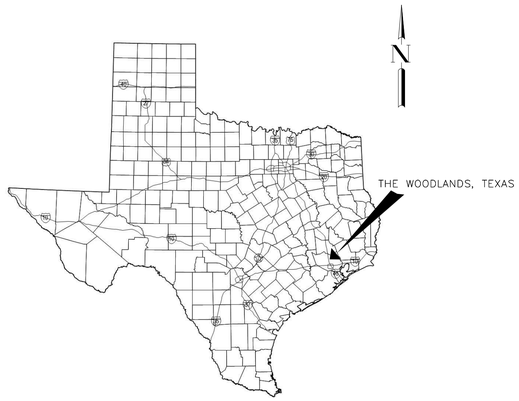
SAN JACINTO RIVER AUTHORITY
THE WOODLANDS
WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

CSP NO. 20-0075

CONTRACT NO. 20-0075

ISSUED FOR PROPOSAL

VICINITY MAP
N.T.S.



LOCATION MAP
N.T.S.

DIRECTORS

LLOYD B. TISDALE	PRESIDENT
RONNIE ANDERSON	VICE PRESIDENT
KAAREN CAMBIO	SECRETARY
ED BOULWARE	ASSISTANT SECRETARY
MARK MICHELETTI	TREASURER
JIM ALEXANDER	MEMBER
BRENDA COOPER	MEMBER
GENERAL MANAGER:	JACE A. HOUSTON

ONE-CALL NOTIFICATION SYSTEM
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GARVER PROJECT NO. 19W09245

AUGUST 2020

GARVER

REGISTRATION NO. F-5713

STATE OF TEXAS
DANIEL N. OLSON
115373
LICENSED
PROFESSIONAL ENGINEER
8/17/2020

COVER

SHEET 01-G001
01 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
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05 OF 36	01–G005	PROCESS & INSTRUMENTATION DIAGRAM LEGEND
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07 OF 36	01–G007	PROCESS MECHANICAL NOTES, LEGENDS, AND ABBREVIATIONS
08 OF 36	01–G008	ELECTRICAL NOTES, LEGENDS, AND ABBREVIATIONS

05 – SITE CIVIL		
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09 OF 36	05–C101	SITE PLAN – EXISTING OVERVIEW AND DEMOLITION
10 OF 36	05–C102	SITE PLAN – PROPOSED OVERVIEW

08 – PROCESS INSTRUMENTATION AND CONTROLS DIAGRAMS		
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85 – DIGESTER FACILITY		
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14 OF 36	85–X301	EXISTING DIGESTER DEMOLITION SECTIONS AND DETAILS
15 OF 36	85–S101	CRANE PAD FOR FEED PUMP VAULT AREA
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28 OF 36	85–E102	DIGESTER AREA ELECTRICAL POWER PLAN
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DRAWING NUMBER	DRAWING NUMBER LEGEND
EXAMPLE: 70–M201 FACILITY AREA CODE PREDOMINATE VIEW OR ELEMENT DISCIPLINE	G – GENERAL C – CIVIL X – DEMOLITION I – INSTRUMENTATION & CONTROL F – FIRE & LIFE SAFETY A – ARCHITECTURAL S – STRUCTURAL M – MECHANICAL E – ELECTRICAL T – TELECOMMUNICATIONS 120 – LOWER BASEMENT LEVEL 130 – GROUND LEVEL 140 – SECOND OR UPPER LEVEL 150 – ROOF LEVEL 160 – ADDITIONAL UPPER LEVELS 200 – ELEVATIONS 300 – SECTIONS 400 – DETAILS 500 – DIAGRAMS OR SCHED (CIVIL EX. 100 – SITE PLANS 200 – GRADING & PAVING 300 – PIPING & PROFILES)

GARVER

REGISTRATION NO. F–5713

STATE OF TEXAS
TYSON O. HANN
115705
LICENSED PROFESSIONAL ENGINEER

DIGITALLY SIGNED: 08/06/20

SAN JANCINTO RIVER AUTHORITY
THE WOODLANDS DIVISION

SAN JACINTO RIVER AUTHORITY
SJRA
www.SJRA.net

WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.: 20–0075
FILE NAME:
DRAWN BY: GRN
CHECKED BY: AGW
SCALE: AS SHOWN

INDEX OF DRAWINGS

SHEET 01–G002
SEQ.: 02 OF 36

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Plot Date: 8/5/2020 1:48:13 PM

GENERAL NOTES

1. THE FOLLOWING NOTES ARE GENERAL AND APPLY TO ALL SHEETS OF THESE CONSTRUCTION DRAWINGS AS IF THEY WERE WRITTEN ENTIRELY ON EACH SHEET.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND BONDS PRIOR TO START OF CONSTRUCTION WORK.
3. THE CONTRACTOR SHALL PROVIDE ALL SHEETING/SHORING REQUIRED TO PROTECT EXISTING STRUCTURES, PIPES AND FACILITIES, WHETHER OR NOT INDICATED ON THE DRAWINGS.
4. ALL PROPOSED PENETRATIONS IN THE PROPOSED WALLS SHALL BE SEALED PER TYPICAL/STANDARD DETAILS.
5. CLEARING PROJECT SITE WITH FIRE IS NOT ALLOWED.
6. NO FIREARMS SHALL BE PERMITTED ON SITE.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING REQUIRED SECURITY TO PROTECT HIS/HER PROPERTY, EQUIPMENT, WORK IN PROGRESS AND COMPLETED WORK.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING HIS/HER PROPERTY, EQUIPMENT, WORK IN PROGRESS AND COMPLETED WORK FROM ALL WEATHER CONDITIONS AT NO ADDITIONAL COST TO SJRA.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THE SAFETY OF HIS/HER LABORERS (INCLUSIVE OF ALL SUB-CONTRACTORS) FOR THE ENTIRE DURATION OF THE PROJECT.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE DETERRENTS TO PREVENT THE PUBLIC FROM ACCESSING THE PROJECT SITE.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN-UP OF THE SITE AND ADJOINING ACCESS ROADS DURING ALL ASPECTS OF THE CONSTRUCTION. SITE AND IMPACTED ACCESS ROADS SHALL BE CLEAR OF TRASH AT THE END OF CONSTRUCTION EVERY DAY. ALL ACCESS ROADS TO BE RESTORED TO ORIGINAL OR BETTER CONDITION AT NO COST TO SJRA.

PROJECT DESCRIPTION

1. SEE SPEC 01 11 13 FOR DETAILED PROJECT DESCRIPTION.
2. MAJOR SCOPE ITEMS INCLUDE:
    1. INSTALLATION OF COARSE AIR DIFFUSERS IN DIGESTER BASIN NO. 1, 2, AND 3.
    2. INSTALLATION OF MOTORIZED ACTUATORS TO SLIDING GATES SPECIFIED HEREIN.
    3. INSTALLATION AND REPLACEMENT OF EXISTING BELT PRESS FEED PUMPS AT THE IN-GROUND VAULT LOCATED NEXT TO THE DIGESTER FACILITY.
    4. INSTALLATION OF A SUCTION CONNECTION TO ALLOW THE BELT PRESS FEED PUMPS TO PULL SLUDGE FROM DIGESTER NO. 3 AND 4.
    5. INSTALLATION OF SWIVEL VALVES AND REQUIRED PIPING FOR DECANT CONTROL AT DIGESTER BASIN NO. 3 AND 4.
    6. INSTALLATION OF CONNECTION BETWEEN DIGESTER NO. 1 AND NO. 4 AS WELL AS DIGESTER NO. 2 AND NO. 3.

DEMOLITION NOTES

1. CONTRACTOR SHALL COMPLETELY REMOVE AND PROPERLY DISPOSE OF ALL STRUCTURES DESIGNATED FOR DEMOLITION AS INDICATED ON THE DEMOLITION PLAN.
2. ALL DEMOLISHED STRUCTURES AND NON-SALVAGED EQUIPMENT AS WELL AS EXCESS EXCAVATED SOILS SHALL BE REMOVED AND DISPOSED OF IMMEDIATELY IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL LAWS, REGULATIONS AND OTHER ORDINANCES AT NO ADDITIONAL COST TO SJRA. FURNISH WRITTEN VERIFICATION FROM SJRA OF THE DISPOSAL SITE AUTHORIZING THE CONTRACTOR TO DISPOSE OF MATERIALS AT THAT LOCATION AND WRITTEN VERIFICATION FROM SJRA OF THE DISPOSAL SITE AFTER PLACEMENT THAT IT IS ACCEPTABLE.

UTILITY PROJECT NOTES

1. CONTRACTOR SHALL PROVIDE ANY/ALL PIPE, EQUIPMENT, FITTINGS, ADAPTERS, SUPPORTS AND APPURTENANCES REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM, AS PROPOSED IN THE CONSTRUCTION DRAWINGS.
2. DO NOT EXCEED 75 PERCENT OF MANUFACTURER'S RECOMMENDED MAXIMUM DEFLECTION FOR PIPE JOINTS, UNLESS NOTED OTHERWISE.
3. CONTRACTOR SHALL REROUTE THE EXISTING PIPING IF REQUIRED TO AVOID THE PROPOSED STRUCTURES. THE EXISTING SYSTEM SHALL REMAIN IN PLACE AND IN SERVICE UNTIL THE PROPOSED SYSTEM IS CONSTRUCTED, ACCEPTED AND PLACED INTO SERVICE. THE CONTRACTOR SHALL PROTECT THE EXISTING SYSTEM UNTIL IT IS TAKEN OUT OF SERVICE.
4. PIPES DESIGNATED TO BE DEMOLISHED SHALL BE COMPLETELY REMOVED, UNLESS OTHERWISE APPROVED BY SJRA AND THE DESIGN CONSULTANT. PIPES ABANDONED IN PLACE SHALL BE EMPTIED, GROUT FILLED, AND SUBSEQUENTLY CAPPED WITH CONCRETE, A BLIND FLANGE OR A M.J. PLUG.
5. ABANDONED PIPING UNDER ROADS AND STRUCTURES SHALL BE GROUT FILLED AND ENSURE NO VOIDS ARE PRODUCED DURING APPLICATION OF MATERIAL. UNLESS INDICATED DIFFERENTLY ON THE CONSTRUCTION DRAWINGS, BACKFILL ALL TRENCHES AND COMPACT IN ACCORDANCE WITH CONTRACT DOCUMENTS.

UTILITY AND PIPELINE COMPANY COORDINATION NOTES

1. EXISTING STRUCTURES, UTILITIES AND PIPELINES (PRIVATE AND PUBLIC) ARE SHOWN FROM AVAILABLE RECORDS AT THE TIME THESE CONSTRUCTION DRAWINGS WERE PREPARED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING AND VERIFYING THE LOCATION AND DEPTH OF ALL EXISTING STRUCTURES, UTILITIES AND PIPELINES WITHIN THE CONSTRUCTION AREA PRIOR TO THE BEGINNING OF CONSTRUCTION. THE CONTRACTOR SHOULD CONTACT THE HOUSTON AREA UTILITY COORDINATION COMMITTEE 48 HOURS IN ADVANCE OF BEGINNING WORK (713-223-4567). THE CONTRACTOR SHALL INCLUDE COST IN HIS/HER PROPOSAL FOR TEMPORARILY RELOCATING AND REINSTALLING EXISTING STRUCTURES, UTILITIES AND PIPELINES AS REQUIRED FOR CONSTRUCTION OF THE PROPOSED WORK. COST CONSIDERATIONS MUST BE GIVEN FOR BACKFILL, ENCASEMENT, SUPPORTS, RESTRAINTS, FITTINGS, VALVES, AND ANY TYPICAL OR SPECIAL COATINGS THAT ARE APPLIED TO THE INTERIOR AND/OR EXTERIOR OF THE PIPING AND ITS APPURTENANCES. ANY DAMAGE TO THE EXISTING STRUCTURES, UTILITIES AND PIPELINES SHALL BE RESTORED AT NO ADDITIONAL COST TO SJRA. IN ADDITION, CONTRACTOR SHOULD NOTIFY SJRA AND SJRA'S DESIGNEE IF THERE IS A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND EXISTING CONSTRUCTION BEFORE PROCEEDING WITH WORK.
2. CONTRACTOR SHOULD OBSERVE ANY/ALL ELECTRIC LINES WITHIN THE PROJECT LIMITS. CONTRACTOR SHOULD COORDINATE WITH THE APPROPRIATE UTILITY COMPANY FOR A TEMPORARY POWER SHUTDOWN (SHOULD THE CONTRACTOR'S MEANS AND METHODS NECESSITATE POTENTIAL CONSTRUCTION CONFLICTS OR SAFETY CONCERNS, I.E. ELECTRICAL ARCINGS).
3. EXCAVATION TO TAKE PLACE ADJACENT TO AND/OR ACROSS EXISTING UTILITIES OR PIPELINES (REMAINING IN PLACE) SHALL BE EXCAVATED BY HAND AND IN SUCH A MANNER AS TO AVOID DAMAGE TO THE EXISTING FACILITIES.
4. EXISTING CONCRETE THRUST BLOCKING THAT CONFLICTS WITH NEW CONSTRUCTION OR MODIFICATION SHALL BE REMOVED BY THE CONTRACTOR. WHEN REMOVED, THE CONTRACTOR SHALL PROVIDE TEMPORARY THRUST RESTRAINT TO THE EXISTING PIPING SYSTEM, FITTINGS, AND/OR STRUCTURES TO MAINTAIN CONTINUOUS OPERATION. ONCE CONSTRUCTION IS COMPLETE, THE CONTRACTOR SHALL RESTORE THE PREVIOUSLY EXISTING THRUST BLOCKING TO ITS ORIGINAL CONDITION (UNDISTURBED EARTH). THE ORIGINAL CONDITION SHALL INCLUDE PROPER THRUST RESTRAINT AND COMPACTED BACKFILL AS DESCRIBED IN THE CONTRACT DOCUMENTS.
5. IN LIEU OF CONTRACTOR PROVIDING SUPPORT FOR EXISTING UTILITIES OR PIPELINES, CONTRACTOR MAY TEMPORARILY RELOCATE THEM AWAY FROM THE WORK AREA AND THEN REINSTALL THEM ONCE NEW PIPING CONSTRUCTION IS COMPLETE. CONTRACTOR SHALL SUBMIT A PLAN TO SJRA AND THE DESIGN CONSULTANT FOR REVIEW AND APPROVAL FOR ANY PROPOSED TEMPORARY UTILITY OR PIPELINE RELOCATION. THE CONTRACTOR SHALL ADDITIONALLY SECURE THE APPROVAL OF THE APPLICABLE UTILITY OR PIPELINE COMPANY. TEMPORARY UTILITY OR PIPELINE RELOCATIONS SHALL BE ACCOMPLISHED AT NO ADDITIONAL COST TO SJRA AND ASSOCIATED REQUIRED SHUTDOWNS SHALL ADHERE TO SPECIFIED MAXIMUM ALLOWABLE DURATIONS.

PAVING CONSTRUCTION NOTES

1. REPLACEMENT PAVEMENT TO BE CONSTRUCTED IN ACCORDANCE WITH RULES, REGULATIONS AND REQUIREMENTS OF THE APPROPRIATE JURISDICTION.
2. ALL ROAD WIDTHS, CURB RADII AND CURVE ALIGNMENT SHOWN INDICATES BACK OF CURB. T.C. INDICATES TOP OF CURB ELEVATION AND T.P. INDICATES TOP OF PAVEMENT ELEVATION.
3. WHERE PROPOSED PAVEMENT IS TO MATCH EXISTING PAVEMENT, EXISTING REBARS OR DOWELS PROJECTING FROM EXISTING PAVEMENT TO BE CLEANED AND TIED INTO PROPOSED PAVEMENT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS. HORIZONTAL DOWELS SHALL BE #6 BARS, 24 INCHES LONG, DRILLED AND EMBEDDED 8 INCHES INTO THE CENTER OF THE EXISTING SLAB WITH "PO ROC EPOXY" OR EQUAL AT 18 INCHES CENTER TO CENTER.

GENERAL CONSTRUCTING NOTES

1. THERE WILL BE NO SEPARATE PAYMENT FOR WORK SHOWN ON THESE PLANS, UNLESS SPECIFICALLY ESTABLISHED IN THE BID SECTION OF THE CONTRACT DOCUMENTS. CONTRACTOR SHALL INCLUDE COST OF THIS WORK IN THE CONTRACT UNIT PRICE FOR ITEMS OF WHICH THIS WORK IS A COMPONENT OR INCIDENTAL.
2. CONTRACTOR SHALL DIAL 811 TO CONTACT EITHER TEXAS811 OR LONESTAR811 ONE-CALL CENTERS TO PROCESS UTILITY LOCATION REQUESTS A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.
3. CONTRACTOR SHALL COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND ALL REGULATIONS OF UTILITY COMPANIES CONCERNING SAFETY AND HEALTH PRACTICES.
4. CONTRACTOR SHALL REMOVE ALL MUD, DIRT AND DEBRIS DEPOSITED OR DROPPED ON EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY DAILY. MATERIAL THAT IS HAZARDOUS TO TRAFFIC SHALL BE REMOVED IMMEDIATELY.
5. THESE PLANS DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE LICENSED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SAFETY SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THESE PLANS. THE CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEM(S).
6. CONTRACTOR SHALL PROTECT ALL TREES ADJACENT TO WORK AREA. NO TREES OUTSIDE THE WORK AREA SHALL BE REMOVED WITHOUT PERMISSION OF OWNER.
7. CONTRACTOR SHALL GIVE NOTICE TO ALL AUTHORIZED INSPECTORS, SUPERINTENDENTS, OR PERSONS IN CHARGE OF PRIVATE AND PUBLIC UTILITIES OR RAILROADS AFFECTED BY HIS OPERATIONS PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR SHALL OBTAIN ALL CONSTRUCTION PERMITS PRIOR TO STARTING CONSTRUCTION.
8. CONTRACTOR SHALL NOTIFY THE SAN JACINTO RIVER AUTHORITY CONSTRUCTION MANAGER IN WRITING, AND AT (936-588-3111) AT LEAST 48 HOURS PRIOR TO START OF CONSTRUCTION.
9. A COPY OF ALL WRITTEN NOTIFICATIONS SHALL BE SENT TO THE OWNER.
10. ALL VALVES OPEN COUNTER CLOCKWISE.

GARVER

REGISTRATION NO. F-5713

STATE OF TEXAS
TYSON O. HANN
115705
LICENSED PROFESSIONAL ENGINEER

DIGITALLY SIGNED: 08/06/20

SAN JANCINTO RIVER AUTHORITY
THE WOODLANDS DIVISION

SAN JACINTO RIVER AUTHORITY
SJRA
www.SJRA.net

WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20-0075
FILE NAME:	
DRAWN BY:	AGW
CHECKED BY:	GRN
SCALE:	AS SHOWN

GENERAL NOTES

SHEET 01-G003

SEQ.: 03 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
Plot Date: 8/3/2020 4:50:30 PM

ABBREVIATIONS

ABBREV	DESCRIPTION
ABV	ABOVE
AFF	ABOVE FINISH FLOOR
ANSI	AMERICAN NATIONAL STANDARDS INSTITUE
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
AUX	AUXILIARY
AWWA	AMERICAN WATER WORKS ASSOCIATION
BKR	BREAKER
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STRUCTURE
CJ	CONSTRUCTION JOINT
CKT	CIRCUIT
CL	CENTERLINE
CMU	CONCRETE MASONRY UNIT
COGEN	COMBINED HEAT AND POWER GENERATION
COL	COLUMN
CONT	CONTINUOUS
DIA	DIAMETER
EA	EXHAUST AIR, EXPANSION ANCHOR, EACH
EL, ELEV	ELEVATION
ELEC	ELECTRICAL
ENCL	ENCLOSURE
FA	FIRE ALARM
FFE	FINISHED FLOOR ELEVATION
FL	FLOW LINE
FLR	FLOOR
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET, FOOT
GA	GAUGE, GAGE
GALV	GALVANIZED
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRND	GROUND
H, HT	HEIGHT
HOA	HAND–OFF–AUTOMATIC
HORIZ	HORIZONTAL
HP	HORSEPOWER, HEAT PUMP
HYD	HYDRANT
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
kVA	KILOVOLT–AMPERES
kW	KILOWATTS
LBS, #	POUNDS
LF	LINEAR FEET
MAX	MAXIMUM
N/A	NOT AVAILABLE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED
OH	OVERHEAD
OSHA	OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
PD	PROCESS DRAIN
PIV	POST INDICATOR VALVE
PNL	PANEL
PRV	PRESSURE RELIEVE VALVE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
RE:	REFERENCE, REFER
REINF	REINFORCEMENT
REQD	REQUIRED
RM	ROOM
SEC	SECTION
SF	SQUAURE FEET
SHT	SHEET
SPEC	SPECIFICATIONS
SQ	SQUARE
STA	STATION
STD	STANDARD
SURF	SURFACE
SUSP	SUSPEND, SUSPENDED
T&B	TOP AND BOTTOM
THRU	THROUGH

ABBREVIATIONS

ABBREV	DESCRIPTION
TYP	TYPICAL
U/F	UNDER FLOOR
U/G	UNDER GROUND
U/S	UNDER SLAB
UL	UNDERWRITERS LABORATORIES, INC.
UNO	UNLESS NOTED OTHERWISE
V	VOLT, VALVE
VA	VOLT–AMPERE
VERT	VERTICAL
W	WATT, WIRE, WIDTH, WINDOW, WATER
W/	WITH
W/O	WITHOUT
WS	WATERSTOP
WT	WATERTIGHT, WEIGHT
XMFR	TRANSFORMER

GARVER

REGISTRATION NO. F–5713

STATE OF TEXAS
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WWTF NO. 2 DIGESTER
NOS. 1, 2 AND 3
REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20–0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	AGW
SCALE:	AS SHOWN

GENERAL CONVENTIONS AND
ABBREVIATIONS

SHEET 01–G004

SEQ.: 04 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
Plot Date: 8/3/2020 4:51:52 PM

IDENTIFICATION, GENERAL

SYMBOL	DESCRIPTION
20FCV13	EQUIPMENT TAG
08–I–501	SHEET INTERFACE SHEET NUMBER DRAWING TYPE SEQUENCE NUMBER
08–I–501 XXXX	SHEET INTERFACE WITH PROCESS FLAG PROCESS

PIPING LINE TYPES

LINE	DESCRIPTION
	PROCESS LINE – PRIMARY
	PROCESS LINE – SECONDARY
	PACKAGE BOUNDARY
	AREA/BUILDING BOUNDARY
	SHOWN ELSEWHERE
//	AIR

PIPING, MISCELLANEOUS

SYMBOL	DESCRIPTION
	SLOPE ARROW ARROW DIRECTION DOWN
ST	LINE HEAT TRACED AND INSULATED ST = STEAM TRACED ET = ELECTRIC TRACED
	OUTSIDE GRADE LEVEL

ACCESSORIES AND APPURTENANCES

SYMBOL	DESCRIPTION
	UNION
	PLUG
	BLIND FLANGE
	HOSE CONNECTION
	SPRAY NOZZLE
	DRAIN
	FLEXIBLE CONNECTION, GENERAL
	FLEXIBLE HOSE
	QUICK CONNECTOR
1"	THREADED TAP
	FILTER
	'Y' TYPE STRAINER
	STRAINER
	EXPANSION JOINT
FCO	FLOOR CLEANOUT
P	GAUGE P = PRESSURE V = VACUUM T = TEMPERATURE dP = PRESSURE SLIDE GATE DIFFERENTIAL

VALVES

SYMBOL	DESCRIPTION
	CHECK VALVE
	GATE VALVE
	BUTTERFLY VALVE
	BALL CHECK
	BALL VALVE
	PLUG VALVE
	NEEDLE VALVE
	ROTARY VALVE
	KNIFE GATE VALVE
	MUD VALVE
	PINCH VALVE
	THREE–WAY VALVE
	FOUR–WAY VALVE
	GLOBE VALVE
	CHARACTERIZED OR VEE–BALL VALVE
	STOP CHECK VALVE
	DIAPHRAGM VALVE (SELF CONTAINED)
	AIR RELIEF
	PRESSURE CONTROL
	PRESSURE RELIEF VALVE
	VACUUM RELIEF VALVE
	STOP GATE
	SLIDE GATE
	HOSE VALVE (HV–X) OR (V–X) X = NO. IN SPECS
S	SAMPLE
	TELESCOPING VALVE

VALVE OPERATORS

SYMBOL	DESCRIPTION
	HAND OPERATOR
	HAND OPERATOR (LONG)
	CHAIN OPERATOR
F	FLOAT OPERATOR
	AIR DIAPHRAGM OPERATOR
	POSITIONER
S	SOLENOID OPERATOR
	CYLINDER OPERATOR
	PRESSURE BALANCED DIAPHRAGM OPERATOR
M	MOTOR OPERATOR
D	DIGITAL OPERATOR
EH	ELECTRO–HYDRAULIC OPERATOR
	FAIL ARROWS INDICATE OPEN PORTS
	LIMIT SWITCH

PROCESS EQUIPMENT

SYMBOL	DESCRIPTION
M	ELECTRIC MOTOR
V RV SS	VARIABLE SPEED DRIVE REDUCED VOLTAGE SOFT STARTER
FV NR	FULL VOLTAGE NON–REVERSING STARTER
CAS	CONTROL AND STATUS
G	ELECTRIC GENERATOR
	HYDRAULIC MOTOR
	AIR MOTOR
	SHAFT
	COUPLING
	DYNAMIC PUMP
	DYNAMIC COMPRESSOR
	POSITIVE DISPLACEMENT PUMP
	POSITIVE DISPLACEMENT COMPRESSOR
	EDUCTOR/EJECTOR
	HEATER, GENERAL
	HEATER W/FAN (INDUCED DRAFT)
	HEATER W/FAN (FORCED DRAFT)
	HEAT EXCHANGER, GENERAL
	HYDRAULIC CYLINDER
	AIR CYLINDER

INSTRUMENT PRIMARY ELEMENTS

SYMBOL	DESCRIPTION
	THREADED TAP
	THERMOWELL
	SIGHT FLOW INDICATOR
	ROTAMETER
	FLOW ORIFICE
	FLOW ORIFICE IN QUICK CHANGE FITTING
	SINGLE PORT PITOT
	VENTURI TUBE
	AVERAGING PITOT STATION
	FLUME
	WEIR
	TURBINE ELEMENT
	POSITIVE DISPLACEMENT FLOWMETER
	VORTEX SENSOR
	TARGET ELEMENT
	MASS FLOWMETER
	SONIC FLOWMETER
M	MAGNETIC FLOWMETER
	pH ELECTRODE ASSEMBLY
P	PRESSURE SENSOR
	WATER HAMMER ARRESTER
	ULTRASONIC LEVEL TRANSMITTER
R	RADAR LEVEL TRANSMITTER
	FLOAT SWITCH

AUX INSTRUMENTS OR FUNCTIONS

SYMBOL	DESCRIPTION
	TEST POINT, TERMINAL BLOCK WITH SLIDING LINK AND MINI–BANANA SOCKETS
P	PURGE OR FLUSHING DEVICE
I	INTERLOCK LOGIC WITH REFERENCE
	ANNULAR SEAL
	DIAPHRAGM SEAL
R	RESET FOR LATCH TYPE OPERATOR
	PANEL MOUNTED PATCHBOARD POINT
	PILOT LIGHT FOR PROCESS SIGNALS
	INSTRUMENTS SHARING COMMON HOUSING
+ – PS	LOOP POWER SUPPLY
pH	POWER OF HYDROGEN
TURB.	TURBIDITY

MEANING OF FUNCTIONAL INSTRUMENT IDENTIFICATION LETTERS

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER FLAME		USER CHOICE	USER CHOICE	USER CHOICE
C	CONDUCTIVITY (ELECTRICAL)			CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL			
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO(FRACTION)			
G	GAUGING(DIMENSIONAL)		GLASS		
H	HAND(MANUALLY INITIATED)				HIGH
I	CURRENT(ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME–SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT(PILOT)		LOW
M	MOTION	MOMENTARY			MIDDLE OR INTERMEDIATE
N	USER CHOICE		USER CHOICE	USER CHOICE	USER CHOICE
O	USER CHOICE		ORIFICE(RESTRICTION)		
P	PRESSURE OR VACUUM		POINT(TEST POINT)		
Q	QUANTITY OR EVENT	INTEGRATE OR TOTALIZE			
R	RADIATION		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNC.	MULTIFUNCTION
V	VIBRATION OR MECHANICAL ANALYSIS			VALVE, DAMPER, OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED		UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE			RELAY OR COMPUTE	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

JI SURGE ARRESTOR, SEE SPECIFICATIONS

INSTRUMENTS OR FUNCTIONS

KEY SYMBOL BLOCK TAG	PRIMARY LOCATION; OPERATOR ACCESSIBLE	AUXILIARY LOCATION; OPERATOR ACCESSIBLE	LOCATION NOT NORMALLY OPERATOR ACCESSIBLE	FIELD MOUNTED
DISCRETE INSTRUMENTS				
SHARED DISPLAY SHARED CONTROL				
COMPUTER FUNCTION				
PROGRAMMABLE LOGIC CONTROLLER				

SIGNAL CONDITIONERS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
A/D	ANALOG TO DIGITAL	Σ	SUM
D/A	DIGITAL TO ANALOG	△	DIFFERENCE
I/P	CURRENT TO PRESSURE	√	SQUARE ROOT
P/I	PRESSURE TO CURRENT	f(x)	CHARACTERIZATION
F/I	FREQUENCY TO CURRENT	/	INTEGRATION
I/I	CURRENT BOOST/ REPEATER		

INSTRUMENT LINE TYPES

LINE	DESCRIPTION
	PROCESS CONNECTION
	UNDEFINED SIGNAL
// // //	PNEUMATIC SIGNAL
	ELECTRIC SIGNAL
L L L	HYDRAULIC SIGNAL
X X X	CAPILLARY OR FILLED TUBE
	ELECTROMAGNETIC OR SONIC SIGNAL (GUIDED)
	ELECTROMAGNETIC OR SONIC SIGNAL (UNGUIDED)
	INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK)
	MECHANICAL LINK
// // //	PNEUMATIC BINARY (ON–OFF) SIGNAL
	ELECTRIC BINARY (ON–OFF) SIGNAL

EQUIPMENT LINE TYPES

LINE	DESCRIPTION
	PROPOSED OR NEW EQUIPMENT
	EXISTING EQUIPMENT

INSTRUMENT POWER SUPPLY

120 IA – PSIG	POWER SUPPLY, TYPE AND LEVEL SHOWN, ABBREVIATIONS AS FOLLOWS: AS – AIR SUPPLY IA – INSTRUMENT AIR PA – PLANT AIR ES – ELECTRIC SUPPLY GS – GAS SUPPLY

GARVER

REGISTRATION NO. F–5713

STATE OF TEXAS
BRIAN S. CHONG
108528
LICENSED PROFESSIONAL ENGINEER

DIGITALLY SIGNED: 08/06/20

SAN JANCINTO RIVER AUTHORITY
THE WOODLANDS DIVISION

SAN JACINTO RIVER AUTHORITY
SJRA
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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20–0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	AGW
SCALE:	AS SHOWN

PROCESS & INSTRUMENTATION DIAGRAM LEGEND

SHEET 01–G005

SEQ.: 05 OF 36

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GENERAL NOTES

1. GENERAL NOTES AND STANDARD DETAILS SHALL NOT REPLACE OR OVER RULE ANY STRUCTURE SPECIFIC NOTE, DETAIL, OR SPECIFICATION. STRUCTURE SPECIFIC NOTES AND DETAILS SHALL GOVERN OVER GENERAL NOTES AND STANDARD DETAILS.

2. BUILDING OCCUPANCY CATEGORY---------- III

3. DESIGN LIVE LOADS – 2012 IBC
   ROOF WITHOUT REDUCTION---------- 20 PSF

4. WIND LOAD PARAMETERS – ASCE 7-10
   BASIC WIND SPEED----------135 MPH
   EXPOSURE CATEGORY----------C
   GCPI +/- 0.18 (ENCLOSED BUILDINGS)

5. SEISMIC DESIGN PARAMETERS – IBC 2012
   IMPORTANCE FACTOR, I---------1.25
   SITE CLASS----------D
   SEISMIC SPECTRAL ACCELERATIONS
   S_S: 0.075g
   S_1: 0.041g
   SEISMIC DESIGN CATEGORY – A
   DESIGN SPECTRAL ACCELERATIONS
   S_{DS}: 0.08g
   S_{D1}: 0.065g
   RESPONSE MODIFICATION FACTOR, R----------SEE INDIVIDUAL PLANS
   BASIC SEISMIC FORCE RESISTING SYSTEM--SEE INDIVIDUAL PLANS
   SEISMIC RESPONSE COEFFICIENT, Cs---------SEE INDIVIDUAL PLANS
   ANALYSIS PROCEDURE----------EQUIVALENT LATERAL FORCE

6. SNOW LOADS PARAMETERS – ASCE 7-10
   GROUND SNOW LOAD, P_G ----------5 PSF
   IMPORTANCE FACTOR, I ----------1.10
   EXPOSURE FACTOR, C_e ---------- 0.90
   THERMAL FACTOR, C_T ---------- 1.0

7. THE STRUCTURE SHOULD NOT BE CONSIDERED TO BE STABLE DURING CONSTRUCTION UNTIL ALL ELEMENTS ARE IN PLACE AND CONNECTED. THE CONTRACTOR IS RESPONSIBLE FOR DESIGNING ALL TEMPORARY CONSTRUCTION BRACING, AS REQUIRED.

8. CONSTRUCTION METHODS, PROCEDURES, AND SEQUENCES ARE THE CONTRACTOR'S RESPONSIBILITY. THE CONTRACTOR SHALL TAKE THE ALL NECESSARY MEANS TO MAINTAIN AND PROTECT THE STRUCTURAL INTEGRITY OF ALL CONSTRUCTION, NEW AND EXISTING, AT ALL STAGES.

9. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO ANY PERTINENT WORK. ALL EXISTING CONDITIONS AND DIMENSIONS SHALL BE NOTED ON THE SHOP DRAWINGS.

10. COORDINATE WITH THE ARCHITECTURAL, CIVIL, MECHANICAL, STRUCTURAL, AND ELECTRICAL DRAWINGS, AND VERIFY THE LOCATIONS AND SIZES OF THE CHASES, OPENING, INSERTS, SLEEVES, FINISHES, CONDUITS, DEPRESSIONS AND OTHER PROJECT REQUIREMENTS.

11. THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE DRAWINGS AND EXISTING CONDITIONS TO DETERMINE WHERE OPENINGS ARE REQUIRED IN WALLS AND SLABS.

12. STANDARD DETAILS APPLY UNLESS INDICATED OTHERWISE ON SPECIFIC STRUCTURE DRAWINGS.

GENERAL CONCRETE NOTES:

1. STRUCTURAL CONCRETE FOR BUILDING MEMBERS SHALL HAVE A SPECIFIED COMPRESSIVE STRENGTH OF 4,500 PSI UNO.

2. CONCRETE FOR SLABS SUBJECTED TO VEHICULAR WHEEL LOADS SHALL HAVE A SPECIFIED COMPRESSIVE STRENGTH OF 4,500 PSI.

3. HOLD SLUMP TO 3 TO 4 INCHES IN ALL FLOOR SLABS.

4. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4".

5. NON-PRESTRESSED CONCRETE REINFORCEMENT SHALL CONFORM TO ASTM A 615 GRADE 60.

6. REINFORCEMENT LAP SPLICES SHALL CONFORM TO ACI 318.

7. CONCRETE COVER OVER REINFORCEMENT SHALL CONFORM TO THE MINIMUM REQUIRED BY ACI 318.

8. REINFORCEMENT DETAILING AND PLACEMENT SHALL CONFORM TO ACI 318 AND ACI 315.

9. NO REINFORCING BAR SHALL BE WELDED OR FIELD BENT IN ANY MANNER, UNLESS
   SPECIFICALLY SHOWN OR NOTED ON THE DRAWINGS.

10. PROVIDE FULL EMBEDMENT FOR ALL DOWELS. IF NOT OTHERWISE SPECIFIED, DOWEL SIZE AND SPACING SHALL BE THE SAME AS MAIN REINFORCING.

11. MECHANICAL EQUIPMENT PADS ON FLOOR SLABS SHALL BE MINIMUM 6" THICK AND REINFORCED WITH #4 @ 12" EW, UNO.

12. WATERSTOP PIPE SLEEVES REQUIRED ON ALL WATERTIGHT WALLS AND FLOORS.

13. TREMIES REQUIRED ON ALL POURS DEEPER THAN 5 FEET.

14. PROVIDE A MINIMUM OF SEVEN (7) DAYS BETWEEN ADJACENT POURS. CONCRETE SHALL MEET OR EXCEED DESIGN COMPRESSIVE STRENGTH PRIOR TO PLACING ADJACENT POURS.

15. CONTRACTOR SHALL SUBMIT TO ENGINEER FOR APPROVAL A SCHEDULE AND SEQUENCE OF CONCRETE PLACEMENT. SEQUENCE SHALL INCLUDE PERMITTING CURE TIME BETWEEN PLACEMENTS AT ADJACENT PROPOSED PLACEMENTS.

16. WALKWAYS AND SIDEWALKS SHALL BE POURED WITH SLIGHT SLOPE AND NO LOW SPOTS SO THEY WILL DRAIN FREE. ALL SLOPES SHALL COMPLY WITH ADA REQUIREMENTS.

17. SUBSTITUTION OF EXPANSION OR DRILLED AND GROUTED-IN ANCHORS FOR EMBEDDED ANCHORS SHOWN ON THE DRAWINGS WILL NOT BE PERMITTED UNLESS APPROVED BY ENGINEER.

STRUCTURAL STEEL NOTES:

1. UNLESS OTHERWISE SPECIFIED, HOT-ROLLED STEEL BUILDING MEMBERS USING W-SHAPES SHALL BE ASTM A992; M-, S-, AND C-SHAPES ASTM A36; SQUARE, RECTANGULAR & ROUND HSS SHAPES ASTM A 500 GRADE B; ANGLES AND MISCELLANEOUS STIFFENER PLATES ASTM A 36.

2. ALL SHEAR CONNECTIONS NOT DETAILED OR OTHERWISE NOTED SHALL BE STANDARD AISC WELDED OR AISC BOLTED CONNECTIONS AND SHALL HAVE SUFFICIENT CAPACITY TO SUPPORT THE END REACTION EQUAL TO ONE – HALF THE TOTAL UNIFORM CAPACITY SHOWN IN THE ALLOWABLE UNIFORM LOAD TABLES OF THE AISC ALLOWABLE STRESS DESIGN MANUAL – 15TH EDITION.

3. WELDING SHALL CONFORM WITH AWS D1.1 STRUCTURAL WELDING CODE.

4. ALL BOLTS FOR BEAM CONNECTIONS SHALL BE ASTM A325 WITH A MINIMUM DIAMETER OF 1/2" UNO. ALL BOLTED CONNECTIONS SHALL BE BEARING TYPE CONNECTIONS UNLESS NOTED AS SLIP CRITICAL. WASHERS SHALL BE INSTALLED UNDER NUTS OF FASTENERS WHEN REQUIRED BY THE SPECIFICATION FOR STRUCTURAL JOINTS.

5. ALL ANCHOR RODS SHALL BE ASTM F1554, GRADE 36 UNO.

FOUNDATION NOTES:

1. FLOOR SLAB ISOLATION JOINTS SHALL BE 30# FELT UNO.

2. CONCRETE FLOOR AND SLAB ON GRADE MAY BE PLACED IN LANES. SPACING OF JOINTS SHALL BE AS SHOWN ON THE FOUNDATION PLAN. WHEN LANE PLACEMENT IS USED, CONSTRUCTION JOINTS SHALL BE USED FOR THE JOINTS BETWEEN LANES. SAW CUT CRACK CONTROL JOINTS SHALL BE PROVIDED ACROSS EACH LANE AT SPACING SHOWN ON PLANS.

3. ALL CONCRETE CORNERS SHALL BE CHAMFERED 3/4" ON THE EXTERIOR EXPOSED CORNER.

4. COMPACTED GRANULAR FILL OR BASE COURSE ROCK AS INDICATED AND SPECIFIED.

5. ALL PRESSURE PIPING BENEATH SLABS SHALL BE CONCRETE ENCASED.

ABBREVIATION

ABBRE	DESCRIPTION	ABBRE	DESCRIPTION
AI	ALUMINUM	LLH	LONG LEG HORIZONTAL
CCJ	CRACK CONTROL JOINT	LLV	LONG LEG VERTICAL
CJP	CONSTRUCTION JOINT	MECH	MECHANICAL
EF	EACH FACE	NS	NEAR SIDE
EJ	EXPANSION JOINT	STL	STEEL
EW	EACH WAY	T&B	TOP AND BOTTOM
EXST	EXISTING	TOC	TOP OF CONCRETE
EXIT	EXTERIOR	TOF	TOP OF FOOTING
FD	FLOOR DRAIN	TOS	TOP OF SLAB OR STEEL
FND	FOUNDATION	VCJ	VERTICAL CONSTRUCTION JOINT
FS	FOOTING STEP, FAR SIDE		
IJ	ISOLATION JOINT		
INT	INTERIOR		

LEGEND:

℄	CENTERLINE	%	PERCENT		WATERSTOP
°	DEGREES	PL	PLATE		DIRECTION OF SPAN
FL	FLANGE	±	PLUS / MINUS		
GL	GRIDLINE				

GARVER

REGISTRATION NO. F-5713

STATE OF TEXAS
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Digitally Signed 08/06/2020

SAN JANCINTO RIVER AUTHORITY
THE WOODLANDS DIVISION

SAN JACINTO RIVER AUTHORITY SJRA www.SJRA.net

WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20-0075
FILE NAME:	
DRAWN BY:	GRN
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SCALE:	AS SHOWN

STRUCTURAL NOTES, LEGEND, AND ABBREVIATIONS

SHEET 01-G006

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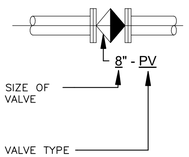
VALVE SYMBOLS

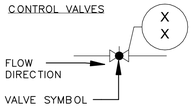
- GATE
- KNIFE GATE
- BUTTERFLY
- GLOBE
- BALL
- VEE–BALL
- PLUG OR COCK
- NEEDLE
- DIAPHRAGM
- PINCH
- SWING CHECK
- BALL CHECK
- ROTARY
- HOSE VALVE (HV–X) OR (V–X) X = NO. IN SPECS
- SAMPLE
- MUD
- PRESSURE RELIEF
- AIR RELEASE
- VACUUM RELIEF
- PRESSURE CONTROL
- TELESCOPING
- SLIDE GATE
- STOP GATE
- THREE–WAY / FOUR–WAY VALVE

VALVE DESIGNATIONS

MANUAL VALVES AND CHECK VALVES



CONTROL VALVES



BUBBLE WITH FUNCTION AND THE TAG NUMBER DESIGNATION (SEE I&C LEGEND FOR TAGGING INSTRUMENT IDENTIFICATION)

ACTUATOR SYMBOLS

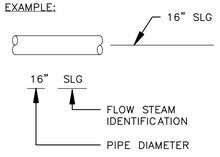
- PNEUMATIC DIAPHRAGM SPRING–OPPOSED, SINGLE OR DOUBLE ACTING
- PNEUMATIC CYLINDER SINGLE OR DOUBLE ACTING ACTUATED BY ONE INPUT
- (M) ELECTRIC MOTOR
- (H) HYDRAULIC
- MANUAL
- (S) SOLENOID

MISCELLANEOUS PIPING SYMBOLS

- STRAINER
- SIGHT GLASS
- FLEXIBLE (ELASTOMER) PIPE CONNECTION
- GAUGE WITH COCK
- THERMOMETER
- ROTAMETER
- PIG LAUNCHER
- BACKFLOW PREVENTER
- REDUCER
- FLEXIBLE HOSE
- FLEXIBLE CONNECTOR
- PS 26-1-2 TYPICAL INSTRUMENT SYMBOL (SEE I&C LEGEND)

PIPING DESIGNATION

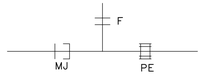
EXAMPLE:



PIPE FITTING AND END PATTERNS

B	BELL
F	FLANGE
S	SPIGOT
PE	PLAIN END
GE	GROOVED END
MJ	MECHANICAL JOINT

EXAMPLE:



SPECIAL INSTALLATION NOTE:

INSTALLATION DETAILS FOR DIVISION 26 ELECTRICAL ARE NOT SHOWN ON MECHANICAL DRAWINGS FOR CLARITY. REFER TO DIVISION 26 INSTRUMENT SPECIFICATIONS, INSTRUMENT LIST, AND DESIGN DETAILS. COORDINATE MATERIAL AND INSTALLATION REQUIREMENTS.

PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE
		NEW PIPE
		EXISTING PIPE TO BE ABANDONED
		EXISTING PIPE TO BE REMOVED
		WELDED JOINT
		GROOVED END JOINT
		FLANGED JOINT
		MECHANICAL JOINT
		BELL & SPIGOT JOINT (LEADED)
		HUB & SPIGOT JOINT (RUBBER GASKET)
		BALL JOINT
		ADAPTER SIDE GROOVED END ADAPTER FLANGE
		FLANGED COUPLING ADAPTER
		FLANGED COUPLING ADAPTER WITH THRUST TIES
		FLEXIBLE COUPLING
		FLEXIBLE COUPLING WITH THRUST TIES
		STEEL BELLOWS EXP. JOINT
		ELASTOMER BELLOWS EXP. JOINT

DOUBLE LINE	SINGLE LINE	
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		LATERAL UP
		LATERAL DOWN
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		REDUCING BUSHING
		UNION
		CAP
		ANCHOR
		ELBOW, 90 DEGREE
		CROSS
		TEE
		ELBOW, 45 DEGREE
		LATERAL

NOTES:

1. ONLY FLANGED END CONNECTIONS ARE SHOWN HERE FOR DOUBLE LINE FITTINGS; FITTINGS WITH OTHER END PATTERNS ARE SHOWN SIMILARLY ON THE CONSTRUCTION DRAWINGS. ALSO SEE PIPING SPECIFICATIONS.
2. SYMBOLS SHOWN HERE FOR SINGLE LINE FITTINGS ARE GENERIC ONLY. REFER TO PIPING SPECIFICATIONS FOR SPECIFIC END CONNECTIONS FOR SINGLE LINE PIPE AND FITTINGS.
3. EXISTING PIPE AND EQUIPMENT IS SHOWN WITH A DASHED LINE AND/OR SCREENED AND IS NOTED AS EXISTING. NEW PIPING AND EQUIPMENT IS SHOWN WITH A HEAVY LINE.

GENERAL PIPING NOTES:

1. LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
2. SIZE OF FITTINGS SHOWN ON PLANS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
3. LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. FINAL SUPPORT REQUIREMENTS SHALL BE DETERMINED IN THE FIELD AND REVIEWED BY THE ENGINEER PRIOR TO INSTALLATION. MAXIMUM SPACING SHALL BE AS SPECIFIED.
4. ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES OR PENETRATION SEALS SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL.
5. ALL FLEXIBLE CONNECTORS OR FLANGED COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES, BLOCKS, OR ANCHORS, UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
6. SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE PLANS, WHEREVER APPLICABLE. NOT ALL OF THE VARIOUS PIPING COMPONENTS ARE NECESSARILY USED IN THE PROJECT.
7. NUMBER AND LOCATION OF UNIONS SHOWN ON PLANS IS ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
8. WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER.

GATE SYMBOLS

ELEVATION VIEW	PLAN VIEW	
		SLUICE
		BUTTERFLY
		FLAP
		SHEAR
		FABRICATED SLIDE
		STOP LOG

ABBREVIATIONS

ABBREV	DESCRIPTION	ABBREV	DESCRIPTION
AWWA	AMERICAN WATER WORKS ASSOCIATION	OS&Y	OUTSIDE STEM AND YOKE
CPVA	CHLORINATED POLYVINYL CHLORIDE	RPM	REVOLUTIONS PER MINUTE
DX	DIRECT EXPANSION	S	STATIC PRESSURE
ECC	ECCENTRIC	VAC	VACUUM
EQUIP	EQUIPMENT	VTR	VENT THROUGH
FLEX	FLEXIBLE	WC	WATER COLUMN
FOB	FLAT ON BOTTOM	WPD	WATER PRESSURE DROP
FPM	FEET PER MINUTE		
GAL	GALLON		
GPD	GALLONS PER DAY		
GPH	GALLONS PER HOUR		
GPM	GALLONS PER MINUTE		
N.O.	NORMALLY OPEN		
NC	NORMALLY CLOSED		

FLOW STREAM IDENTIFICATION

ABBREV	DESCRIPTION
AIR	AERATION AIR
DS	DIGESTED SLUDGE

VALVE TYPE INDENTIFICATION

ABBREV	DESCRIPTION
BV	BALL VALVE
BFV	BUTTERFLY VALVE
PIV	PINCH VALVE
PLV	PLUG VALVE

GARVER

REGISTRATION NO. F–5713

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SAN JANCINTO RIVER AUTHORITY
THE WOODLANDS DIVISION

SAN JACINTO RIVER AUTHORITY SJRA www.SJRA.net

WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20–0075
FILE NAME:	
DRAWN BY:	GRN
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SCALE:	AS SHOWN

PROCESS MECHANICAL NOTES, LEGENDS, AND ABBREVIATIONS

SHEET 01–G007

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GENERAL NOTES:

1. THESE NOTATIONS ARE INTENDED TO BE GENERAL IN NATURE. THEY MAY OR MAY NOT APPLY TO SOME OR ALL OF THE PLAN SHEETS AND SPECIFICATIONS.
2. ALL RACEWAYS AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
3. CONDUIT RUNS INDICATED ON THE PLAN SHEETS ARE INTENDED TO BE SCHEMATIC ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD ROUTING ALL CONDUIT RUNS AND SHALL COORDINATE ANY DEVIATION FROM ROUTING AS INDICATED HEREIN WITH THE ENGINEER. ALL CONDUIT SHALL BE INSTALLED IN SUCH A MANNER AS TO PREVENT CONFLICTS WITH EQUIPMENT. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BEAMS OR STRUCTURAL CONDITIONS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD ROUTING ALL CONDUITS NOT INDICATED ON THE PLAN SHEETS. THIS INCLUDES CIRCUITS FOR LIGHTING, RECEPTACLES AND OTHER MISCELLANEOUS EQUIPMENT CIRCUITS.
5. ALL CONDUITS SHALL BE ROUTED AND SUPPORTED IN SUCH A MANNER AS TO NOT COMPROMISE THE STRUCTURAL INTEGRITY OF WALLS, FLOORS, CEILINGS, AND ROOFS. WHERE REQUIRED, THE CONTRACTOR SHALL PROVIDE ADDITIONAL STRUCTURAL SUPPORTING MEMBERS FOR THE INSTALLATION AND SHALL COORDINATE SUCH MEMBERS WITH ENGINEER.
6. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF CONDUIT ENTRANCES FOR ALL EQUIPMENT WITH SHOP DRAWINGS BEFORE STUBBING UP CONDUITS.
7. ALL SURFACE MOUNTED PANELS AND PANELBOARDS ON THE INTERIOR OF EXTERIOR WALLS OR IN OTHER LOCATIONS CONSIDERED DAMP OR WET SHALL BE MOUNTED SO AS TO MAINTAIN A 1/4" MINIMUM AIR SPACE BETWEEN THE ENCLOSURE AND THE WALL.
8. PULLBOXES, IF SHOWN ON THE PLANS, ARE SCHEMATIC IN NATURE. THE CONTRACTOR SHALL PROVIDE ADDITIONAL PULLBOXES WHERE REQUIRED TO MAKE A WORKABLE INSTALLATION.
9. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS WHETHER OR NOT THEY ARE REFERENCED ON THE DRAWINGS.
10. ALL CONDUIT RUNS PASSING THROUGH EXPANSION JOINTS SHALL HAVE EXPANSION OR EXPANSION AND DEFLECTION TYPE FITTINGS. FOR LOCATIONS OF EXPANSION JOINTS, REFER TO THE STRUCTURAL DRAWINGS.
11. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. IF EQUIPMENT SUPPLIED BY THE MANUFACTURER HAS A LARGER LOAD THAN THE VALUE SHOWN OR INDICATED, THE CABLE, CONDUIT AND ELECTRICAL EQUIPMENT MAY BE ENLARGED AS REQUIRED TO ACCOMMODATE THE HIGHER LOADING. HOWEVER, THE BASIC SEQUENCE AND METHOD OF CONTROL MUST BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
12. ALL MOTOR STARTER CONTROL POWER TRANSFORMERS SHALL BE SIZED TO PROVIDE SUFFICIENT VOLT–AMPERE CAPACITY FOR OPERATING ALL LOCAL AND REMOTE ELECTRICAL DEVICES ASSOCIATED WITH CONTROL OF THE MOTOR IN ADDITION TO THE STARTER COIL. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL LOADING REQUIREMENTS FOR CONTROL POWER TRANSFORMERS.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PROPERLY SIZED STARTER OVERLOADS FOR ALL EQUIPMENT INSTALLED.
14. MOTOR CONTROL CENTERS AND ALL FREE STANDING PANELS SHALL BE SET ON CONCRETE HOUSEKEEPING PADS WITH LEVELING CHANNELS EMBEDDED IN THE PAD.
15. IN GENERAL, SEPARATE POWER, CONTROL AND INSTRUMENTATION WIRING. PROVIDE SEPARATE CONDUIT, PULL AND JUNCTION BOXES. PROVIDE SUITABLE CABLE BARRIER WITHIN PULL OR JUNCTION BOXES WHERE SEPARATION OF WIRING IS NOT SHOWN ON THE DRAWINGS.
16. IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, DOORS OR OTHER SIMILAR ITEMS, NO CONDUITS SHALL BE INSTALLED IN SUCH A MANNER AS TO CONFLICT WITH PROPER OPERATION OF SUCH EQUIPMENT.
17. CONTRACTOR SHALL FURNISH AND INSTALL ITEMS AS NECESSARY FOR COMPLETE AND FUNCTIONAL SYSTEMS INCLUDING THE CHEMICAL FEED SYSTEMS, MECHANICAL SYSTEMS, AND PLANT INSTRUMENTATION SYSTEM/DISTRIBUTED CONTROL SYSTEM. THE CONTRACTOR SHALL REFER TO THE SPECIFICATIONS AND OTHER SECTIONS OF THE PLANS FOR ITEMS AS MAY BE REQUIRED AND SHALL PROVIDE CONDUIT, WIRING AND TERMINATIONS FOR ALL ITEMS AS REQUIRED.
18. CONTRACTOR SHALL REFER TO OTHER PLAN SHEETS FOR LOCATIONS OF FIREWALLS. ALL CONDUIT PENETRATIONS IN THESE WALLS SHALL BE ACCOMPLISHED IN SUCH A MANNER AS TO NOT REDUCE THE RATING OF THE FIREWALL THROUGH THE USE OF BOXES, SEALANTS AND OTHER ACCESSORIES AS MAY BE REQUIRED.
19. CONTRACTOR SHALL REFER TO MECHANICAL PLAN SHEETS AND SPECIFICATIONS FOR ITEMS RELATED TO THE MECHANICAL SYSTEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL ITEMS AS NECESSARY FOR COMPLETE AND OPERABLE MECHANICAL HEREIN INCLUDING, BUT NOT LIMITED TO; CONTROL POWER TRANSFORMERS, STARTERS, THERMOSTATS, CONTROL STATIONS, AND OTHER ELECTRICAL ITEMS AS RELATED TO THE INSTALLATION OF THE MECHANICAL SYSTEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING DISCONNECTS FOR ALL MECHANICAL MOTORS UNLESS THE EQUIPMENT IS FURNISHED WITH AN INTEGRAL DISCONNECT FROM THE MANUFACTURER. IN ADDITION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PROVIDING CONDUIT, WIRING AND TERMINATIONS FOR ALL COMPONENTS AS MAY BE NECESSARY FOR THE MECHANICAL SYSTEMS.
20. ALL RECEPTACLES IN OUTDOOR AND ANTICIPATED WET AREAS SHALL BE GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLES WITH WEATHERPROOF COVERS.
21. EQUIPMENT LOCKOUTS SHALL BE IN STRICT ACCORDANCE WITH OWNER'S REQUIREMENTS.
22. ALL CONDUITS SHALL HAVE A GROUNDING CONDUCTOR, SIZED PER NEC.
23. ALL LIGHTING FIXTURES INSTALLED IN INSULATED LOCATIONS SHALL BE RATED FOR SUCH INSTALLATION IRREGARDLESS OF THE FIXTURE SCHEDULE DESIGNATION.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF NEW SERVICE INSTALLATIONS WITH OWNER, ENGINEER AND SERVICING UTILITY. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL ITEMS AS REQUIRED BY SERVICING UTILITY FOR NEW SERVICE CONNECTIONS.
25. UNLESS NOTED OTHERWISE, ALL CONTROL PANELS SHALL BE FABRICATED SUCH THAT ALL OPERATORS AND INDICATING DEVICES INDICATED ON THE SCHEMATICS BE LOCATED ON THE FRONT DOOR OR COVER OF THE PANEL. OPERATING AND INDICATING DEVICES SHALL BE VISIBLE AND OPERABLE WITHOUT HAVING TO OPEN THE CONTROL PANEL.
26. DUCT BANK INDICATED ARE FOR REFERENCE ONLY; THE CONTRACTOR SHALL REVIEW PLAN SHEETS RELATED TO INDIVIDUAL STRUCTURES AND VERIFY CONDUITS THAT MAY BE REQUIRED. THE CONTRACTOR SHALL VERIFY NUMBER OF CONDUITS AS INDICATED IN THE DUCT BANK PRIOR TO INSTALLATION WITH THE ENGINEER. PROVIDE A SPARE CONDUIT, EQUAL IN SIZE TO THE LARGEST CONDUIT IN USE, FOR EACH SET OF FOUR USED CONDUITS IN EACH DUCT BANK.
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING HEAT TRACING FOR ALL EXPOSED WATER LINES TO BE INSTALLED UNDER THIS PROJECT. THE CONTRACTOR SHALL REVIEW OTHER SECTIONS OF THE PLANS AND SPECS AND PROVIDE SUITABLE HEAT TRACING COMPONENTS AS MAY BE REQUIRED, WHETHER INDICATED ON THE ELECTRICAL PLAN SHEETS OR NOT.

EQUIPMENT LINE TYPES

- PROPOSED OR NEW EQUIPMENT
- EXISTING EQUIPMENT
- EQUIPMENT PACKAGE
- GROUND RING OR UNDERGROUND

GENERAL NOTES:

1. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET BUT NOT BE UTILIZED ON THE PROJECT.
2. LIGHTING LEGEND SHOWS EXAMPLE IDENTIFIERS, REFER TO LIGHT FIXTURE SCHEDULE FOR SPECIFIC REQUIREMENTS.

ONE–LINE LEGEND

- EXISTING
- NEW
- 3/4" X 10' GROUND ROD
- CIRCUIT BREAKER
- EXOTHERMIC WELD (BELOW GRADE) OR MECHANICAL CONNECTION (ABOVE GRADE)
- GENERATOR
- DS — MOTOR DISCONNECT SWITCH

C.B.	CIRCUIT BREAKER
GEC	GROUNDING ELECTRODE CONDUCTOR
ATS	AUTOMATIC TRANSFER SWITCH
SDBC	SOFT DRAWN BARE COPPER
GFP	GROUND FAULT PROTECTION
LSI	LONG, SHORT, INSTANTANEOUS

CONTROL SCHEMATIC LEGEND

- WIRING WITHIN PANEL
- WIRING TO FIELD DEVICE
- PUSHBUTTON SWITCH, NORMALLY OPEN
- PUSHBUTTON SWITCH, NORMALLY CLOSED
- SELECTOR SWITCH, NUMBER OF POSITIONS AND CONTACTS AS SHOWN
- RELAY CONTACT, NORMALLY OPEN
- RELAY CONTACT, NORMALLY CLOSED
- TIME DELAY CONTACT, CLOSE ON ENERGIZATION
- TIME DELAY CONTACT, OPEN ON ENERGIZATION
- TIME DELAY CONTACT, OPEN ON DE–ENERGIZATION
- TIME DELAY CONTACT, CLOSE ON DE–ENERGIZATION
- LEVEL SWITCH
- PRESSURE SWITCH
- LIMIT SWITCH CONTACT, NORMALLY OPEN
- LIMIT SWITCH CONTACT, NORMALLY CLOSED
- LIMIT SWITCH CONTACT, HELD OPEN
- LIMIT SWITCH CONTACT, HELD CLOSED
- RELAY COIL, "TR" INDICATES "TIMING RELAY"
- PILOT LIGHT; "A" INDICATES "AMBER LENS" "G" INDICATES "GREEN LENS" "R" INDICATES "RED LENS"
- SOLENOID
- ETM — ELAPSED TIME METER
- TERMINAL BLOCK
- ELECTRICAL CONNECTION
- GROUND CONNECTION TO ENCLOSURE GROUND BAR

LIGHTING, POWER & SYSTEM LEGEND

- 1x4 FLUORESCENT LIGHT FIXTURE
- FLUORESCENT LIGHT FIXTURE WITH EMERGENCY LIGHT (EL) BATTERY PACK, 1400 LUMENS MINIMUM FOR 2 LAMPS
- SWITCH, SINGLE POLE
- SWITCH, DOUBLE POLE
- SWITCH, THREE WAY
- SWITCH, FOUR WAY
- SWITCH, DIMMER
- NON–FUSED DISCONNECT SWITCH, SIZE AS NOTED
- COMBINATION DISCONNECT AND MOTOR STARTER, SIZE AS NOTED, FUSED TYPE SHOWN
- FUSED DISCONNECT SWITCH, SIZE AS NOTED
- HANDHOLE, IDENTIFIER SHOWN, REFER TO HANDHOLE SCHEDULE FOR SIZE
- 3/4" x 10' COPPER CLAD GROUND ROD
- 20 AMP DUPLEX RECEPTACLE, MTD. 20" AFF TO BOTTOM, WITH #12 GROUND WIRE, "GFCI" INDICATES GROUND FAULT CIRCUIT INTERRUPTER, "WP" INDICATES WEATHERPROOF WHILE–IN–USE ENCLOSURE AND COVER, BOX INDICATES FLOOR OUTLET WITH RECESSED CAST JUNCTION BOX
- ELECTRICAL PANEL OR EQUIPMENT CABINET, SURFACE MOUNTED, 5'–6" TO TOP OF ENCLOSURE
- ELECTRICAL PANEL OR EQUIPMENT CABINET, RECESSED MOUNTED, 5'–6" TO TOP OF ENCLOSURE
- HOME RUN TO PANEL IN DEDICATED CONDUIT, RECEPTACLES AND EQUIPMENT SHALL HAVE DEDICATED GREEN GROUND WIRE. NUMBER OF ARROWS INDICATES NUMBER OF PHASE CONDUCTORS, LETTER(S) INDICATE NAME OF PANEL, NUMBER(S) INDICATE CIRCUIT NUMBERS
- GROUND
- DATA AND TELEPHONE DUAL OUTLET
- D1 — DUCT BANK, IDENTIFIER SHOWN, REFER TO DUCT BANK SCHEDULE FOR SIZE AND CONFIGURATION
- G, 100 kW — GENERATOR, RATINGS AS SHOWN
- GROUND ROD AND TEST WELL
- AIRTERMINAL
- TRANSFORMER, RATINGS AS SHOWN
- 20A — FUSE, CURRENT LIMITING, AMPERE RATING AS SHOWN OR REQUIRED, "BFI" INDICATES "BLOWN FUSE INDICATOR" TYPE
- M, 20 HP — ELECTRIC MOTOR, HORSEPOWER AS SHOWN
- FV, NR — MOTOR STARTER, SIZE AS SHOWN OR REQUIRED, FVNR UNLESS NOTED
- 20A/3P — CIRCUIT BREAKER, TRIP RATING SHOWN, 3–POLE UNLESS NOTED OTHERWISE
- CAPACITOR, kVAR AS SHOWN
- RV, SS — REDUCED VOLTAGE SOFT STARTER

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REGISTRATION NO. F–5713

STATE OF TEXAS — BRIAN S. CHONG — 108528 — LICENSED PROFESSIONAL ENGINEER

DIGITALLY SIGNED: 08/06/20

SAN JANCINTO RIVER AUTHORITY
THE WOODLANDS DIVISION

SAN JACINTO RIVER AUTHORITY — SJRA — www.SJRA.net

WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO :	20–0075
FILE NAME:	
DRAWN BY:	CM
CHECKED BY:	BSC
SCALE:	AS SHOWN

ELCTRICAL NOTES, LEGEND, AND ABBREVIATIONS

SHEET 01–G008

SEQ. 08 of 36

FILE: L:\2019\19W09245 – SJRA WWTF No 2 Digester Rehab\Drawings\19W09245_SJRA_WWTP2 – 01–G010–GN.dwg LAYOUT: 01–G010 DATE: 8/4/2020 8:18:53 AM BY: CMEDINA

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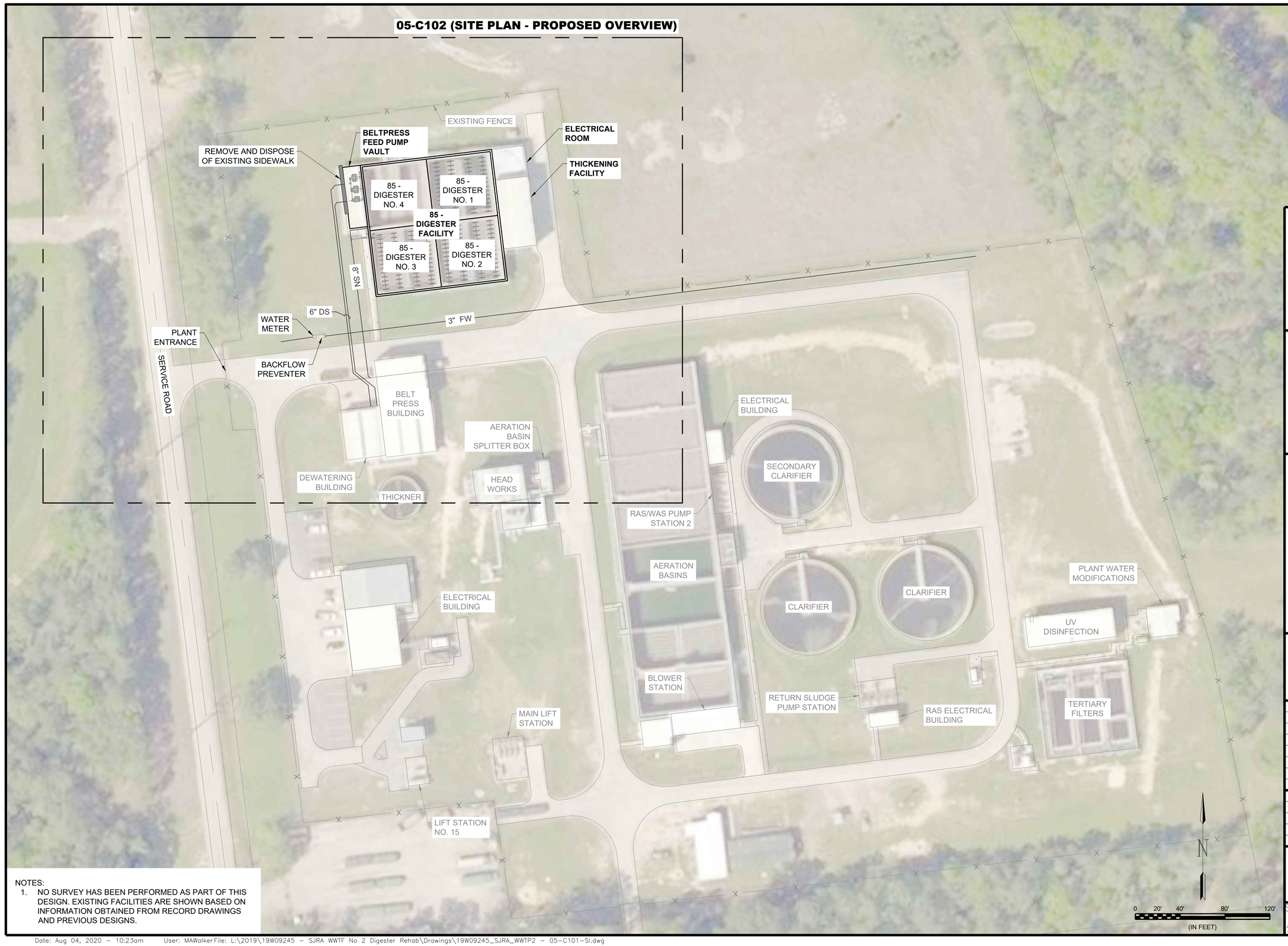
05-C102 (SITE PLAN - PROPOSED OVERVIEW)



NOTES:
1. NO SURVEY HAS BEEN PERFORMED AS PART OF THIS DESIGN. EXISTING FACILITIES ARE SHOWN BASED ON INFORMATION OBTAINED FROM RECORD DRAWINGS AND PREVIOUS DESIGNS.

GARVER

REGISTRATION NO. F-5713

STATE OF TEXAS
TYSON O. HANN
115705
LICENSED PROFESSIONAL ENGINEER

DIGITALLY SIGNED: 08/06/20

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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO :	20-0075
FILE NAME:	
DRAWN BY:	CDG
CHECKED BY:	MAW
SCALE:	AS SHOWN

SITE PLAN - EXISTING OVERVIEW AND DEMOLITION

SHEET 05-C101

SEQ. 09 of 36

FILE: L:\2019\19W09245 - SJRA WWTF No 2 Digester Rehab\Drawings\19W09245_SJRA_WWTP2 - 05-C101-SI.dwg LAYOUT: C-101 DATE: 8/4/2020 10:23:54 AM BY: MAWALKER

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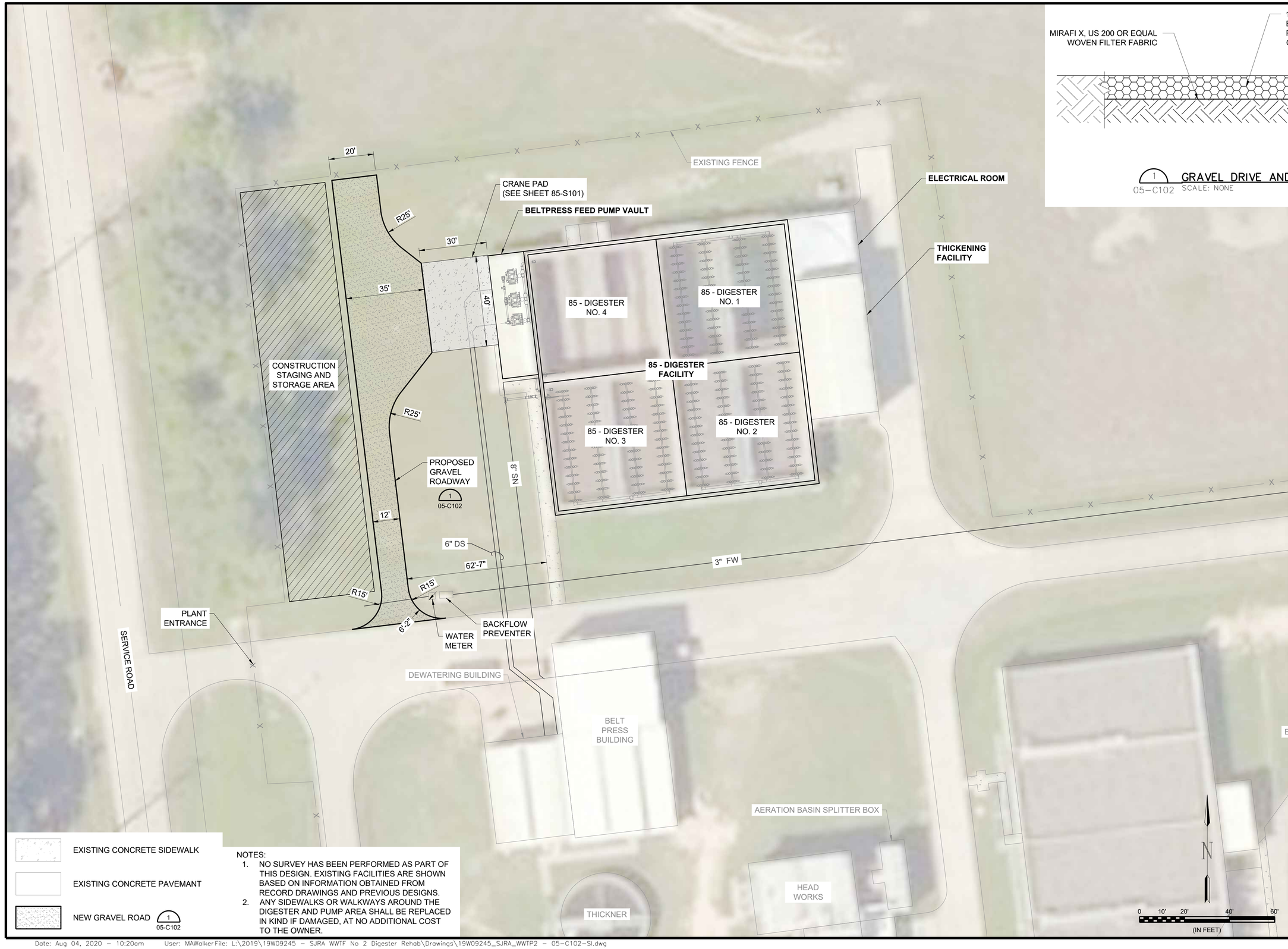

1 05-C102 GRAVEL DRIVE AND ACCESS DETAIL
SCALE: NONE

EXISTING CONCRETE SIDEWALK

EXISTING CONCRETE PAVEMANT

NEW GRAVEL ROAD 1 05-C102

NOTES:
1. NO SURVEY HAS BEEN PERFORMED AS PART OF THIS DESIGN. EXISTING FACILITIES ARE SHOWN BASED ON INFORMATION OBTAINED FROM RECORD DRAWINGS AND PREVIOUS DESIGNS.
2. ANY SIDEWALKS OR WALKWAYS AROUND THE DIGESTER AND PUMP AREA SHALL BE REPLACED IN KIND IF DAMAGED, AT NO ADDITIONAL COST TO THE OWNER.

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STATE OF TEXAS
TYSON O. HANN
115705
LICENSED PROFESSIONAL ENGINEER

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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO :	20-0075
FILE NAME:	
DRAWN BY:	MAW
CHECKED BY:	CDG
SCALE:	AS SHOWN

SITE PLAN - PROPOSED OVERVIEW

SHEET 05-C102

SEQ. 10 of 36

FILE: L:\2019\19W09245 - SJRA WWTF No 2 Digester Rehab\Drawings\19W09245_SJRA_WWTP2 - 05-C102-SI.dwg LAYOUT: C-102 DATE: 8/4/2020 10:20:20 AM BY: MAWALKER

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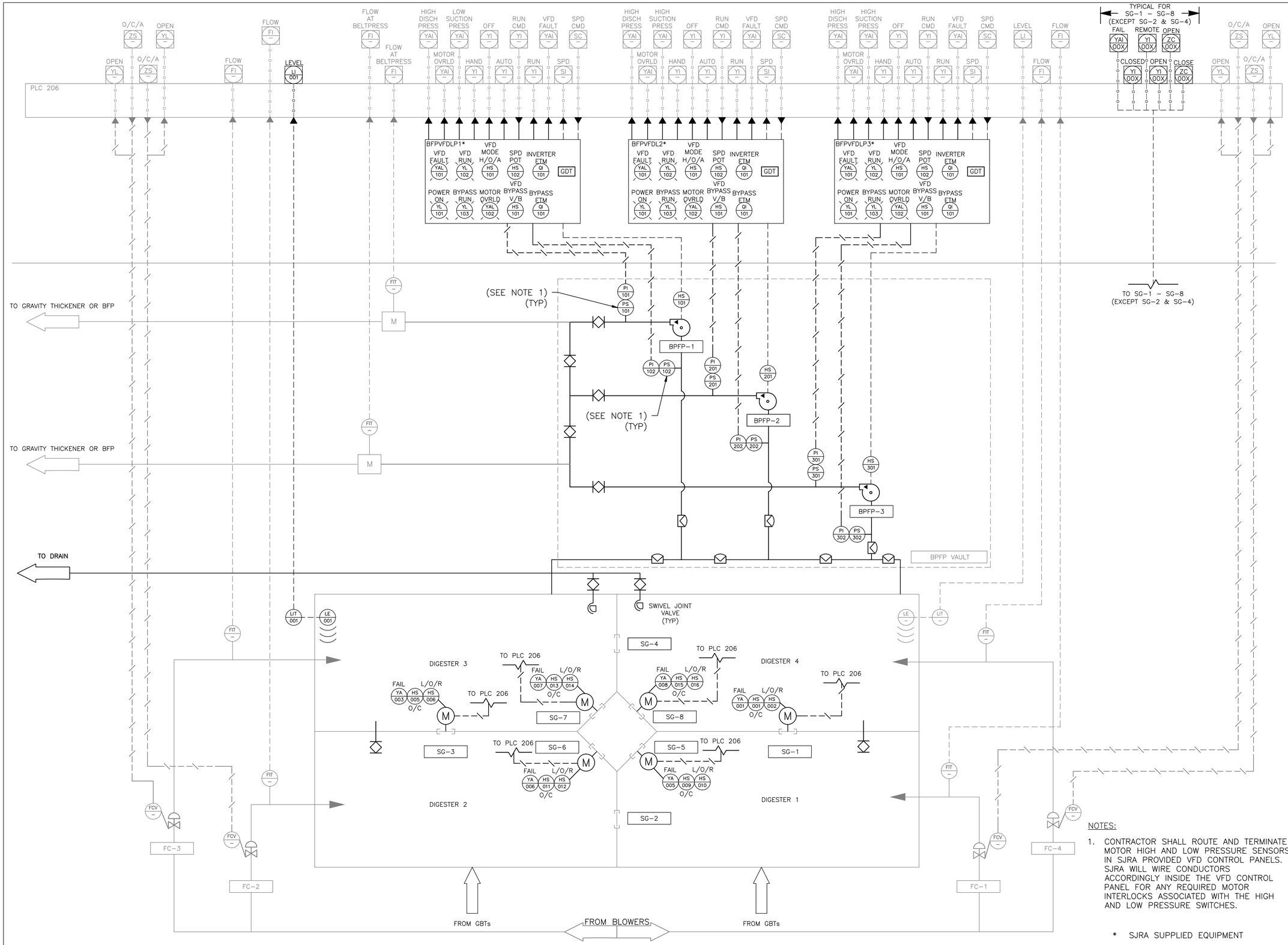

NOTES:

1. CONTRACTOR SHALL ROUTE AND TERMINATE MOTOR HIGH AND LOW PRESSURE SENSORS IN SJRA PROVIDED VFD CONTROL PANELS. SJRA WILL WIRE CONDUCTORS ACCORDINGLY INSIDE THE VFD CONTROL PANEL FOR ANY REQUIRED MOTOR INTERLOCKS ASSOCIATED WITH THE HIGH AND LOW PRESSURE SWITCHES.

* SJRA SUPPLIED EQUIPMENT

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REGISTRATION NO. F-5713

STATE OF TEXAS
BRIAN S. CHONG
108528
LICENSED PROFESSIONAL ENGINEER

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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO :	20-0075
FILE NAME:	
DRAWN BY:	**CM**
CHECKED BY:	**BSC**
SCALE:	AS SHOWN

DIGESTER AREA PROCESS AND INSTRUMENTATION DIAGRAM

SHEET 08-I101

SEQ. **11 of 36**

FILE: L:\2019\19W09245 - SJRA WWTF No 2 Digester Rehab\Drawings\19W09245_SJRA_WWTP2 - 08-I101-PID.dwg LAYOUT: 08-I101 DATE: 8/5/2020 10:58:37 AM BY: CMEDINA

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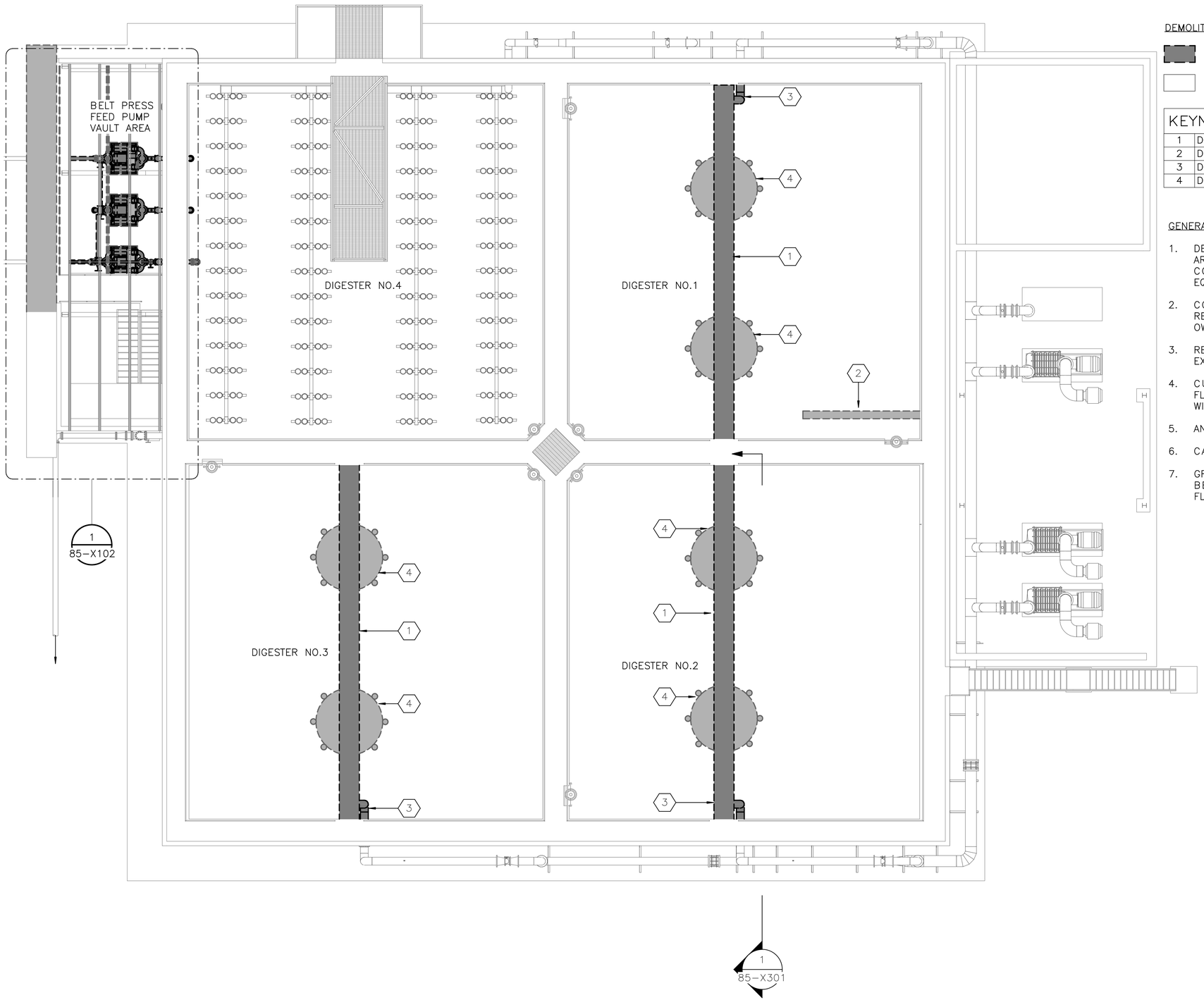

1 DIGESTER PLAN – DEMO

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

DEMOLITION LEGEND

TO BE DEMOLISHED

EXISTING CONSTRUCTION

KEYNOTES:	DENOTED BY SYMBOL (X)
1	DEMO AIR BRIDGE AND SUPPORTS
2	DEMO WALL
3	DEMO PIPING
4	DEMO AIR DISCHARGE

GENERAL DEMOLITION NOTES:

1. DEMOLITION SHEETS, PICTURES, DRAWINGS, AND NOTES ARE PROVIDED FOR CONVENIENCE OF THE CONTRACTOR. CONTRACTOR IS RESPONSIBLE FOR PRE-MEASURING EQUIPMENT AND EXISTING OPENINGS PRIOR TO REMOVAL.
2. CONTRACTOR SHALL DISPOSE OF ALL ITEMS NOTED TO BE REMOVED/DEMOLISHED AT NO ADDITIONAL COST TO THE OWNER.
3. REMOVE CONDUIT AND WIRE AS NOTED. CAP REMAINING EXPOSED CONDUIT.
4. CUT REMOVED CONDUIT AT FLOOR ELEVATION AND GRIND FLUSH WITH FLOOR AND FILL WITH GROUT, FLUSH WITH FLOOR.
5. ANY ELECTRICAL WIRE TERMINATIONS SHALL BE CAPPED.
6. CAP AND SEAL ALL SLAB OR WALL PENETRATIONS.
7. GRIND ANY EXPOSED STEEL FROM DEMOLITION 2 INCHES BELOW FLOOR ELEVATION AND GROUT WITH EPOXY GROUT FLUSH WITH THE FLOOR ELEVATION.

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REGISTRATION NO. F-5713

STATE OF TEXAS
TYSON O. HANN
115705
LICENSED PROFESSIONAL ENGINEER

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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20-0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	AGW
SCALE:	AS SHOWN

EXISTING DIGESTER DEMOLITION PLAN

SHEET 85-X101

SEQ.: 12 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
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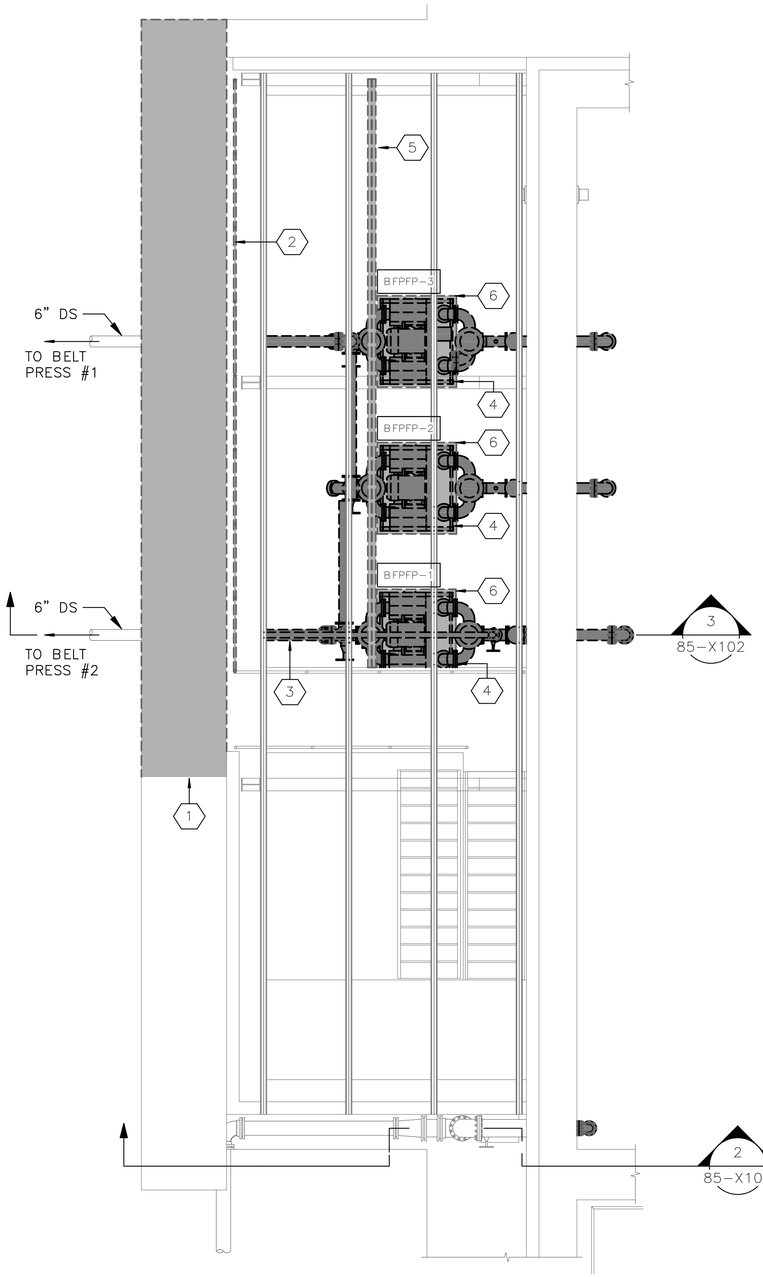
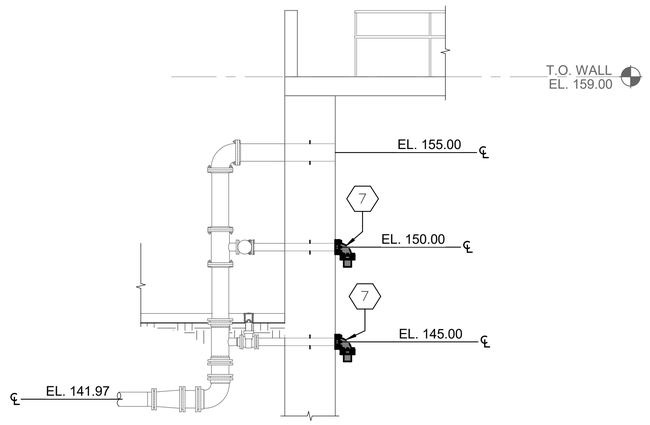


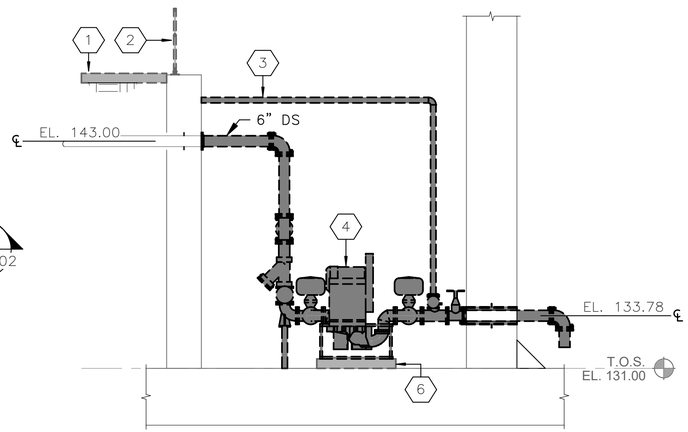
1 ENLARGED PUMP VAULT – DEMO

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



2 SECTION @ DIGESTER 4 DRAIN – DEMO

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



3 SECTION @ NEW PUMP – DEMO

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

DEMOLITION LEGEND

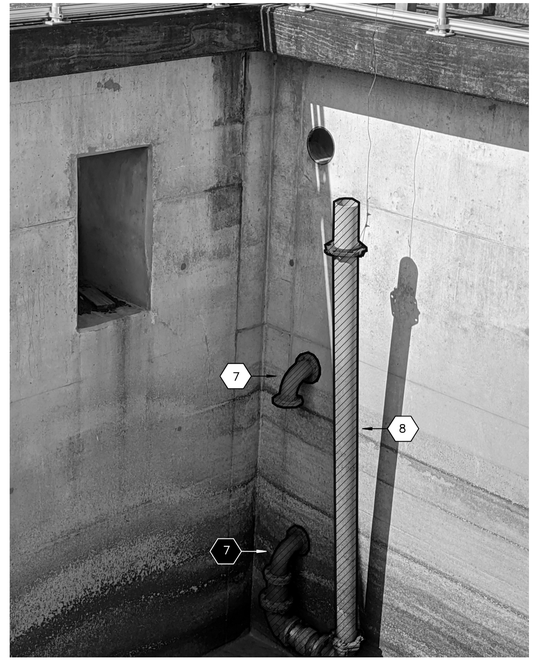
	TO BE DEMOLISHED
	EXISTING CONSTRUCTION
	TO BE DEMOLISHED (PHOTOGRAPH)

KEYNOTES: DENOTED BY SYMBOL ⟨X⟩

1	DEMO SIDEWALK
2	DEMO RAILING
3	DEMO RETURN PIPE
4	DEMO SLUDGE PUMP
5	DEMO MONORAIL
6	DEMO CONCRETE PADS
7	DEMO ELBOW

NOTES:

1. AT LEAST TWO (2) BPFPS MUST REMAIN IN OPERATION AT ALL TIMES DURING CONSTRUCTION.
2. PIPE SEGMENTS THROUGH WALLS ARE TO REMAIN IN PLACE. ONCE PROTRUDING PIPE IS REMOVED REMAINING SEGMENT SHOULD BE FILLED WITH NON-SHRINK GROUT AND CAPPED WITH A BLIND FLANGE ON EACH SIDE.



4 PHOTO – SWIVEL VALVE – DEMO

GARVER

REGISTRATION NO. F-5713

STATE OF TEXAS
TYSON O. HANN
115705
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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20-0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	TOH
SCALE:	AS SHOWN

ENLARGED PUMP VAULT DEMO-PROCESS PLAN

SHEET 85-X102

SEQ.: 13 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
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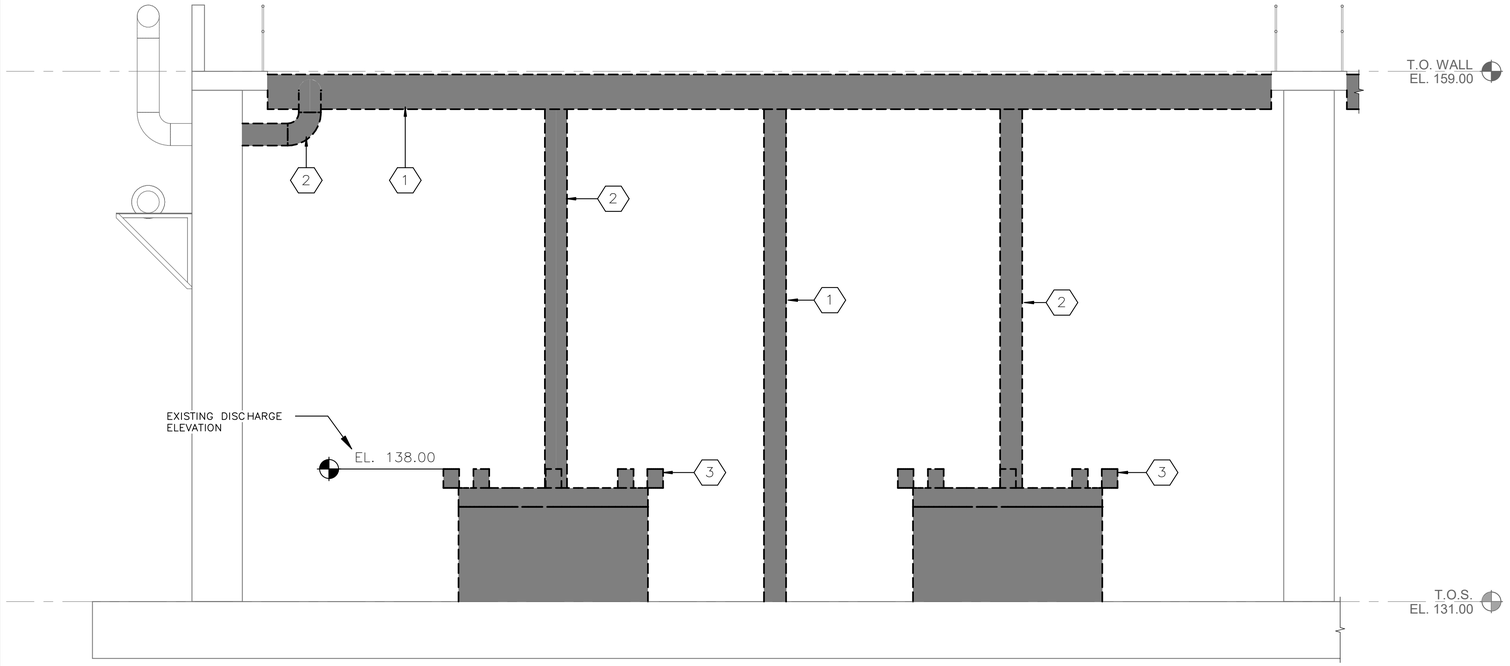


1 SECTION @ AIR BRIDGE – DEMO

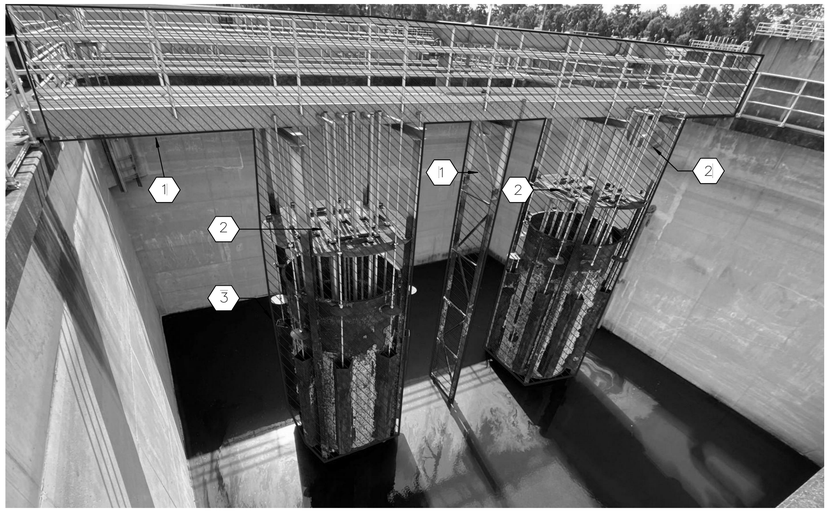
SCALE: 1/4" = 1'-0"

DEMOLITION LEGEND

	TO BE DEMOLISHED
	EXISTING CONSTRUCTION
	TO BE DEMOLISHED (PHOTOGRAPH)

KEYNOTES: DENOTED BY SYMBOL (X)

1	DEMO AIR BRIDGE AND SUPPORTS
2	DEMO PIPING
3	DEMO AIR DISCHARGE
4	DEMO WALKWAY
5	DEMO RAILING
6	DEMO MONORAIL



2 PHOTO – DIGESTER NO. 3 DRAFT TUBE AERATOR AND AIR BRIDGE – DEMO

3 PHOTO – MONORAIL AND RAILING – DEMO

GARVER

REGISTRATION NO. F-5713

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TYSON O. HANN
115705
LICENSED
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WWTF NO. 2 DIGESTER
NOS. 1, 2 AND 3
REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20-0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	AGW
SCALE:	AS SHOWN

EXISTING DIGESTER
DEMOLITION SECTIONS AND
DETAILS

SHEET 85-X301

SEQ.: 14 OF 36

Revit Files: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
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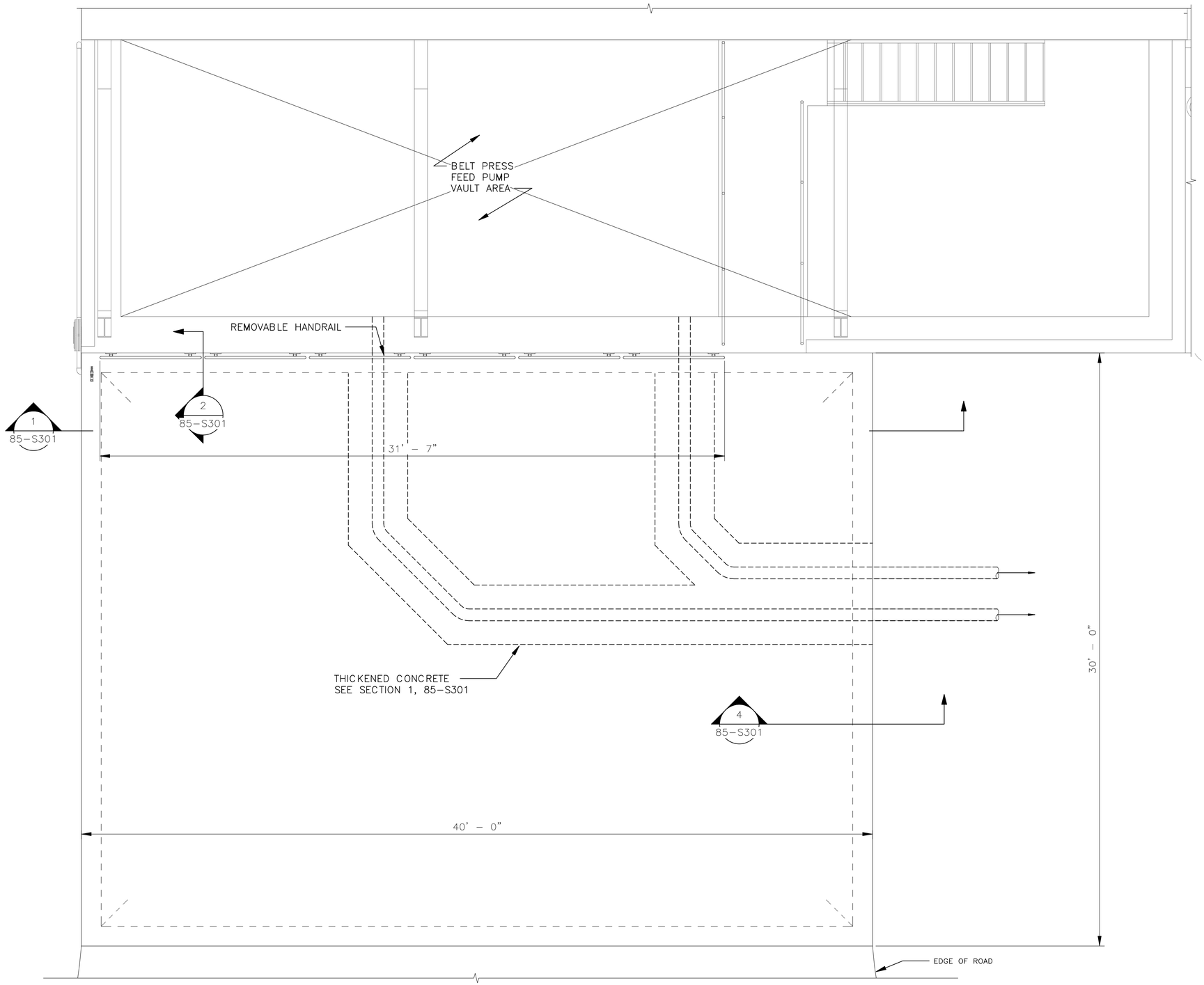

N

1 FLOOR PLAN

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

GARVER

REGISTRATION NO. F-5713

STATE OF TEXAS
HARRY W. ELLIOTT
135729
LICENSED
PROFESSIONAL ENGINEER

Digitally Signed 08/06/2020

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WWTF NO. 2 DIGESTER
NOS. 1, 2 AND 3
REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20-0075
FILE NAME:	
DRAWN BY:	EAL
CHECKED BY:	JT
SCALE:	AS SHOWN

CRANE PAD FOR FEED
PUMP VAULT AREA

SHEET 85-S101

SEQ.: 15 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
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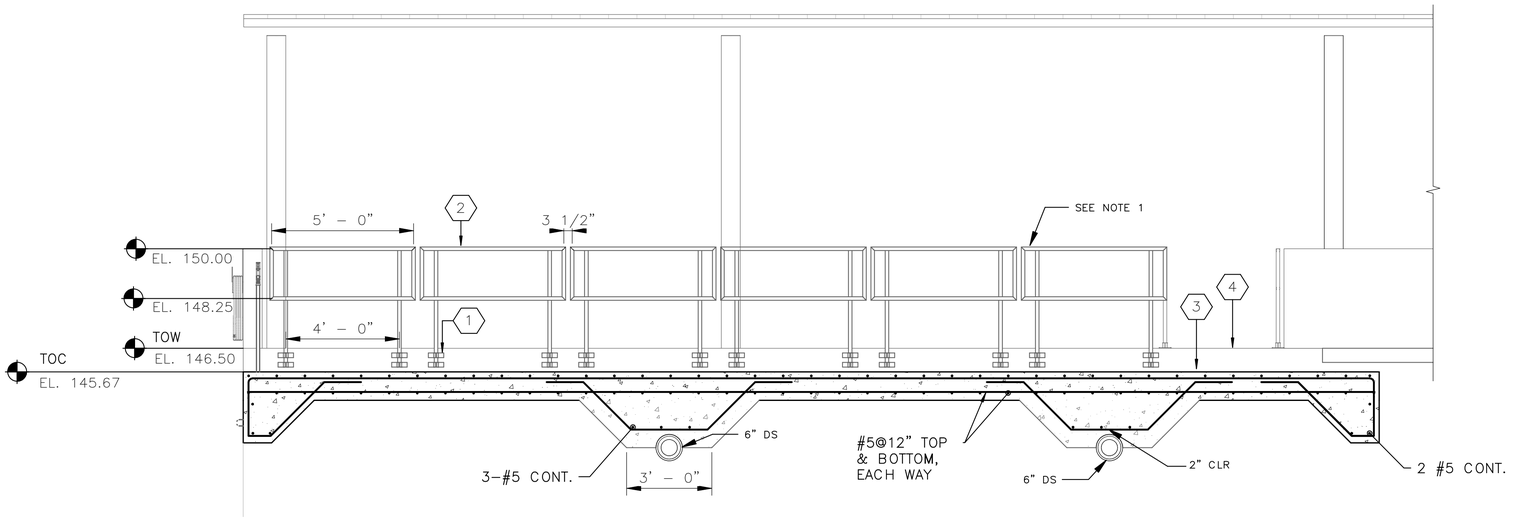
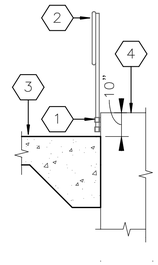
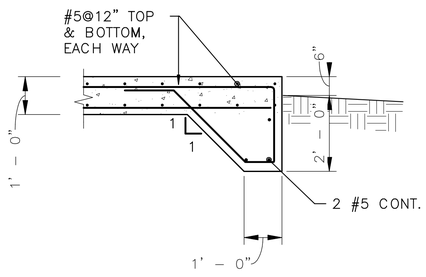




1 SECTION @ REMOVABLE HANDRAIL

SCALE: 3/8" = 1'–0"



4 SLAB EDGE DETAIL

SCALE: 1/2" = 1'–0"

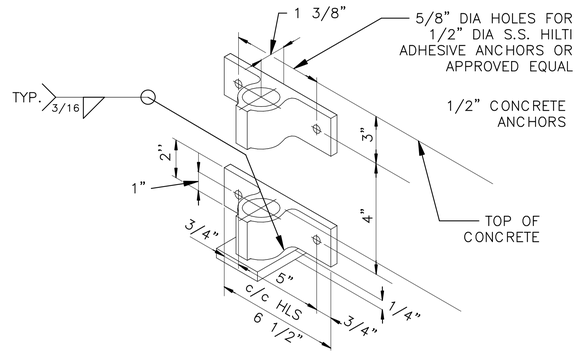
KEYNOTES:	DENOTED BY SYMBOL ⟨X⟩
1	MOUNTING BRACKET, D01/85–S301
2	REMOVABLE HANDRAIL
3	NEW CONCRETE SLAB
4	EXISTING PUMP PIT WALL

NOTE:

1. MAX WEIGHT OF EACH REMOVABLE HANDRAIL SECTION IS 75 POUNDS.

2 SECTION @ REMOVABLE HANDRAIL

SCALE: 3/8" = 1'–0"



D01 SIDE MOUNT BRACKET FOR REMOVABLE RAILING
85–S301

GARVER

REGISTRATION NO. F–5713

STATE OF TEXAS
HARRY W. ELLIOTT
135729
LICENSED
PROFESSIONAL ENGINEER

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THE WOODLANDS DIVISION

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WWTF NO. 2 DIGESTER
NOS. 1, 2 AND 3
REHABILITATION

ISSUE	DATE	DESCRIPTION

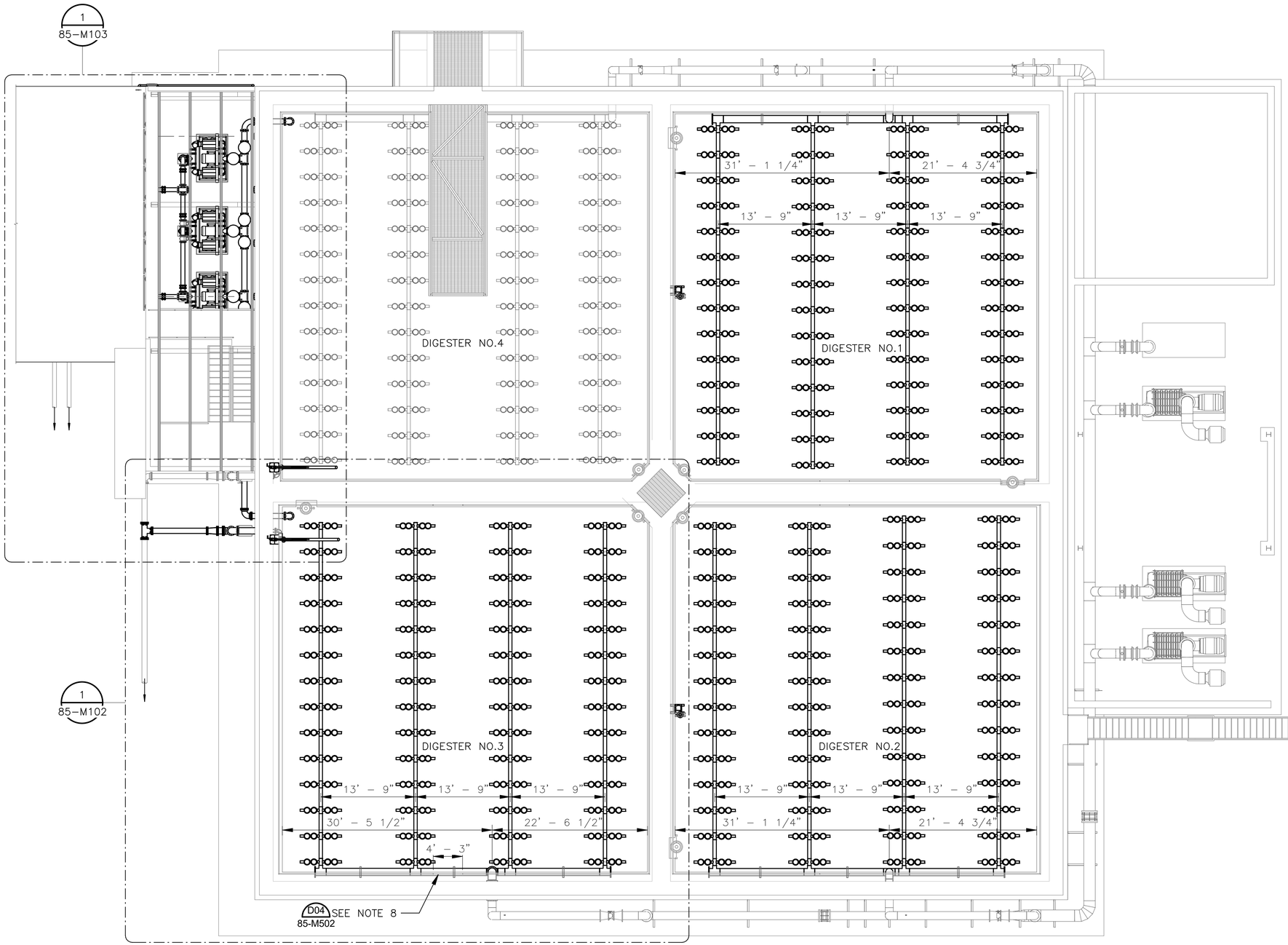
SJRA CONTRACT NO.:	20–0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	AGW
SCALE:	AS SHOWN

REMOVABLE HANDRAILS AND
CONCRETE SLAB SECTIONS
AND DETAILS

SHEET 85–S301

SEQ.: 16 OF 36

Revit Files: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
Plot Date: 8/5/2020 1:49:18 PM



N

1 OVERALL DIGESTER PROCESS PLAN

SCALE: 1/8" = 1'–0"

NOTES:

1. EXISTING GARDNER DENVER MULTISTAGE CENTRIFUGAL BLOWERS WILL BE USED TO SUPPLY AIR TO THE NEW COARSE AIR DIFFUSER SYSTEM. IT IS ADIVISED TO MAINTAIN THE EXISTING MAX DIFFUSER SUBMERGENCE LEVEL OF 15 FT. THE NEW DIFFUSER DISCHARGE ELEVATION SHALL BE 133.10 FT AND SHOULD MATCH THE DISCHARGE ELEVATION OF THE EXISTING DIGESTER NO. 4. THE RECOMMENDED MAX WSE SHALL BE 148.10 FT WITH 15 FT SUBMERGENCE.
2. PIPING AND EQUIPMENT LAYOUT BASED ON A COARSE BUBBLE AERATION SYSTEM WITH LP DUO MEMEBRANE DIFFUSERS AS MANUFACTERED BY ITT–SANITAIRE. THE AIR DIFFUSER SYSTEM CONSISTS OF ONE GRID WITH TWO HUNDRED AND TWENTY–FOUR (224) 9–INCH DIAMETER DISC MEMBRANCE DIFFUSERS. EACH OF THE FOUR (4) 6–INCH BRANCH HEADERS IS TO BE OUTFITTED WITH TWENTY–EIGHT (28) LP DUO POD ASSEMBLIES.
3. PIPING AND EQUIPMENT ARRANGEMENTS AND LOCATIONS SHOWN ARE BASED ON EQUIPMENT SELECTED. PRIOR TO INSTALLATION OF THE NEW DIFFUSER SYSTEMS, CONTRACTOR SHALL THOROUGHLY REMOVE AND CLEANUP ALL DEBRIS/GRIT INSIDE THE BASINS.
4. CONNECTION OF THE NEW AIR PIPE TO THE EXISTING AIR PIPE MAY REQUIRE TEMPORARY SHUT–DOWN OF AERATION AIR SUPPLY TO THE AEROBIC DIGESTERS. CONTRACTOR SHALL COORDINATE WITH SJRA PLANT STAFF FOR PROPOSED SHUT–DOWN ACTIVITES.
5. ALL EXISTING PIPING SHOWN IS FOR REFERENCE ONLY. INFORMATION ON EXISTING PLANT BASED ON RECORD DRAWING INFORMATION PROVIDED BY SJRA AND NOT FIELD VERIFIED. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND PIPE ELEVATIONS AS REQUIRED PRIOR TO CONSTRUCTION TO FACILITATE PROPOSED WORK.
6. ALL PIPING SHALL BE PAINTED AND LABELED IN ACCORDANCE WITH SPEC 09 91 00. ALL EQUIPMENT INSTRUMENTS SHALL BE LABELED PER SPEC 10 14 00.
7. SEE ELECTRICAL DRAWINGS FOR RELATED ELECTRICAL IMPROVEMENT WORK IN THIS AREA.
8. ALUMINUM RAILING SHALL BE INSTALLED IN PLACE OF ALL DEMOLISHED AIR BRIDGE ENTRANCES TO MATCH EXISTING.

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STATE OF TEXAS
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115705
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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

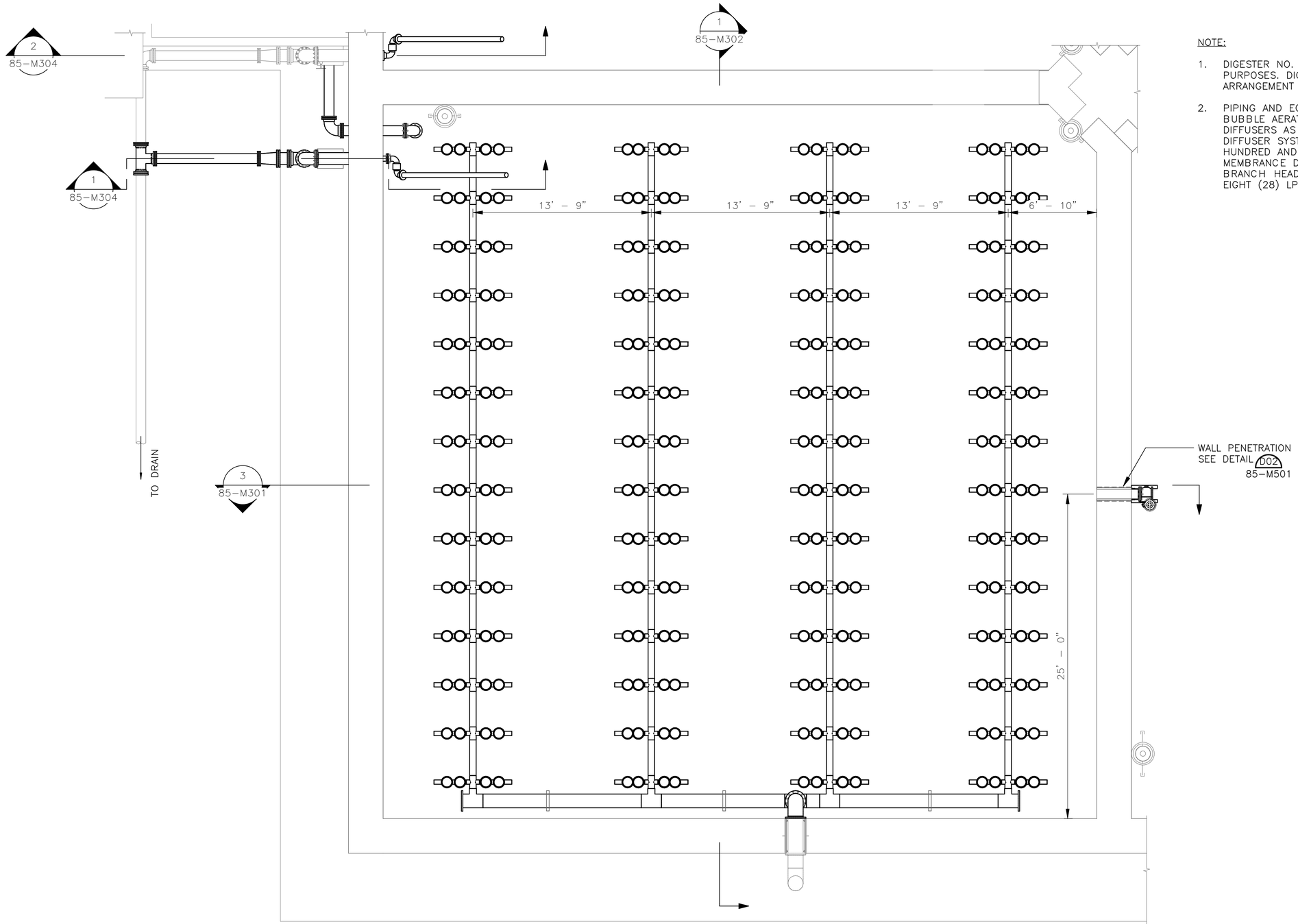
SJRA CONTRACT NO.:	20–0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	TOH
SCALE:	AS SHOWN

DIGESTER AREA PROCESS PLAN

SHEET 85–M101

SEQ.: 17 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
Plot Date: 8/17/2020 1:51:07 PM



1 DIGESTER NO. 3 ENLARGE PROCESS PLAN

SCALE: 1/4" = 1'–0"

NOTE:

1. DIGESTER NO. 3 ENLARGED PLAN SHOWN FOR REFERENCE PURPOSES. DIGESTER NO. 1 AND NO. 2 DIFFUSER ARRANGEMENT TO BE SIMILAR.
2. PIPING AND EQUIPMENT LAYOUT BASED ON A COARSE BUBBLE AERATION SYSTEM WITH LP DUO MEMEBRANE DIFFUSERS AS MANUFACTERED BY ITT–SANITAIRE. THE AIR DIFFUSER SYSTEM CONSISTS OF ONE GRID WITH TWO HUNDRED AND TWENTY–FOUR (224) 9–INCH DIAMETER DISC MEMBRANCE DIFFUSERS. EACH OF THE FOUR (4) 6–INCH BRANCH HEADERS IS TO BE OUTFITTED WITH TWENTY–EIGHT (28) LP DUO POD ASSEMBLIES.

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STATE OF TEXAS
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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20–0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	TOH
SCALE:	AS SHOWN

TYPICAL DIGESTER ENLARGED PROCESS PLAN

SHEET 85–M102

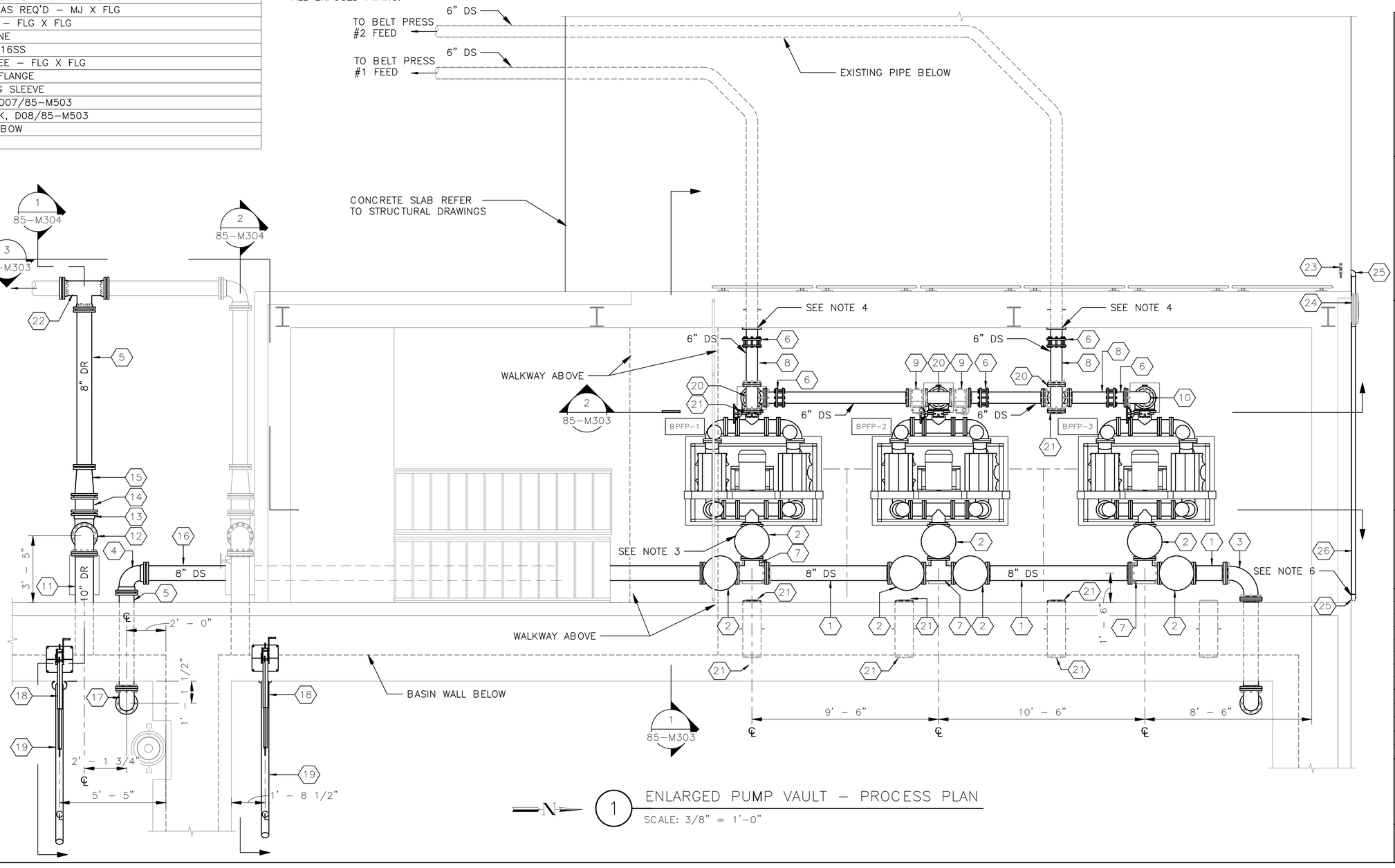
SEQ.: 18 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
Plot Date: 8/17/2020 12:02:47 PM

KEYNOTES:	DENOTED BY SYMBOL (X)
1	8" SPOOL AS REQ'D – FLG X FLG
2	8" PINCH VALVE, SEE NOTE 3
3	8" ELBOW – FLG X FLG
4	8" ELBOW – MJ X MJ
5	8" SPOOL AS REQ'D
6	6" FLANGED COUPLING ADAPTER
7	8" X 8" TEE – FLG X FLG
8	6" SPOOL AS REQ'D – FLG X FLG
9	6" PLUG VALVE
10	6" ELBOW – FLG X FLG
11	10" SPOOL AS REQ'D – MJ X FLG
12	10" ELBOW – FLG X FLG
13	10" ELBOW – MJ X MJ
14	10" SPOOL AS REQ'D
15	10" X 8" ECCENTRIC REDUCER
16	8" SPOOL AS REQ'D – MJ X FLG
17	8" ELBOW – FLG X FLG
18	DAVIT CRANE
19	4" PIPE, 316SS
20	6" X 6" TEE – FLG X FLG
21	6" BLIND FLANGE
22	8" TAPPING SLEEVE
23	HYDRANT, D07/85-M503
24	HOSE RACK, D08/85-M503
25	2" PVC ELBOW
26	2" PVC

NOTES:

1. BELT PRESS FEED PUMPS SHALL BE 8" PENN VALLEY CENTER MOUNT CONFIGURATION DOUBLE DISC PUMPS.
2. SEE ELECTRICAL DRAWINGS FOR PROPOSED ELECTRICAL AND INSTRUMENTATION WORK IN THIS AREA.
3. PINCH VALVES TO BE 8" SERIES 75, RED VALVE COMPANY, INC. PINCH VALVE WITH CAST IRON BODY, EPDM SLEEVE, STAINLESS STEEL STEM, AND ANSI CLASS 125 FLANGES.
4. CONNECTION TO BE MADE AT EXISTING TAPPED FLANGE AT WALL.
5. ALL EXISTING PIPING SHOWN IS FOR REFERENCE ONLY. INFORMATION ON EXISTING PLANT BASED ON RECORD DRAWING INFORMATION PROVIDED BY SJRA AND NOT FIELD VERIFIED. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND PIPE ELEVATIONS AS REQUIRED PRIOR TO CONSTRUCTION TO FACILITATE PROPOSED WORK.
6. CONNECT TO EXISTING 2" NPW PIPING ALONG WALL OF BASIN. INSULATE AND JACKET ALL EXPOSED PIPING.



N

1 ENLARGED PUMP VAULT – PROCESS PLAN

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

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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20-0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	TOH
SCALE:	AS SHOWN

BELT PRESS FEED PUMP VAULT ENLARGED PROCESS PLAN

SHEET 85-M103

SEQ.: 19 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
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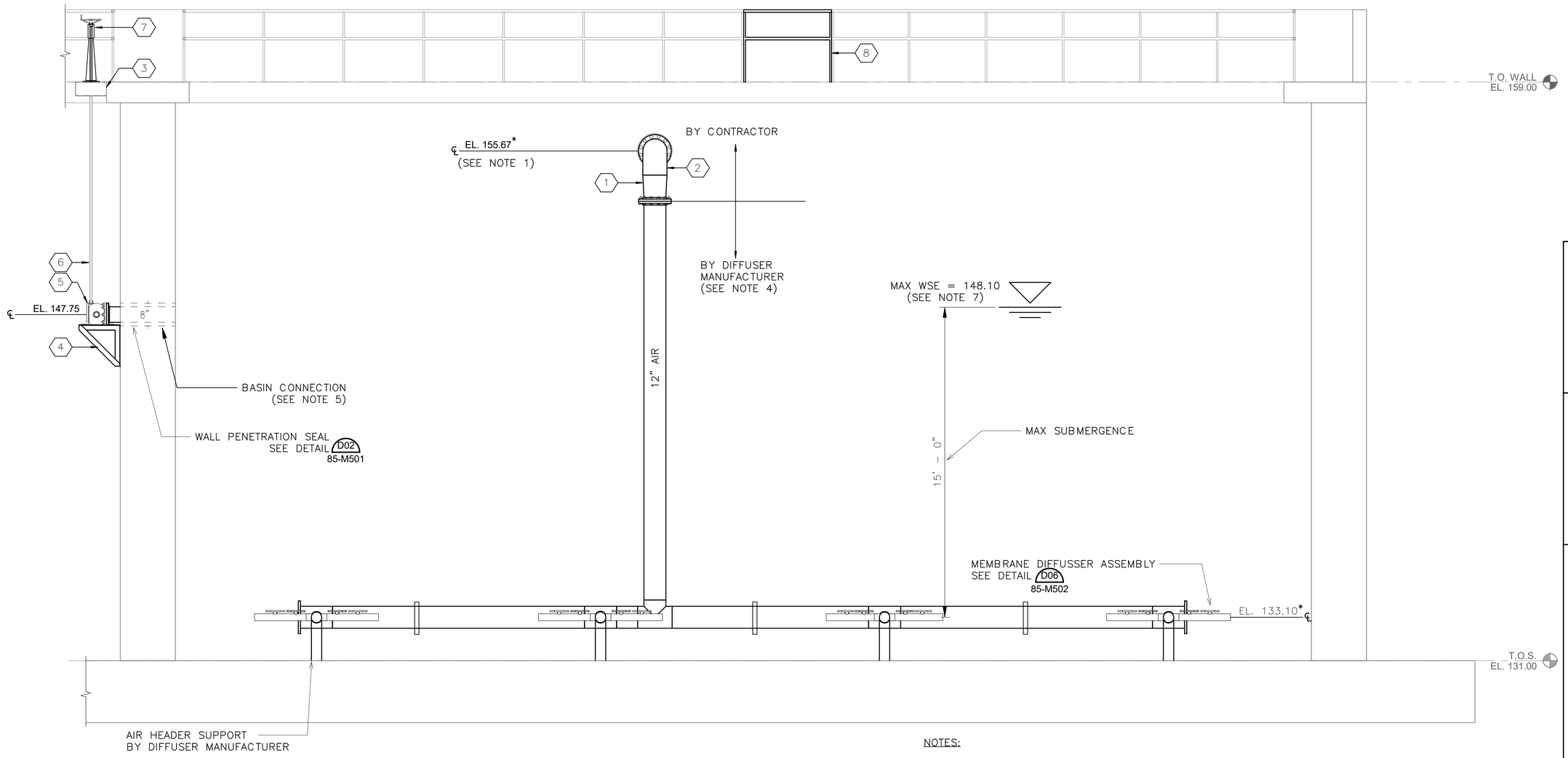

KEYNOTES:	DENOTED BY SYMBOL (X)
1	14" X 12" 316 SS REDUCER
2	14" 316 SS ELBOW
3	MOUNTING BRACKET, D10/85-M503
4	SUPPORT 316 SS, D09/85-M503
5	8" PLUG VALVE
6	OPERATOR SHAFT, 316 SS
7	HAND OPERATOR
8	HANDRAIL, D04/85-M502

3 SECTION @ DIGESTER NO. 3

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

NOTES:

1. RECORD DRAWINGS INDICATE AIR PIPING PENETRATION IS EL 155.67. CONTRACTOR SHALL FIELD VERIFY ELEVATION AND LOCATION OF PENETRATIONS IN DIGESTERS NOS. 1, 2, AND 3 AND CORRDINATE ANY CHANGES WITH DIFFUSER MANUFACTURER AT NO ADDITIONAL COST TO THE OWNER.
2. ASTERISK (*) INDICATES TO BE CONFIRMED BY DIFFUSER EQUIPMENT MANUFACTURER. CONTRACTOR TO COORDINATE INSTALLATION DIMENSIONS AND ELEVATIONS WITH DIFFUSER EQUIPMENT MANUFACTURER.
3. SEE ELECTRICAL DRAWINGS FOR PROPOSED ELECTRICAL AND INSTRUMENTATION WORK IN THIS AREA.
4. EQUIPMENT BEYOND THIS LIMIT SHALL BE PROVIDED BY DIFFUSER MANUFACTURER AND INSTALLED BY THE CONTRACTOR PER MANUFACTURER'S RECOMMENDATION. CONTRACTOR SHALL INSTALL A COARSE BUBBLE MEMEBRANE DIFFUSER SYSTEM IN ITS ENTIRETY INCLUSIVE OF AIR DROP LEGS, AIR HEADER MANIFOLDS, AIR DIFFUSER ASSEMBLIES, AND ASSOCIATED AIR PIPE SUPPORTS. CONTRACTOR TO ANCHOR BOLT AIR HEADER PIPE SUPPORTS TO THE FLOOR OF THE BASIN. SPACING AND LOCATION OF THE AIR HEADER SUPPORTS SHALL BE PER MANUFACTURER'S RECOMMENDATION.
5. DIGESTER CONNECTION IS TO CONNECT DIGESTER NO. 2 AND NO. 3. THERE IS TO BE SIMILAR CONNECTION BETWEEN DIGESTER NO. 1 AND NO. 4. CONTRACTOR SHALL CONFIRM ELEVATIONS WITH DIFFUSER SUBMITTAL PRIOR TO CORING DIGESTER CONNECTION.
6. DIGESTER NO. 1 AND NO. 2 ARE TO MAINTAIN A CONSTANT WSE. DIGESTER NO. 3 AND NO. 4 ARE TO HAVE VARIABLE WSE.
7. EXISTING GARDNER DENVER MULTISTAGE CENTRIFUGAL BLOWERS WILL BE USED TO SUPPLY AIR TO THE NEW COARSE AIR DIFFUSER SYSTEM. IT IS ADIVISED TO MAINTAIN THE EXISTING MAX DIFFUSER SUBMERGENCE LEVEL OF 15 FT. THE NEW DIFFUSER DISCHARGE ELEVATION SHALL BE 133.10 FT AND SHOULD MATCH THE DISCHARGE ELEVATION OF THE EXISTING DIGESTER NO. 4. THE RECOMMENDED MAX WSE SHALL BE 148.10 FT WITH 15 FT SUBMERGENCE.

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STATE OF TEXAS
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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

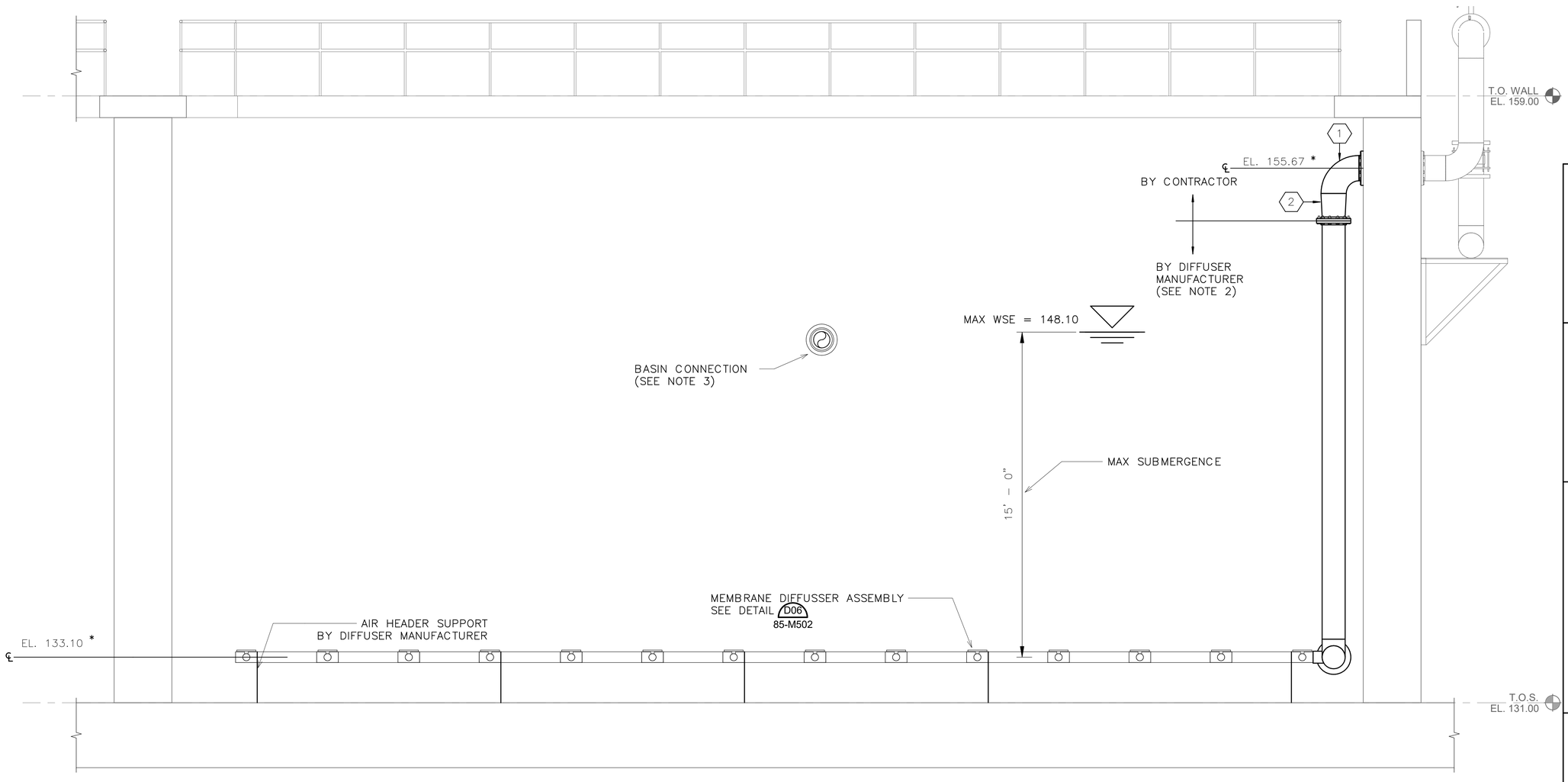
SJRA CONTRACT NO.:	20-0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	TOH
SCALE:	AS SHOWN

TYPICAL DIGESTER SECTION

SHEET 85-M301

SEQ.: 20 OF 36

Revit Files: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
Plot Date: 8/17/2020 1:48:03 PM



KEYNOTES:	DENOTED BY SYMBOL X
1	14" 316 SS ELBOW
2	14" X 12" 316 SS REDUCER

1 SECTION AT DIFFUSER

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

NOTES:

1. ASTERISK (*) INDICATES TO BE CONFIRMED BY DIFFUSER EQUIPMENT MANUFACTURER. CONTRACTOR TO COORDINATE INSTALLATION DIMENSIONS AND ELEVATIONS WITH DIFFUSER EQUIPMENT MANUFACTURER.
2. EQUIPMENT BEYOND THIS LIMIT SHALL BE PROVIDED BY DIFFUSER MANUFACTURER AND INSTALLED BY THE CONTRACTOR PER PER MANUFACTURER'S RECOMMENDATION. CONTRACTOR SHALL INSTALL A COARSE BUBBLE MEMEBRANE DIFFUSER SYSTEM IN ITS ENTIRETY INCLUSIVE OF AIR DROP LEGS, AIR HEADER MANIFOLDS, AIR DIFFUSER ASSEMBLIES, AND ASSOCIATED AIR PIPE SUPPORTS. CONTRACTOR TO ANCHOR BOLT AIR HEADER PIPE SUPPORTS TO THE FLOOR OF THE BASIN. SPACING AND LOCATION OF THE AIR HEADER SUPPORTS SHALL BE PER MANUFACTURER'S RECOMMENDATION.
3. DIGESTER CONNECTION IS TO CONNECT DIGESTER NO. 2 AND NO. 3. THERE IS TO BE SIMILAR CONNECTION BETWEEN DIGESTER NO. 1 AND NO. 4. CONTRACTOR SHALL CONFIRM ELEVATIONS WITH DIFFUSER SUBMITTAL PRIOR TO CORING DIGESTER CONNECTION.
4. DIGESTER NO. 1 AND NO. 2 ARE TO MAINTAIN A CONSTANT WSE. DIGESTER NO. 3 AND NO. 4 ARE TO HAVE VARIABLE WSE.

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WWTF NO. 2 DIGESTER
NOS. 1, 2 AND 3
REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20-0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	TOH
SCALE:	AS SHOWN

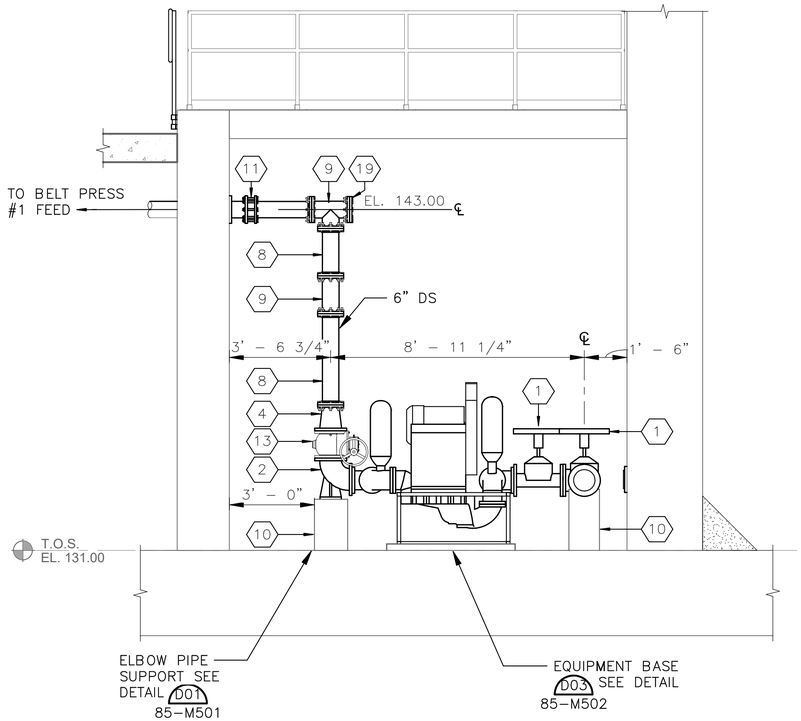
TYPICAL DIGESTER SECTION

SHEET 85-M302

SEQ.: 21 OF 36

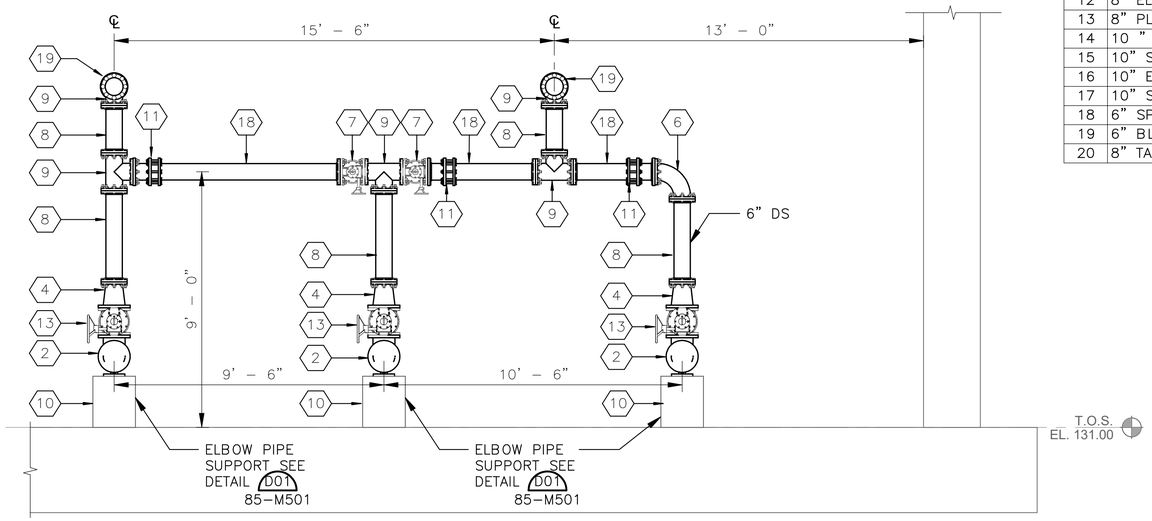
Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
Plot Date: 8/17/2020 12:27:41 PM

KEYNOTES:	DENOTED BY SYMBOL (X)
1	8" PINCH VALVE, SEE NOTE 3
2	8" ELBOW ROUND BASE
3	8" SPOOL AS REQ'D – MJ X FLG
4	8" X 6" REDUCER FLG X FLG
5	8" ELBOW – FLG X FLG
6	6" ELBOW – FLG X FLG
7	6" PLUG VALVE
8	6" SPOOL AS REQ'D – FLG X FLG
9	6" X 6" TEE – FLG X FLG
10	PIPE SUPPORT
11	6" FLANGED COUPLING ADAPTER
12	8" ELBOW – MJ X MJ
13	8" PLUG VALVE
14	10 " X 4" REDUCING TEE
15	10" SPOOL AS REQ'D
16	10" ELBOW – MJ X MJ
17	10" SPOOL AS REQ'D – FLG X PE
18	6" SPOOL AS REQ'D – FLG X PE
19	6" BLIND FLANGE
20	8" TAPPING SLEEVE



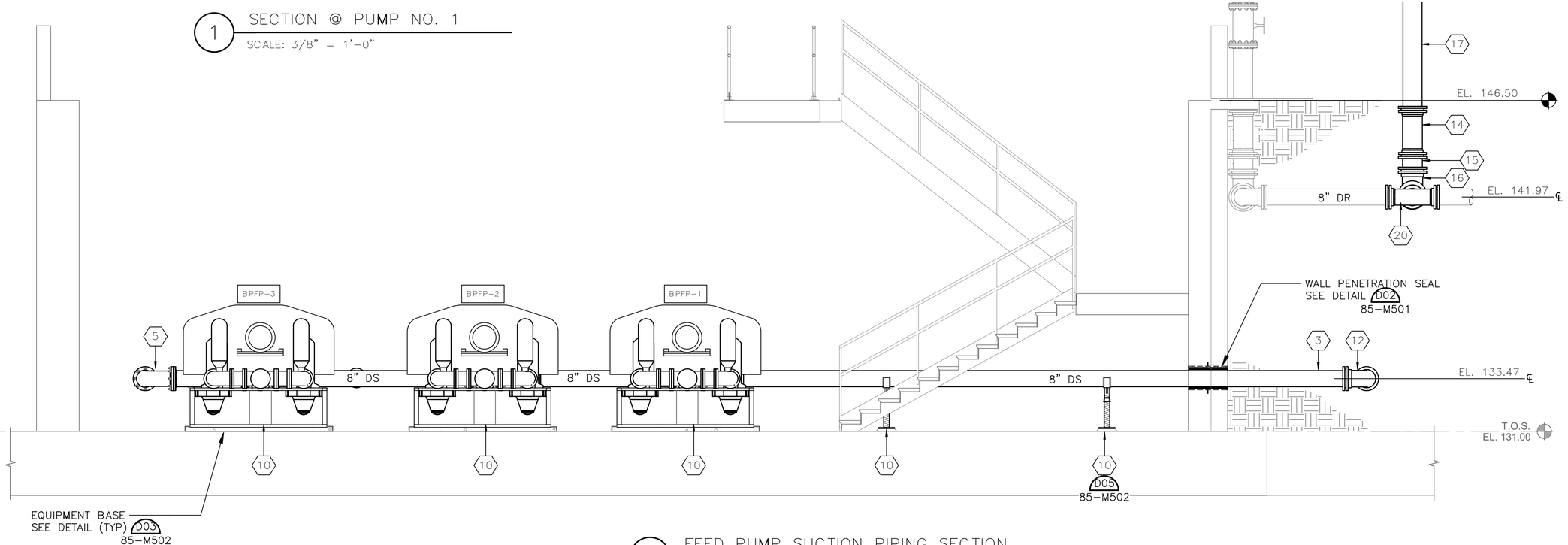
1 SECTION @ PUMP NO. 1

SCALE: 3/8" = 1'–0"



2 SECTION @ DISCHARGE PIPING

SCALE: 3/8" = 1'–0"



3 FEED PUMP SUCTION PIPING SECTION

SCALE: 3/8" = 1'–0"

GARVER

REGISTRATION NO. F–5713

STATE OF TEXAS
TYSON O. HANN
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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20–0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	TOH
SCALE:	AS SHOWN

BELT PRESS FEED PUMP VAULT MECHNICAL SECTIONS

SHEET 85–M303

SEQ.: 22 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
Plot Date: 8/3/2020 4:49:11 PM

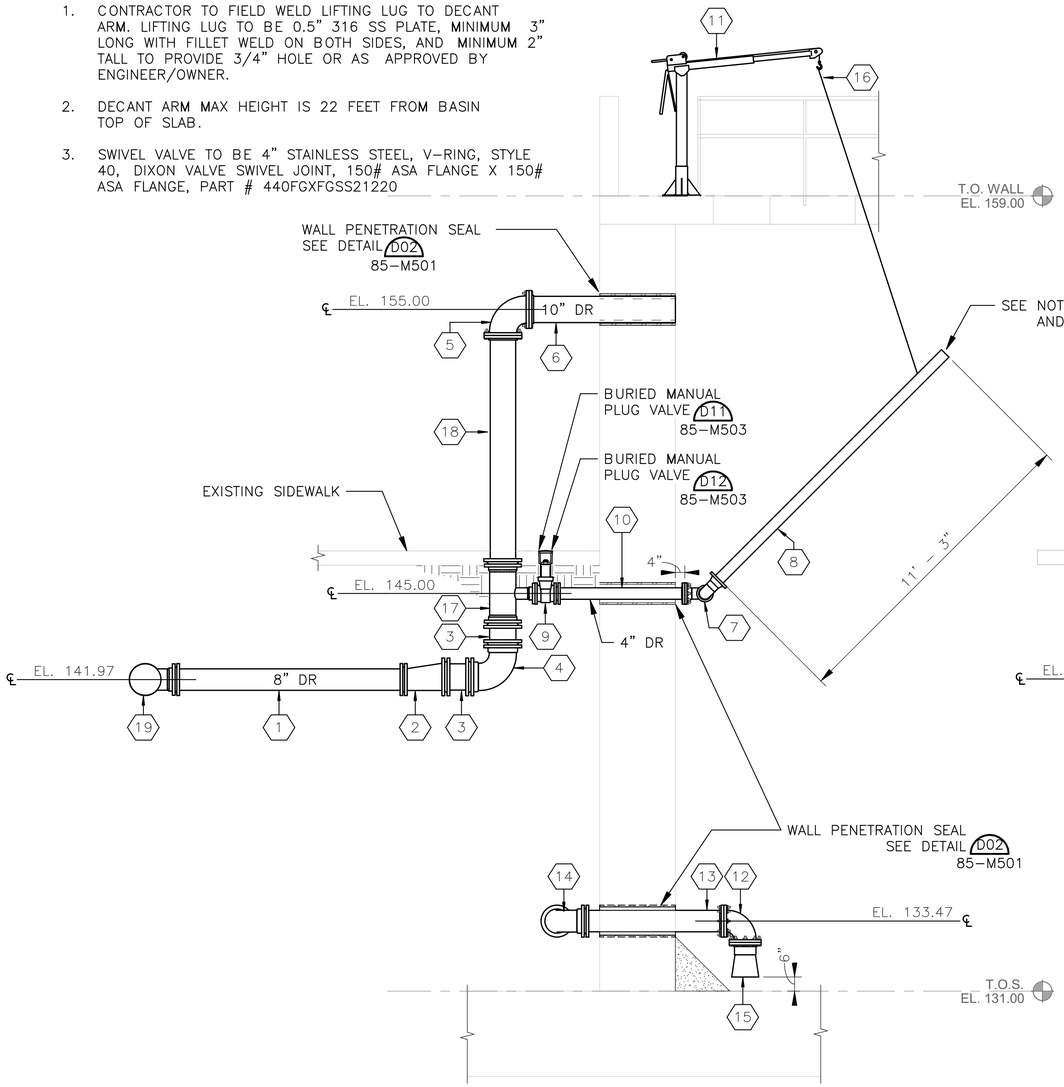
KEYNOTES: DENOTED BY SYMBOL (X)

1	8" SPOOL AS REQ'D
2	10" X 8" ECCENTRIC REDUCER
3	10" SPOOL AS REQ'D
4	10" ELBOW – MJ X MJ
5	10" ELBOW – FLG X FLG
6	10" SPOOL AS REQ'D – MJ X FLG
7	4" SWIVEL VALVE, SEE NOTE 3
8	4" PIPE, 316SS
9	4" PLUG VALVE
10	4" SPOOL AS REQ'D – PE X FLG
11	DAVIT CRANE

12	8" ELBOW – FLG X FLG
13	8" SPOOL AS REQ'D – MJ X FLG
14	8" ELBOW – MJ X MJ
15	FLARED BELL
16	CABLE, 316SS
17	10 " X 4" REDUCING TEE
18	10" SPOOL AS REQ'D – FLG X PE
19	8" TAPPING SLEEVE

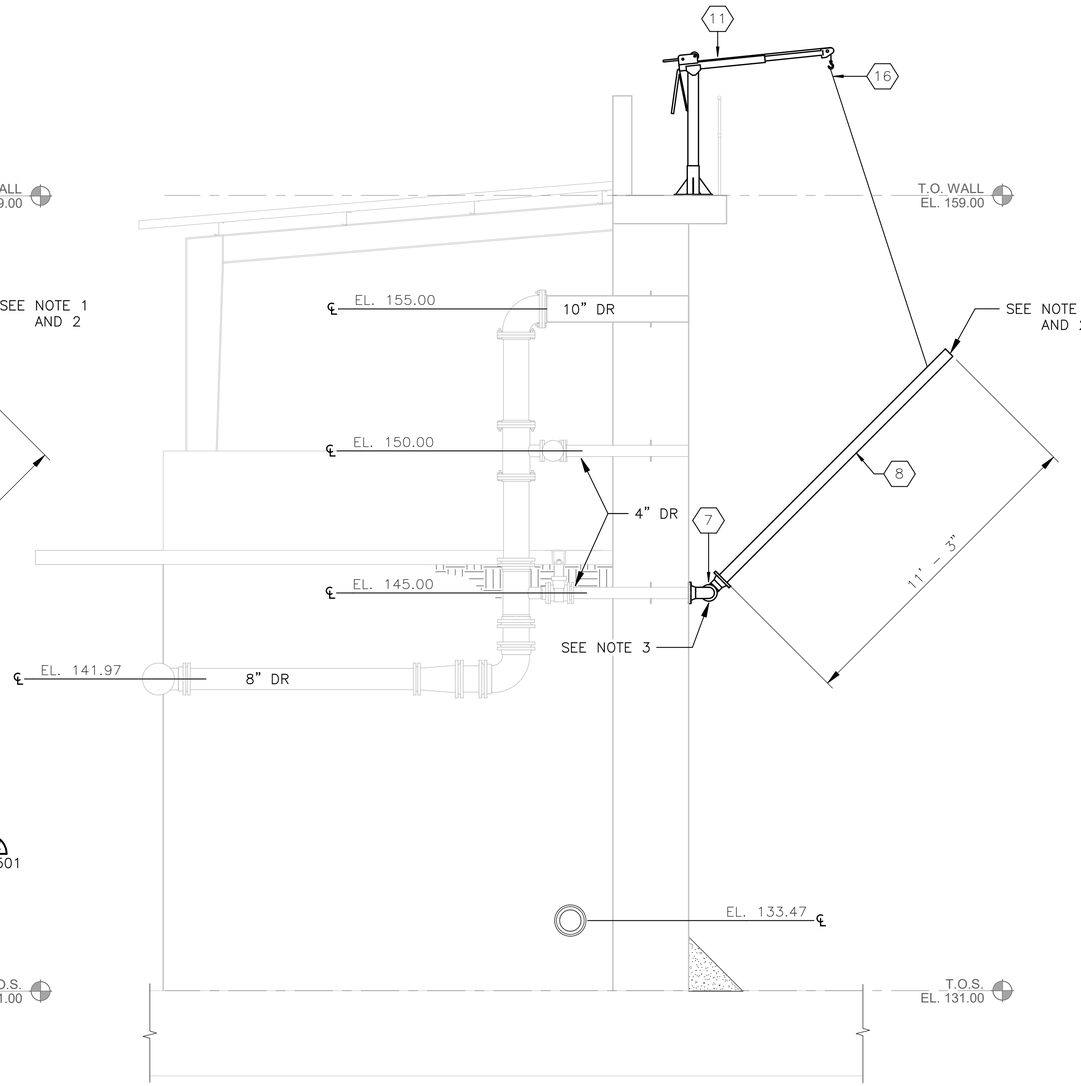
NOTES:

1. CONTRACTOR TO FIELD WELD LIFTING LUG TO DECANT ARM. LIFTING LUG TO BE 0.5" 316 SS PLATE, MINIMUM 3" LONG WITH FILLET WELD ON BOTH SIDES, AND MINIMUM 2" TALL TO PROVIDE 3/4" HOLE OR AS APPROVED BY ENGINEER/OWNER.
2. DECANT ARM MAX HEIGHT IS 22 FEET FROM BASIN TOP OF SLAB.
3. SWIVEL VALVE TO BE 4" STAINLESS STEEL, V-RING, STYLE 40, DIXON VALVE SWIVEL JOINT, 150# ASA FLANGE X 150# ASA FLANGE, PART # 440FGXFGSS21220



1 SECTION OF DRAIN @ DIGESTER BASIN NO. 3

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



2 SECTION OF DRAIN @ DIGESTER BASIN NO. 4

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

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WWTF NO. 2 DIGESTER
NOS. 1, 2 AND 3
REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20-0075
FILE NAME:	
DRAWN BY:	AKS
CHECKED BY:	AGW
SCALE:	AS SHOWN

DIGESTER SECTIONS AND
DETAILS

SHEET 85-M304

SEQ.: 23 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
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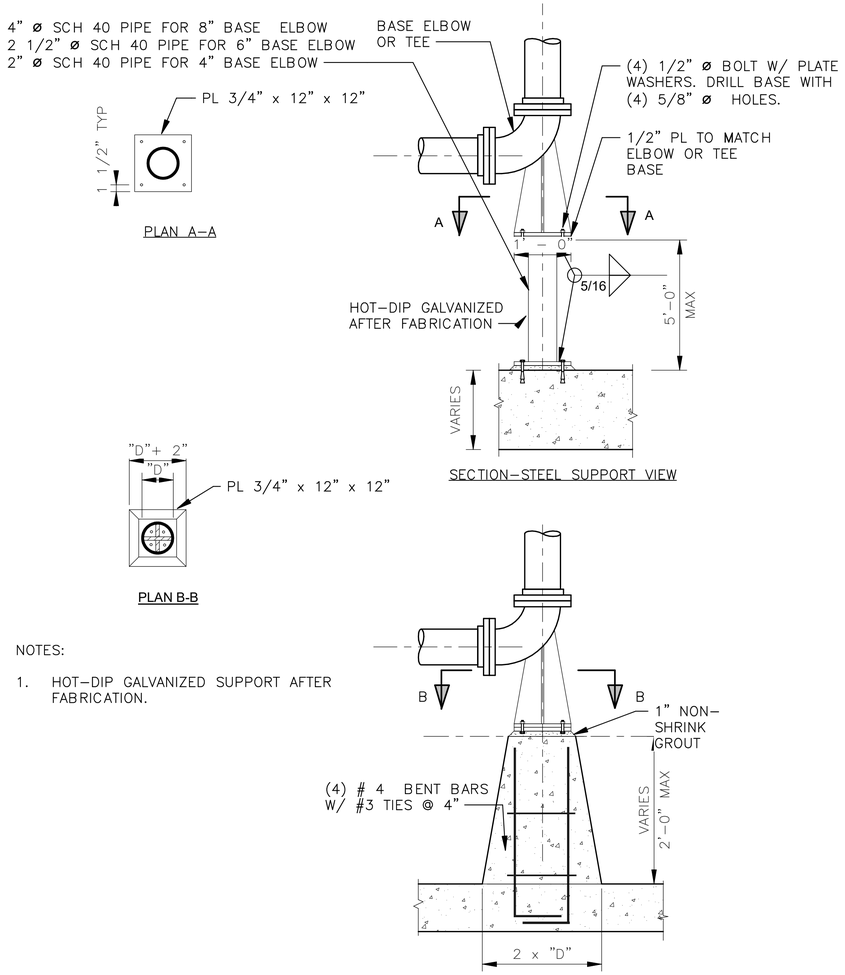
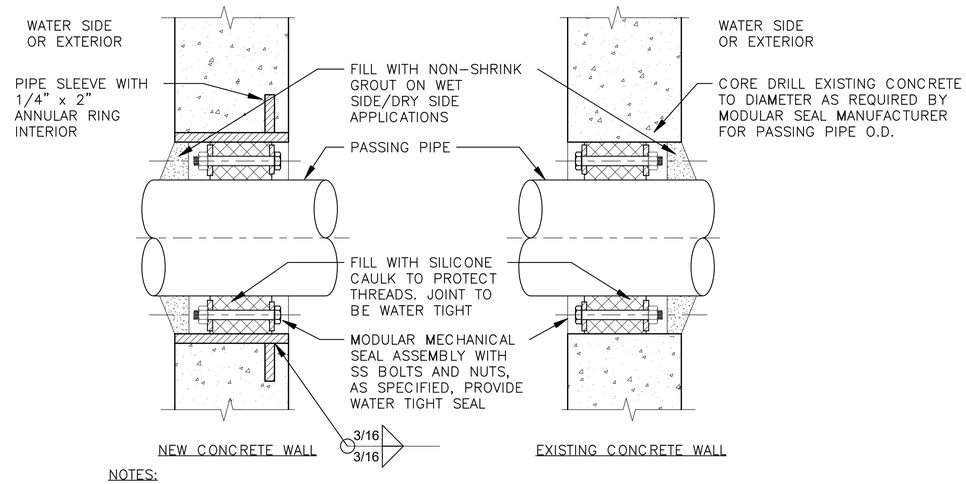


D01 ELBOW PIPE SUPPORT

85–M501



NOTES:

1. WHERE EXISTING CONCRETE STRUCTURE IS TO BE CORE DRILLED, THE CONTRACTOR SHALL ULTRASONIC TEST OR X–RAY THE AREA FOR EMBEDDED ITEMS BEFORE CORE DRILLING CAN PROCEED. IF EMBEDDED ITEMS ARE FOUND, NOTIFY THE ENGINEER IMMEDIATELY.
2. FOR NEW CONSTRUCTION, SLEEVES SHALL BE CAST INTO WALL. BLOCKOUTS AND SUBSEQUENT GROUTED IN SLEEVES WILL NOT BE PERMITTED UNLESS A KEYED WATERSTOP JOINT IS PROVIDED.
3. 6" DIAMETER SLEEVES AND SMALLER SHALL BE SCHEDULE 40 STEEL PIPE.
4. SLEEVES LARGER THAN 6" DIAMETER SHALL BE 1/4" THICK STEEL PIPE.
5. IN WALLS THICKER THAN 12", LINK SEAL SHALL BE INSTALLED AT BOTH ENDS OF THE WALL SLEEVE.
6. SLEEVE SHALL BE HOT–DIP GALVANIZED AFTER FABRICATION.

D02 WALL PENETRATION SEAL

85–M501

GARVER

REGISTRATION NO. F–5713

STATE OF TEXAS
TYSON O. HANN
115705
LICENSED PROFESSIONAL ENGINEER

DIGITALLY SIGNED: 08/06/20

SAN JANCINTO RIVER AUTHORITY
THE WOODLANDS DIVISION

SAN JACINTO RIVER AUTHORITY
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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.:	20–0075
FILE NAME:	
DRAWN BY:	GRN
CHECKED BY:	AGW
SCALE:	AS SHOWN

MECHANICAL DETAILS

SHEET 85–M501

SEQ.: 24 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
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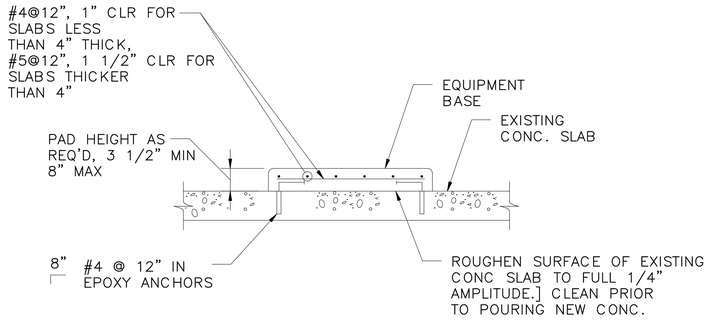
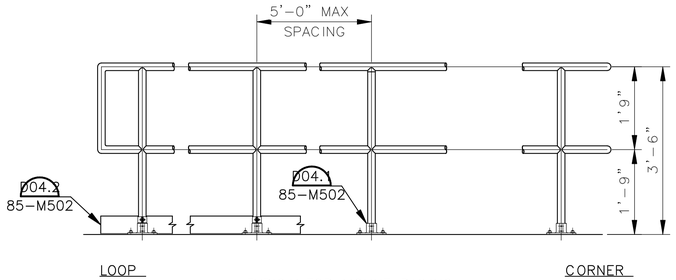
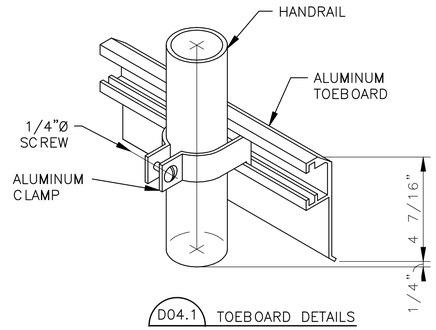


NOTE:

ANCHOR EQUIPMENT TO CONCRETE USING SST CONCRETE ANCHORS SPECIFIED.



TYPICAL TOP MOUNT RAILING



D04.1 TOEBOARD DETAILS
85-M502

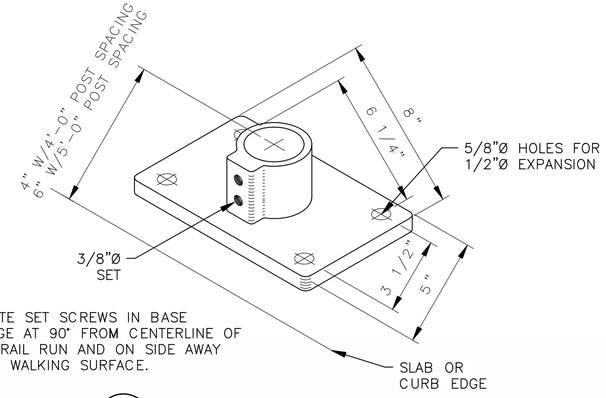
D04 ALUMINUM HANDRAIL
85-M502

EQUIPMENT BASE NOTES:

1. PAD SIZE SHALL BE MINIMUM INDICATED OR AS SHOWN ON THE PLANS. VERIFY ALL PAD SIZE REQUIREMENTS WITH SHOP DRAWINGS OF ACTUAL EQUIPMENT FURNISHED AND OBTAIN ENGINEER'S APPROVAL OF FINAL DIMENSIONS.
2. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER, AND SHALL BE AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A ONE PIECE TEMPLATE, MATCHING THE BASE PLATE, WHILE PAD IS BEING POURED.
3. ANCHOR BOLT A MINIMUM MOVEMENT OF 1/2" IN ALL DIRECTIONS. THE MINIMUM SLEEVE LENGTH SHALL BE 8 TIMES THE BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.
4. ANCHOR BOLT SLEEVES SHALL HAVE A MINIMUM INTERNAL DIAMETER 1" GREATER THAN BOLT DIAMETER AND A MAXIMUM INTERNAL DIAMETER 3" GREATER THAN ANCHOR BOLT DIAMETER. SLEEVES SHALL BE FILLED WITH NON-SHRINK GROUT.
5. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS SPECIFIED OTHERWISE.
6. WEDGES OR SHIMS SHALL BE USED TO SUPPORT THE BASE WHILE THE NON-SHRINK GROUT IS PLACED. TEMPORARY LEVELING NUTS SHALL BE BACKED OFF. IF LEFT IN THE WEDGES OR SHIMS SHALL NOT BE EXPOSED TO VIEW.
7. HEIGHT OF PADS SHALL BE MINIMUM REQUIRED FOR ANCHOR BOLT CLEARANCE TO KEEP ANCHOR BOLT OUT OF SLAB (SEE TABLE BELOW).

AB DIA (IN.)	1/2	5/8	3/4	7/8	1	1 1/4	1 3/8	1 1/2	1 3/4	2
MIN PAD HT (IN.)	7	8 1/2	10	11	12 1/2	15	16 1/2	18	21	24

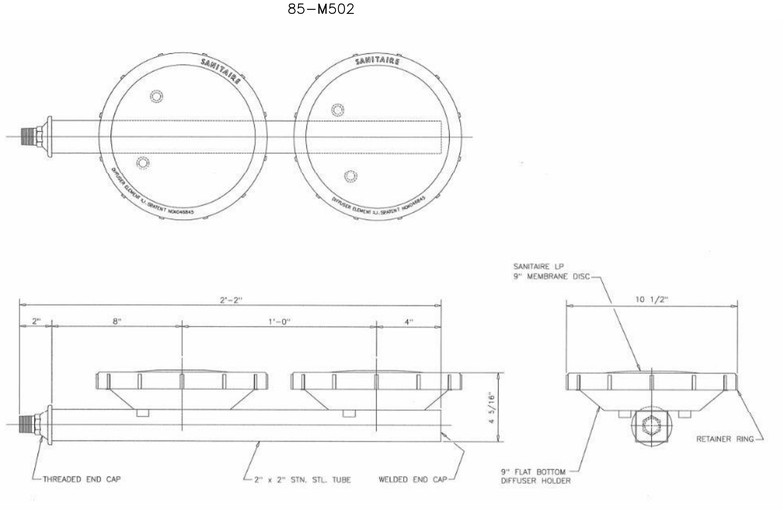
8. TYPE "D" PADS MAY BE SUBSTITUTED FOR TYPE "A" PADS FOR LOCATIONS APPROVED IN WRITING BY THE ENGINEER.
9. SEE ANCHOR BOLT AND BLOCKOUT DETAILS.



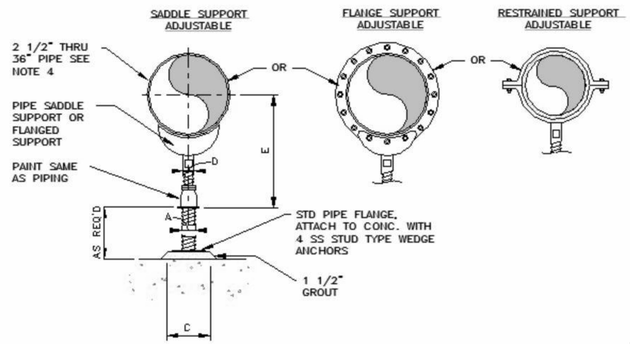
LOCATE SET SCREWS IN BASE FLANGE AT 90° FROM CENTERLINE OF HANDRAIL RUN AND ON SIDE AWAY FROM WALKING SURFACE.

D04.2 BASE FLANGE DETAIL CONCRETE
85-M502

D03 EQUIPMENT BASE DETAIL
85-M502



D06 MEMBRANE DIFFUSER ASSEMBLY
85-M502



D05 ADJUSTABLE FLOOR MOUNTED PIPE SUPPORT
85-M502

DIMENSION TABLE

PIPE SIZE	A	B	C	D	E MIN	E MAX
2-1/2"	2-1/2"	3-1/2"	6"	2-1/2"	8"	13"
3"	2-1/2"	3-3/4"	8"	2-1/2"	8-1/4"	13-1/4"
3-1/2"	2-1/2"	4"	8"	2-1/2"	8-1/2"	13-1/2"
4"	3"	4-1/4"	8"	2-1/2"	9-1/4"	14"
5"	3"	4-7/8"	8"	2-1/2"	10"	14-3/4"
6"	3"	5-1/2"	10"	2-1/2"	10-1/2"	15-1/4"
8"	3"	6-7/8"	10"	2-1/2"	11-3/4"	15-1/2"
10"	3"	8-1/2"	14"	2-1/2"	13-1/2"	18-1/4"
12"	3"	9-15/16"	18"	2-1/2"	15"	19-3/4"
14"	4"	10-15/16"	18"	3"	16-1/4"	20-3/4"
16"	4"	12-3/8"	20"	3"	17-3/4"	22-1/4"
18"	6"	13-7/8"	22"	3-1/2"	19-1/2"	24"
20"	6"	15-3/8"	22"	3-1/2"	21"	25-1/2"
24"	6"	17-15/16"	24"	4"	23-3/4"	28-1/4"
30"	6"	21-5/16"	30"	4"	27"	31-1/2"
32"	6"	22-1/2"	30"	4"	28-1/4"	32-3/4"
36"	6"	24-1/2"	30"	4"	30-1/4"	34-3/4"

NOTES:

1. PROVIDE HALF ROUND RIGID INSULATION AND INSULATION PROTECTION SHIELD WHERE PIPING IS INSULATED.
2. PROVIDE NEOPRENE WAFFLE INSULATION PAD, SIMILAR TO MASON TYPE "W" OR KORFUND 40, UNDER SUPPORT FOOT WHEN PIPING IS ISOLATED OR SUPPORT IS ADJACENT TO MECHANICAL EQUIPMENT.
3. FOR BASE, HEIGHT AND FLANGE DIMENSIONS, SEE TABLE.
4. USE 2 1/2" SUPPORTS FOR PIPES LESS THAN 2 1/2" DIAMETER.

GARVER

REGISTRATION NO. F-5713

STATE OF TEXAS
TYSON O. HANN
115705
LICENSED PROFESSIONAL ENGINEER

DIGITALLY SIGNED: 08/06/20

SAN JANCINTO RIVER AUTHORITY
THE WOODLANDS DIVISION

SAN JACINTO RIVER AUTHORITY SJRA www.SJRA.net

WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.: 20-0075
FILE NAME:
DRAWN BY: AKS
CHECKED BY: AGW
SCALE: AS SHOWN

MECHANICAL DETAILS II

SHEET 85-M502
SEQ.: 25 OF 36

Revit File: BIM 360://19W09245 - SJRA WWTP NO 2 Digester Rehab/19W09245_SJRA_WWTP2.rvt
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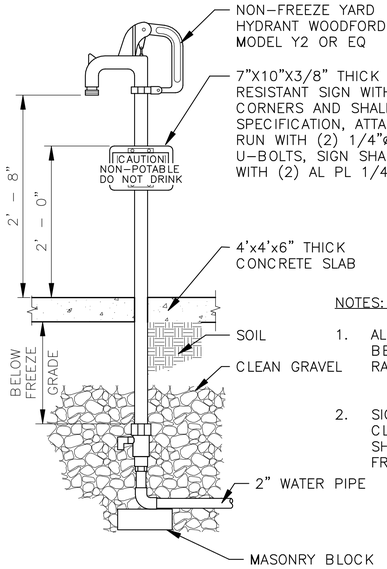


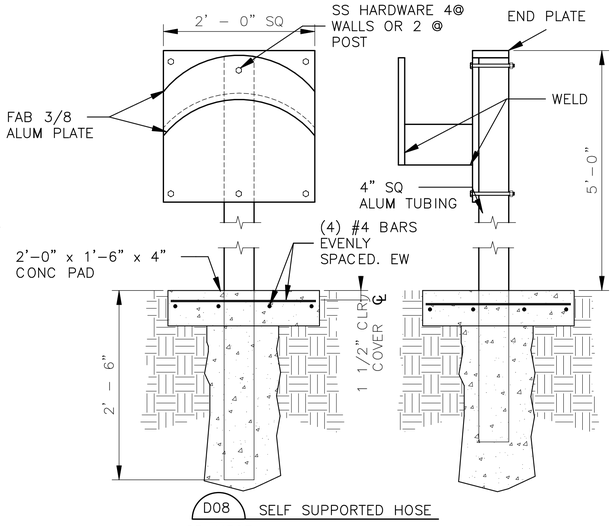
NOTES:

1. ALL YARD HYDRANTS SHALL BE PROVIDED WITH HOSE RACK.
2. SIGN IS ROTATED FOR CLARITY, ORIENTATION SHALL BE VISIBLE FROM FRONT OF HYDRANT.

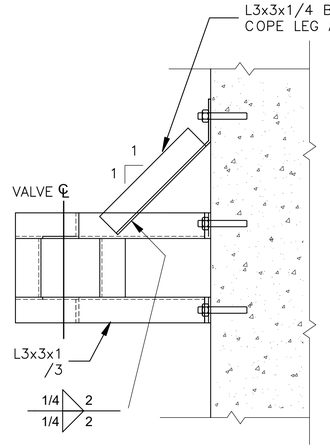
D07 YARD HYDRANT – NON POTABLE
85–M503

NOTES:

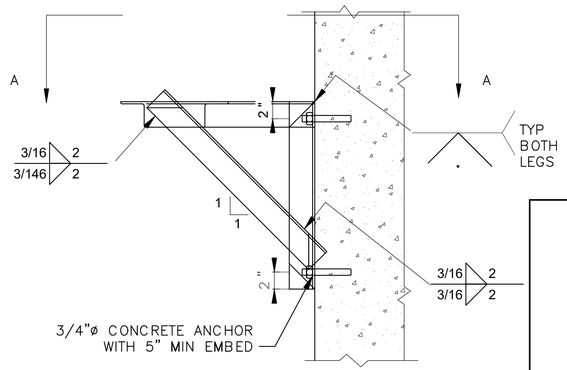
1. PROVIDE HOSE RACK AT ALL WALL AND YARD HYDRANTS UNLESS A HOSE REEL IS INDICATED ON THE DRAWINGS.
2. CONTRACTOR TO PROVIDE 100' OF 1" HOSE.
3. LESS POST & CONC FOR WALL MT INSTALLATION.



D08 SELF SUPPORTED HOSE
85–M503



PLAN VIEW

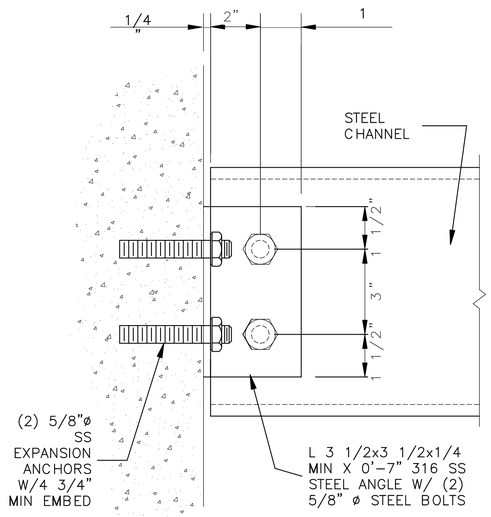


ELEVATION VIEW

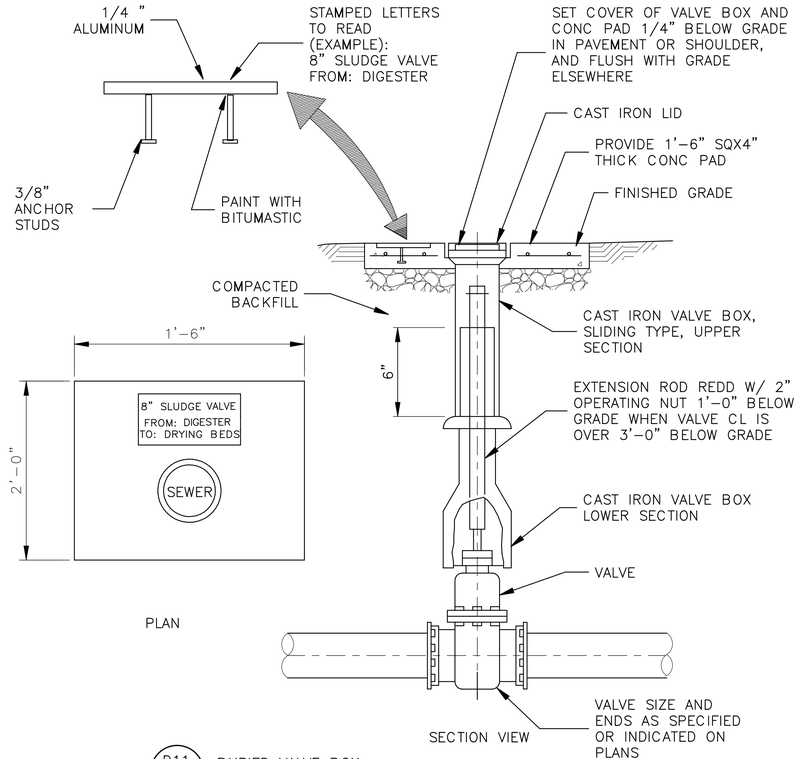
NOTES:

1 MATERIAL FOR ANCHOR BOLTS, STRAPS, AND ANGLES SHALL BE 316 SS.

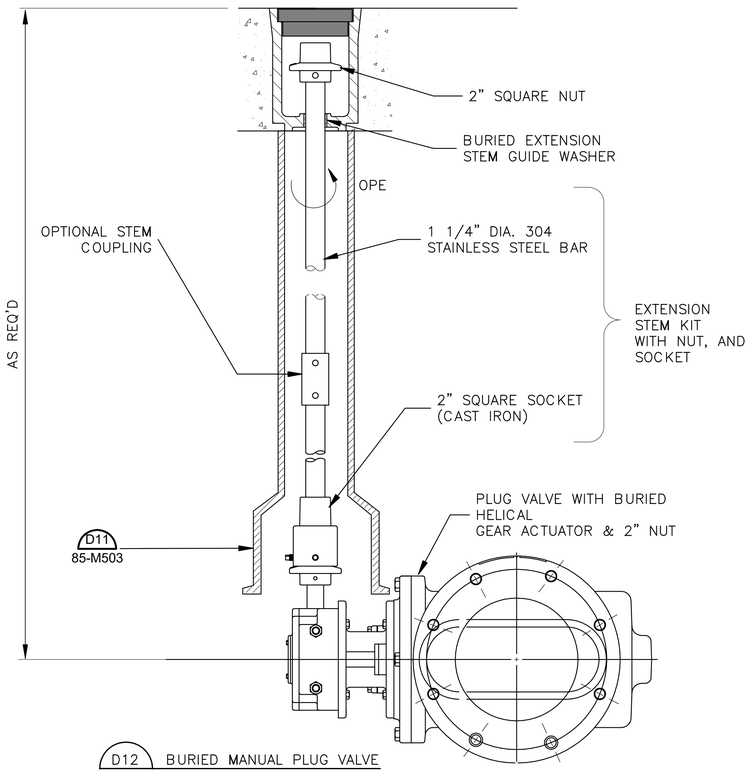
D09 WALL MOUNTED VERTICAL SUPPORTS
85–M503



D10 BEAM TO WALL CONNECTION
85–M503



D11 BURIED VALVE BOX
85–M503



D12 BURIED MANUAL PLUG VALVE
85–M503

GARVER

REGISTRATION NO. F–5713

STATE OF TEXAS
TYSON O. HANN
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LICENSED PROFESSIONAL ENGINEER

DIGITALLY SIGNED: 08/06/20

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THE WOODLANDS DIVISION

SAN JACINTO RIVER AUTHORITY SJRA www.SJRA.net

WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO.: 20–0075
FILE NAME:
DRAWN BY: GRN
CHECKED BY: AGW
SCALE: AS SHOWN

MECHANICAL DETAILS III

SHEET 85–M503
SEQ.: 26 OF 36

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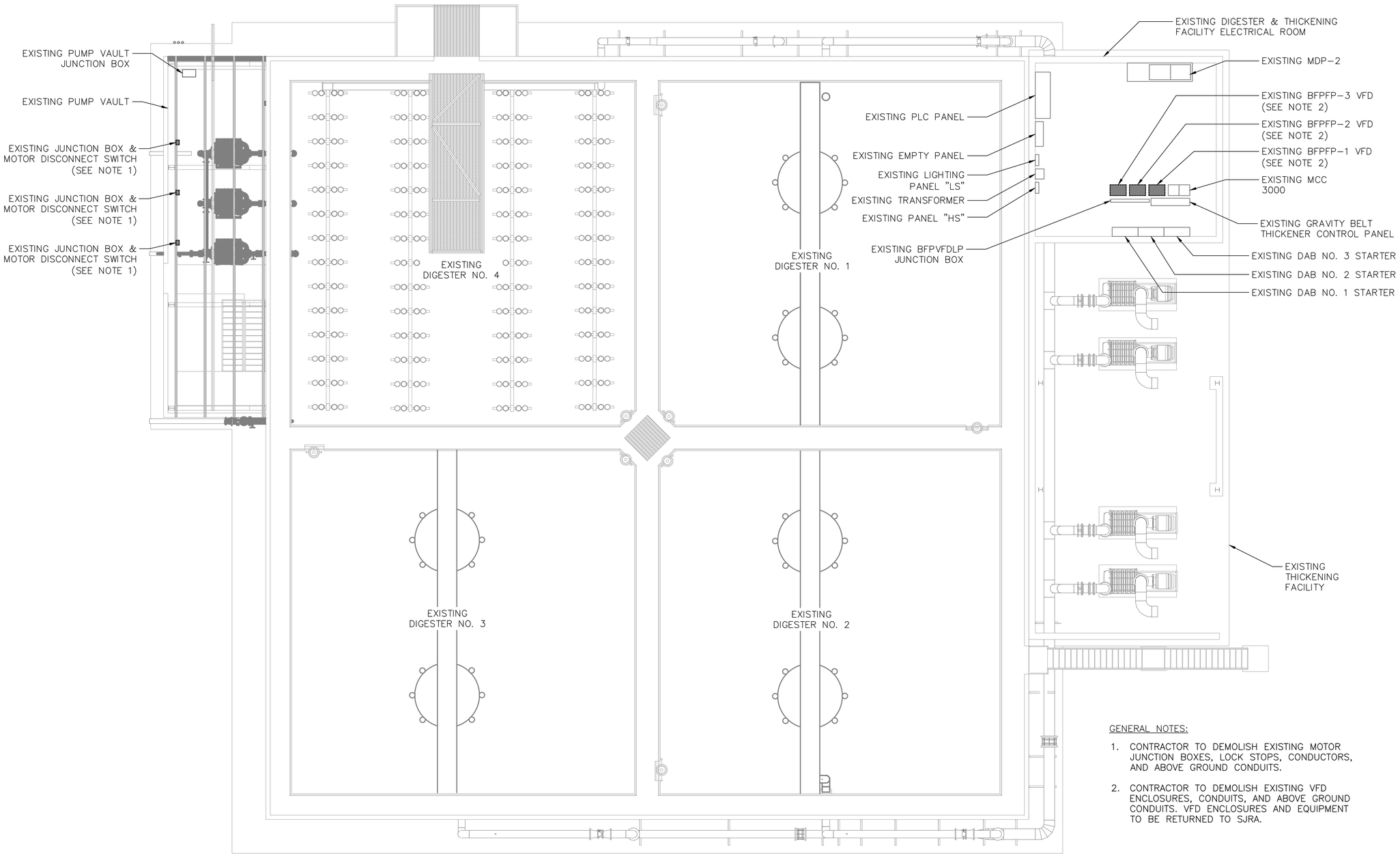

GENERAL NOTES:

1. CONTRACTOR TO DEMOLISH EXISTING MOTOR JUNCTION BOXES, LOCK STOPS, CONDUCTORS, AND ABOVE GROUND CONDUITS.
2. CONTRACTOR TO DEMOLISH EXISTING VFD ENCLOSURES, CONDUITS, AND ABOVE GROUND CONDUITS. VFD ENCLOSURES AND EQUIPMENT TO BE RETURNED TO SJRA.

N

1 DIGESTER AREA ELECTRICAL EXISTING PLAN

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

GARVER

REGISTRATION NO. F-5713

STATE OF TEXAS
BRIAN S. CHONG
108528
LICENSED PROFESSIONAL ENGINEER

DIGITALLY SIGNED: 08/06/20

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THE WOODLANDS DIVISION

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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO :	20-0075
FILE NAME:	
DRAWN BY:	**CM**
CHECKED BY:	**BSC**
SCALE:	AS SHOWN

DIGESTER AREA ELECTRICAL EXISTING PLAN

SHEET 85-E101

SEQ. **27 of 36**

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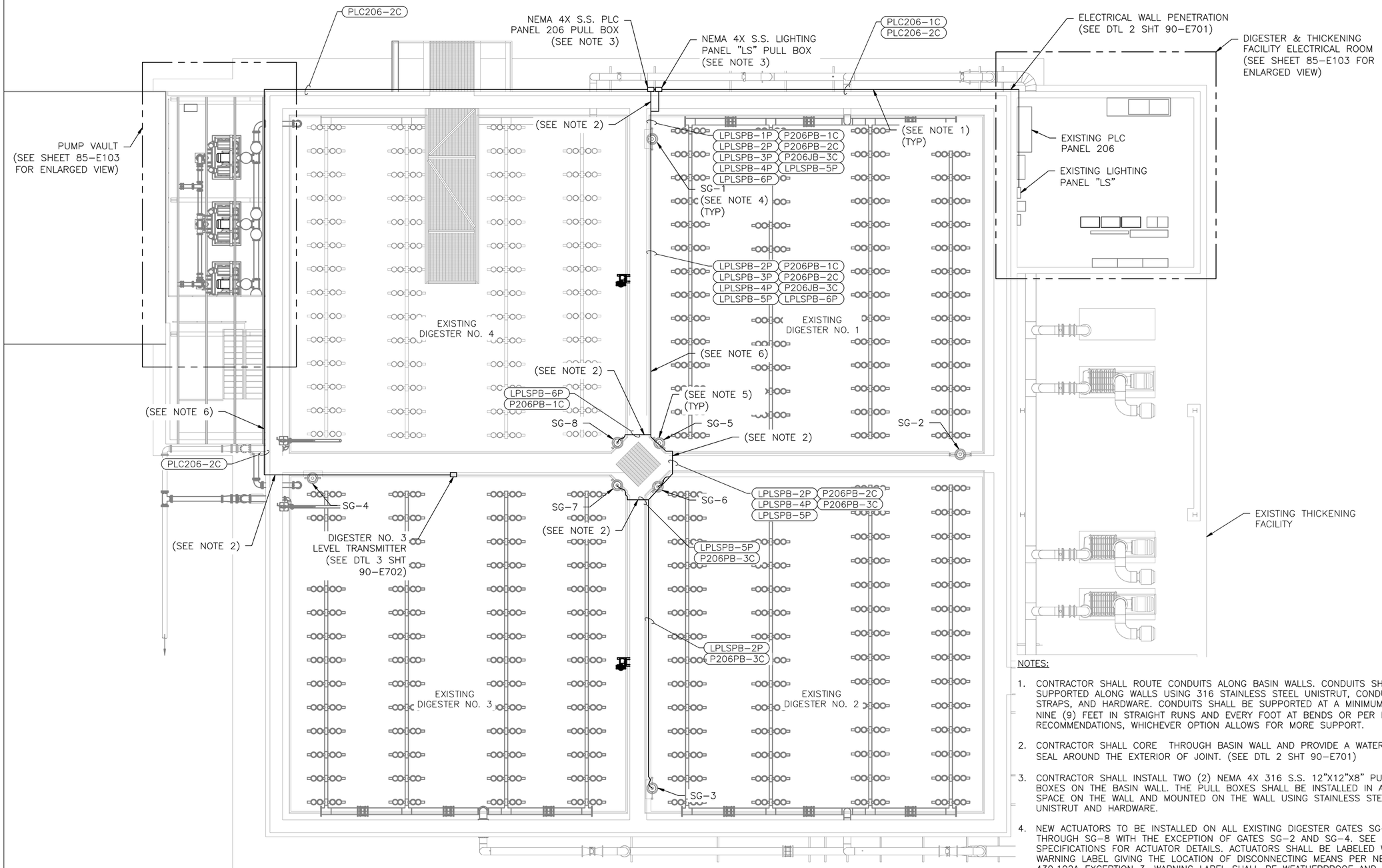

N

1 DIGESTER AREA ELECTRICAL POWER PLAN

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

NOTES:

1. CONTRACTOR SHALL ROUTE CONDUITS ALONG BASIN WALLS. CONDUITS SHALL BE SUPPORTED ALONG WALLS USING 316 STAINLESS STEEL UNISTRUT, CONDUIT STRAPS, AND HARDWARE. CONDUITS SHALL BE SUPPORTED AT A MINIMUM EVERY NINE (9) FEET IN STRAIGHT RUNS AND EVERY FOOT AT BENDS OR PER NEC RECOMMENDATIONS, WHICHEVER OPTION ALLOWS FOR MORE SUPPORT.
2. CONTRACTOR SHALL CORE THROUGH BASIN WALL AND PROVIDE A WATERTIGHT SEAL AROUND THE EXTERIOR OF JOINT. (SEE DTL 2 SHT 90-E701)
3. CONTRACTOR SHALL INSTALL TWO (2) NEMA 4X 316 S.S. 12"X12"X8" PULL BOXES ON THE BASIN WALL. THE PULL BOXES SHALL BE INSTALLED IN AN OPEN SPACE ON THE WALL AND MOUNTED ON THE WALL USING STAINLESS STEEL UNISTRUT AND HARDWARE.
4. NEW ACTUATORS TO BE INSTALLED ON ALL EXISTING DIGESTER GATES SG-1 THROUGH SG-8 WITH THE EXCEPTION OF GATES SG-2 AND SG-4. SEE SPECIFICATIONS FOR ACTUATOR DETAILS. ACTUATORS SHALL BE LABELED WITH A WARNING LABEL GIVING THE LOCATION OF DISCONNECTING MEANS PER NEC 430.102A EXCEPTION 3. WARNING LABEL SHALL BE WEATHERPROOF AND EASILY VISIBLE.
5. CONTRACTOR SHALL INSTALL ALUMINUM CONDUIT NEARING THE SLIDING GATE ACTUATOR AND COMPLETE THE CONNECTION TO THE ACTUATOR USING FLEX CONDUIT NOT EXCEEDING A LENGTH OF FOUR (4) FEET.
6. ALL CONDUITS ROUTED ALONG THE WALLS OF THE BASINS ARE CONSIDERED INSTALLED IN A HAZARDOUS LOCATION PER NFPA 820. CONTRACTOR SHALL PROVIDE SEAL FITTINGS FOR ALL CONDUITS LEAVING THE DIGESTER BASINS.

GARVER

REGISTRATION NO. F-5713

STATE OF TEXAS
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108528
LICENSED PROFESSIONAL ENGINEER

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THE WOODLANDS DIVISION

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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO :	20-0075
FILE NAME:	
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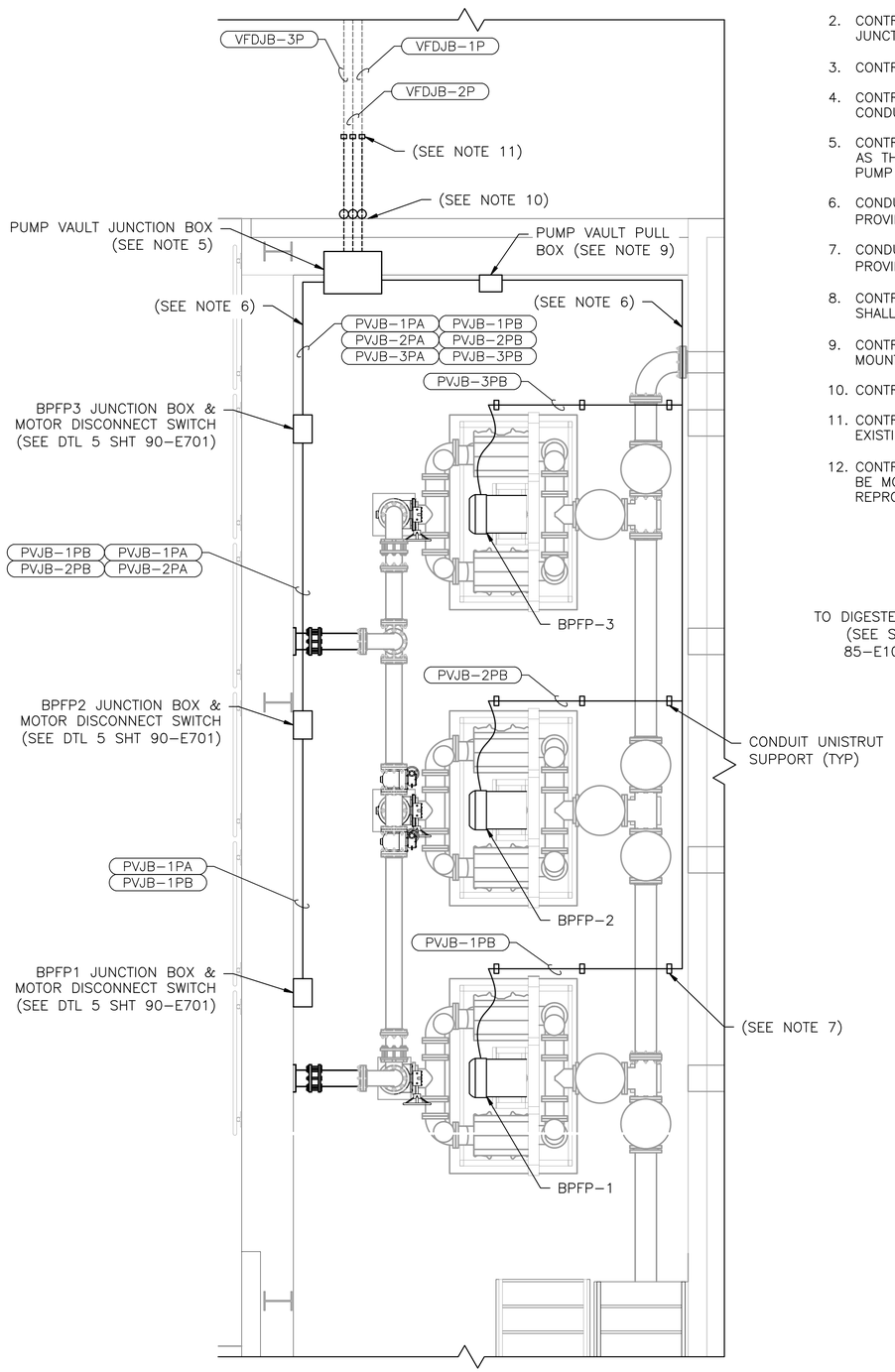
CHECKED BY:	BSC
SCALE:	AS SHOWN

DIGESTER AREA ELECTRICAL POWER PLAN

SHEET 85-E102

SEQ. 28 of 36



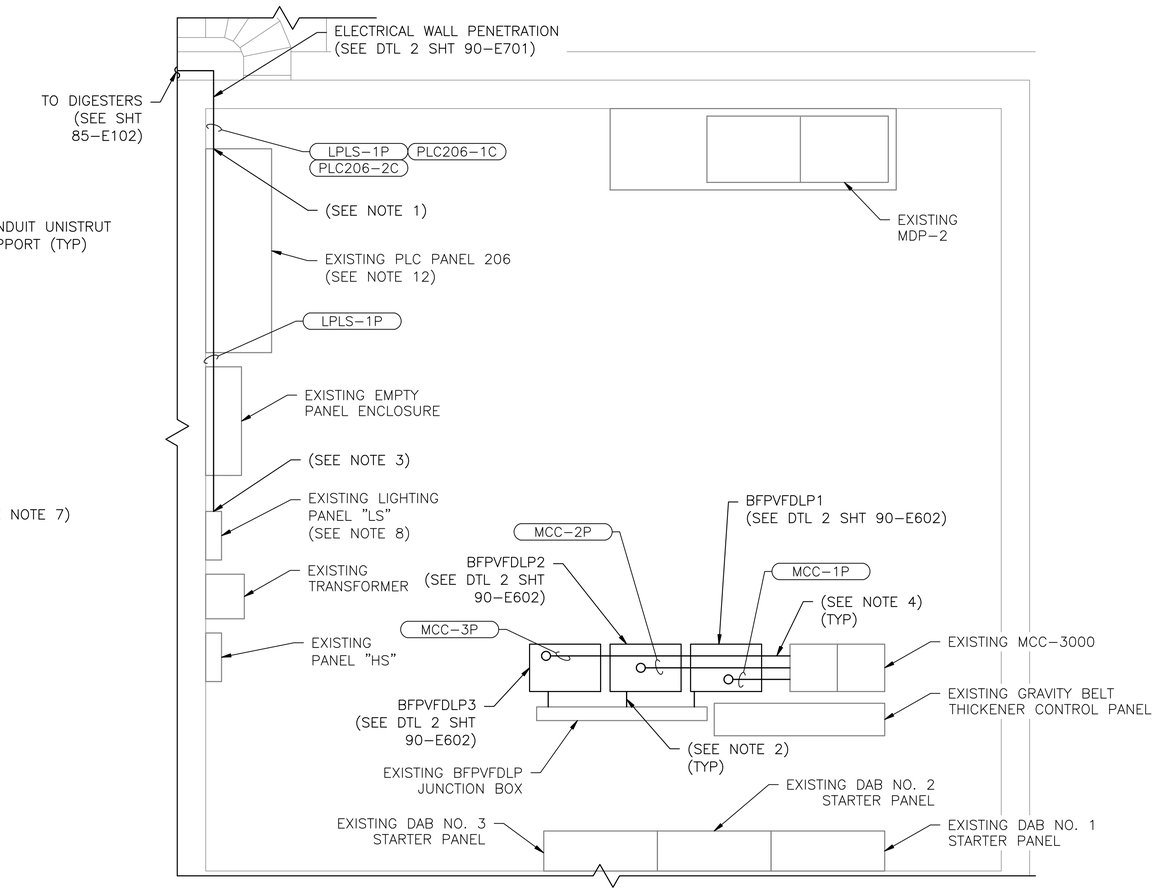
N

1 ENLARGED PUMP VAULT – POWER PLAN

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

NOTES:

1. CONTRACTOR SHALL PENETRATE SIDE OF PLC PANEL FOR NEW CONDUIT INSTALLATIONS, TOP PENETRATIONS ARE NOT ALLOWED.
2. CONTRACTOR SHALL ROUTE NEW CONDUITS FROM THE BASE OF THE NEW BELT PRESS FEED PUMP VFD LOCAL PANELS TO THE BASE OF THE EXISTING BFPVFDLP JUNCTION BOX. SEE ONE LINE DIAGRAM AND CONDUIT SCHEDULE FOR CONDUIT AND CONDUCTOR DETAILS.
3. CONTRACTOR SHALL PENETRATE THE BASE OF THE EXISTING LIGHTING PANEL "LS" FOR NEW CONDUIT INSTALLATION.
4. CONTRACTOR SHALL ROUTE NEW CONDUITS FROM MCC-3000 TO NEW BELT PRESS FEED PUMP VFD LOCAL PANELS ALONG CEILING SIMILAR TO EXISTING CEILING CONDUIT RUNS. NEW CONDUITS SHALL ENTER THE BELT PRESS FEED PUMP VFD LOCAL PANELS FROM THE TOP.
5. CONTRACTOR SHALL PROVIDE AND INSTALL A NEW PUMP VAULT JUNCTION BOX IN THE PUMP VAULT. THE NEW JUNCTION BOX WILL BE INSTALLED ON THE SAME WALL AS THE EXISTING JUNCTION BOX, BUT WILL BE LOCATED AT AN ELEVATION WHERE THE BOTTOM OF THE JUNCTION BOX IS AT THE SAME ELEVATION AS THE TOP OF THE PUMP VAULT WALL. SEE DETAIL NO. 4 ON SHEET 90-E702.
6. CONDUITS SHALL BE ROUTED ALONG WALLS AND MOUNTED USING STAINLESS STEEL UNISTRUT SUPPORTS, CODUIT STRAPS, AND HARDWARE. SUPPORTS SHALL BE PROVIDED EVERY SIX (6) FEET IN STRAIGHT RUNS AND EVERY FOOT AT BENDS.
7. CONDUITS ROUTED ALONG THE FLOOR SHALL BE MOUNTED USING STAINLESS STEEL UNISTRUT SUPPORTS, CODUIT STRAPS, AND HARDWARE. SUPPORTS SHALL BE PROVIDED EVERY FIVE (5) FEET IN STRAIGHT RUNS AND EVERY FOOT AT BENDS. CONDUITS SHALL BE PAINTED "CAUTION YELLOW" TO PREVENT A TRIPPING HAZARD.
8. CONTRACTOR SHALL USE EXISTING 20A SPARE BREAKERS LOCATED INSIDE LIGHTING PANEL "LS" TO POWER PROPOSED ACTUATED VALVES. TWO (2) ACTUATED VALVES SHALL BE POWERED BY EACH 20A SPARE BREAKER.
9. CONTRACTOR SHALL PROVIDE AND INSTALL A NEW MIN 12"X12"X8" NEMA 4X STAINLESS STEEL PULL BOX ON THE VALVE VAULT WALL. THE PULL BOX SHALL BE MOUNTED ON THE WALL USING STAINLESS STEEL UNISTRUT AND HARDWARE.
10. CONTRACTOR SHALL STUB UP CONDUITS OUTSIDE OF PUMP VAULT WALLS AND CORE THROUGH WALL ABOVE FINISHED GRADE INTO NEW PUMP VAULT JUNCTION BOX.
11. CONTRACTOR SHALL INTERCEPT EXISTING DUCTBANK 10 FEET FROM PUMP VAULT WALL AND CONNECT NEW CONDUITS TO EXISTING CONDUITS. CONTRACTOR SHALL MATCH EXISTING CONDUIT SIZE AND TYPE AND INSTALL NEW CONCRETE DUCTBANK.
12. CONTRACTOR SHALL PROVIDE AND INSTALL TWO (2) PROSOFT MODULES MODEL NO. PLX31-EIP-MBS INSIDE EXISTING PLC PANEL 206. THE PROSOFT MODULES SHALL BE MOUNTED IN AN OPEN SPACE INSIDE THE PANEL AND POWERED. CONTRACTOR TO COORDINATE INSTALLATION WITH SJRA. SJRA SHALL BE RESPONSIBLE FOR ALL PLC REPROGRAMMING ASSOCIATED WITH PROJECT. CONTRACTOR TO COORDINATE ALL NEW CONNECTIONS ENTERING THE PLC PANEL 206 WITH SJRA.



N

2 ENLARGED DIGESTER & THICKENING FACILITY ELECTRICAL ROOM – POWER PLAN

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

GARVER

REGISTRATION NO. F-5713

STATE OF TEXAS
BRIAN S. CHONG
108528
LICENSED PROFESSIONAL ENGINEER

DIGITALLY SIGNED: 08/06/20

SAN JANCINTO RIVER AUTHORITY
THE WOODLANDS DIVISION

WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO :	20-0075
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DRAWN BY:	**CM**
CHECKED BY:	**BSC**
SCALE:	AS SHOWN

BELT PRESS FEED PUMP AREA ELECTRICAL PLAN

SHEET 85-E103

SEQ. **29 of 36**

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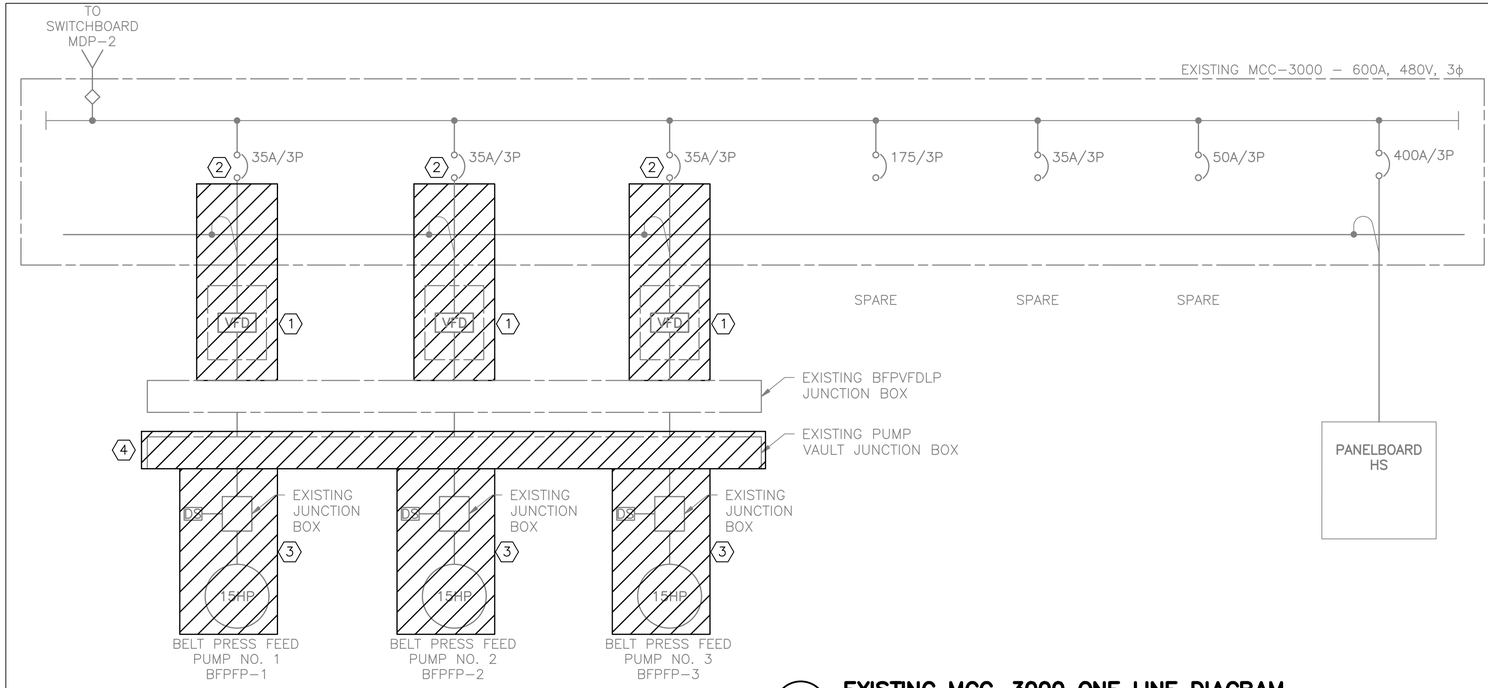
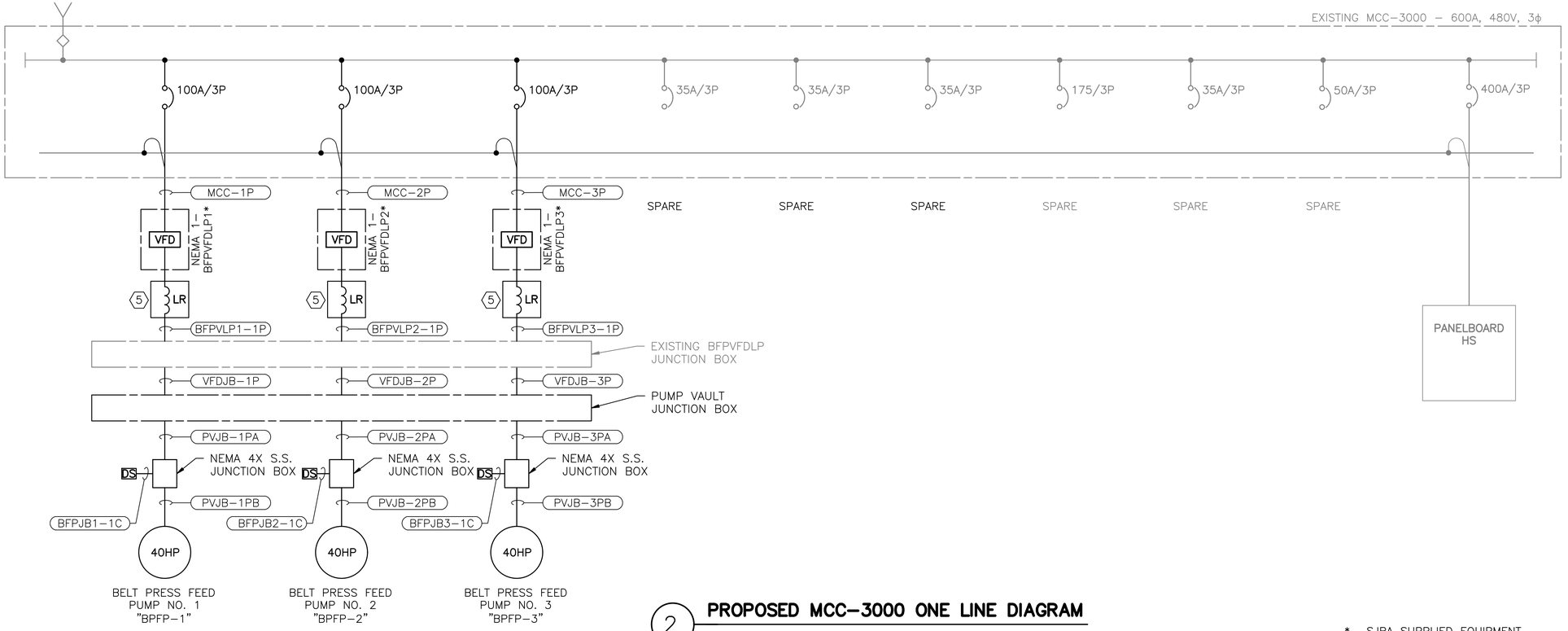


1 **EXISTING MCC-3000 ONE LINE DIAGRAM**

SCALE: NONE



2 **PROPOSED MCC-3000 ONE LINE DIAGRAM**

SCALE: NONE

* SJRA SUPPLIED EQUIPMENT

GENERAL NOTES:

1. ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE NFPA 70 NATIONAL ELECTRICAL CODE, NFPA 101 LIFE SAFETY CODE, NFPA 70E ELECTRICAL SAFETY CODE, STATE ELECTRICAL CODE, AND LOCAL ELECTRICAL CODE.
2. COORDINATE ALL ELECTRICAL WORK AND POWER OUTAGES WITH OWNER AND POWER UTILITY.
3. THE CONTRACTOR SHALL MAKE ELECTRICAL CONNECTIONS TO EVERYTHING FURNISHED OR INSTALLED BY THIS CONTRACT, WHETHER INDICATED OR NOT ON THE ELECTRICAL DRAWINGS.
4. PROVIDE LUGS AS REQUIRED TO FIT WIRING.
5. CONTRACTOR SHALL VERIFY ALL MOTOR SIZES WITH PROVIDED EQUIPMENT AND PROVIDE APPROPRIATELY SIZED OVERCURRENT PROTECTIVE DEVICES, STARTERS, AND OVERLOADS AS REQUIRED.

KEY NOTES:

(1) EXISTING VFD ENCLOSURES, CONDUCTORS, AND ABOVE GROUND CONDUITS TO BE DEMOLISHED. VFD ENCLOSURES AND EQUIPMENT TO BE RETURNED TO SJRA.

(2) BREAKER TO REMAIN IN PLACE AND LABELED AS SPARE.

(3) EXISTING MOTORS, JUNCTION BOXES, MOTOR DISCONNECT SWITCHES, CONDUCTORS, AND ABOVE GROUND CONDUITS TO BE DEMOLISHED.

(4) EXISTING PUMP VAULT JUNCTION BOX TO BE DEMOLISHED ALONG WITH ANY CONDUITS AND CONDUCTORS LEADING TO IT. CONDUIT PENETRATIONS ENTERING THE JUNCTION BOX THROUGH THE VAULT CONCRETE WALL SHALL BE SEALED WATER TIGHT TO AVOID WATER LEAKING INTO THE PUMP VAULT.

(5) CONTRACTOR SHALL INSTALL SJRA PROVIDED TCI LOAD REACTOR MODEL NO. KDRC1PE01. LOAD REACTOR SHALL BE INSTALLED ON THE LOAD SIDE OF THE VFD.

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REGISTRATION NO. F-5713

STATE OF TEXAS
BRIAN S. CHONG
108528
LICENSED PROFESSIONAL ENGINEER

DIGITALLY SIGNED: 08/06/20

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THE WOODLANDS DIVISION

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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO :	20-0075
FILE NAME:	
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ONELINE DIAGRAMS

SHEET 90-E501

SEQ. 30 of 36

FILE: L:\2019\19W09245 - SJRA WWTF No 2 Digester Rehab\Drawings\19W09245_SJRA_WWTP2 - 90-E501-OL.dwg LAYOUT: 501-OLD DATE: 8/4/2020 8:20:59 AM BY: CMEDINA

Date: Aug 04, 2020 - 8:20am User: CMedina File: L:\2019\19W09245 - SJRA WWTF No 2 Digester Rehab\Drawings\19W09245_SJRA_WWTP2 - 90-E501-OL.dwg

CONDUIT SCHEDULE								
CONDUIT NO.	# OF CONDUITS	CONDUIT SIZE	POWER	GROUND	CONTROLS	INSTRUMENTATION	FROM	TO
MCC-1P	1	1 1/2"	3-#2	#8			MCC 3000	BFPVFDLP1
BFPVLP1-1P	1	1 1/2"	3-#2	1-#8 & 3-#12	6-#12		EXISTING BFPVFDLP JUNCTION BOX	BFPVFDLP1
VFDJB-1P	1	EXIST 1 1/2"	3-#2	1-#8 & 3-#12	6-#12		EXISTING BFPVFDLP JUNCTION BOX	PUMP VAULT JUNCTION BOX
PVJB-1PA	1	1 1/2"	3-#2	1-#8 & 3-#12	6-#12		BPFP-1 JUNCTION BOX	PUMP VAULT JUNCTION BOX
PVJB-1PB	1	1 1/2"	3-#2	1-#8 & 2-#12	4-#12		BPFP-1 JUNCTION BOX	BPFP-1
BFPVLP1-1C	1	1"				1-ETHERNET CABLE	EXISTING BFPVFDLP JUNCTION BOX	BFPVFDLP1
BFPJB1-1C	1	1"		#12	2-#12		BPFP-1 JUNCTION BOX	BPFP-1 MOTOR DISCONNECT SWITCH
MCC-2P	1	1 1/2"	3-#2	#8			MCC 3000	BFPVFDLP2
BFPVLP2-1P	1	1 1/2"	3-#2	1-#8 & 3-#12	6-#12		EXISTING BFPVFDLP JUNCTION BOX	BFPVFDLP2
VFDJB-2P	1	EXIST 1 1/2"	3-#2	1-#8 & 3-#12	6-#12		EXISTING BFPVFDLP JUNCTION BOX	PUMP VAULT JUNCTION BOX
PVJB-2PA	1	1 1/2"	3-#2	1-#8 & 3-#12	6-#12		BPFP-2 JUNCTION BOX	PUMP VAULT JUNCTION BOX
PVJB-2PB	1	1 1/2"	3-#2	1-#8 & 2-#12	4-#12		BPFP-2 JUNCTION BOX	BPFP-2
BFPVLP2-1C	1	1"				1-ETHERNET CABLE	EXISTING BFPVFDLP JUNCTION BOX	BFPVFDLP2
BFPJB2-1C	1	1"		#12	2-#12		BPFP-2 JUNCTION BOX	BPFP-2 MOTOR DISCONNECT SWITCH
MCC-3P	1	1 1/2"	3-#2	#8			MCC 3000	BFPVFDLP3
BFPVLP3-1P	1	1 1/2"	3-#2	1-#8 & 3-#12	6-#12		EXISTING BFPVFDLP JUNCTION BOX	BFPVFDLP3
VFDJB-3P	1	EXIST 1 1/2"	3-#2	1-#8 & 3-#12	6-#12		EXISTING BFPVFDLP JUNCTION BOX	PUMP VAULT JUNCTION BOX
PVJB-3PA	1	1 1/2"	3-#2	1-#8 & 3-#12	6-#12		BPFP-3 JUNCTION BOX	PUMP VAULT JUNCTION BOX
PVJB-3PB	1	1 1/2"	3-#2	1-#8 & 2-#12	4-#12		BPFP-3 JUNCTION BOX	BPFP-3
BFPVLP3-1C	1	1"				1-ETHERNET CABLE	EXISTING BFPVFDLP JUNCTION BOX	BFPVFDLP3
BFPJB3-1C	1	1"		#12	2-#12		BPFP-3 JUNCTION BOX	BPFP-3 MOTOR DISCONNECT SWITCH
PLC206-3C	1	EXIST 1 1/2"				3-ETHERNET CABLE	PLC PANEL 206	EXISTING BFPVFDLP JUNCTION BOX
LPLS-1P	1	1"	12-#10	6-#12			LIGHTING PANEL "LS"	LIGHTING PANEL "LS" PULL BOX
PLC206-1C	1	1 1/2"		6-#14		12-#16 TSP	PLC PANEL 206	PLC PANEL 206 PULL BOX
PLC206-2C	1	1"		#14		1-#16 TSP	PLC PANEL 206	DIGESTER NO. 3 LEVEL TRANSMITTER
P206PB-1C	1	1"		2-#14		4-#16 TSP	PLC PANEL 206 PULL BOX	SG-1 & SG-8
P206PB-2C	1	1"		2-#14		4-#16 TSP	PLC PANEL 206 PULL BOX	SG-5 & SG-6
P206PB-3C	1	1"		2-#14		4-#16 TSP	PLC PANEL 206 PULL BOX	SG-3 & SG-7
LPLSPB-1P	1	1"	2-#8	#12			LIGHTING PANEL "LS" PULL BOX	SG-1
LPLSPB-2P	1	1"	2-#8	#12			LIGHTING PANEL "LS" PULL BOX	SG-3
LPLSPB-3P	1	1"	2-#8	#12			LIGHTING PANEL "LS" PULL BOX	SG-5
LPLSPB-4P	1	1"	2-#8	#12			LIGHTING PANEL "LS" PULL BOX	SG-6
LPLSPB-5P	1	1"	2-#8	#12			LIGHTING PANEL "LS" PULL BOX	SG-7
LPLSPB-6P	1	1"	2-#8	#12			LIGHTING PANEL "LS" PULL BOX	SG-8

1 **CONDUIT SCHEDULE**

SCALE: NONE

GARVER

REGISTRATION NO. F-5713

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WWTF NO. 2 DIGESTER
NOS. 1, 2 AND 3
REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO : 20-0075
FILE NAME:
DRAWN BY: **CM**
CHECKED BY: **BSC**
SCALE: AS SHOWN

CONDUIT SCHEDULE

SHEET 90-E601
SEQ. **31 of 36**

FILE: L:\2019\19W09245 - SJRA WWTF No 2 Digester Rehab\Drawings\19W09245_SJRA_WWTP2 - 90-E601-CS.dwg LAYOUT: ELEVATION-SCHEM DATE: 8/6/2020 4:02:50 PM BY: CMEDINA

NOTES:

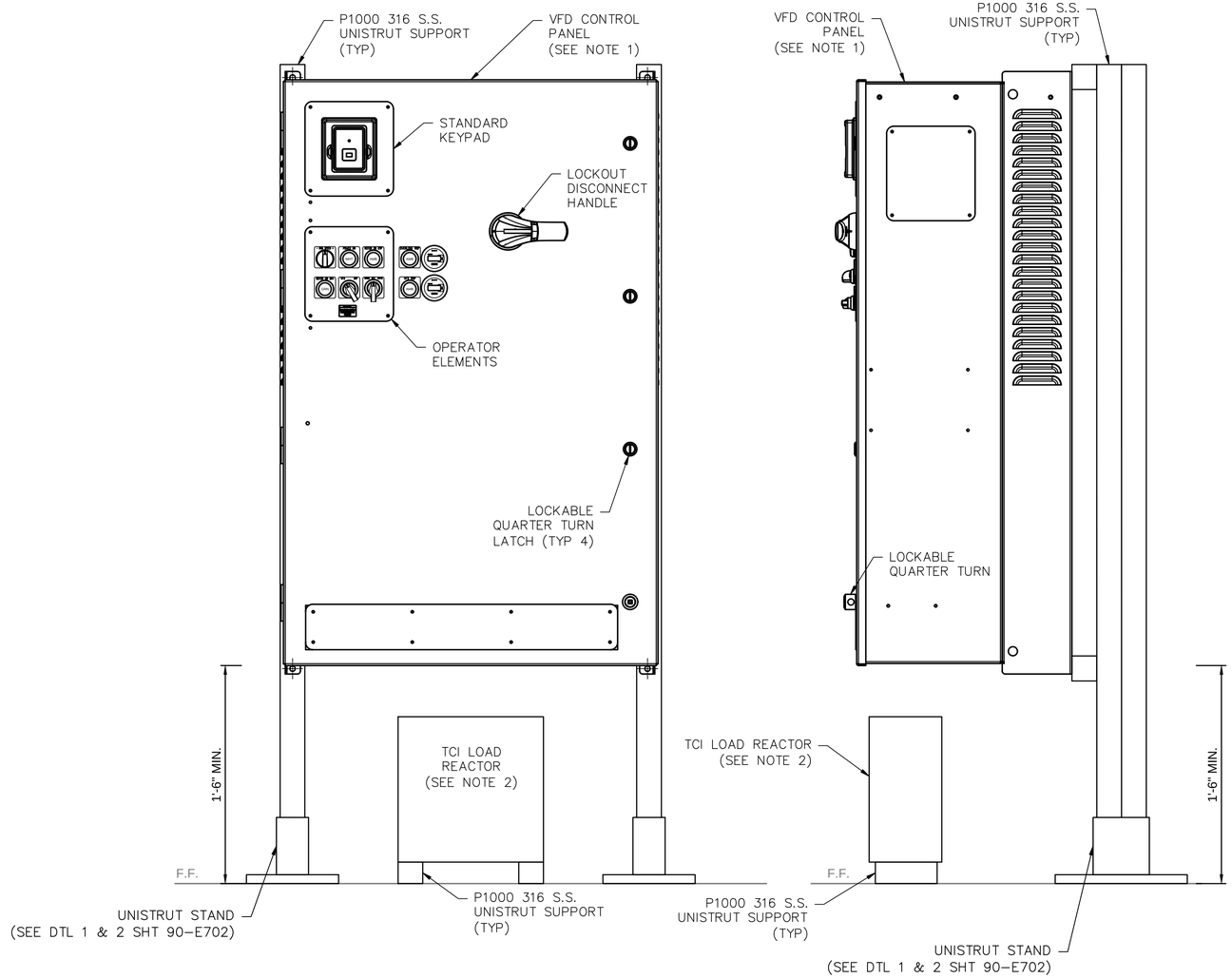
1. CONTRACTOR TO INSTALL AND PROVIDE NEW 480V, 100A THERMAL MAGNETIC FEEDER BREAKER FOR ASSIGNED BELT PRESS FEED PUMP. NEW LABELS SHALL BE INSTALLED AND READ AS FOLLOWS, "BELT PRESS FEED PUMP NO. X BPFP-X", WHERE X REPRESENTS THE PUMP NUMBER.
2. CONDUCTORS DOWNSTREAM OF THE FEEDER BREAKER SHALL BE REMOVED. BREAKER TO REMAIN IN PLACE TO BE USED AS SPARE. EXISTING LABEL TO BE REMOVED AND REPLACED WITH ONE THAT READS "SPARE".

1 **MCC-3000 MODIFICATIONS**

SCALE: NONE

NOTES:

1. CONTRACTOR TO INSTALL VFD CONTROL PANEL AS SHOWN. VFD CONTROL PANEL SHALL BE PROVIDED BY SJRA.
2. CONTRACTOR TO INSTALL TCI LOAD REACTOR BELOW VFD CONTROL PANEL AS SHOWN. TCI LOAD REACTOR SHALL BE PROVIDED BY SJRA. LOAD REACTOR TO BE SUPPORTED BY 316 S.S. UNISTRUT.



2 **SJRA VFD CONTROL PANEL MOUNTING (TYP)**

SCALE: NONE

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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

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MCC AND CONTROL PANEL ELEVATIONS

SHEET 90-E602

SEQ. 32 of 36

FILE: L:\2019\19W09245 - SJRA WWTF No 2 Digester Rehab\Drawings\19W09245_SJRA_WWTP2 - 90-E602-DT.dwg LAYOUT: ELEVATION-SCHEM DATE: 8/4/2020 8:21:49 AM BY: CMEDINA

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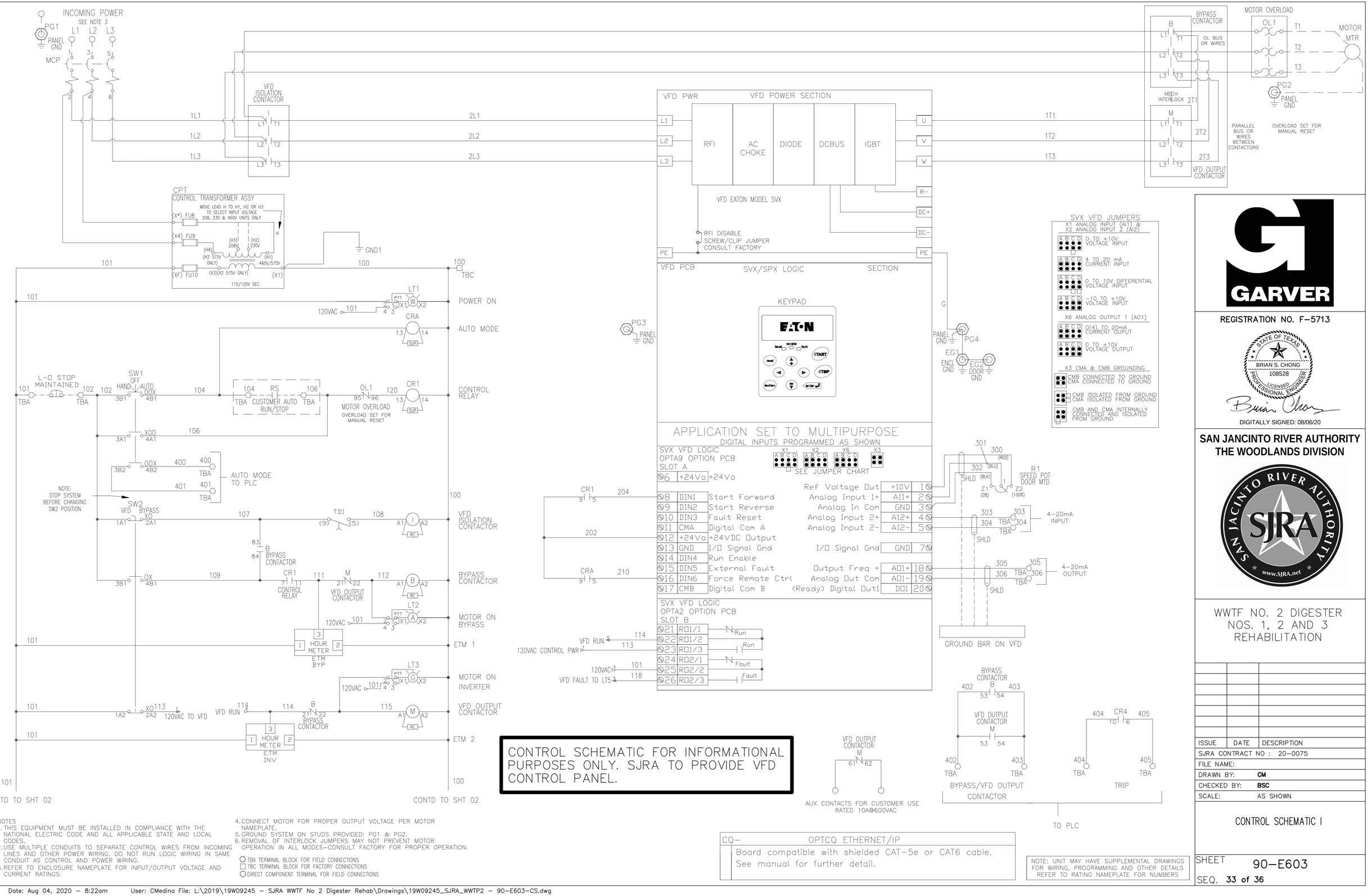

NOTES
1. THIS EQUIPMENT MUST BE INSTALLED IN COMPLIANCE WITH THE NATIONAL ELECTRIC CODE AND ALL APPLICABLE STATE AND LOCAL CODES.
2. USE MULTIPLE CONDUITS TO SEPARATE CONTROL WIRES FROM INCOMING LINES AND OTHER POWER WIRING. DO NOT RUN LOGIC WIRING IN SAME CONDUIT AS CONTROL AND POWER WIRING.
3. REFER TO ENCLOSURE NAMEPLATE FOR INPUT/OUTPUT VOLTAGE AND CURRENT RATINGS.
4. CONNECT MOTOR FOR PROPER OUTPUT VOLTAGE PER MOTOR NAMEPLATE.
5. GROUND SYSTEM ON STUDS PROVIDED: PG1 & PG2.
6. REMOVAL OF INTERLOCK JUMPERS MAY NOT PREVENT MOTOR OPERATION IN ALL MODES–CONSULT FACTORY FOR PROPER OPERATION.

⬡ TBA TERMINAL BLOCK FOR FIELD CONNECTIONS
☐ TBC TERMINAL BLOCK FOR FACTORY CONNECTIONS
○ DIRECT COMPONENT TERMINAL FOR FIELD CONNECTIONS

CQ–	OPTCQ ETHERNET/IP
	Board compatible with shielded CAT–5e or CAT6 cable. See manual for further detail.

NOTE: UNIT MAY HAVE SUPPLEMENTAL DRAWINGS FOR WIRING, PROGRAMMING AND OTHER DETAILS REFER TO RATING NAMEPLATE FOR NUMBERS

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CONTROL SCHEMATIC I

SHEET 90–E603
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FILE: L:\2019\19W09245 – SJRA WWTF No 2 Digester Rehab\Drawings\19W09245_SJRA_WWTP2 – 90–E603–CS.dwg LAYOUT: SCHEM DATE: 8/4/2020 8:22:10 AM BY: CMEDINA

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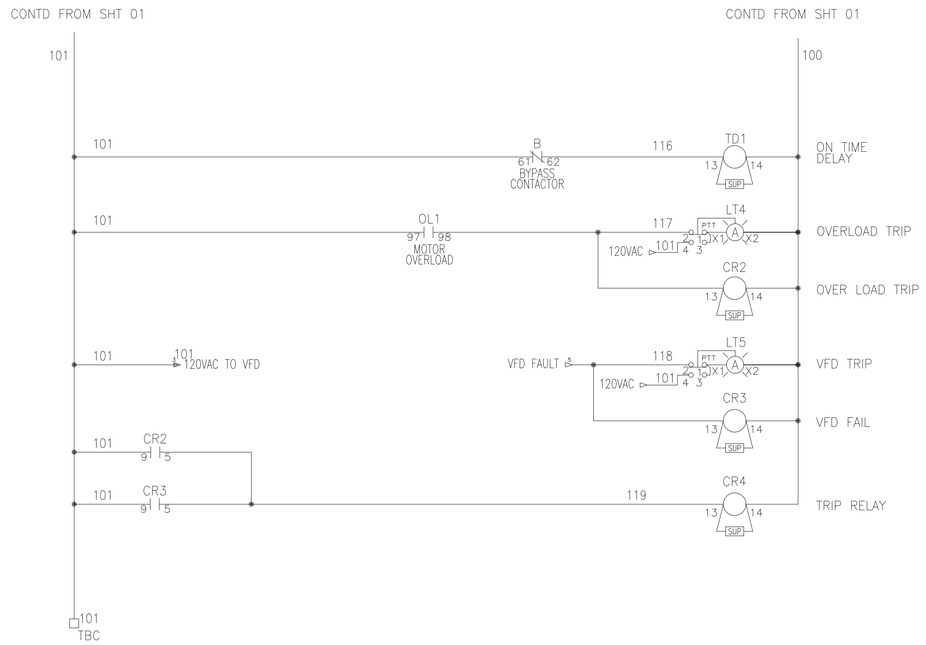

CONTROL SCHEMATIC FOR INFORMATIONAL PURPOSES ONLY. SJRA TO PROVIDE VFD CONTROL PANEL.

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WWTF NO. 2 DIGESTER
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ISSUE	DATE	DESCRIPTION

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CONTROL SCHEMATIC II

SHEET 90-E604

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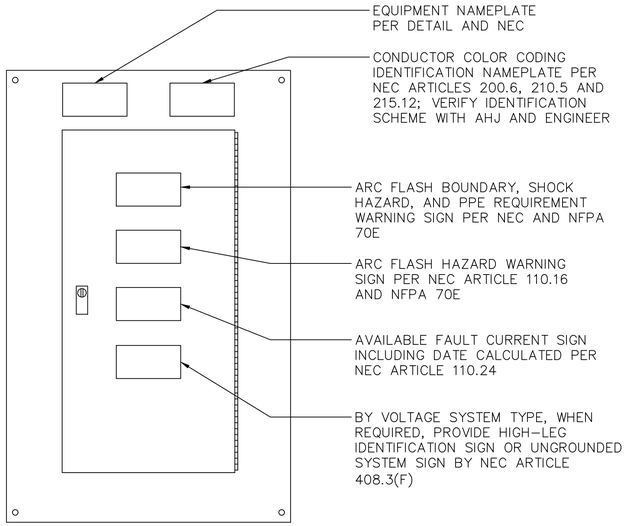
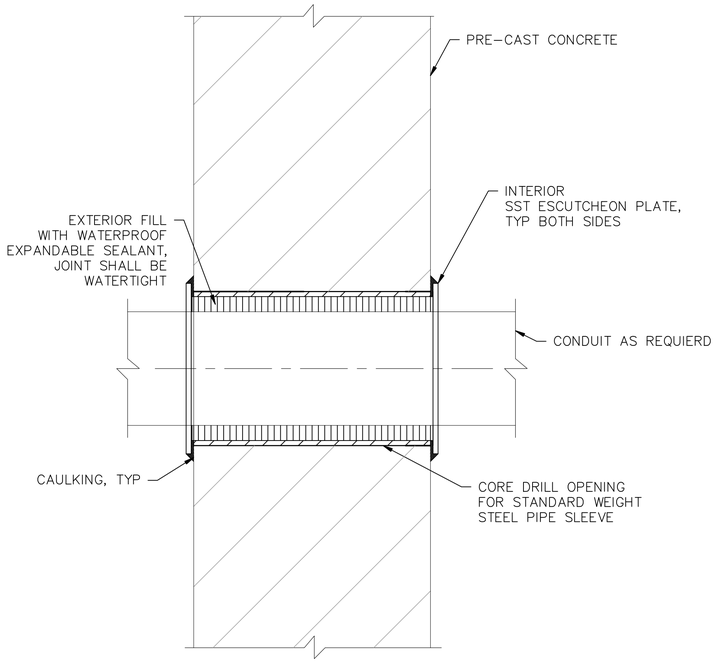


PANEL FRONT VIEW
SCALE: NONE

NOTES:

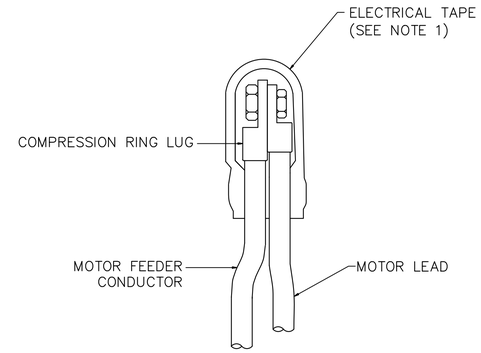
1. INSTALL ALL NAMEPLATES AND WARNING SIGNS IN ACCORDANCE WITH NEC AND NFPA 70E REQUIREMENTS.
2. INSTALL NAMEPLATES AND WARNING SIGNS ON ALL ELECTRICAL EQUIPMENT, INCLUDING BUT NOT LIMITED TO, SWITCHBOARDS, PANELBOARDS, TRANSFORMERS, SWITCHES, CONTROL PANELS AND MOTOR CONTROL CENTERS.
3. EXTERIOR EQUIPMENT SHALL HAVE WEATHER-RESISTANT, NON-FADING NAMEPLATES AND SIGNAGE.
4. INSTALL CIRCUIT DIRECTORY AND/OR CIRCUIT IDENTIFICATION FOR PROPER FIELD IDENTIFICATION.
5. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.



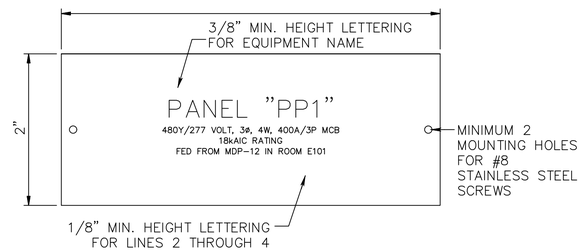
2 TYPICAL ELECTRICAL WALL PENETRATION
SCALE: NONE

NOTES:

1. CONTRACTOR SHALL TIGHTLY AND SECURELY WRAP THE MOTOR CONDUCTORS WITH THREE (3) LAYERS OF SCOTCH 69 ELECTRICAL TAPE, FOLLOWED BY THREE (3) LAYERS OF SCOTCH 130C ELECTRICAL TAPE, AND A FINAL THREE (3) LAYERS OF SCOTCH 33+ ELECTRICAL TAPE.



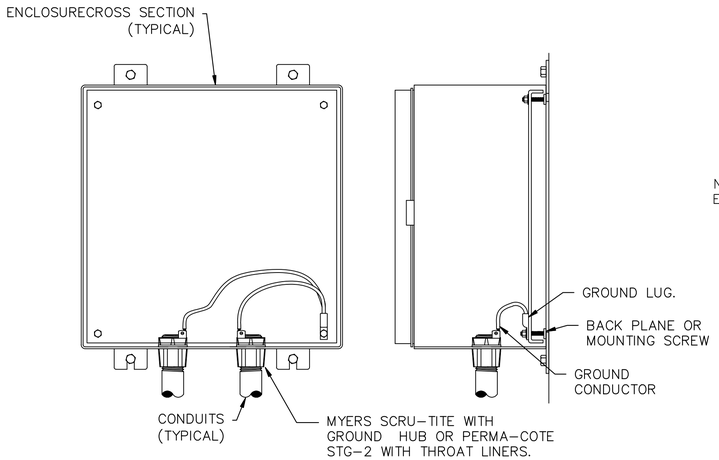
4 TYPICAL MOTOR LEAD DETAIL
SCALE: NONE



EQUIPMENT NAMEPLATE NOTES:

1. INSTALL 2-PLEX ACRYLIC, WHITE ON BLACK CORE, 5"x2" TILE, TEXT LINES AS INDICATED, CUSTOM ENGRAVED NAME PLATES.
2. MOUNT WITH STAINLESS STEEL SCREWS.
3. SEAL SCREW HOLES WITH SILICONE RUBBER.
4. NAMEPLATE INFORMATION SHALL INCLUDE:
   A. IDENTIFICATION NAME.
   B. VOLTAGE SYSTEM, AND AMPACITY RATING AND TYPE.
   C. EQUIPMENT AIC RATING.
   D. FEEDER SOURCE OF SUPPLY DESCRIPTION.

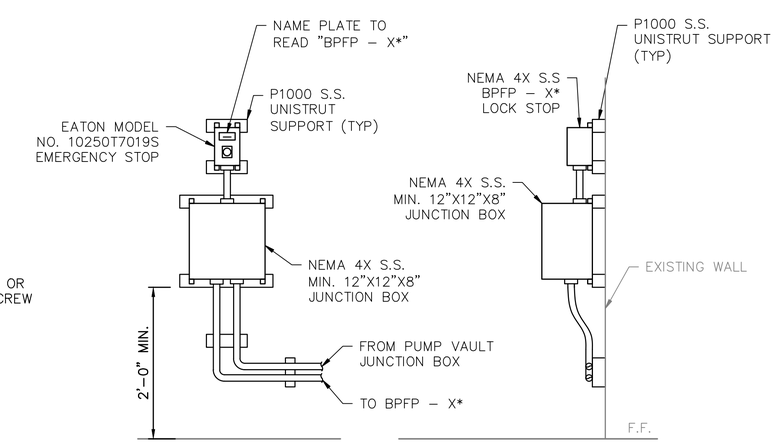
1 TYPICAL ENGRAVED NAMEPLATE DETAIL
SCALE: NONE



NOTES:

1. ALL SERVICE, FEEDER AND CONTROL CONDUITS SHALL BE GROUNDED ON BOTH ENDS.

3 CONDUIT GROUNDING DETAIL
SCALE: NONE



NOTES:

1. CONTRACTOR TO PROVIDE S.S. HARDWARE FOR MOUNTING INSTALLATION.

5 TYPICAL BPFP LOCK STOP INSTALLATION
SCALE: NONE

* TYP FOR ALL PUMPS

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REGISTRATION NO. F-5713

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WWTF NO. 2 DIGESTER NOS. 1, 2 AND 3 REHABILITATION

ISSUE	DATE	DESCRIPTION

SJRA CONTRACT NO :	20-0075
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SCALE:	AS SHOWN

ELECTRICAL DETAILS I

SHEET 90-E701

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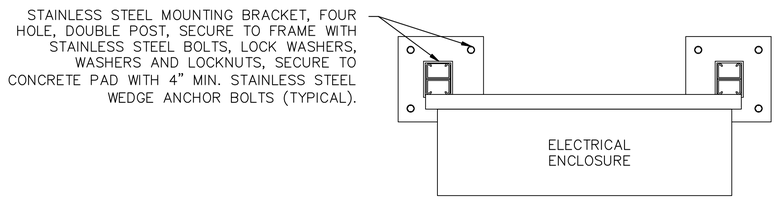
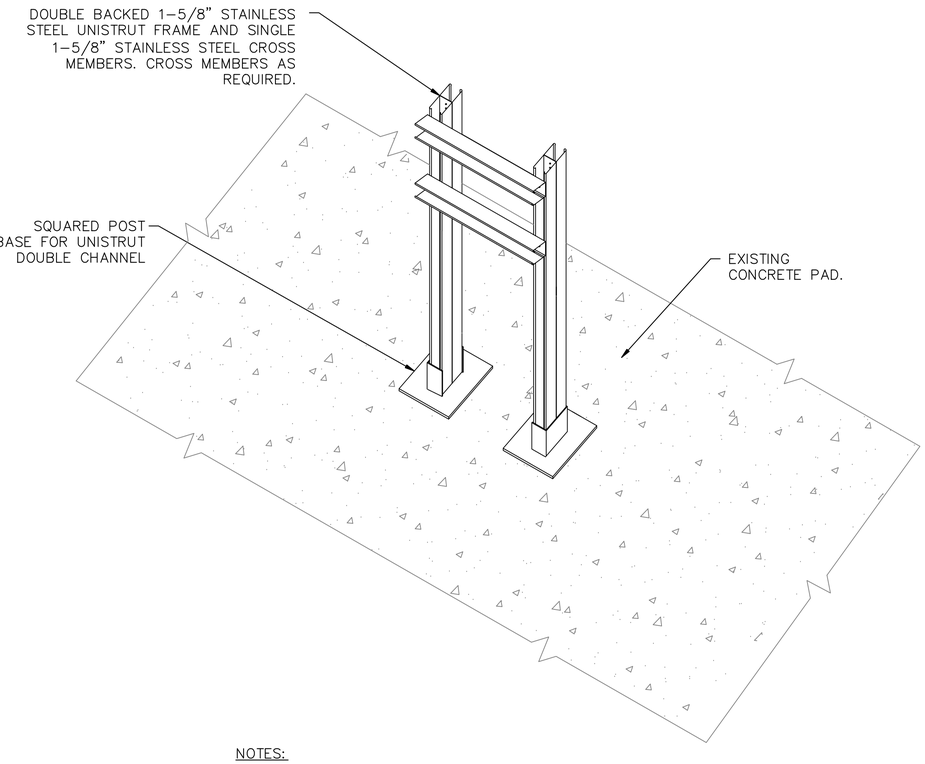


1 TYPICAL UNISTRUT STAND DETAIL (TOP VIEW)

SCALE: NONE



NOTES:

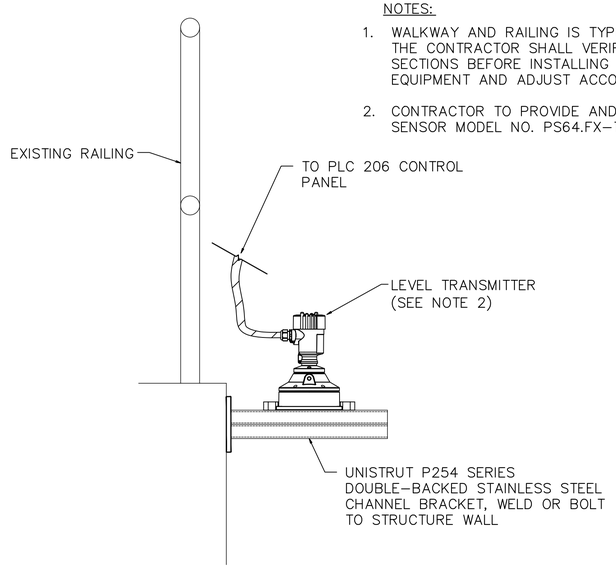
1. ALL BOLTS, NUTS, WASHERS, ANCHORS, PLATES, AND OTHER MOUNTING STEMS SHALL BE CORROSION RESISTANT, STAINLESS STEEL.
2. UTILIZE 5/16" STAINLESS STEEL WEDGE ANCHORS AS REQUIRED.
3. OMIT PAD WHERE NOT SHOWN.

2 UNISTRUT STAND DETAIL (TYP)

SCALE: NONE

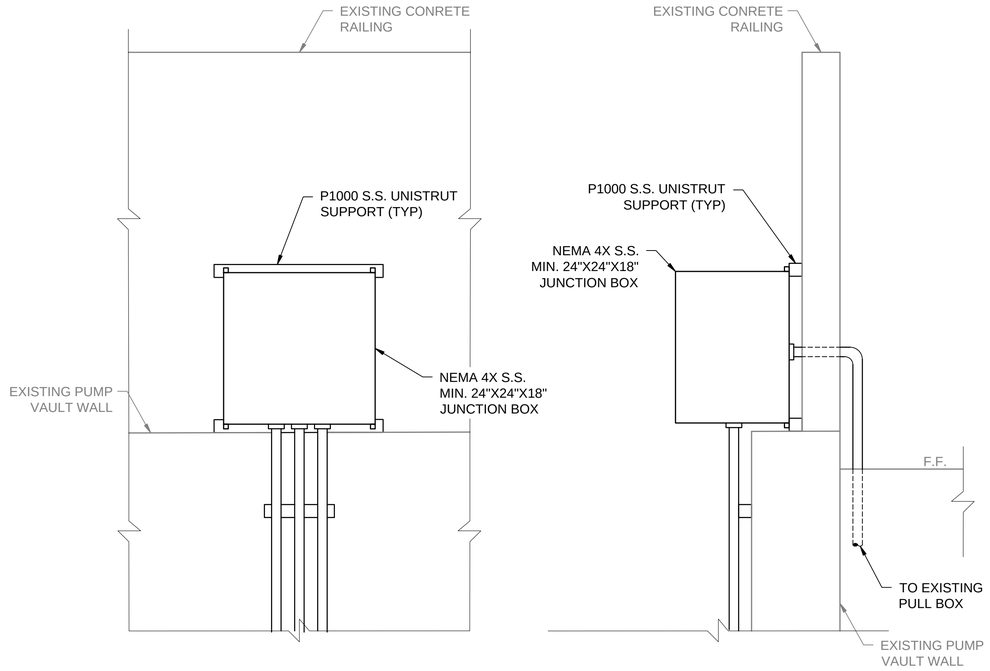
NOTES:

1. WALKWAY AND RAILING IS TYPICAL AND FOR REFERENCE ONLY. THE CONTRACTOR SHALL VERIFY WITH STRUCTURAL PLANS AND SECTIONS BEFORE INSTALLING ANY CONDUIT OR ELECTRICAL EQUIPMENT AND ADJUST ACCORDINGLY.
2. CONTRACTOR TO PROVIDE AND INSTALL VEGAPULS64 RADAR SENSOR MODEL NO. PS64.FX-T-TD-A-H-X-A-N-X-X-X.



3 TYPICAL ULTRASONIC SENSOR MOUNTING

SCALE: NONE



4 PUMP VAULT JUNCTION BOX MOUNTING

SCALE: NONE

GARVER

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ISSUE	DATE	DESCRIPTION

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SCALE:	AS SHOWN

ELECTRICAL DETAILS II

SHEET 90-E702

SEQ. 36 of 36

FILE: L:\2019\19W09245 - SJRA WWTF No 2 Digester Rehab\Drawings\19W09245_SJRA_WWTP2 - 90-E702-DT.dwg LAYOUT: Details DATE: 8/4/2020 8:23:03 AM BY: CMEDINA

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