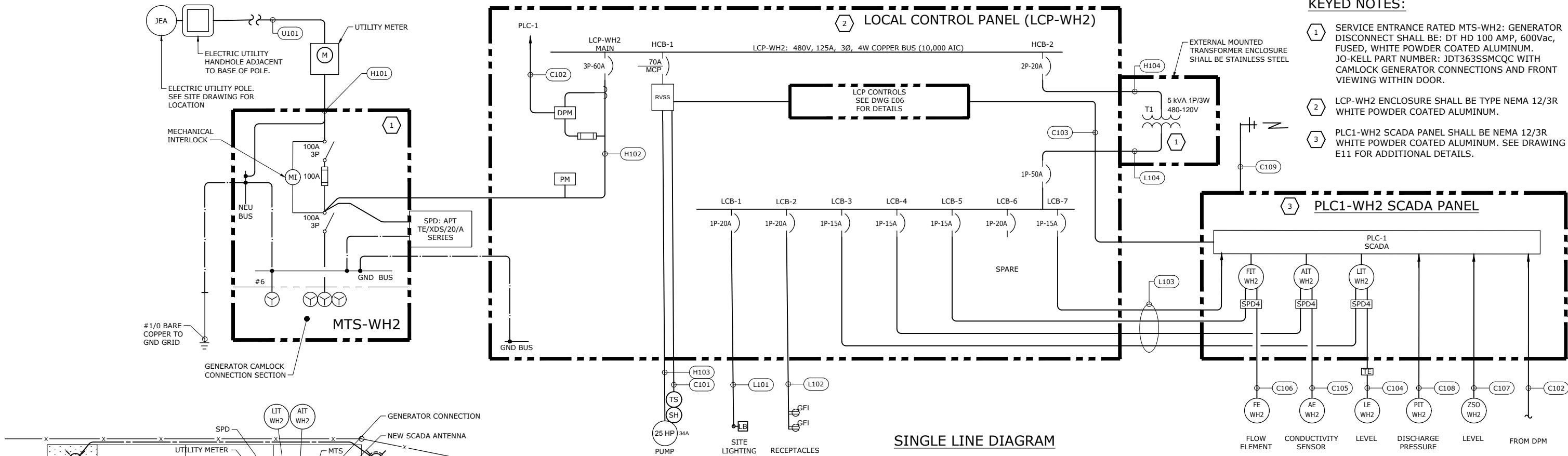
CONTRACT NO.: 8003982

DRAWING NUMBER:

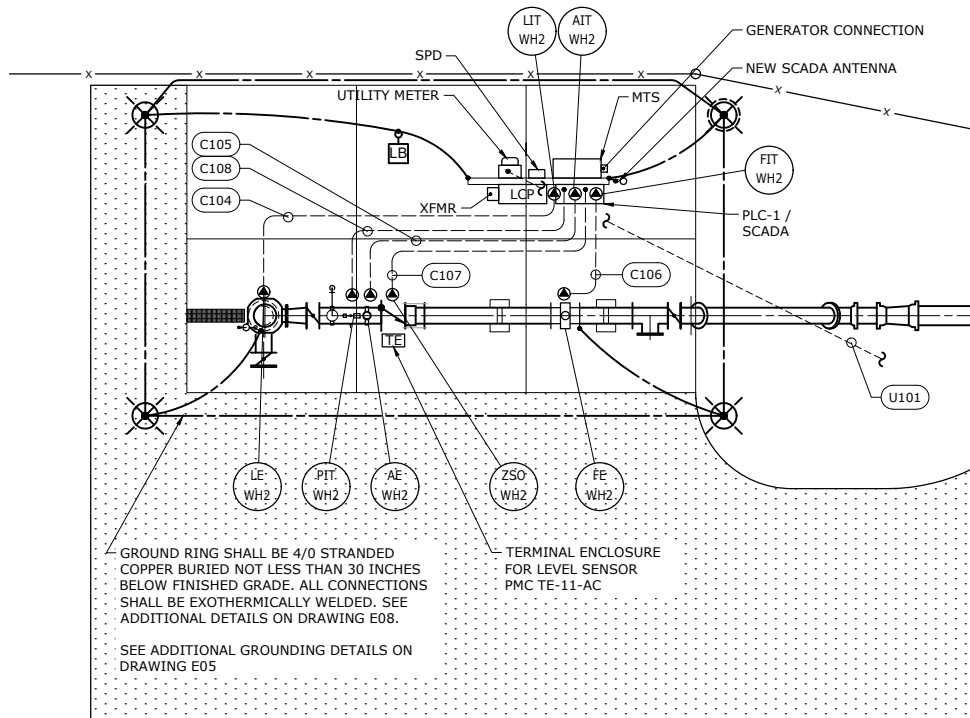
E01

File: C:\BMS\HAZEN\PROJECTS\17E02\_42015-000\2 Saved by JBRCAD Save date: 4/29/2019 4:17 PM  
PLOT DATE: 5/2/2019 6:04 AM BY: GD&Z

ABBREVIATIONS				ABBREVIATIONS				ABBREVIATIONS				ELECTRICAL PLAN/LAYOUT		ONE LINE DIAGRAMS, RISER DIAGRAMS AND SCHEMATICS					
ABBR.	DESCRIPTION			ABBR.	DESCRIPTION			ABBR.	DESCRIPTION			SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION		
A	AMMETER, AMPERE			HH	HANDHOLE			P	POLE				TERMINAL JUNCTION BOX		ELECTRICAL INTERLOCK		DISC SWITCH - FUSED, NON-FUSED		
AC	ALTERNATING CURRENT			HID	HIGH INTENSITY DISCHARGE			PB	PULL BOX OR PUSH BUTTON				POWER PANELBOARD "H(X)" LIGHTING PANELBOARD "L(X)"		G or Y	GENERATOR		S M	MANUAL MOTOR STARTER SWITCH, NEMA 4X UNLESS OTHERWISE NOTED. NUMBER OF POLES AS REQUIRED.
AF	CB AMPERE FRAME SIZE			HOA	HAND/OFF/AUTO			PC	PHOTOCELL				ELECTRICAL LOCAL CONTROL PANELS		400 600	DRAWOUT CIRCUIT BREAKER, LOW VOLTAGE 600= FRAME RATING, 400=TRIP SETTING		400 600	DRAWOUT CIRCUIT BREAKER, MEDIUM VOLTAGE 600= FRAME RATING, 400=TRIP SETTING
AFD	ADJUSTABLE FREQUENCY DRIVE			HOR	HAND/OFF/REMOTE			PCP	PROCESS CONTROL PANEL				CEILING MOUNTED DOWNLIGHT LUMINAIRE - SEE SCHEDULE FOR TYPE		600 400	DRAWOUT FUSED SWITCH, LOW OR MEDIUM VOLTAGE 600= FRAME RATING, 400=FUSE RATING		(3)	CURRENT TRANSFORMER, NUMBER OF WINDINGS INDICATED
AFF	ABOVE FINISHED FLOOR			HP	HORSEPOWER			PF	POWER FACTOR				LUMINAIRE AND POLE - SEE SCHEDULE FOR TYPE		XFMR DRY KVA 3P/4W 480-120/208V	TRANSFORMER, VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE		I	LIGHTNING ARRESTER
AFG	ABOVE FINISHED GRADE			HPS	HIGH PRESSURE SODIUM			PH	PHASE				WALL MOUNTED LUMINAIRE - SEE SCHEDULE FOR TYPE		— — —	CAPACITOR OR SURGE CAPACITOR			ELECTRIC RESISTANCE HEATER
AHJ	AUTHORITY HAVING JURISTICTICION			HTR	HEATER			PLC	PROGRAMMABLE LOGIC CONTROLLER				GROUND ROD - 5/8" x 20' COPPER CLAD UNLESS OTHERWISE NOTED		Δ Y/Δ	TRANSFORMER, VOLTAGES, PHASE AND RATING INDICATED AS APPLICABLE		ETM	ELAPSED TIME METER
AIC	SYMM. AMPS INTERRUPTING CAP.			HV	HIGH VOLTAGE			PM	PHASE MONITOR				GROUND ROD IN TEST WELL - 5/8" x 20' COPPER CLAD UNLESS OTHERWISE NOTED		X 0-600V	METER SCALE RANGE SHOWN IF REQUIRED PM - PHASE MONITOR A - AMPS P - POWER METER V - VOLTS		2 4X	MAGNETIC STARTER, NEMA SIZE INDICATED, NEMA 12 ENCLOSURE, UNLESS INDICATED OTHERWISE. SEE CONTROL DIAGRAM. 4X = NEMA 4X STAINLESS STEEL
AL	ALUMINUM			HVAC	HEAT, VENTILATION, AIR COND.			PMU	POWER MONITOR UNIT				EMERGENCY LIGHT WITH BATTERY PACK SEE SCHEDULE FOR TYPE		40 60 4X	FUSED DISCONNECT SWITCH, SIZE INDICATED (60 = SWITCH RATING: 40 = FUSE RATING) 3 POLE UNLESS INDICATED OTHERWISE, NEMA 12 ENCLOSURE, 4X = NEMA 4X 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 STAINLESS STEEL
ARC	ALUMINUM RIGID CONDUIT			HZ	HERTZ (FREQUENCY)			PNL	PANEL				LIGHTING FIXTURE POWER AND SWITCHING LEGEND X = FIXTURE TYPE # = CIRCUIT NUMBER		TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION		CRx	CONTACT - NORMALLY OPEN WITH COIL INDICATED
AS	AMMETER SENSOR OR SWITCH			IC	INTERRUPTING CAPACITY			PP	POWER PANEL (480VAC)				CONDUIT/CONDUCTOR - REFER TO CIRCUIT SCHEDULE		— — —	GROUND		CRx	CONTACT - NORMALLY CLOSED WITH COIL INDICATED
ASYM	ASYMMETRICAL			ID	INSIDE DIAMETER			PR	PAIR				HOME RUN - PANEL AND CIRCUIT NUMBER SHOWN		CPT	CONTROL TRANSFORMER		CRx OR Rx	CONTROL RELAY, X = SEQUENTIAL NUMBER
AT	CB AMPERE TRIP SETTING			IMC	INTERMEDIATE METAL CONDUIT			RGS	RIGID GALVANIZED STEEL CONDUIT				EXPOSED CONDUIT AND CONDUCTORS*		GFR	GROUND FAULT RELAY WITH C.T.		LRx (L)	CONTROL RELAY, X=SEQUENTIAL NUMBER
ATS	AUTOMATIC TRANSFER SWITCH			INST	INSTANTANEOUS			RMC	RIGID METAL CONDUIT				UNDERGROUND CONDUIT AND CONDUCTORS*			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN		TDx	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
AUX	AUXILIARY			I/O	INPUT / OUTPUT SIGNALS			RM	ROOM				CONDUIT, STUBBED AND CAPPED AS SHOWN			PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED			TEMPERATURE CLOSES ON FALLING TEMPERATURE
AWG	AMERICAN WIRE GAUGE			IP	INSTRUMENT PANEL			RMS	ROOT MEAN SQUARE				GROUND WIRE, 4/O CU UNLESS OTHERWISE NOTED			PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK			CLOSES ON RISING TEMPERATURE
								RS	RIGID STEEL				WALL SWITCH: # - CIRCUIT NO. 2- DOUBLE POLE 3- THREE WAY 4- FOUR WAY WP- WEATHERPROOF			REMOTE DEVICE		H O A XOO OOX	SELECTOR SWITCH: MAINTAINED CONTACT WITH CONTACT POSITION INDICATED, CHART IDENTIFIES OPERATION
								RTD	RESISTANCE TEMPERATURE DETECTOR				20A DUPLEX RECEPTACLE UNLESS SPECIFIED OTHERWISE WP - WEATHERPROOF C - CLOCK HANGER TL - TWIST LOCK CRE - CORROSION RESISTANT GFCT - GROUND FAULT INTERRUPTER FTC - FULL TIME COVER			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. LOCATED ABOVE COUNTER TOP			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								RVSS	REDUCED VOLTAGE SOFT STARTER				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SA	SURGE ARRESTER				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SC	SURGE CAPACITOR				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SEC	SECONDARY				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SEL	SELECTOR				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SF	SUPPLY FAN				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SH	SPACE HEATER				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SLD	SINGLE LINE DIAGRAM				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SMH	SIGNAL MAINTENANCE HOLE				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								S/N	SOLID NEUTRAL				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SPEC	SPECIFICATIONS				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SPD	SURGE PROTECTIVE DEVICE				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SSRVS	SOLID STATE REDUCED VOLTAGE ST.				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SST	STAINLESS STEEL				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SUB	SUBSTATION				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SV	SOLENOID VALVE				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SW	SWITCH				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SWBD	SWITCHBOARD				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SWGR	SWITCHGEAR				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SYM	SYMMETRICAL				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								SYS	SYSTEM				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								T	THERMOSTAT				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								TB	TERMINAL BLOCK				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								TDR	TIME DELAY RELAY				20A QUADRAPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.			20A DUPLEX RECEPTACLE - UNLESS SPECIFIED OTHERWISE. MOUNTED FLUSH IN FLOOR.
								TE	TERMINAL ENCLOSURE										



- KEYED NOTES:**
- 1 SERVICE ENTRANCE RATED MTS-WH2: GENERATOR DISCONNECT SHALL BE: DT HD 100 AMP, 600Vac, FUSED, WHITE POWDER COATED ALUMINUM. JO-KELL PART NUMBER: JDT363SSMCQC WITH CAMLOCK GENERATOR CONNECTIONS AND FRONT VIEWING WITHIN DOOR.
  - 2 LCP-WH2 ENCLOSURE SHALL BE TYPE NEMA 12/3R WHITE POWDER COATED ALUMINUM.
  - 3 PLC1-WH2 SCADA PANEL SHALL BE NEMA 12/3R WHITE POWDER COATED ALUMINUM. SEE DRAWING E11 FOR ADDITIONAL DETAILS.



**WELL PAD POWER AND CONTROL WIRING PLAN**

SEE DRAWING E10 FOR EXPANDED RACK AND EQUIPMENT SUGGESTED LAYOUT

CONDUIT AND WIRING SCHEDULE				
ID TAG	CONDUIT	WIRE	FROM	TO
U101	2"	4#2	JEA UTILITY POLE	JEA UTILITY METER
H101	1-1/2"	4#2	JEA UTILITY METER	MTS-WH2
H102	1-1/2"	3#2, 1#6G	MTS-WH2	LCP-WH2-MAIN
H103	1"	3#6, 1#8G	LCP RVSS (HCB-1)	WELL HEAD PUMP POWER
H104	3/4"	3#12, 1#12G	LCP (HCB-2)	480-240/120V XFMR
L101	3/4"	2#12 1#12G	LCP (LCB-1)	SITE LIGHTING
L102	3/4"	2#12 1#12G	LCP (LCB-2)	RECEPTACLES
L103	3/4"	2#12, 1#12G 2#12, 1#12G 2#12, 1#12G 2#12, 1#12G	LCP (LCB-7) LCB-3 LCB-4 LCB-5	PLC-1/SCADA PANEL POWER LIT 1-1-1 AIT 1-1-1 FIT 1-1-1
L104	1"	2#8 1#10G	XFMR T1	LCP POWER BUS
C101	3/4"	2#12, 1#12G 4#14, 1#14G	LCP (LCB-1) LCP (CTRL)	WELL HEAD PUMP SH WELL HEAD PUMP TS
C102	3/4"	FOC	MTS DPM SIGNALS	PLC-1/SCADA PANEL
C103	3/4"	12#14 1#14G	LCP CONTROLS & PLC-1/SCADA PANELRVSS	PLC-1/SCADA PANEL
C104	1"	MFG CABLE	WELL LEVEL ELEMENT	LIT-1.1.1 IN PLC-1/SCADA PANEL
C105	1"	MFG CABLE	DISCHARGE WATER CONDUCTIVITY	AIT-1.1.1 IN PLC-1/SCADA PANEL
C106	1"	MFG CABLE	DISCHARGE WATER FLOW	FIT-1.1.1 IN PLC-1/SCADA PANEL
C107	3/4"	2#14 1#14G	CHECK VALVE LIMIT SWITCH	PLC-1/SCADA PANEL
C108	3/4"	MFG CABLE	DISCHARGE PRESSURE	PLC-1/SCADA PANEL
C109	2"	ANTENNA CABLE	PLC-1/SCADA PANEL	SEE DETAIL 7 DWG. E09

SEE SPECIFICATION SECTION 16111 FOR EXPANDED CONDUIT TYPES DETAILS  
SEE SPECIFICATION SECTION 16120 FOR EXPANDED WIRE TYPES DETAILS

JEA WELLHEAD NO.2 SERVICE CALCULATIONS		
DESCRIPTION	CONNECTED KVA OR HP	DEMAND AMPS
WELLHEAD PUMP - 25HP	25	34
SINGLE PHASE LOADS	5	10.4
25% OF LARGEST CONTINUOUS LOAD		7
PROPOSED NET WELLHEAD LOAD	30	51

FAULT CURRENT CALCULATIONS			
SOURCE	CALCULATION		
UTILITY TRANSFORMER	KVA	30	Isc (AMPS) 1,337
	% IZ	0.0270	
	Isc =	KVA 0.831 X % IZ	
MOTOR HP/KVA	KVA =	25	
MOTOR CONTRIBUTION	Isc =	KVA/0.831*4	120
MAXIMUM FAULT AMPS @ 480V, 3PH			1,457
<b>JEA ELECTRICAL SERVICE CONTACT:</b> CONTACT CHRIS LIMBAUGH AT: LIMBCC@JEA.COM			

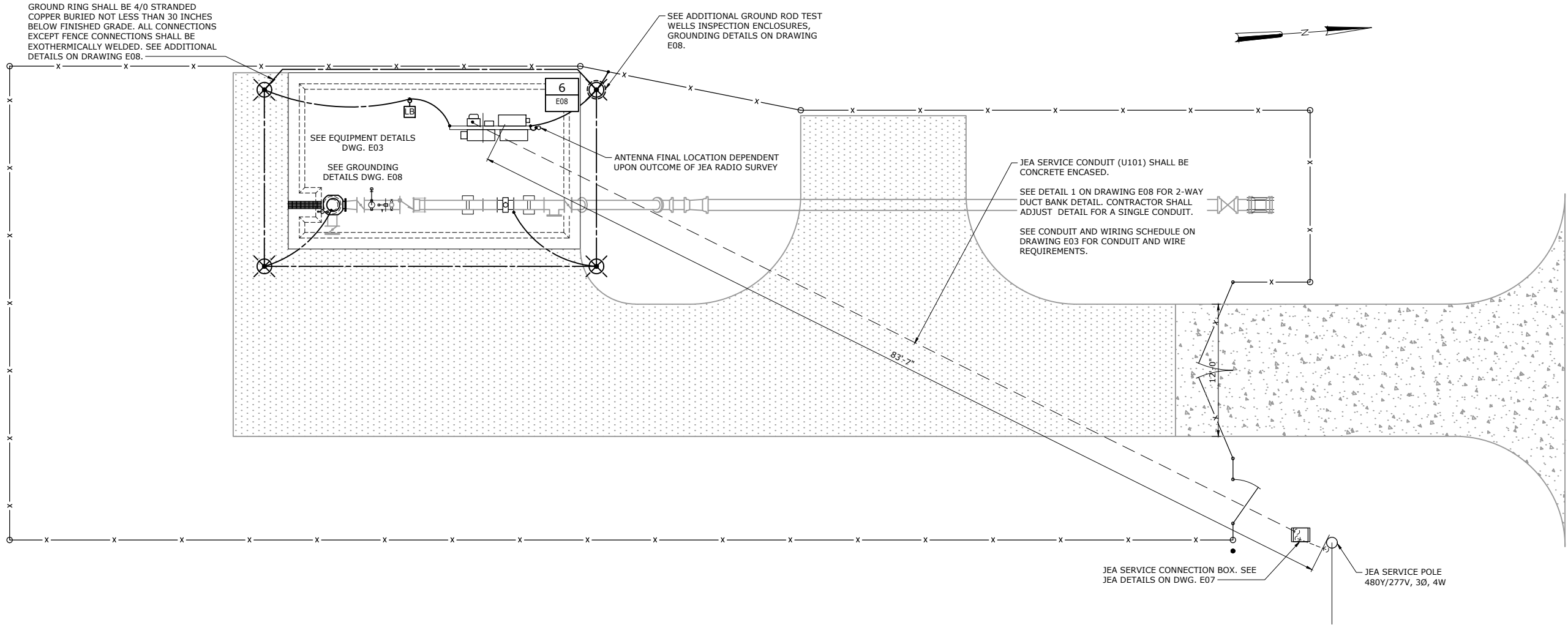
File: C:\MSH\HAZEN-P\WORKS\T012\T012\_42015-00002.dwg Saved by: JBR/ROAD Save date: 03/2019 3:40 PM  
PLOT DATE: 5/6/2019 6:04 AM BY: GDZ

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--





- NOTES:
1. ROUTE U101 TO AVOID IMPACTING ANY EXISTING TREES
  2. COPPER GROUNDING RODS SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH NEC (2014) STANDARDS BUT IN NO CASE SMALLER THAN 5/8" DIAMETER AND 10' IN LENGTH. FENCE GROUNDING SHALL BE BONDED TO THE REST OF THE GROUNDING SYSTEM FOR ALL OTHER COMPONENTS WITHIN THE FENCED AREA.
  3. SEPARATE GROUNDING RODS SHALL BE PROVIDED FOR EACH GATE.
  4. SOLID COPPER WIRE GROUNDING WIRE SHALL BE SIZED IN ACCORDANCE WITH NEC (2014) STANDARDS BUT IN NO CASE SMALLER THAN #6 AWG.

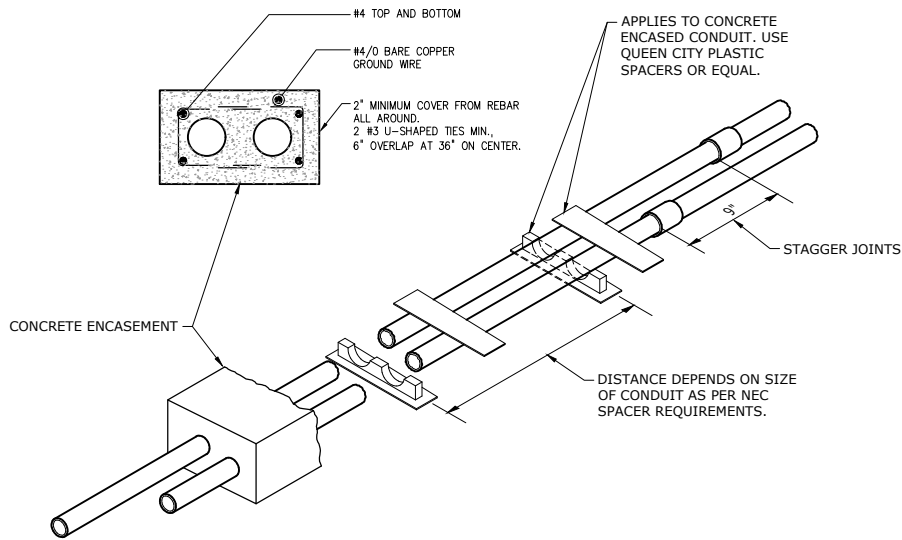


				PROJECT ENGINEER: J.P.S.	BID SET	<div>Hazen</div> <div>HAZEN AND SAWYER 6675 CORPORATE CENTER PKWY, SUITE 330 JACKSONVILLE, FLORIDA 32216</div>	<div>JEA</div> <div>LAKESHORE WATER TREATMENT PLANT WELLHEAD NO. 2 REHABILITATION</div>	WELLHEAD NO.2 SITE ELECTRICAL PLAN	DATE: MAY 2019
				DESIGNED BY: J.M.B.					HAZEN NO.: 42015-008
				DRAWN BY: J.M.B.					CONTRACT NO.: 8003982
				CHECKED BY: J.C.B.					DRAWING NUMBER:
1	BID	05/19	J.P.S.	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"	JOHN C. BURKE, PE NO. 17301			E05
REV	ISSUED FOR	DATE	BY						



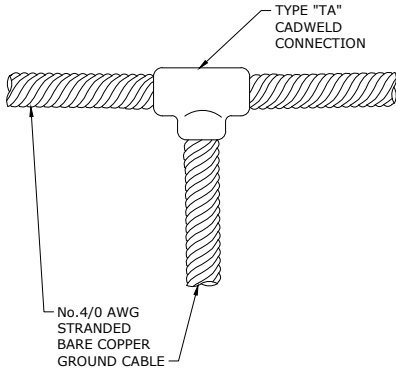
## B-22

Effective: January 1, 2018



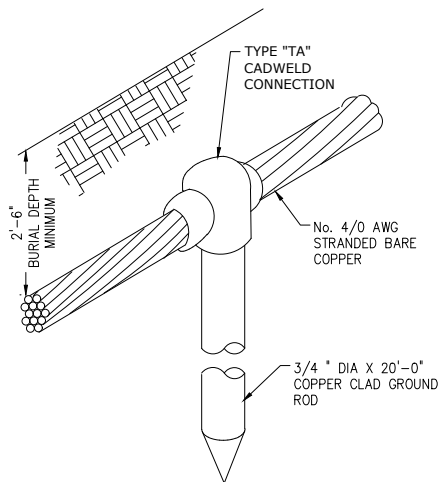
DUCTBANK DETAILS

DETAIL	1
NTS	-



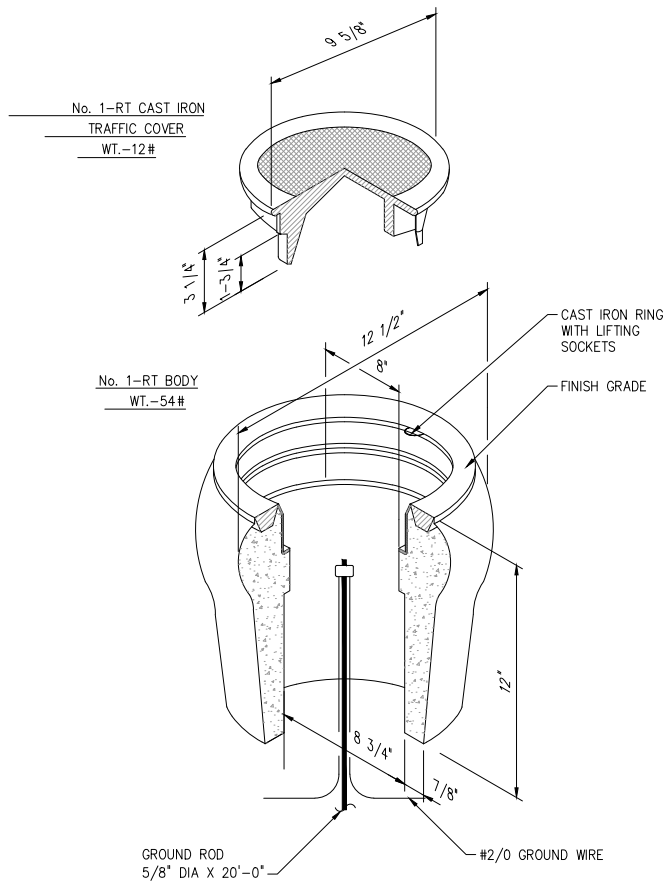
GROUND CABLE CONNECTION

DETAIL	2
NTS	-



CAD WELD CONNECTIONS

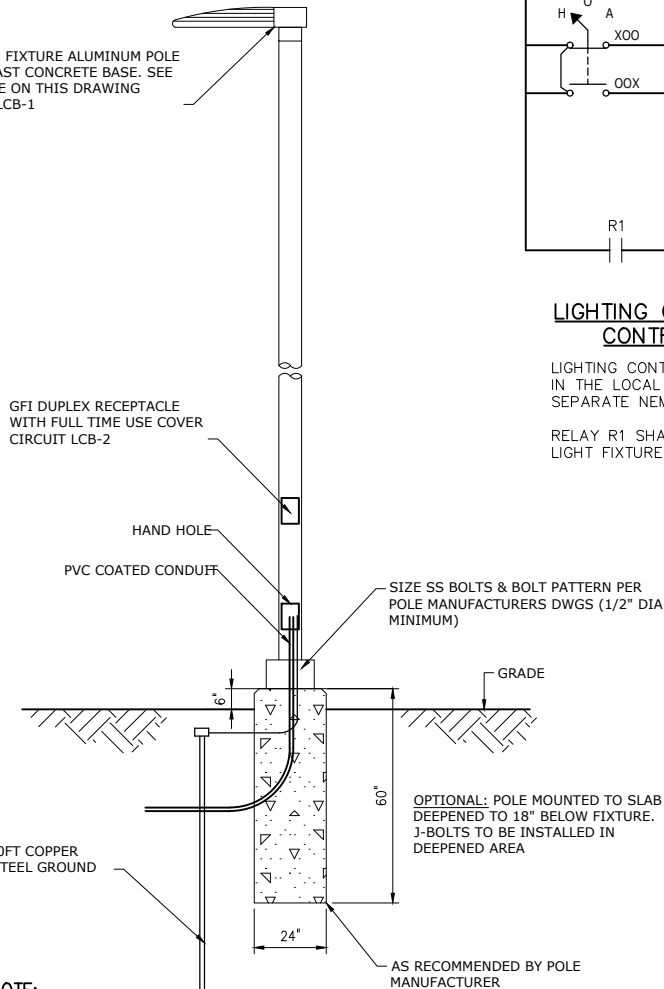
DETAIL	3
NTS	-



GROUNDING ROD ENCLOSURE

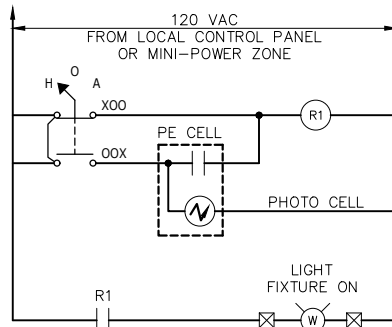
DETAIL	4
NTS	-

TYPE "LB" FIXTURE ALUMINUM POLE ON PRECAST CONCRETE BASE. SEE SCHEDULE ON THIS DRAWING CIRCUIT LCB-1



WINDLOADING NOTE:

1. ALL POLE INSTALLATIONS SHALL BE SUITABLE FOR 144 MPH WIND WITH APPROPRIATE GUST FACTOR PER APPLICABLE ZONE OF INSTALLATION AS DEFINED IN THE FLORIDA BUILDING CODE



LIGHTING CONTROLLER (LC) CONTROL DIAGRAM

LIGHTING CONTROLLER SHALL BE INSTALLED IN THE LOCAL CONTROL PANEL OR AS A SEPARATE NEMA 4X SS CONTROL PANEL.

RELAY R1 SHALL BE SIZED TO HANDLE LIGHT FIXTURES ON CONTROLLER.

LIGHTING FIXTURE SCHEDULE

REF. ID	FIXTURE TYPE	LAMP	VOLTS	MOUNTING	CATALOG DESCRIPTION
LB	LED TYPE SITE LIGHTING FOR STRUCTURE LIGHTING FOR WELL PADS. FIXTURE SHALL INCLUDE A PHOTOCCELL FOR CONTROL. CONTROL VIA LIGHTING CONTROLLER SEE DETAILS DRAWINGS E06 AND E08.	LED WITH UNIT	MVOLT	12 FT ABOVE SLAB. ALUMINUM POLE SHALL BE MOUNTED ON CONCRETE SLABS. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.	ACUITY BRANDS INC: FIXTURE: LITHONIA MODEL: DSXO LED 20C 530 40K T5W MVOLT RPA PER DLL127F 1.5 JU DDBXD POLE: HAPCO MODEL RTA12D5A4-BM

1	BID	05/19	J.P.S.
REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J.P.S.
DESIGNED BY:	J.M.B.
DRAWN BY:	J.M.B.
CHECKED BY:	J.C.B.
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

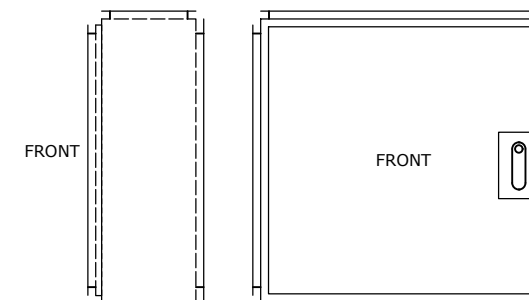
BID SET
JOHN C. BURKE, PE NO. 17301

**Hazen**  
HAZEN AND SAWYER  
6675 CORPORATE CENTER PKWY, SUITE 330  
JACKSONVILLE, FLORIDA 32216

**JEA**  
LAKESHORE WATER TREATMENT PLANT  
WELLHEAD NO. 2 REHABILITATION

ELECTRICAL DETAILS SHEET 1

DATE:	MAY 2019
HAZEN NO.:	42015-008
CONTRACT NO.:	8003982
DRAWING NUMBER:	E08




WHITE POWDER COATED ALUMINUM PANELS WITH 1" STUDS WELDED AND SPACED FROM ENCLOSURE ON THE TOP, BACK, SIDES, AND FRONT (DOOR). PANELS SHALL HAVE CUT OUT AREAS FOR CONDUIT PENETRATIONS, ENCLOSURE DOOR HANDLES, LIGHTS, BUTTONS, SELECTOR SWITCHES AND VIEWING WINDOWS WHERE REQUIRED.

**A** SEE GROUNDING GRID DRAWING E05

**B** PROVIDE AND INSTALL SS UNISTRUT FOR EQUIPMENT RACK AS NECESSARY FOR EQUIPMENT INSTALLATION.

MAIN DOOR WITH NEMA 4X LATCHING  
SYSTEM NOT SHOWN

1"=1'-0"

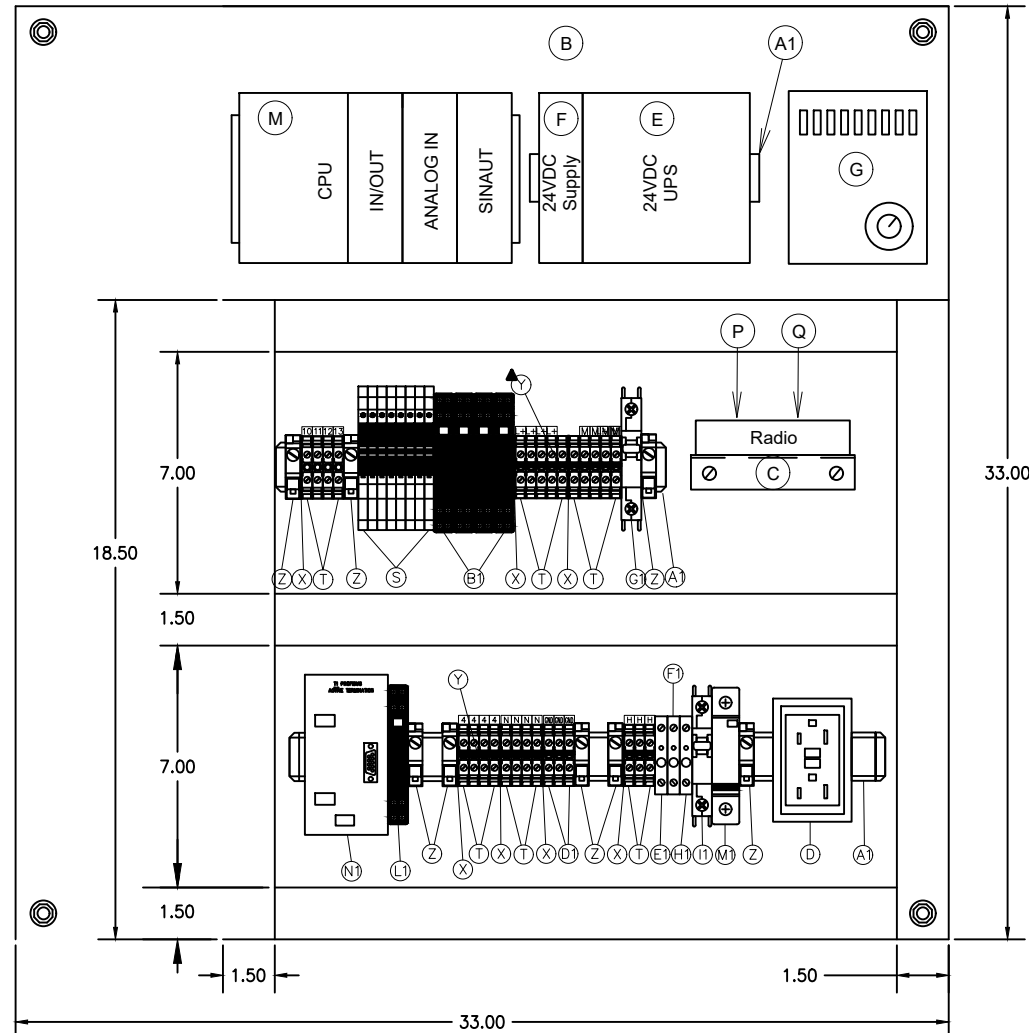


12" 6 0 1'

				PROJECT ENGINEER: J.P.S.	BID SET	<div>Hazen</div> <div>HAZEN AND SAWYER 6675 CORPORATE CENTER PKWY, SUITE 330 JACKSONVILLE, FLORIDA 32216</div>	<div>JEA</div> <div>LAKESHORE WATER TREATMENT PLANT WELLHEAD NO. 2 REHABILITATION</div>	ELECTRICAL DETAILS SHEET 2	DATE: MAY 2019
				DESIGNED BY: JMB					HAZEN NO.: 42015-008
				DRAWN BY: JMB					CONTRACT NO.: 8003982
				CHECKED BY: JCB					DRAWING NUMBER:
1	BID	05/19	J.P.S.	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE					<div>01/2"1"</div>
REV	ISSUED FOR	DATE	BY		JOHN C. BURKE, PE NO. 17301				

File: C:\BMS\HAZEN-PWD\MS70312\E09\_42015-009W2 Saved by GDIAZ Save date: 5/6/2019 6:01 AM  
PLOT DATE: 5/6/2019 6:05 AM BY: GDIAZ

## BACK PANEL



RADIO SURGE  
ARRESTOR  
(Field Installed)

BACKPANEL: (33"H x 33"W) Fabricated from .125 Aluminum  
with white powder coat finish

## NAMEPLATES

MARK #	Line 1	Line 2
1	ON	-
2	FAULT	-
3	OFF	LOCAL REMOTE
4	-	-

MAY BE ENERGIZED FROM  
MULTIPLE SOURCES:  
PNL-LP-1  
RVSS-MD1

MARK #	QTY	MANUFACTURE	PART NUMBER	DESCRIPTION
A	1	OEM Supplied	Enclosure	Reference this sheet for details
B	1	OEM Supplied	Back Panel	Reference this sheet for details
C	1	OEM Supplied	Radio Shelf	Hold the Radio in place
D	1	Hubbell	DRUBGF115	GFCI Duplex Receptacles
E	1	Pulse	UBC10.241	24VDC UPS with 5Ah Battery Backup
F	1	Pulse	CS5.241	Power Supply 120VAC / 24VDC, 5A
G	1	Hoffman	DAH1001A	115VAC, 100Watt Heater
H	1	Allen Bradley	800T-J44A	3 Position Keyed Switch
I	1	Allen Bradley	800T-XA	Contactors for Keyed Switch
J	1	Poly Phaser	IS-B50LN-C2	Antenna Surge Arrestor
K	1	Siemens	52PT6D2AB	Red, Push to test Indicator Light, LED
L	1	Siemens	52PT6D9AB	Amber, Push to test Indicator Light, LED
M	1	Siemens	6ES7 390-1AE80-0AA0	480mm Mount Rail for PLC
	1	Siemens	6ES7 313-6CF03-0AB0	CPU313C-2 DP 16DI/16DO PLC
	1	Siemens	6ES7 953-8LG11-0AA0	Micro Memory Card, 128K
	1	Siemens	6ES7 331-7KF02-0AB0	8 Input Analog Card
	1	Siemens	6NH7 800-3BA00	SINAUT ST7, TIM 3V-IE
	1	Siemens	6ES7 392-1AJ00-0AA0	20 Pin Screw connector
	1	Siemens	6ES7 392-1AM00-0AA0	40 Pin Screw connector
N	1	Molex	1201 03 0001	Profibus Connector 90 degree with PG Port
O	2	Molex	1201 03 5001	Profibus Connector 180 degree
P	1	M D S	MDS 9810	Spread Spectrum Unlicensed with Store / Forward
Q	1	TFS, INC (NOTE 1)	9 Pin - 25 Pin RS232 Cable	SINAUT to MDS9810 Null Cable
R	-	-	-	-
S	6	Finder	38.51.3.125.0060	Relay, Status, Screw, SPDT, 120VAC
T	21	Weidmuller	1020 10 0000	Terminal, WDU4, Screw, Color Beige
X	7	Weidmuller	1050000000	End Plate / Partition Plate, Color Beige
Y	3	Weidmuller	1758260000	10 pole cross connection, Yellow, For Terminals
Z	8	Weidmuller	1061200000	End Bracket, Color Beige
A1	1	Weidmuller	0514500000	2M, Din Rail, Steel, Galvanized, Passivated, Slotted
B1	4	Citel	DLAW-24D3	24VDC Analog Surge Protection
C1	-	-	-	-
D1	3	Weidmuller	1010100000	Terminal Ground, WDU4, Screw, Color Green
E1	1	Weidmuller	9926-25-1000	CB, 1 Pole, 0.5A, Branch Rated UL489
F1	1	Weidmuller	9926-25-1001	CB, 1 Pole, 1A, Branch Rated UL489
G1	1	Weidmuller	9926-25-1905	CB, 1 Pole, 5A, Branch Rated UL489
H1	1	Weidmuller	9926-25-1015	CB, 1 Pole, 15A, Branch Rated UL489
I1	1	Weidmuller	9926251020	CB, 1 Pole, 20A, Branch Rated UL489
J1	1	Weidmuller	1794060000	10 pole cross connection, pluggable, Black, For Relays
K1	2	Panduit	Hinged Cover Wide Finger	Width = 1.5", Height = 2.0", Length = 6", Grey
L1	1	Citel	DLA-12DBC	Surge Protection for Profibus
M1	1	Citel	DS41S-120	120VAC Surge Suppressor, Base
N1	1	Procentec	101-00211A	Profibus Terminator Resistor

Note 1: Technical Field Services Inc. (904)278-5250, Jacksonville, Florida

CONTROL WIRE UL508A COLOR:

RED	-	120 VAC
WHITE	-	NEUTRAL
BLUE	-	+24 VDC
WHITE / BLUE STRIPE	-	0 VDC

				PROJECT ENGINEER:	J.P.S.	BID SET	<div>Hazen</div> <div>HAZEN AND SAWYER 6675 CORPORATE CENTER PKWY, SUITE 330 JACKSONVILLE, FLORIDA 32216</div>	<div>JEA</div> <div>LAKESHORE WATER TREATMENT PLANT WELLHEAD NO. 2 REHABILITATION</div>	JEA STANDARD SCADA PANEL DETAILS SHEET 1	DATE:	MAY 2019
				DESIGNED BY:	C.T.K.					HAZEN NO.:	42015-008
				DRAWN BY:	F.C.B.					CONTRACT NO.:	8003982
				CHECKED BY:	J.C.B.					DRAWING NUMBER:	E10
1	BID	05/19	J.P.S.	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE		<div><div>0</div><div>1/2"</div><div>1"</div></div>					
REV	ISSUED FOR	DATE	BY			JOHN C. BURKE, PE NO. 17301					

File: C:\BMS\HAZEN-P\WDMS70312\10\_42015-008W2 Saved by JBROAD Save date: 5/3/2019 2:08 PM  
PLOT DATE: 5/6/2019 6:05 AM BY: GDIAZ

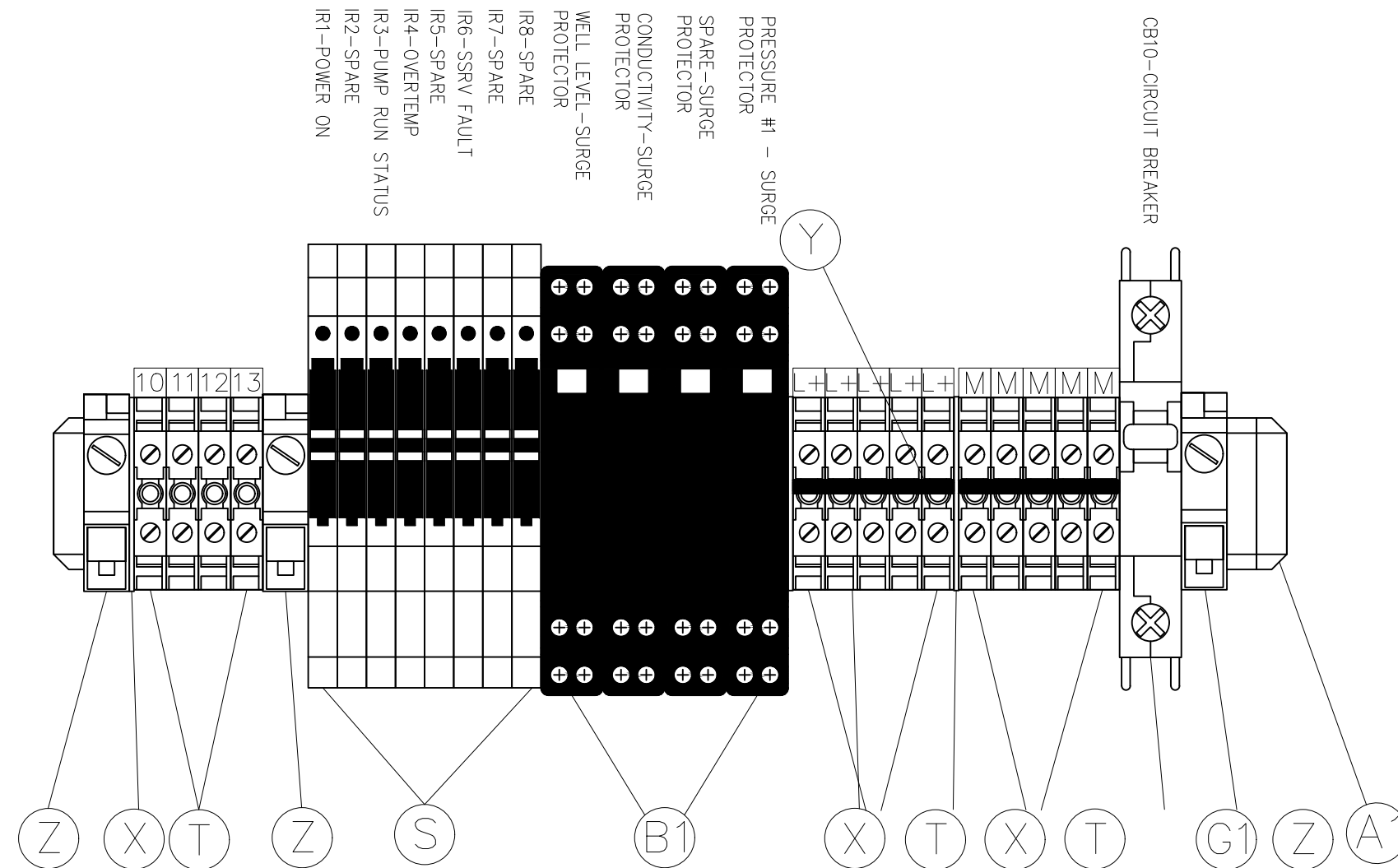








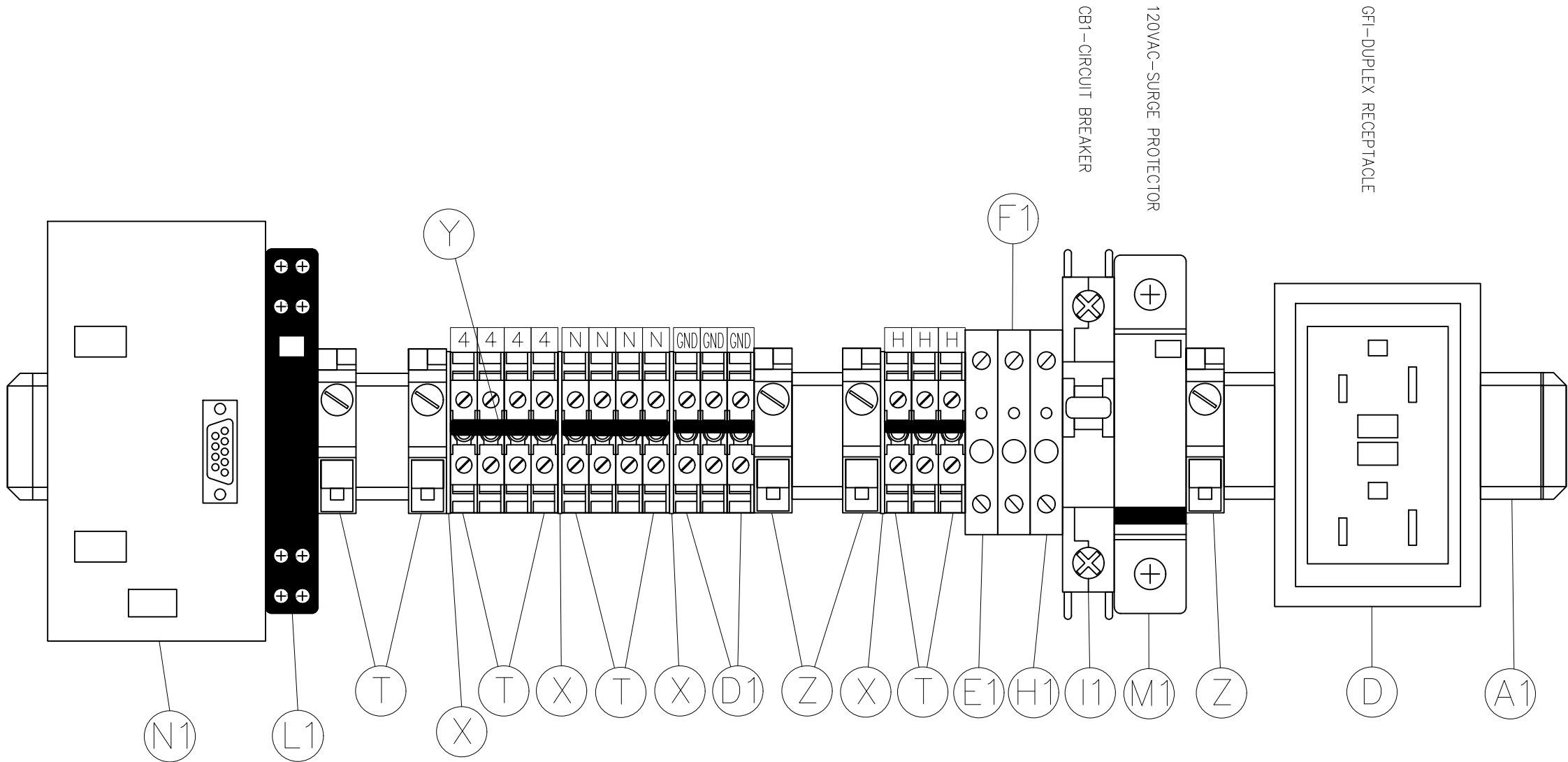
GENERAL NOTES:

1. ALL TERMINALS, RELAYS, SURGE SUPPRESSORS, BREAKERS, AND OTHER DEVICES MUST BE LABELED.
2. INSTALL PLUGABLE JUMPERS (Y) ON TERMINALS WHERE INDICATED. APPLY DIELECTRIC GREASE TO JUMPERS TO PREVENT CORROSION.



				PROJECT ENGINEER: J.P.S.	BID SET	 HAZEN AND SAWYER 6675 CORPORATE CENTER PKWY, SUITE 330 JACKSONVILLE, FLORIDA 32216	 LAKESHORE WATER TREATMENT PLANT WELLHEAD NO. 2 REHABILITATION	JEA STANDARD SCADA PANEL DETAILS SHEET 4	DATE: MAY 2019
				DESIGNED BY: C.T.K.					HAZEN NO.: 42015-008
				DRAWN BY: F.C.B.					CONTRACT NO.: 8003982
				CHECKED BY: J.C.B.					DRAWING NUMBER:
1	BID	05/19	J.P.S.	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE					E13
REV	ISSUED FOR	DATE	BY						

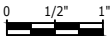
- GENERAL NOTES:
- ALL TERMINALS, RELAYS, SURGE SUPPRESSORS, BREAKERS, AND OTHER DEVICES MUST BE LABELED.
  - INSTALL PLUGGABLE JUMPERS (Y) ON TERMINALS WHERE INDICATED. APPLY DIELECTRIC GREASE TO JUMPERS TO PREVENT CORROSION.



File: C:\MSH\HAZEN\PROJECTS\14\_42015\00002 Saved by JBRCAD Save date: 5/20/2019 9:21 AM  
PLOT DATE: 5/20/2019 9:05 AM BY: GDZ

1	BID	05/19	J.P.S.
REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J.P.S.
DESIGNED BY:	C.T.K.
DRAWN BY:	F.C.B.
CHECKED BY:	J.C.B.
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



BID SET

JOHN C. BURKE, PE NO. 17301

**Hazen**

HAZEN AND SAWYER  
6675 CORPORATE CENTER PKWY, SUITE 330  
JACKSONVILLE, FLORIDA 32216

**JEA**<sup>sm</sup>

LAKESHORE WATER TREATMENT PLANT  
WELLHEAD NO. 2 REHABILITATION

JEA STANDARD SCADA PANEL  
DETAILS SHEET 5

DATE:	MAY 2019
HAZEN NO.:	42015-008
CONTRACT NO.:	8003982
DRAWING NUMBER:	E14

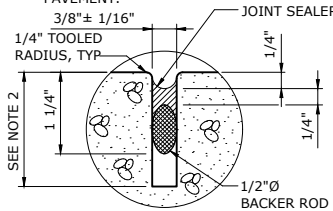
File: C:\MSW\HAZEN\PROJECTS\102984\001\_42015-05\DWG Saved by: GDALZ Date: 5/2/2019 5:03 PM  
PLOT DATE: 5/2/2019 5:38 AM BY: GDALZ

TRENCH EXCAVATION LIMITS		
INTERNAL DIAMETER OF PIPE	W	
	WIDTH OF TRENCH	MAX
4"-6"	3'-9"	2'-0"
8"-10"	3'-9"	2'-2"
12"	3'-9"	O.D.+2'
14"-16"	4'-2"	O.D.+2'
18"	4'-4"	O.D.+2'
20", 21"	4'-8"	O.D.+2'
24"	4'-11"	O.D.+2'
27"	5'-9"	O.D.+2'
30"	6'-7"	O.D.+2'
36"	7'-4"	O.D.+2'
42"	8'-2"	O.D.+2'
48"	8'-9"	O.D.+2'
54"	9'-4"	O.D.+2'
60"	9'-10"	O.D.+2'
72"	11'-0"	O.D.+2'
78"	11'-8"	O.D.+2'
84"	12'-0"	O.D.+2'
90"	12'-6"	O.D.+2'
96"	13'-0"	O.D.+2'
108"	14'-0"	O.D.+2'
DEPTH OF CUT	S	
	MAXIMUM PAVEMENT REPLACEMENT WIDTH	
0-6'	S=W+4'	
>6-8'	S=W+8'	
>8-10'	S=W+12'	
>10-12'	S=W+16'	
>12-14'	S=W+20'	
>14-16'	S=W+24'	
>16-18'	S=W+28'	
>18'	S=W+32'	
W = TRENCH WIDTH AT BOTTOM OF PIPE. TRENCH SIDE SLOPES SHALL BE IN ACCORDANCE WITH OSHA REQUIREMENTS.		

0222110

NOTES

- VERTICAL JOINTS SHALL BE FORMED BY AN APPROVED JOINT INSERT. HORIZONTAL JOINTS SHALL BE FORMED BY AN APPROVED JOINT INSERT OR SAWCUTTING PERFORMED PER SPECIFICATION
- DEPTH SHALL BE 1 1/2" IN REINF CONC. DEPTH SHALL BE 1/3 OF CONCRETE THICKNESS IN UNREINFORCED CONCRETE PAVEMENT.



TYPICAL SEALED JOINT

0325101

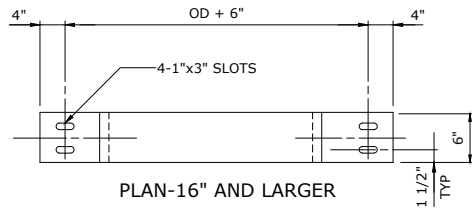
14" PIPE & SMALLER: 3"x3/8" TYPE 316 STAINLESS STEEL FLAT BAR WITH 3/4"x9" STAINLESS STEEL ANCHOR RODS, HEX NUT AND CUT WASHERS, WITH 3" PROJ.

16" AND LARGER PIPE: 6"x3/8" TYPE 316 STAINLESS STEEL FLAT BAR WITH 3/4"x9" STAINLESS STEEL ANCHOR RODS, HEX NUT AND CUT WASHERS, WASHERS, WITH 3 PROJ.

BEND FLAT BAR TO OD OF PIPE +1/8"

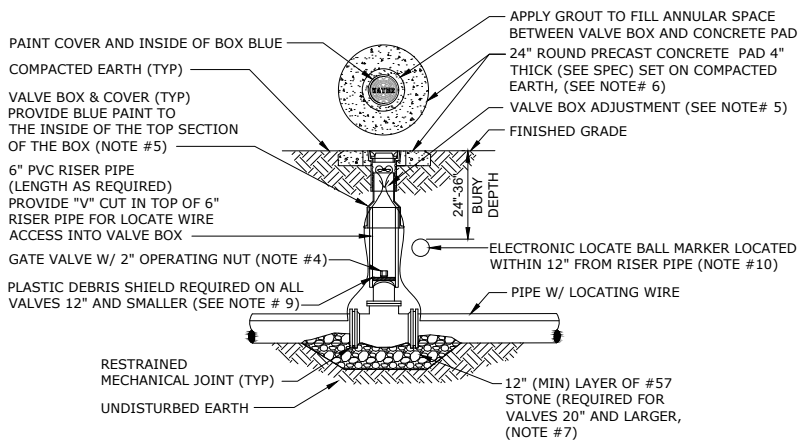
3/4" GROUT

STAINLESS STEEL ANCHOR ROD, TYP



PIPE HOLD DOWN STRAP

1509300



NOTES:

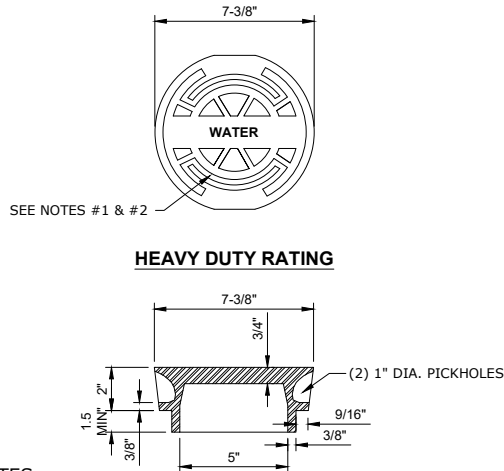
- FOR UNPAVED LOCATIONS, A PRECAST CONCRETE VALVE PAD SHALL BE PROVIDED AND INSTALLED FLUSH WITH GRADE. CONCRETE PAD IS NOT REQUIRED FOR VALVE LOCATED IN THE ROADWAY, UNLESS SHOWN OR NOTED OTHERWISE.
- LOCATING WIRE IS REQUIRED ON ALL PRESSURE PIPING (SEE DETAILW-44).
- A "V" CUT SHALL BE CARVED IN THE CURB CLOSEST/ADJACENT/( ASPHALT IF NO CURB) TO ALL BELOW GRADE VALVES. THE "V" CUT IS TO BE PAINTED BLUE WATER/PURPLE RECLAIMED.
- IN PAVED AREAS, INSTALL VALVE AT A DEPTH TO ALLOW A 12" MIN. DISTANCE BETWEEN THE VALVE COVER PLATE AND THE TOP OF THE VALVE OPERATING NUT. OUTSIDE OF PAVED AREAS (GRASS), INSTALL VALVE AT A DEPTH TO ALLOW A 6" MINIMUM DISTANCE BETWEEN THE VALVE COVER AND THE TOP OF THE VALVE OPERATING NUT. OPERATING NUT/STEM EXTENSION SHALL BE PROVIDED (WHERE APPLICABLE) SO THAT THE OPERATING NUT WILL BE NO MORE THAN 30 INCHES BELOW FINISHED GRADE.
- FOR NEW CONSTRUCTION, THE VALVE BOX SHALL BE ADJUSTED TO MIDRANGE TO ALLOW FOR FUTURE BOX ADJUSTMENTS. ROUTE LOCATE WIRES THRU A "V" CUT IN THE TOP OF THE 6" PVC RISER PIPE FOR LOCATE WIRE ACCESS INTO VALVE BOX. THE LOCATE WIRES WITH A 24" LONG PIG-TAIL AT THE TOP SHALL BE CONNECTED TOGETHER WITH A WIRE NUT.
- BRASS IDENTIFICATION TAG INDICATING "WATER", VALVE SIZE, DIRECTION AND TURNS TO OPEN & VALVE TYPE. PROVIDE A 1/4" HOLE IN BRASS TAG AND ATTACH TAG (TWIST WIRE AROUND TAG) TO THE END OF THE LOCATE WIRE. TAGS ARE NOT REQUIRED ON VALVES INSTALLED ON FIRE HYDRANT BRANCH LINES.
- IN LIEU OF PRECAST CONCRETE PAD, A 6" THICK X 24" (ROUND OR SQUARE) POURED CONCRETE PAD W/2 - #4 REBAR AROUND PERIMETER, MAY BE USED.
- GRAVEL SHALL BE PROVIDED UNDER ALL VALVES 20" AND LARGER. THE MINIMUM VERTICAL LIMIT OF GRAVEL IS 12" UNDER THE VALVE UP TO 1/3 THE OVERALL HEIGHT OF THE VALVE.
- FOR VALVES 12 INCH AND SMALLER, PROVIDE A WHITE OR BLACK PLASTIC DEBRIS SHIELD WHICH INSTALLS BELOW THE OPERATING NUT. THIS SHIELD SHALL CENTER THE RISER PIPE BOX OVER THE OPERATING NUT AND MINIMIZE INFILTRATION. SHIELD SHALL BE BY AFC, BOXLOK OR APPROVED EQUAL.
- ALL VALVES SHALL BE INSTALLED WITH AN ELECTRIC LOCATE MARKER. MARKER SHALL BE 4" DIA. COLOR CODED BALL MARKER (3M-1403XR FOR WATER AND 1408XR FOR RECLAIMED WATER).

WATER VALVE INSTALLATION DETAIL

JANUARY 2018

PLATE W-18

DETAIL	10
NTS	M02



NOTES:

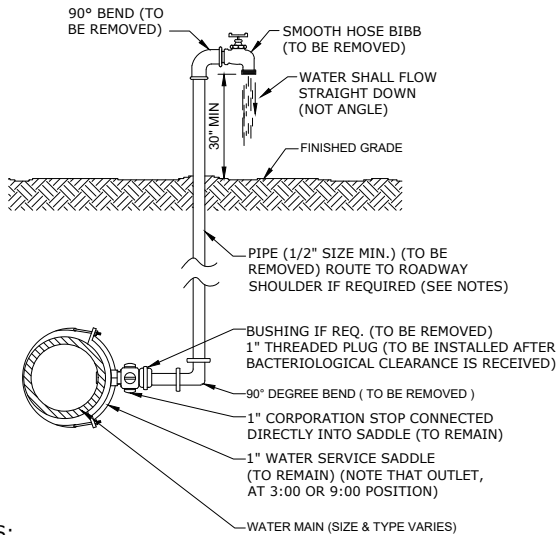
- PAINT TOP OF THE COVER WITH ENAMEL PAINT (BLUE COLOR) FOR WATER.
- FOR "REUSE" PAINT TOP PANTONE PURPLE.
- LID WEIGHT: APPROX. 12 LBS.

WATER SYSTEM VALVE BOX COVER

JANUARY 2018

PLATE W-16

DETAIL	12
NTS	D01



NOTES:

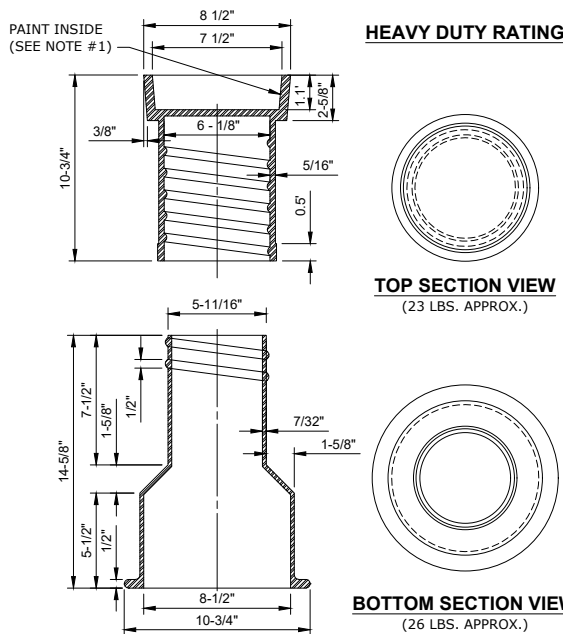
- LOCATION OF SAMPLE POINT BIBB SHALL NOT BE WITHIN THE ROADWAY BUT ROUTED TO THE ROADWAY SHOULDERS (NON-TRAFFIC AREAS).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF ALL TEMPORARY PIPING & FITTINGS (AS NOTED), AFTER BACTERIOLOGICAL CLEARANCE IS RECEIVED.
- PIPE AND FITTINGS SHALL BE PVC (SCH. 40) OR GALV. MATERIAL.
- THE USE OF THE ABOVE CONSTRUCTION FOR A TEMPORARY SAMPLE POINT SHALL BE LIMITED TO AREAS WHERE A SAMPLE TAP BY ALTERNATIVE METHODS (SEE W-24) IS NOT FEASIBLE OR IF DIRECTED OTHERWISE BY JEA.
- THE CONTRACTOR SHALL COMPLY WITH ALL JEA RULES AND POLICIES AS OUTLINED BY JEA'S ENVIRONMENTAL RESPONSE COORDINATOR (ERC) AND OTHER ASSOCIATED JEA STANDARDS.

TEMPORARY SAMPLE TAP

JANUARY 2018

PLATE W-25

DETAIL	11
NTS	M02



NOTES:

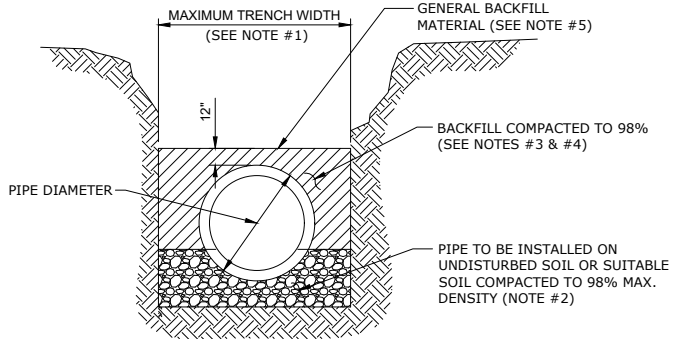
- PAINT THE INSIDE OF THE TOP SECTION OF THE BOX WITH APPLICABLE COLOR (BLUE OR PURPLE)
- HEAVY DUTY RATING (TOTAL WEIGHT APPROX. 50 LBS.).
- REFERENCE SECTION 351, PARAGRAPH X.2.

WATER SYSTEM VALVE BOX

JANUARY 2018

PLATE W-17

DETAIL	13
NTS	D01



NOTES:

TYPICAL TRENCH

- TRENCH SIDES SHALL BE APPROXIMATELY VERTICAL BETWEEN AN ELEVATION OF 1 FOOT ABOVE THE TOP OF THE PIPE AND THE CENTER LINE OF THE PIPE; OTHERWISE, TRENCH SIDES SHALL BE AS VERTICAL AS POSSIBLE OR AS REQUIRED BY OSHA STANDARDS. REFER TO THE MEASUREMENT AND PAYMENT SECTION (SECTION #801, PARAGRAPH #4)) TO DETERMINE MAXIMUM PAYLINE WIDTHS.
- BELL HOLE SHALL BE DUG TO PERMIT THE ENTIRE STRAIGHT BARREL OF THE PIPE TO REST ON THE UNDISTURBED TRENCH BOTTOM. BOULDERS OR LOOSE ROCKS LARGER THAN 3/4 INCH IN SIZE WILL NOT BE PERMITTED IN BACKFILL UP TO 1 FOOT ABOVE THE TOP OF THE PIPE.
- BACK FILL MATERIAL UP TO A LEVEL OF 1 FOOT OVER THE PIPE SHALL CONSIST OF AASHTO CLASS A-3 SOIL (SUITABLE SOIL) AND SHALL EXCLUDE CLAY MATERIALS AND LOOSE ROCKS LARGER THAN 3/4 INCH SIZE.
- BACKFILL MATERIAL UP TO A LEVEL 1 FOOT OVER THE TOP OF PIPE OR BOTTOM OF STRUCTURES SHALL BE PLACED IN 6 INCH COMPACTED THICKNESS LAYERS AND SHALL BE COMPACTED TO 98% OF IT'S MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY MODIFIED PROCTOR TEST, ASTM D1557.
- SEE " EXCAVATION AND EARTHWORK", SECTION 408 FOR ADDITIONAL REQUIREMENTS INCLUDING REMOVAL AND REPLACEMENT OF UNSUITABLE SOILS, DEWATERING, COMPACTION REQUIREMENTS AND DENSITY TESTING OF COMPACTED SOILS.

OPEN CUT TRENCH FOR PRESSURE PIPE

JANUARY 2018

IN CITY RIGHT -OF-WAY

PLATE W-42

DETAIL	14
NTS	M02

1	BID	05/19	J.P.S.		
REV	ISSUED FOR	DATE	BY		

PROJECT ENGINEER:	J.P.S.
DESIGNED BY:	S.C.R.
DRAWN BY:	J.M.J
CHECKED BY:	C.T.K.
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

BID SET

STEVEN C. ROBERTI, PE NO. 51492

**Hazen**

HAZEN AND SAWYER  
6675 CORPORATE CENTER PKWY, SUITE 330  
JACKSONVILLE, FLORIDA 32216

**JEA**<sub>sm</sub>

LAKEHORE WATER TREATMENT PLANT  
WELLHEAD NO. 2 REHABILITATION

STANDARD DETAILS  
MISCELLANEOUS -1

DATE:	MAY 2019
HAZEN NO.:	42015-008
CONTRACT NO.:	8003982
DRAWING NUMBER:	

D01