SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

BID SET

MAY 2019

PROJECT NO. 6091680

VICINITY MAP
MANATEE COUNTY

VICINITY MAP
SWWRF SITE
5101 65TH STREET WEST, BRADENTON, FL

VICINITY MAP
SEWRF SITE
3331 LENA ROAD, BRADENTON, FL

COUNTY BOARD

COUNTY ADMINISTRATOR - CHERI CORYEA

COMMISSIONERS:
DISTRICT 1 - PRISCILLA TRACE
DISTRICT 2 - REGGIE BELLAMY
DISTRICT 3 - STEPHEN R. JONSSON
DISTRICT 4 - MISTY SERVIA
DISTRICT 5 - VANESSA BAUGH
AT LARGE - CAROL WHITMORE
AT-LARGE - BETSY BENAC

Brown AND Caldwell

6151 LAKE OSPREY DRIVE, 3RD FLOOR
REGISTRATION NO.CERTIFICATE OF
AUTHORIZATION NO. 2602
6151 LAKE OSPREY DRIVE, 3RD FLOOR
SARASOTA, FL 34240 34240

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ENGINEER OF RECORD
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BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: R. GAYLORD
DRAWN: A. HUTT
CHECKED: T. BOSSO
CHECKED: B. ELEAZER
APPROVED: A. MODY

FILENAME
G-00-002.DWG
BC PROJECT NUMBER
152270
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6091680

GENERAL

INDEX OF DRAWINGS

DRAWING NUMBER
G-00-002

2 SHEET NUMBER OF 72

GENERAL NOTES

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PIPING SYSTEM ABBREVIATIONS

FLOW STREAM ABBREVIATIONS

BFPF	BELT FILTER PRESS FILTRATE
D	DRAIN
DS	DIGESTED SLUDGE
OA	OUTSIDE AIR
ODO	ODORANT
OF	OVERFLOW
PD	GRAVITY PROCESS DRAIN
PLW	CHLORINATED PLANT WATER
POL	POLYMER
PW	POTABLE WATER
SLW	SEAL WATER
W	WATER

PIPING TYPE ABBREVIATIONS

DI	DUCTILE IRON
PVC	POLYVINYL CHLORIDE

EQUIPMENT ABBREVIATIONS

ACC	AIR CONDITION COIL
ACU	AIR CONDITIONING UNIT
AHC W/COIL	AIR HANDLING UNIT
AHU	AIR HANDLING UNIT
APU	AIR PURIFICATION UNIT
ASC CONTROL	ADJUSTABLE SPEED
ASD	ADJUSTABLE SPEED DRIVE
ARV VALVE	AUTOMATIC AIR RELEASE
B	BLOWER
BFP	BELT FILTER PRESS
C	COIL
CDR	CONDENSER
CHR	CHILLER
CON	CONVEYOR
CP	COMPRESSOR
CU	CONDENSING UNIT
CV	CONTROL VALVE
DIS	DISTRIBUTOR
DPR	DAMPER
DS	DISCONNECT SWITCH
DU	DRIVE UNIT
ED	EQUIPMENT DRAIN
EF	EXHAUST FAN
EPR	EVAPORATOR
F	FAN
HV	HAND OPERATED VALVE
LCP	LOCAL CONTROL PANEL
LVR	LOUVER
M	MOTOR
MME EQUIPMENT	MISC. MECHANICAL
MOP	MOTOR OPERATOR
MSP	MOTOR STARTER PANEL
MZ	MULTIZONE UNIT
P	PUMP
PLC	PROGRAMMABLE LOGIC CONTROLLER
PRV	PRESSURE/VACUUM RELIEF VALVE OR PRESSURE REGULATING VALVE
SF	SUPPLY FAN
SFP	SLUDGE FEED PUMP
SLG	SLIDE GATE
SLR	SILENCER
SUB	SUBSTATION
SWBD	SWITCHBOARD
T	TANK
TCV VALVE	TEMPERATURE CONTROL
TFR	TRANSFORMER
TM	TIMER
TRS	TRANSFER SWITCH

GENERAL ABBREVIATIONS

A	AMPERE OR AERATOR
ABAND	ABANDONED
ACC	AIR CONDITION COIL
ACU	AIR CONDITIONING UNIT
AD	AIR DRYER
ADJ	ADJUSTABLE
AF	AIR FILTER
AFD	ADJUSTABLE FREQUENCY DRIVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHC	AIR HANDLING UNIT W/COIL
AHU	AIR HANDLING UNIT
AL	ALUMINUM
APPROX	APPROXIMATE
ASC	ADJUSTABLE SPEED CONTROL
ASD	ADJUSTABLE SPEED DRIVE
ASPH	ASPHALT
ASSOC	ASSOCIATION
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AVG	AVERAGE
AWG	AMERICAN WIRE GAGE
BC	BOTTOM OF CURB
BEL	BELOW
BF	BLIND FLANGE
BFPF	BELT FILTER PRESS FILTRATE
BFPV	BACKFLOW PREVENTER
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BK	BACK
BL	BASE LINE
BLDG	BUILDING
BM	BENCH MARK
BNR	BURNER
BOT	BOTTOM
BRG	BEARING
BRK	BRICK
BV	BALL VALVE
C	CELSIUS OR COIL
CAB	CABINET
CB	CATCH BASIN
CC	CENTER TO CENTER
CDR	CONDENSER
CE	CONSTRUCTION EASEMENT
CF	CUBIC FOOT
CFM	CUBIC FEET PER MINUTE
CFR	CHEMICAL FEEDER
C&G	CURB AND GUTTER
CHAN	CHANNEL
CI	CAST IRON
CIR	CIRCLE
CIRCUM	CIRCUMFERANCE
CJ	CONSTRUCTION JOINT
CL	CENTERLINE OR CLASS
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNITS
CO	CLEANOUT
COL	COLUMN OR COLLECTOR
COMB	COMBINED
CON	CONVEYOR
CONC	CONCRETE / CONCENTRIC
CP	COMPRESSOR OR COMPUTED POINT
CPLG	COUPLING
CR	CRANE
CT	CURRENT TRANSFORMER
CTF	CENTRIFUGE
CTG	COATING
CULV	CULVERT
CYL	CYLINDER
DB	DUCT BANK
DC	DIRECT CURRENT
DEMO	DEMOLITION / DEMOLISH
DEPT	DEPARTMENT
DI	DROP INLET
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIS	DISTRIBUTOR
DPR	DAMPER
DS	DISCONNECT SWITCH
DU	DRIVE UNIT
DWG	DRAWING
DWL	DOWEL
DWY	DRIVEWAY
E	EAST OR ENGINE
EA	EACH
EB	ENGINE BLOWER MODULE
ECC	ECCENTRIC
ECF	EQUIPMENT CONNECTION FITTING
ED	EQUIPMENT DRAIN
EF	EACH FACE
EL	ELEVATION
ELEC	ELECTRICAL / ELECTRIC
ELEV	ELEVATION
EMH	ELECTRICAL MANHOLE
ENGR	ENGINEER
EOP	EDGE OF PAVEMENT
EPR	EVAPORATOR
EPS	EFFLUENT PUMP STATION
EQ	EQUAL
EQUIP	EQUIPMENT
ES	ELECTRICAL SERVICE
ESMT	EASEMENT
EW	EACH WAY
EST	ESTIMATE / ESTIMATED
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
EXIST	EXISTING
F	FAHRENHEIT OR FAN
FBW	FILTER BACKWASH
FC	FAIL CLOSED
FCO	FLOOR CLEANOUT
FCPS	FERRIC CHLORIDE PUMP STATION
FCT	FERRIC CHLORIDE TANK
FD	FLOOR DRAIN
F-F	FACE TO FACE
FFE	FINISH FLOOR ELEVATION
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FLEX	FLEXIBLE
FLR	FLOOR
FLT	FILTER
FM	FORCEMAIN
FO	FAIL OPEN
FP&L	FLORIDA POWER & LIGHT
FPM	FEET PER MINUTE
FPS	FOG DISCHARGE PUMP STATION
FPU	FLUID POWER UNIT
FR/FPS	FOG RECYCLE FEED PUMP STATION
FSPS	FOAM SUPPRESSION PUMP STATION
FT	FEET / FOOT OR FOG TANK
FTP	FLAME TRAP
FUR	FURNACE
FURN	FURNISHED
G	GAS
GC	GRANITE CURB
GBFT FILTRATE	GRAVITY BELT THICKENER
GBV	GLOBE VALVE
GDR	GRINDER
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GM	GAS METER
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
GR	GRADE
GRT	GROUT OR GRATE
GSKT	GASKET
GT	GATE
GV	GATE VALVE OR GAS VALVE
H	HIGH OR HOIST
HC	HEADER CURB
HGL	HYDRAULIC GRADE LINE
HGR	HANGER
HOA	HAND-OFF-AUTO
HOP	HYDRAULIC OPERATOR
HOR	HORIZONTAL
HP	HEAT PUMP OR HIGH POINT
HPU	HYDRAULIC POWER UNIT
HV	HAND OPERATED VALVE
HZ	HERTZ
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IN	INCH
INSUL	INSULATION
INV	INVERT
IPS	INFLUENT PUMP STATION
IW	INJECTION WELL
JB	JUNCTION BOX
JT	JOINT
JT FLR	JOINT FILLER
KW	KILOWATT
L	LENGTH
LB	POUND
LCP	LOCAL CONTROL PANEL
LF	LINEAR FEET
LOC	LOCATION
LP	LIGHT POLE / LIGHTING
LPNG	OPENING
LS	LIMIT SWITCH OR LIFT STATION
L/S	LANDSCAPE STRIP
LT	LEFT
M	MOTOR
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MFR	MANUFACTURER
MGD	MILLION GALLONS PER DAY
MH	MANHOLE
MIN	MINIMUM / MINUTE
MISC	MISCELLANEOUS
MON	MONUMENT
MOP	MOTOR OPERATOR
MSL	MEAN SEA LEVEL
MSP	MOTOR STARTER PANEL
MUX	MULTIPLEXER
MZ	MULTIZONE UNIT
N	NORTH
N/A	NOT APPLICABLE
NAVD	NATIONAL AMERICAN VERTICAL DATUM
N.C.	NORMALLY CLOSED
NE	NORTHEAST
NEC	NATIONAL ELECTRICAL CODE
NEG	NEGATIVE
NEUT	NEUTRAL
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NO	NUMBER
N.O.	NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
NW	NORTHWEST
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OHP	OVERHEAD POWER
OPER	OPERATOR
OPNG	OPENING
P	POWER
PAR	PARALLEL
PC	PROCESS OR PERSONAL COMPUTER
PH	PHASE
PL	PROPERTY LINE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PLT	PLANT
PLYWD	PLYWOOD
PNL	PANEL
POI	POINT OF INTERSECTION
POL	POLYMER
POP	PNEUMATIC OPERATOR
POT	POINT OF TANGENCY
PP	POWER POLE
PROP	PROPOSED
PRPS	PUBLIC REUSE PUMP STATION
PS	PUMP STATION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	POINT
PTS	PRELIMINARY TREATMENT STRUCTURE
PV	PLUG VALVE
PVL	PRESSURE VESSEL
PVMT	PAVEMENT
Q	FLOW
QTY	QUANTITY
R	RADIUS
R/W	RIGHT OF WAY
RA	RETURN AIR
RC	REINFORCED CONCRETE
RD	ROOF DRAIN
RE	RIM ELEVATION
REC	RECEIVER
REF	REFERENCE
REINF	REINFORCE / REINFORCING
RP	REFERENCE POINT
REQD	REQUIRED
REV	REVISED OR REVISION
RPM	REVOLUTIONS PER MINUTE
RT	RIGHT
R/W	RIGHT OF WAY
S	SOUTH
SA	SUPPLY AIR
SAN	SANITARY
SB	SOIL BORING
SCD	SCUPPER DRAIN
SCH	SCHEDULE
SCPS	SCUM PUMP STATION
SD	STORM DRAIN OR SANITARY DRAIN
SE	SOUTHEAST OR SECONDARY EFFLUENT
SEC	SECTION
SEP	SEPARATOR
SHT	SHEET
SLR	SILENCER
SMP	SAMPLER
SPEC	SPECIFICATION
SSC	SECONDARY SCUM
SSK	SERVICE SINK
ST	STEAM TRAP OR STREET
STA	STATION
STD	STANDARD
STL	STEEL
STM	STEAM
STRUC	STRUCTURE / STRUCTURAL
STRW	STORAGE REJECT WATER
SUB	SUBSTATION
SV	SOLENOID VALVE
SW	SOUTHWEST OR SIDEWALK
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SWK	SIDEWALK
SYM	SYMMETRICAL
T	TELEPHONE
TBN	TURBINE
TC	TOP OF CURB
TCV	TEMPERATURE CONTROL VALVE
TEL	TELEPHONE
TEMP	TEMPORARY / TEMPERATURE
TFR	TRANSFORMER
TM	TIMER
T.O.	TOP OF
TP	TRAP PRIMER
TPS	TRANSFER PUMP STATION
TRS	TRANSFER SWITCH
TS	TEMPERATURE SWITCH
TYP	TYPICAL
TW	TOP OF WALL
UG	UNDERGROUND
UH	UNIT HEATER
US	UTILITY STATION
V	VOLTS OR VENT
VAC	VACUUM OR VOLT ALTERNATING CURRENT
VAR	VARIABLE / VARIES
VCP	VENDOR CONTROL PANEL
VE	VESSEL
VEL	VELOCITY
VEN	VENTILATOR
VERT	VERTICAL
VOL	VOLUME
VP	VACUUM PUMP
VTR	VENT THROUGH ROOF
W	WEST OR WIDTH
w.c.	WATER COLUMN
WCO	WALL CLEANOUT
W/	WITH
WM	WATER METER
W/O	WITHOUT
WB	WET BULB
WH	WATER HEATER
WHR	WASHER
WL	WATER LEVEL
WT	WATER TABLE
WV	WATER VALVE
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
YCO	YARD CLEANOUT
YR	YEAR
ZS	POSITION SWITCH

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SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. GAYLORD
DRAWN: A. HUTT
CHECKED: T. BOSSO
CHECKED: B. ELEAZER
APPROVED: A. MODY

FILENAME
G-00-003.DWG

BC PROJECT NUMBER
152270

CLIENT PROJECT NUMBER
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GENERAL

ABBREVIATIONS

DRAWING NUMBER
G-00-003

SHEET NUMBER 3 OF 72

GENERAL NOTES

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SHEET NUMBERING STRATEGY

X - XX - XX
- SHEET NUMBER DESIGNATION
- AREA DESIGNATION
- DISCIPLINE DESIGNATION

DISCIPLINE DESIGNATION (SINGLE CHARACTER)
- G - GENERAL
- C - CIVIL
- S STRUCTURAL
- I - INSTRUMENTATION
- M - PROCESS/MECHANICAL
- MD - PROCESS/MECHANICAL DEMOLITION
- E - ELECTRICAL
- ED - ELECTRICAL DEMOLITION

AREA DESIGNATION
- 90 - BELT FILTER PRESS FEED PUMP AND POLYMER MIX SYSTEM
- 91 - BELT FILTER PRESS

CIVIL DESIGNATIONS
- 00 - GENERAL INFORMATION, NOTES, ABBREVIATIONS, SYMBOLS, LEGENDS AND STANDARD DETAILS
- 01 - SITE
- 08 - PAVING AND GRADING
- 09 - EROSION AND CONTROL

G, C, M, A, S, H, P SHEET NUMBER DESIGNATORS
- 0X - GENERAL NOTES, ABBREVIATIONS, SYMBOLS
- 0X - PLANS - EXISTING AND DEMOLITION
- 1X - PLANS - NEW
- 2X - PARTIAL AND ENLARGED PLANS
- 3X - SECTIONS, ELEVATIONS AND PROFILES
- 4X - SCHEMATICS, ISOMETRICS AND SCHEDULES
- 5X - DETAILS

PLAN SHEET DESIGNATORS

EXISTING	NEW	
00	10	SUBSURFACE AND FOUNDATION PLANS
01	11	LOWER, 1ST FLOOR AND FLOOR PLANS
02	12	UPPER, TOP AND 2ND FLOOR PLANS
03	13	ROOF PLAN

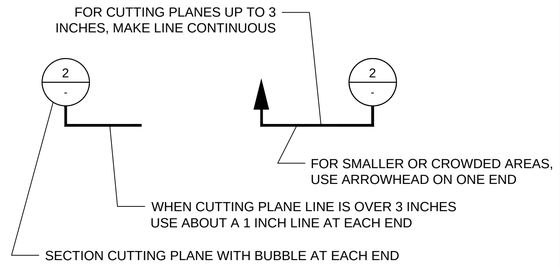
ELECTRICAL DESIGNATORS
- 00 - GENERAL INFORMATION, NOTES, ABBREVIATIONS, SYMBOLS, LEGENDS AND STANDARD DETAILS
- 01 - SITE
- 02 - SCHEMATICS AND SCHEDULES

PIPE CALL OUT SYSTEM

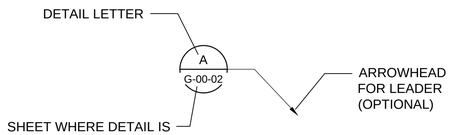
X" - XXX - XXX
- PIPE TYPE
- FLOW STREAM
- PIPE SIZE

REFERENCE SHEET G-00-04 FOR FLOW STREAM AND PIPE TYPE ABBREVIATIONS

SECTION CUT SYMBOLS



DETAIL CALL OUT SYMBOLS



LINETYPE LEGEND

- NEW
- DEMOLITION
- EXISTING
- ROAD RECONSTRUCTION
- RELOCATE OR REMOVE AND KEEP
- LAYDOWN AREA

EQUIPMENT CALL OUT SYSTEM

XXX-XXXX
- SEQUENTIAL NUMBER
- AREA RELATED NUMBER (ALSO DIRECTLY RELATED TO EXACT I SHEET)
- EQUIPMENT ABBREVIATION

HEX-8201
- SEQUENTIAL NUMBER
- AREA 82
- ABBREVIATION FOR HEAT EXCHANGER

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DRAWN: A. HUTT
CHECKED: T. BOSSO
CHECKED: B. ELEAZER
APPROVED: A. MODY

FILENAME
G-00-004.DWG
BC PROJECT NUMBER
152270
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6091680

GENERAL

SYMBOLS AND LEGENDS 1

DRAWING NUMBER
G-00-004

SHEET NUMBER 4 OF 72

PIPE FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE
	EXISTING PIPE
	EXISTING PIPING TO BE ABANDONED OR REMOVED UNDER THIS CONTRACT. ABANDONED WHEN NOT IN CONFLICT WITH NEW CONSTRUCTION WORK.
	NEW PIPE
	BLIND FLANGE
	CAP OR PLUG
	TEE
	TEE CROSS
	TEE UP
	TEE DOWN
	ELBOW DOWN OR UP AT 45°
	ELBOW CONTINUATION
	ELBOW UP
	ELBOW DOWN
	ELBOW CONTINUATION
	22.5° ELBOW
	45° ELBOW
	90° ELBOW
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER

(NOTE THAT ON I SHEETS THE CONCENTRIC REDUCER SYMBOL IS USED GENERICALLY FOR ALL REDUCERS. THE M SHEETS AND THE SPECIFICATIONS DELINEATE WHETHER THE REDUCER SHALL BE CONCENTRIC, ECCENTRIC - FLAT BOTTOM OR ECCENTRIC FLAT TOP.)

	LATERAL
	LATERAL UP
	LATERAL DOWN

MAJOR PIPE DEVICES

M	MAGNETIC FLOW METER
DM	DENSITY METER
	ROTAMETER
	STATIC MIXER

PIPE JOINTS AND COUPLINGS

DOUBLE LINE	SINGLE LINE
	FLANGED JOINT
	MECHANICAL JOINT
	VICTAULIC JOINT
	SOCKET JOINT
	PVC-SOLVENT WELD JOINT
	WELDED JOINT
	PUSH ON JOINT
	UNION
	EXPANSION JOINT (SEE SPECS FOR TYPE)
	ELASTOMER AND FABRIC EXPANSION JOINT
	BRAIDED FLEXIBLE JOINT
	FLEXIBLE HOSE
	SLEEVE TYPE MECHANICAL COUPLING
	FLANGED COUPLING ADAPTER
	EQUIPMENT CONNECTION FITTING
	DISMANTLING JOINT

PIPE VALVE SYMBOLS

DOUBLE LINE	3D SYMBOLS	SINGLE LINE
		THREE WAY VALVE
		GATE VALVE (FLANGED)
		GATE VALVE (THREADED)
		PLUG VALVE (GEAR OPERATOR)
		PLUG VALVE (LEVER HANDLE)
		BALL VALVE (THREADED)
		BALL VALVE (FLANGED)
		BUTTERFLY VALVE (LUGGED/WAFER)
		BUTTERFLY VALVE (AWWA W/ HANDWHEEL ACTUATOR)
		GLOBE VALVE (FLANGED)
		GLOBE VALVE (THREADED)
		DIAPHRAGM VALVE (FLANGED)
		DIAPHRAGM VALVE (THREADED)
		CHECK VALVE
		TRIPLE DUTY VALVE
		DOUBLE LEAF CHECK VALVE
		BALL CHECK VALVE
		KNIFE GATE VALVE
		SPECTACLE FLANGE

NOTE:

1. SOLID FILLED VALVES INDICATE NORMALLY CLOSED (NC) POSITION.

2. SINGLE LINE PIPE SHOWN DOES NOT DEPICT FITTING TYPES. SEE SPECIFICATIONS FOR MATERIALS AND FITTINGS TO BE USED.

3. ALL PIPING LESS THAN 4 INCHES IS DEPICTED WITH A SINGLE LINE ON DRAWINGS HAVING A SCALE OF 1/4"=1'-0". FOR PIPING DRAWN AT OTHER SCALES WITH A SINGLE LINE, REFER TO THE TABLE:

SCALE	PIPE SIZE
1/8" = 1'-0"	LESS THAN 8"
3/16" = 1'-0"	" " 6"
1/4" = 1'-0"	" " 4"
3/8" = 1'-0"	" " 3"
1/2" = 1'-0"	" " 2"
3/4" = 1'-0"	" " 1 1/2"
1" = 1'-0"	" " 1"

Brown AND Caldwell
6151 Lake Osprey Drive, 3rd Floor
Certificate of Authorization No. 2602
Sarasota, FL 34240

ENGINEER OF RECORD
ANAND MODY, PE 68379

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	R. GAYLORD
DRAWN:	A. HUTT
CHECKED:	T. BOSSO
CHECKED:	B. ELEAZER
APPROVED:	A. MODY

FILENAME
G-00-005.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

GENERAL

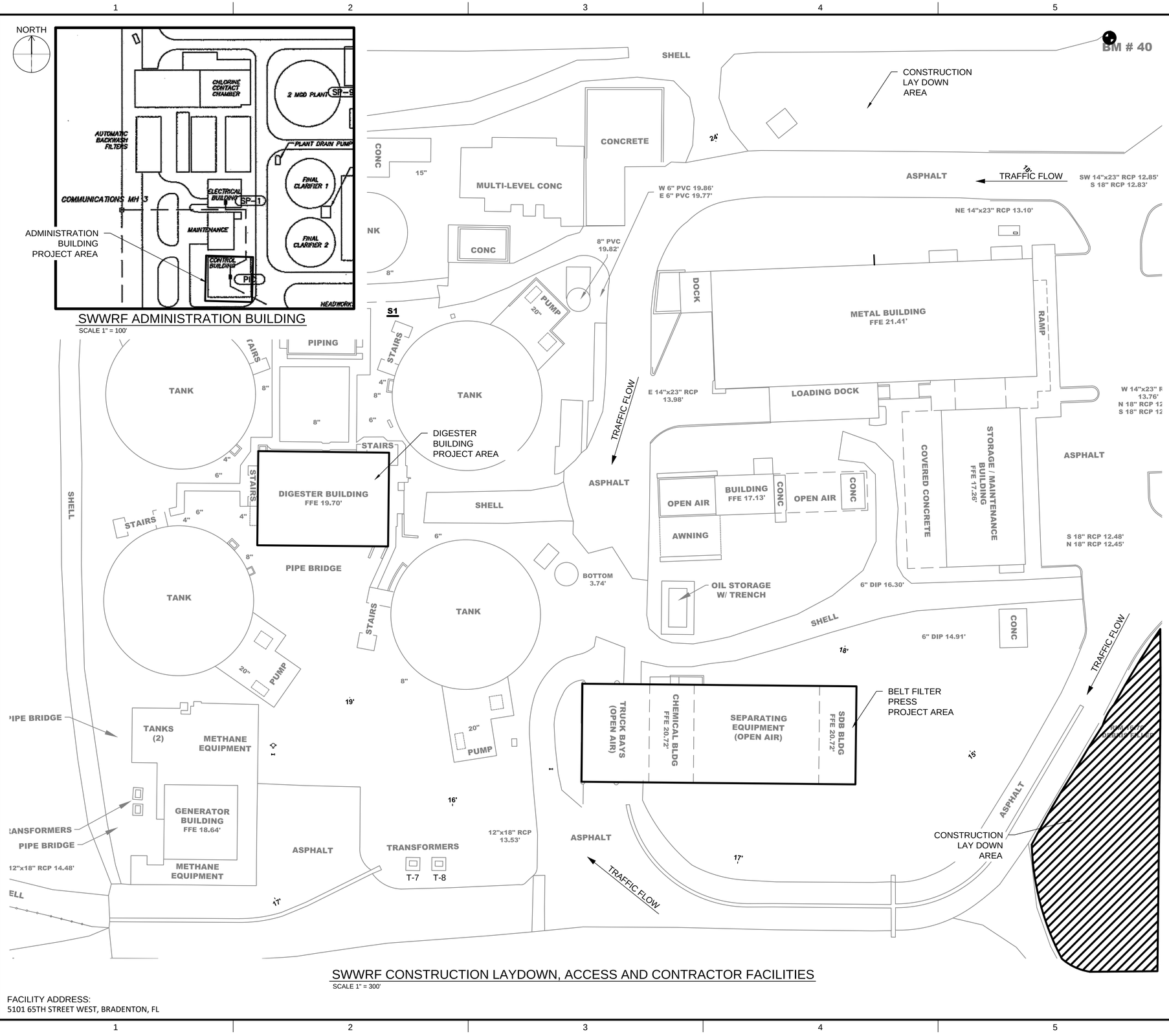
SYMBOLS AND LEGENDS 2

DRAWING NUMBER
G-00-005

SHEET NUMBER 5 OF 72

SWWRF ADMINISTRATION BUILDING

SCALE 1" = 100'



SWWRF CONSTRUCTION LAYDOWN, ACCESS AND CONTRACTOR FACILITIES

SCALE 1" = 300'

FACILITY ADDRESS:
5101 65TH STREET WEST, BRADENTON, FL

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE CONTINUOUS ACCESS TO COUNTY FOR TYPICAL FACILITY OPERATIONS AND MAINTENANCE AT ALL TIMES.
2. CONTRACTOR SHALL COORDINATE WITH THE COUNTY ON A WEEKLY BASIS TO PLAN FOR DELIVERY AND HAULING SCHEDULES.
3. CONTRACTOR SHALL FIELD LOCATE POTENTIAL HAZARDS AND PROTECT EXISTING FACILITIES AND INFRASTRUCTURE PRIOR TO USE OF LAY DOWN AREA.
4. CONSTRUCTION LAY DOWN AREA INCLUDES SPACE ALLOCATED FOR STAGING, STORAGE DELIVERY, HAULING, AND FIELD OFFICE.
5. AFTER CONSTRUCTION, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RESTORATION REQUIRED FROM USE OF LAY DOWN AREA. AREA SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN PRE-EXISTING CONDITIONS.
6. EXISTING CONDITIONS SURVEY WAS PREPARED BY HYATT SURVEY SERVICES, INC. ON SEPTEMBER 2018 FOR THE EXCLUSIVE USE OF THE PARTY OR PARTIES CERTIFIED TO FOR THE EXPRESS PURPOSE STATED FOR THIS PROJECT.
7. ADMINISTRATION BUILDING IS LOCATED IN THE NORTHEAST PORTION OF THE PLANT. CONSTRUCTION ACTIVITIES INCLUDE INSTALLATION OF MONITORING TELEVISIONS. SEE INSTRUMENTATION AND ELECTRICAL DRAWINGS FOR DETAILS. CONTRACTOR SHALL COORDINATE WITH COUNTY FOR ACCESS AND AVAILABLE PARKING/LAYDOWN FOR PORTION OF CONSTRUCTION THAT IMPACTS THE ADMINISTRATION BUILDING.

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BID SET

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SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	R. GAYLORD
DRAWN:	A. HUTT
CHECKED:	T. BOSSO
CHECKED:	B. ELEAZER
APPROVED:	A. MODY

FILENAME
G-00-009.DWG

BC PROJECT NUMBER
152270

CLIENT PROJECT NUMBER
6091680

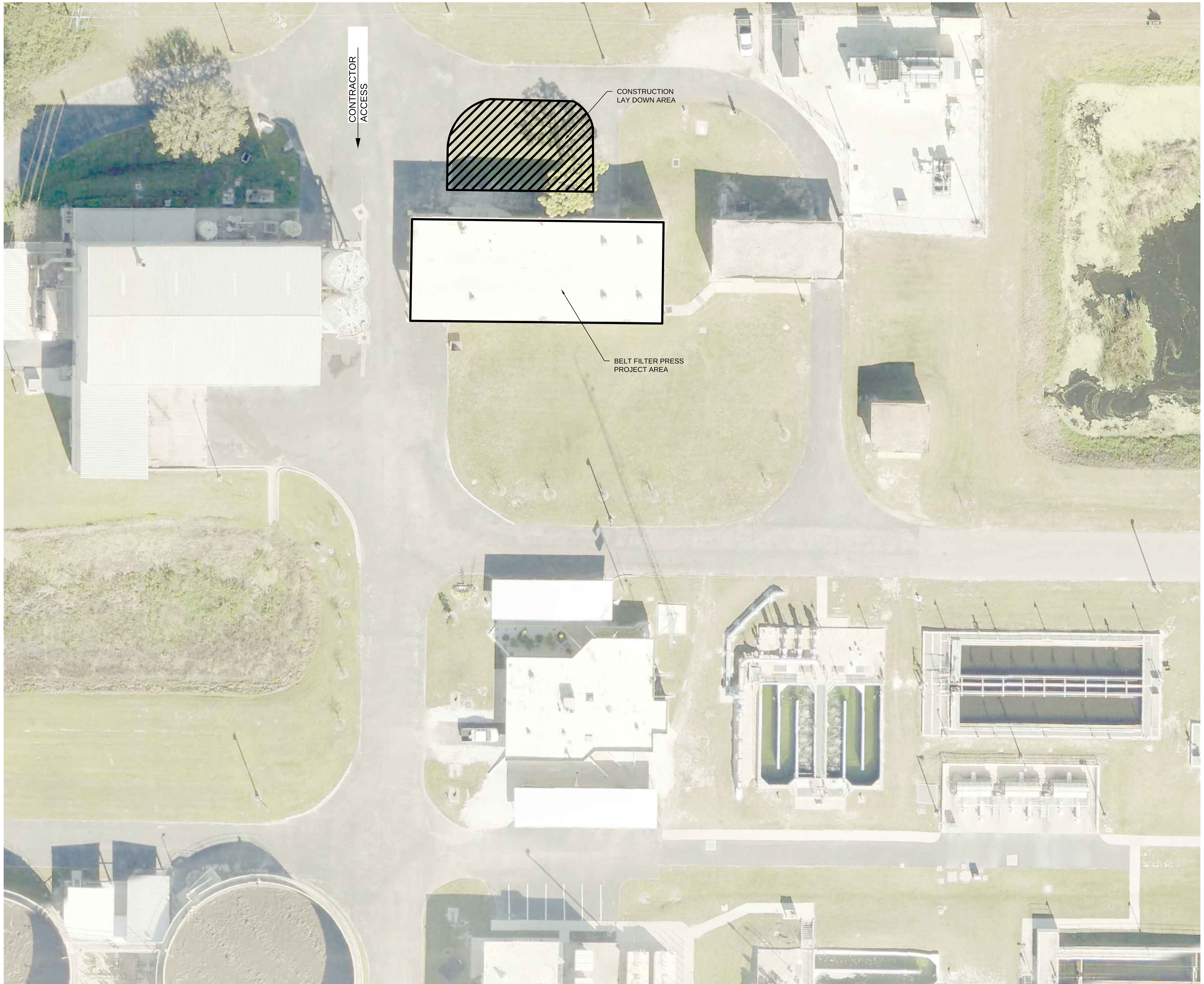
GENERAL

SWWRF CONSTRUCTION LAYDOWN, ACCESS AND CONTRACTOR FACILITIES

DRAWING NUMBER
G-00-009

SHEET NUMBER 6 OF 72

NORTH



NOTE: BACKGROUND IMAGE OBTAINED FROM MANATEE COUNTY GIS WEBSITE. WWW.MYMANATEE.ORG/EXPRESSZIP/

FACILITY ADDRESS:
3331 LENA ROAD, BRADENTON, FL

SEWRF CONSTRUCTION LAYDOWN, ACCESS AND CONTRACTOR FACILITIES

NOT TO SCALE

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE CONTINUOUS ACCESS TO COUNTY FOR TYPICAL FACILITY OPERATIONS AND MAINTENANCE AT ALL TIMES.
2. CONTRACTOR SHALL COORDINATE WITH THE COUNTY ON A WEEKLY BASIS TO PLAN FOR DELIVERY AND HAULING SCHEDULES.
3. CONTRACTOR SHALL FIELD LOCATE POTENTIAL HAZARDS AND PROTECT EXISTING FACILITIES AND INFRASTRUCTURE PRIOR TO USE OF LAY DOWN AREA.
4. CONSTRUCTION LAY DOWN AREA INCLUDES SPACE ALLOCATED FOR STAGING, STORAGE DELIVERY, HAULING, AND FIELD OFFICE.
5. AFTER CONSTRUCTION, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RESTORATION REQUIRED FROM USE OF LAY DOWN AREA. AREA SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN PRE-EXISTING CONDITIONS.

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SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. GAYLORD
DRAWN: A. HUTT
CHECKED: T. BOSSO
CHECKED: B. ELEAZER
APPROVED: A. MODY

FILENAME
G-00-010.DWG

BC PROJECT NUMBER
152270

CLIENT PROJECT NUMBER
6091680

GENERAL

SEWRF CONSTRUCTION LAYDOWN, ACCESS AND CONTRACTOR FACILITIES

DRAWING NUMBER
G-00-010

CIVIL SYMBOLS AND LEGEND

- EXISTING FACILITIES
- EXISTING FACILITIES TO BE REHABILITATED
- EXISTING FACILITIES TO BE PARTIALLY DEMOLISHED AND RECONSTRUCTED.
- EXISTING FACILITIES TO BE COMPLETELY DEMOLISHED AND RECONSTRUCTED
- NEW FACILITIES
- REHABILITATED FACILITY
- RECONSTRUCTED FACILITY
- STAGING AREA
- LIMITS OF PROPOSED RECONSTRUCTED ROADWAY
- PAVEMENT (BY OTHERS)
- GRAVEL APRON AT STRUCTURES SEE DETAIL F/C-00-03
- CONCRETE SIDEWALK
- AREAS TO BE SODDED
- TRAFFIC PATTERN FLOW ARROW
- INLET PROTECTION
- FILTER FABRIC PROTECTED INLET REFER TO SPEC 02270
- +8.0 EXISTING SPOT ELEVATIONS

- BOLLARD / GUARD POST
- CATCH BASIN
- CLEANOUT
- MONITORING WELL
- DOUBLE LIGHT POLE
- SINGLE LIGHT POLE
- (D) STORM DRAINAGE MANHOLE
- (W) WATER METER
- SANITARY SEWER VALVE
- WATER VALVE
- (E) ELECTRIC WIRE PULL BOX
- FIRE HYDRANT
- FITTING (TEE)
- FITTING (ELBOW)
- UTILITY POLE
- (SS) SANITARY SEWER MANHOLE
- CB DRAINAGE CATCH BASIN
- (D) STORM DRAIN MANHOLE
- ELECTRICAL GUY WIRE
- (C) COMMUNICATION MANHOLE
- (E) ELECTRICAL MANHOLE

LINE AND UTILITY DESIGNATIONS

- D — DRAIN
- DI — DUCTILE IRON PIPE
- E — ELECTRIC (DUCTBANK)
- ELECTRIC (CONDUIT)
- FM — FORCEMAIN
- G — GAS (NATURAL)
- HG — HIGH PRESSURE GAS
- LPG — LOW PRESSURE GAS
- MG — MEDIUM PRESSURE GAS
- PW — POTABLE WATER
- PROPERTY LINE
- RCP — REINFORCED CONCRETE PIPE
- ROW
- SS — SANITARY SEWER
- SILT FENCE
- SD — STORM DRAIN
- W — WATER
- XXUX — UNDERGROUND ELECTRIC (TYP)
- XXOX — OVERHEAD ELECTRIC (TYP)

GENERAL NOTES

1. THE INFORMATION PROVIDED IN THESE DRAWINGS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF THE WORK. THE CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATIONS THEY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSIONS REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH BIDS WILL BE BASED.
2. ELEVATIONS REFERENCED IN THE DRAWINGS ARE BASED ON MANATEE COUNTY DATUM. BENCHMARKS AND/OR STRUCTURE ELEVATIONS FROM EXISTING SURVEYS OR REFERENCE DRAWINGS MAY RESULT IN VARIANCES WITH ELEVATIONS INDICATED ON THE DRAWINGS FOR EXISTING FACILITIES.
3. THE WATER TABLE MAY VARY DEPENDING ON RAINS AND THE SEASON. THE CONTRACTOR SHALL ACCOUNT FOR THESE SEASONAL VARIATIONS IN THEIR BID.
4. ALL GRADES SHOWN IN PLAN ARE FINISHED GRADES.
5. ANY CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF MANATEE COUNTY AND ANY OTHER LOCAL, STATE OR FEDERAL AGENCY WITH JURISDICTION. IT IS THE INTENT OF THESE PLANS TO BE IN ACCORDANCE WITH APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION. ANY DISCREPANCIES BETWEEN THESE PLANS AND APPLICABLE CODES SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
6. THE CONTRACTOR IS TO USE CAUTION WHEN WORKING IN OR AROUND AREAS OF OVERHEAD AND UNDERGROUND UTILITIES.
7. MANATEE COUNTY REQUIRES THAT THE ACCESS TO ALL WATER AND SEWER VALVES, SANITARY MANHOLES, AND OTHER CONTROL MECHANISM BE MAINTAINED THROUGHOUT CONSTRUCTION IN THE EVENT OF AN EMERGENCY. COVERING VALVE BOXES OR MANHOLES CAN BE CONSIDERED OBSTRUCTION AND TAMPERING WITH DEPARTMENT UTILITIES.
8. ALL GRASS AREAS AFFECTED SHALL BE RE-SODDED.
9. THE CONTRACTOR SHALL RESTRICT PERSONNEL, THE USE OF EQUIPMENT, AND THE STORAGE OF MATERIALS TO AREAS WITHIN THE LIMITS OF CONSTRUCTION AND DESIGNATED STAGING AREAS, SHOWN ON G-00-009 AND G-00-010.
10. ALL EXCESS MATERIAL, AS DESIGNATED BY THE ENGINEER, IS TO BE DISPOSED BY THE CONTRACTOR WITHIN 72 HOURS OF BEING DEPOSITED IN THE CONSTRUCTION AREA AND AT THE CONTRACTOR'S EXPENSE.
11. ALL DISPOSAL OF MATERIALS, RUBBISH AND DEBRIS SHALL BE MADE AT A LEGAL DISPOSAL SITE OR BY OTHER PRIOR APPROVED MANNER. MATERIAL CLEARED FROM THE SITE AND DEPOSITED ON ADJACENT AREAS WILL NOT BE CONSIDERED AS HAVING BEEN DISPOSED PROPERLY. OWNERSHIP OF DEMOLISHED MATERIAL SHALL BE SPECIFIED AND A CHAIN OF CUSTODY PROVIDED TO THE OWNER.
12. ANY KNOWN OR SUSPECTED HAZARDOUS MATERIAL FOUND IN OR ON THE PROJECT BY THE CONTRACTOR SHALL BE IMMEDIATELY REPORTED TO THE COUNTY, WHO SHALL DIRECT THE CONTRACTOR TO PROTECT THE AREA OF KNOWN OR SUSPECTED CONTAMINATION FROM FURTHER ACCESS. THE COUNTY WILL ARRANGE FOR INVESTIGATION, IDENTIFICATION, AND REMEDIATION OF THE HAZARDOUS MATERIAL. THE CONTRACTOR WILL NOT RETURN TO THE AREA OF CONTAMINATION UNTIL APPROVAL IS PROVIDED BY THE COUNTY.
13. EXISTING ABOVE GROUND FEATURES ARE SHOWN ACCORDING TO THE BEST AVAILABLE DATA AND MAY NOT BE ACCURATELY REFLECT PRESENT CONDITIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH CURRENT CONDITIONS, AND SHALL REPORT DISCREPANCIES TO THE ENGINEER PRIOR TO STARTING WORK.
14. CONTRACTOR IS TO VERIFY THE EXACT LOCATION OF ALL EXISTING TREES, STRUCTURES, AND UTILITIES SHOWN AND NOT SHOWN ON THE PLANS. ANY STRUCTURE, PAVEMENT, TREES OR OTHER EXISTING IMPROVEMENT NOT SPECIFIED FOR REMOVAL WHICH IS DAMAGED, EXPOSED OR ANY WAY DISTURBED SHALL BE REPAIRED, PATCHED, OR REPLACED AT NO ADDITIONAL COST TO THE OWNER.
15. CONTRACTOR SHALL AVOID THE REMOVAL AND ANY DAMAGE TO ANY EXISTING TRESS UNLESS OTHERWISE DIRECTED BY THE CONTRACT DOCUMENTS.

BURIED UTILITY NOTES

1. EXISTING UTILITIES ARE CONSIDERED TO BE SHOWN IN THE HORIZONTAL PLAN WITH REASONABLE ACCURACY. HOWEVER, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAKE WHATEVER FURTHER INVESTIGATIONS ARE NECESSARY TO ESTABLISH THE EXACT LOCATION OF THE EXISTING UTILITY AND ADJUST ROUTING OF NEW UTILITY FACILITIES PRIOR TO LAYING THE NEW UTILITIES TO MEET THE INTENT OF THE DESIGN.
2. THE ENGINEER DOES NOT ASSUME RESPONSIBILITY THAT DURING CONSTRUCTION UNDERGROUND PIPING AND UTILITIES OTHER THAN THAT SHOWN MAY BE ENCOUNTERED. ANY DAMAGE TO EXISTING PIPING AND UTILITIES MUST BE REPAIRED IMMEDIATELY AT THE EXPENSE OF THE CONTRACTOR.

EROSION AND SEDIMENT CONTROL GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL ON THIS PROJECT. CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION AND SEDIMENT CONTROL ACCORDING TO SECTION 02270 TO PREVENT RUNOFF, TRACKING, OR LOSS OF SEDIMENT FROM DISTURBED AREAS. ADDITIONAL EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED AT NO ADDITIONAL COST TO OWNER IF DEEMED NECESSARY BY ENGINEER.
2. EROSION AND SEDIMENT CONTROL SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES, EXCEPT THOSE NEEDED TO INSTALL SUCH CONTROL.
3. PROTECT MATERIAL STOCKPILES FROM CONTRIBUTING TO SEDIMENT RUNOFF.
4. CONTRACTOR SHALL INSTALL AN EROSION MAT/SLOPE BLANKET ON ALL PERMANENT SLOPES STEEPER THAN 3:1. EROSION MAT/SLOPE BLANKET SHALL BE ORGANIC MATERIAL FIBER AND BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
5. ANY SOIL, MUD, OR DEBRIS WASHED, TRACKED, OR DEPOSITED ONTO PAVED SURFACES SHALL BE REMOVED PRIOR TO END OF EACH WORK DAY.
6. CONSTRUCTION ENTRANCE SHALL BE REMOVED AND AREA RESTORED PRIOR TO END OF PROJECT.
7. CONTRACTOR SHALL MAINTAIN EROSION AND SEDIMENT CONTROL UNTIL SITE IS STABILIZED.

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ANAND MODY, PE 68379

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. GAYLORD
DRAWN: A. HUTT
CHECKED: A. MODY
CHECKED: B. ELEAZER
APPROVED: T. BOSSO

FILENAME
C-00-001.DWG

BC PROJECT NUMBER
152270

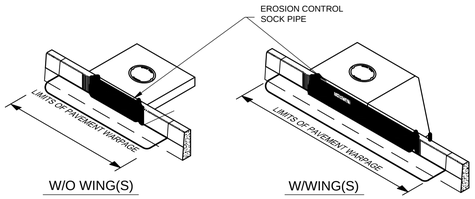
CLIENT PROJECT NUMBER
6091680

CIVIL

CIVIL SYMBOLS, LEGENDS AND NOTES

DRAWING NUMBER
C-00-001

SHEET NUMBER 8 OF 72



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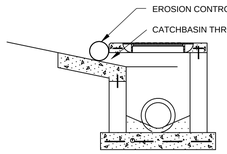
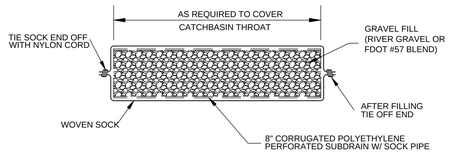


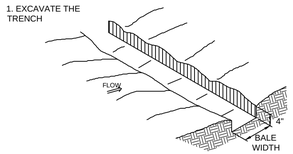
SECTION X-X

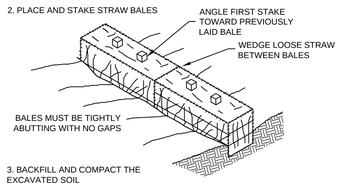


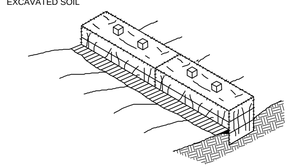
CURB INLET FILTER SHOCK
SEDIMENTATION CONTROL

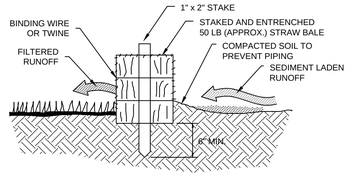
DETAIL A VAR

SCALE: NONE







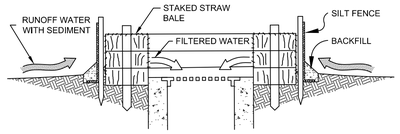


PROPERLY INSTALLED STRAW BALE
(Cross-Section)

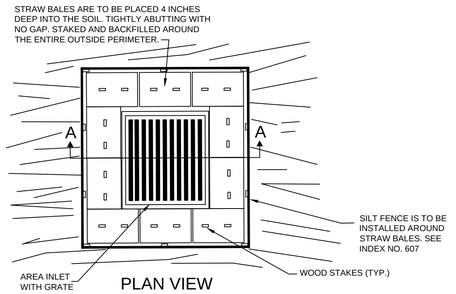
TEMPORARY STRAW BALE SEDIMENT BARRIER

DETAIL B VAR

SCALE: NONE



SECTION A-A



PLAN VIEW

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPES NO GREATER THAN 5%) WHERE SHEET OR OVERLAND FLOWS (NOT EXCEEDING 0.5 CFS) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS STREET OR HIGHWAY MEDIANS.

TEMPORARY STRAW BALE SEDIMENT
BARRIER AT STORM DRAIN DROP INLET

DETAIL C VAR

SCALE: NONE

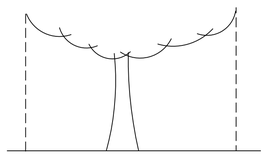


FIGURE A

THE DRIPLINE OF A TREE IS THE IMAGINARY, VERTICAL LINE THAT EXTENDS DOWNWARD FROM THE OUTERMOST TIPS OF THE TREE'S BRANCHES TO THE GROUND (FIG. A)

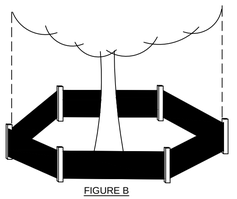


FIGURE B

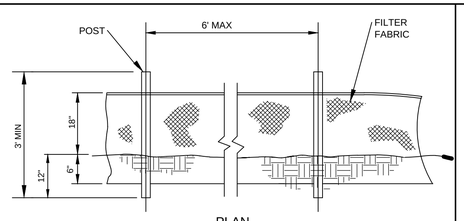
FOUR CORNER UPRIGHT STAKES OF NO LESS THAN 2"x2" LUMBER CONNECTED BY HORIZONTAL MEMBERS OF NO LESS THAN 1"x4" LUMBER; OR UPRIGHT STAKES SPACED AT 5' INTERVALS OF NO LESS THAN 2"x2" LUMBER CONNECTED BY SILT SCREEN FABRIC OR MATERIAL OF COMPARABLE DURABILITY.

NOTE:
DURING LAND ALTERATION AND CONSTRUCTION ACTIVITIES, IT SHALL BE UNLAWFUL TO REMOVE VEGETATION BY GRUBBING OR TO PLACE SOIL DEPOSITS, DEBRIS, SOLVENTS, CONSTRUCTION MATERIAL, MACHINERY OR OTHER EQUIPMENT OF ANY KIND WITHIN THE DRIPLINE OF A TREE TO REMAIN ON THE SITE.

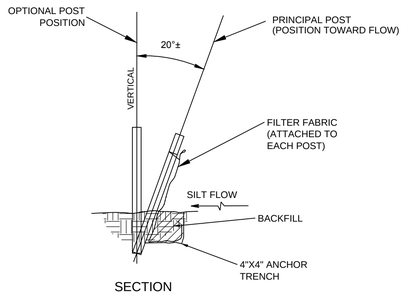
TREE BARRICADE

DETAIL D VAR

SCALE: NONE



PLAN



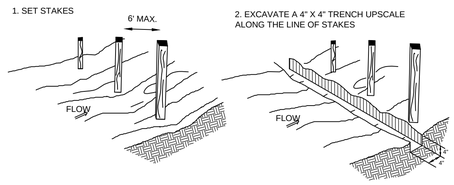
SECTION

STEEL 1.33 LBS/FT MIN.) POST OPTIONS:
WOOD 2"X4" OR 2 1/2" DIA.

SILT FENCE

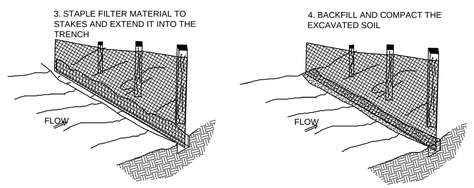
DETAIL E VAR

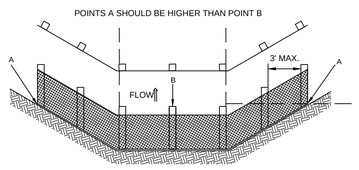
SCALE: NONE



SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)

SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)



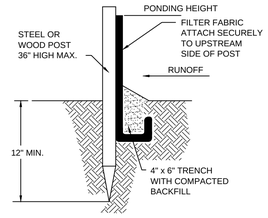


DRAINAGE INSTALLATION
(FRONT ELEVATION)

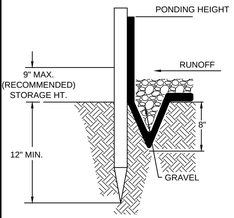
INSTALLING A FILTER FABRIC
SILT FENCE (1 OF 2)

DETAIL F VAR

SCALE: NONE

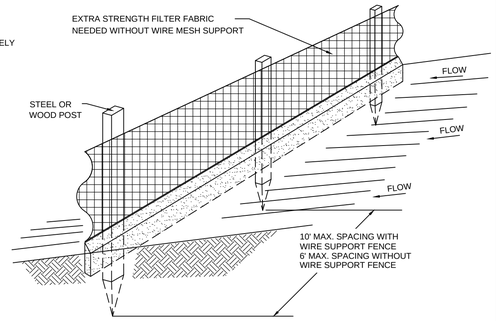


STANDARD DETAIL
TRENCH WITH NATIVE BACKFILL

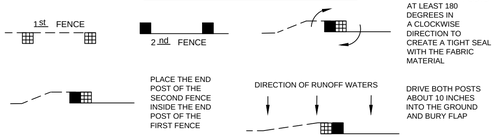


ALTERNATE DETAIL
TRENCH WITH GRAVEL

NOTES:
1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.



ATTACHING TWO SILT FENCES

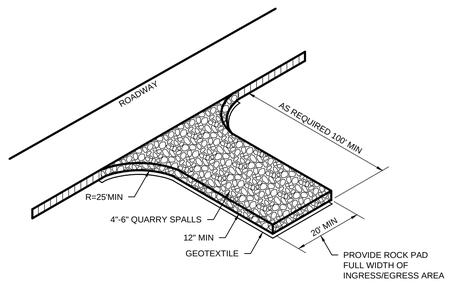


INSTALLING A FILTER FABRIC
SILT FENCE (2 OF 2)

DETAIL G VAR

SCALE: NONE

NOTES:
1. CONTRACTOR SHALL INSTALL AND MAINTAIN STABILIZED CONSTRUCTION ENTRANCES AT ALL LOCATIONS WHERE VEHICLES TRAVERSE DIRT SURFACES PRIOR TO ENTERING PAVED PUBLIC ROADS.
2. THE ROCK PAD SHALL BE AT LEAST 12" THICK AND 100' LONG. MATERIAL SHALL BE 4" TO 6" QUARRY SPALLS AND MAY BE TOP-DRESSED WITH 1" TO 3" ROCK. WIDTH SHALL BE THE FULL WIDTH OF THE VEHICLE INGRESS AND EGRESS AREA.
3. ADDITIONAL ROCK SHALL BE ADDED PERIODICALLY TO MAINTAIN PROPER FUNCTION OF THE PAD.
4. IF THE PAD DOES NOT ADEQUATELY REMOVE THE MUD FROM THE WHEELS, THE WHEELS SHALL BE HOSED OFF BEFORE THE VEHICLE ENTERS A PAVED STREET. THE WASHING SHALL BE DONE ON AN AREA COVERED WITH CRUSHED ROCK AND WASH WATER SHALL DRAIN THROUGH A SILT FENCE TO SILT DRAINAGE.
5. IF SEDIMENT IS TRACKED OFFSITE, IT SHALL BE SWEPT OR SHOVELED FROM THE PAVED SURFACE BEFORE WASHING.



CONSTRUCTION ENTRANCE

DETAIL H VAR

SCALE: NONE

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Sarasota, FL 34240

ENGINEER OF RECORD
ANAND MODY, PE 68379

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. GAYLORD
DRAWN: A. HUTT
CHECKED: A. MODY
CHECKED: B. ELEAZER
APPROVED: T. BOSSO

FILENAME
C-09-051.DWG

BC PROJECT NUMBER
152270

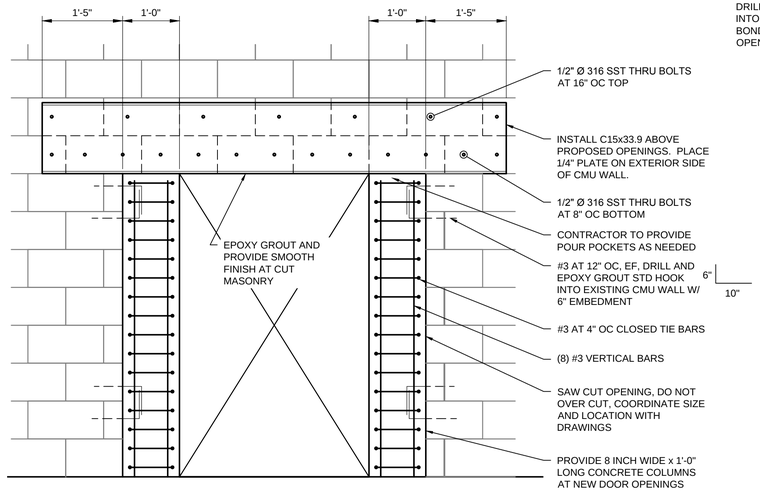
CLIENT PROJECT NUMBER
6091680

CIVIL

EROSION AND SEDIMENTATION CONTROL DETAILS

DRAWING NUMBER
C-09-051

SHEET NUMBER 9 OF 72

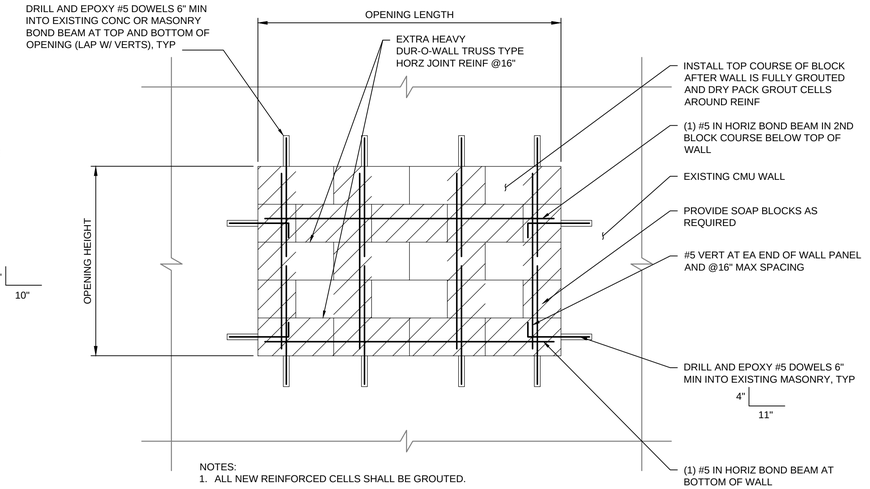


NOTES:
1. USE 4000 PSI CONCRTE FOR NEW DOOR OPENINGS.
2. CONTRACTOR TO MATCH EXISTING STUCCO AND FINISHES.
3. STEEL CHANNEL AND PLATE SHALL BE GALVANIZED.

LINTEL AT OPENING IN EXISTING CMU

DETAIL A / VAR

SCALE: NONE

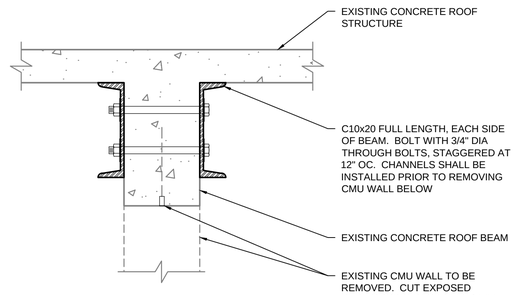


NOTES:
1. ALL NEW REINFORCED CELLS SHALL BE GROUTED.
2. BLOCK INFILL TO MATCH EXISTING ADJACENT BLOCK SIZE, COLOR, AND TEXTURE.

CMU WALL OPENING PLUG

DETAIL B / S-00-102

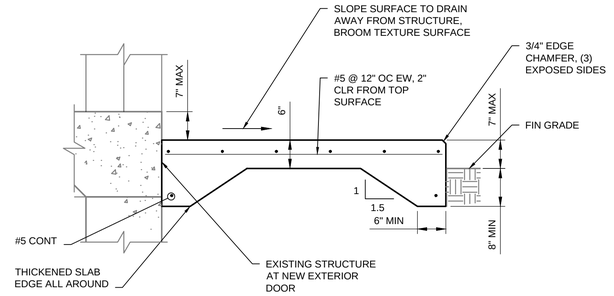
SCALE: NONE



BEAM REINFORCING

DETAIL C / S-00-101 S-00-102

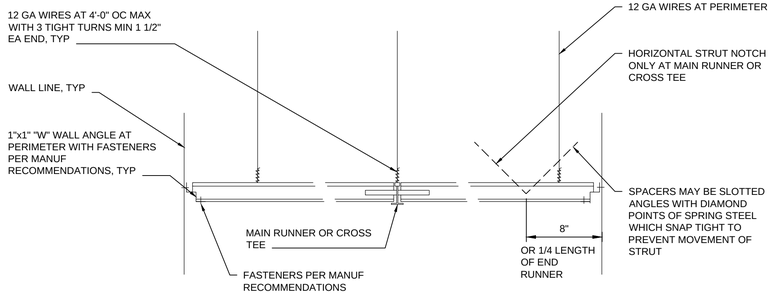
SCALE: 1 1/2" = 1'-0"

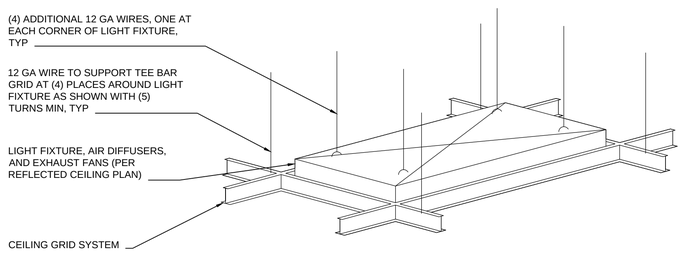


EXTERIOR SLAB DETAIL

DETAIL D / S-00-102

SCALE: 3/4" = 1'-0"

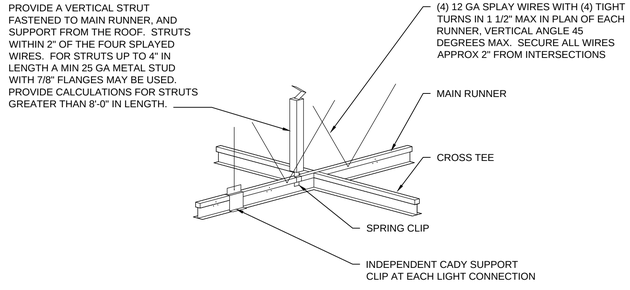




SUSPENDED CEILING

DETAIL E / S-00-103

SCALE: NONE



Brown AND Caldwell
6151 Lake Osprey Drive, 3rd Floor
Certificate of Authorization No. 2602
Sarasota, FL 34240

ENGINEER OF RECORD
CHRIS DIXON, PE 68728

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: EWB
DRAWN: TLB
CHECKED:
CHECKED:
APPROVED:

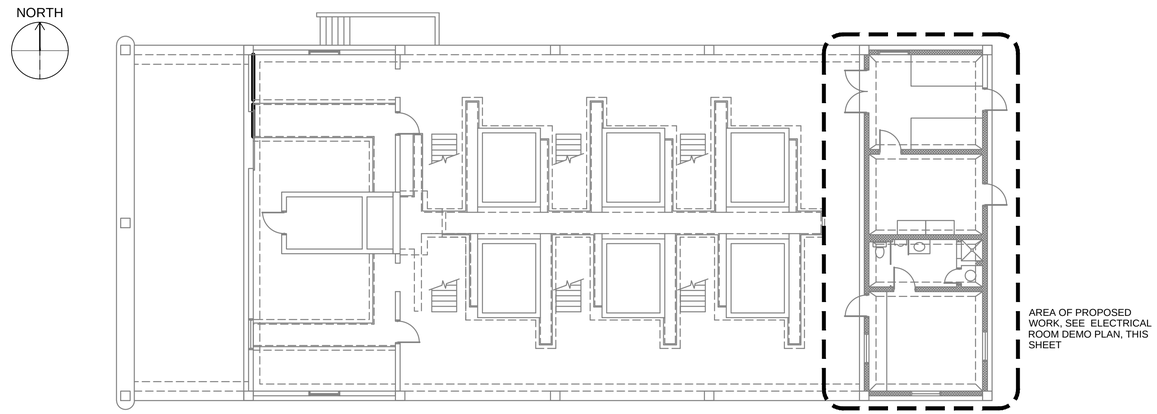
FILENAME
S-00-003.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

STRUCTURAL

DETAILS

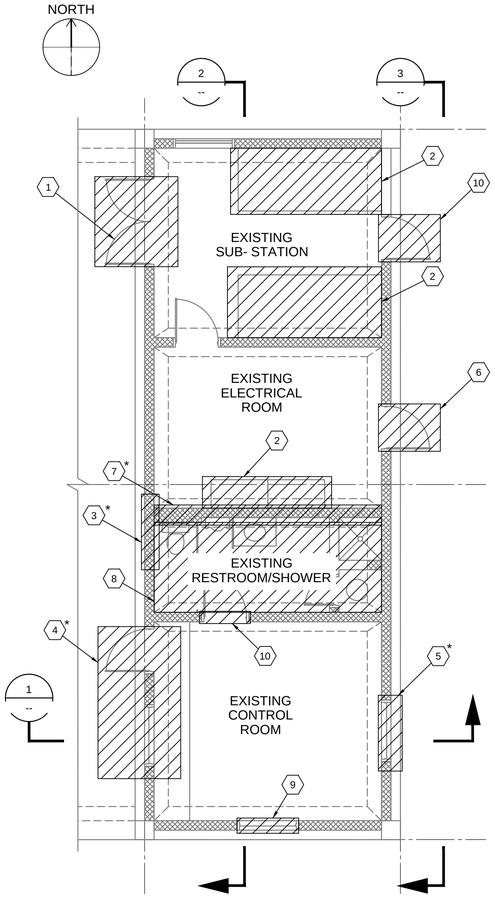
DRAWING NUMBER
S-00-003

SHEET NUMBER 10 OF 72



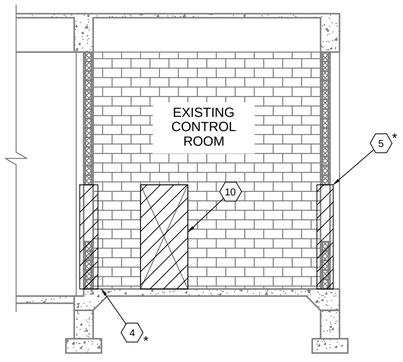
DEWATERING BUILDING-EXISTING OVERALL FLOOR PLAN

SCALE: 3/32" = 1'-0"



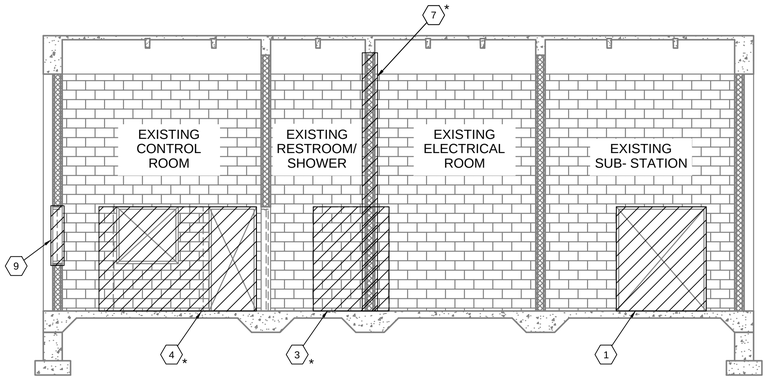
ELECTRICAL ROOM DEMO PLAN

SCALE: 3/16" = 1'-0"



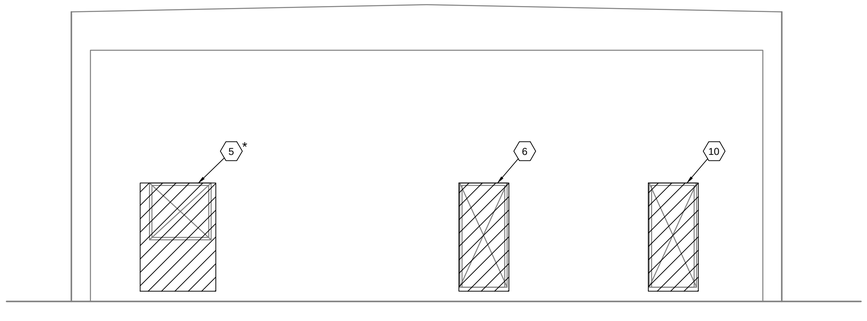
SECTION 1 --

SCALE: 3/16" = 1'-0"



SECTION 2 --

SCALE: 3/16" = 1'-0"



SECTION 3 --

SCALE: 3/16" = 1'-0"

GENERAL NOTES:

1. WHERE CMU WALLS ARE REMOVED, REMOVE ALL ASSOCIATED SUPPORT ANGLES AND ANCHORS AT ROOF LEVEL. FILL HOLES WITH NON-SHRINK GROUT AND FINISH TO MATCH EXISTING.
2. WHERE PLUMBING FIXTURES ARE REMOVED, CUT AND PLUG ALL LINES, FILL OPENINGS WITH NON-SHRINK GROUT TO MATCH EXISTING SURFACE.
3. DEMOLITION TO BE COORDINATED WITH ELECTRICAL, HVAC, AND PLUMBING DEMOLITION.

KEY NOTES:

1. REMOVE EXISTING DOUBLE DOORS, TO BE REPLACED
2. REMOVE EXISTING EQUIPMENT PADS
3. REMOVE EXISTING CMU AT NEW DOOR OPENING, * INSTALL NEW RETROFIT LINTEL PRIOR TO REMOVAL OF EXISTING STRUCTURE, SEE DETAIL A/S-00-003 FOR LINTEL DETAIL AND EXTENT OF CMU REMOVAL
4. REMOVE EXISTING DOOR, WINDOW AND CMU WALL AT NEW DOOR OPENING, * INSTALL NEW RETROFIT LINTEL PRIOR TO REMOVAL OF EXISTING STRUCTURE, SEE DETAIL A/S-00-003 FOR LINTEL DETAIL AND EXTENT OF CMU REMOVAL
5. REMOVE EXISTING WINDOW AND CMU AT NEW DOOR OPENING, INSTALL NEW RETROFIT LINTEL PRIOR TO REMOVAL OF EXISTING STRUCTURE, SEE DETAIL A/S-00-003 FOR LINTEL DETAIL AND EXTENT OF CMU REMOVAL
6. REMOVE EXISTING DOOR, TO BE REPLACED
7. REMOVE EXISTING CMU WALL, * INSTALL NEW BEAM REINFORCEMENT PRIOR TO WALL REMOVAL, SEE DETAIL C/S-00-003
8. REMOVE EXISTING PLUMBING FIXTURES, CMU PARTITIONS AND TILE FLOORING
9. REMOVE EXISTING WINDOW, SEE PLANS S-00-102 FOR INFILL
10. REMOVE EXISTING DOOR, SEE PLANS S-00-102 FOR INFILL

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ENGINEER OF RECORD
CHRIS DIXON, PE 68728

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: EWB
DRAWN: TLB
CHECKED:
CHECKED:
APPROVED:

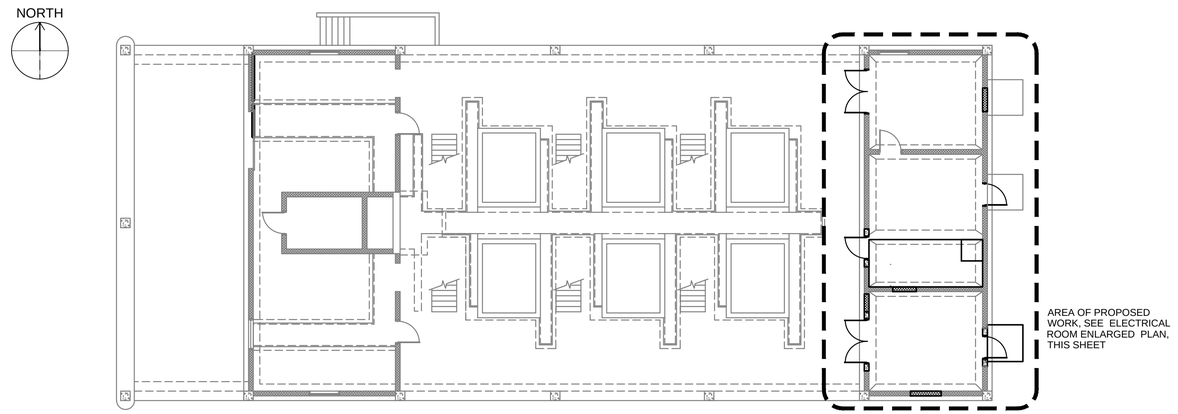
FILENAME
S-00-101.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

STRUCTURAL

ELECTRICAL ROOM DEMO

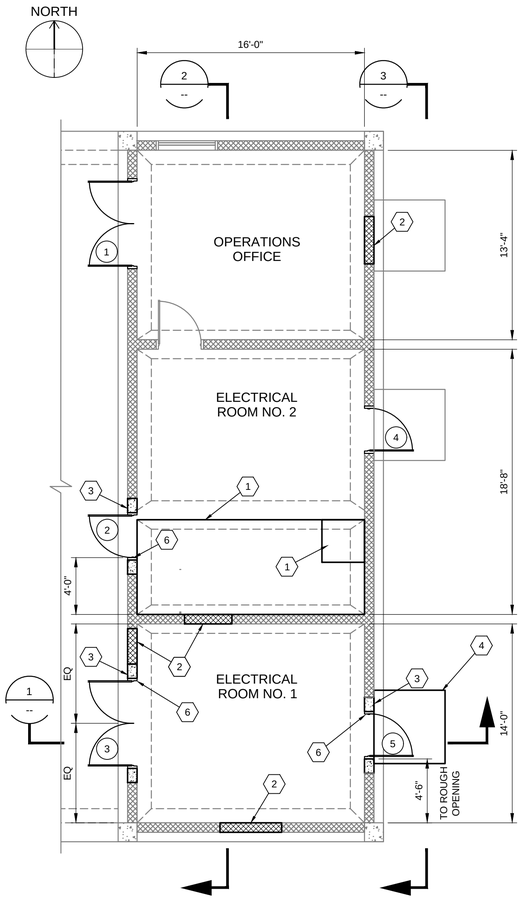
DRAWING NUMBER
S-00-101

SHEET NUMBER 11 OF 72



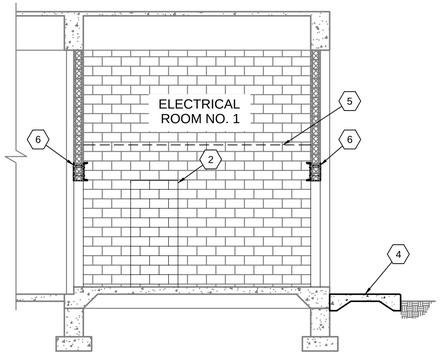
DEWATERING BUILDING- OVERALL FLOOR PLAN

SCALE: 3/32" = 1'-0"



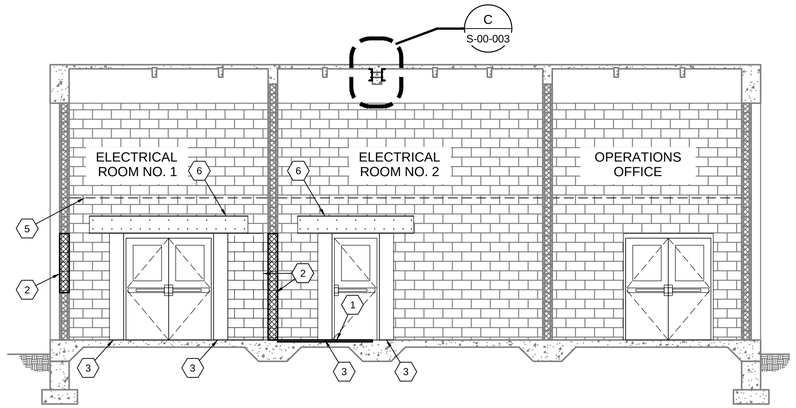
ELECTRICAL ROOM ENLARGED PLAN

SCALE: 3/16" = 1'-0"



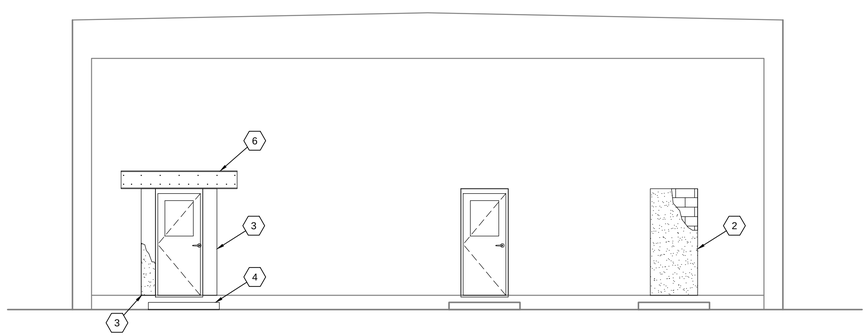
SECTION 1

SCALE: 3/16" = 1'-0"



SECTION 2

SCALE: 3/16" = 1'-0"



SECTION 3

SCALE: 3/16" = 1'-0"

GENERAL NOTES:

1. SEE SHEET S-00-103 FOR DOOR SCHEDULE

KEY NOTES:

1. LEVEL SLAB AFTER DEMOLITION WITH A POLYMER-MODIFIED, CEMENTITIOUS, TWO COMPONENT CONCRETE REPAIR MORTAR, DAYTON SUPERIOR SPECIAL PATCH OR EQUAL. MATCH EXISTING FINISH FLOOR ELEVATION.
2. CMU INFILL WHERE DOORS AND WINDOWS HAVE BEEN REMOVED, SEE DETAIL B/S-00-003
3. NEW CONCRETE COLUMNS, PATCH STUCCO EXTERIOR FINISH TO MATCH EXISTING, TYP
4. NEW 5'-0" SQ CONCRETE PAD AT NEW DOOR, SEE DETAIL D/S-00-003
5. NEW ACOUSTIC TILE DROP CEILING, 10'-0" AFF, SEE SHEET S-00-103 FOR REFLECTED CEILING PLAN
6. INSTALL RETROFIT LINTEL, SEE DETAIL A/S-00-003

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Manatee County FLORIDA

SWWRF & SEWRF
BELT FILTER PRESS
REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: EWB
DRAWN: TLB
CHECKED:
CHECKED:
APPROVED:

FILENAME
S-00-102.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

STRUCTURAL

ELECTRICAL ROOM

DRAWING NUMBER
S-00-102

SHEET NUMBER 12 OF 72

DOOR SCHEDULE

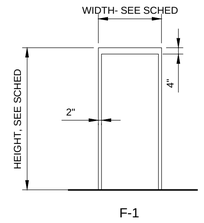
NO.	DOOR SIZE			FRAME SIZE		DOOR TYPE	DOOR MAT	DOOR FIN	FRAME TYPE	FRAME MAT	FRAME FIN	RATING	HDWR GROUP	VIEW	REMARKS
	WIDTH	HEIGHT	THICK.	WIDTH	HEIGHT										
1	6'-0"	7'-0"	1 3/4"	6'-4"	7'-4"	B	GALV STEEL	PAINT	F-1	GALV STEEL	PAINT	--	1	24"x30"	VERIFY FRAME SIZE WITH EXISTING OPENING
2	3'-0"	7'-0"	1 3/4"	3'-4"	7'-4"	A	GALV STEEL	PAINT	F-1	GALV STEEL	PAINT	--	1	24"x30"	
3	6'-0"	7'-0"	1 3/4"	6'-4"	7'-4"	B	GALV STEEL	PAINT	F-1	GALV STEEL	PAINT	--	1	24"x30"	
4	3'-0"	7'-0"	1 3/4"	3'-4"	7'-4"	A	GALV STEEL	PAINT	F-1	GALV STEEL	PAINT	--	1	24"x30"	VERIFY FRAME SIZE WITH EXISTING OPENING
5	3'-0"	7'-0"	1 3/4"	3'-4"	7'-4"	A	GALV STEEL	PAINT	F-1	GALV STEEL	PAINT	--	1	24"x30"	

NOTES:
1. ALL DOORS TO BE PROVIDED WITH FBC NOTICE OF ACCEPTANCE.
2. ALL DOORS TO MEET DESIGN WIND PRESSURE RATING OF 90 PSF

DOOR HARDWARE GROUPS

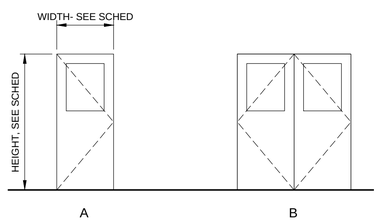
HARDWARE GROUP 1	
HARDWARE FINISH	316 SS

FRAME TYPE

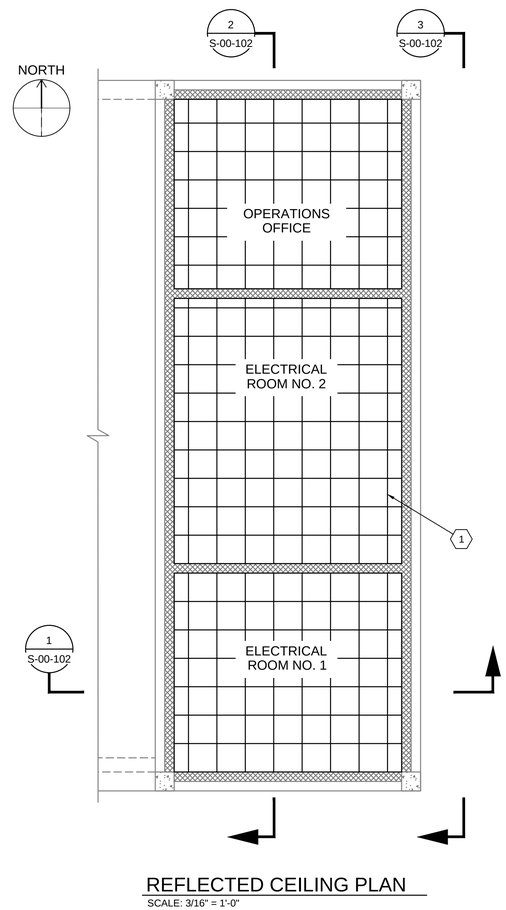


F-1

DOOR TYPE



A B



REFLECTED CEILING PLAN
SCALE: 3/16" = 1'-0"

GENERAL NOTES:

KEY NOTES:

1. 2'-0"x2'-0" ACCOUSTIC TILE SUSPENDED CEILING SYSTEM, SEE DETAIL E/S-00-003

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Manatee County FLORIDA

SWWRF & SEWRF
BELT FILTER PRESS
REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: EWB
DRAWN: TLB
CHECKED:
CHECKED:
APPROVED:

FILENAME
S-00-103.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

STRUCTURAL

REFLECTED CEILING PLAN & SCHEDULES

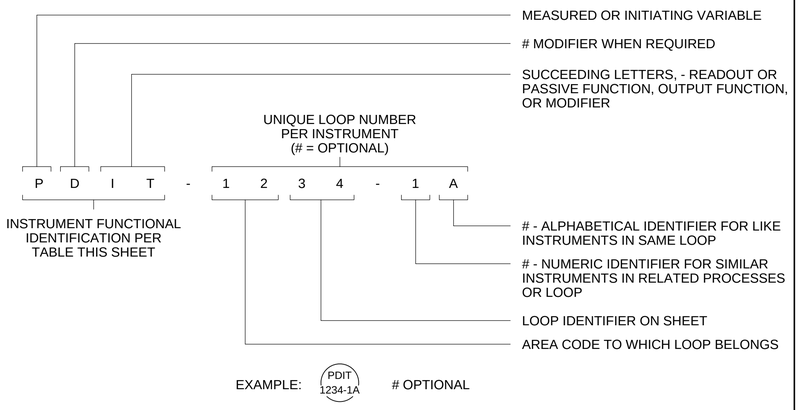
DRAWING NUMBER
S-00-103

13 SHEET NUMBER OF 72

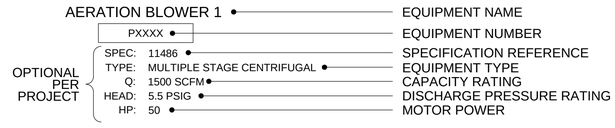
FUNCTIONAL IDENTIFICATION

VARIABLE	MEASURED OR INITIATING VARIABLE DESCRIPTION	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION				
C	CONDUCTIVITY			CONTROL	CLOSE
D	DENSITY, SPECIFIC GRAVITY	DIFFERENTIAL			DEVIATION
E	VOLTAGE, SOLENOID		PRIMARY ELEMENT		
F	FLOW, FLOW RATE	RATIO			
G	FIRE, SMOKE		GLASS		
H	HAND				HIGH
I	CURRENT		INDICATE		
J	POWER		SCAN		
K	TIME, SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE, HUMIDITY, MOTION	MOMENTARY			MIDDLE, INTERMEDIATE
N	EQUIPMENT STATUS				
O	DISSOLVED OXYGEN		ORIFICE		OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		RUN
S	SPEED, FREQUENCY	SAFETY		SWITCH	STOP
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE, TORQUE		WELL, PROBE		
X	UNCLASSIFIED	X AXIS			
Y	EVENT, STATE OR PRESENCE	Y AXIS		AUXILIARY DEVICES	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, FINAL CONTROL ELEMENT	

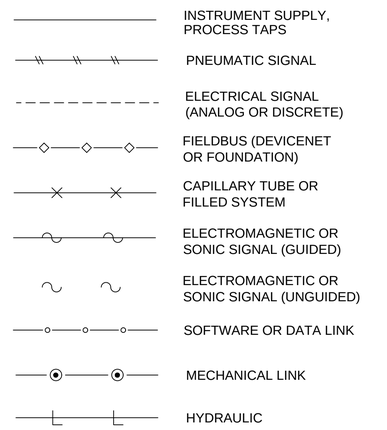
INSTRUMENT TAG AND LOOP IDENTIFICATION



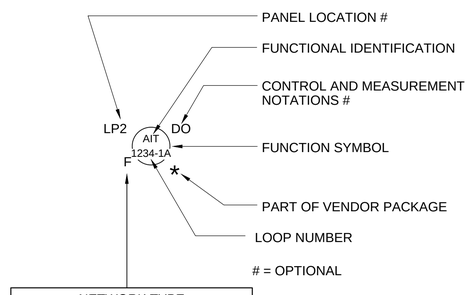
EQUIPMENT IDENTIFICATION SYSTEM



INSTRUMENT SIGNAL LINES



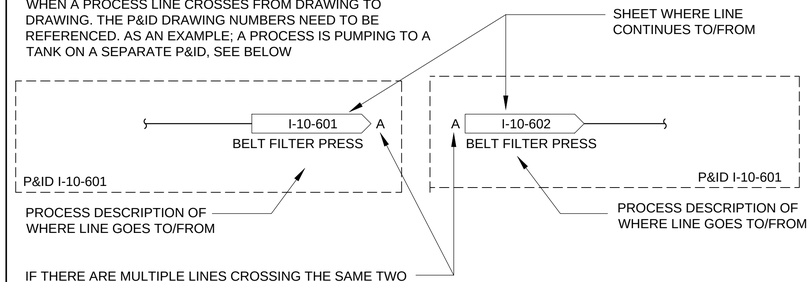
TYPICAL INSTRUMENT IDENTIFICATION



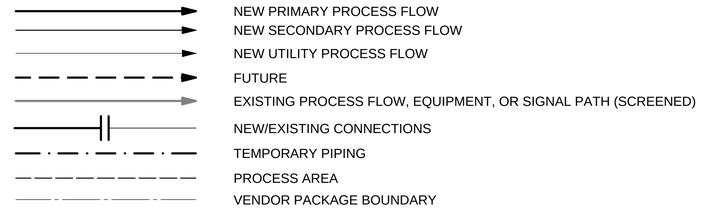
NETWORK TYPE	
F	FOUNDATION FIELDBUS
D	DEVICENET
E	ETHERNET
P	PROFIBUS
PN	PROFINET
M-RTU	MODBUS RTU
M-TCP	MODBUS TCP
CIP	CONTROL INDUSTRIAL PROTOCOL
E-SNMP	SIMPLE NETWORK MANAGEMENT PROTOCOL

PROCESS AND SIGNAL CROSS REFERENCE SYSTEM

WHEN A PROCESS LINE CROSSES FROM DRAWING TO DRAWING. THE P&ID DRAWING NUMBERS NEED TO BE REFERENCED. AS AN EXAMPLE; A PROCESS IS PUMPING TO A TANK ON A SEPARATE P&ID, SEE BELOW



PROCESS LINES



CONTROL AND MEASUREMENT NOTATIONS

ACK	ACKNOWLEDGE
AM	AUTO/MAN
BYP	BYPASS
CL	CLOSE
CL2	CHLORINE
CMAT	COMPUTER/MANUAL/AUTO/TRACKING
COMB	COMBUSTIBLE GAS
CP	CONTROL POWER
COND	CONDUCTIVITY
DEC	DECREASE
DO	DISSOLVED OXYGEN
ESP	EMERGENCY STOP
FORA	FORWARD/OFF/REVERSE/AUTO
FWD	FORWARD
F/R	FORWARD/REVERSE
F/S	FAST/SLOW
HLOA	HIGH/LOW/OFF/AUTO
HOA	HAND/OFF/AUTO
HOAL	HAND/OFF/AUTO/LOCAL
HOR	HAND/OFF/REMOTE
INC	INCREASE
JOA	JOG/OFF/AUTO
LL	LEAD/LAG
LOR	LOCAL/OFF/REMOTE
LOS	LOCKOUT STOP
L/R	LOCAL/REMOTE
M/A LS	MAN/AUTO LOADING STATION
OCA	OPEN/CLOSE/AUTO
OCP	PURGE VALVE OP/CL/PC
OL	OVERLOAD
OP	OPEN
OSC/LP	OPEN/STOP/CLOSE WITH LOCAL/REMOTE SELECT
PA	PAUSE
PAL	LOW PRESSURE
PB	PUSH BUTTON
pH	pH
POT	POTENTIOMETER
RDY	READY
REV	REVERSE
RNG	RUNNING
ROF	REVERSE/OFF/FORWARD
RST	RESET
SO2	SULFUR DIOXIDE
SP	STOP
ST	START
SS	START/STOP
TCP	TEST/CLOSE/PC
T/S	TEST/NORMAL/SILENCE
TBL	TROUBLE

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ENGINEER OF RECORD
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BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	R. ABRAHIEM
DRAWN:	A. EASTON
CHECKED:	B. DICKERSON
CHECKED:	A. MODY
APPROVED:	R. ABRAHIEM
FILENAME	I-00-001.DWG
BC PROJECT NUMBER	152270
CLIENT PROJECT NUMBER	6091680

INSTRUMENTATION

LEGEND AND SYMBOLS - 1

DRAWING NUMBER
I-00-001

SHEET NUMBER 14 OF 72

MISCELLANEOUS SYMBOLS

- MCC (MOTOR CONTROL/STARTER)
- PURGE OR FLUSHING DEVICE
- RESET FOR LATCH-TYPE OPERATOR
- SEAL WATER CONTROL UNIT
- INTERLOCKING OR CONTROL FUNCTION
- INTRINSIC SAFETY BARRIER
- DISCRETE INPUT
- DISCRETE OUTPUT
- ANALOG INPUT
- ANALOG OUTPUT
- CAMERA (CCTV)
- VFD — VARIABLE FREQUENCY DRIVE
- VSD — VARIABLE SPEED DRIVE

ACTUATORS/MOTORS/POWER

- ASD — ADJUSTABLE SPEED DRIVE (MECHANICAL)
- ROTARY PISTON ACTUATORS, VALVE OR GATE
- LINEAR PISTON ACTUATORS, VALVE OR GATE
- SOLENOID ACTUATOR, VALVE
- MANUAL OR HAND ACTUATOR, VALVE OR GATE (OR BLANK)
- MOTOR (ACTUATOR, VALVE , GATE OR EQUIPMENT)
- ENGINE
- EJECTOR, PNEUMATIC
- GENERATOR

PRIMARY ELEMENT SYMBOLS

- ORIFICE PLATE
- VENTURI OR FLOW TUBE
- NOZZLE FLOW
- PITOT TUBE
- PROPELLER OR TURBINE METER
- FLUME
- WEIR
- VARIABLE AREA FLOW INDICATOR (ROTAMETER) — OR — FI
- DIAPHRAGM SEAL
- IN-LINE ANNULAR SEAL
- MAGNETIC FLOWMETER
- SONIC FLOWMETER (DOPPLER OR TRANSIT TIME)
- POSITIVE DISPLACEMENT METER
- THERMAL FLOW ELEMENT
- VORTEX FLOW ELEMENT
- CORIOLIS FLOW ELEMENT
- FLOAT LEVEL ELEMENT
- ULTRASONIC LEVEL ELEMENT
- BUBBLER LEVEL TUBE
- SUBMERSIBLE LEVEL TRANSMITTER
- HYDROSTATIC LEVEL PROBE
- RADAR OR ULTRASONIC LEVEL ELEMENT
- ANNUBAR, PITOT TUBE
- AVERAGING PITOT TUBE

VALVES

NORMALLY OPEN		NORMALLY CLOSED
	GATE VALVE	
	PLUG VALVE	
	BALL VALVE	
	GLOBE VALVE	
	NEEDLE VALVE	
	KNIFE GATE VALVE	
	DIAPHRAGM VALVE	
	BUTTERFLY VALVE	
	ANGLE VALVE	
	THREE WAY VALVE	
	FOUR WAY VALVE	
	FLOAT VALVE	
	PINCH VALVE	
	BALANCING COCK	
	THERMOSTATICALLY CONTROLLED VALVE	

- DOUBLE LEAF CHECK VALVE
- CHECK VALVE
- BALL CHECK VALVE
- PUMP DISCHARGE VALVE
- GAUGE OR ROOT VALVE
- PRESSURE AND VACUUM RELIEF VALVE
- VACUUM RELIEF VALVE
- PRESSURE RELIEF VALVE
- IN-LINE SPRING LOADED RELIEF VALVE
- PRESSURE REGULATING VALVE (SELF-CONTAINED)
- BACK PRESSURE REGULATING VALVE (SELF-CONTAINED)
- FUSIBLE LINK

- SOLENOID VALVE
- DIAPHRAGM OPERATED VALVE
- PRESSURE BALANCE OPERATED VALVE
- MOTOR OPERATED VALVE
- MOTOR OPERATED VALVE, MODULATING

NOTE: USE VALVE BODY SYMBOL TO MATCH TYPE OF VALVE.

- PISTON OPERATED VALVE
- TELESCOPING VALVE
- MUD VALVE
- ANTI SIPHON VALVE
- LIFT CHECK VALVE
- BRAIDED FLEX CONNECTOR

FUNCTION SYMBOLS

- SHARED DISPLAY, PROCESS CONTROL SYSTEM
- SOFTWARE FUNCTIONALITY
- FIELD OR PANEL DEVICE

LOCATION AND ACCESSIBILITY MODIFIERS FOR FUNCTION SYMBOLS

- STAND ALONE DEVICE, OPERATOR ACCESSIBLE
- LOCATED ON FRONT OF PANEL OR CONSOLE, OPERATOR ACCESSIBLE
- LOCATED IN REAR OF PANEL OR CONSOLE, OPERATOR INACCESSIBLE

INSTRUMENTATION SYMBOLS

- INTEGRAL INSTRUMENT — PRIMARY ELEMENT SYMBOL
- CLOSE COUPLED INSTRUMENT — PRIMARY ELEMENT SYMBOL
- SEPARATE OR REMOTE MOUNTED INSTRUMENT — PRIMARY ELEMENT SYMBOL
- MULTI VARIABLE INSTRUMENT
- SEPARATE OR REMOTE MOUNTED INSTRUMENT — PRIMARY ELEMENT SYMBOL — FLANGE OR ELEMENT TAPS
- SEPARATE OR REMOTE MOUNTED INSTRUMENT — PRIMARY ELEMENT SYMBOL — PIPE TAPS
- SEPARATE OR REMOTE MOUNTED INSTRUMENT — PRIMARY ELEMENT SYMBOL — COMBINATION TAPS
- SINGLE VARIABLE INSTRUMENT

SLIDE AND SLUICE GATES

NORMALLY OPEN		NORMALLY CLOSED
	FLAP GATE	
NO	BUTTERFLY GATE	NC
	STOP GATE	
	SLIDE GATE	
	SLUICE GATE	

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BC PROJECT NUMBER	152270
CLIENT PROJECT NUMBER	6091680

INSTRUMENTATION

LEGEND AND SYMBOLS - 2

DRAWING NUMBER
I-00-002

SHEET NUMBER 15 OF 72

PUMPS

- PUMP, CENTRIFUGAL
- PUMP, DIAGHRAGM
- PUMP, GEAR
- PUMP, METERING
- PUMP, PERISTALTIC
- PUMP, PROGRESSING CAVITY
- PUMP, ROTARY LOBE
- PUMP, SUBMERSIBLE
- PUMP, JET
- PUMP, VERTICAL

BLOWERS/COMPRESSORS

- BLOWER OR CENTRIFUGAL FAN
- BLOWER OR COMPRESSOR, LIQUID RING
- BLOWER OR COMPRESSOR, ROTARY LOBE
- COMPRESSOR, ROTARY SCREW
- COMPRESSOR, ROTARY SLIDING VANE
- COMPRESSOR, PISTON

PIPE LINE DEVICES

- TRAP (T)
- SEDIMENT TRAP
- GAS DRIP TRAP (DT)
- SEPARATOR/ DRYER
- PIPELINE FILTER
- RUPTURE DISK (VACUUM RELIEF)
- RUPTURE DISK (PRESSURE RELIEF)
- CONNECTION BETWEEN NEW AND EXISTING PIPING
- UNION
- QUICK CONNECTOR
- CAP OR PLUG
- BLIND FLANGE
- FLEX CONNECTOR
- FABRIC EXPANSION JOINT
- VENT TO ROOF
- VENT
- STEAM VENT
- AUTOMATIC VENT
- MANUAL VENT
- STRAINERS
- FOOT VALVE
- AIR SEPARATOR
- DRAIN (D)
- DRAIN VALVE (DV)
- CALIBRATION CHAMBER
- PULSATION DAMPENER
- INJECTOR
- FLAME TRAP
- FLAME TRAP WITH THERMO SHUTOFF ASSEMBLY
- FLAME CHECK
- SAMPLING AND FLUSHING CONNECTIONS
- SUCTION DIFFUSER
- TEMPERATURE WELL
- FLOW STRAIGHTENING VANES
- PRESSURE REDUCING ASSEMBLY (PRA)
- AMMONIA UNION
- DAMPER
- SIGHT GLASS
- PIG LAUNCHER/ RECEIVER
- REDUCER
- FLEX COUPLING

HVAC RELATED

- FAN, INLINE
- CHILLER
- FILTER OR FILTER-SILENCER INLET AIR
- BOILER
- CHILLER

MIXERS

- MIXER
- DRAFT TUBE MIXER
- MIXER, INLINE STATIC

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100% DESIGN

Manatee County FLORIDA

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BC PROJECT NUMBER
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INSTRUMENTATION

LEGEND AND SYMBOLS - 3

DRAWING NUMBER
I-00-003

SHEET NUMBER 16 OF 72

SCREENINGS/CONVEYORS

- SCREEN, FINE OR BAR
- SCREEN, ROTARY OVERFLOW
- CLASSIFIER OR GRIT WASHER
- CONVEYOR
- HYDROCYCLONE
- SCREENINGS PRESS
- GRIT SEPARATOR
- GRIT CYCLONE
- VORTEX TYPE GRIT SEPARATOR

MISC. EQUIPMENT

- SILENCER
- REDUCED PRESSURE BACKFLOW PREVENTER
- BURNER, WASTE GAS
- HEAT TRACE
- DIFFUSER HEADER SPRAY NOZZLES
- MIST ELIMINATOR
- SAMPLER
- JET NOZZLE
- SPRAY NOZZLE
- RECEIVER OR PRESSURE VESSEL
- TANK, NON-PRESSURE TYPE
- TANK, DOUBLE-WALLED
- MOTORIZED STRAINER
- ULTRAVIOLET BANK
- TRUCK

SLUDGE, SCUM AND SOLIDS EQUIPMENT

- GRINDER — INLINE GRINDER
- HOPPER (OR)
- SUBMERGED LAUNDER
- BAFFLE
- SUBMERGED ORIFICE WITH V-NOTCH WEIR
- LAUNDER AND WEIR
- SCUM TIPPING TROUGH (M)
- HELICAL SKIMMER
- CENTRIFUGE
- SLUDGE SCRAPER
- CHAIN AND FLIGHT COLLECTOR (CROSS)
- CHAIN AND FLIGHT COLLECTOR (LONGITUDINAL)
- GRAVITY BELT THICKENER
- CIRCULAR CENTER FEED COLLECTOR MECHANISM
- SLUDGE DEWATERING SCREW PRESS (M)
- BELT FILTER PRESS
- ROTATING DRUM THICKENER (M)
- DISSOLVED AIR FLOTATION THICKENER (DAFT)

FEEDERS

- MICROSAND FEEDER (M)
- DRY POLYMER FEEDER (M)
- IA
- INJECTOR

HEAT EXCHANGERS

- SHELL AND TUBE HEAT EXCHANGER
- HEAT EXCHANGER PLATE TYPE
- HEAT EXCHANGER SPIRAL TYPE
- HEAT EXCHANGER STRAIGHT TUBE TYPE
- HEAT EXCHANGER U-TUBE TYPE

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BC PROJECT NUMBER: 152270
CLIENT PROJECT NUMBER: 6091680

INSTRUMENTATION

LEGEND AND SYMBOLS - 4

DRAWING NUMBER
I-00-004

SHEET NUMBER 17 OF 72

PIPING SYSTEMS

ABBREVIATION	SERVICE
A	AERATION AIR
AA	AGITATION AIR
AFE	AIR FLOTATION EFFLUENT
AL	ALUM
AW	APPLIED WATER
B	BRINE
BA	BACKWASH AIR
BC	BIOFILTER CIRCULATION
BCTL	BOILER CHEMICAL TREATMENT, LOW PRESSURE
BCTM	BOILER CHEMICAL TREATMENT, MEDIUM PRESSURE
BDL	BOILER BLOWDOWN, LOW PRESSURE
BDM	BOILER BLOWDOWN, MEDIUM PRESSURE
BFE	BIOFILTER EFFLUENT
BFL	BIOFILTER FEEDWATER, LOW PRESSURE
BFM	BIOFILTER FEEDWATER, MEDIUM PRESSURE
BW	BACKWASH WATER
CCW	CONDENSER COOLING WATER
CD	CHEMICAL DRAIN
CEN	CENTRATE
CF	CENTRIFUGE FEED
CL	CONDENSATE, LOW PRESSURE
CLG	CHLORINE GAS
CLL	CHLORINE LIQUID
CLS	CHLORINE SOLUTION
CLV	CHLORINE VACUUM
CM	CONDENSATE, MEDIUM PRESSURE
CS	CIRCULATING SLUDGE
CSO	CAUSTIC SODA
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
D	DRAIN
DIW	DEIONIZED WATER
DS	DIGESTED SLUDGE
DSF	DIESEL FUEL
DSS	SCREENED DIGESTED SLUDGE
DW	DISTILLED WATER
EE	ENGINE EXHAUST
ES	EQUALIZED SLUDGE
F	FLOAT
FA	FOUL AIR
FC	FERRIC CHLORIDE
FLT	FILTRATE
FS	FLOTATION SLUDGE
FW	FILTERED WATER

ABBREVIATION	SERVICE
GAS	GASOLINE
GAV	GAS VAPOR RETURN
GC	GAS CIRCULATION
GR	GRIT
HOH	HIGH PRESSURE HYDRAULIC OIL
HRR	HEAT RESERVOIR RETURN
HRS	HEAT RESERVOIR SUPPLY
HRW	RECIRCULATING POTABLE HOT WATER
HSG	HIGH PRESSURE SLUDGE GAS
HW	POTABLE HOT WATER
HWR	LOW TEMPERATURE HEATING RETURN
HWS	LOW TEMPERATURE HEATING SUPPLY
IA	INSTRUMENT AIR
JWR	JACKET WATER RETURN
JWS	JACKET WATER SUPPLY
LOR	LUBE OIL RETURN
LOS	LUBE OIL SUPPLY
LOW	LUBE OIL WASTE
LSG	LOW PRESSURE SLUDGE GAS
MG	MIXED GAS
ML	MIXED LIQUOR
MS	MIXED SLUDGE
MSG	MEDIUM PRESSURE SLUDGE GAS
MTWR	MEDIUM TEMPERATURE HEATING RETURN
MTWS	MEDIUM TEMPERATURE HEATING SUPPLY
NG	NATURAL GAS
OF	OVERFLOW
OLP	OXYGEN LOW PRESSURE
PD	PUMPED DRAINAGE
PE	PRIMARY EFFLUENT
POL	POLYMER
PS	PRIMARY SLUDGE
PSC	PRIMARY SCUM
RAS	RETURN ACTIVATED SLUDGE
RS	RAW SEWAGE
RW	RAW WATER
RWP	RAINWATER PIPE
RWR	RECLAIMED WATER
SA	SERVICE AIR
SCR	STEAM CLEAN RINSE

ABBREVIATION	SERVICE
SCR	STEAM CLEAN RINSE
SCS	STEAM CLEAN SUPPLY
SD	SANITARY DRAIN
SDG	SULFUR DIOXIDE GAS
SDL	SULFUR DIOXIDE LIQUID
SDS	SULFUR DIOXIDE SOLUTION
SDV	SULPHUR DIOXIDE VACUUM
SE	SECONDARY EFFLUENT
SEP	SEPTAGE
SN	SUPERNATANT
SS	SECONDARY SLUDGE
SSC	SECONDARY SCUM
STA	STARTING AIR
STD	STORM DRAIN
STML	STEAM, LOW PRESSURE
STMM	STEAM, MEDIUM PRESSURE
TD	TANK DRAIN
TE	THICKENER EFFLUENT
THS	THICKENED SLUDGE
TO	THICKENER OVERFLOW
TS	TRANSFER SLUDGE
TSC	THICKENED SCUM
TWAS	THICKENED WASTE ACTIVATED SLUDGE
V	VENT
VA	VACUUM
VC	CHEMICAL VENT
VP	PETROLEUM VENT
VSL	STEAM VENT, LOW PRESSURE
VSM	STEAM VENT, MEDIUM PRESSURE
WAS	WASTE ACTIVATED SLUDGE
WML	WASTE MIXED LIQUOR
1W	POTABLE WATER (CITY WATER)
1WS	POTABLE SOFT WATER
2W	NONPOTABLE CITY WATER
2WHP	NO. 2 WATER HIGH PRESSURE
2WL	LANDSCAPE IRRIGATION
2WS	SOFTENED NONPOTABLE CITY WATER
3W	NO.3 WATER (SECONDARY EFFLUENT)
3WHP	NO. 3 WATER HIGH PRESSURE
3WLC	NO. 3 WATER LOW PRESSURE CHLORINATED
3WLP	NO. 3 WATER LOW PRESSURE
3WS	NO. 3 SPRAY WATER

EQUIPMENT PREFIXES

A	AERATOR	EB	ENGINE BLOWER MODULE		EQUIPMENT	TBN	TURBINE
ACC	AIR CONDITION COIL	EG	ENGINE GENERATOR MODULE	MOP	MOTOR OPERATOR	TCV	TEMPERATURE CONTROL VALVE
ACU	AIR CONDITIONING UNIT	EPR	EVAPORATOR	MSP	MOTOR STARTER PANEL	TFR	TRANSFORMER
AD	AIR DRYER			MUX	MULTIPLEXER	TM	TIMER
AF	AIR FILTER	F	FAN	MX	MIXER	TRS	TRANSFER SWITCH
AHC	AIR HANDLING UNIT W/COIL	FLC	FLOCCULATOR	MZ	MULTIZONE UNIT		
AHU	AIR HANDLING UNIT	FLT	FILTER			UH	UNIT HEATER
ASC	ADJUSTABLE SPEED CONTROL	FP	FILTER PRESS	OIU	OPERATOR INTERFACE UNIT	US	UTILITY STATION
ASD	ADJUSTABLE SPEED DRIVE	FPU	FLUID POWER UNIT	ORT	ODOR REMOVAL TOWER		
ATS	AUTOMATIC TRANSFER SWITCH	FUR	FURNACE			VCP	VENDOR CONTROL PANEL
				P	PUMP	VEN	VENTILATOR
B	BLOWER	GEN	GENERATOR	PBD	PANELBOARD, ELECTRICAL LIGHTING AND BRANCH CIRCUIT	VP	VACUUM PUMP
BFP	BELT FILTER PRESS	GDR	GRINDER				
BLR	BOILER	GT	GATE			WH	WATER HEATER
BNR	BURNER			PC	PROCESS OR PERSONAL COMPUTER	WHR	WASHER
BP	BACKFLOW PREVENTER	H	HOIST			WSR	WATER SOFTENER UNIT
BSN	BAR SCREEN	HEX	HEAT EXCHANGER	PEJ	PNEUMATIC EJECTOR		
		HOP	HYDRAULIC OPERATOR	PLC	PROGAMMABLE LOGIC CONTROLLER		
C	COIL	HP	HEAT PUMP				
CDR	CONDENSOR	HPU	HYDRAULIC POWER UNIT	PNL	PANEL		
CFR	CHEMICAL FEEDER	HTR	HEATER	POP	PNEUMATIC OPERATOR		
CHR	CHILLER	HTT	HEAT TRACER TAPE	PVL	PRESSURE VESSEL		
COL	COLLECTOR	HV	HAND OPERATED VALVE				
COM	COMMINUTOR			REC	RECEIVER		
CON	CONVEYOR	INJ	INJECTOR				
CP	COMPRESSOR			SCN	SCREEN (BAR, ETC.)		
CRN	CRANE	LCP	LOCAL CONTROL PANEL	SCR	SCRUBBER		
CTF	CENTRIFUGE	LVR	LOUVER	SEP	SEPARATOR		
CV	CONTROL VALVE			SLR	SILENCER		
CYL	CYLINDER	M	MOTOR	SMP	SAMPLER		
		MCC	MOTOR CONTROL CENTER	SS	SAND SEPARATOR		
DIS	DISTRIBUTOR	MCP	MAIN CONTROL PANEL	ST	STEAM TRAP		
DPR	DAMPER	MEE	MISCELLANEOUS ELECTRICAL EQUIPMENT	SUB	SUBSTATION		
DS	DISCONNECT SWITCH			SWBD	SWITCHBOARD		
DU	DRIVE UNIT	MIE	MISCELLANEOUS INSTRUMENTATION EQUIPMENT	SWGR	SWITCHGEAR		
E	ENGINE	MME	MISCELLANEOUS MECHANICAL	T	TANK		

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FILENAME
I-00-005.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

INSTRUMENTATION

ABBREVIATIONS

DRAWING NUMBER
I-00-005
SHEET NUMBER 18 OF 72

KEYNOTES:

1. UTILIZE SPARE EXISTING FIBER PAIR BETWEEN BUILDINGS TO DISPLAY THE NEW CAMERA IMAGES ON THE ADMIN BUILDING DISPLAYS.
2. COORDINATE WITH OPERATIONS REGARDING REQUIRED. LOCATION OF NEW DISPLAYS.
3. LAND EXISTING FIBER CONNECTION BETWEEN SP-6 PP AND SP-17 PP TO NEW FOPP.

GENERAL NOTES (NEW WORK):

1. NETWORK PROTOCOL IS ETHERNET IP
2. ALL NETWORK SWITCHES ARE MANAGED.
3. POE SWITCH SUPPLIED BY SYSTEM INTEGRATOR TO VENDOR FOR INSTALLATION.
4. 6 PAIR FIBER TO MATCH EXISTING PLANT FIBER.
5. NEW FOPP FOR EXISTING PANEL SP-6 AND NEW ETHERNET SWITCH FOR EXISTING PANEL SP-5.

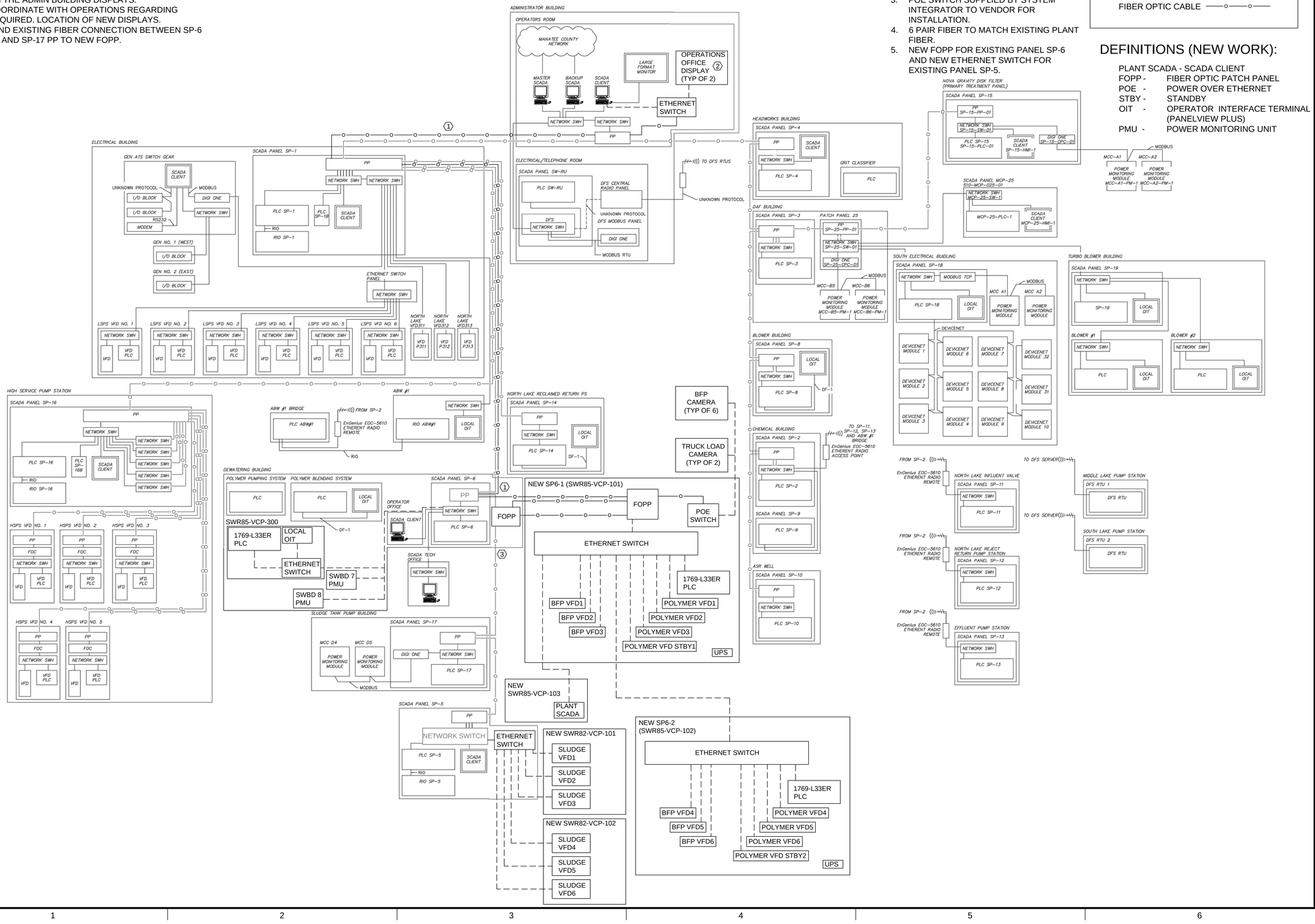
CABLE LEGEND (NEW WORK)

CATEGORY 6 CABLE — — — — — — —

FIBER OPTIC CABLE ——o——o——

DEFINITIONS (NEW WORK):

PLANT SCADA - SCADA CLIENT
FOPP - FIBER OPTIC PATCH PANEL
POE - POWER OVER ETHERNET
STBY - STANDBY
OIT - OPERATOR INTERFACE TERMINAL (PANELVIEW PLUS)
PMU - POWER MONITORING UNIT



Brown AND Caldwell
6151 Lake Osprey Drive, 3rd Floor
Certificate of Authorization No. 2602
Sarasota, FL 34240

ENGINEER OF RECORD
RYAN ABRAHIEM, PE 73843

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. ABRAHIEM
DRAWN: A. EASTON
CHECKED: B. DICKERSON
CHECKED: A. MODY
APPROVED: R. ABRAHIEM

FILENAME
I-00-601.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

INSTRUMENTATION

NETWORK DIAGRAM SWWRF

DRAWING NUMBER
I-00-601

SHEET NUMBER 19 OF 72

GENERAL NOTES (NEW WORK):

1. NETWORK PROTOCOL IS ETHERNET IP
2. ALL NETWORK SWITCHES ARE MANAGED.
3. 6 PAIR FIBER TO MATCH EXISTING PLANT FIBER.
4. NEW FOPP FOR EXISTING PANEL SP-4.

KEYNOTES:

1. LAND EXISTING FIBER CONNECTION BETWEEN ADMIN BUILDING PP AND SP-4 PP TO NEW FOPP.

CABLE LEGEND (NEW WORK)

CATEGORY 6 CABLE — — — — — —

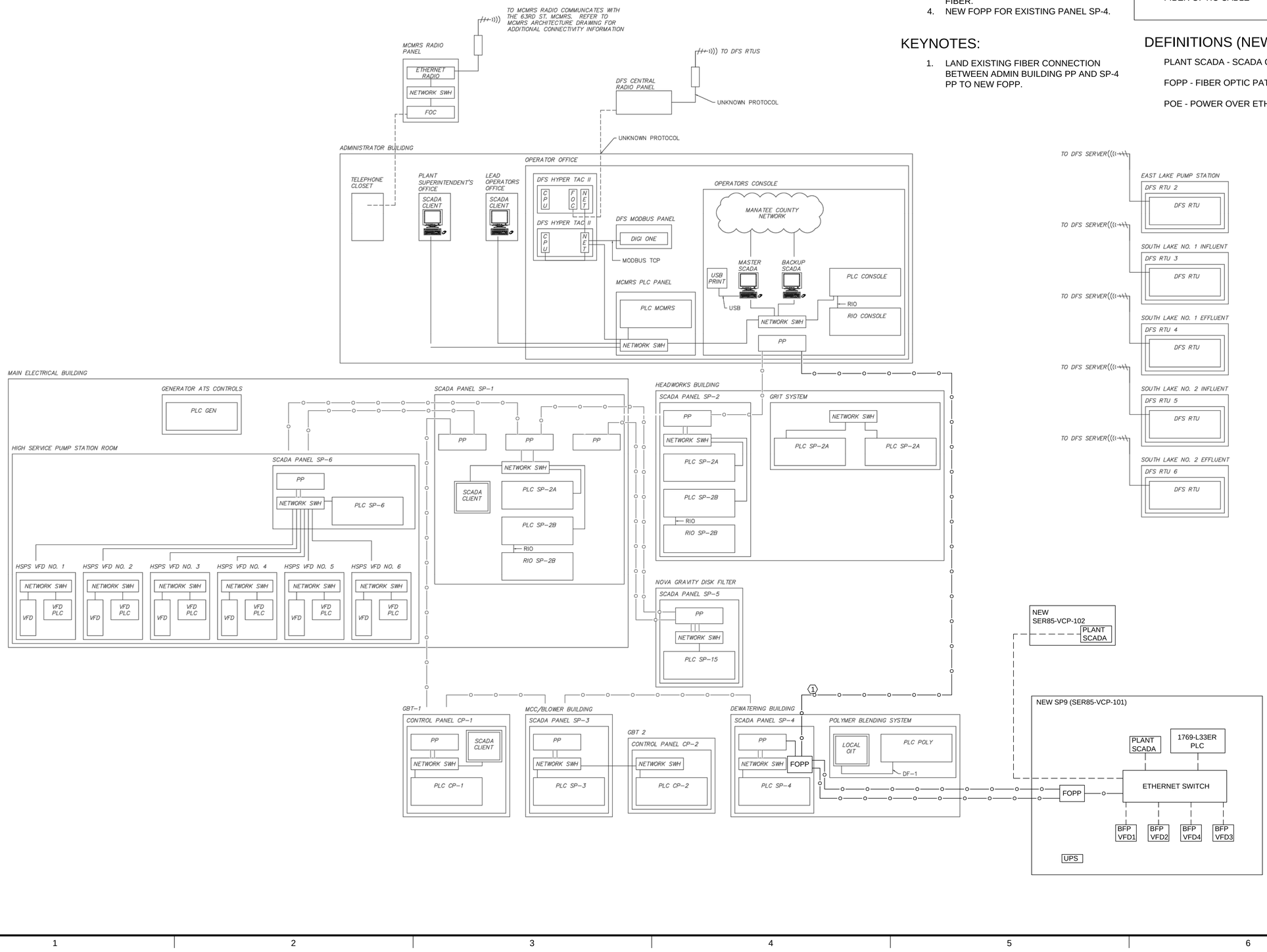
FIBER OPTIC CABLE ——o——o——

DEFINITIONS (NEW WORK):

PLANT SCADA - SCADA CLIENT

FOPP - FIBER OPTIC PATCH PANEL

POE - POWER OVER ETHERNET



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SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

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CHECKED:	B. DICKERSON
CHECKED:	A. MODY
APPROVED:	R. ABRAHIEM
FILENAME	I-00-602.DWG
BC PROJECT NUMBER	152270
CLIENT PROJECT NUMBER	6091680

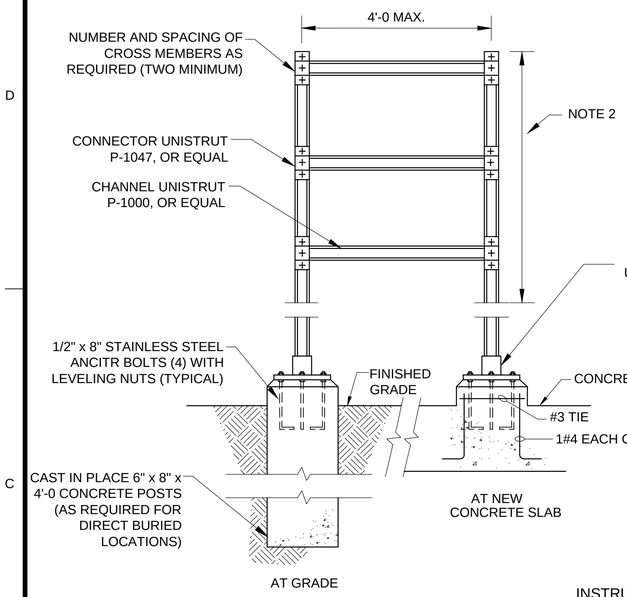
INSTRUMENTATION

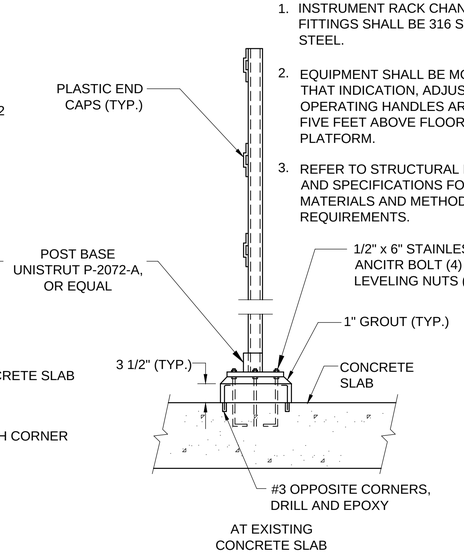
NETWORK DIAGRAM SEWRF

DRAWING NUMBER

I-00-602

20 SHEET NUMBER OF 72

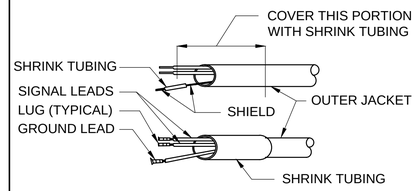




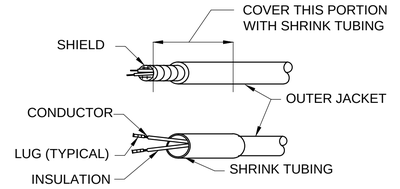
NOTES:

1. INSTRUMENT RACK CHANNELS AND FITTINGS SHALL BE 316 STAINLESS STEEL.
2. EQUIPMENT SHALL BE MOUNTED SO THAT INDICATION, ADJUSTMENTS, OR OPERATING HANDLES ARE FOUR TO FIVE FEET ABOVE FLOOR OR PLATFORM.
3. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR ANCITRAGE MATERIALS AND METHOD REQUIREMENTS.

INSTRUMENT RACK
DETAIL I0010
SCALE: NONE

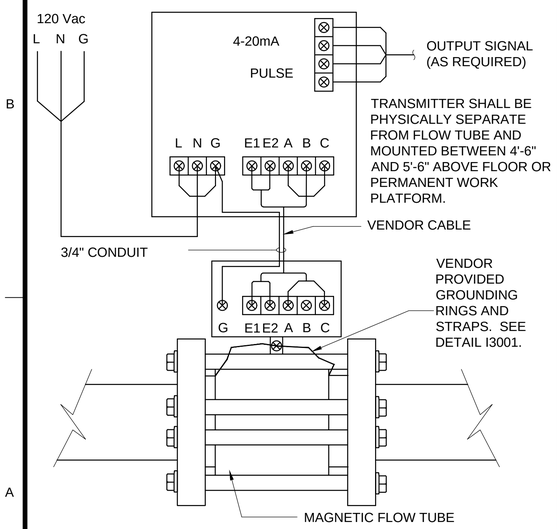


TERMINATION OF SHIELDED CONTROL CABLE SHIELD GROUNDED AT TERMINATION

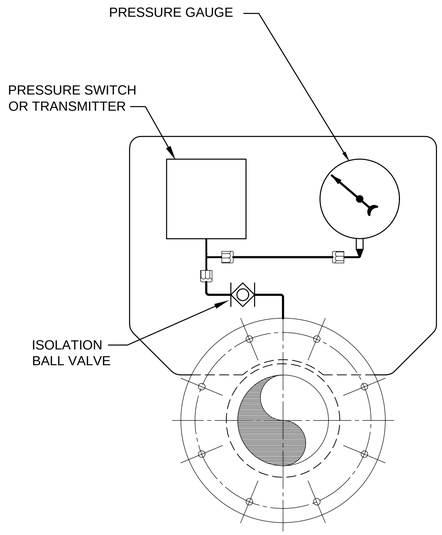


TERMINATION OF SHIELDED CONTROL CABLE SHIELD NOT GROUNDED AT TERMINATION

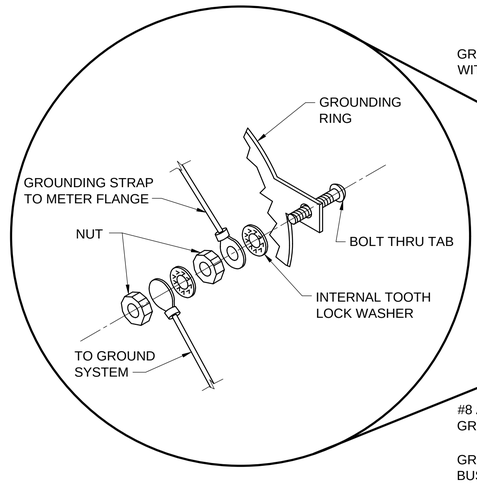
CONTROL CABLE GROUNDING METHODS
DETAIL I0001
SCALE: NONE



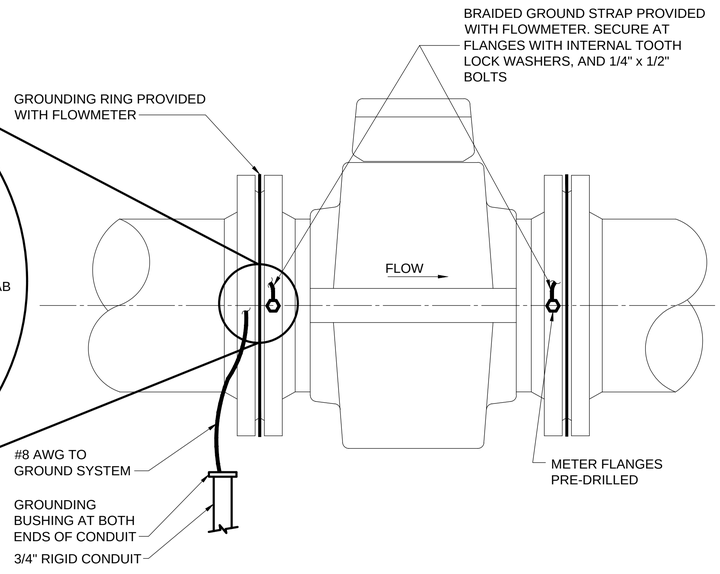
WAFER STYLE MAGNETIC FLOW METER
DETAIL I0012
SCALE: NONE



CHEMICAL SEALS ANNULAR
DETAIL I2050
SCALE: NONE



GROUND RING CONNECTION DETAIL (TYPICAL)



MAGNETIC FLOW METER GROUNDING
DETAIL I3001
SCALE: NONE

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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

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DRAWN:	A. EASTON
CHECKED:	B. DICKERSON
CHECKED:	A. MODY
APPROVED:	R. ABRAHIEM
FILENAME	I-10-501.DWG
BC PROJECT NUMBER	152270
CLIENT PROJECT NUMBER	6091680

INSTRUMENTATION

INSTALLATION DETAILS SHEET 1

DRAWING NUMBER
I-10-501

SHEET NUMBER 21 OF 72

Path: \\BCSUNFP01\PROJECTS\MANATEE COUNTY\152270-BFP REHAB PROJECT\000-BIM\03-AUTOCAD\05-AUTOCAD\02-SHEETS FILENAME: I-10-501.DWG PLOT DATE: 5/14/2019 12:28 PM CAD USER: ANDREW HUTT

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EXISTING SCADA MONITORING AND CONTROLS WILL BE INTEGRATED WITH NEW SP9

SCADA

NEW SP9 (SER85-VCP-101)

BFP MAIN

AUTO STOP HS 101 | AUTO START HS 101 | UNATTENDED/ ATTENDED HS 101 | HOA HS 101 | KC 101 | SPEED L/R HS 101

TO CONVEYORS INTERLOCK I-10-602

CONTROL POWER ON NL 100

FROM INTERLOCK I-10-602

WATER HYDRAULIC PRESS LOW PAL 101 | PRESS LOW PAL 101 | NO CAKE UA 101

WASH WATER

PAH 101-1 | OCA HS 101-1 | CLOSE YL 101-1 | OPEN YL 101-1

BOOSTER PUMP

HOA HS 101-2 | OO NL 101-2 | OO UA 101-2 | IN AUTO YL 101-2

HYDRAULIC PUMP

HOA HS 101-3 | KC 101-3 | OO NL 101-3

JY 101-3

BELT DRIVE

TOTAL HOURS KI 101-4 | HOA HS 101-4 | KC 101-4

SKC 101-4

BELT TENSION UA 101-4 | BELT MISALIGN UA 101-4 | UA 101-4 | SC 101-4 | SI 101-4 | HIGH TEMP TAH 101-4 | OO NL 101-4

TO SLUDGE PUMP INTERLOCK I-10-602

TO POLYMER PUMP INTERLOCK I-10-602

BOOSTER PUMPS STARTER PANEL (EXISTING) SER85-LCP-200

PSH 101 | M 1 | SER85-CV-101

SER85-BFP-101 BELT FILTER PRESS 1 (EXISTING)

HS 101 ESP

TRIP - CORDS / E-STOP

TO INTERLOCK FOR LOCAL BFP PANEL I-10-602

LOOP 102 TYPICAL OF LOOP 101

PSH 102 | M 1 | SER85-CV-102

SER85-BFP-102 BELT FILTER PRESS 2 (EXISTING)

HS 102 ESP

LOOP 103 TYPICAL OF LOOP 101

PSH 103 | M 1 | SER85-CV-103

SER85-BFP-103 BELT FILTER PRESS 3 (EXISTING)

HS 103 ESP

LOOP 104 TYPICAL OF LOOP 101

PSH 104 | M 1 | SER85-CV-104

SER85-BFP-104 BELT FILTER PRESS 4 (FUTURE)

HS 104 ESP

GENERAL NOTES:

1. ONE MAIN BFP PANEL, SP-9 AND ONE CATWALK BFP PANEL, SER85-VCP-102 WILL PROVIDE MONITORING AND CONTROLS FOR 3 BELT FILTER PRESSES AND ONE FUTURE BFP.
2. SCADA SCREENS AND SOFTWARE I/O ARE TYPICAL OF SER85-VCP-101 AND SER85-VCP-102 SCADA CLIENTS.
3. SER85-LCP-200 INCLUDES MOTOR STARTERS FOR ALL BFP BOOSTER PUMPS.

INTERLOCK NOTES

1. BFP MAIN HOA IN OFF, ANY ESTOP OR ACTIVATED TRIP CORD WILL SHUT DOWN ALL EQUIPMENT.

KEY NOTES

1. REQUIRES 120 VAC RELAY POWER FROM SP9.

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CHECKED: B. DICKERSON
CHECKED:
APPROVED: R. ABRAHIEM

FILENAME
I-10-601.DWG

BC PROJECT NUMBER
152270

CLIENT PROJECT NUMBER
6091680

INSTRUMENTATION

SEWRF BELT FILTER PRESS P&ID 1 OF 2

DRAWING NUMBER
I-10-601

SHEET NUMBER 22 OF 72

EXISTING SCADA MONITORING AND CONTROLS WILL BE INTEGRATED WITH NEW SP9

SCADA

NEW SP9 (SER85-VCP-101)

CONVEYOR

HOA | OO | IN AUTO | UNDER CURRENT

HS 401 | UA 401 | NL 401 | YL 401 | IAL 401

POLYMER PUMP

HOA | NO FLOW | IN AUTO

HS 301 | SC 301 | SI 301 | FAL 301 | NL 301 | YL 301 | PAH 301

SLUDGE PUMPS

HOA | IN AUTO | OO

HS 101 | YL 101 | SC 101 | NL 101 | SI 101 | PAH 101 | UA 101

YA 100 ESP

FROM BELT DRIVE
I-10-601

FROM AUTO START
I-10-601

FROM BELT DRIVE
I-10-601

I 1

TO INTERLOCK 1
I-10-601

FROM BELT FITER PRESS
I-10-601

TRIP - CORDS / E-STOP

CONVEYOR CP (EXISTING)
SER85-LCP-400

1 JY 401 | JY 402 | JY 403 | JY 404 | JY 405

CONVEYOR 1
SER85-CON-401

LOOP 402 IS TYPICAL OF LOOP 401

CONVEYOR 2
SER85-CON-402

LOOP 403 IS TYPICAL OF LOOP 401

CONVEYOR 3
SER85-CON-403

LOOP 404 IS TYPICAL OF LOOP 401

CONVEYOR 4
SER85-CON-404

LOOP 405 IS TYPICAL OF LOOP 401

CONVEYOR 5
SER85-CON-405

LOOP P-302 IS TYPICAL OF P-301.
POLYMER PANEL (EXISTING)
SER85-LCP-300

PUMP 1
SER85-P-301

PUMP 2
SER85-P-302

SP3 PANEL (EXISTING)

VFD PANEL (EXISTING)
SER85-VFD-101

PUMP 1
SER82-P-101

LOOP P-102 TYPICAL
OF LOOP P-101

PUMP 2
SER82-P-102

LOOP P-103 TYPICAL
OF LOOP P-101

PUMP 3
SER82-P-103

LOOP P-104 TYPICAL
OF LOOP P-101

PUMP 4
SER82-P-104

LOOP P-105 TYPICAL
OF LOOP P-101

PUMP 5
SER82-P-105

LOOP P-106 TYPICAL
OF LOOP P-101

PUMP 6
SER82-P-106

LOOP P-107 TYPICAL
OF LOOP P-101

PUMP 7
SER82-P-107

LOOP P-108 TYPICAL
OF LOOP P-101

PUMP 8
SER82-P-108

ES

CATWALK BFP PANEL
SER85-VCP-102 (NEW)

HS 102 ESP

SCADA CLIENT

SER85-VCP-102 SOFTWARE I/O
TYPICAL OF SER85-VCP-101

GENERAL NOTES:

1. ONE MAIN BFP PANEL, SP-9 AND ONE CATWALK BFP PANEL, SER85-VCP-102 WILL PROVIDE MONITORING AND CONTROLS FOR 3 BELT FILTER PRESSES AND ONE FUTURE BFP.
2. SCADA SCREENS AND SOFTWARE I/O ARE TYPICAL OFSER85-VCP-101 AND SER85-VCP-102 SCADA CLIENTS.
3. SER85-LCP-400 INCLUDES MOTOR STARTERS FOR ALL CONVEYORS.
4. SER85-LCP-300 INCLUDES VFDS FOR BOTH POLYMER PUMPS.

I INTERLOCK NOTES

1. BFP MAIN HOA IN OFF, ANY ESTOP OR ACTIVATED TRIP CORD WILL SHUT DOWN ALL EQUIPMENT.

KEY NOTES

1. INSTALL UNDER CURRENT SENSING RELAYS FOR EACH CONVEYOR MOTOR STARTER.

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ENGINEER OF RECORD
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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	R. ABRAHIEM
DRAWN:	A. EASTON
CHECKED:	B. DICKERSON
CHECKED:	A. MODY
APPROVED:	R. ABRAHIEM

FILENAME
I-10-602.DWG

BC PROJECT NUMBER
152270

CLIENT PROJECT NUMBER
6091680

INSTRUMENTATION

SEWRF BELT FILTER PRESS P&ID 2 OF 2

DRAWING NUMBER
I-10-602

SHEET NUMBER 23 OF 72

Path: \\BCSUNFP01\PROJECTS\MANATEE COUNTY\152270-BFP REHAB PROJECT\000-BIM\03-AUTOCAD\05-AUTOCAD\02-SHEETS FILENAME: I-10-602.DWG PLOT DATE: 5/14/2019 12:36 PM CAD USER: ANDREW HUTT

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EXISTING SCADA MONITORING AND CONTROLS WILL BE INTEGRATED WITH NEW SP6-1

SCADA

BFP MAIN: AUTO STOP HS 101; AUTO START HS 101; UNATTENDED/ ATTENDED HS 101; HOA HS 101; KC 101; SPEED L/R HS 101 → TO CONVEYORS INTERLOCK I-10-604

WATER PRESS LOW PAL 101; HYDRAULIC PRESS LOW PAL 101; NO CAKE UA 101

WASH WATER: PAH 101-1; OCA HS 101-1; CLOSE YL 101-1; OPEN YL 101-1

BOOSTER PUMP: HOA HS 101-2; OO NL 101-2; UA 101-2

HYDRAULIC PUMP: HOA HS 101-3; KC 101-3; OO NL 101-3

BELT DRIVE: TOTAL HOURS KI 101-4; HOA HS 101-4; KC 101-4; BELT TENSION UA 101-4; BELT MISALIGN UA 101-4; UA 101-4; SC 101-4; SI 101-4; HIGH TEMP TAH 101-4; OO NL 101-4

CONTROL POWER ON NL 100 ← FROM INTERLOCK I-10-604

TO SLUDGE PUMP INTERLOCK I-10-604

TO POLYMER PUMP INTERLOCK I-10-604

JY 101-2; JY 101-3; SKC 101-4

NEW SP6-1
(SWR85-VCP-101)

SWR85-BFP-101 — BELT FILTER PRESS 1 (EXISTING)
PSH 101; M 1; SWR85-CV-101; M; M; M; HS 101 ESP

LOOP 102 TYPICAL OF LOOP 101

SWR85-BFP-102 — BELT FILTER PRESS 2 (EXISTING)
M 1; SWR85-CV-102; PSH 102; M; M; M; HS 102 ESP

LOOP 103 TYPICAL OF LOOP 101

SWR85-BFP-103 — BELT FILTER PRESS 3 (NEW)
M 1; SWR85-CV-103; PSH 103; M; M; M; HS 103 ESP

TRIP - CORDS / E-STOP → TO INTERLOCK FOR LOCAL BFP PANEL I-10-604

FROM TRIP CORDS I-10-605

GENERAL NOTES:

1. TWO MAIN BFP PANELS, SP6-1 AND SP6-2 AND ONE CATWALK BFP PANEL, SWR85-VCP-103 WILL PROVIDE MONITORING AND CONTROLS FOR 6 BELT FILTER PRESSES.
2. ONLY SWR85-VCP-103 HAS A SCADA CLIENT WHICH INCLUDES SOFTWARE I/O AND SCREENS FOR BOTH SWR85-VCP-101 AND SWR85-VCP-102.

INTERLOCK NOTES

1. BFP MAIN HOA IN OFF, ANY ESTOP OR ACTIVATED TRIP CORD WILL SHUT DOWN ALL EQUIPMENT.

KEY NOTES

1. REQUIRES 120 VAC RELAY POWER FROM SP6-1.

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CHECKED: B. DICKERSON
CHECKED: A. MODY
APPROVED: R. ABRAHIEM
FILENAME I-10-603.DWG
BC PROJECT NUMBER 152270
CLIENT PROJECT NUMBER 6091680

INSTRUMENTATION

SWWRF BELT FILTER PRESS P&ID 1 OF 4

DRAWING NUMBER
I-10-603

24 SHEET NUMBER OF 72

EXISTING SCADA MONITORING AND CONTROLS WILL BE INTEGRATED WITH NEW SP6-1

SCADA

NEW SP6-1
(SWR85-VCP-101)

CONVEYOR

F/R HS 401 — FROM BELT DRIVE I-10-603
HOA HS 401 — FROM AUTO START I-10-603
UA 401
OO NL 401
IN AUTO YL 401
UNDER CURRENT IAL 401 — FROM BELT DRIVE I-10-603

REV
FWD

POLYMER PUMPS

HOA HS 301
SC 301
SI 301
NL 301
UA 301
PAH 301

YA 100 ESP

TO INTERLOCK 1 I-10-603

TO SP6-2 INTERLOCK I-10-605

SKC 301

EXISTING
SP-5

SLUDGE PUMPS

HOA HS 101
IN AUTO YL 101
SC 101
OO NL 101
SI 101
PAH 101
UA 101

SLUDGE PUMP 1 FLOW FIR 101 — FI 101
SLUDGE PUMP 2 FLOW FIR 102 — FI 102
SLUDGE PUMP 3 FLOW FIR 103 — FI 103

ES 480V — CONVEYOR CP (EXISTING) SWR85-LCP-400
2
JY 401
JY 402
JY 403
JY 404
JY 405

NH CONVEYOR SWR85-CON-401
LOOP 402 IS TYPICAL OF LOOP 401
SH CONVEYOR SWR85-CON-402
LOOP 403 IS TYPICAL OF LOOP 401
NI CONVEYOR SWR85-CON-403
LOOP 404 IS TYPICAL OF LOOP 401
SI CONVEYOR SWR85-CON-404
LOOP 405 IS TYPICAL OF LOOP 401
1 UNLOADING CONVEYOR SWR85-CON-405

PSH 301 — PUMP 1 SWR85-P-301

LOOP P-302 TYPICAL OF LOOP P-301
PSH 302 — PUMP 2 SWR85-P-302

LOOP P-303 TYPICAL OF LOOP P-301
PSH 303 — PUMP 3 SWR85-P-303

LOOP P-307 TYPICAL OF LOOP P-301
PSH 307 — PUMP STBY1 SWR85-P-307

FILTER PRESS TO INTERLOCK 1 I-10-603 — TRIP - CORDS / E-STOP

ES — CATWALK BFP PANEL
SWR85-VCP-103 (NEW)
HS 102 ESP
SCADA CLIENT

ES 480V — LOOPS P-102 AND 103 ARE TYPICAL OF 101
HOA HS 101
OO NL 101
UA 101
PAH 101
RST HS 101
SKC 101
SI 101
SC 101
SWR82-VCP-101 (NEW)

PUMP 1 SWR82-P-101 — PSH 101
PUMP 2 SWR82-P-102 — PSH 102
PUMP 3 SWR82-P-103 — PSH 103

ES 120V — FIT 101 — FE 101
ES 120V — FIT 102 — FE 102
ES 120V — FIT 103 — FE 103

GENERAL NOTES:

1. TWO MAIN BFP PANELS, SP6-1 AND SP6-2 AND ONE CATWALK BFP PANEL, SWR85-VCP-103 WILL PROVIDE MONITORING AND CONTROLS FOR 6 BELT FILTER PRESSES.
2. ONLY SWR85-VCP-103 HAS A SCADA CLIENT WHICH INCLUDES SOFTWARE I/O AND SCREENS FOR BOTH SWR85-VCP-101 AND SWR85-VCP-102.
3. SWR85-LCP-400 INCLUDES MOTOR STARTER FOR 5 CONVEYORS.

INTERLOCK NOTES

1. BFP MAIN HOA IN OFF, ANY ESTOP OR ACTIVATED TRIP CORD WILL SHUT DOWN ALL EQUIPMENT.

KEY NOTES

1. FORWARD / REVERSE ONLY REQUIRED FOR SWR85-CON-405.
2. INSTALL UNDER CURRENT SENSING RELAYS FOR EACH CONVEYOR MOTOR STARTER.

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SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

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CLIENT PROJECT NUMBER
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INSTRUMENTATION

SWWRF BELT FILTER PRESS P&ID 2 OF 4

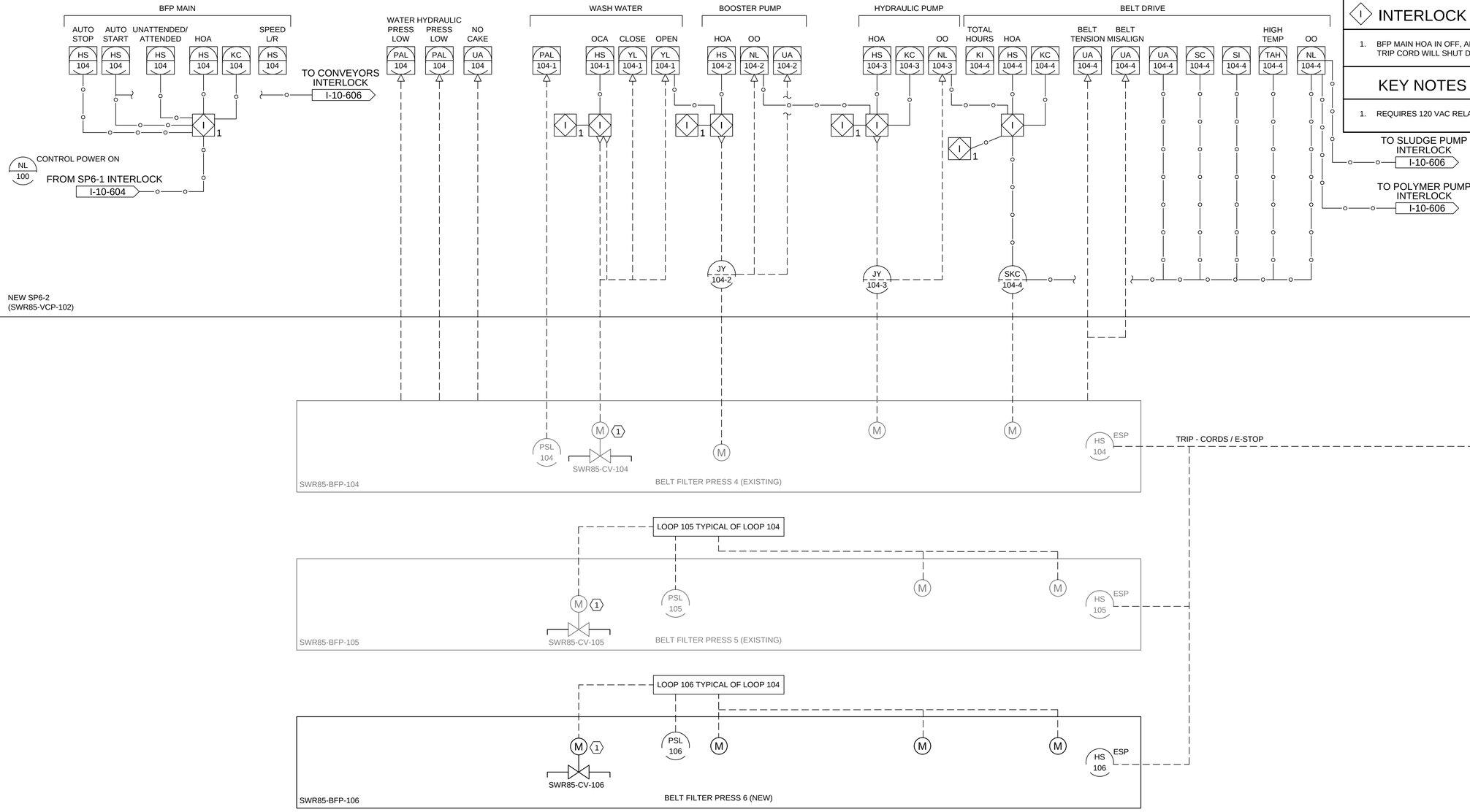
DRAWING NUMBER
I-10-604

SHEET NUMBER 25 OF 72

EXISTING SCADA MONITORING AND CONTROLS WILL BE INTEGRATED WITH NEW SP6-2

SCADA

NEW SP6-2
(SWR85-VCP-102)



GENERAL NOTES:

1. TWO MAIN BFP PANELS, SP6-1 AND SP6-2 AND ONE CATWALK BFP PANEL, SWR85-VCP-103 WILL PROVIDE MONITORING AND CONTROLS FOR 6 BELT FILTER PRESSES.
2. ONLY SWR85-VCP-103 HAS A SCADA CLIENT WHICH INCLUDES SOFTWARE I/O AND SCREENS FOR BOTH SWR85-VCP-101 AND SWR85-VCP-102.

INTERLOCK NOTES

1. BFP MAIN HOA IN OFF, ANY ESTOP OR ACTIVATED TRIP CORD WILL SHUT DOWN ALL EQUIPMENT.

KEY NOTES

1. REQUIRES 120 VAC RELAY POWER FROM SP6-2.

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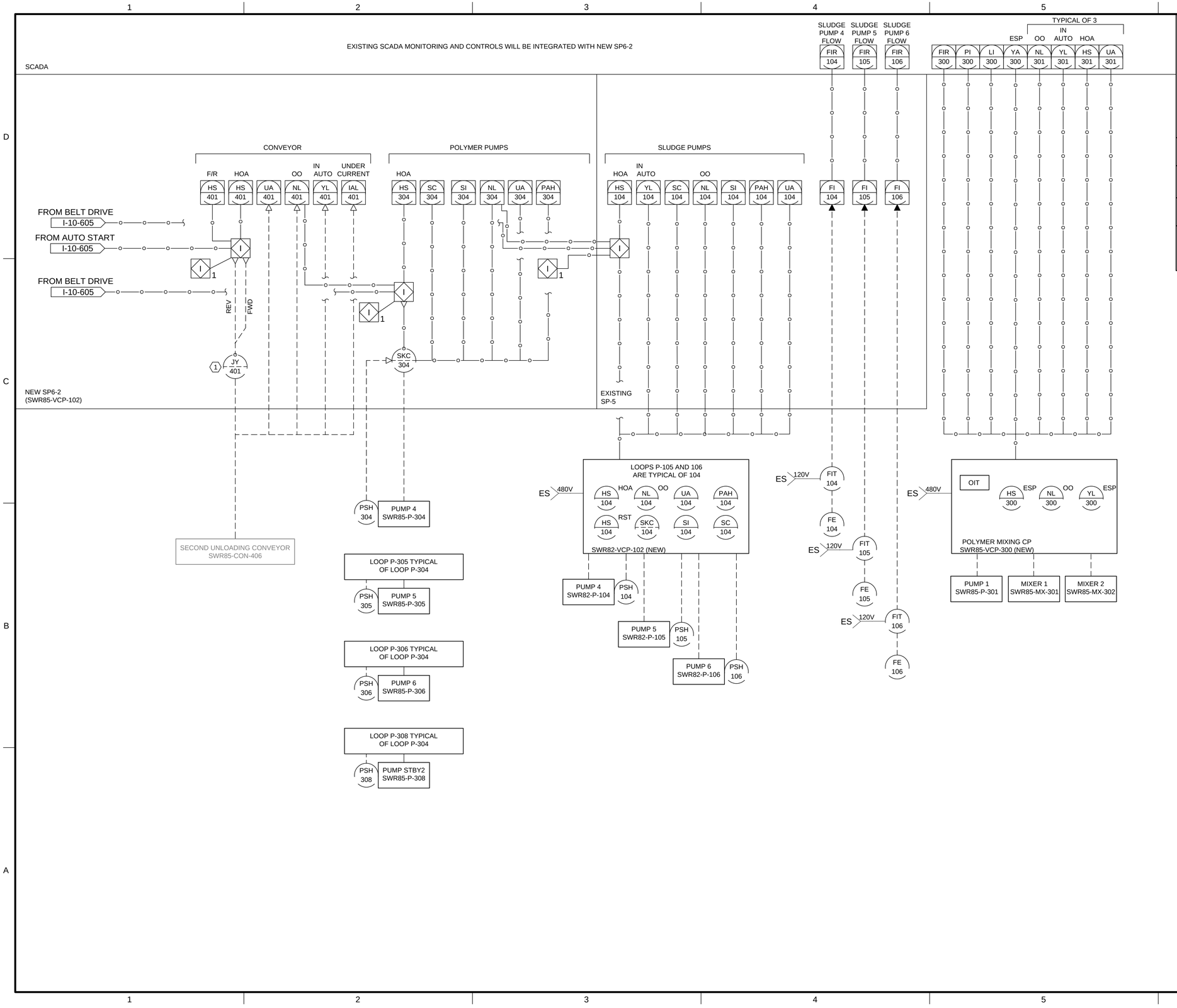
CLIENT PROJECT NUMBER	6091680

INSTRUMENTATION

SWWRF BELT FILTER PRESS P&ID 3 OF 4

DRAWING NUMBER
I-10-605

SHEET NUMBER 26 OF 72



GENERAL NOTES:

1. TWO MAIN BFP PANELS, SP6-1 AND SP6-2 AND ONE CATWALK BFP PANEL. SWR85-VCP-103 WILL PROVIDE MONITORING AND CONTROLS FOR 6 BELT FILTER PRESSES.
2. ONLY SWR85-VCP-103 HAS A SCADA CLIENT WHICH INCLUDES SOFTWARE I/O AND SCREENS FOR BOTH SWR85-VCP-101 AND SWR85-VCP-102.

INTERLOCK NOTES

1. BFP MAIN HOA IN OFF, ANY ESTOP OR ACTIVATED TRIP CORD WILL SHUT DOWN ALL EQUIPMENT.

KEY NOTES

1. INCLUDE UNDER CURRENT SENSING RELAY FOR CONVEYOR MOTOR STARTER.

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Sarasota, FL 34240

ENGINEER OF RECORD
RYAN ABRAHIEM, PE 73843

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. ABRAHIEM
DRAWN: R. DESAI
CHECKED: B. DICKERSON
CHECKED: A. MODY
APPROVED: R. ABRAHIEM

FILENAME
I-10-606.DWG

BC PROJECT NUMBER
152270

CLIENT PROJECT NUMBER
6091680

INSTRUMENTATION

SWWRF BELT FILTER PRESS P&ID 4 OF 4

DRAWING NUMBER
I-10-606

SHEET NUMBER 27 OF 72

MECHANICAL GENERAL NOTES

1. THE CONTRACTOR SHALL PROVIDE PIPE SUPPORTS IN ACCORDANCE WITH SECTION 15096 AND ALL PIPING SUPPORTED BY HANGERS AND/ OR STRUCTURAL ATTACHMENTS SHALL BE BRACED AGAINST HORIZONTAL, VERTICAL, AXIAL AND LONGITUDINAL SWAY. WHERE PIPE CHANGE DIRECTION FROM HORIZONTAL TO VERTICAL, A WELDED OR CAST BASE ELBOW SUPPORT SHALL BE INSTALLED. UNLESS OTHERWISE SPECIFIED, PIPING PASSING FROM CONCRETE TO EARTH SHALL BE PROVIDED WITH FLEXIBILITY TO ACCOUNT FOR DIFFERENTIAL SETTLING AS SPECIFIED IN SECTION 15085 AND IN THE MECHANICAL DETAILS SHEETS.

2. SEE SPECIFICATION SECTION 15050 FOR GENERAL REQUIREMENTS FOR PIPING SYSTEMS. SEE SPECIFICATION SECTION 15096 FOR DESIGN OF PIPE HANGERS AND SUPPORTS.

3. THE ARRANGEMENT OF EQUIPMENT AND PIPING SHOWN IS NOT INTENDED TO SHOW DIMENSIONS PARTICULAR TO A SPECIFIC EQUIPMENT MANUFACTURER. THE DRAWINGS ARE IN PART DIAGRAMMATIC AND SOME FEATURES OF EQUIPMENT AND PIPING MAY REQUIRE REVISION TO MEET ACTUAL FIELD REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE AND CONFIRM ALL CRITICAL DIMENSIONS FOR ACTUAL EQUIPMENT AND PIPING PROVIDED AND SHALL PROVIDE ALL REVISIONS NECESSARY TO THE EQUIPMENT, EQUIPMENT PADS AND PIPING LAYOUT AS REQUIRED. THESE REVISIONS SHALL BE SUBMITTED WITH THE PIPING LAYOUT DRAWINGS.

4. MECHANICAL DRAWINGS SHOW EXISTING EQUIPMENT, PIPING AND STRUCTURES IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. HOWEVER CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING ALL EXISTING CONDITIONS PRIOR TO SUBMISSION OF PIPING LAYOUT DRAWINGS AND COMMENCEMENT OF WORK. CONTRACTOR SHALL PROVIDE ALL BENDS, OFFSETS, ADDITIONAL PIPING, WALL AND FLOOR PENETRATIONS, EXISTING PIPE REROUTING, ETC. AS REQUIRED TO CONFORM WITH EXISTING CONDITIONS.

5. THE DRAWINGS ARE IN PART DIAGRAMMATIC. PIPING LAYOUT DRAWINGS SHALL BE SUBMITTED IN ACCORDANCE WITH THE SPECIFICATIONS AND SHALL CLARIFY DETAILED CONNECTIONS TO AND AVOIDANCE OF NEW AND EXISTING EQUIPMENT, PIPING AND STRUCTURES. PIPING FITTING ANGLES AND VERTICAL AND HORIZONTAL LOCATION SHALL BE DETERMINED BY CONTRACTOR. CONTRACTOR SHALL INCLUDE FITTING ANGLES, AND VERTICAL AND HORIZONTAL PIPE LOCATIONS ON PIPING LAYOUT DRAWINGS AND SHALL PROVIDE ALL PIPING, FITTINGS, WALL AND FLOOR PENETRATION, AND ANCILLARY DEVICES AS SHOWN, SPECIFIED AND REQUIRED TO PROVIDE A FULLY FUNCTIONAL SYSTEM.

6. ALL PIPING CONNECTED TO EQUIPMENT SHALL BE PROVIDE WITH A FLANGED COUPLING ADAPTER, EQUIPMENT CONNECTION FITTING OR DISMANTLING JOINT.

7. HEADROOM CLEARANCE TO ANY EQUIPMENT OR PIPING OVERHEAD SHALL BE 7'-6" MINIMUM UNLESS SPECIFICALLY SHOWN OTHERWISE. THIS SHALL INCLUDE THE CLEARANCE TO THE LOWER PORTION OF ANY PIPE SUPPORT SYSTEM.

8. 1" GAUGE TAPS WITH CAPS SHALL BE PROVIDED IMMEDIATELY UPSTREAM AND DOWNSTREAM OF ALL PUMPS.

9. EXISTING PIPE MATERIAL TYPES MAY NOT BE THE SAME AS MATERIAL TYPES SPECIFIED FOR NEW PIPING. CONTRACTOR SHALL VERIFY PIPE MATERIAL AND JOINTS PRIOR TO COMMENCEMENT OF WORK. SEE DRAWING G-00-003 FOR PIPE SERVICE AND ABBREVIATIONS.

10. DUCT AND PIPING SYSTEMS ARE SHOWN ON ONE OR MORE OF THE DRAWING TYPES (G,C,A,S,P,M,H,E,I). ALL DRAWING TYPES MUST BE REFERENCED FOR A COMPLETE DESCRIPTION OF THESE SYSTEMS.

11. SIZES OF EQUIPMENT FOUNDATIONS AND EQUIPMENT PADS INDICATED ON THE DRAWINGS ARE APPROXIMATE. EXACT DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FOR THE SPECIFIC EQUIPMENT FURNISHED. ALL FLOOR MOUNTED EQUIPMENT SHALL BE SET ON CONCRETE PADS CONFORMING TO DETAILS SHOWN ON THE STRUCTURAL AND MECHANICAL DRAWINGS.

12. AREA DRAINS ARE ALL PROCESS DRAINS OR CHEMICAL DRAINS AND THERE ARE NO SANITARY DRAINS.

13. PIPING SHALL BE INSTALLED SUCH THAT ADJACENT PIPING SYSTEMS DO NOT NEED TO BE DISTURBED IN ORDER TO TAKE APART PIPING.

14. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL REDUCERS IN HORIZONTAL PIPING IN LIQUID CARRYING PIPING SHALL BE TOP-FLAT ECCENTRIC REDUCERS AND ALL REDUCERS IN HORIZONTAL PIPING IN GAS CARRYING PIPING SHALL BE BOTTOM-FLAT ECCENTRIC REDUCERS. REDUCERS LOCATED IN VERTICAL SECTIONS OF EITHER LIQUID CARRYING OR GAS CARRYING PIPING MAY BE CONCENTRIC.

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ENGINEER OF RECORD
ANAND MODY, PE 68379

BID SET

Manatee County FLORIDA

SWWRF & SEWRF
BELT FILTER PRESS
REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: R. GAYLORD
DRAWN: A. HUTT
CHECKED: T. BOSSO
CHECKED: B. ELEAZER
APPROVED: A. MODY

FILENAME
M-00-001.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

MECHANICAL

MECHANICAL
DETAILS 1

DRAWING NUMBER
M-00-001

SHEET NUMBER 28 OF 72

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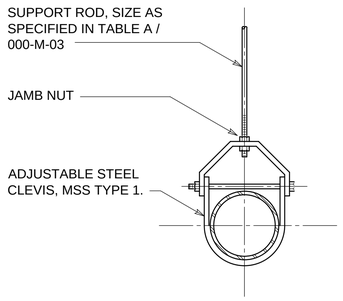
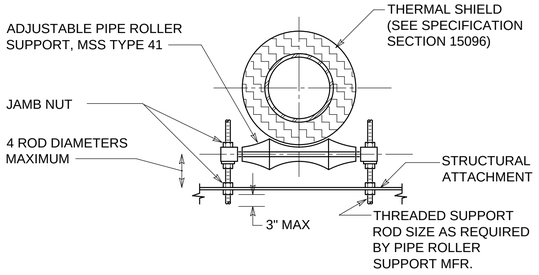


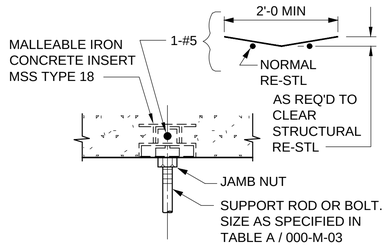
TYPE 1 PIPE HANGER

1/2" THROUGH 12" PIPE



TYPE 8 PIPE HANGER

1" THROUGH 16" PIPE

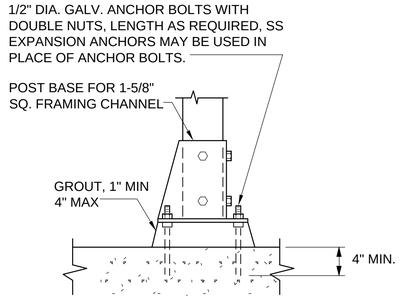


MAXIMUM ALLOWABLE LOAD:

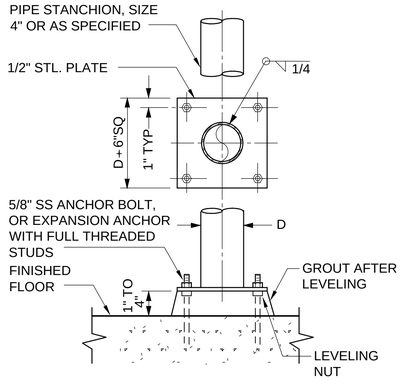
ROD SIZE	LOAD
3/8"	610 LBS
1/2"	1130 LBS
5/8" - 7/8"	1140 LBS

SPACING SHALL BE AS REQUIRED BUT SHALL NOT EXCEED THOSE SPANS SHOWN IN TABLE A / 000-M-02

TYPE A
STRUCTURAL ATTACHMENT

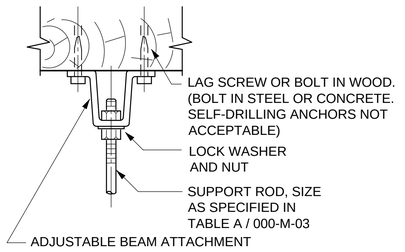


TYPE E
STRUCTURAL ATTACHMENT



SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED THOSE SPANS SHOWN IN TABLE A / 000-M-02.

TYPE N
STRUCTURAL ATTACHMENT



MAXIMUM ALLOWABLE LOAD:

ROD SIZE	LOAD WOOD	LOAD CONCRETE/STEEL
3/8"	425 LBS	610 LBS
1/2"	715 LBS	1130 LBS
5/8"	810 LBS	1810 LBS
3/4"	1500 LBS	2710 LBS
7/8"	1650 LBS	3770 LBS

SPACING SHALL BE AS REQUIRED, BUT SHALL NOT EXCEED SPANS SHOWN IN TABLE A / 000-M-02.

TYPE J
STRUCTURAL ATTACHMENT

TABLE A

NOMINAL PIPE SIZE (INCHES)	SUPPORT ROD SIZE AND MAXIMUM LOAD PER ROD SEE NOTE 2				MAXIMUM PIPE SPAN (FEET) SEE NOTE 3			
	ROD SIZE (INCHES)	MAX LOAD (POUNDS)			STEEL	COPPER	PLASTIC SEE NOTE 4	CAST IRON SEE NOTE 5
3/8 TO 3/4	3/8	610			5	5	CONTINUOUS	---
1	3/8	610			5	5	5	---
1 1/4	3/8	610			5	5	5	---
1 1/2	3/8	610			5	5	5	---
2	3/8	610			10	5	5	12 FEET FOR PRESSURE PIPE; 10 FEET FOR SOIL PIPE
2 1/2	3/8	610			10	10	5	
3	3/8	610			10	20	5	
4	1/2	1130			10	20	5	
6	5/8	1810			15	20	5	
8	3/4	2710			15	20	5	
10	3/4	2710(4960)			20	—	5	
12	7/8	3770(8000)			20	—	10	
14	1	4960			20	—	---	
16	1	4960			20	—	---	
18	1	4960			20	—	---	
20	1-1/4	8000			20	—	---	
24	1-1/4	8000			20	—	---	

TABLE A NOTES:

1. DESIGN WEIGHT SHALL BE TWICE THE WEIGHT OF THE PIPE FULL OF WATER PLUS THE WEIGHT OF VALVES. FITTINGS, INSULATING MATERIALS, AND SUSPENDED HANGER COMPONENTS ON THE RUN OF PIPE BEING SUPPORTED.
2. ROD SIZES SHOWN ARE FOR THE SUPPORT OF A SINGLE PIPE. WHEN SUPPORTING MORE THAN ONE PIPE, ROD SHALL BE SIZED USING THE DESIGN WEIGHTS (SEE NOTE 1) TO DETERMINE THE TOTAL DESIGN LOAD. THE TOTAL DESIGN LOAD SHALL NOT EXCEED THE MAXIMUM LOADS IN THE TABLE ABOVE.
3. PIPE SHALL NOT HAVE POCKETS FORMED IN THE SPAN DUE TO SAGGING OF THE PIPE BETWEEN SUPPORTS CAUSED BY THE WEIGHT OF THE PIPE, MEDIUM IN THE PIPE, INSULATION, VALVES AND FITTINGS.
4. SPAN SHOWN IS FOR SCHEDULE 80 PVC PIPE AT 100 DEGREES F. SPANS FOR OTHER PLASTICS, OTHER PVC PIPE SCHEDULES, AND PIPES AT HIGHER TEMPERATURES, SHALL BE SHORTENED IN ACCORDANCE WITH THE PIPE MANUFACTURER'S RECOMMENDATIONS. CONTINUOUS MEANS PIPE SHALL BE IN UNISTRUT OR SIMILAR CHANNEL.
5. PROVIDE A MINIMUM OF ONE PIPE HANGER PER PIPE LENGTH, WITHIN 4 INCHES OF THE BELL.
6. PIPE HANGER AND SUPPORT SELECTION SHALL BE IN ACCORDANCE WITH TABLE B AND SPECIFICATION SECTION.

TABLE B

X INDICATES PIPE HANGERS SUITABLE FOR CONDITIONS LISTED BELOW:		PIPE HANGER TYPE										
		1	2	3	4	5	6	7	8	9	10	11
SERVICE TEMPERATURE												
33° F - 59° F OR 120° F-450° F	INSULATED			X	X	X			X	X		X
	UNINSULATED	X	X	X	X	X	X	X	X	X	X	X
60° F - 119° F		X	X	X			X	X		X	X	X
PIPING MATERIALS												
STEEL		X	X	X	X	X	X	X	X	X		X
COPPER			X		X		X	X	X			
PLASTIC		X	X		X	X	X	X	X			X
DUCTILE IRON		X	X		X	X	X	X	X		X	X

NOTE: FOR SERVICES OTHER THAN THOSE SHOWN IN TABLE "B", PIPE ATTACHMENTS

PIPE SUPPORT GENERAL NOTES

1. PIPE AND CONDUIT SUPPORT SYSTEMS SHALL BE UNISTRUT, ELCEN OR EQUAL AND SHALL BE DESIGNED BY THE CONTRACTOR TO MEET THE MINIMUM LOAD AND SPAN REQUIREMENTS AS SPECIFIED.
2. UNLESS OTHERWISE SPECIFIED, HANGERS AND SUPPORTS SHALL BE GALVANIZED STEEL.
3. UNLESS OTHERWISE SPECIFIED, EXPANSION ANCHORS SHALL NOT BE USED.
4. MSS REFERS TO THE MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY, STANDARD PRACTICE SP58 AND SP69.
5. HANGER BRACKETS AND SUPPORT COMPONENTS MAY BE INTERCHANGED.
6. CONCRETE INSERTS IN AREAS BELOW WATER SURFACE OR NORMALLY SUBJECT TO SUBMERGING SHALL BE EMBEDDED ANCHOR BOLTS OR EQUAL.
7. PROVIDE PLASTIC OR RUBBER CHANNEL END CAPS AT EXPOSED ENDS OF CHANNELS 7'-0" ABOVE FLOOR AND BELOW.
8. MAXIMUM DESIGN WEIGHTS AND LOADS SHALL BE AS SHOWN IN TABLE "A" DRAWING M-00-002, OR AS SHOWN IN THE DETAILS ON THIS DRAWING.
9. WHEN SUPPORTING PIPING REQUIRES HORIZONTAL FLEXIBILITY NORMAL TO A STEEL BEAMS AXIS, USE STRUCTURAL ATTACHMENTS C AND D.
10. ALL PIPING SUPPORTED BY HANGERS AND/ OR STRUCTURAL ATTACHMENTS SHALL BE BRACED AGAINST HORIZONTAL, VERTICAL, AXIAL, AND LONGITUDINAL SWAY. BRACING SHALL BE CALCULATED TO RESIST SEISMIC LOADINGS AS SPECIFIED BY SMACNA/ ASHRAE AND AS INDICATED IN THE SPECIFICATIONS.
11. FITTINGS SHALL NOT BE LESS THAN MSS CL B.
12. UNLESS OTHERWISE SPECIFIED, TRAPEZE AND PIPE RACK COMPONENTS SHALL HAVE MAXIMUM STEEL THICKNESS OF 12 GAGE WITH MAXIMUM DEFLECTION 1/240 OF THE SPAN. MINIMUM CHANNEL COMPONENT SIZE SHALL BE 1 5/8" SQUARE AS MANUFACTURED BY SUPER STRUT, UNISTRUT, ELCEN, OR EQUAL.

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SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. GAYLORD
DRAWN: A. HUTT
CHECKED: T. BOSSO
CHECKED: B. ELEAZER
APPROVED: A. MODY

FILENAME
M-00-002.DWG
BC PROJECT NUMBER
152270
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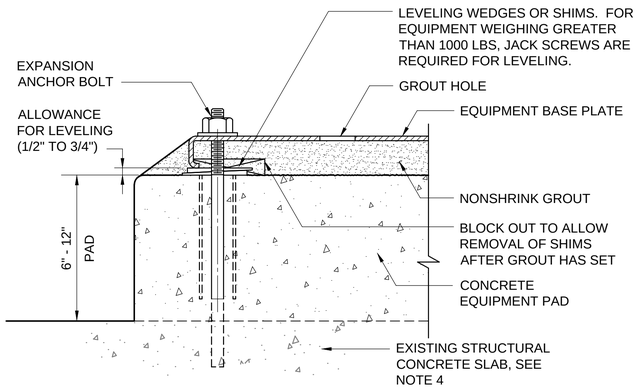
6091680

MECHANICAL

MECHANICAL DETAILS 2

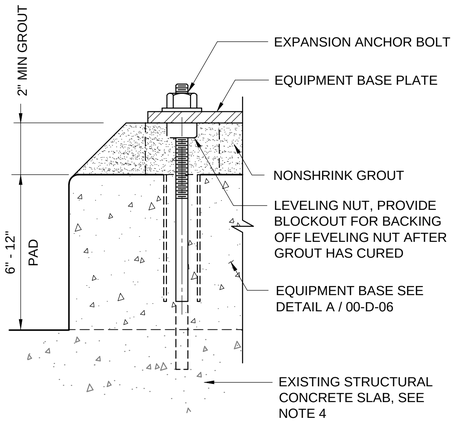
DRAWING NUMBER
M-00-002

SHEET NUMBER 29 OF 72



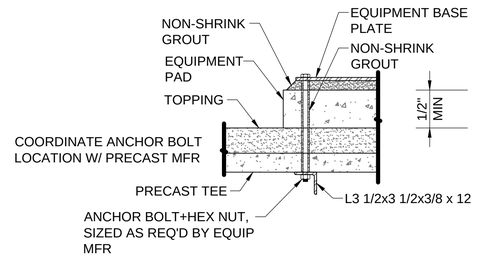
EQUIPMENT FURNISHED WITH ROLLED STEEL BASE MOUNTING

SCALE: NONE



EQUIPMENT LESS THAN 10 HP AND 500 POUNDS MOUNTING

SCALE: NONE



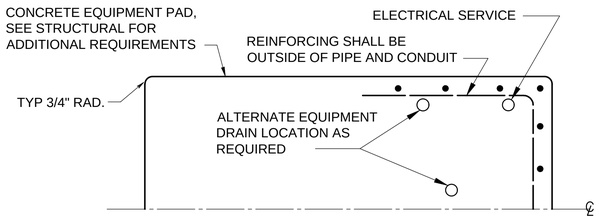
APPLIES TO T-8041, BLR-8050, BLR-8060 AND ANY EQUIPMENT THAT PLACES A NET UPLIFT ON ANCHOR BOLTS.

EQUIPMENT MOUNTING ON PRECAST DETAIL

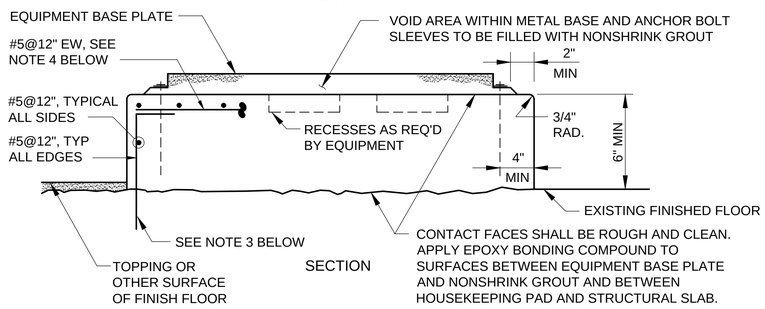
SCALE: NONE

EQUIPMENT MOUNTING NOTES:

1. ALL EQUIPMENT, INCLUDING TANKS, SHALL HAVE A CONCRETE EQUIPMENT PAD TO SUIT. WHERE PAD SIZE IS NOT SHOWN, DIMENSIONS SHALL BE DETERMINED BY EQUIPMENT MANUFACTURER. REFER TO SPEC SECTION 11002.
2. ALL PENETRATIONS FOR CONDUIT AND PIPING SHALL BE WITHIN CONCRETE EQUIPMENT PAD. PAD TO BE CONFIGURED ACCORDINGLY. CONDUIT AND PIPING FOR FUTURE EQUIPMENT SHALL BE CAPPED.
3. ANCHOR BOLT EMBEDMENT SHALL BE MINIMUM LENGTH OR GREATER, AS REQUIRED BY EQUIPMENT MANUFACTURER.
4. ANCHOR BOLTS SHALL BE SET IN SLEEVES AS SHOWN. ANCHOR BOLTS SHALL PENETRATE STRUCTURAL SLAB AS REQUIRED TO MEET MINIMUM EMBEDMENT SPECIFIED.
5. ALL GROUT FOR EQUIPMENT WEIGHING 1000 LBS OR LESS SHALL BE CEMENTITIOUS, NONSHRINK, NONMETALLIC. FOR ALL OTHERS, SEE SPEC SECTION 11002.
6. WHERE EPOXY NONSHRINK GROUT IS USED, THE EPOXY GROUT SHALL BE PREVENTED FROM ADHERING TO ANCHOR BOLTS AND JACK SCREWS. DRILLING INTO CONCRETE FOR INSTALLATION OF STEEL REINFORCING BARS, ANCHORS, ETC, SHALL BE ONLY WHERE SPECIFICALLY INDICATED/ALLOWED BY THE ENGINEER.
7. DRILLING LOCATIONS SHALL BE VERIFIED BY A NONDESTRUCTIVE METHOD TO MISS STEEL REINFORCING BARS AND CONDUITS/PIPES CAST IN THE CONCRETE ELEMENT.
8. LEVELING OF EQUIPMENT SOLE PLATE MAY BE DONE WITH SHIMS OR WEDGES. SHIMS AND WEDGES SHALL BE REMOVED AFTER GROUTING. PROVIDE GROUT POURING AND RELIEF HOLES, AND BLOCKOUTS FOR ACCESS TO LEVELING EQUIPMENT AFTER INITIAL GROUTING. NO WEIGHT SHALL BE TRANSFERRED TO THE ANCHOR BOLTS DURING EQUIPMENT SETTING, LEVELING AND GROUTING.



PLAN



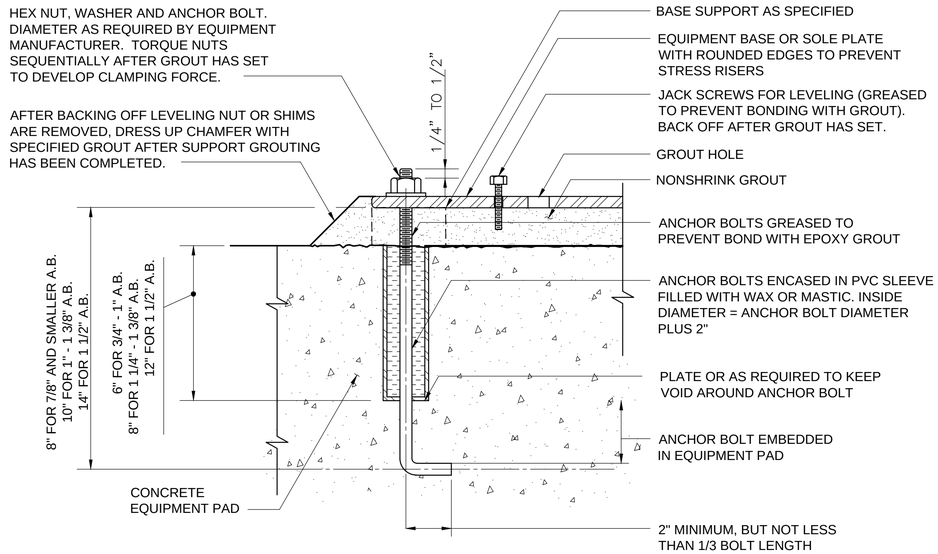
SECTION

NOTES:

1. ALL EQUIPMENT, INCLUDING TANKS, SHALL HAVE AN EQUIPMENT BASE.
2. ANCHOR BOLTS SHALL BE AS REQUIRED TO STABILIZE EQUIPMENT DUE TO OPERATING FORCES AND AS REQUIRED BY BUILDING CODE REQUIRED LOADINGS INCLUDING SEISMIC LOADING AND WIND LOADING. DESIGN SHALL BE BY CONTRACTOR'S ENGINEER REGISTERED IN THE STATE OF THE PROJECT.
3. AT EXISTING CONCRETE SLAB, EPOXY GROUT DOWELS 6" INTO EXISTING CONCRETE SLAB.
4. WHERE EQUIPMENT BASE THICKNESS EXCEEDS 1'-6", PROVIDE INTERMEDIATE REINFORCING LAYERS AT 1'-0" MAXIMUM ON CENTER.

CONCRETE SUPPORT BASE

SCALE: NONE



NOTE:
THIS DETAIL APPLIES TO EQUIPMENT PADS GREATER THAN 12" THICK

TYPICAL EQUIPMENT ANCHOR BOLT

SCALE: NONE

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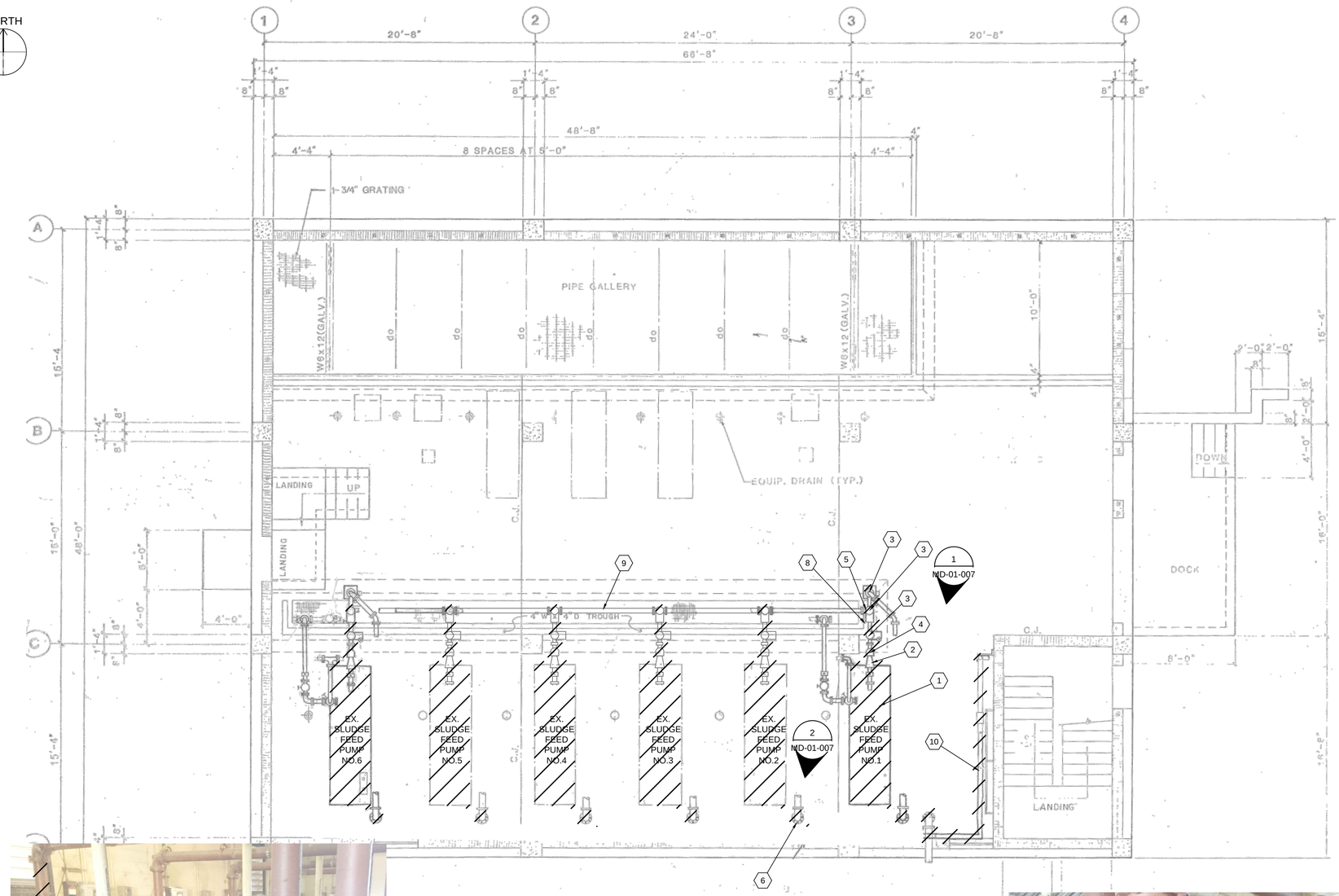
MECHANICAL

MECHANICAL DETAILS 3

DRAWING NUMBER
M-00-003

SHEET NUMBER 30 OF 72



SWWRF SLUDGE TRANSFER PUMPS PLAN

NOT TO SCALE

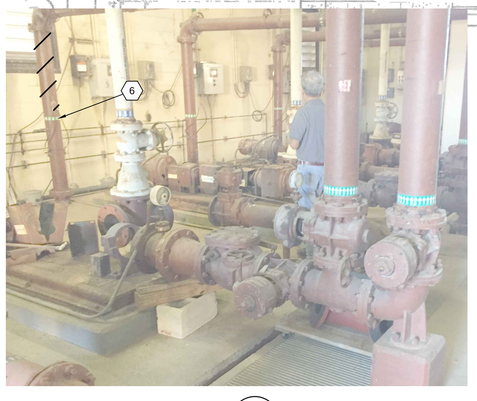


PHOTO 2 MD-01-007

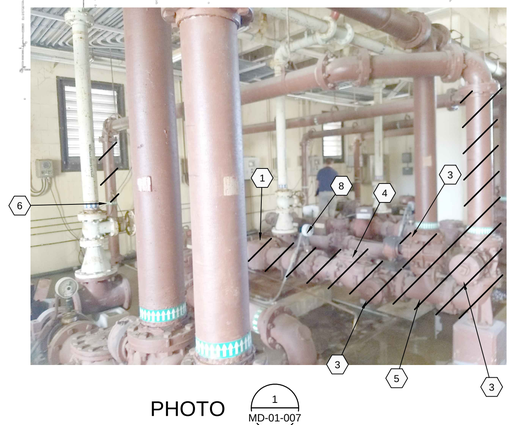


PHOTO 1 MD-01-007

NOTE: BACKGROUND PLAN OBTAINED FROM BELT FILTER PRESSES S.W. WASTE WATER TREATMENT PLANT PROJECT #415-5857-537 AND #430-8528-537.

GENERAL NOTES:

1. DEMOLISH CONTROL PANEL. PROVIDE ALL REQUIRED CONNECTIONS (POWER, CONTROL, SIGNAL) FOR PROPER OPERATION OF SLUDGE FEED PUMPS.
2. FOR VERTICAL PIPE SHOWN IN SECTION 2, DEMOLISH STRAP-ON MAGNETIC METER AND VERTICAL PIPES. BENDS WILL REMAIN EXISTING.
3. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT DAMAGED BY THE CONTRACTOR SHALL BE EXPEDITIOUSLY REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION.
4. CONSTRUCTION, DEMOLITION AND RENOVATION SHALL COMPLY WITH NFPA 241.
5. CONTRACTOR SHALL CLEAN, RECOAT, PAINT AND/OR GROUT EXISTING EQUIPMENT PADS THAT ARE DISTURBED AS PART OF THE WORK DETAILED IN THESE CONSTRUCTION DOCUMENTS TO MATCH EXISTING FINISH.

KEY NOTES:

1. DEMOLISH SLUDGE FEED PUMPS 1-6.
2. DEMOLISH 8"x 6" REDUCER (DIP). (TYP OF 6)
3. DEMOLISH 6" PLUG VALVE. (TYP OF 18)
4. DEMOLISH 6" CHECK VALVE. (TYP OF 6)
5. DEMOLISH 6"x6" TEE (DIP). (TYP OF 6)
6. DEMOLISH STRAP-ON FLOW METER. (TYP OF 6)
7. DEMOLISH 6" DIP. (TYP OF 6)
8. DEMOLISH PRESSURE GAUGE, SWITCH AND RING. (TYP OF 6)
9. PROTECT EXISTING PIPE HEADER.
10. PIPING TO BE DEMOLISHED AND REMOVED BY OWNER PRIOR TO CONSTRUCTION.

Brown AND Caldwell
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Certificate of Authorization No. 2602
Sarasota, FL 34240

ENGINEER OF RECORD
ANAND MODY, PE 68379

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. GAYLORD
DRAWN: A. HUTT
CHECKED: T. BOSSO
CHECKED: B. ELEAZER
APPROVED: A. MODY

FILENAME
MD-01-007.DWG

BC PROJECT NUMBER
152270

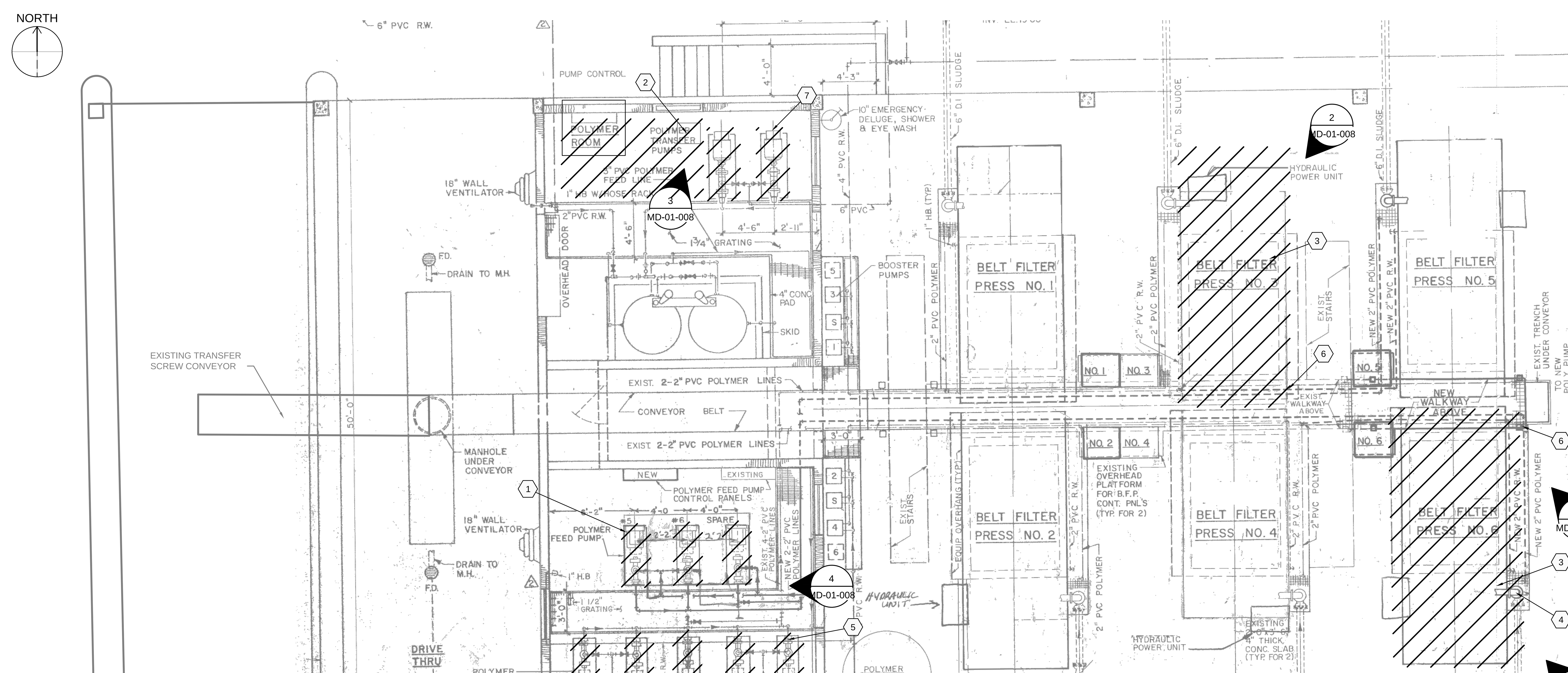
CLIENT PROJECT NUMBER
6091680

MECHANICAL

SWWRF SLUDGE TRANSFER PUMPS DEMOLITION PLAN

DRAWING NUMBER
MD-01-007

SHEET NUMBER 31 OF 72



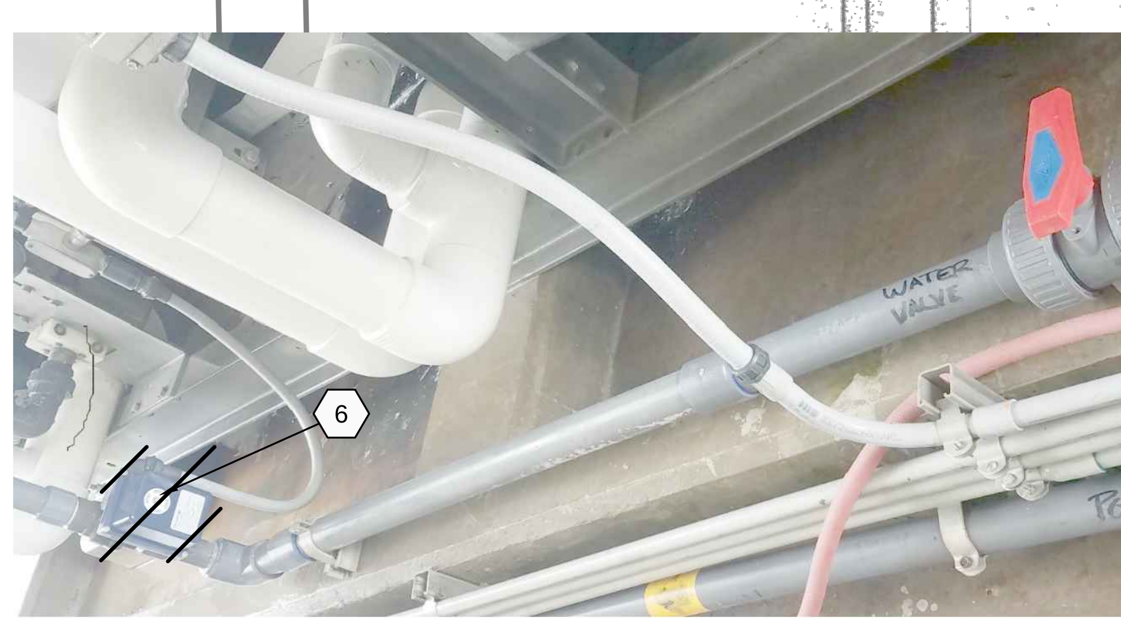
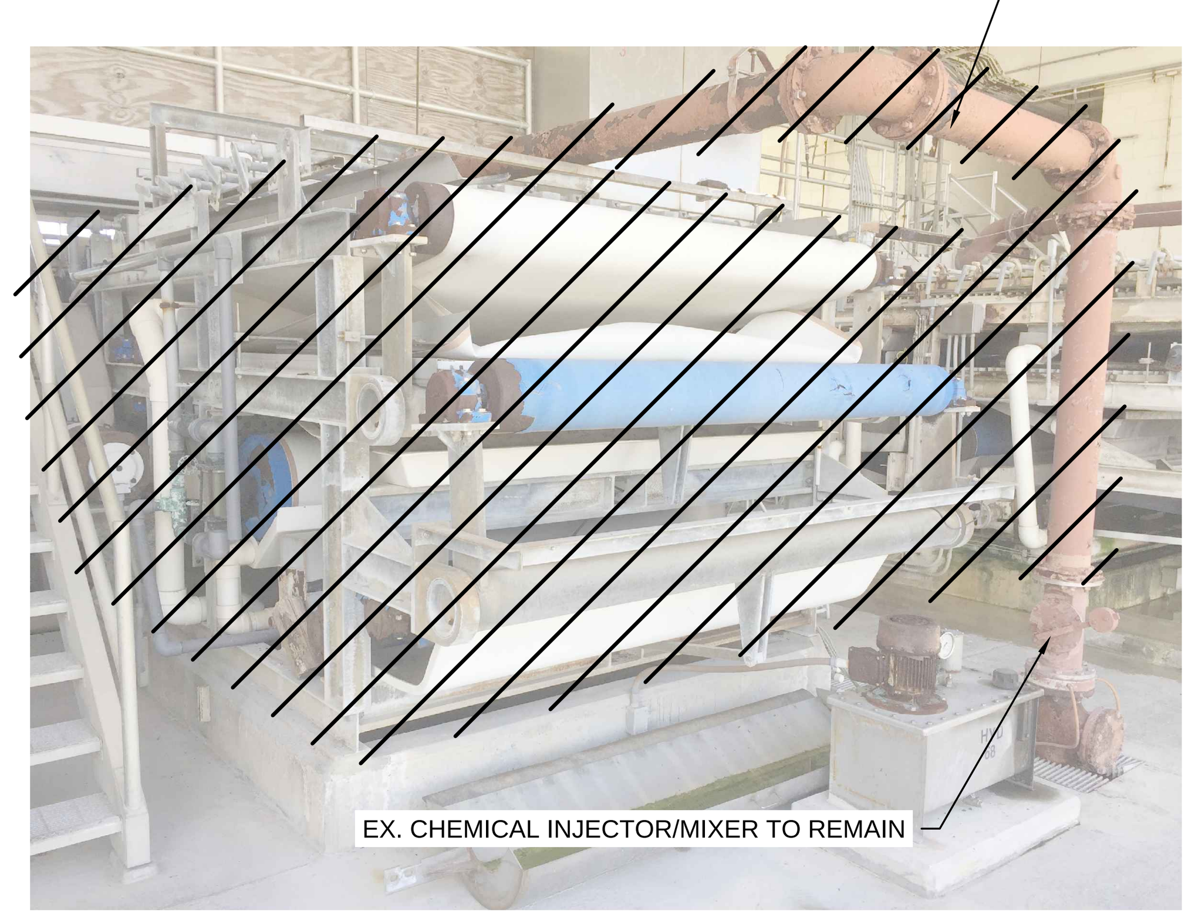


PHOTO 5 MD-01-008

SWWRF BFP DEMOLITION 1

NOT TO SCALE



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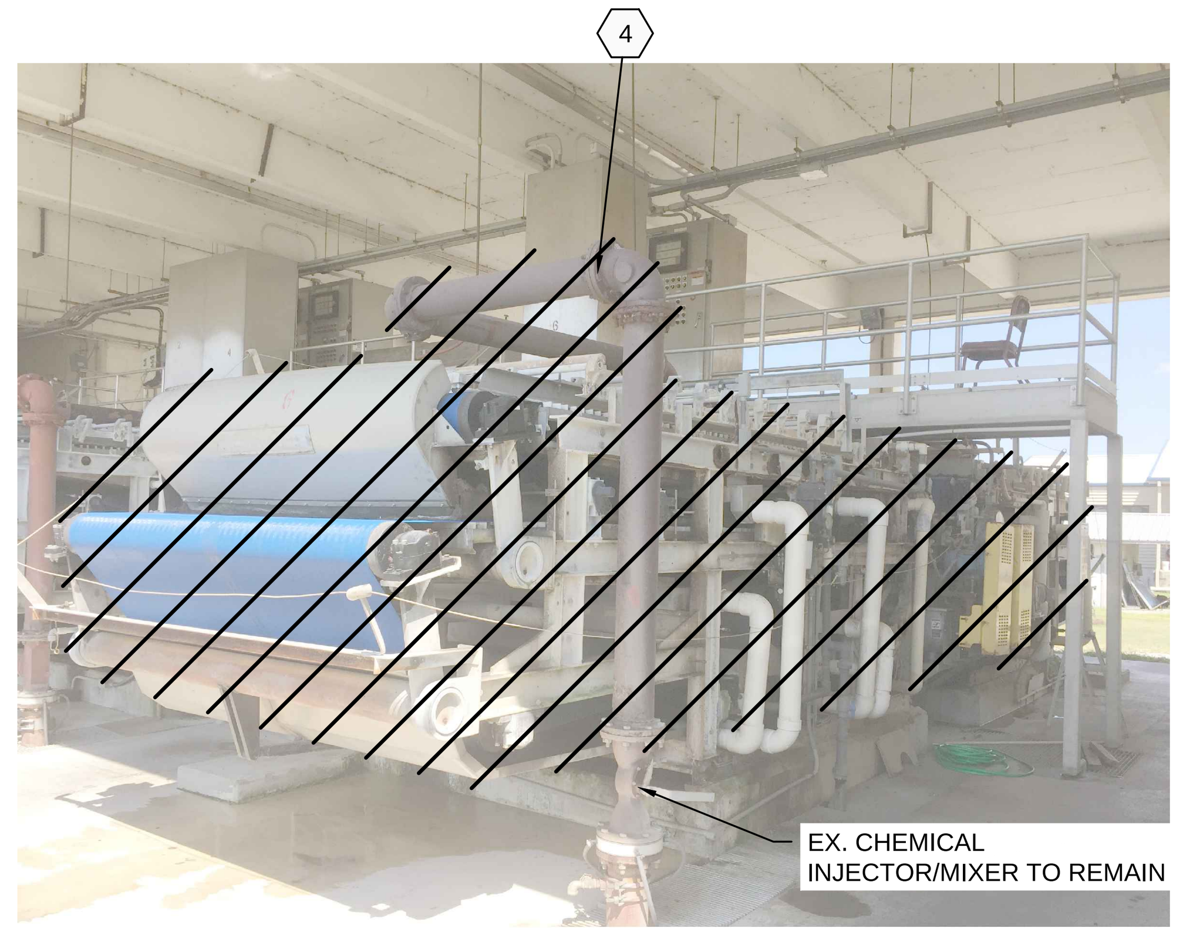

PHOTO 2 MD-01-008

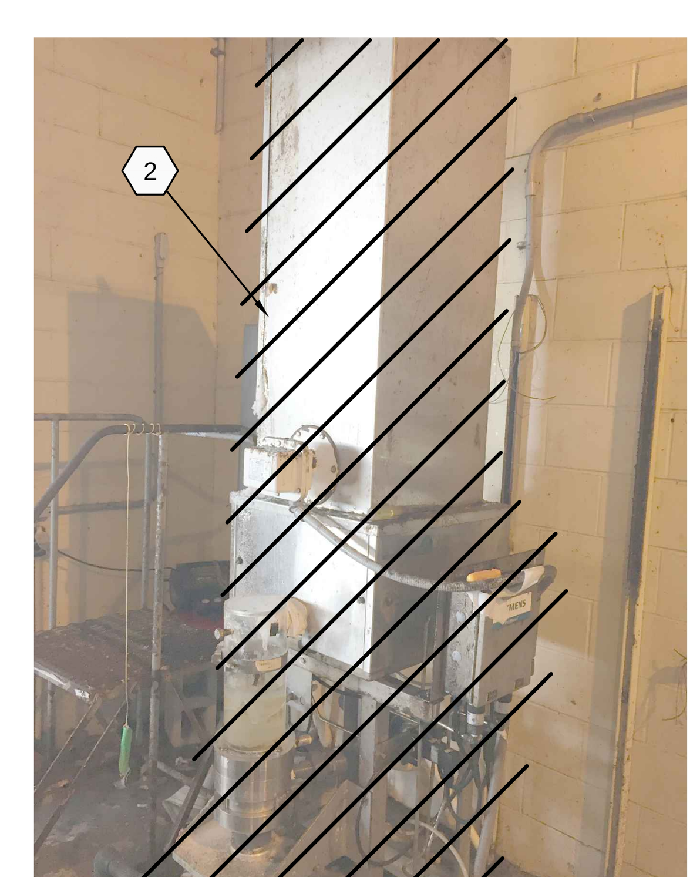

PHOTO 3 MD-01-008

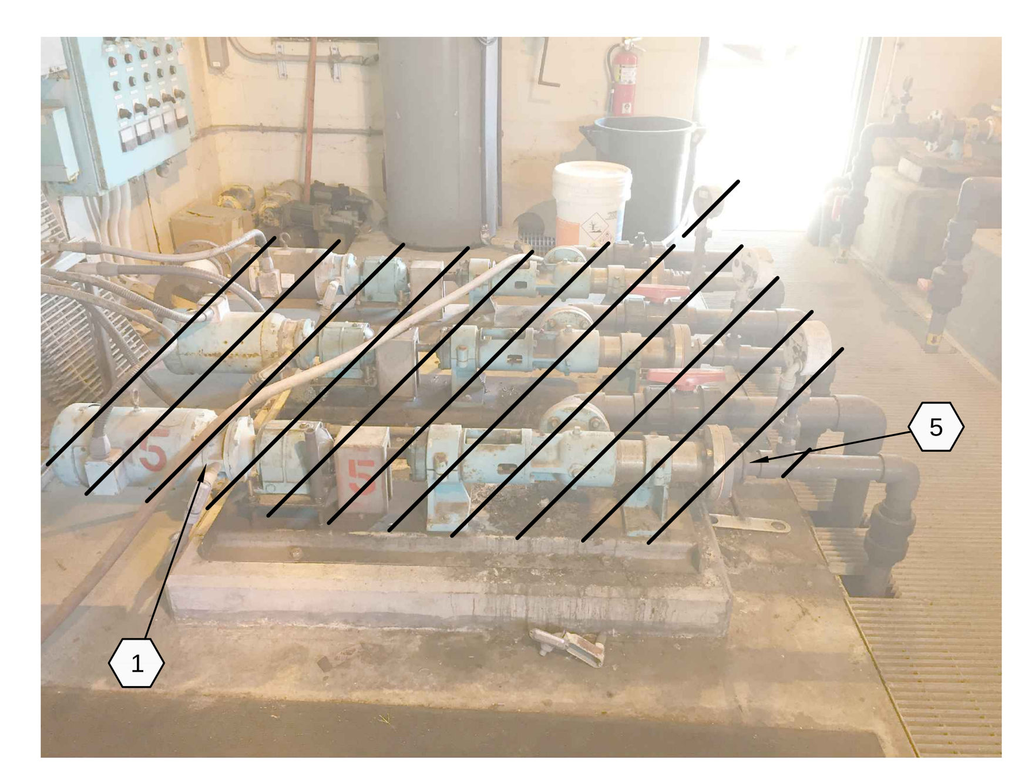

PHOTO 4 MD-01-008

NOTE: BACKGROUND PLAN OBTAINED FROM BELT FILTER PRESSES S.W. WASTE WATER TREATMENT PLANT PROJECT #415-5857-537 AND #430-8528-537.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING EQUIPMENT. ALL EXISTING EQUIPMENT DAMAGED BY THE CONTRACTOR SHALL BE EXPEDITIOUSLY REPAIRED OR REPLACED AT THE EXPENSE OF THE CONTRACTOR WITHOUT ADDITIONAL COMPENSATION.
3. CONTRACTOR TO COORDINATE WITH BELT FILTER PRESS MANUFACTURER BEFORE DISCONNECTING PIPING, HYDRAULIC PACK, ANCHORING, SUPPORTS, ELECTRICAL AND CONTROLS.
4. CONSTRUCTION, DEMOLITION AND RENOVATION SHALL COMPLY WITH NFPA 241.
5. CONTRACTOR SHALL CLEAN, RECOAT, PAINT AND/OR GROUT EXISTING EQUIPMENT PADS THAT ARE DISTURBED AS PART OF THE WORK DETAILED IN THESE CONSTRUCTION DOCUMENTS TO MATCH EXISTING FINISH.
6. ONLY ONE(1) BFP SHALL BE TAKEN OFFLINE AT ANY GIVEN TIME.

KEY NOTES:

1. DEMOLISH EXISTING POLYMER FEED PUMPS. (TYP OF 8)
2. DEMOLISH EXISTING POLYMER SYSTEM. (TYP OF 1)
3. DEMOLISH EXISTING BELT FILTER PRESS. (TYP OF 2)
4. DEMOLISH 8" PARTIAL DIP FEED PIPE ASSEMBLY. (TYP OF 2)
5. DEMOLISH PRESSURE GAUGE, SWITCH AND RING. (TYP OF 8)
6. DEMOLISH WASHWATER SPRAY-BOX SOLENOID. (TYP OF 2)
7. DEMOLISH EXISITING PROGRESSIVE CAVITY PUMPS. CUT AND CAP ASSOCIATIVE PIPING.

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BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

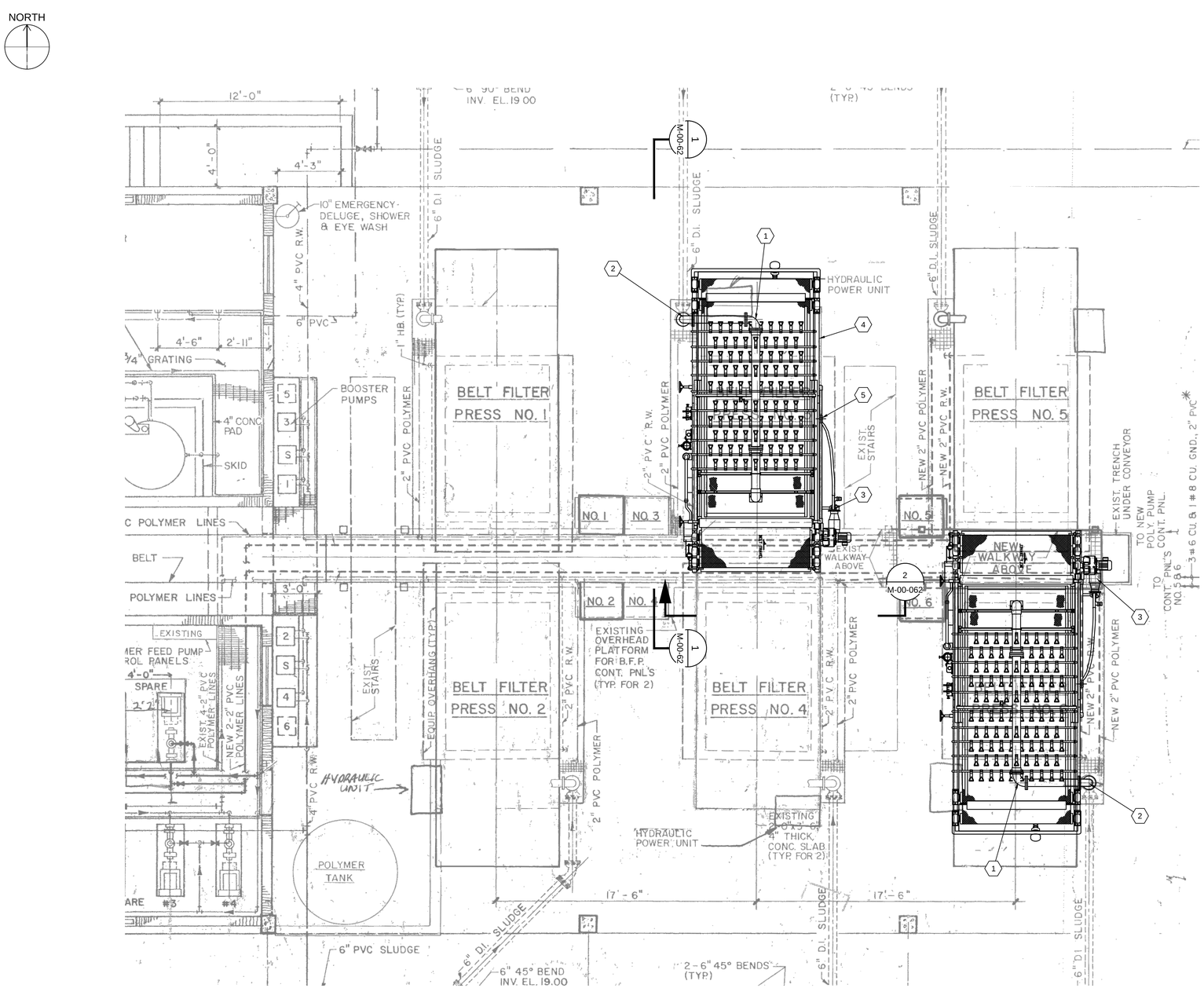
LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. GAYLORD
DRAWN: A. HUTT
CHECKED: T. BOSSO
CHECKED: B. ELEAZER
APPROVED: A. MODY
FILENAME MD-01-008.DWG
BC PROJECT NUMBER 152270
CLIENT PROJECT NUMBER 6091680

MECHANICAL

SWWRF BFP DEMOLITION 1

DRAWING NUMBER MD-01-008



SWWRF BFP PLAN

NOT TO SCALE

NOTE: BACKGROUND PLAN OBTAINED FROM BELT FILTER PRESSES S.W. WASTE WATER TREATMENT PLANT PROJECT #415-5857-537 AND #430-8528-537.

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. NOT ALL EXISTING EQUIPMENT, APPURTENANCES, AND SUPPORTS SHOWN.
3. REPLACE SLUDGE FEED PIPING FROM THE CONNECTION AT BELT FILTER PRESS TO THE CHEMICAL INJECTION FITTING.
4. THE CONTRACTOR SHALL FIELD VERIFY AND PERFORM ALL NECESSARY UTILITY CONNECTIONS TO THE NEW BELT FILTER PRESSES AND UTILIZE THE EXISTING UTILITY SOURCES PROVIDED FOR THE EXISTING BELT FILTER PRESSES.
5. THE MOTOR-OPERATED VALVE AND PRESSURE SWITCH IS THE UNIT RESPONSIBILITY OF THE BELT FILTER PRESS MANUFACTURER. INSTALLATION AND MOUNTING SHALL BE COORDINATED WITH MANUFACTURER AND INSTALLED PER MANUFACTURER RECOMMENDATIONS.
6. CONSTRUCTION, DEMOLITION AND RENOVATION SHALL COMPLY WITH NFPA 241.
7. CONTRACTOR SHALL CLEAN, RECOAT, PAINT AND/OR GROUT EXISTING EQUIPMENT PADS THAT ARE DISTURBED AS PART OF THE WORK DETAILED IN THESE CONSTRUCTION DOCUMENTS TO MATCH EXISTING FINISH.
8. ONLY ONE(1) BFP SHALL BE TAKEN OFFLINE AT ANY GIVEN TIME.

KEY NOTES:

1. 6" DIP FEED PIPE ASSEMBLY. (TYP OF 2)
2. 6" 90° BENDS DIP. (TYP OF 6)
3. MOTOR-OPERATED VALVE W/PRESSURE SWITCH. (TYP OF 6)
4. CLEAN, REPAIR CONCRETE, PATCH, GROUT, RECOAT AND PAINT EXISTING PAD PER SECTION 09900. (TYP OF 2)
5. JET CLEAN THE DRAIN PIPING AND VENTS PRIOR TO NEW BFP INSTALLATION AND CONNECTION. (TYP OF 2)

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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	R. GAYLORD
DRAWN:	A. HUTT
CHECKED:	T. BOSSO
CHECKED:	B. ELEAZER
APPROVED:	A. MODY

FILENAME
M-00-061.DWG

BC PROJECT NUMBER
152270

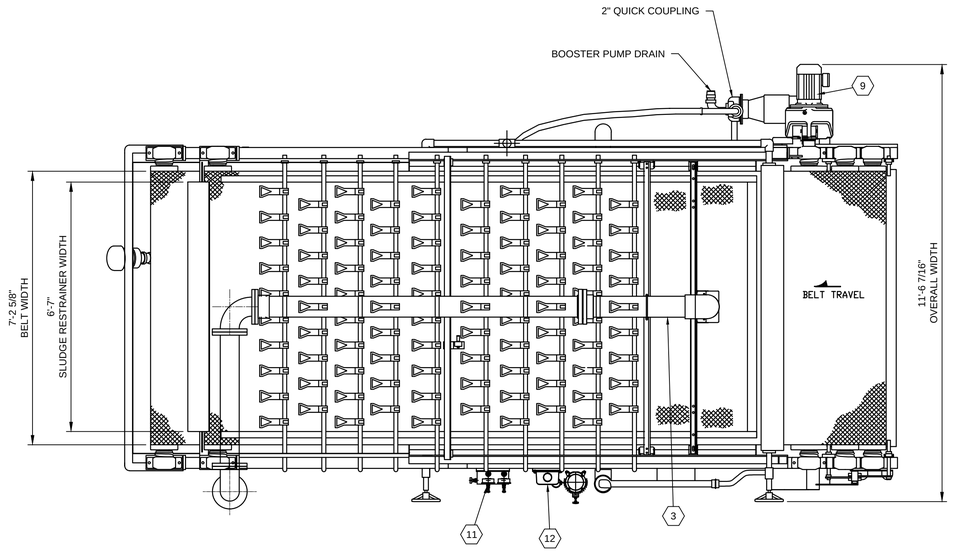
CLIENT PROJECT NUMBER
6091680

MECHANICAL

SWWRF BFP PLAN

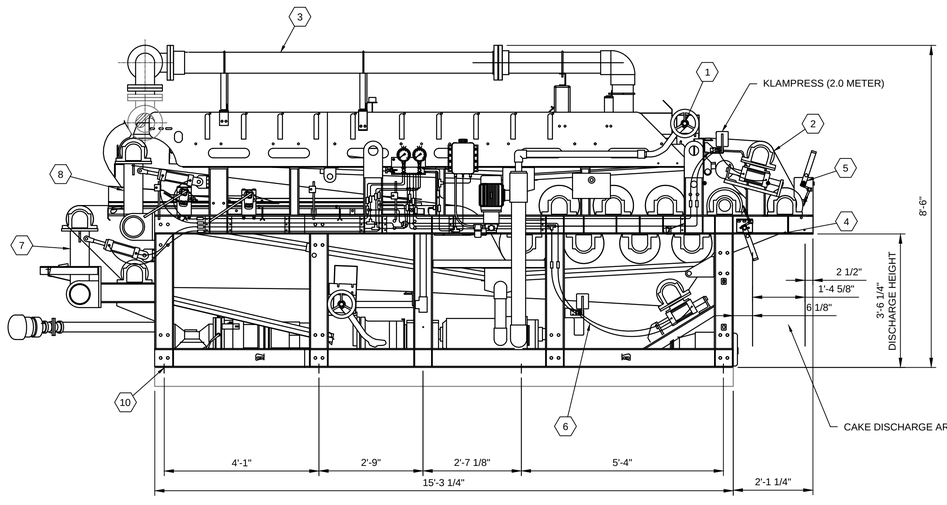
DRAWING NUMBER
M-00-061

SHEET NUMBER 33 OF 72



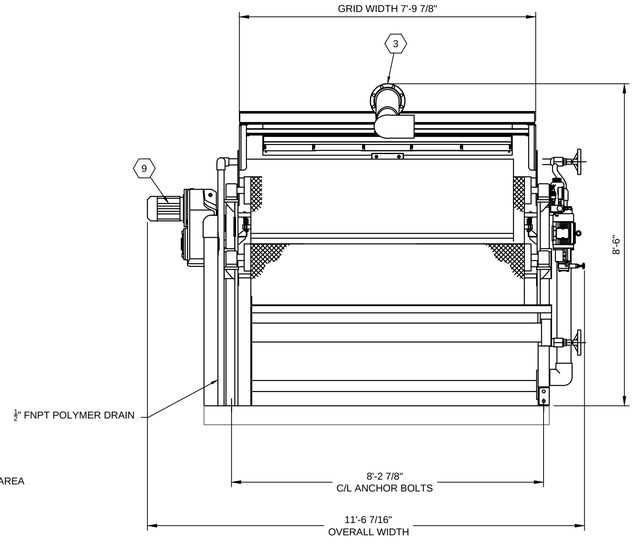
SWWRF BFP PLAN (TYPICAL)

SCALE: 1/2" = 1'-0"



SECTION 1 / M-00-062

SCALE: 1/2" = 1'-0"



SECTION 2 / M-00-062

SCALE: 1/2" = 1'-0"

GENERAL NOTES:

1. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. NOT ALL EXISTING EQUIPMENT, APPURTENANCES, AND SUPPORTS SHOWN.
3. CONSTRUCTION, DEMOLITION AND RENOVATION SHALL COMPLY WITH NFPA 241.
4. CONTRACTOR SHALL CLEAN, RECOAT, PAINT AND/OR GROUT EXISTING EQUIPMENT PADS THAT ARE DISTURBED AS PART OF THE WORK DETAILED IN THESE CONSTRUCTION DOCUMENTS TO MATCH EXISTING FINISH.
5. ONLY ONE(1) BFP SHALL BE TAKEN OFFLINE AT ANY GIVEN TIME.

KEY NOTES:

1. UPPER SPRAY SHOWERS & WASHBOX.
2. UPPER BELT STEERING.
3. FEED PIPE ASSEMBLY.
4. CAKE DISCHARGE.
5. SCRAPPER BLADE.
6. LOWER BELT STEEPING.
7. LOWER BELT TENSIONING.
8. UPPER BELT TENSIONING.
9. BELT DRIVE MOTOR.
10. HOLE LOCATION FOR 3/4" DIA. ANCHOR BOLTS AND PERCENT OF WEIGHT DISTRIBUTION PER PAD.
11. HYDRAULIC CONTROL MANIFOLD.
12. HYDRAULIC FILTER.

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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. GAYLORD
DRAWN: A. HUTT
CHECKED: T. BOSSO
CHECKED: B. ELEAZER
APPROVED: A. MODY

FILENAME
M-00-062.DWG

BC PROJECT NUMBER
152270

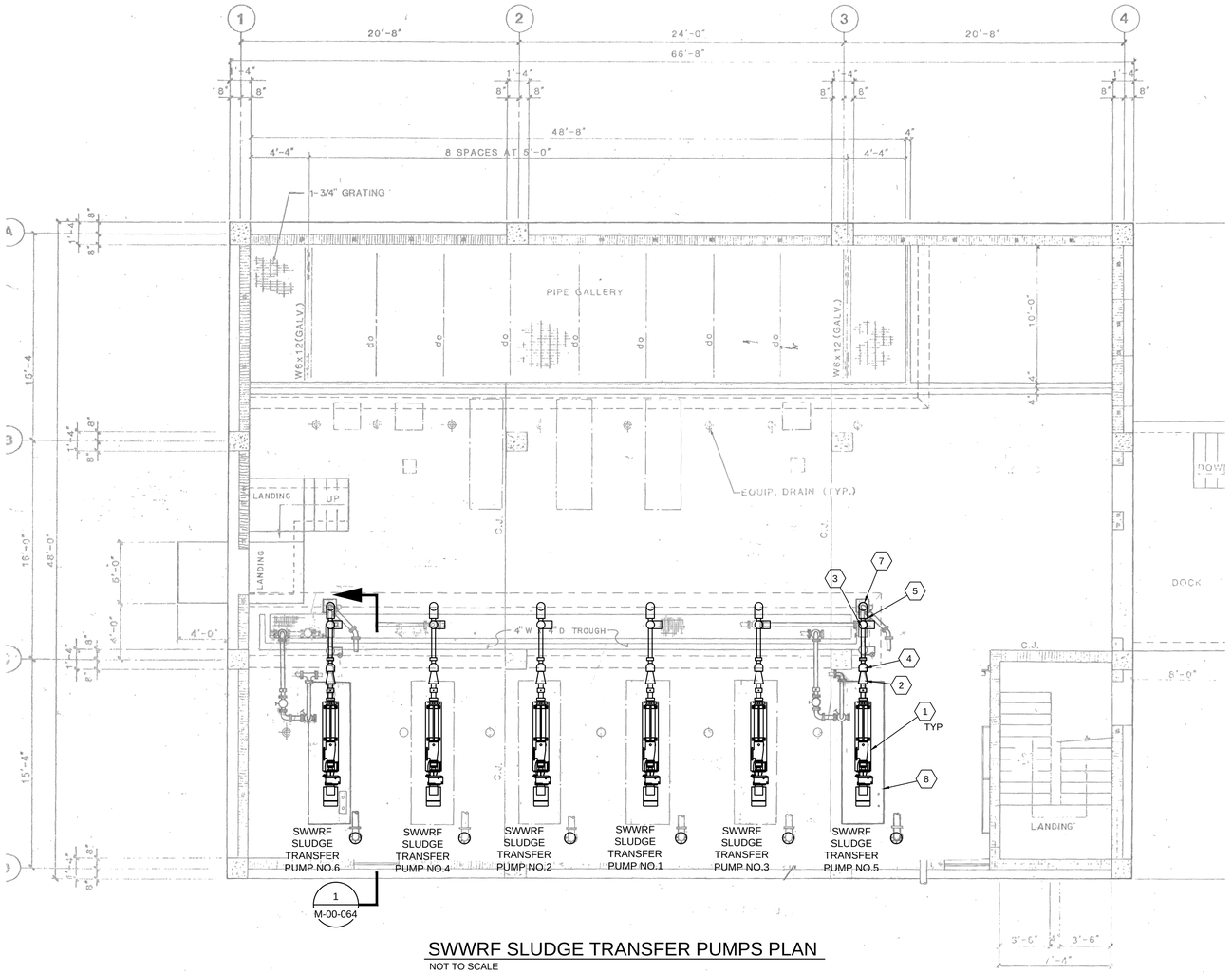
CLIENT PROJECT NUMBER
6091680

MECHANICAL

SWWRF BFP PLANS AND SECTIONS

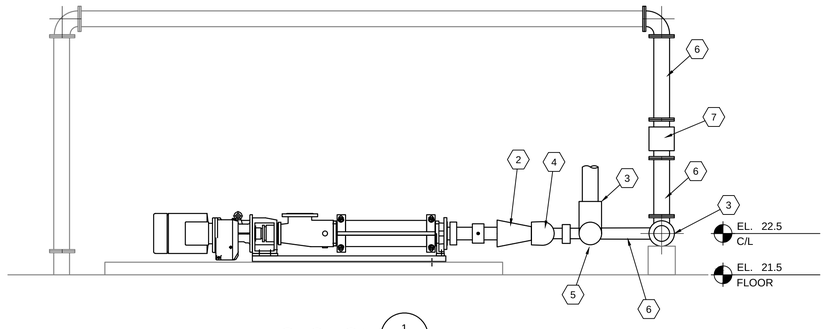
DRAWING NUMBER
M-00-062

SHEET NUMBER 34 OF 72



SWWRF SLUDGE TRANSFER PUMPS PLAN

NOT TO SCALE



SECTION 1 / M-00-064

NOT TO SCALE

NOTE: BACKGROUND PLAN OBTAINED FROM BELT FILTER PRESSES S.W. WASTE WATER TREATMENT PLANT PROJECT #415-5857-537 AND #430-8528-537.

GENERAL NOTES:

1. REPLACE CONTROL PANEL. PROVIDE ALL REQUIRED CONNECTIONS (POWER, CONTROL, SIGNAL) FOR PROPER OPERATION OF SLUDGE FEED PUMPS.
2. MODIFY EXISTING CONCRETE PILLOW BLOCK AS NECESSARY TO SUPPORT NEW SLUDGE FEED PUMPS. CHAMFER ALL EDGES TO MATCH EXISTING.
3. PUMP AND REQUIRED ANCILLARY EQUIPMENT TO MATCH EXISTING AS CLOSELY AS POSSIBLE.
4. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
5. NOT ALL EXISTING EQUIPMENT, APPURTENANCES, AND SUPPORTS SHOWN.
6. FINAL DIMENSIONS TO BE COORDINATED WITH PUMP MANUFACTURER.
7. CONSTRUCTION, DEMOLITION AND RENOVATION SHALL COMPLY WITH NFPA 241.
8. CONTRACTOR SHALL CLEAN, RECOAT, PAINT AND/OR GROUT EXISTING EQUIPMENT PADS THAT ARE DISTURBED AS PART OF THE WORK DETAILED IN THESE CONSTRUCTION DOCUMENTS TO MATCH EXISTING FINISH.
9. ONLY ONE(1) BFP SHALL BE TAKEN OFFLINE AT ANY GIVEN TIME.

KEY NOTES:

1. INSTALL SLUDGE FEED PUMP. (TYP OF 6)
2. 8"x6" REDUCER. (TYP OF 6)
3. 6" PLUG VALVE. (TYP OF 18)
4. 6" CHECK VALVE. (TYP OF 6)
5. 6"x6" TEE (DIP). (TYP OF 6)
6. 6" DIP. (TYP OF 6)
7. 6" MAGNETIC FLOW METER. (TYP OF 6)
8. CLEAN, REPAIR CONCRETE, PATCH, GROUT, RECOAT AND PAINT EXISTING PAD PER SECTION 09900. (TYP OF 6)

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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: R. GAYLORD
DRAWN: A. HUTT
CHECKED: T. BOSSO
CHECKED: B. ELEAZER
APPROVED: A. MODY

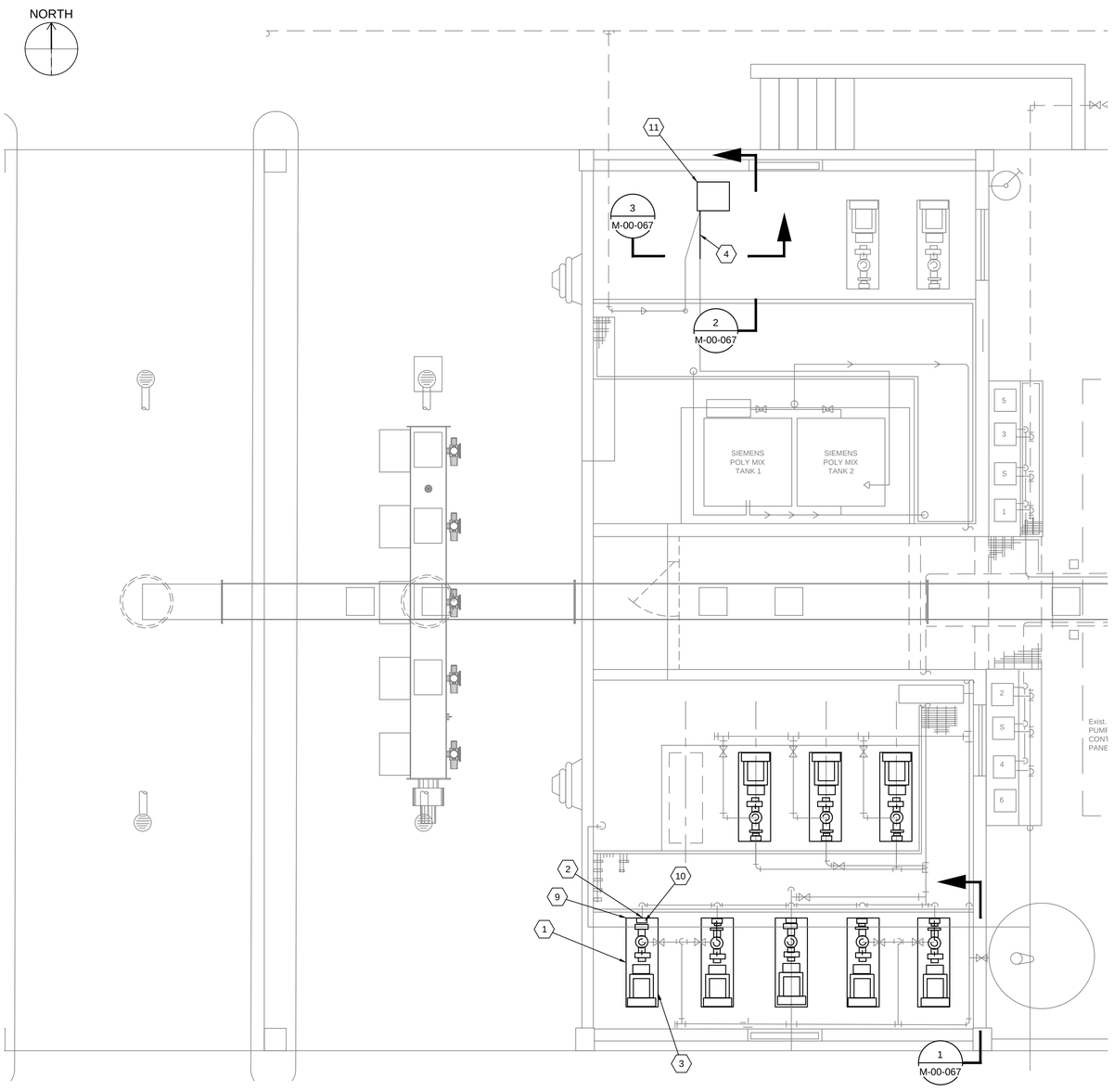
FILENAME
M-00-064.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

MECHANICAL

SWWRF SLUDGE TRANSFER PUMPS PLAN

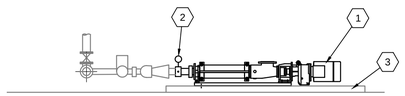
DRAWING NUMBER
M-00-064

SHEET NUMBER 35 OF 72



SWWRF POLYMER PLAN

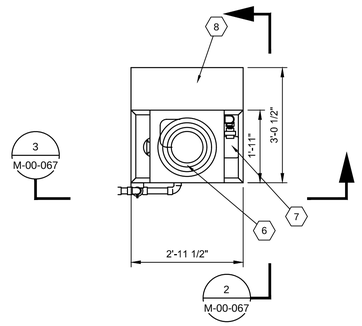
NOT TO SCALE



SECTION 1 / M-00-067

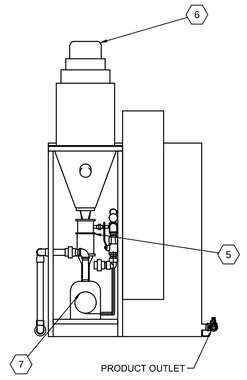
NOT TO SCALE

NOTE: BACKGROUND PLAN OBTAINED FROM BELT FILTER PRESSES S.W. WASTE WATER TREATMENT PLANT PROJECT #415-5857-537 AND #430-8528-537.



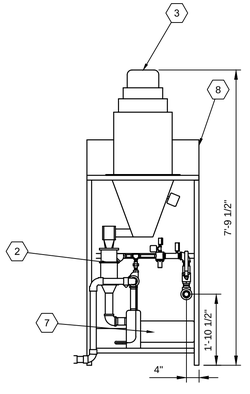
POLYMER MIXING SYSTEM

NOT TO SCALE



2 / M-00-067 SECTION

NOT TO SCALE



3 / M-00-067 SECTION

NOT TO SCALE

GENERAL NOTES:

1. NO PIPING OR APPURTENANCES TO BE REPLACED W/PROPOSED SLUDGE PUMPS.
2. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
3. NOT ALL EXISTING EQUIPMENT, APPURTENANCES, AND SUPPORTS SHOWN.
4. PUMP REPLACEMENT INCLUDED BASEPLATES.
5. CONSTRUCTION, DEMOLITION AND RENOVATION SHALL COMPLY WITH NFPA 241.
6. CONTRACTOR SHALL CLEAN, RECOAT, PAINT AND/OR GROUT EXISTING EQUIPMENT PADS THAT ARE DISTURBED AS PART OF THE WORK DETAILED IN THESE CONSTRUCTION DOCUMENTS TO MATCH EXISTING FINISH.
7. ONLY ONE(1) BFP SHALL BE TAKEN OFFLINE AT ANY GIVEN TIME.
8. POLYMER SYSTEM VACCUM LINE SHALL BE ROUTED TO THE LOCATION WITHIN 20-FT OF THE POLYMER SYSTEM AS DIRECTED BY THE COUNTY OPERATIONAL STAFF.

KEY NOTES:

1. POLYMER FEED PUMPS. (TYP OF 8)
2. PRESSURE GAUGE, SWITCH AND RING. (TYP OF 8)
3. PUMP BASE PLATE. (TYP OF 8)
4. 1 1/2" PVC PIPING.
5. WETTING SYSTEM.
6. POWDER VACUUM CONVEYOR.
7. POLYMER SYSTEM PUMP.
8. POLYMER CONTROL PANEL.
9. CLEAN, REPAIR CONCRETE, PATCH, GROUT, RECOAT AND PAINT EXISTING PAD PER SECTION 09900. (TYP OF 8)
10. CONNECT W/EXISTING PVC PIPING. (TYP OF 8)
11. INSTALL POLYMER MIXING SYSTEM.

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Certificate of Authorization No. 2602
Sarasota, FL 34240

ENGINEER OF RECORD
ANAND MODY, PE 68379

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	R. GAYLORD
DRAWN:	A. HUTT
CHECKED:	T. BOSSO
CHECKED:	B. ELEAZER
APPROVED:	A. MODY
FILENAME	M-00-067.DWG
BC PROJECT NUMBER	152270
CLIENT PROJECT NUMBER	6091680

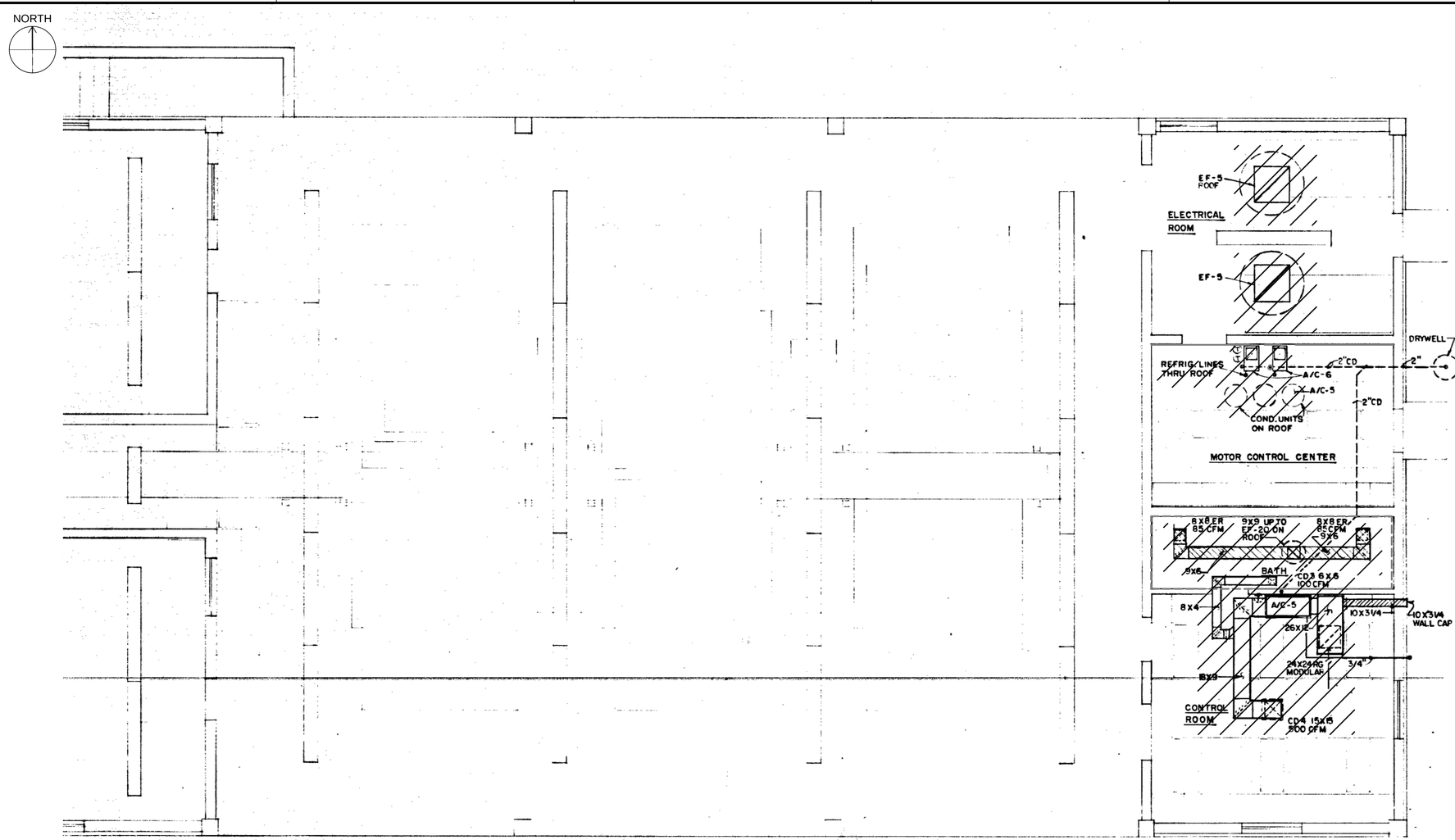
MECHANICAL

SWWRF POLYMER PLAN AND SECTIONS

DRAWING NUMBER

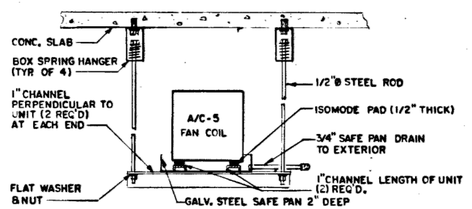
M-00-067

SHEET NUMBER 36 OF 72



A/C & VENTILATION PLAN - DEWATERING BLDG.

SCALE 1/4" = 1'-0"



SUSPENDED FAN COIL UNIT DETAIL

NO SCALE

GENERAL NOTES:

1. DEMOLISH EXISTING HVAC AND DUCTS.
2. SEAL PENETRATIONS PER STRUCTURAL DRAWINGS.
3. SEAL WALL PENETRATIONS.
4. DEMOLISH AND CAP TO A FLUSH FINISH, THE EXISTING ABOVE GRADE CONDENSATE DRAIN.

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ENGINEER OF RECORD
RUBEN SIDRANSKI, PE 78937

BID SET

Manatee County FLORIDA

SWWRF & SEWRF
BELT FILTER PRESS
REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:
DRAWN:
CHECKED:
CHECKED:
APPROVED:

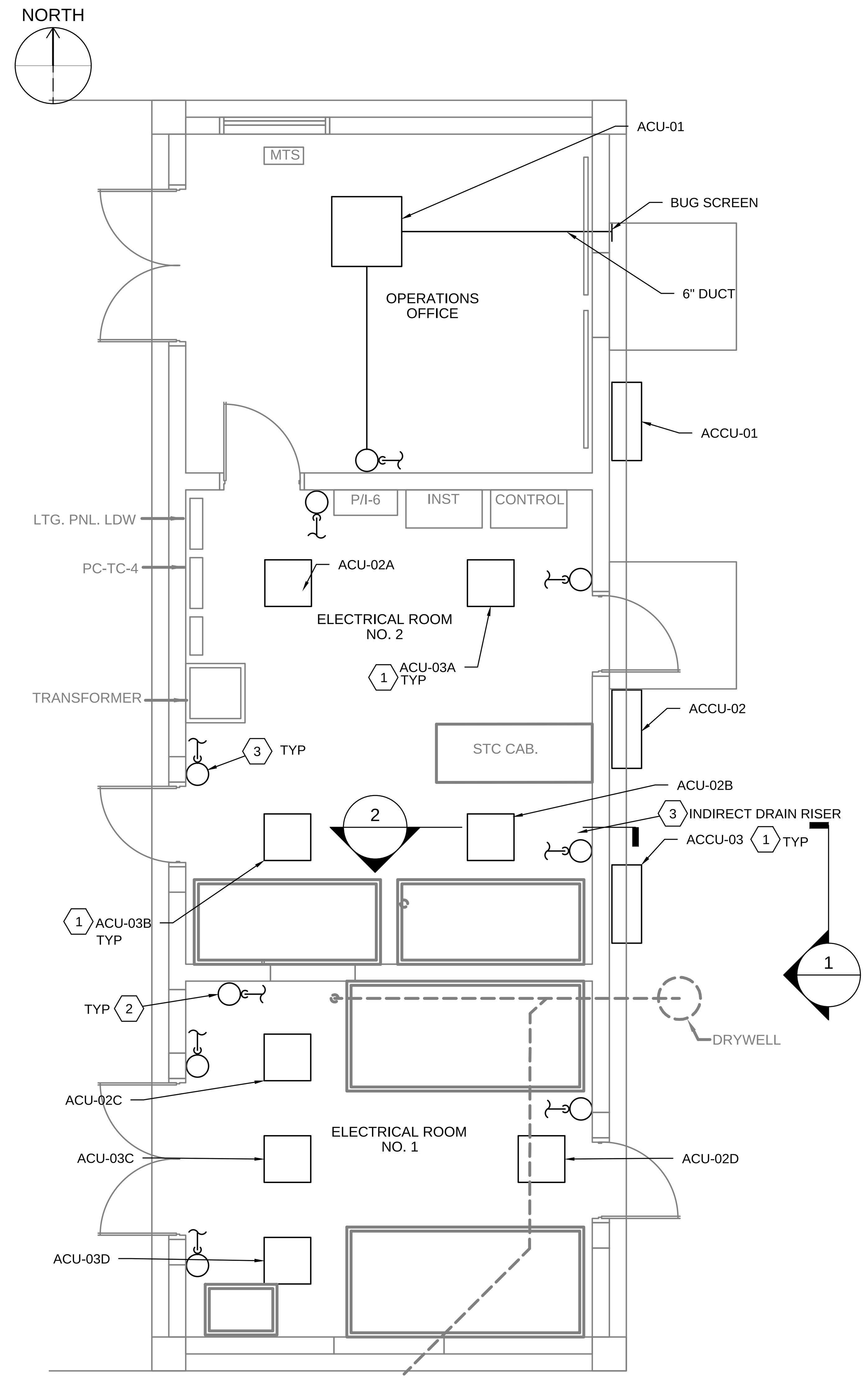
FILENAME
HD-00-001.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

HVAC

HVAC DEMO

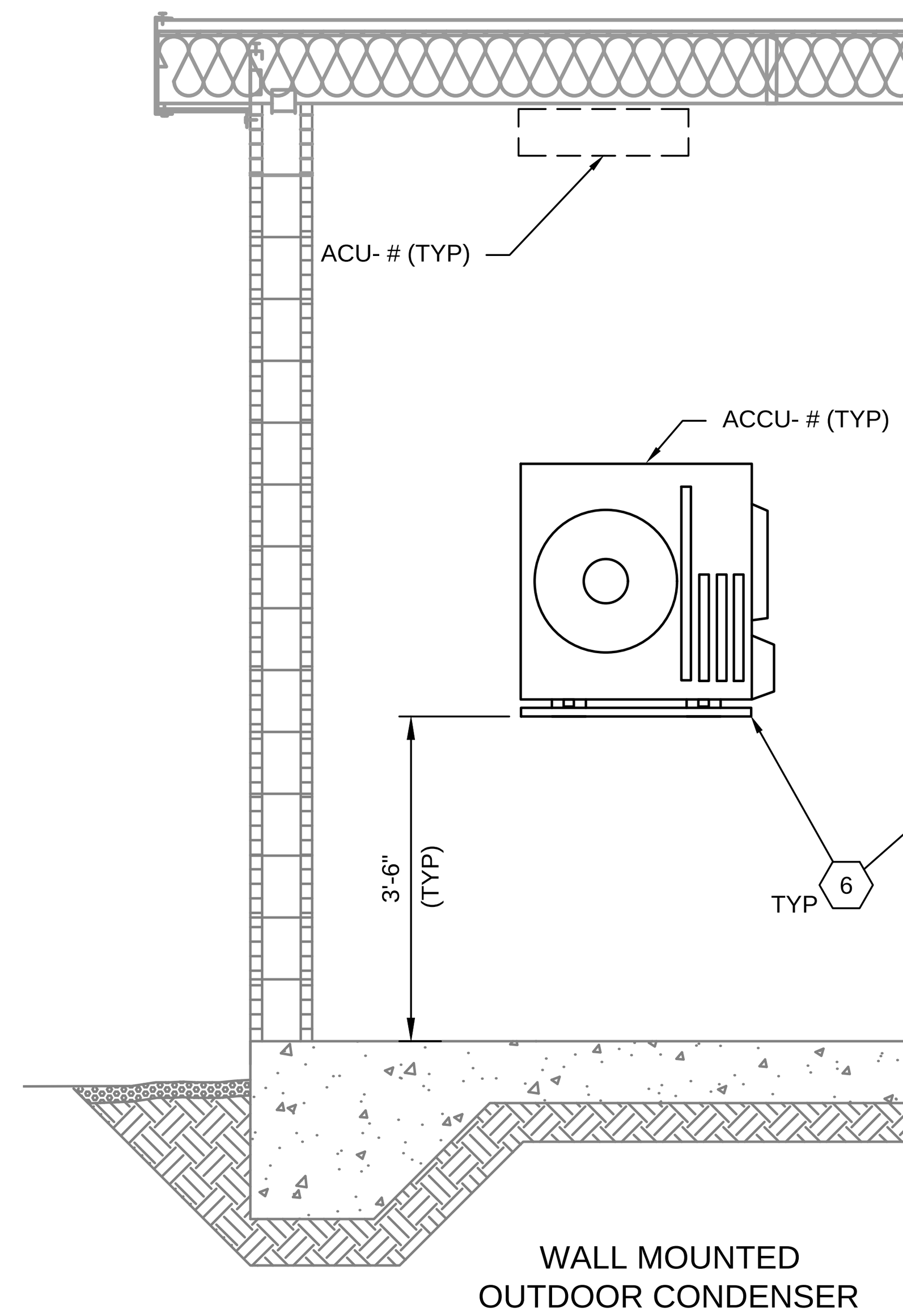
DRAWING NUMBER
HD-00-001

37 SHEET NUMBER OF 72



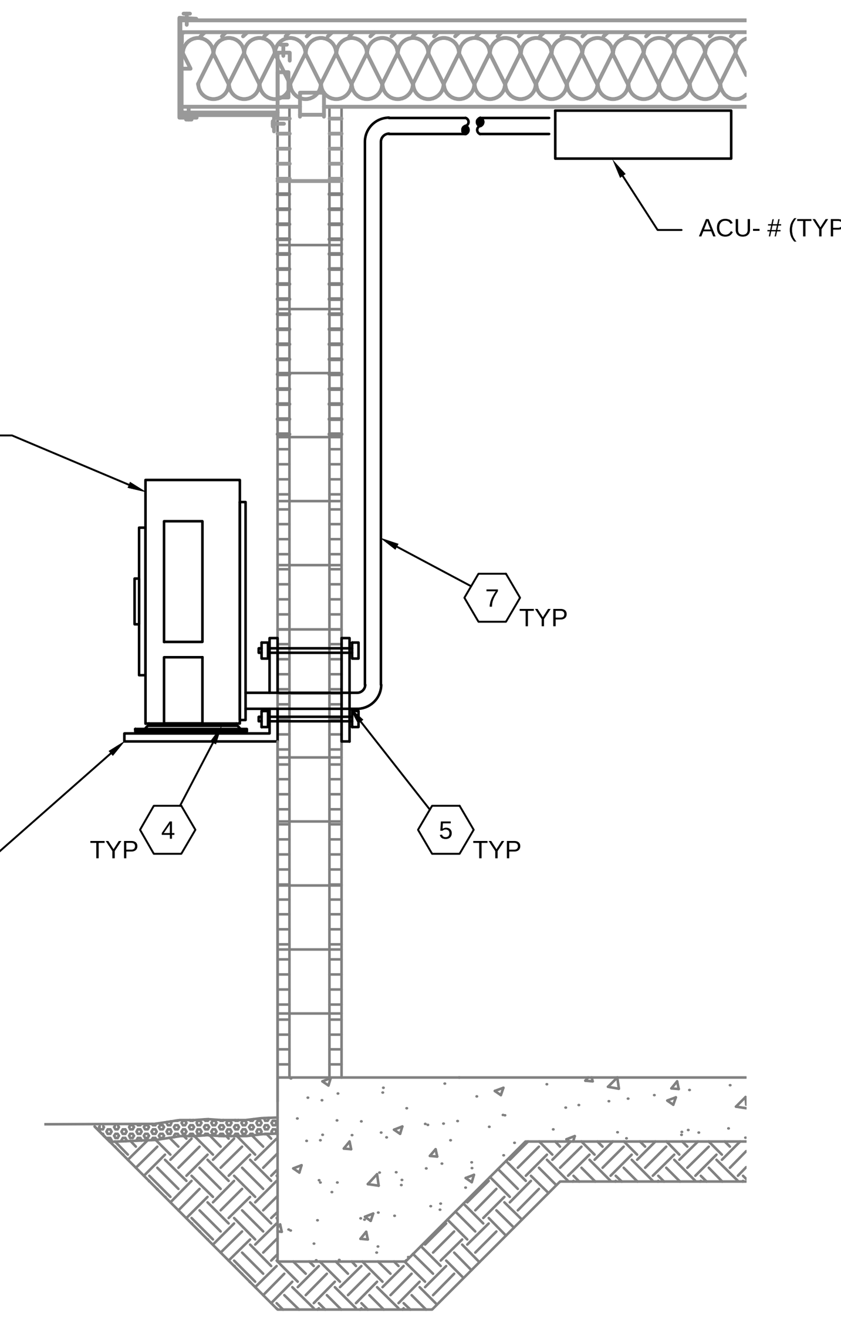
PARTIAL HVAC PLAN - DEWATERING BUILDING NEW WORK

1/4" = 1'



1 SECTION

SCALE: 1/2" = 1'-0"



2 SECTION

SCALE: 1/2" = 1'-0"

COATINGS

A. Surface Preparation:
1. All fabricated surfaces from ferrous metal, except motors and speed reducers, shall be shop cleaned by sandblasting or equivalent, in strict conformance with the paint manufacturer's recommendations.
2. All mill scale, rust, and contaminants shall be removed before shop primer is applied.

B. Coatings shall be electrostatically coated (e-coat) and uniformly applied. The electro-coat process shall ensure complete encapsulation of all conductive surfaces with uniform dry film thickness. After e-coat cure, equipment shall receive a spray-applied, polyurethane black topcoat to prevent UV degradation of epoxy e-coat film. Immediately after completion of the test, the specimen must show no signs of blistering, wrinkling, cracking, or loss of adhesion and no sign of rust creepage beyond 1/8 inch on either side of the scratch mark. Cut edges of galvanized surfaces where hot-dip galvanized sheet steel is used must be coated with a zinc-rich coating conforming to ASTM D520, Type I.

C. Submit product data on the type coating selected, the coating thickness, the application process used to meet the requirements below and verification of conformance with the salt spray test requirement
1. Surface finish damaged during installation shall be repaired to the satisfaction of Engineer.

D. Coils/HX exposed to ambient
1. No material bridging is allowed, including enhanced and micro-channel fin designs
2. Submit the estimated heat transfer loss of the coil. Coating must be applied at either the coil or coating manufacturer's factory. Coating process must ensure complete coil encapsulation

E-Coating Requirements		
Coating Quality	Test Procedure	Coating Performance (Nominal plus)
Dry Film Thickness	ASTM D7091	1 mil
Water Immersion	ASTM D870	1000 hrs
Cross Hatch Adhesion	ASTM B3359	4B-5B Rating
Salt Spray	ASTM B117 ASTM B117-G85	6000 hrs 2000 hrs
Heat Transfer Reduction (Coils Only)	AHRI 410	<1%
Humidity	ASTM D1735	1000
Operating pH Range	N/A	3-12
Temperature		-40 F to 300 F (Coils Only) See 01 11 80
Weathering (topcoat)	ASTM 4587	2200

GENERAL NOTES:

1. LINE SETS SHALL BE FIELD ROUTED BY CONTRACTOR.
2. LINE SETS SHALL BE 3" INSULATION WITH ACR COPPER PIPE.
3. COMPLY WITH FLORIDA BUILDING, MECHANICAL AND ENERGY CODES.
4. SUPPLY 115 VAC CONDENSATE PUMP FOR ALL HEAD UNITS.
5. FIELD ROUTE HEAD UNIT CONDENSATE PIPING PER NEC REQUIREMENTS.
6. SEE COATINGS THIS SHEET.
7. CONTRACTOR TO CONFIGURE AND COORDINATE AC PENETRATION AND LINESET ROUTING PER NEC REQUIREMENTS.
8. CONTRACTOR TO FIELD VERIFY EXISTING CONDENSATE AND WELL LOCATION PRIOR TO BEGINNING WORK.

KEY NOTES:

1. ACU NUMBERS CORRESPOND WITH CONNECTED ACCU NUMBERS.
2. 115 VAC CONDENSATE PUMP.
3. FIELD ROUTE INDIRECTLY DRAIN, SEE PLUMBING.
4. INSULATE LINESET (PIPE) MASONRY PENETRATION.
5. PROVIDE 1/4" TYPE 316 SST PLATE WITH (4) 3/4" TYPE 316 SST THROUGH BOLTS. PLATE SIZE TO MATCH EXTERIOR MOUNTING PLATE SIZE.
6. INTRUDER RESISTANT WALL STRUCTURE (CAGE) - PROVIDE POWDER-COATED STEEL PROTECTIVE CAGE FOR EXTERIOR WALL MOUNTED CONDENSING UNIT, AC-GUARD, PROPERTY ARMOR, VULCAN OR EQUAL (NOT SHOWN FOR CLARITY).
7. CONTRACTOR TO CONFIGURE AND COORDINATE AC-PENETRATION AND LINESET ROUTING TO MEET NEC REQUIREMENTS.

VRF INDOOR UNIT SCHEDULE

SYSTEM TAG	BASIS OF DESIGN MITSUBISHI/MODEL	TYPE	NOMINAL COOLING CAPACITY (BTU/HR)	NOMINAL HEATING CAPACITY (BTU/HR)	COOLING DESIGN ENTERING TEMP DB/WB (°F)	HEATING DESIGN ENTERING TEMP DB/WB (°F)	CORRECTED CAPACITY: COOLING TOTAL CAPACITY	CORRECTED CAPACITY: COOLING SENSIBLE CAPACITY (BTU/HR)	CORRECTED CAPACITY: HEATING CAPACITY (BTU/HR)	REFRIG PIPE DIM LIQUID/SUCTION (INCH)	PEAK FAN AIRFLOW (CFM)	VOLTAGE/PHASE	ELECTRICAL MCA/MFS	NOTES & OPTIONS:
ACU-01	PLA-A30EA7	CEILING CASSETTE (4-WAY AIRFLOW) TYPE	30,000.0	32,000.0	75.0/62.5	70.0	28,242.1	23,951.7	21,506.8	5/8 / 3/8	880	208V / 1	Powered by Outdoor	1, 2, 3, 4, 5, 6
ACU-02A	PLFY-P12NFMU-E	CEILING CASSETTE (4-WAY AIRFLOW) TYPE	12,000.0	13,500.0	75.0/62.5	70.0	10,354.5	7,681.2	11,927.4	1/4 / 1/2	335	208V / 1	0.29/0.29/15	1, 2, 3, 4, 5, 6
ACU-02B	PLFY-P12NFMU-E	CEILING CASSETTE (4-WAY AIRFLOW) TYPE	12,000.0	13,500.0	75.0/62.5	70.0	10,354.5	7,681.2	11,927.4	1/4 / 1/2	335	208V / 1	0.29/0.29/15	1, 2, 3, 4, 5, 6
ACU-02C	PLFY-P12NFMU-E	CEILING CASSETTE (4-WAY AIRFLOW) TYPE	12,000.0	13,500.0	75.0/62.5	70.0	10,354.5	7,681.2	11,927.4	1/4 / 1/2	335	208V / 1	0.29/0.29/15	1, 2, 3, 4, 5, 6
ACU-02D	PLFY-P12NFMU-E	CEILING CASSETTE (4-WAY AIRFLOW) TYPE	12,000.0	13,500.0	75.0/62.5	70.0	10,354.5	7,681.2	11,927.4	1/4 / 1/2	335	208V / 1	0.29/0.29/15	1, 2, 3, 4, 5, 6
ACU-03A	PLFY-P12NFMU-E	CEILING CASSETTE (4-WAY AIRFLOW) TYPE	12,000.0	13,500.0	75.0/62.5	70.0	10,354.5	7,681.2	11,927.4	1/4 / 1/2	335	208V / 1	0.29/0.29/15	1, 2, 3, 4, 5, 6
ACU-03B	PLFY-P12NFMU-E	CEILING CASSETTE (4-WAY AIRFLOW) TYPE	12,000.0	13,500.0	75.0/62.5	70.0	10,354.5	7,681.2	11,927.4	1/4 / 1/2	335	208V / 1	0.29/0.29/15	1, 2, 3, 4, 5, 6
ACU-03C	PLFY-P12NFMU-E	CEILING CASSETTE (4-WAY AIRFLOW) TYPE	12,000.0	13,500.0	75.0/62.5	70.0	10,354.5	7,681.2	11,927.4	1/4 / 1/2	335	208V / 1	0.29/0.29/15	1, 2, 3, 4, 5, 6
ACU-03D	PLFY-P12NFMU-E	CEILING CASSETTE (4-WAY AIRFLOW) TYPE	12,000.0	13,500.0	75.0/62.5	70.0	10,354.5	7,681.2	11,927.4	1/4 / 1/2	335	208V / 1	0.29/0.29/15	1, 2, 3, 4, 5, 6

NOTES & OPTIONS:
1 NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB)
2 NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB)
3 SEE OUTDOOR UNIT SCHEDULE FOR OUTDOOR AMBIENT CONDITIONS, CONNECTED CAPACITY, AND OTHER FACTORS ASSOCIATED WITH
4 SEE SCHEMATIC PIPING/CONTROL DIAGRAM FOR INDICATION OF REQUIRED INDOOR UNIT REMOTE CONTROLLERS, SYSTEM CONTROLLERS,
5 115V CONDENSATE PUMP. TAG NUMBERS TO FOLLOW ACU NUMBER (EG CP-03D IS ASSOCIATED WITH ACU-03D)
6 DISCONNECT SWITCHES FOR THE ACU AND CONDENSATE PUMPS BY HVAC/MFG
7 CONTRACTOR TO PROVIDE WALL MOUNTED MHK1 REMOTE CONTROL KIT OR EQUAL. FIELD COORDINATE T-STAT LOCATION TO MEET ADA AND NEC REQUIREMENTS

VRF OUTDOOR UNIT SCHEDULE

SYSTEM TAG	BASIS OF DESIGN MITSUBISHI/MODEL	MODULES	NOMINAL COOLING CAPACITY (BTU/HR)	NOMINAL HEATING CAPACITY (BTU/HR)	DESIGN COOLING OUTDOOR TEMP DB (°F)	DESIGN HEATING OUTDOOR TEMP DB (°F)	CORRECTED COOLING LOAD TOTAL CAPACITY (BTU/HR)	CORRECTED HEATING LOAD TOTAL CAPACITY (BTU/HR)	ELECTRICAL - PER MODULE: VOLTAGE/PHASE	ELECTRICAL - PER MODULE: MCA 208V	ELECTRICAL - PER MODULE: RFS	ELECTRICAL - PER MODULE: MOCP	NOTES & OPTIONS:
ACCU-01	PUZ-A30NHA7-BS		30,000.0	32,000.0	93.0	35.7	28,242.1	21,506.8	208V / 1	19	25	26	1, 2, 3, 4, 5, 6
ACCU-02	PUMY-P48NKMU1-BS	P48	48,000.0	54,000.0	93.0	35.7	46,435.0	47,709.4	208V / 1	31	40	44	1, 2, 3, 4, 5, 6
ACCU-03	PUMY-P48NKMU1-BS	P48	48,000.0	54,000.0	93.0	35.7	46,435.0	47,709.4	208V / 1	31	40	44	1, 2, 3, 4, 5, 6

NOTES & OPTIONS:
1 NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 80/67°F (DB/WB), OUTDOOR OF 95°F (DB)
2 NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR COIL EAT OF 70°F (DB), OUTDOOR OF 43°F (WB)
3 EFFICIENCY VALUES FOR EER, IEER, COP ARE BASED ON AHRI 1230 TEST METHOD FOR MIXTURE OF DUCTED & NON-DUCTED INDOOR
4 FOR SYSTEMS WITH MULTIPLE MODULES, REFRIGERANT PIPE DIMENSIONS INDICATE TOTAL SYSTEM COMBINED PIPING DOWNSTREAM
5 ADDED FIELD CHARGE LISTED IS IN ADDITION TO FACTORY CHARGE, THIS MUST BE UPDATED BASED UPON FINAL AS-BUILT PIPING
6 DISCONNECT SWITCHES BY OTHERS/ELECTRICAL

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BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

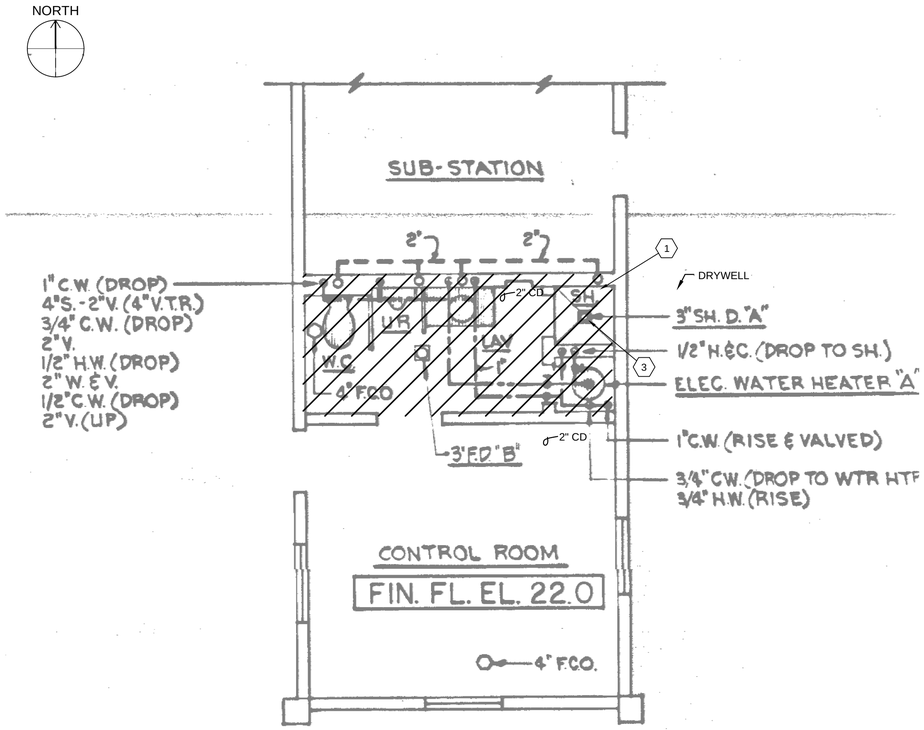
DESIGNED: RS
DRAWN: MC
CHECKED:
CHECKED:
APPROVED:

FILENAME H-00-001.DWG
BC PROJECT NUMBER 152270
CLIENT PROJECT NUMBER 6091680

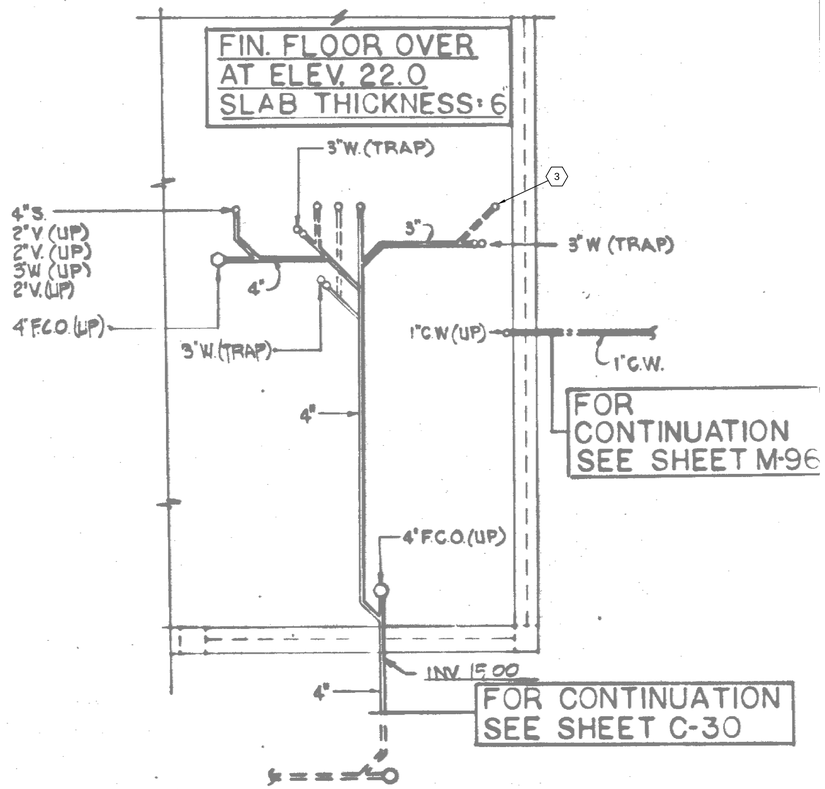
HVAC
SWWRF

DEWATERING BLDG. HVAC PLAN

DRAWING NUMBER
H-00-001



PART. FLOOR PLAN



PART. BURIED PIPING PLAN

KEY NOTES:

1. DEMOLISH AND CAP TO A FLUSH FINISH, THE EXISTING ABOVE GRADE PLUMBING.
2. HVAC CONDENSATE LINE AND DRYWELL SEE HD-00-001.
3. FROM SHOWER DRAIN, CONTRACTOR WILL FIELD ROUTE MATCHING PIPE DIAMETER SEE P-00-001.

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REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED:
DRAWN:
CHECKED:
CHECKED:
APPROVED:

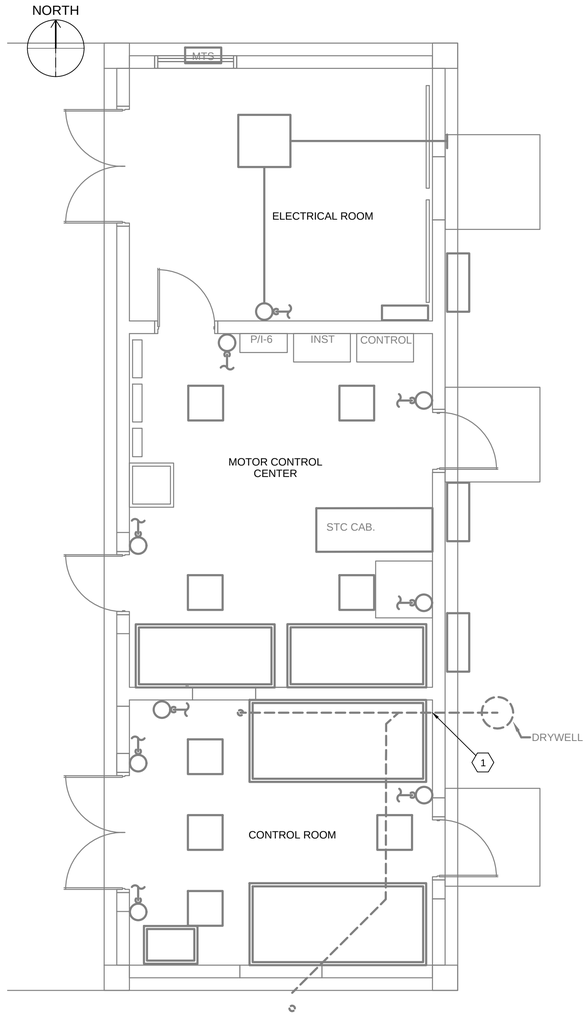
FILENAME
PD-00-001.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

PLUMBING

PLUMBING DEMO

DRAWING NUMBER
PD-00-001

SHEET NUMBER 39 OF 72



PARTIAL PLUMBING PLAN - DEWATERING BUILDING NEW WORK

1/4" = 1'

KEY NOTES:

1. FIELD ROUTE, MATCHING PIPE DIAMETER, FROM SHOWER, UP ABOVE DROP CEILING FOR HVAC INDIRECT CONDENSATE USE. COORDINATED WITH NEC REQUIREMENTS AND HVAC AND ELECTRICAL EQUIPMENT.

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REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
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DESIGNED:
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CHECKED:
APPROVED:

FILENAME
P-00-001.DWG

BC PROJECT NUMBER
152270

CLIENT PROJECT NUMBER
6091680

PLUMBING
SWWRF

PLUMBING PLAN

DRAWING NUMBER
P-00-001

40 SHEET NUMBER OF 72

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manateeco-logo.png

RACEWAYS

HH23 — MANHOLE (MH), HANDHOLE (HH), PULLBOX (PB)

JB1900 (J) — JUNCTION BOX. OPTIONAL IDENTIFIER

TB-1301 (T) — TERMINAL BOX. OPTIONAL IDENTIFIER

PBD-1900-1,3,5 — HOME RUN EXPOSED - SEE PANELBOARD, SWITCHBOARD, OR MCC SCHEDULE FOR CIRCUIT INFORMATION

EXAMPLE: HOME TO PANELBOARD PBD-1900, CIRCUITS 1, 3, AND 5

PBD-1900-1,3,5 — HOME RUN CONCEALED - SEE PANELBOARD, SWITCHBOARD, OR MCC SCHEDULE FOR CIRCUIT INFORMATION.

EXAMPLE: HOME TO PANELBOARD PBD-1900, CIRCUITS 1, 3, AND 5

CABLE TRAY MODIFIERS:
CTS - 24VDC OR LESS
CTC - 120V CONTROL CONDUCTORS
CTP - 600V POWER CONDUCTORS

CABLE #4/0 AND LARGER SHALL NOT BE STACKED VERTICALLY

WHEN TWO TRAY MODIFIERS IDENTIFY A SINGLE TRAY, THE CONTRACTOR MAY USE DIVIDER OR INSTALL SEPARATE TRAYS (CTC/CTS)

CABLE TRAY WITH COVER MODIFIER, AS ABOVE

P 05P1100 — RACEWAY IDENTIFIER

RACEWAY EXPOSED
MODIFIERS FOR RACEWAY TYPE:
H - POWER (ABOVE 600V)
P - POWER
C - CONTROL
S - SIGNAL
D - DATA
F - FIBER OPTIC
PC - POWER AND CONTROL
X - SPARE

RACEWAY CONCEALED

RACEWAY TURNED TOWARD THE THE VIEWER

RACEWAY TURNED DOWN

CONDUIT CAPPED

DB 05P1100 — DUCT BANK IDENTIFIER (OPTIONAL)

DB — DUCT BANK, DIRECT BURIED

CDB — DUCT BANK, CONCRETE ENCASED

RC — DUCTBANK, REINFORCED CONCRETE ENCASED

OHE — OVERHEAD POWER LINE

DISTRIBUTION EQUIPMENT

APPROXIMATE SHAPE AND SCALE REPRESENTED WHERE POSSIBLE. HOWEVER, EXACT SIZE AND NUMBER OF SECTIONS IS ESTIMATED

FLOOR-STANDING DISTRIBUTION ASSEMBLY, SUCH AS A SWITCHBOARD, TRANSFORMER, OR MOTOR CONTROL CENTER

MCC-1200 — EQUIPMENT DESIGNATION (EXAMPLE)

WALL-MOUNTED DISTRIBUTION ASSEMBLY, SUCH AS PANELBOARD, MOTOR STARTER PANEL, OR TERMINAL CABINET

PBD-1900 — EQUIPMENT DESIGNATION (EXAMPLE)

LIGHTING

FIXTURE IDENTIFIER:

5 / XX / 2/40 — PC — R — 8'-6"

- NUMBER OF FIXTURES (SHOWN ONLY WHEN REQUIRED FOR CLARITY)
- FIXTURE TYPE. TYPE APPLIES TO ALL FIXTURES OF THE SAME SHAPE WITHIN A ROOM OR AREA.
- MOUNTING:
  L = POLE, G = GROUND, P = PENDANT, R = RECESSED, S = SURFACE, W = WALL
- MOUNTING HEIGHT, FLOOR TO BOTTOM OF FIXTURE UON. AHAP= AS HIGH AS POSSIBLE. AD= ABOVE DOOR.
- NUMBER OF LAMPS/LAMP WATTAGE
- CONTROL: PHOTOCELL, SWITCH, CONTACTOR

LIGHTING FIXTURE SHAPES AND SCALE ARE REPRESENTED WHERE POSSIBLE. THE EXAMPLES SHOWN BELOW ARE TYPICAL APPLICATIONS

RECESSED FLUORESCENT FIXTURE

SUSPEND PENDANT MOUNTED FIXTURE

SURFACE MOUNTED FIXTURE

NS — EMERGENCY LIGHTING FIXTURES, FIXTURES WITH EMERGENCY BALLAST'S, AND FIXTURES IDENTIFIED WITH AN 'NS' SHALL BE PROVIDED WITH NON-SWITCHED POWER SOURCE

E — FLUORESCENT FIXTURE WITH EMERGENCY BATTERY PACK

LIGHT FIXTURE

WALL MOUNTED FIXTURE

DIRECTIONAL LIGHT

POLE MOUNTED AREA LIGHT

EMERGENCY LIGHTING UNIT SELF CONTAINED

LIGHTING CONTINUED

EXIT LIGHTS:

SURFACE ON CEILING

WALL MOUNTED

WITH DIRECTIONAL ARROWS

3a — CIRCUIT IDENTIFIER: WHEN SHOWN ADJACENT TO FIXTURE IDENTIFIES CIRCUIT NUMBER AND SWITCH. EXAMPLE: CIRCUIT 3, CONTROLLED BY SWITCH a

PC — PHOTO CELL

OS — OCCUPANCY SENSOR

WIRING DEVICES

SWITCHES:

UNLESS OTHERWISE NOTED, ALL SWITCHES ARE WALL MOUNTED

$ — TOGGLE SWITCH, SINGLE POLE

$ $ — GANGED SWITCHES IN COMMON BOX WITH COMMON WALL PLATE

$ a,3 — SUPERSCRIPT INDICATES CIRCUIT CONTROLLED: a, b, c, ETC. MAY BE COMBINED WITH CIRCUIT NUMBER. EXAMPLE: 1a, 4b, ETC

SUBSCRIPT MODIFIER INDICATES:
2 = DOUBLE POLE
3 = THREE WAY
4 = FOUR WAY
K = KEY OPERATED
MC = MOMENTARY CONTACT, THREE POSITION
MS = MANUAL (MOTOR) STARTER OR SWITCH WITH OVERLOADS
R = RHEOSTAT (DIMMER, SPEED CONTROL)
O = OCCUPANCY SWITCH

D — DIMMER

RECEPTACLES:

DUPLEX RECEPTACLE

WP — RECEPTACLE MODIFIERS:
WP = WEATHER PROOF

GFI = GROUND FAULT CIRCUIT INTERRUPTER

H = HAZARDOUS AREA-EXPLOSION PROOF

EXPLOSION PROOF, CLASS 1, DEAD FRONT, 45° ANGLE, TWO GANG

RECESSED FLOOR RECEPTACLE-- ANY RECEPTACLE INSIDE A SQUARE

SURFACE FLOOR RECEPTACLE-- ANY RECEPTACLE INSIDE A TRIANGLE

GANGED RECEPTACLES--IN COMMON BOX, WITH COMMON WALL PLATE

RECEPTACLE, CLOCK HANGER

RECEPTACLE, DUPLEX ON EMERGENCY

480V RECEPTACLE

GROUNDING

GROUND ROD

GROUND ROD WITH GROUND WELL

GROUND CONNECTION, COMPRESSION TYPE, EXOTHERMIC. SEE SPECIFIC

G — GROUNDING CONDUCTOR

GROUND CONNECTION

GROUND CONNECTION TO STRUCTURAL REINFORCEMENT

LIGHTNING ROD/AIR TERMINAL

MOTORS AND EQUIPMENT

MOTOR STARTER, INDIVIDUAL. NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY

COMBINATION MOTOR STARTER. NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY

60 — DISCONNECT SWITCH, NON-FUSED
EXAMPLE: 60 AMP

F 100/2/80 — DISCONNECT SWITCH, FUSED
EXAMPLE: 100 AMP, 2P, 80 AMP FUSES

M — MOTOR

SV — SOLENOID VALVE

H — HEATER

T — THERMOSTAT

WH — WATER HEATER

FIELD INSTRUMENT

LOCAL CONTROL STATION

LCP-0001 — EQUIPMENT DESIGNATION

CONTROL PANEL, VFD, RVSS, APPROXIMATE SHAPE AND SCALE.

AREA IDENTIFICATION

CI-D1 — HAZARDOUS AREA CLASSIFICATION

CI-D2 — HAZARDOUS AREA CLASSIFICATION

TELEPHONE & COMMUNICATION SYSTEMS

UNLESS OTHERWISE NOTED, TELEPHONE OUTLETS SHALL BE MOUNTED AT SAME HEIGHT AS THE RECEPTACLES. VERIFY

A — EXTERNAL LINE OR PLANT PHONE SYSTEM OUTLET

OPTIONAL MODIFIERS:
A = ATTENDANT'S CONSOLE
F = FUTURE INSTRUMENT
J = JACK, PLUG-IN TYPE
W = WALL INSTRUMENT

BELL

D — OUTLET, DATA COMMUNICATION

SECURITY CAMERA

SPEAKER

H — AUDIBLE HORN

B — STROBE LIGHT (BLUE SHOWN)

CS — ELECTRONIC CARD SWIPE

SD — SMOKE DETECTOR

R — RATE-OF-RISE DETECTOR

CIRCUIT IDENTIFICATION

MODIFIER / EQUIPMENT NUMBER / SUFFIX

X XXXXXXX -A

NOTE:

MODIFIERS FOR CABLE TYPE INCLUDE:
H - POWER (ABOVE 600V)
P - POWER
C - CONTROL
S - SIGNAL
D - DATA
F - FIBER OPTIC
PC - POWER AND CONTROL
X - SPARE

SUFFIX:
A - LETTER TO CREATE UNIQUE ID

EXAMPLE 1: P101-1: 3 #2/0, #6G, 2"C	FOR CIRCUIT P101: THREE NO, 2/0 CONDUCTORS, ONE NO. 6 AWG GROUND WIRE IN A 2" CONDUIT
EXAMPLE 2: SES-2: 2[3 #1/0, #6G, 1 1/2"C]	FOR SES-2: TWO PARALLEL RUNS OF THREE NO. 1/0 CONDUCTORS, ONE NO. 6 AWG GROUND IN 1 1/2" CONDUIT
EXAMPLE 3: C111: 2-1 PR #16S, 1"C	FOR CONTROL CIRCUIT: TWO SIGNAL CABLES OF #16 AWG TWISTED SHIELDED PAIR IN 1" C.
VND, 1"C	VENDOR CABLE, 1"C (CONDUIT BY CONTRACTOR) TYP

GENERAL NOTES:

1. SYMBOLS AND ABBREVIATION DRAWINGS ARE GENERAL IN NATURE. SOME SYMBOLS SHOWN HEREON MAY NOT BE USED ON THE CONTRACT DRAWINGS
2. SYMBOLS ARE ARRANGED ON SPECIFIC DRAWINGS AND IN CATEGORIES FOR CONVENIENCE ONLY; SYMBOLS MAY BE USED ON ANY OF THE CONTRACT DRAWINGS
3. IDENTIFICATIONS (ID), SIZES, RATINGS, LOCATIONS AND SIMILAR INFORMATION SHOWN ASSOCIATED WITH SYMBOLS ARE OPTIONAL; EXAMPLES OF SUCH INFORMATION ARE SHOWN WITH SOME SYMBOLS FOR CLARITY

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VINOD TREHAN, PE 72349

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	V. TREHAN
DRAWN:	K. PALMER
CHECKED:	B. DICKERSON
CHECKED:	B. DICKERSON
APPROVED:	V. TREHAN
FILENAME	E-00-001.DWG
BC PROJECT NUMBER	152270
CLIENT PROJECT NUMBER	6091680

ELECTRICAL

LEGEND AND SYMBOLS - 1

DRAWING NUMBER
E-00-001

SHEET NUMBER 41 OF 72

CONTROL DIAGRAM SYMBOLS

GENERAL

- CONDUCTORS CONNECTED
- CONDUCTORS NOT CONNECTED
- TERMINAL POINT FOR EXTERNAL CONNECTIONS
- EXISTING EQUIPMENT (SCREENED)

INDICATING LIGHTS

INDICATING LIGHTS

L = LENS COLOR:
A = AMBER
B = BLUE
G = GREEN
R = RED
W = WHITE

LINE — PUSH TO TEST. TEST VOLTAGE TERMINAL SHOWN

PUSHBUTTONS

- HS–XXXX — PUSHBUTTON, MOMENTARY CONTACT, NORMALLY OPEN
- HS-XXXX — PUSHBUTTON, MOMENTARY CONTACT, NORMALLY CLOSED
- HS–XXXX — PUSHBUTTON WITH MUSHROOM HEAD, EMERGENCY STOP,

SELECTOR SWITCHES

HS-XXXX (1, 2) — OX
2 POSITION MAINTAINED CONTACT
X = CONTACTS CLOSED
O = CONTACTS OPEN

HS-XXXX (1, 2) — XO, OX
2 POSITION
SPRING RETURNED TO RIGHT
O = CONTACTS OPENED
X = CONTACTS CLOSED

HS-XXXX (H, O, A) — OXO, XOO
3 POSITION MAINTAINED CONTACT
X = CONTACTS CLOSED
O = CONTACTS OPENED

CONTROL RELAYS

- CR 2 — FUNCTION — OPERATING COIL
  CR = CONTROL RELAY
  U = UNLATCH
  L = LATCH
- OL — OVERLOAD RELAY
- CR2 (LINE) CR2 (LINE) — OUTPUT CONTACTS. LINE NUMBER OF RELAY COIL SHOWN (OPTIONAL)

INPUT SWITCHES

NORMALLY OPEN	NORMALLY CLOSED	INITIATING VARIABLE
SS	SS	SPEED
TS	TS	TEMPERATURE
WS	WS	FORCE OR TORQUE
ZS	ZS	POSITION (LIMIT)
FS	FS	FLOW
LS	LS	LEVEL
PS	PS	PRESSURE

TIMING RELAYS

- TR 3 — OPERATING COIL
  ON or OFF DELAY
  RANGE:SEC/MIN
  SET:SEC/MIN

NORMALLY OPEN	NORMALLY CLOSED	
TR3 OR TC (LINE)	TR3 OR TO (LINE)	DELAY ON COIL ENERGIZATION (ON DELAY)
TR3 OR TO (LINE)	TR3 OR TC (LINE)	DELAY ON COIL DE-ENERGIZATION (OFF DELAY)

CONTACTORS

- ID — OPERATING COILS
  C = CONTACTOR, LIGHTING OR GENERAL USE
  F = FAST OR FORWARD
  M = MAIN OR LINE
  1M = FIRST MAIN OR WYE
  2M = SECOND MAIN OR DELTA
  R = RUN OR REVERSE
  S = SLOW OR START
  IC = ISOLATION CONTROL
- ID / SIZE X — MAIN CONTACTS
  MAIN CONTACTS AIR BREAK, NEMA SIZE OPTIONAL
- M / SIZE 3 — VACUUM CONTACTOR, NEMA SIZE OPTIONAL.

MISCELLANEOUS

- FU 2B, 15 AMP — FUSE WITH SIZE AND OPTIONAL IDENTIFICATION
- FU 3/15 AMP — FUSE WITH BLOWN FUSE INDICATOR
- 480V / 250VA / 120V — CONTROL TRANSFORMER PRIMARY AND SECONDARY SHOWN SIZE AS SHOWN OR AS SPECIFIED
- 50/5 (3) — CURRENT TRANSFORMER. PRIMARY TURNS RATIO SHOWN (OPTIONAL)
- 250 OHM RES — RESISTOR
- RECTIFIER
- SURGE OR ARC SUPPRESSOR
- KVAR — CAPACITOR
- CONNECTOR
- XX — INCOMING LINE POWER SUPPLY
- DRAWOUT MECHANISM
- SOLENOID VALVE
- BUS DUCT
- GROUND CONNECTION
- POTENTIOMETER
- METER WITH ALPHA IDENTIFIERS:
  H = ELAPSED TIME
  A = AMMETER
  V = VOLTMETER
- BATTERY
- SHIELDED CABLE
- LOCATED IN FIELD
- AC TERMINAL BLOCK
- DC TERMINAL BLOCK
- XX — PLC I/O POINTS
  DO = DIGITAL OUT SIGNAL
  DI = DIGITAL IN SIGNAL
  AO = ANALOG OUT SIGNAL
  AI = ANALOG IN SIGNAL

ONE LINE DIAGRAM SYMBOLS

- TRIP FRAME / 52 — POWER CIRCUIT BREAKER (AIR, OIL, OR GAS) FRAME AND TRIP SETTING AND OPTIONAL I.D. SHOWN
- TRIP FRAME LSIG — CIRCUIT BREAKER WITH ADJUSTABLE ELECTRONIC TRIP OVER BREAKER FRAME SIZE. SOLID STATE TRIP FEATURES SHOWN:
  L = LONG DELAY
  S = SHORT DELAY
  I = INSTANTANEOUS
  G = GROUND FAULT
- SIZE / TYPE — CIRCUIT BREAKER (TYPE: MCP = MOTOR CIRCUIT PROTECTOR OR 3P = 3-POLE THERMAL MAGNETIC TRIP
- 30A 3P CLF — FUSED SWITCH: FUSE RATING AND POLES SHOWN
  MODIFIERS:
  CLF = CURRENT LIMITING FUSE
  DE = DUAL ELEMENT
  F = CLASS F
  E = E RATED
- 100F — FUSE. 100 AMP CLASS "F" SHOWN
- ATS # 60A, 3P — POWER TRANSFER SWITCH. DESIGNATION, AMP RATING AND CONFIGURATION SHOWN
  MTS = MANUAL TRANSFER SWITCH
  ATS = AUTOMATIC TRANSFER SWITCH
  SUSE= SUITABLE FOR USE AS SERVICE ENTRANCE
- AIR BREAK CONTACTOR, FVNR U.O.N. NEMA SIZE 1 INDICATED
  FVR = FULL VOLTAGE, REVERSING STARTER
  2S2W = TWO SPEED, TWO WINDING STARTER
- METERING (ANSI/IEEE FUNCTIONS AS SPECIFIED)
  POWER MONITOR (PM) POWER QUALITY MONITOR (HARMONIC ANALYSIS) (PQM) MOTOR MONITOR AND PROTECTION RELAY (MPR) FEEDER PROTECTION RELAY (FPR)
- 5 KVA — PACKAGED EQUIPMENT OR NON-MOTOR LOAD. KVA, KW, AMPS AS NOTED.
- XXHP ##AMPS — VARIABLE FREQUENCY DRIVE, (VFD) NORMAL DUTY UON. HP IS INDICATED IF DIFFERENT THAN DRIVEN LOAD HP.
  ##AMPS=RATED CONTINUOUS AMPS
- RVSS — REDUCED VOLTAGE SOLID STATE STARTER
- SPD — SURGE PROTECTION DEVICE
- 64 N / 3 — ANSI C37.2 DEVICE. QUANTITIES SHOWN.

- 600kW 480V 60 Hz 3ph, 4w / G — GENERATOR WITH WINDING CONFIGURATION VOLTAGE, POWER, FREQUENCY SHOWN. POWER FACTOR OPTIONAL
- 5 — MOTOR, HORSEPOWER SHOWN
- 55 KVAR — POWER FACTOR CORRECTION CAPACITOR. KVAR RATING INDICATED
- POTHEAD
- STRESS CONE
- INDICATES THAT ALL OR PART OF CONDUIT MAYBE ROUTED IN DUCT BANK OR UNDERGROUND
- PORTABLE CABLE
- CABLE BUS
- BUS CONDUCTOR
- CABLE CONDUCTOR
- SURGE ARRESTOR
- LIGHTNING ARRESTOR AND GROUND
- TEST DEVICE
- 200A — DISCONNECT OR ISOLATING SWITCH. 200 AMP SHOWN
- 480 V 30KVA 5% Z / 208/120V — POWER TRANSFORMER. VOLTAGES, SIZE, IMPEDANCE SHOWN
- 1.5 KVA 480 V / 2.5% Z 480 V — ISOLATION TRANSFORMER. VOLTAGES, SIZE, IMPEDANCE SHOWN
- 3 / 480V - 120V — POTENTIAL TRANSFORMER. PT QUANTITY (3) AND VOLTAGES SHOWN
- 250/5 3 — CURRENT TRANSFORMER. CT QUANTITY AND 250:5 TURNS RATIO SHOWN

WINDING CONFIGURATIONS:
- DELTA
- WYE (GROUNDED)
- K — KIRK KEY INTERLOCK
- 50 AMP/ 10 SEC GDR — NEUTRAL GROUNDING RESISTOR. AMPS/TIME RATING SHOWN

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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

FILENAME: E-00-002.DWG
BC PROJECT NUMBER: 152270
CLIENT PROJECT NUMBER: 6091680

ELECTRICAL

LEGEND AND SYMBOLS - 2

DRAWING NUMBER
E-00-002

SHEET NUMBER 42 OF 72

ABBREVIATIONS

NOTES:
1. ABBREVIATIONS SHOWN ON ELECTRICAL DRAWINGS ARE IN ACCORDANCE WITH ASME STANDARD Y14.38A
2. ABBREVIATIONS ON THIS SHEET ARE IN ADDITION TO THE ABBREVIATIONS DEFINED ON OTHER DRAWINGS.
3. ABBREVIATIONS HERE IN SHALL TAKE PRECEDENCE IN CASE OF CONFLICT.
4. ABBREVIATIONS ARE NOT EQUIPMENT NUMBERING PREFIXES LISTED ON OTHER DRAWINGS.

A, AMP	AMP(S), AMPERE(S)
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
AIC	AMPS INTERRUPTING CAPACITY, SYMM.
AL	ALUMINUM
ARCH	ARCHITECT(URAL)
ASYM	ASYMMETRICAL
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
BLDG	BUILDING
BOT	BOTTOM
C	CONDUCTOR, CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
CM	CENTIMETERS
CND	CONDUIT
CNTL	CONTROL
C.O.	CONDUIT ONLY, SPARE
CONC	CONCRETE
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
CU	COPPER
DB	DUCT BANK, DIRECT BURIAL
DC	DIRECT CURRENT, DATA CABLE
DCU	DISTRIBUTED CONTROL UNIT
DET	DETAIL
DIAG	DIAGRAM
DISC	DISCONNECT
DWG	DRAWING
EA	EACH
EC	EMPTY CONDUIT
ECP	EQUIPMENT CONTROL PANEL
EDB	ELECTRICAL DUCTBANK
EG	ENGINE GENERATOR SET
EL	ELEVATION
ELEC	ELECTRIC(AL)
EMH	ELECTRICAL MANHOLE
EMER	EMERGENCY
ENCL	ENCLOSURE/ENCLOSED
EPB	ELECTRICAL PULLBOX
ETM	ELAPSED TIME METER
EP	EXPLOSION PROOF
EQUIP	EQUIPMENT
EX	EXISTING
FDR	FEEDER
FL	FLUORESCENT
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE CONDUIT
F.O.	FAIL OPEN
FO	FIBER OPTIC
FUT	FUTURE
GDR	GROUNDING RESISTOR
GEC	GROUND ELECTRODE CONDUCTOR
GF	GROUND FAULT
GFI	GROUND FAULT INTERRUPTER
GND, G	GROUND
GRS	GALVANIZED RIGID STEEL
H	HIGH
HGT	HEIGHT
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HMI	HUMAN MACHINE INTERFACE
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
HZ	HERTZ (CYCLES PER SECOND)
ICOM	NTERCOM
ID	INSIDE DIAMETER
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
INTLK	INTERLOCK
INST	INSTANTANEOUS
I/O	INPUT-OUTPUT
IPB	INSTRUMENT PULLBOX
JB	JUNCTION BOX
KCMIL	1000 CIRCULAR MIL
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KVAR	KILOVOLT-AMPERE REACTIVE
KW	KILOWATT
KWH	KILOWATT-HOUR
L	LONG
LC	LIGHTING CONTACTOR
LCP	LOCAL CONTROL PANEL
LCS	LOCAL CONTROL STATION
LED	LIGHT EMITTING DIODE
LHH	LOW VOLTAGE HANDHOLE
LMH	LOW VOLTAGE MANHOLE
LP	LIGHTING PANEL
LT	LONG TIME
LTG	LIGHTING
LV	LOW VOLTAGE
M	METER
MA	MILLIAMPERE
MBS	MANUAL BYPASS SWITCH
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MPC	MINI POWER CENTER
MECH	MECHANICAL
MFR	MANUFACTURE(R)
MH	MANHOLE, METAL HALIDE
MIC	MICROPHONE
MIS	MANAGEMENT INFORMATION STATION
MISC	MISCELLANEOUS
MM	MILLIMETER
MMH	MEDIUM VOLTAGE MANHOLE
MOV	MOTOR OPERATED VALVES
MTS	MANUAL TRANSFER SWITCH
MV	MILLIVOLT, MEDIUM VOLTAGE
MVMC	MEDIUM VOLTAGE MOTOR CONTROL
N/A	NOT APPLICABLE
N.C.	NORMALLY CLOSED
NEUT, N	NEUTRAL NEUT,N
NF	NON-FUSED
NIC	NOT IN CONTRACT
N.O.	NORMALLY OPEN
NO.	NUMBER
NOM	NOMINAL
NP	NAMEPLATE
NTS	NOT TO SCALE
OC	ON CENTER
OCC	OPERATION CONTROL CENTER
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OIS	OPERATOR INTERFACE STATION
OT	OIL TIGHT
OWS	OPERATOR WORKSTATION
P	POLE, PHASE
PBD	PANEL BOARD
PB	PUSHBUTTON, PULLBOX
PCP	PROCESS CONTROL PANEL
PF	POWER FACTOR
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PMM	POWER METERING MODULE
PNL	PANEL
PP	POWER PANEL
PR	PAIR
PRI	PRIMARY
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PWR	POWER
QSB	QUARTZ STANDBY
RCPT	RECEPTACLE
REF	REFERENCE
REQD	REQUIRED
RE STL	REINFORCING STEEL
RMS	ROOT MEAN SQUARE
RTD	RESISTANCE TEMPERATURE DETECTOR
RTU	REMOTE TERMINAL UNIT
RVSS	REDUCED VOLTAGE SOLID STATE STARTER
SA	SURGE ARRESTOR
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DETECTOR
SEC	SECONDARY
SEL	SELECTOR
SHH	SIGNAL HANDHOLE
SMH	SIGNAL MANHOLE
SPEC	SPECIFICATION
SPD	SURGE PROTECTION DEVICE
SPKR	SPEAKER
ST	SHORT TIME
STP	SHIELDED TWISTED PAIR
SUB	SUBSTATION
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYMM	SYMMETRICAL
SYS	SYSTEM
TB	TERMINAL BOX
TEL	TELEPHONE
TEMP	TEMPERATURE
TFR	TRANSFORMER
TRI	TRIAD
TV	TELEVISION
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
TYP	TYPICAL
U/G	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTABLE POWER SUPPLY
V	VOLT
VA	VOLTAMPERE
VAR	VOLTAMPERE REACTIVE
VC	VACUUM CONTACTOR
VCP	VENDOR CONTROL PANEL
VND	VENDOR
W	WATT, WIRE, WIDE
W/	WITH
W/O	WITHOUT
WW	WIREWAY
WG	WITH GROUND
WP	WEATHERPROOF
XFMR	TRANSFORMER
XMTR	TRANSMITTER
XP	EXPLOSION PROOF
Z	IMPEDANCE

GENERAL NOTES:

1. THE ELECTRICAL DRAWINGS USE THE ONE LINE DIAGRAMS AND RISER DIAGRAMS AND PANEL SCHEDULES IN CONJUNCTION WITH SHOWING THE LOCATION OF THE ELECTRICAL/INSTRUMENTATION SOURCES AND LOADS/DEVICES SHOWN ON THE PLAN DRAWINGS TO DEPICT THE WORK. THE CONTRACTOR SHALL USE THESE DOCUMENTS TO DETERMINE AND PROVIDE THE NECESSARY RACEWAY AND WIRING SYSTEM FOR EACH CIRCUIT. ALL INDOOR RACEWAY SHALL BE RUN EXPOSED AND ROUTED BY THE CONTRACTOR, UNLESS OTHERWISE NOTED.
2. IF EQUIPMENT SUPPLIED BY MANUFACTURER HAS A LARGER LOAD THAN INDICTED ON THE SINGLE LINE DIAGRAM, THE CONSTRUCTION MANAGER SHALL BE NOTIFIED. THE CABLE, CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE SIZED AS REQUIRED, TO ACCOMMODATE THE HIGHER VALUE.
3. IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, ETS., OR WHERE EQUIPMENT IS LIFTED AND MOVED FOR MAINTENANCE OR REPLACEMENT, NO CONDUITS SHALL BE RUN OVERHEAD THAT WILL INTERFERE WITH THE OPERATION OF THE EQUIPMENT OR ACCESS TO EQUIPMENT.
4. THE LOCATION OF THE CONTROL STATIONS SHOWN ON THE PLAN DRAWINGS ARE DIAGRAMMATIC ONLY. THE ACUTAL LOCATION SHALL BE COORDINATED IN THE FIELD WITH THE CONSTRUCTION MANAGER AND ADJACENT EQUIPMENT SUCH AS PIPING, PROCESS EQUIPMENT, ETC.
5. THE CONTRACTOR SHALL COORDINATE WITH THE STRUCTURAL AND MECHANICAL DRAWINGS FOR CONDUIT STUB UP AND TERMINATION LOCATIONS.

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SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	V. TREHAN
DRAWN:	K. PALMER
CHECKED:	B. DICKERSON
CHECKED:	B. DICKERSON
APPROVED:	V. TREHAN

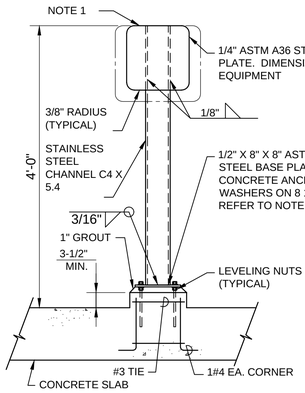
FILENAME
E-00-003.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

ELECTRICAL

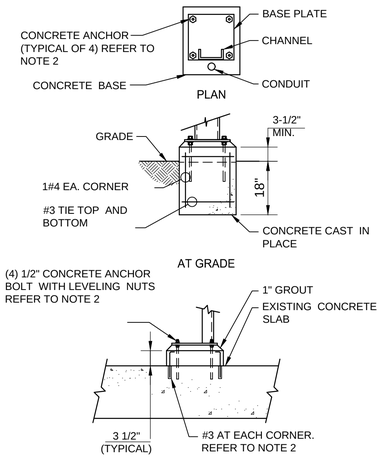
LEGEND AND SYMBOLS - 3

DRAWING NUMBER
E-00-003

SHEET NUMBER 43 OF 72



AT NEW CONCRETE SLAB



AT EXISTING CONCRETE SLAB

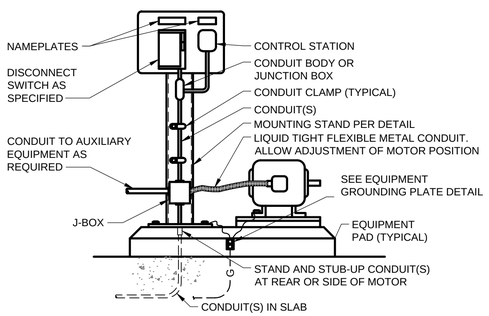
NOTES:

1. MOUNTING STAND PLATE: 2'X2' MAXIMUM
   A. DRILL PLATE FOR NUMBER OF HOLES REQUIRED.
   B. REMOVE ALL SHARP EDGES.
   C. CLEAN AND HOT DIP GALVANIZE AFTER FABRICATION.
2. SEE TYPICAL CONCRETE ANCHOR OR THREADED ROD DETAIL FOR CONCRETE ANCHOR REQUIREMENTS.
3. PROVIDE 316 STAINLESS STEEL ANCHOR BOLTS AND HARDWARE

CONTROL STATION OR INSTRUMENT STAND

DETAIL A TYP

SCALE: NONE



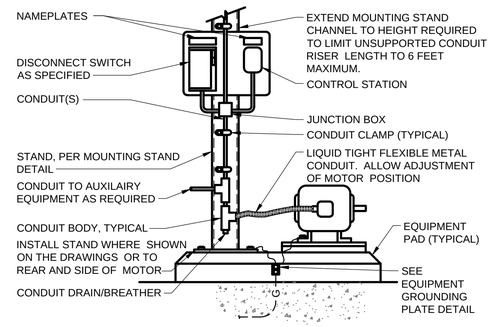
NOTES:

1. MOUNTING STAND REQUIREMENTS VARY WITH EQUIPMENT SIZE.
2. CONDUIT NUMBER, SIZE AND CONFIGURATION VARIES. REFER TO APPLICABLE ONE LINE DIAGRAMS OR SCHEDULES.
3. PROVIDE POWER DISCONNECT NAMEPLATE INDICATING POWER SOURCE.
4. PROVIDE CONTROL STATION NAMEPLATE INDICATING EQUIPMENT TAG NUMBER AND DESCRIPTION.
5. SEE DRAWINGS OR SCHEDULES FOR SEPARATE POWER, CONTROL AND INSTRUMENTATION RACEWAYS.

MOTOR FEED FROM BELOW

DETAIL B TYP

SCALE: NONE



NOTES:

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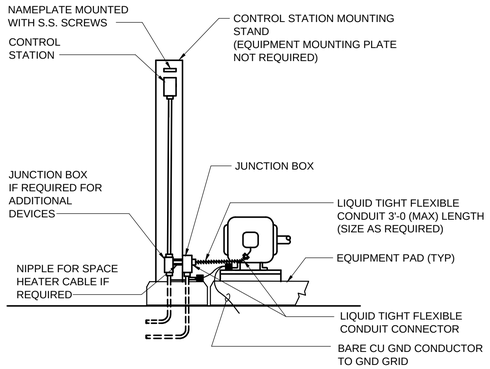
5. SEE DRAWINGS OR SCHEDULES FOR SEPARATE POWER, CONTROL AND INSTRUMENTATION RACEWAYS.

MOTOR FEED FROM OVER HEAD

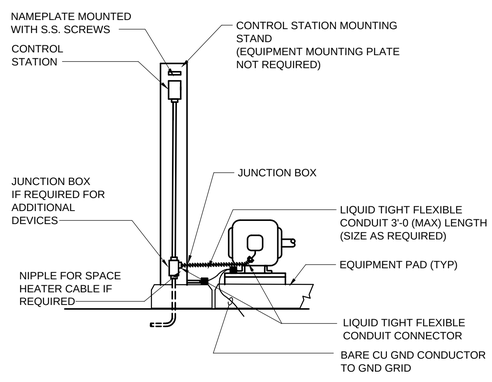
DETAIL C TYP

SCALE: NONE



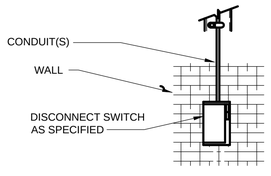
TYPICAL LOW VOLTAGE MOTOR FEED FROM BELOW SLAB POWER AND CONTROL IN SEPARATE CONDUITS

DETAIL D VAR



TYPICAL LOW VOLTAGE MOTOR FEED FROM BELOW SLAB POWER AND CONTROL IN SAME CONDUITS

DETAIL E VAR



NOTES:

1. CONDUIT NUMBER, SIZE AND CONFIGURATION VARIES. REFER TO APPLICABLE ONE LINE DIAGRAMS OR SCHEDULES.
2. PROVIDE POWER DISCONNECT NAMEPLATE INDICATING POWER SOURCE.
3. SEE DRAWINGS OR SCHEDULES FOR SEPARATE POWER, CONTROL AND INSTRUMENTATION RACEWAYS.

DISCONNECT SWITCH (NEMA-4X) - WALL MOUNTED

DETAIL F TYP

SCALE: NONE

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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	V. TREHAN
DRAWN:	K. PALMER
CHECKED:	B. DICKERSON
CHECKED:	B. DICKERSON
APPROVED:	V. TREHAN

FILENAME
E-00-004.DWG

BC PROJECT NUMBER
BID SET

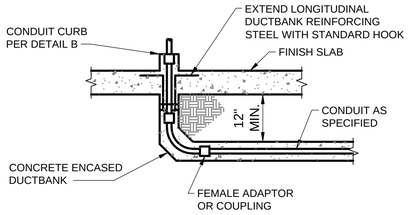
CLIENT PROJECT NUMBER
6091680

ELECTRICAL

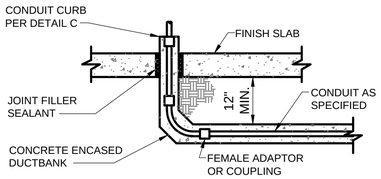
INSTALLATION DETAILS SHEET 1

DRAWING NUMBER
E-00-004

SHEET NUMBER 44 OF 72



DUCTBANK RISER LESS THAN 18" IN WIDTH OR DEPTH

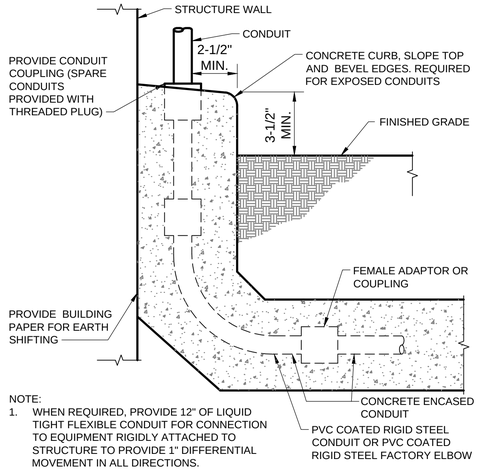


GREATER THAN 18" IN WIDTH OR DEPTH

CONDUIT RISERS FROM DUCTBANK

DETAIL A TYP

SCALE: NONE

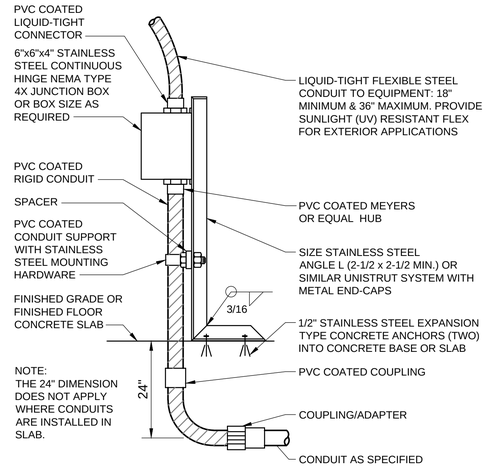


NOTE:
1. WHEN REQUIRED, PROVIDE 12" OF LIQUID TIGHT FLEXIBLE CONDUIT FOR CONNECTION TO EQUIPMENT RIGIDLY ATTACHED TO STRUCTURE TO PROVIDE 1" DIFFERENTIAL MOVEMENT IN ALL DIRECTIONS.

CONDUIT CURB AT FINISHED GRADE

DETAIL B TYP

SCALE: NONE

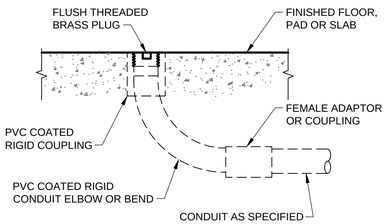


NOTE:
THE 24" DIMENSION DOES NOT APPLY WHERE CONDUITS ARE INSTALLED IN SLAB.

COUNDUIT STUB-UP AND TRANSITION J-BOX SUPPORT

DETAIL C TYP

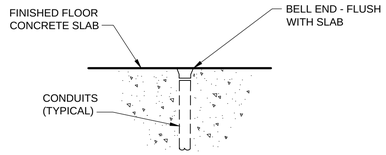
SCALE: NONE



CONDUIT FLUSH TERMINATION IN SLAB

DETAIL D TYP

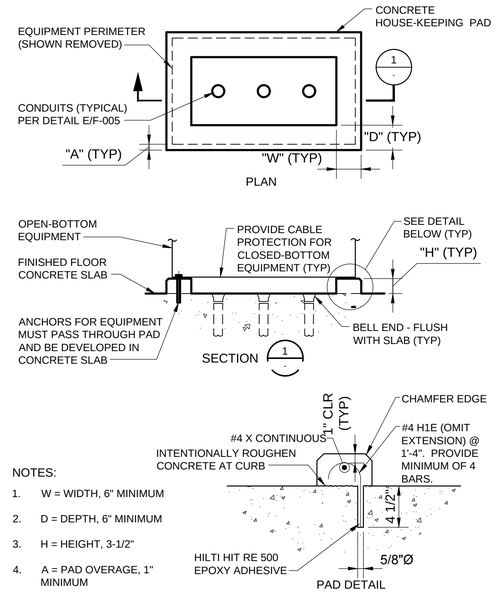
SCALE: NONE



CONDUIT STUB-UP UNDER
FREE-STANDING EQUIPMENT

DETAIL E TYP

SCALE: NONE

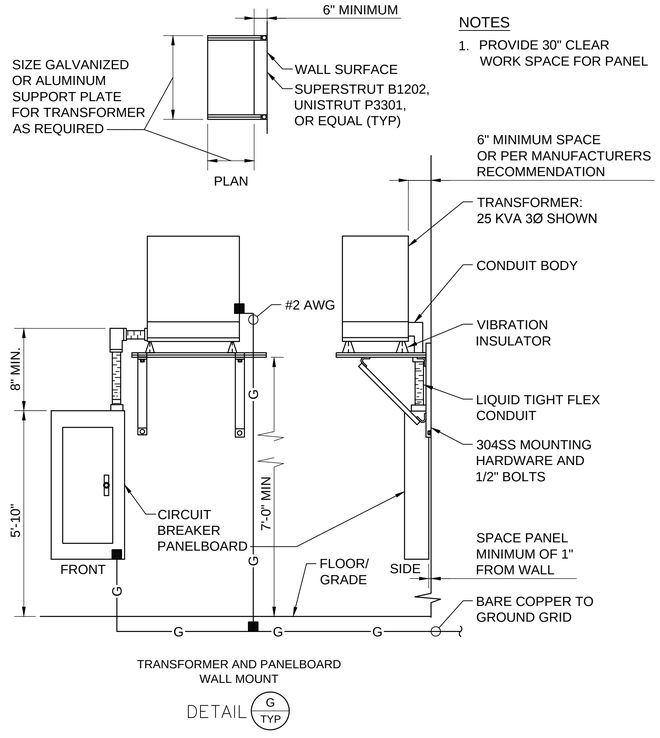


NOTES:
1. W = WIDTH, 6" MINIMUM
2. D = DEPTH, 6" MINIMUM
3. H = HEIGHT, 3-1/2"
4. A = PAD OVERAGE, 1" MINIMUM

HOUSE-KEEPING PAD UNDER FREE-STANDING EQUIPMENT

DETAIL F TYP

SCALE: NONE



NOTES
1. PROVIDE 30" CLEAR WORK SPACE FOR PANEL

TRANSFORMER AND PANELBOARD
WALL MOUNT

DETAIL G TYP

SCALE: NONE

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REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

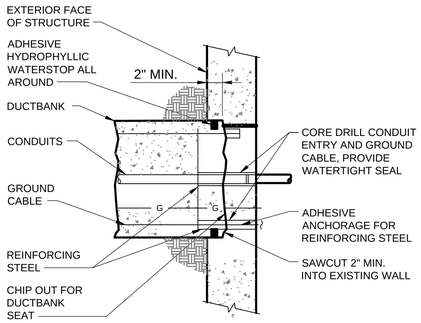
FILENAME
E-00-005.DWG
BC PROJECT NUMBER
BID SET
CLIENT PROJECT NUMBER
6091680

ELECTRICAL

INSTALLATION DETAILS SHEET 2

DRAWING NUMBER
E-00-005

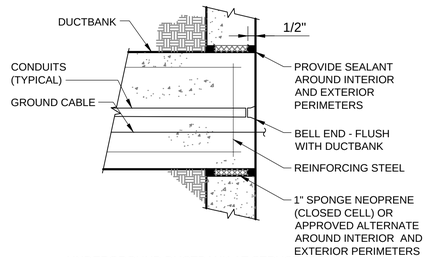
SHEET NUMBER 45 OF 72



UNDERGROUND DUCTBANKS AT EXISTING STRUCTURE

DETAIL A TYP

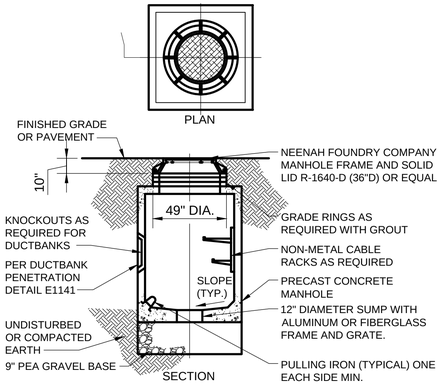
SCALE: NONE



UNDERGROUND DUCTBANK AT STRUCTURE

DETAIL B TYP

SCALE: NONE



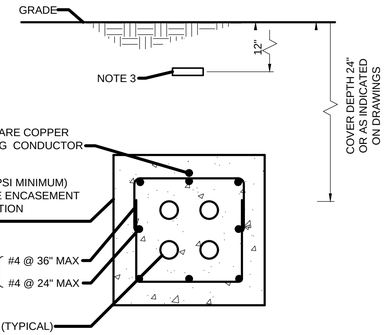
NOTES:

1. PROVIDE MANHOLE LOCATIONS PER DRAWINGS; SIZED BY CONTRACTOR.
2. MINIMUM INTERIOR DIMENSIONS FOR MANHOLES SHALL BE 5' x 7' x 6'D
3. BOND DUCTBANK GROUND CONDUCTORS TOGETHER.
4. MANHOLE INTERIOR SPACE: CLASSIFIED AS "CORROSIVE AREA" PER SPECIFICATION DIVISION 16. REFER TO NEC ARTICLE 110 PART 5.
5. H20 LOAD RATED AT ROADWAYS OR WHERE NOTED.
6. PROVIDE GRADE RINGS AS REQUIRED.
7. PROVIDE ALUMINUM LADDER WHERE DEPTH OVER 4'.
8. MANHOLES IN PAVED OR CONCRETED AREAS SHALL BE SET SO THAT THE FINISHED SURFACE DRAINS WATER AWAY FROM FRAME AND COVER. MANHOLES IN GRASSED OR GRAVEL AREAS SHALL BE SET SO THAT THE FRAME AND COVER IS APPROXIMATELY 1" AFG. GRADING SHALL SLOPE AWAY FROM MANHOLE TOPS.

PRECAST ELECTRICAL MANHOLE

DETAIL C TYP

SCALE: NONE



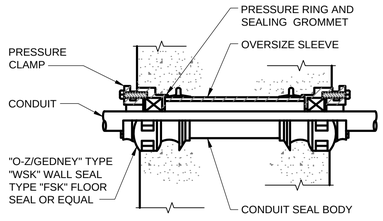
NOTES:

1. REFER TO SPECIFICATION DIVISION 26 FOR DUCTBANK CONSTRUCTION REQUIREMENTS.
2. NUMBER AND SIZE OF ELECTRICAL DUCTS AS INDICATED ON DRAWINGS OR SCHEDULES.
3. OSHA APPROVED 6" WIDE RED WARNING TAPE (IDEAL DU-601 OR EQUAL).
4. DIMENSIONS ARE MINIMUM AND TYPICAL FOR OUTSIDE SURFACES.
5. BOND GROUNDING CONDUCTOR TO ALL GROUNDING ELECTRODES ALONG ITS PATH INCLUDING BUILDING GROUNDING ELECTRODE AT EACH END OF THE DUCTBANK.
6. SADDLE-TYPE CONDUIT SPACERS REQUIRED EVERY 8' (CARLON SNAP-LOC, SNAP-N-STAC, OR EQUAL).
   *PROVIDE 2" SEPARATION FOR CONDUITS LESS THAN 4".
   *PROVIDE 3" SEPARATION FOR CONDUITS 4" AND LARGER.
7. ALL DUCT BANKS BENEATH SLABS SHALL BE TIED TO SLAB REINFORCING AND APPROVED BY THE STRUCTURAL ENGINEER.

REINFORCED CONCRETE ENCASED DUCTBANK

DETAIL D VAR

SCALE: NONE



SINGLE-ENDED SEALS FOR INSTALLATIONS THROUGH WALLS AS FOLLOWS.

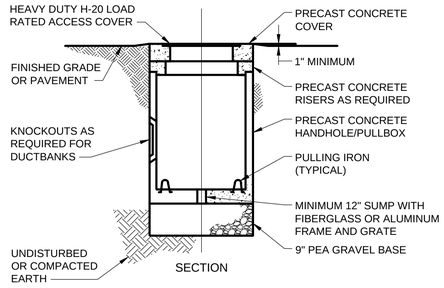
WALL THICKNESS	CONDUIT SIZE
LESS THAN 7-1/2"	ALL SIZES
7-1/2" TO 8-3/8"	1-1/2" OR LARGER
8-3/8" TO 8-3/4"	2-1/2" OR LARGER
8-3/4" TO 9-1/4"	3-1/2" OR LARGER
9-1/2" TO 10"	4-1/2" OR LARGER

DOUBLE-ENDED SEALS FOR PENETRATIONS THROUGH WALLS GREATER THAN 10" THICK OR PROVIDE OVERSIZED SLEEVE AND GROUT CONDUIT

CONDUIT SEAL THROUGH CONCRETE FLOOR AND WALL

DETAIL E TYP

SCALE: NONE



NOTES:

1. HANDHOLE/PULLBOX LOCATION PER DRAWINGS, SIZED BY CONTRACTOR.
2. MINIMUM INTERIOR DIMENSIONS: 3' x 3'.
3. MAXIMUM DEPTH: 3'.
4. BOND DUCTBANK GROUND CONDUCTORS TOGETHER.
5. INTERIOR SPACE: CLASSIFIED AS CORROSIVE AREA PER SPECIFICATION DIVISION 16.
6. HANDHOLES IN PAVED OR CONCRETED AREAS SHALL BE SET SO THAT THE FINISHED SURFACE DRAINS WATER AWAY FROM FRAME AND COVER. HANDHOLES IN GRASSED OR GRAVEL AREAS SHALL BE SET SO THAT THE FRAME AND COVER IS APPROXIMATELY 1" AFG. GRADING SHALL SLOPE AWAY FROM MANHOLE TOPS.

ELECTRICAL HANDHOLE/PULLBOX

DETAIL F TYP

SCALE: NONE

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ENGINEER OF RECORD
VINOD TREHAN, PE 72349

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAND

FILENAME
E-00-006.DWG

BC PROJECT NUMBER
152270

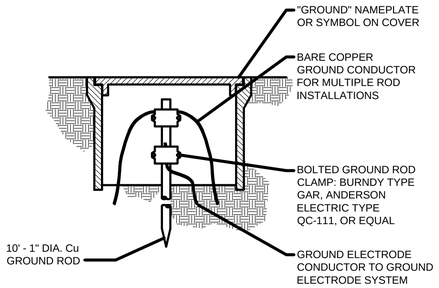
CLIENT PROJECT NUMBER
6091680

ELECTRICAL

INSTALLATION DETAILS SHEET 3

DRAWING NUMBER
E-00-006

SHEET NUMBER 46 OF 72

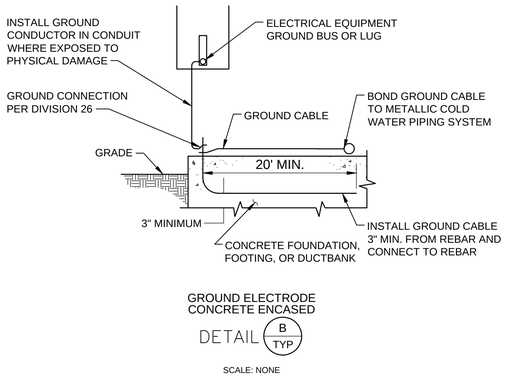


NOTES:
1. TEST WELL OF CONCRETE, PVC, OR FRP MATERIAL.
2. H-20 LOAD RATED COVER FOR TEST WELL IN TRAFFIC AREA.

GROUND ROD/TEST WELL

DETAIL A TYP

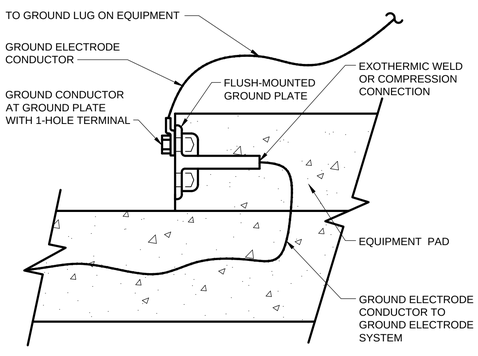
SCALE: NONE



GROUND ELECTRODE CONCRETE ENCASED

DETAIL B TYP

SCALE: NONE

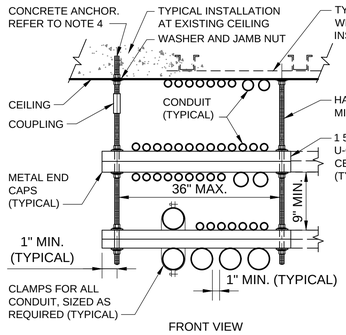


1. REQUIRED AT ELECTRICAL EQUIPMENT

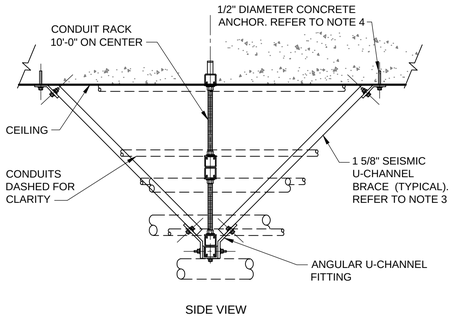
EQUIPMENT GROUND PLATE

DETAIL C TYP

SCALE: NONE



FRONT VIEW



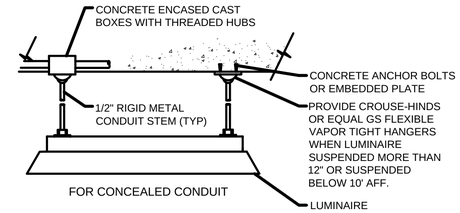
SIDE VIEW

NOTES:
1. MATERIALS AND HARDWARE PER SPECIFICATION DIVISION 26 REQUIREMENTS.
2. HOLE SIZES ON FITTINGS SHALL BE 9/16" DIAMETER WITH 1/2" HEX HEAD CAP SCREW 15/16" LONG AND 1/2" CLAMP NUT WITH SPRING.
3. SEE SPECIFICATION DIVISION 16 FOR SEISMIC ZONE. SEISMIC CHANNEL BRACING REQUIRED AT INTERVALS OF 60'-0" MAX. FOR ZONE 3 AND 40'-0" MAX. FOR ZONE 4.
4. SEE TYPICAL CONCRETE ANCHOR OR THREADED ROD DETAIL FOR ANCHOR REQUIREMENTS.
5. MAX. UNIFORMLY DISTRIBUTED LOAD (CONDUIT AND FILL) PER UNIT TO BE 1000 LBS.

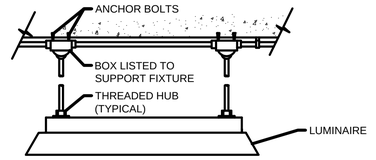
SUSPENDED CONDUIT AND/OR CABLE TRAY RACK

DETAIL D TYP

SCALE: NONE



FOR CONCEALED CONDUIT

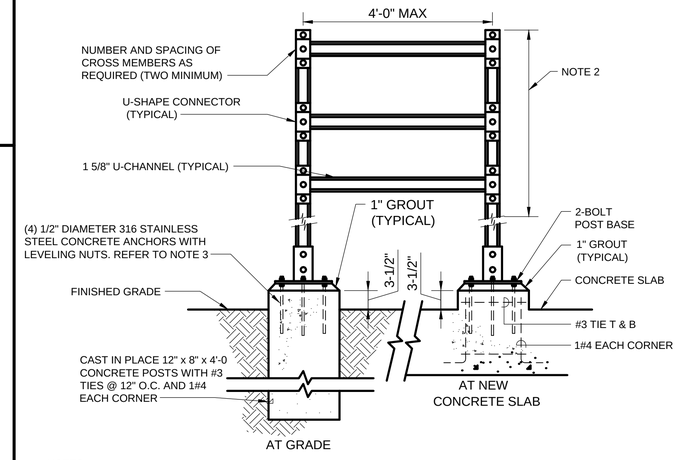


FOR EXPOSED CONDUIT

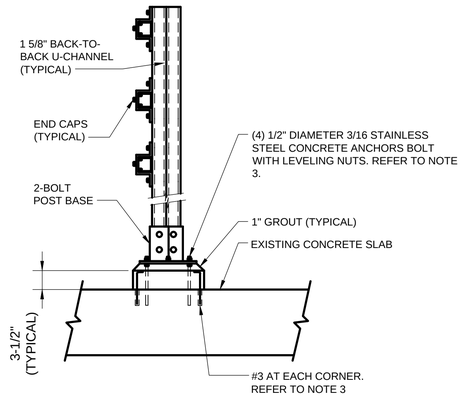
PENDANT MOUNTING

DETAIL E TYP

SCALE: NONE



AT GRADE



AT EXISTING CONCRETE SLAB

NOTES:
1. EQUIPMENT RACK SIZING:
   A. ONE ITEM GREATER THAN 150 SQUARE INCHES.
   B. TWO EQUIPMENT ITEMS GREATER THAN 130 SQUARE INCHES.
   C. THREE OR MORE EQUIPMENT ITEMS.
   D. PROVIDE 316 STAINLESS STEEL CHANNEL END-CAPS, AND FITTINGS
   E. PROVIDE 1/4" MINIMUM ALUMINUM PLATE FOR SMALL ITEMS
2. MOUNT INDICATORS OR EQUIPMENT OPERATING HANDLES FOUR FEET ABOVE FLOOR OR PLATFORM.
3. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATION FOR ANCHORAGE MATERIAL AND METHOD REQUIREMENTS.
4. MATERIAL AND HARDWARE PER SPECIFICATION DIVISION 26.
5. BOND TO FACILITY GROUND.

EQUIPMENT RACK

DETAIL F TYP

SCALE: NONE

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VINOD TREHAN, PE 72349

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

FILENAME
E-00-007.DWG

BC PROJECT NUMBER
152270

CLIENT PROJECT NUMBER
6091680

ELECTRICAL

INSTALLATION DETAILS SHEET 4

DRAWING NUMBER
E-00-007

SHEET NUMBER 47 OF 72

LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	MODEL #
A 50	RECESSED 2'X4' LED TROFFER WITH COLD-ROLLED STEEL HOUSING WITH POLYESTER POWDER-COAT, INTEGRAL T-BAR CLIPS, AND HIGH GLOSS, HIGH REFLECTIVITY POLYESTER POWDER-COAT LOUVER.	LITHONIA 2ESL4 60L MVOLT EZ1 LP840
AE 50	SAME AS 'A' WITH EMERGENCY BATTERY PACK	LITHONIA 2ESL4 60L MVOLT EZ1 LP840 EL14L
C 86	OUTDOOR WALL MOUNT LED, ONE-PIECE POLYCARBONATE HOUSING, VANDAL RESISTANT, PHOTOCELL.	LITHONIA TWP LED ALO 40K T3M MVOLT PE SF DDBXD
E1	EXIT, DIE CAST ALUMINUM HOUSING, SEALED MAINTENANCE-FREE NICKEL-CADMIUM BATTERY,120/277VAC INPUT, RED LED'S, SINGLE FACE, CONTRACTOR TO VERIFY MOUNTING REQUIREMENTS.	LITHONIA LENY 3R EL

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Manatee County FLORIDA

SWWRF & SEWRF
BELT FILTER PRESS
REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

FILENAME
E-00-008.DWG

BC PROJECT NUMBER
152270

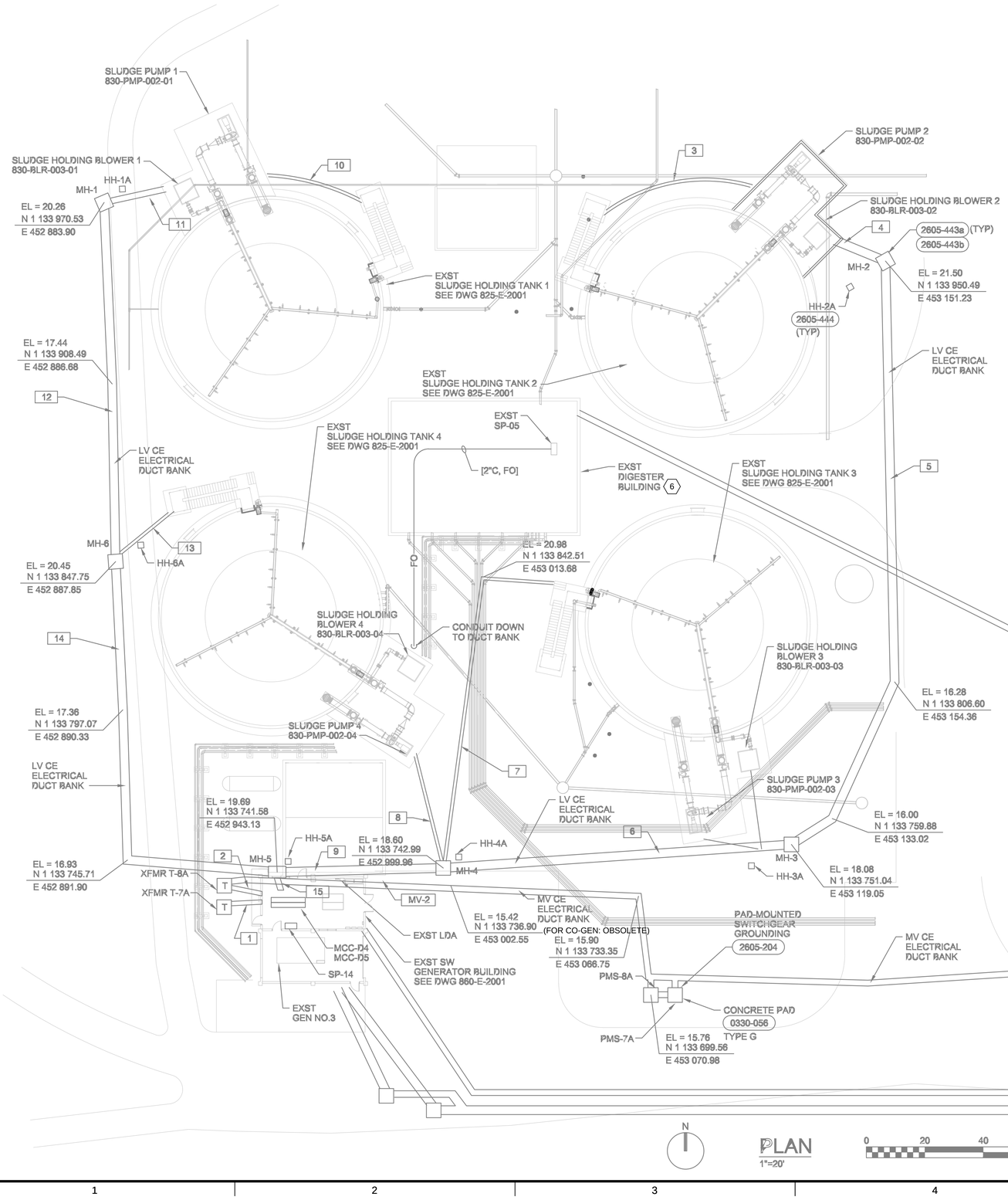
CLIENT PROJECT NUMBER
6091680

ELECTRICAL

LIGHTING FIXTURE
SCHEDULE

DRAWING NUMBER
E-00-008

SHEET NUMBER 48 OF 72



SHEET KEYNOTES

1. EXISTING DUCT BANKS ARE SHOWN PER RECORD DRAWINGS. CONTRACTOR SHALL FIELD VERIFY LOCATIONS.
2. REPLACE EXISTING WITH NEW. SEE DWGS E-00-501, E-00-502, E-00-503.
3. REMOVE EXISTING CABLES, SURFACE CONDUITS. ABANDON EXISTING CONDUITS IN DUCT BANKS AND CAP THE ENDS. SEE DWG E-00-501, E-00-502.
4. REFER TO DUCT BANK SCHEDULE MV-1 EXISTING FOR DUCT BANK REQUIREMENTS ON THIS DRAWING.
5. FOR FEEDERS TO MCC-D1 AND MCC-D2.
6. MCC-D1, MCC-D2, AND SLUDGE FEED PUMPS ARE LOCATED HERE.
7. USE CONDUITS IN EXISTING DUCT BANK MV-1. SEE E-00-501 AND E-00-502.

GENERAL NOTES

1. DO NOT SCALE ELECTRICAL DRAWINGS. REFER TO CIVIL, ARCHITECTURAL, MECHANICAL AND STRUCTURAL RECORD DRAWINGS AND APPROVED MANUFACTURER SHOP DRAWINGS FOR EXACT LOCATION OF ALL EQUIPMENT.
2. ALL WORK SHALL COMPLY WITH THE NEC AND LOCAL CODES.
3. CONDUCTORS SHALL NOT BE SPLICED EXCEPT AS NOTED AND SHOWN ON THE DRAWINGS.
4. ALL CONDUIT SHALL HAVE AN EQUIPMENT GROUND CONDUCTOR SIZED PER TABLE 250.122 OF THE NEC UNLESS OTHERWISE NOTED.
5. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES, PIPING, DUCT BANKS, ETC. AND RE-ROUTE NEW CONDUITS AND DUCT BANKS AS REQUIRED.
6. ALL EXISTING INFORMATION IS BASED ON RECORD DRAWINGS.

EXISTING DUCT BANK SCHEDULE

MV-1	4"	5KV-SUB-7	MV POWER	UNIT SUBSTATION NO. 7 PRIMARY	PMS-7A	3
	4"	5KV-SUB-8	MV POWER	UNIT SUBSTATION NO. 8 PRIMARY	PMS-8A	3
	4"	5KV-SUB-7	MV POWER	PAD MOUNTED XMFR T-7	PMS-7A	7
	4"	5KV-SUB-8	MV POWER	PAD MOUNTED XMFR T-8	PMS-8A	7

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Manatee County FLORIDA

SWWRF & SEWRF
BELT FILTER PRESS
REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

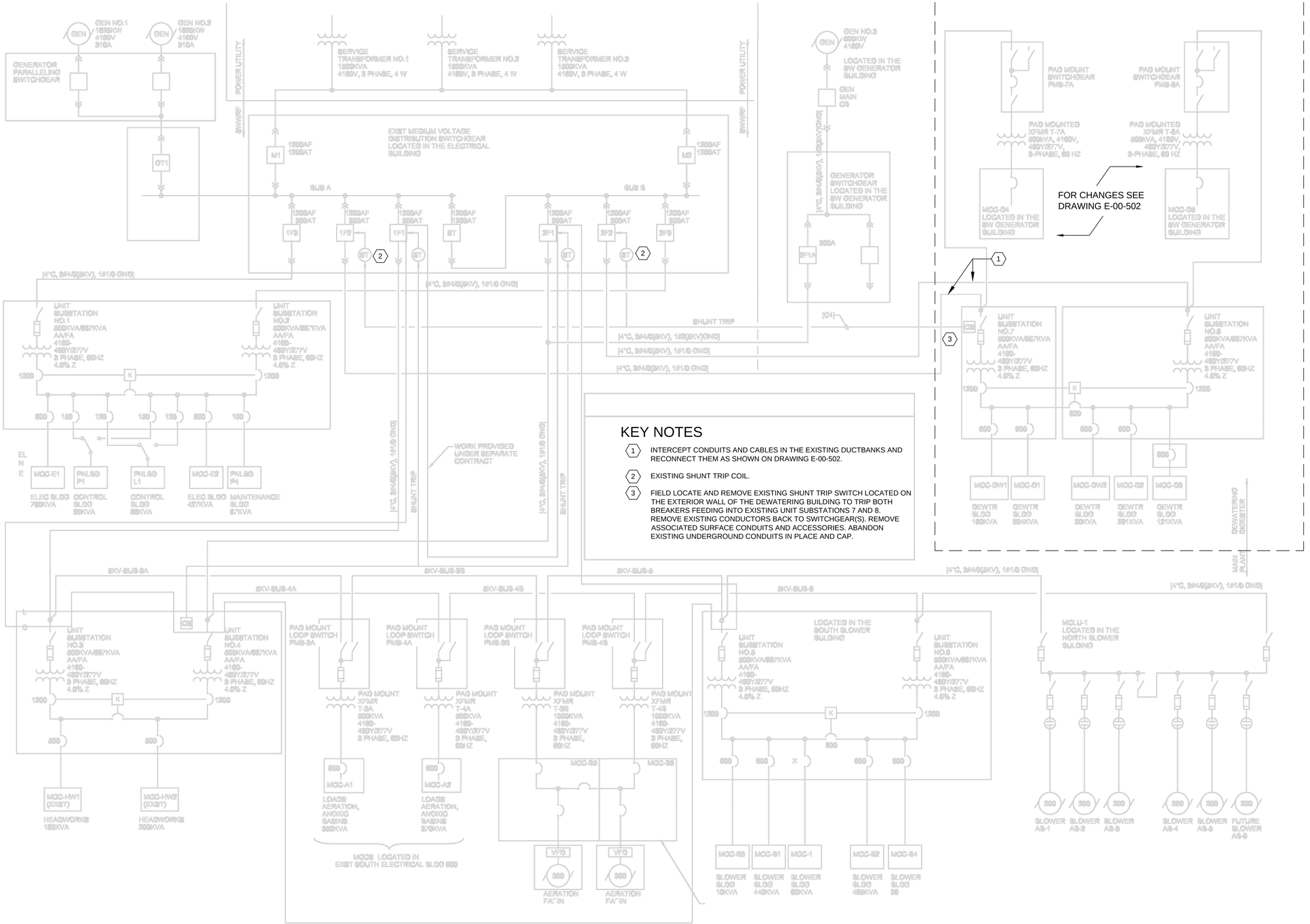
DESIGNED:	V. TREHAN
DRAWN:	K. PALMER
CHECKED:	B. DICKERSON
CHECKED:	B. DICKERSON
APPROVED:	V. TREHAN
FILENAME	E-00-100.DWG
BC PROJECT NUMBER	152270
CLIENT PROJECT NUMBER	6091680

ELECTRICAL
SWRRF

PARTIAL SITE PLAN

DRAWING NUMBER
E-00-100

SHEET NUMBER 49 OF 72



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ENGINEER OF RECORD
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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	V. TREHAN
DRAWN:	K. PALMER
CHECKED:	B. DICKERSON
CHECKED:	B. DICKERSON
APPROVED:	V. TREHAN

FILENAME
E-00-501.DWG

BC PROJECT NUMBER
152270

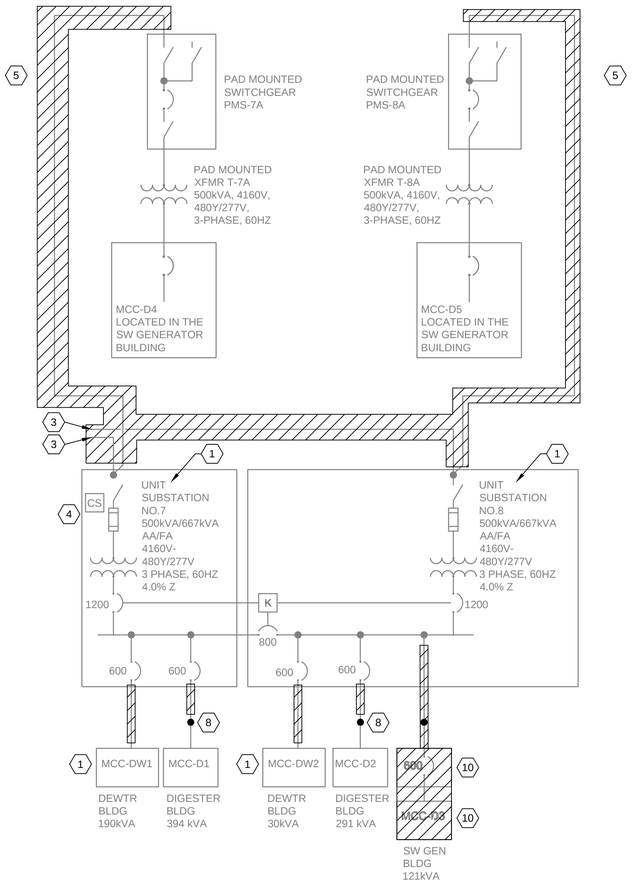
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SWWRF

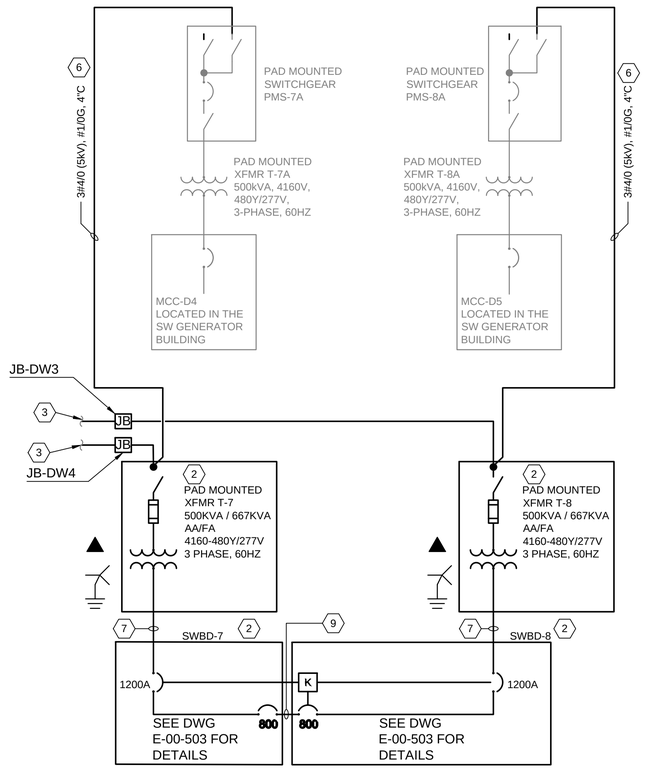
SW CO-GEN BUILDING EXISTING ONE LINE DIAGRAM

DRAWING NUMBER
E-00-501

SHEET NUMBER 50 OF 72



EXISTING UNIT SUBSTATIONS NO. 7 AND NO. 8, PMS-7A, PMS-8A, XFMR-7A, XFMR-8A, MCC-D4 AND MCC-D5



NEW/MODIFIED DEWATERING ELECTRICAL

PARTIAL ONE LINE DIAGRAMS

GENERAL NOTE:

1. EXISTING UNIT SUBSTATION NO. 7, AND UNIT SUBSTATION NO. 8, MCC-DW1, AND MCC-DW2 SHALL BE REPLACED WITH NEW PAD MOUNTED TRANSFORMER XFMR-1, XFMR-8, SWBD-7 AND SWBD-8.
2. SEE DRAWING E-00-501 FOR EXISTING.

KEY NOTES:

1. DEMOLISH EXISTING UNIT SUBSTATION NO. 7, UNIT SUBSTATION NO. 8, MCC-DW1 AND MCC-DW2.
2. PROVIDE NEW PAD MOUNTED TRANSFORMERS XFMR T-7, XFMR T-8, AND NEW SWITCHBOARDS SWBD-7 AND SWBD-8. (THESE REPLACE EXISTING UNIT SUBSTATION NO.7, UNIT SUBSTATION NO. 8, MCC-DW1 AND MCC-DW2).
3. INTERCEPT EXISTING 4160V CABLES AND DUCTBANK FEEDING EXISTING UNIT SUBSTATIONS NO. 7, AND NO. 8, AND RECONNECT THEM TO NEW PAD MOUNTED TRANSFORMERS XFMR T-7, AND XFMR T-8. SPLICE CABLES IN NEMA-3R STAINLESS STEEL SS 316WALL-MOUNTED JUNCTION BOX AT THE LOCATION SHOWN. SEE DWG E-00-612. CONTRACTOR TO SIZE THE JUNCTION BOX. PROVIDE ADDITIONAL CONDUITS, CABLES, AND ASSOCIATED ACCESSORIES FOR COMPLETE WORK. MATCH EXISTING CABLE TYPE AND SIZED. SEE DRAWING E-00-501 FOR CONTINUATION.
4. FIELD LOCATE AND REMOVE EXISTING CONTROL SWITCH (CS). SEE DRAWING E-00-501, AND E-00-612 FOR DETAILS.
5. REMOVE EXISTING 4160V CABLES AS SHOWN. CAP THE EXISTING DUCTBANKS AT THE ENDS. MARK THE ASSOCIATED DUCTBANKS SPARE ON RECORD DRAWINGS.

   FIELD COORDINATE SWITCHING OVER TO NEW CABLES, PROVIDED PER KEY NOTE 6, BEFORE REMOVING EXISTING CABLES FOR LEAST DISRUPTION TO PLANT.
6. PROVIDE NEW 4160V CABLES IN EXISTING DUCTBANK MV-1 IN THE SPARE CONDUITS.
7. 4 SETS, 4 #350 KCMIL, #3/0 G, 3" C.
8. 2 SETS, 3 #350 KCMIL, 1 #2/0 G, 3" C. INTERCEPT EXISTING CABLES FEEDING MCC-D1, MCC-D2, IN THE DEWATERING BUILDING AND RECONNECT THEM TO THE NEW SWITCHBOARDS SWBD-7, AND SWBD-8 AS SHOWN. FIELD LOCATE AND INTERCEPT EXISTING DUCTBANK. SPLICE EXISTING CABLES IN NEMA-3R STAINLESS STEEL SS 316 JUNCTION BOX AT THE LOCATION SHOWN. MATCH EXISTING CABLE SIZES AND TYPE.
   SEE DRAWING E-00-503 FOR CONTINUATION.
9. 3 SETS: 3 #350 KCMIL, #1/0 G, 3" C.
10. DEMOLISH EXISTING 600A CIRCUIT BREAKER, AND MCC-D3 (SEE DRAWING E-00-502 AND E-00-618)..

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BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

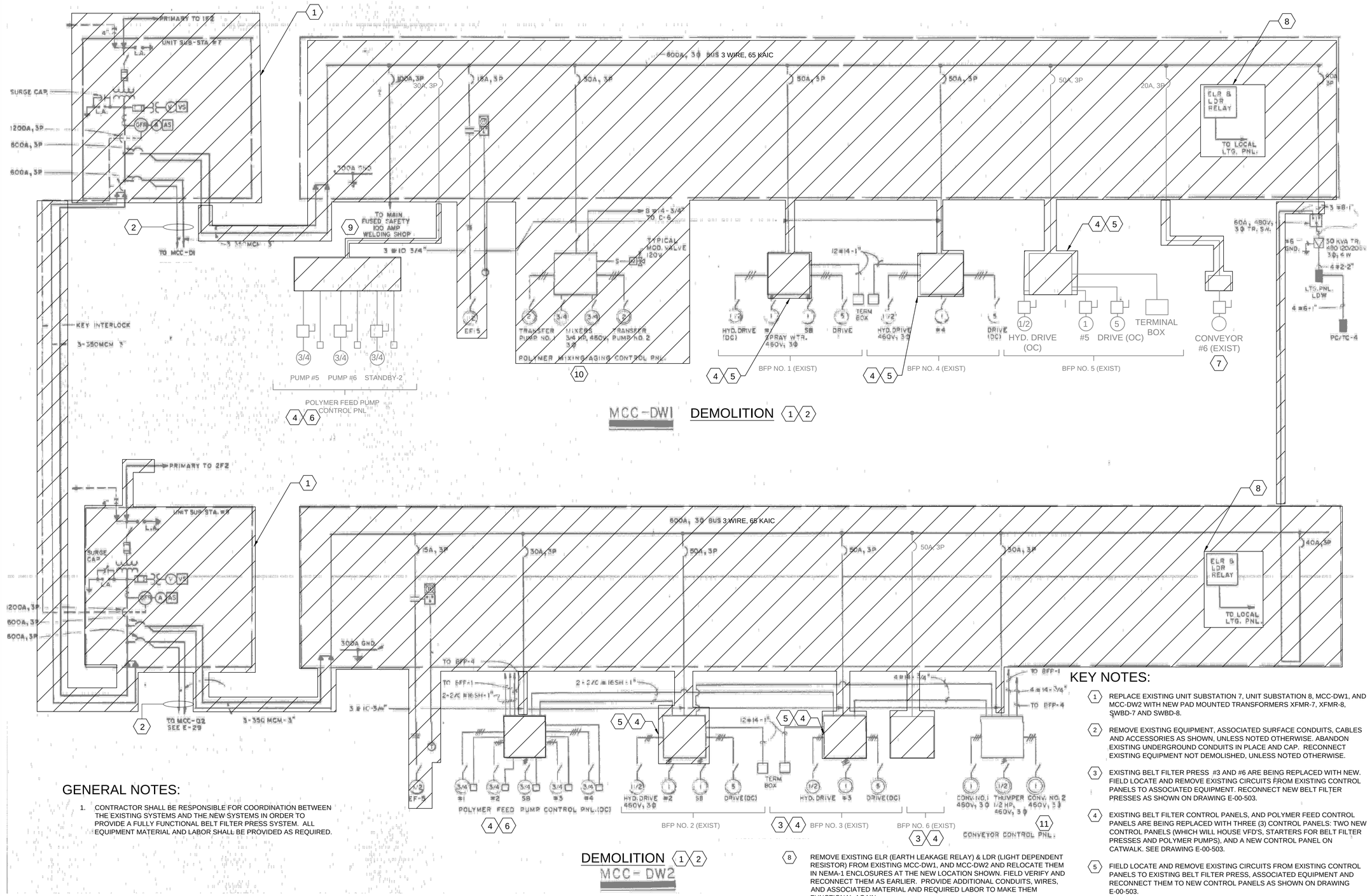
FILENAME
E-00-502.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SWWRF

DEWATERING BUILDING ONE-LINE DIAGRAM

DRAWING NUMBER
E-00-502

SHEET NUMBER 51 OF 72



GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN THE EXISTING SYSTEMS AND THE NEW SYSTEMS IN ORDER TO PROVIDE A FULLY FUNCTIONAL BELT FILTER PRESS SYSTEM. ALL EQUIPMENT MATERIAL AND LABOR SHALL BE PROVIDED AS REQUIRED.

KEY NOTES:

1. REPLACE EXISTING UNIT SUBSTATION 7, UNIT SUBSTATION 8, MCC-DW1, AND MCC-DW2 WITH NEW PAD MOUNTED TRANSFORMERS XFMR-7, XFMR-8, SWBD-7 AND SWBD-8.
2. REMOVE EXISTING EQUIPMENT, ASSOCIATED SURFACE CONDUITS, CABLES AND ACCESSORIES AS SHOWN, UNLESS NOTED OTHERWISE. ABANDON EXISTING UNDERGROUND CONDUITS IN PLACE AND CAP. RECONNECT EXISTING EQUIPMENT NOT DEMOLISHED, UNLESS NOTED OTHERWISE.
3. EXISTING BELT FILTER PRESS #3 AND #6 ARE BEING REPLACED WITH NEW. FIELD LOCATE AND REMOVE EXISTING CIRCUITS FROM EXISTING CONTROL PANELS TO ASSOCIATED EQUIPMENT. RECONNECT NEW BELT FILTER PRESSES AS SHOWN ON DRAWING E-00-503.
4. EXISTING BELT FILTER CONTROL PANELS, AND POLYMER FEED CONTROL PANELS ARE BEING REPLACED WITH THREE (3) CONTROL PANELS: TWO NEW CONTROL PANELS (WHICH WILL HOUSE VFD'S, STARTERS FOR BELT FILTER PRESSES AND POLYMER PUMPS), AND A NEW CONTROL PANEL ON CATWALK. SEE DRAWING E-00-503.
5. FIELD LOCATE AND REMOVE EXISTING CIRCUITS FROM EXISTING CONTROL PANELS TO EXISTING BELT FILTER PRESS, ASSOCIATED EQUIPMENT AND RECONNECT THEM TO NEW CONTROL PANELS AS SHOWN ON DRAWING E-00-503.
6. POLYMER PUMPS ARE BEING REPLACED WITH NEW. FIELD LOCATE AND REMOVE EXISTING CIRCUITS FROM EXISTING CONTROL PANELS TO EXISTING POLYMER FEED PUMPS AND ASSOCIATED EQUIPMENT. CONNECT NEW POLYMER PUMPS AS SHOWN ON DRAWING E-00-503.
7. REPLACE EXISTING CONVEYOR PANEL WITH NEW. FIELD LOCATE AND REMOVE EXISTING WIRES FROM EXISTING CONVEYOR PANEL TO EXISTING CONVEYOR #6 AND RECONNECT AS SHOWN ON DRAWING E-00-503.
8. REMOVE EXISTING ELR (EARTH LEAKAGE RELAY) & LDR (LIGHT DEPENDENT RESISTOR) FROM EXISTING MCC-DW1, AND MCC-DW2 AND RELOCATE THEM IN NEMA-1 ENCLOSURES AT THE NEW LOCATION SHOWN. FIELD VERIFY AND RECONNECT THEM AS EARLIER. PROVIDE ADDITIONAL CONDUITS, WIRES, AND ASSOCIATED MATERIAL AND REQUIRED LABOR TO MAKE THEM FUNCTIONAL AGAIN.
9. INTERCEPT EXISTING CIRCUIT GOING TO WELDING SHOP AND REFEED, VIA NEW STAINLESS STEEL SS 316 JUNCTION BOX JB-5, SEE DRAWING E-00-503.
10. REMOVE EXISTING CONTROL PANELS, AND ASSOCIATED EQUIPMENT, SURFACE CONDUITS, CABLES AND ACCESSORIES.
11. REFEED EXISTING CONTROL PANELS, AND ASSOCIATED EQUIPMENT, AS SHOWN ON DRAWING E-00-505.

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ENGINEER OF RECORD
VINOD TREHAN, PE 72349

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	V. TREHAN
DRAWN:	K. PALMER
CHECKED:	B. DICKERSON
CHECKED:	B. DICKERSON
APPROVED:	V. TREHAN
FILENAME	ED-00-503.DWG
BC PROJECT NUMBER	152270
CLIENT PROJECT NUMBER	6091680

ELECTRICAL
SWWRF

DEMOLITION MCC-DW1 AND MCC-DW2 480V MCC SINGLE LINE

DRAWING NUMBER
ED-00-503

SHEET NUMBER 52 OF 72

NEW SWBD-7 (SERVICE ENTRANCE RATED)

MAIN BREAKER FED FROM XFMR T-7 (SEE DWG E-00-502)

4 SETS: 3 #350 KCMIL, #3/0G, 3" C

1200:5 (3)

1200A, 3P LSIG

1200A, 480V, 3-PH, 3 WIRE, 60HZ, 65 KAIC RMS SYMMETRICAL

100A, 3P	30A, 3P	15A, 3P	150A, 3P	100A, 3P	60A, 3P	30A, 3P	150 A, 3P				60 A, 3P	60A, 3P		60A, 3P	600A, 3P
			SPARE	SPARE	SPARE	SPARE		SPACE	SPACE	SPACE	SPACE				SPARE

GND BUS

3 #10, 3/4" C — 8 #14, 3/4" TO C-6 — POLYMER MIXING PUMPS

3 #3, #8 G, 1-1/4" C — JB-DW1 — TO MAIN FUSED SAFETY 100A WELDING SHOP (4)

TRANSFER PUMP NO.1	MIXERS		TRANSFER PUMP NO.2
2	3/4	3/4	2

3 #12, #12G, 3/4" C — POLYMER MIXING CP SWR85-VCP-300

3 #12, #12 G, 1" C (7) — 3 #1/0, #6 G, 2" C — 3 #10, #10G, 3/4" C — 12 #14, #14G, 3/4" C

(NEW SP 6-1) SWR 85-VCP-101

PUMP #1 SWR 85-P-301	PUMP #2 SWR 85-P-302	PUMP SB-1 SWR 85-P-SB1	PUMP #3 SWR 85-P-307	HYD. DRIVE (OC)	WASH WATER	BOOSTER PUMP (F) (5)	BELT DRIVE	TERM. BOXES	HYD. DRIVE(DC)	BOOSTER PUMP (F) (5)	DRIVE(OC)	TERM. BOX	HYD. DRIVE(DC)	WASH WATER	DRIVE(OC)	BOOSTER PUMP
3	3	3	3	1/2	1	10	5		1/2	10	5		1/2	1	5	10
POLYMER FEED PUMPS (NEW)				BFP NO. 1 (EXIST)					BFP NO. 2 (EXIST)			BFP NO. 3 (NEW)				

3 #6, #8G, 3/4" C — SWR85-CON-406 (NEW) — SECOND UNLOADING CONVEYOR (EXISITNG)

3 #6, #8G, 3/4" C — 60A 480V MTS-2 65 KAIC (5) — 480V- 208/120V XFMR-DW1 30 KVA, 5%Z — LIGHTING PANEL LP-1

4 #3, #8G, 1-1/2" C — 3 #6, #10G, 3/4" C

3 #6, #8G, 1-1/2" C — 60A, 480V, 3 PH

3 #6, #10G, 3/4" C — 30 KVA TR 480-120V/208V 3 PH, 4W — 208/120V

LTG. PNL LDW — 4 #6 — PC/TC-4

NEW SWBD-8 (SERVICE ENTRANCE RATED)

MAIN BREAKER FED FROM XFMR T-8 (SEE DWG E-00-502)

4 SETS: 3 #350 KCMIL, #3/0G, 3" C

TO SP-6 — [CAT 6, 1" C] — PM (3) — 1200:5 (3)

1200A, 3P LSIG

1200A, 480V, 3-PH, 3 WIRE, 60HZ, 65 KAIC RMS SYMMETRICAL

N.C. 800A, 3P LSI — 800A, 3P LSI

150 A, 3P	150A, 3P	100A, 3P	60A, 3P	30A, 3P	60 A, 3P					30 A, 3P	60 A, 3P	60 A, 3P	
	SPARE	SPARE	SPARE	SPARE	3 #6, #10G, 3/4" C	SPACE	SPACE	SPACE	SPACE	SPARE			

GND BUS

3 SETS: 3 #350 KCMIL, #1/0G, 3" C

3 #12, #12 G, 1" C (7) — 3 #1/0, #6 G, 2" C — 3 #10, #10G, 3/4" C — 12 #14, #14G, 3/4" C

(NEW SP 6-2) SWR 85-VCP-102

SWR85-LCP-400

PUMP #4 SWR 85-P-304	PUMP #5 SWR 85-P-305	PUMP #6 SWR 85-P-306	PUMP SB-2 SW R85-P-308	HYD. DRIVE (DC)	WASH WATER	BOOSTER PUMP (F) (5)	BELT DRIVE (DC)	TERM. BOXES	HYD. DRIVE(DC)	WASH WATER	DRIVE(OC)	TERM. BOX	HYD. DRIVE(DC)	#6	DRIVE(OC)	BOOSTER PUMP	CONVEYOR NO. 1	THUMPER	CONVEYOR NO. 2
3	3	3	3	1/2	1	10	5		1/2	1	5		1/2	1	5	10	1/2	1/2	1
POLYMER FEED PUMPS (NEW)				BFP NO. 4 (EXIST)					BFP NO. 5 (EXIST)			BFP NO. 6 (NEW)					CONVEYOR CONTROL PANEL (EXISTING) NOTE: CONVEYORS #1 TO #5 (ALL NOT SHOWN)		

GENERAL NOTES:

1. NEW SWITCHBOARDS SHALL BE PROVIDED AS SPECIFIED, INCLUDING ALL FEEDER BREAKERS TO REPLACE EXISTING MCCS AS SHOWN. CONTRACTOR SHALL FIELD VERIFY EXISTING FEEDER BREAKERS AND ARRANGEMENT.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN THE EXISTING SYSTEMS AND THE NEW SYSTEMS IN ORDER TO PROVIDE A FULLY OPERATIONAL BELT FILTER PRESS SYSTEM. ALL EQUIPMENT MATERIAL AND LABOR SHALL BE PROVIDED AS REQUIRED.

KEY NOTES:

(1) SIZED BY MANUFACTURER

(2) PROVIDE KIRK KEY INTERLOCK, SUCH THAT ONLY TWO (2) BREAKERS CAN BE CLOSED AT A TIME.

(3) PROVIDE SQUARE D PM8240 WITH ETHERNET/IP.

(4) LOCATED IN STORAGE / MAINTENANCE BUILDING. FIELD LOCATE FUSED SAFETY SWITCH AND RECONNECT. USE EXISTING UNDERGROUND CONDUIT. CONTRACTOR TO SIZE AND PROVIDE NEMA 3R, SS316 JUNCTION BOX PER THE NEC AT THE LOCATION SHOWN. PROVIDE ADDITIONAL CABLE, CONDUIT, REQUIRED MATERIAL AND LABOR.

(5) PROVIDE CABLE AND CONDUIT FOR FUTURE (F) BOOSTER PUMPS, AS SHOWN. PROVIDE 20' OF EXTRA CABLE AT EACH BFP FOR FUTURE USE. COIL AND LEAVE IN PLACE.

(6) PROVIDE 3 #10, #10G, 1"C SHIELDED CABLE FROM VFD TO MOTOR.

(7) PROVIDE SHIELDED CABLE FROM VFD TO MOTOR.

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ENGINEER OF RECORD
VINOD TREHAN, PE 72349

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

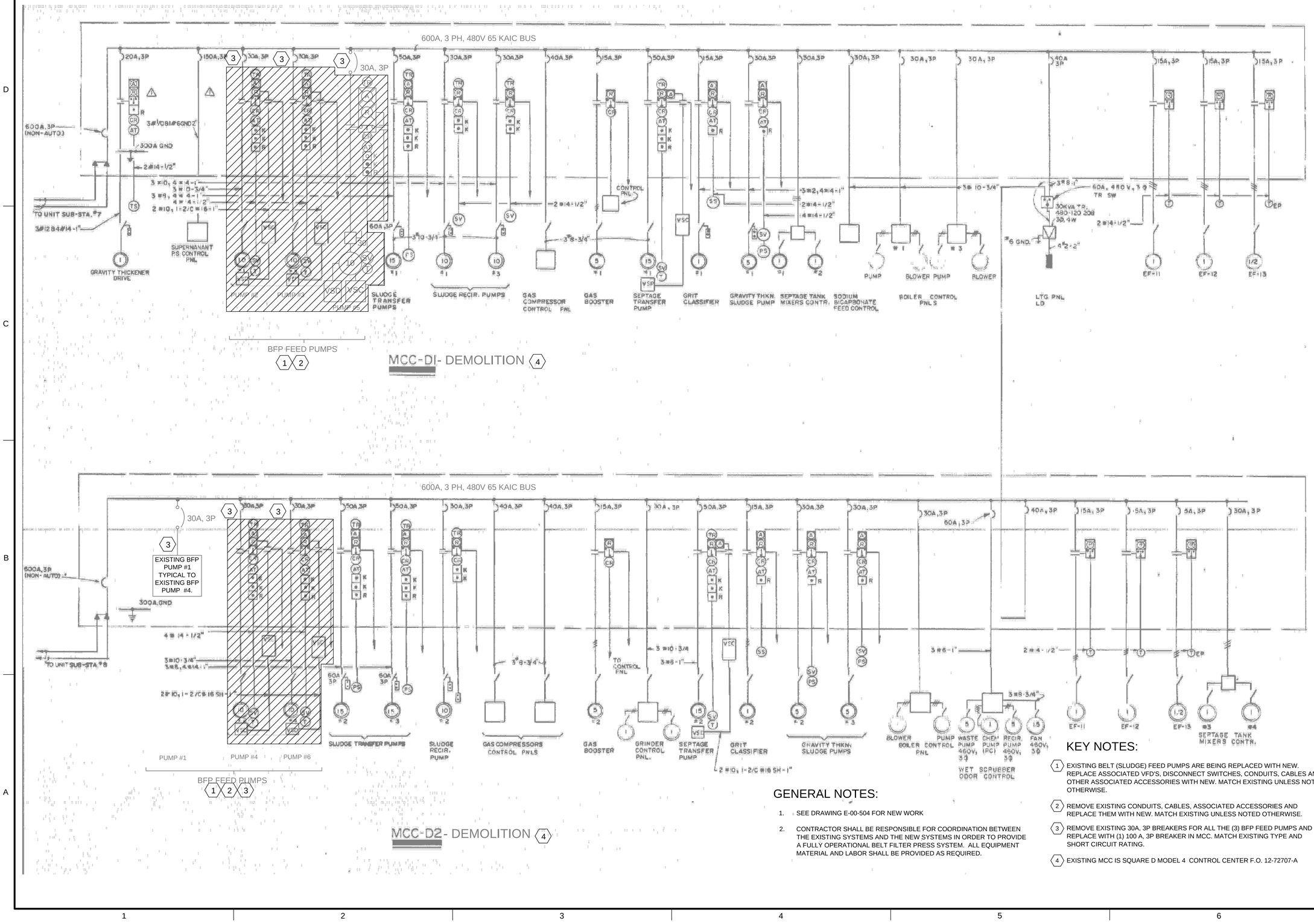
DESIGNED:	V. TREHAN
DRAWN:	K. PALMER
CHECKED:	B. DICKERSON
CHECKED:	B. DICKERSON
APPROVED:	V. TREHAN
FILENAME	E-00-503.DWG
BC PROJECT NUMBER	152270
CLIENT PROJECT NUMBER	6091680

ELECTRICAL SWWRF

NEW SWBD-7 AND SWBD-8 ONE LINE DIAGRAM

DRAWING NUMBER
E-00-503

SHEET NUMBER 53 OF 72



GENERAL NOTES:

1. SEE DRAWING E-00-504 FOR NEW WORK
2. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN THE EXISTING SYSTEMS AND THE NEW SYSTEMS IN ORDER TO PROVIDE A FULLY OPERATIONAL BELT FILTER PRESS SYSTEM. ALL EQUIPMENT MATERIAL AND LABOR SHALL BE PROVIDED AS REQUIRED.

KEY NOTES:

1. EXISTING BELT (SLUDGE) FEED PUMPS ARE BEING REPLACED WITH NEW. REPLACE ASSOCIATED VFD'S, DISCONNECT SWITCHES, CONDUITS, CABLES AND OTHER ASSOCIATED ACCESSORIES WITH NEW. MATCH EXISTING UNLESS NOTED OTHERWISE.
2. REMOVE EXISTING CONDUITS, CABLES, ASSOCIATED ACCESSORIES AND REPLACE THEM WITH NEW. MATCH EXISTING UNLESS NOTED OTHERWISE.
3. REMOVE EXISTING 30A, 3P BREAKERS FOR ALL THE (3) BFP FEED PUMPS AND REPLACE WITH (1) 100 A, 3P BREAKER IN MCC. MATCH EXISTING TYPE AND SHORT CIRCUIT RATING.
4. EXISTING MCC IS SQUARE D MODEL 4 CONTROL CENTER F.O. 12-72707-A

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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: VKT
DRAWN: VLD
CHECKED:
CHECKED:
APPROVED:

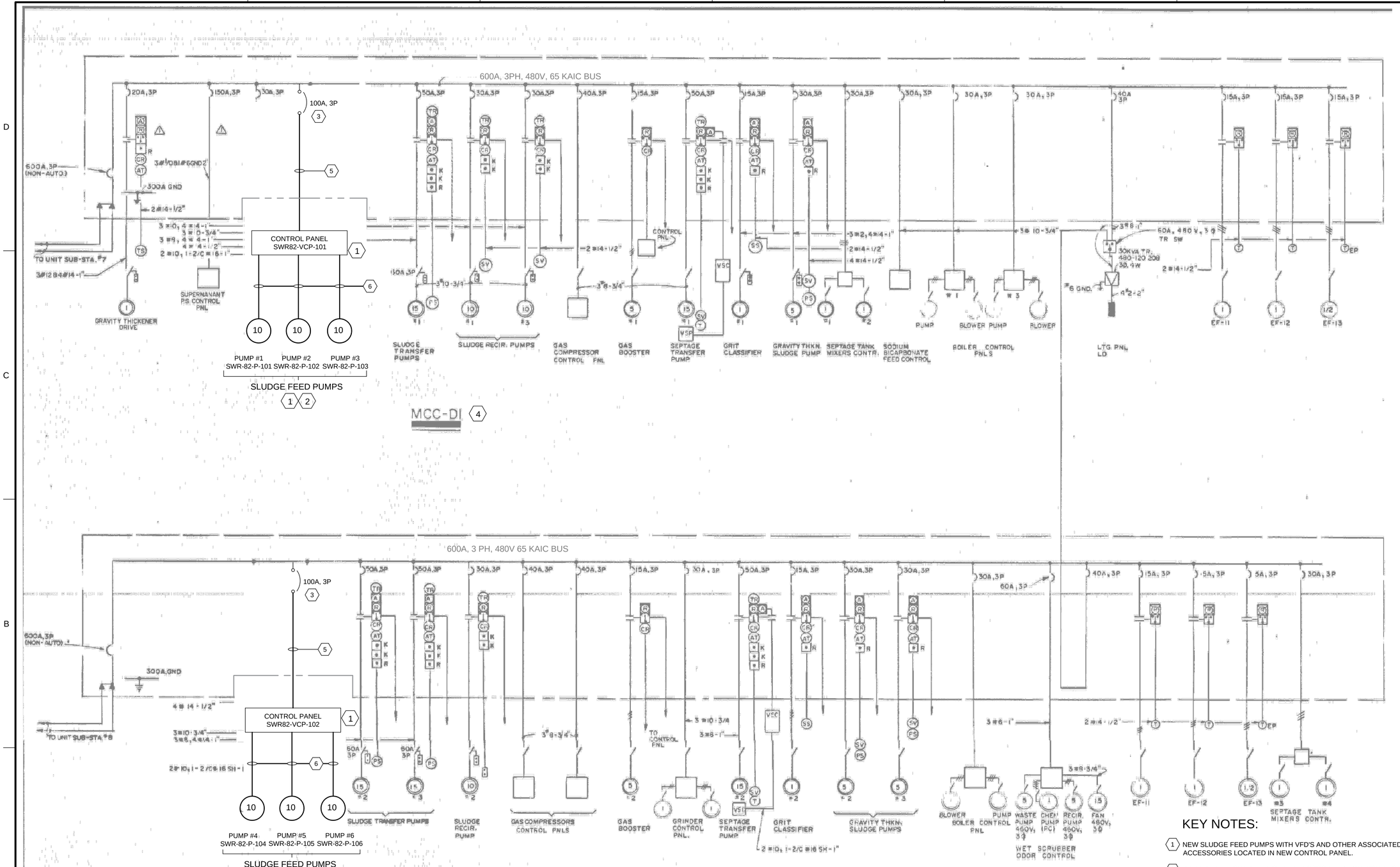
FILENAME
ED-00-504.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SWWRF

MCC-D1 AND MCC-D2 480V MCC SINGLE LINE

DRAWING NUMBER
ED-00-504

SHEET NUMBER 54 OF 72



GENERAL NOTES:

1. SEE DRAWING ED-00-504 FOR THE EQUIPMENT BEING REPLACED.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN THE EXISTING SYSTEMS AND THE NEW SYSTEMS IN ORDER TO PROVIDE A FULLY OPERATIONAL BELT FILTER PRESS SYSTEM. ALL EQUIPMENT MATERIAL AND LABOR SHALL BE PROVIDED AS REQUIRED.

KEY NOTES:

1. NEW SLUDGE FEED PUMPS WITH VFD'S AND OTHER ASSOCIATED ACCESSORIES LOCATED IN NEW CONTROL PANEL.
2. PROVIDE NEW CONDUITS, CABLES, ASSOCIATED ACCESSORIES.
3. PROVIDE 100A AS SHOWN BREAKERS IN MCC. MATCH EXISTING TYPE AND SHORT CIRCUIT RATING. SEE DRAWING E-00-510.
4. EXISTING MCC IS SQUARE D MODEL 4 CONTROL CENTER F.O. 12-72707-A
5. 3 #3, #8G, 1-1/2" C.
6. PROVIDE 3 #10, #10G, SHIELDED CABLE FROM VFD TO MOTOR IN 1" C .

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SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

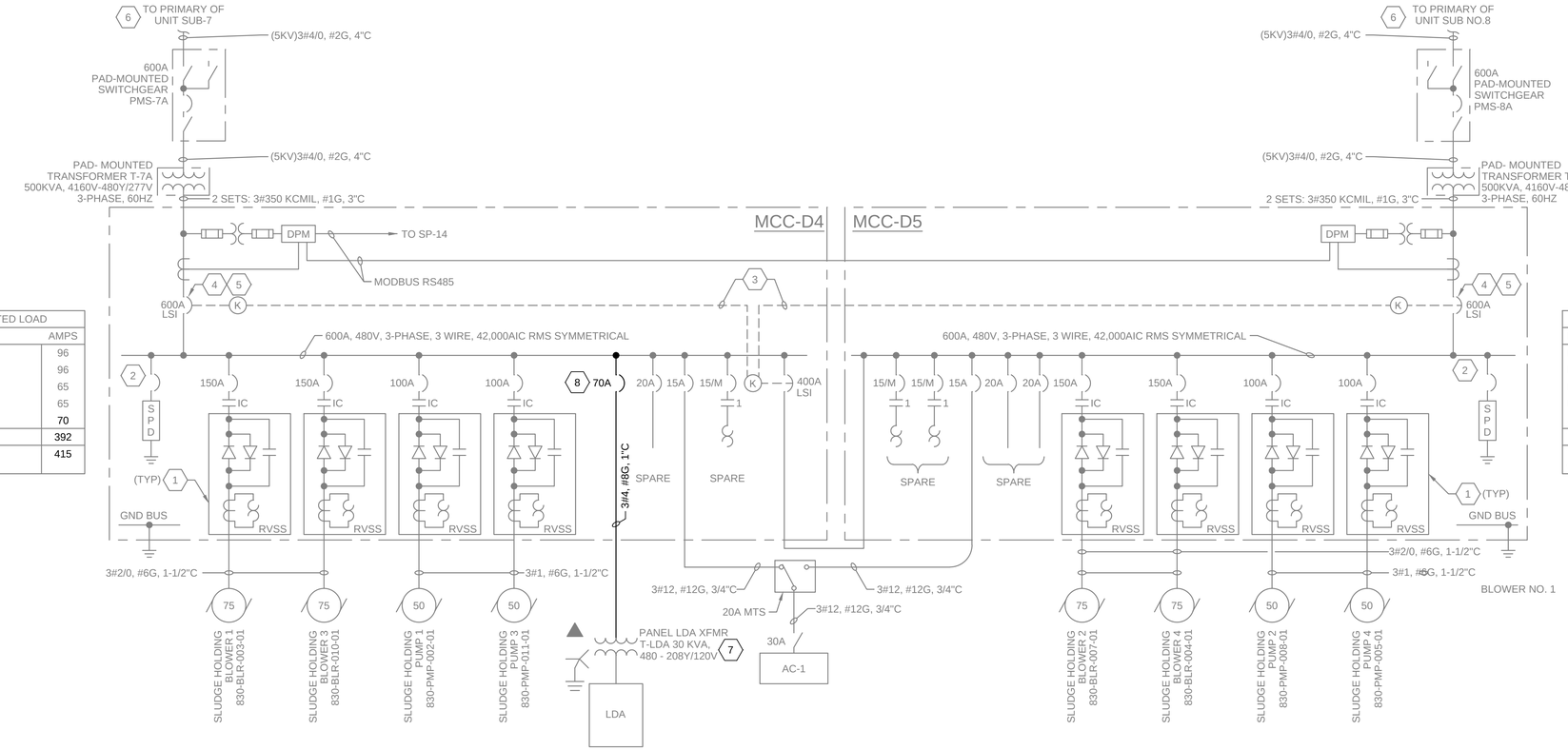
DESIGNED:	V. TREHAN
DRAWN:	K. PALMER
CHECKED:	B. DICKERSON
CHECKED:	B. DICKERSON
APPROVED:	V. TREHAN
FILENAME	E-00-504.DWG
BC PROJECT NUMBER	152270
CLIENT PROJECT NUMBER	6091680

ELECTRICAL SWWRF

MCC-D1 AND MCC-D2 480v MCC SINGLE LINE DIAGRAMS

DRAWING NUMBER
E-00-504

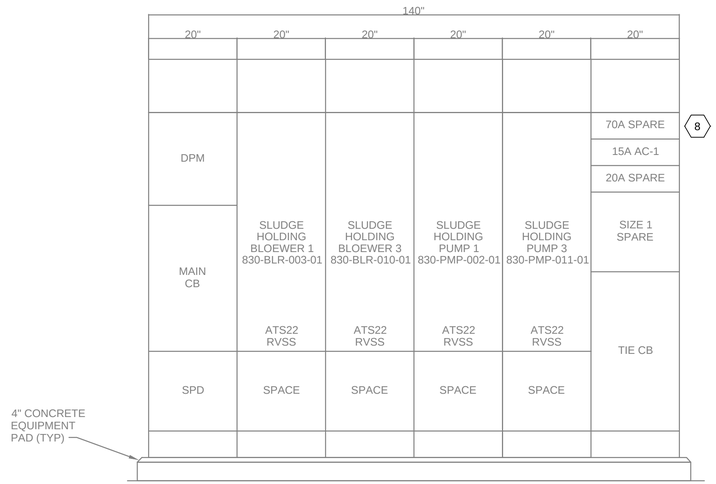
SHEET NUMBER 55 OF 72



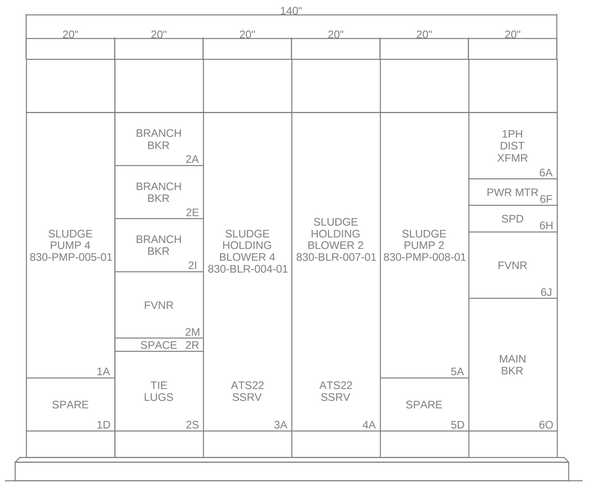
MCC-D4 CONNECTED LOAD	
DESCRIPTION	AMPS
	96
BLOWER NO. 3	96
PUMP NO. 1	65
PUMP NO. 3	65
PANEL LDA XFMR	70
TOTAL	392
TOTAL PLUS 25% OF LARGEST MOTOR	415

MCC-D5 CONNECTED LOAD	
DESCRIPTION	AMPS
BLOWER NO. 2	96
BLOWER NO. 4	96
PUMP NO. 2	65
PUMP NO. 4	65
AC-1	7
TOTAL	329
TOTAL PLUS 25% OF LARGEST MOTOR	353

SINGLE LINE DIAGRAM



MCC-D4 ELEVATION



MCC-D5 ELEVATION

KEY NOTES:

1. REDUCED VOLTAGE SOLID STATE MOTOR STARTER WITH ISOLATION CONTACTOR, INTERNAL BY-PASS, AND INTERNAL SOLID STATE OVERLOADS.
2. SIZED BY MANUFACTURER.
3. PROVIDE KIRK KEY INTERLOCK, SUCH THAT THE TIE BREAKER IN MCC-D4 CANNOT BE CLOSED UNLESS ONE OF THE MAIN BREAKERS IN MCC-D4 OR MCC-D5 IS OPEN.
4. SERVICE ENTRANCE RATED.
5. PROVIDE WARNING LABEL INDICATING THE LOAD SIDE OF THE CIRCUIT BREAKER MAY BE CONNECTED TO AN ALTERNATE POWER SOURCE AND MAY HAVE POWER ON THE LOAD SIDE EVEN WHEN THE CIRCUIT BREAKER IS OPEN.
6. SEE DRAWING 007-E-6002 FOR CONTINUATION.
7. DISCONNECT EXISTING PANEL LDA XFMR FROM MCC-D3 AND RECONNECT AS SHOWN. SEE DRAWING E-00-618.
8. REPLACE EXISTING 80A SPARE CIRCUIT BREAKER WITH A NEW 70A CIRCUIT BREAKER. MATCH EXISTING TYPE AND SHORT CIRCUIT RATING. SEE DRAWING E-00-618 FOR LOCATION. RELABEL MCC FEEDER "PANEL LDA TRANSFORMER".

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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

FILENAME
E-00-505.DWG

BC PROJECT NUMBER
152270

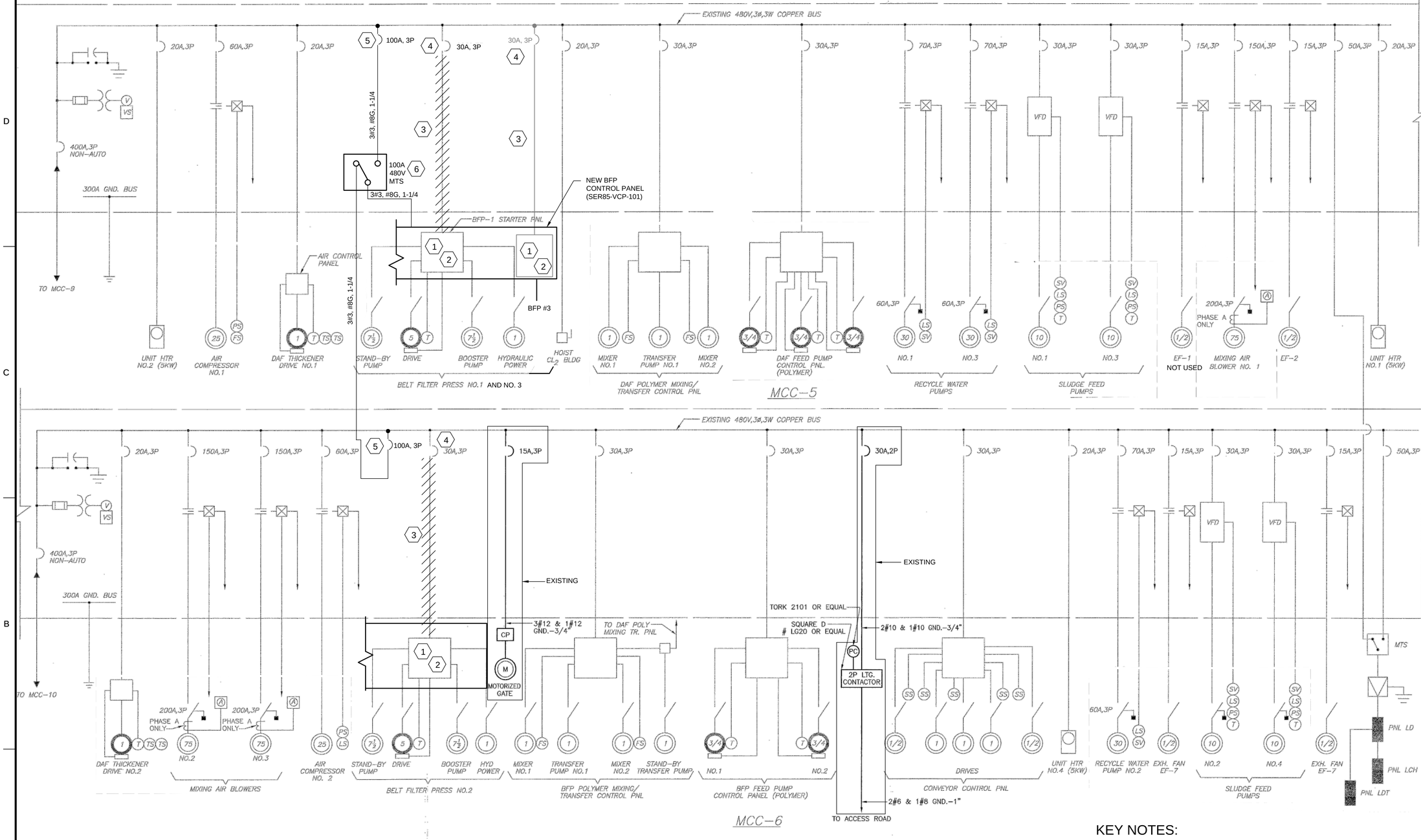
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SWWRF

MCC-D4 AND MCC-D5 SINGLE LINE DIAGRAM

DRAWING NUMBER
E-00-505

SHEET NUMBER 56 OF 72



KEY NOTES:

5. PROVIDE NEW 100A, 3P CIRCUIT BREAKER IN EXISTING MCC. MATCH EXISTING TYPE, SIZE, AND SHORT CIRCUIT RATING. PROVIDE NEW BUCKET IN PLACE OF EXISTING TO HOUSE NEW CIRCUIT BREAKER. SEE DRAWING E-00-511 FOR DETAILS.
6. FIELD VERIFY AND MATCH OR EXCEED SHORT CIRCUIT RATING OF MTS WITH SHORT CIRCUIT RATINGS OF MCC-5 AND MCC-6.

1. REPLACE EXISTING BELT FILTER PRESS STARTER PANELS WITH A NEW BFP CONTROL PANEL SP-9, SER-85-VCP-101.) NEW SP-9 WILL HOUSE STARTERS FOR HYDRAULIC POWER, BOOSTER PUMP, DRIVE, AND STANDBY PUMP, APART FROM OTHER ITEMS SPECIFIED FOR BELT FILTER PRESSES #1 THRU #3. REMOVE ASSOCIATED EXISTING CONDUITS, CABLES, AND EQUIPMENT WITH THE MOTORS AND PANELS AND REFEED THEM FROM THE NEW SP-9. FIELD LOCATE, REMOVE AND RECONNECT CIRCUITS FOR BFP # 3 (NOT SHOWN). MATCH EXISTING UNLESS NOTED OTHERWISE.
2. REPLACE EXISTING BELT FILTER PRESS CONTROL PANELS ON CATWALK WITH A SINGLE NEW LOCAL (BFP PANEL SER85-VCP-102) ON CATWALK.
3. DEMOLISH EXISING CONDUITS, CABLES, AND ASSOCIATED ACCESSORIES.
4. MARK THE CIRCUIT BREAKES "SPARE" IN THE MCC'S

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SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	V. TREHAN
DRAWN:	K. PALMER
CHECKED:	B. DICKERSON
CHECKED:	B. DICKERSON
APPROVED:	V. TREHAN

FILENAME: E-00-506.DWG
BC PROJECT NUMBER: 152270
CLIENT PROJECT NUMBER: 6091680

ELECTRICAL
SEWRF

MCC-5 AND MCC-6 SINGLE LINE DIAGRAMS

DRAWING NUMBER
E-00-506

SHEET NUMBER 57 OF 72

KEY NOTES:

1. SQUARE D MODEL 4 CONBALLER FO 22-72707-4 PLANT 7.
2. PROVICE 100A AND 60A CIRCUIT BREAKER(S) AT THE LOCATION SHOWN. SEE DRAWING E-00-504. FIELD COORDINATE EXACT BUCKET TO REPLACE.

SLUDGE RECIRC PUMP #1	SLUDGE TRANSFER PUMP TP-4	PANEL LD		EXISTING FAN #3	35 ACRE SLUICE GATES	PNL 1D	ODOR CONTROL	ELR, LDR, AND LLR RELAY COMPARTMENT	GRAVITY THICKENER #2	SLUDGE RECIRC PUMP #2	EF #11	SLUDGE TRANSFER PUMP #2
SEPTAGE PUMP #1	SPARE / PANEL LD2	GRAVITY THICKENER DRIVE #1		SLUDGE RECIRC PUMP #3	MONITORING WELL 2 WEST GATE	LRC #3	LRC #4	SODIUM BICARBONATE	SPARE / SPARE	BLANK / SPARE	EF #12	SLUDGE TRANSFER PUMP #3
SLUDGE XFR PUMP #1	BFP FEED PUMP #3	GRIT CLASSIFIER #1		WEST STANDBY BOILER CONTROL #3 / EAST BOILER CONTROL #2	ELR, LDR, AND LLR RELAY COMPARTMENT						EF #13	
		SEPTAGE TANK MIXERS #1 AND #2	SLUDGE PUMP 5 (BFP)	SLUDGE RECIRC PUMP	LRC #1 / LRC #2	SPACE		SEPTAGE TANK MIXER NORTH PANEL / BOILER CONTROL #1	GRIT CLASSIFIER #2	3013 GRINDERS / BOILER CONTROL #4	MT FOR AC CONTROL	SEPTAGE PUMP #2
MCC-D1 MAIN BREAKER	BFP FEED PUMP #2 (2)	EXISTING FAN #11		EXISTING FAN #2	(2)	(2)		SPACE	BFP FEED PUMP #1 (2)	BFP FEED PUMP #1	LRC #3 / SLUDGE PUMP #6	MCC-D2 MAIN BREAKER
								SPACE			BLANK	

SWWRF-EXISTING MCC-D1 (1)
NTS

SWWRF - EXISTING MCC-D2 (1)
NTS

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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

FILENAME
E-00-510.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SWWRF

EXISTING MCC-D1 AND MCC-D2 ELEVATIONS

DRAWING NUMBER
E-00-510

SHEET NUMBER 58 OF 72

METERING	NORTH RECYCLE PUMP NO. 1	SLUDGE FEED PUMP NO. 1	PNL LD TRANSFER SW	UNIT HEATER NO.1
SURGE CAPACITOR AND LIGHTING ARRESTER			UNIT HTR NO. 2	MIXING AIR BLOWER NO. 1
SPARE	RECYCLE PUMP NO. 3	SLUDGE FEED PUMP NO. 3	DAF DRIVE NO. 1	CHLORINE HOIST
			BFP NO.1 STARTER PANEL	DAF POLYMER CP-2
MAIN BREAKER	EXHAUST FAN NO. 1 (1)	AIR COMPRESSOR -1	FUTURE MOTOR-IZED GATE	BFPCP-3
	EXHAUST FAN NO. 2	ELR AND LDR RELAY	SPARE	

SEWRF- EXISTING MCC-5 ELEVATION (2)
NTS

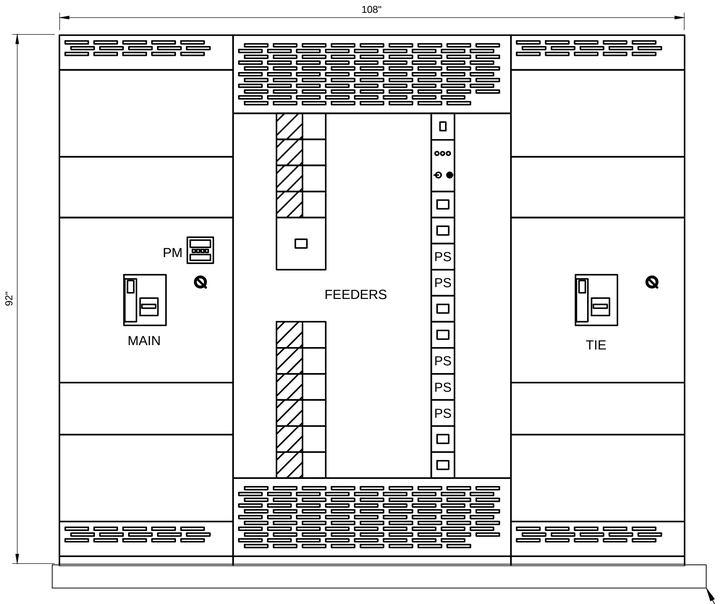
	PNL LD UNIT HEATER	UNIT HEATER NO. 3		METERING
LIGHTS / CONV-EYOR	GARAGE DOOR	WATER HEATER	UNUSED NO COMPONENTS	SURGE CAPACITOR AND LIGHTING ARRESTER
				EXHAUST FAN NO. 3 UNUSED
SPARE 150A BREAKER STARTER	MOTOR-IZED GATE	SIEMENS POLYMER MIX SYSTEM	30 AMP OLD VFD INSIDE BUCKET (UNUSED)	EXHAUST FAN NO. 4 UNUSED
	PRESS POLYMER CP-3	BFP NO. 2 STARTER PANEL		
MIXING AIR BLOWER NO. 3 (UNUSED EMPTY)	RECYCLE PUMP NO. 2		30 AMP OLD VFD INSIDE BUCKET (UNUSED) (1)	MAIN BREAKER 400 A

SEWRF - EXISTING MCC-6 ELEVATION (2)
NTS

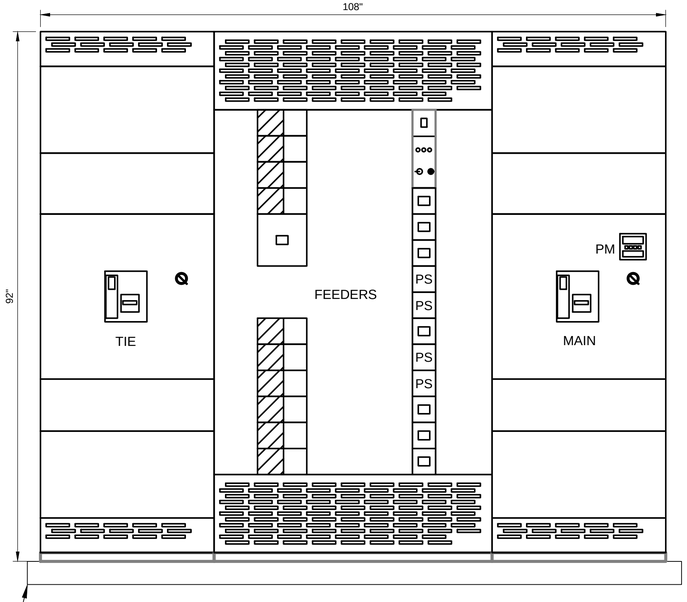
KEY NOTES:

(1) PROVIDE 100A, 3P CIRCUIT BREAKER AT LOCATION SHOWN. SEE DRAWING E-00-506.

(2) WESTINGHOUSE FIVE STAR MOTOR CONTROL CENTER TA-86183IT.006 FVC, FEB 86.

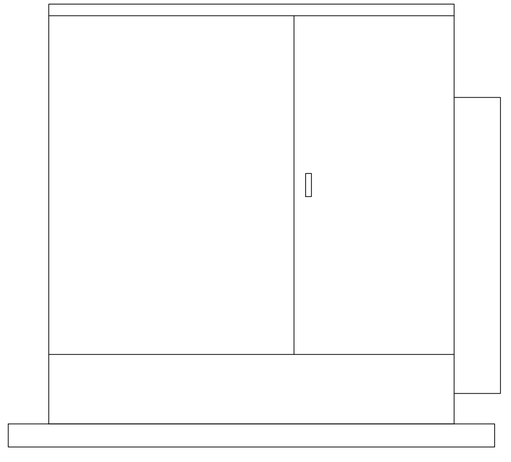


SWWRF - SWBD-7 ELEVATION
NTS



4" CONCRETE PAD

SWWRF - SWBD-8 ELEVATION
NTS



PAD-MOUNTED TRANSFORMER XFMR T-7 AND T-8 ELEVATION (TYPICAL)

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Sarasota, FL 34240

ENGINEER OF RECORD
VINOD TREHAN, PE 72349

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

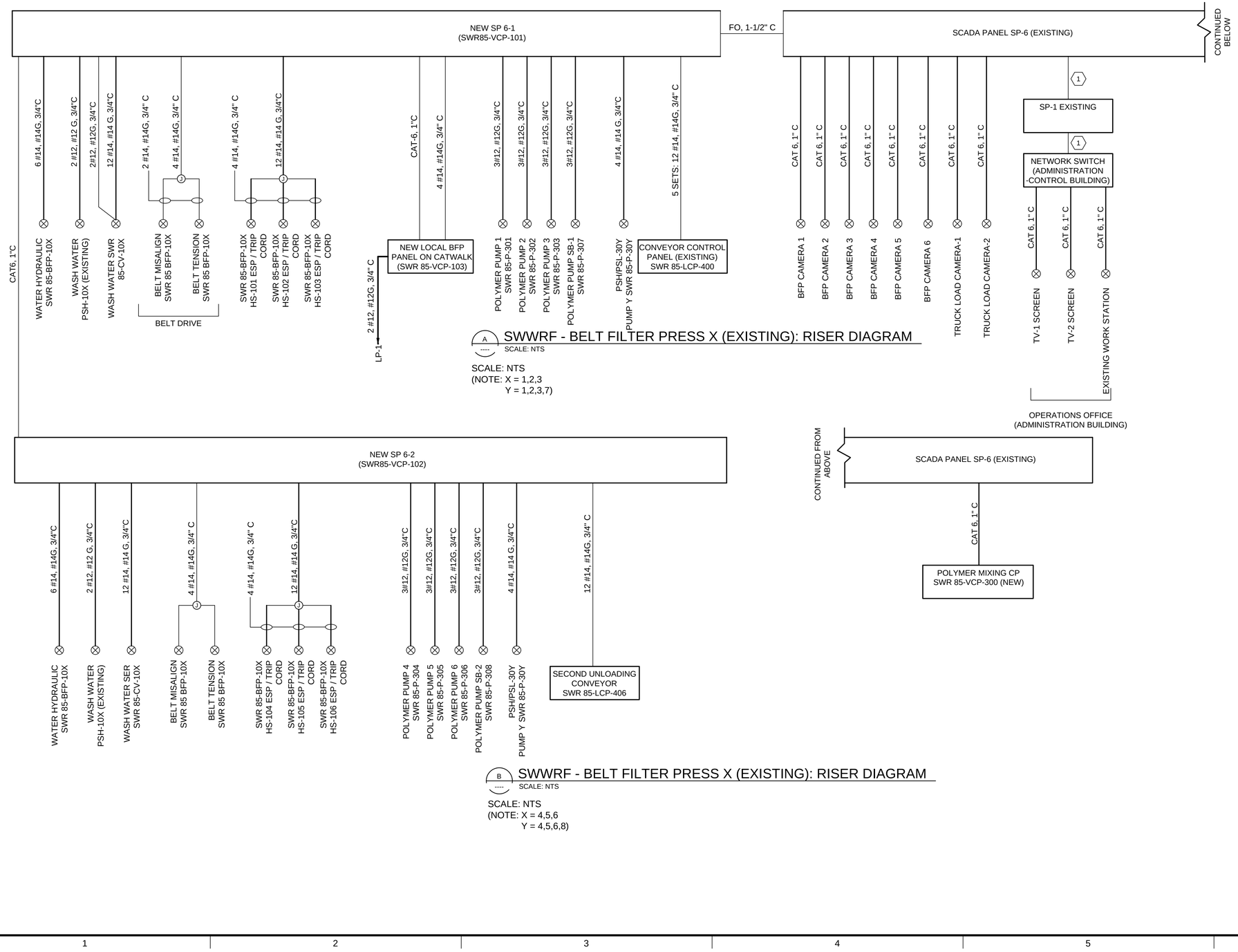
DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

FILENAME
E-00-511.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SEWRF/SWWRF

SWBD-7, SWBD-8, XFMR-7, AND XFMR-8 ELEVATIONS

DRAWING NUMBER
E-00-511



A SWWRF - BELT FILTER PRESS X (EXISTING): RISER DIAGRAM
SCALE: NTS

SCALE: NTS
(NOTE: X = 1,2,3
Y = 1,2,3,7)

B SWWRF - BELT FILTER PRESS X (EXISTING): RISER DIAGRAM
SCALE: NTS

SCALE: NTS
(NOTE: X = 4,5,6
Y = 4,5,6,8)

GENERAL NOTES:

1. COORDINATE WITH P&ID'S.

KEY NOTES:

(1) EXISTING FIBER OPTIC CABLE:

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VINOD TREHAN, PE 72349

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

FILENAME
E-00-521.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SWWRF

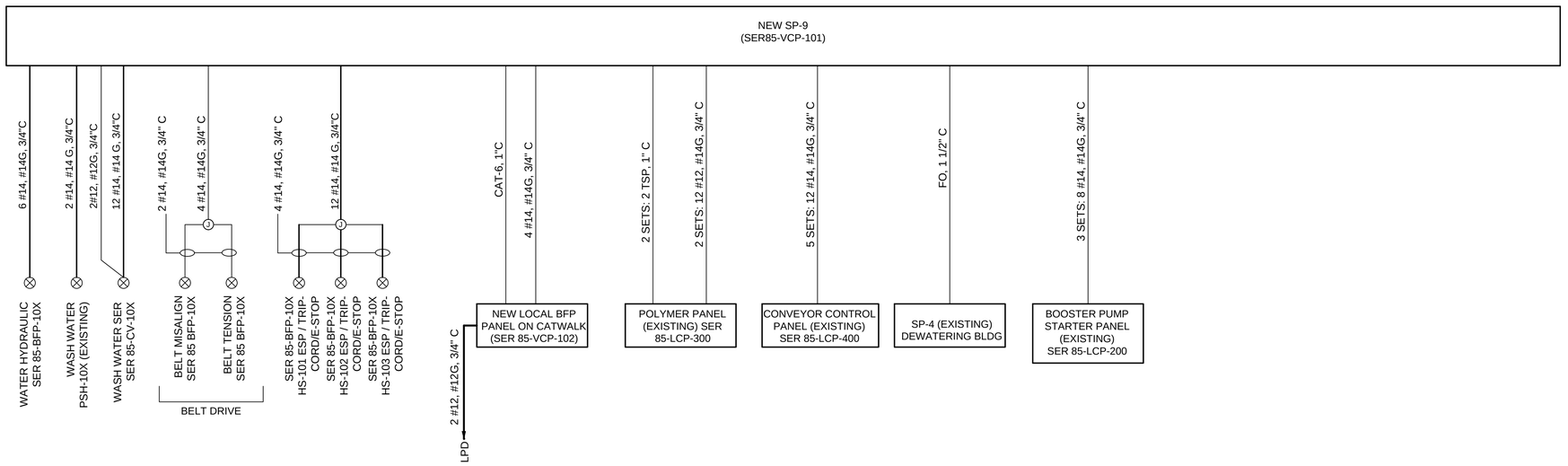
RISER DIAGRAMS

DRAWING NUMBER
E-00-521

SHEET NUMBER 60 OF 72

GENERAL NOTES:

1. COORDINATE WITH P&ID'S.



C SEWRF - BELT FILTER PRESS X (EXISTING): RISER DIAGRAM
SCALE: NTS

SCALE: NTS
(NOTE: X = 1,2,3)

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ENGINEER OF RECORD
VINOD TREHAN, PE 72349

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

FILENAME
E-00-522.DWG

BC PROJECT NUMBER
152270

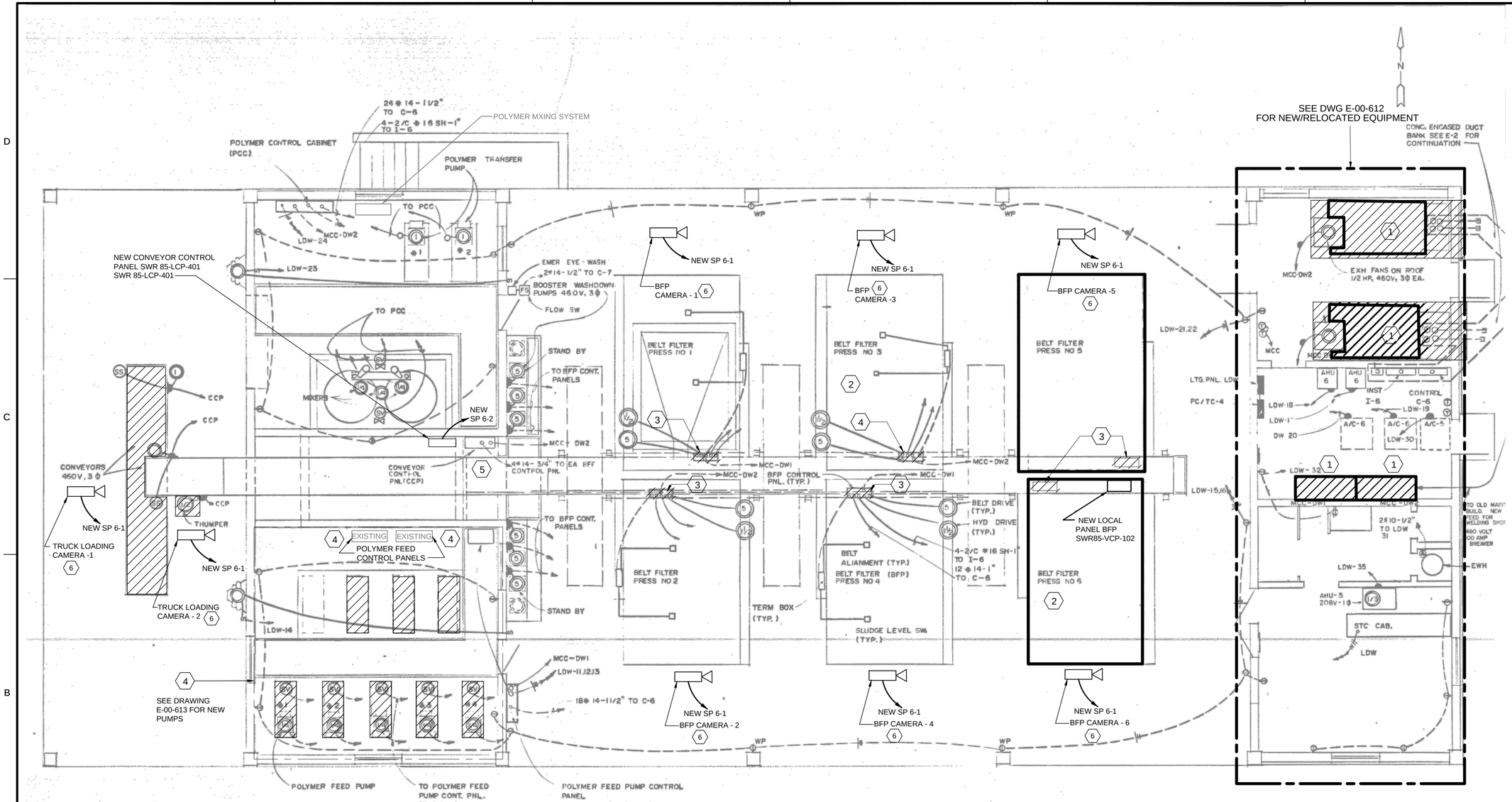
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SEWRF

RISER DIAGRAMS

DRAWING NUMBER
E-00-522

SHEET NUMBER 61 OF 72



POWER PLAN-DEWATERING BLDG.

SCALE 1/4" = 1'-0"

KEY NOTES:

1. REPLACE EXISTING UNIT SUBSTATION 7, UNIT SUBSTATION 8, MCC-DW1, AND MCC-DW2 WITH NEW PAD MOUNTED XFMR T-7, XFMR T-8, MAIN SWBD-7, AND MAIN SWBD-8, AT THE NEW LOCATION SHOWN. SEE E-00-612. REMOVE EXISTING CONDUITS CABLES AND REPLACE THEM WITH NEW. MATCH EXISTING CABLE SIZES, UNLESS NOTED OTHERWISE.
2. EXISTING BELT FILTER PRESS SHALL BE REMOVED AND REPLACED WITH NEW. REMOVE EXISTING CONDUITS CABLES AND REPLACE THEM WITH NEW. MATCH EXISTING UNLESS NOTED OTHERWISE.
3. REPLACE EXISTING BELT FILTER PRESS CONTROL PANELS WITH NEW: (A) TWO NEW MASTER CONTROL PANELS. SEE E-00-612 AND (2) A SINGLE NEW LOCAL CONTROL PANEL AT THE NEW LOCATIONS SHOWN. REMOVE EXISTING CONDUITS CABLES AND REPLACE THEM WITH NEW FOR THE EXISTING EQUIPMENT, UNLESS SHOWN OTHERWISE. MATCH EXISTING CABLE SIZES.
4. EXISTING POLYMER FEED PUMPS SHALL BE REMOVED AND REPLACED. DEMOLISH EXISTING POLYMER FEED PUMPS AS SHOWN INCLUDING CONNECTED CONTROL PANELS, CONDUITS, WIRING, AND ASSOCIATED ACCESSORIES BACK TO THE SOURCE. RECONNECT NEW PUMPS PER DRAWING E-00-613A.
5. REPLACE EXISTING SECOND CONVEYOR CONTROL PANEL WITH NEW.
6. COORDINATE CAMERA LOCATIONS WITH OWNER. SEE RISER DIAGRAM E-00-521 FOR CABLE AND CONDUIT INFORMATION.

GENERAL NOTE:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN THE EXISTING SYSTEMS AND THE NEW SYSTEMS IN ORDER TO PROVIDE A FULLY OPERATIONAL BELT FILTER PRESS SYSTEM. ALL EQUIPMENT MATERIAL AND LABOR SHALL BE PROVIDED AS REQUIRED.
2. CONTRACTOR TO FIELD LOCATE EXISTING GROUND GRID, GROUNDING SYSTEM, AND GROUND STATIONS AND TEST THE WHOLE SYSTEM AND SUBMIT COMPOSITE REPORT, INCLUDING DEFICIENCIES, IF ANY.

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ENGINEER OF RECORD
VINOD TREHAN, PE 72349

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

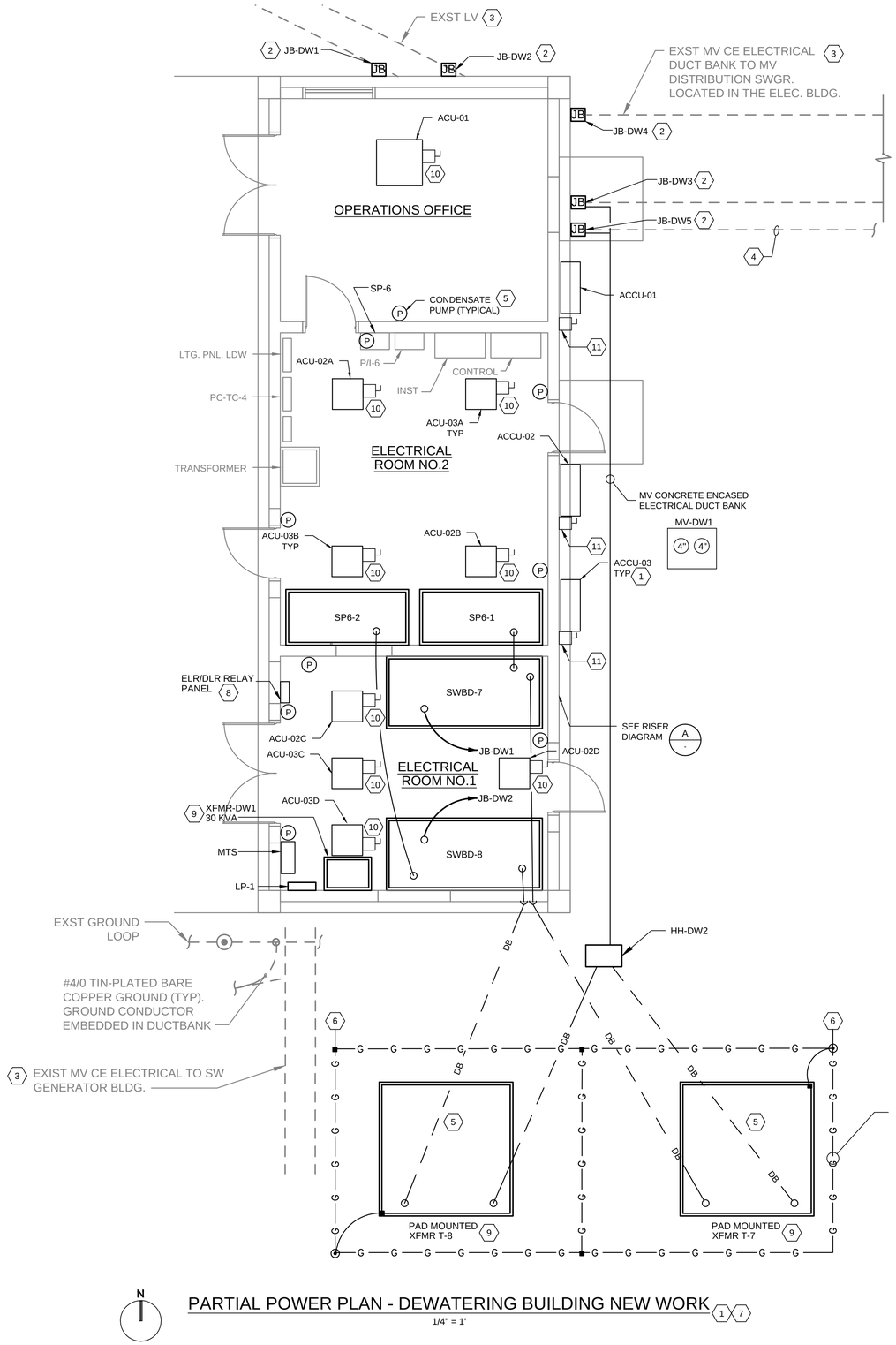
FILENAME
E-00-611.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SWWRF

POWER PLAN DEWATERING BUILDING

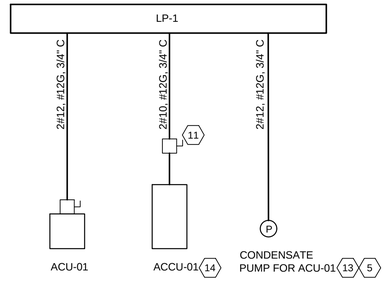
DRAWING NUMBER
E-00-611

62 SHEET NUMBER OF 72



PARTIAL POWER PLAN - DEWATERING BUILDING NEW WORK 1 7

1/4" = 1'



KEY NOTES:

1. FOR EXISTING INSTALLATION TO BE DEMOLISHED SEE DRAWING E-00-611 AND E-00-614.
2. PROVIDE JUNCTION BOX ON WALL. SEE E-00-501, E-00-502, AND E-00-612. ALL JUNCTION BOXES TO BE SIZED PER THE NEC.
3. SW CO-GEN BUILDING EXISTING DUCT BANKS SHOWN PER RECORD DRAWINGS
4. CONCRETE ENCASED DUCT BANK FOR SHUNT TRIP CONDUIT. ROUTED ALONG EXISTING DUCT BANK TO EXISTING MV DISTRIBUTION SWITCHGEAR IN ELECTRICAL BUILDING USING EXISTING C & I MANHOLES. REMOVE EXISTING CONDUCTORS BACK TO SOURCE, AND ABANDON EXISTING DUCT BANK CONDUIT(S) IN PLACE AND CAP ALL ENDS.
5. FIELD COORDINATE CONDENSATE PUMP NUMBERS WITH HVAC.
6. BOND TO EXISTING GROUND RING.
7. FOR HVAC EQUIPMENT BEING DEMOLISHED SEE HVAC DRAWINGS. FIELD COORDINATE AND REMOVE ASSOCIATED ELECTRICAL BACK TO POWER SOURCE. MARK THE CIRCUIT BREAKER IN THE PANEL 'SPARE'.
8. PROVIDE ELR/DLR NEMA 12 RELAY PANEL TO RELOCATE EXISTING RELAYS AFTER REMOVING THEM FORM EXISTING MCC'S. FIELD VERIFY AND CONNECT THEM AT THE NEW LOCATION. PROVIDE MATERIAL AND LABOR AS REQUIRED.
9. WALL MOUNT TRANSFORMER SHALL BE INSTALLED AT A MINIMUM OF 7' AFF.
10. SUPPLIER TO PROVIDE A 30A DISCONNECT SWITCH, INTEGRAL TO EACH ACU SHOWN IN THE OPERATIONS OFFICE, ELECTRICAL ROOM NO. 1 AND ELECTRICAL ROOM NO. 2.
11. CONTRACTOR TO PROVIDE A 30A DISCONNECT SWITCH, NEMA 3R TYPE, ON EACH ACCU SHOWN, OUTSIDE OF THE BUILDING.
12. BOND TRANSFORMER NEUTRAL TO GROUND TERMINAL AND GROUND GRID.
13. CABLE AND CONDUIT TO BE TYPICAL FOR ACU-02A, ACU-02B, ACU-02C, ACU-02D, ACU-02A, ACU-03B, ACU-03C AND ACU-03D.
14. CABLE AND CONDUIT TO BE TYPICAL FOR ACCU-02 AND ACCU-03.

PANEL LP-1

PANEL: LP-1 — **AIC MAINS & CB'S:** 10 KAIC
LOCATION: DEWATERING BUILDING — **MAINS:** 100A MCB — **BUS** 100A
MOUNTING: WALL — **VOLTS:** 208Y / 120V, 3Ø, 4W
NOTE: MANUFACTURER TO PROVIDE BREAKER FOR INTEGRAL SPD

CKT	TRIP / POLE	LOAD DESCRIPTION	CONDUIT AND CABLE	LOAD KVA	PHASE A	PHASE B	PHASE C	LOAD KVA	CONDUIT AND CABLE	LOAD DESCRIPTION	TRIP / POLE	CKT
1	15/2	ACU-01	2-#12, #12G, 3/4"C	0.031	2.111			2.080	2-#12, #12G, 3/4"C	ACCU-01	30/2	2
3				0.031		2.111		2.080				4
5	15/2	ACU-02A	2-#12, #12G, 3/4"C	0.031			2.735	2.704	2-#10, #10G, 3/4"C	ACCU-02	50/2	6
7				0.031	2.735			2.704				8
9	15/2	ACU-02B	2-#12, #12G, 3/4"C	0.031		2.735		2.704	2-#8, #G, 1"C	ACCU-03	50/2	10
11				0.031			2.735	2.704				12
13	15/2	ACU-02C	2-#12, #12G, 3/4"C	0.031	0.281			0.250	2-#12, #12G, 3/4"C	CONDENSATE PUMP ACU-01	20/1	14
15				0.031		0.281		0.250	2-#12, #12G, 3/4"C	CONDENSATE PUMP ACU-02A	20/1	16
17	15/2	ACU-02D	2-#12, #12G, 3/4"C	0.031			0.281	0.250	2-#12, #12G, 3/4"C	CONDENSATE PUMP ACU-02E	20/1	18
19				0.031	0.281			0.250	2-#12, #12G, 3/4"C	CONDENSATE PUMP ACU-02C	20/1	20
21	15/2	ACU-03A	2-#12, #12G, 3/4"C	0.031		0.281		0.250	2-#12, #12G, 3/4"C	CONDENSATE PUMP ACU-02D	20/1	22
23				0.031			0.281	0.250	2-#12, #12G, 3/4"C	CONDENSATE PUMP ACU-03A	25/1	24
25	15/2	ACU-03B	2-#12, #12G, 3/4"C	0.031	0.281			0.250	2-#12, #12G, 3/4"C	CONDENSATE PUMP ACU-03E	20/1	26
27				0.031		0.281		0.250	2-#12, #12G, 3/4"C	CONDENSATE PUMP ACU-03C	20/1	28
29	15/2	ACU-03C	2-#12, #12G, 3/4"C	0.031			0.281	0.250	2-#12, #12G, 3/4"C	CONDENSATE PUMP ACU-03D	20/1	30
31				0.031	0.031			0.000		SPARE	20/1	32
33	15/2	ACU-03D	2-#12, #12G, 3/4"C	0.031		0.031		0.000		SPARE	20/1	34
35				0.031			0.031	0.000		SPARE	20/1	36
37	20/1	SPARE			0			0.000		SPARE	20/1	38
39	20/1	SWR85-VCP-103 BFP LOCAL PANEL (CATWALK)	2-#12, #12G, 3/4"C	1.000		1		0.000		SPARE	20/1	40
41	20/1	SPARE		0.000			0	0.000		SPARE	20/1	42
				TOTALS	5.72	6.72	6.344	18.784	KVA			

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ENGINEER OF RECORD
VINOD TREHAN, PE 72349

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: VKT
DRAWN: VLD
CHECKED:
CHECKED:
APPROVED:

FILENAME
E-00-612.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

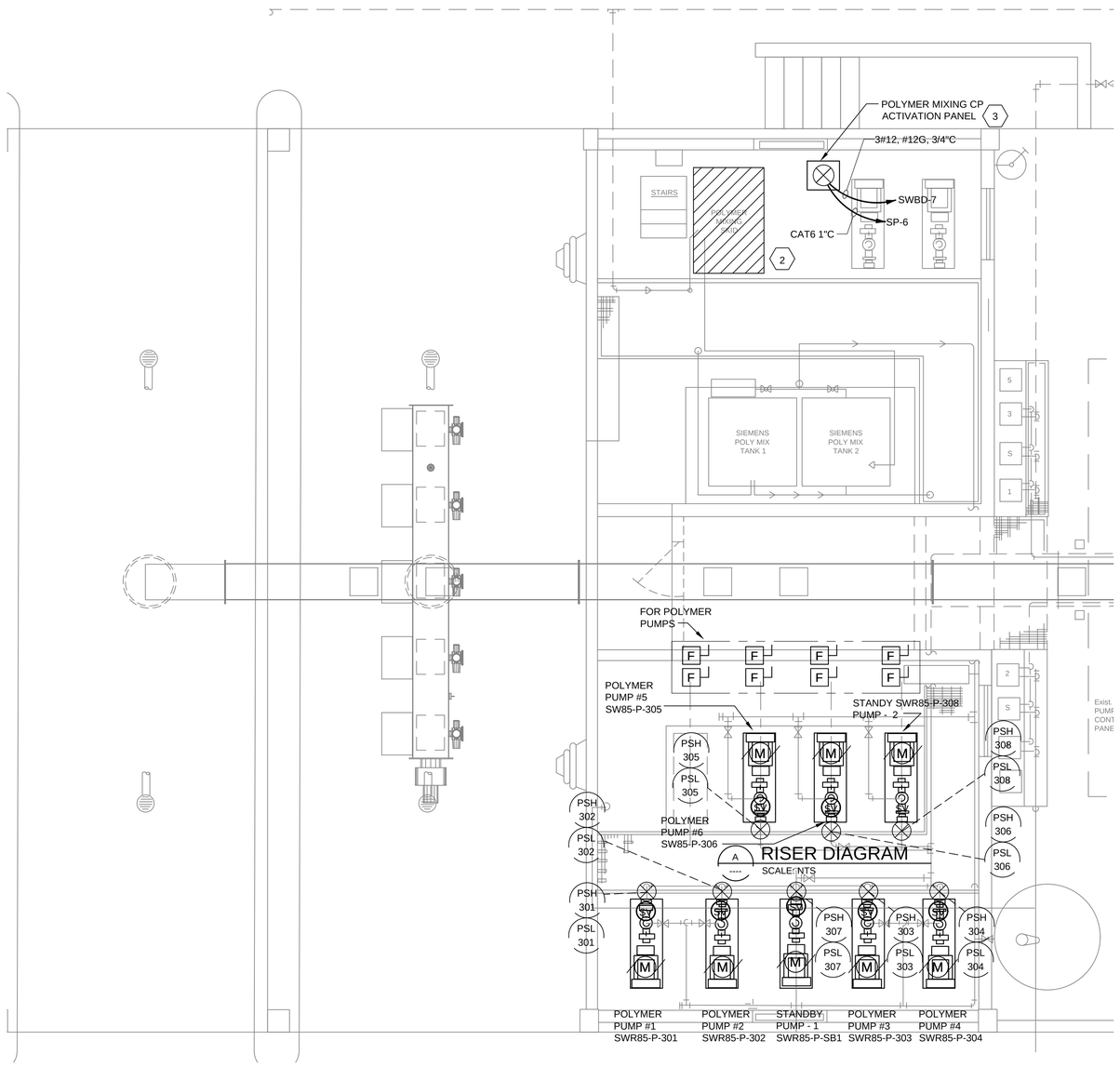
ELECTRICAL
SWWRF

PARTIAL POWER PLAN - DEWATERING BUILDING

DRAWING NUMBER
E-00-612

63 SHEET NUMBER OF 72

NORTH



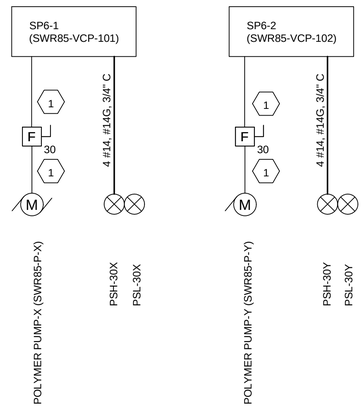
A
RISER DIAGRAM
SCALE: NTS

DEWATERING BUILDING - PARTIAL POWER PLAN

NOT TO SCALE

KEY NOTES:

1. SEE ONE LINE DIAGRAMS
2. EXISTING POLYMER MIXING SKID IS BEING DEMOLISHED. FIELD LOCATE AND REMOVE EXISTING ASSOCIATED CABLES, CONDUIT AND ACCESSORIES BACK TO SOURCE.
3. PROVIDE IN PLACE OF EXISTING POLYMER MIXING SKID BEING DEMOLISHED.



A
RISER DIAGRAM
SCALE: NTS
[X = 1, 2, 7, 3]
[Y = 4, 5, 6, 8]

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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

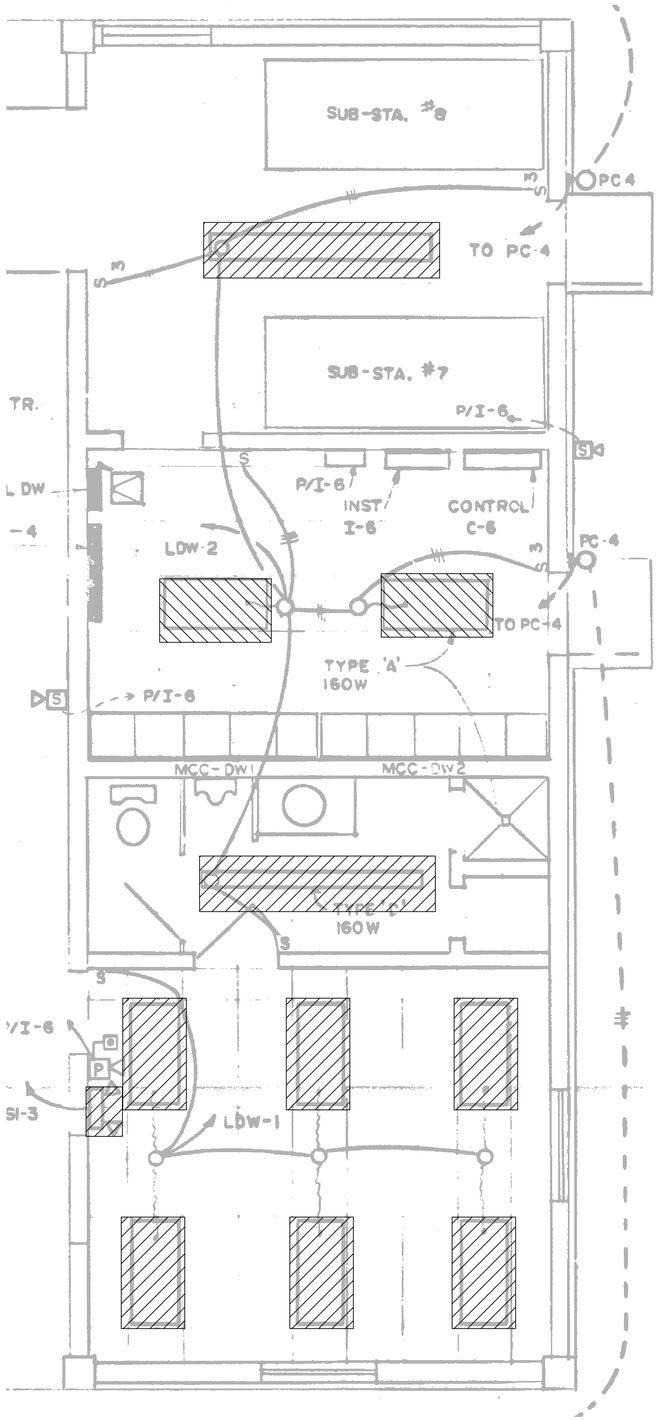
FILENAME
E-00-613.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SWRRF

DEWATERING BUILDING PARTIAL POWER PLAN

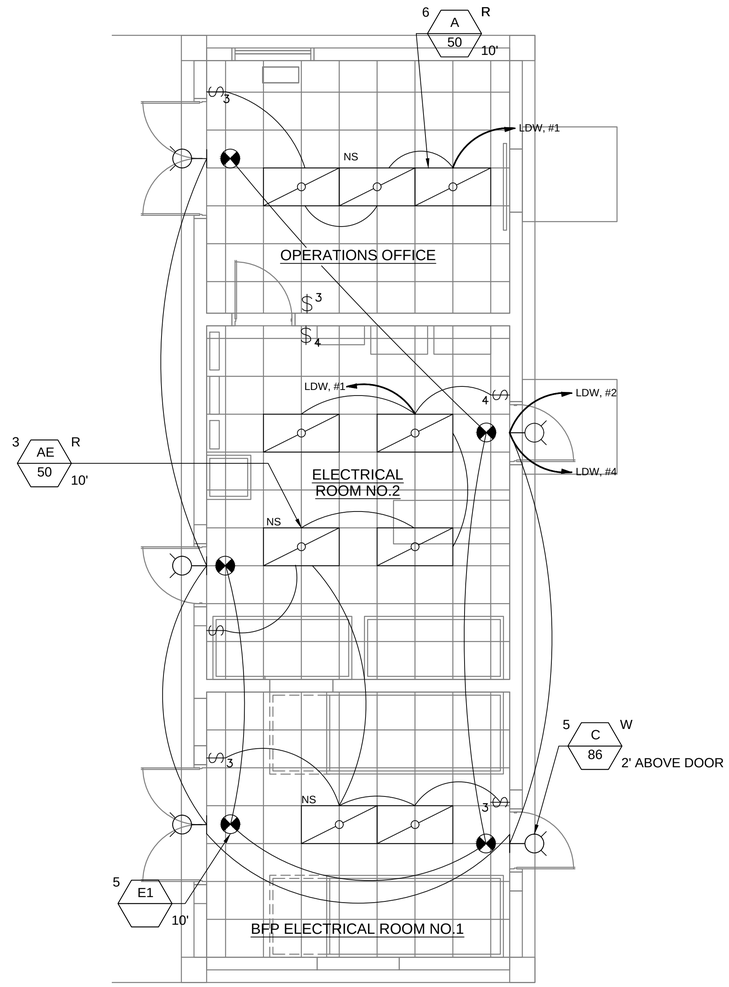
DRAWING NUMBER
E-00-613

SHEET NUMBER 64 OF 72



PARTIAL LIGHTING PLAN - DEWATERING BUILDING - DEMOLITION

3/16" = 1'



PARTIAL LIGHTING PLAN - DEWATERING BUILDING

1/4" = 1'

GENERAL NOTES:

1. EXISTING LIGHT FIXTURES, ALONG WITH ASSOCIATED WIRING, CONDUIT, SWITCHES, ETC, SHALL BE REMOVED AND REPLACED WITH NEW LIGHT FIXTURES, ALONG WITH WIRING, CONDUIT, SWITCHES AND ASSOCIATED ACCESSORIES. PROVIDE NEW LIGHTING SYSTEM AS SHOWN.
2. PROVIDE 2 #10, 1 #10G, 3/4" C FOR LIGHTING CIRCUITS.

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BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	V. TREHAN
DRAWN:	K. PALMER
CHECKED:	
CHECKED:	
APPROVED:	

FILENAME
E-00-614.DWG

BC PROJECT NUMBER
152270

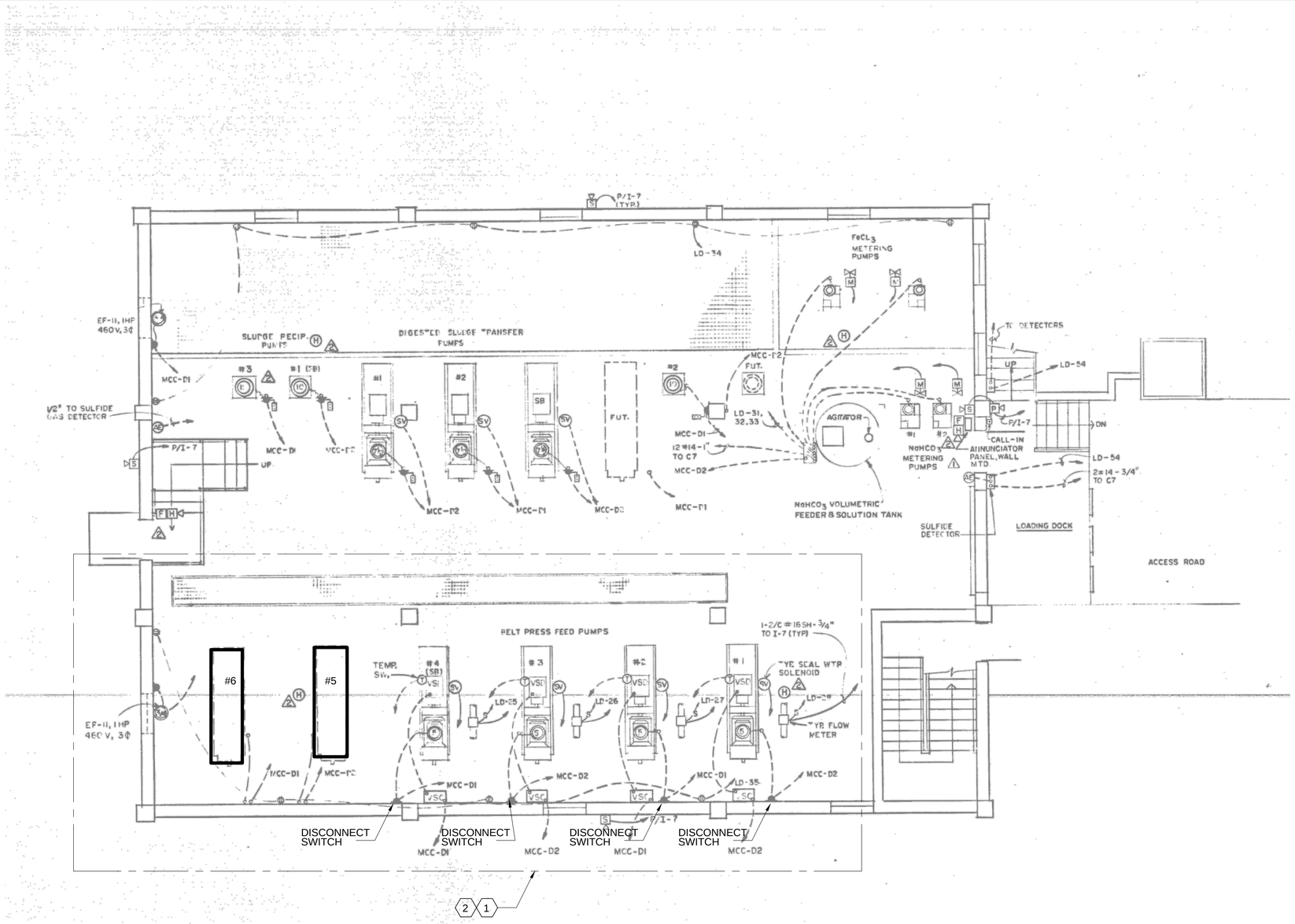
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SWWRF

PARTIAL LIGHTING PLAN - DEWATERING BUILDING

DRAWING NUMBER
E-00-614

SHEET NUMBER 65 OF 72



POWER PLAN- LOWER LEVEL DIGESTER BLDG- DEMOLITION

1/4"= 1'-0"

GENERAL NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN EXISTING SYSTEMS AND NEW SYSTEMS IN ORDER TO PROVIDE A FULLY OPERATIONAL BELT FILTER PRESS SYSTEM. ALL EQUIPMENT, MATERIAL AND LABOR SHALL BE PROVIDED AS REQUIRED.

KEY NOTES:

1. EXISTING BELT (SLUDGE) FEED PUMPS #1 THRU #6 ARE BEING REPLACED WITH NEW. SEE DWG E-00-615 FOR DETAILS. EQUIPMENT FOR PUMPS #5 AND #6 NOT SHOWN. FIELD LOCATE AND/REMOVE EXISTING VSD'S, VSC'S, DISCONNECT SWITCHES, FLOW METERS, SOLENOID VALVES, TEMPERATURE SWITCHES, AND ASSOCIATED EQUIPMENT, INCLUDING CONDUITS, AND WIRES BACK TO ASSOCIATED MCC'S AND PANELS.

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ENGINEER OF RECORD
VINOD TREHAN, PE 72349

BID SET

Manatee County FLORIDA

SWWRF & SEWRF
BELT FILTER PRESS
REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN
FILENAME: ED-00-615.DWG
BC PROJECT NUMBER: 152270
CLIENT PROJECT NUMBER: 6091680

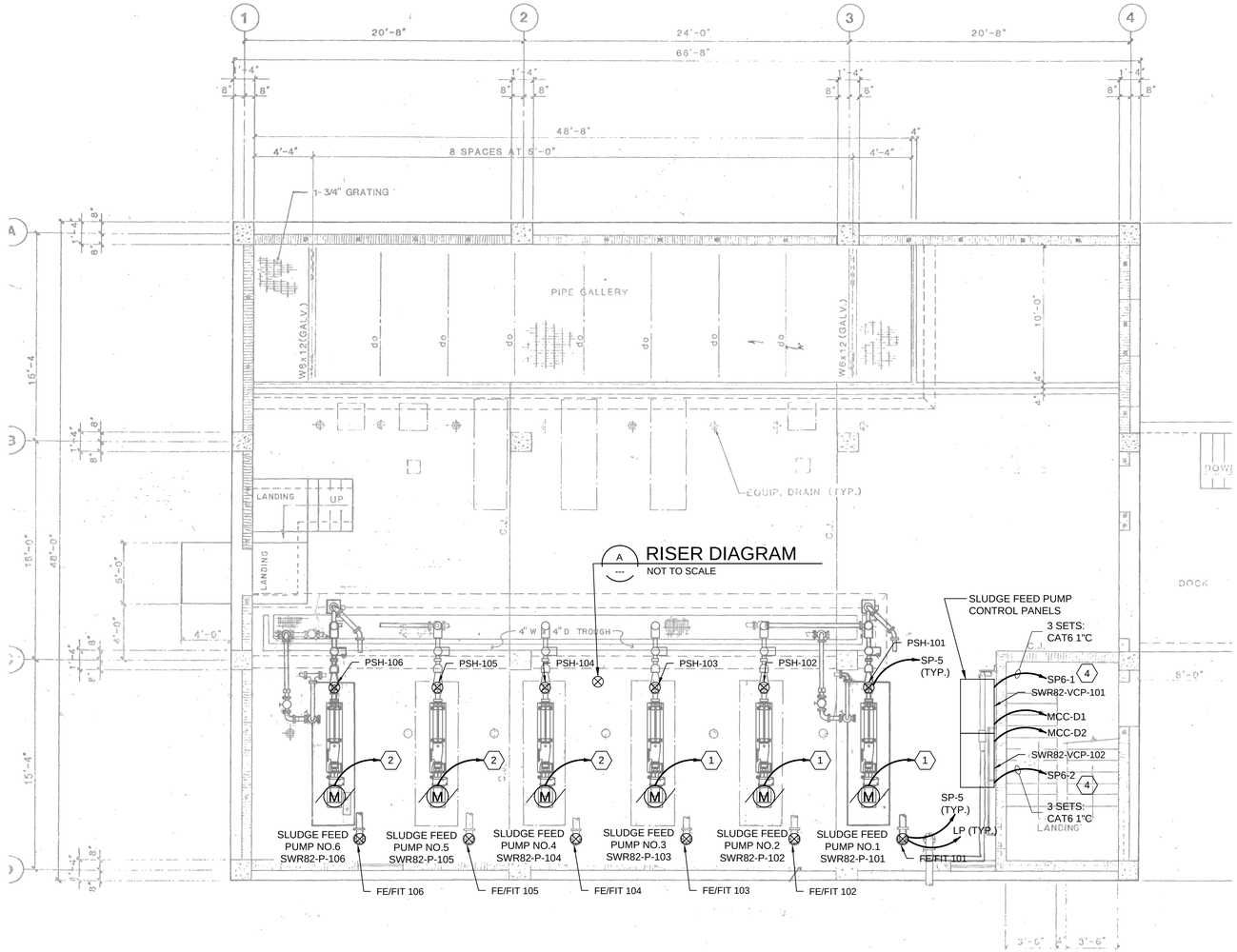
ELECTRICAL
SWWRF

POWER PLAN
DIGESTER BUILDING
LOWER LEVEL

DRAWING NUMBER
ED-00-615

SHEET NUMBER 66 OF 72

NORTH



A RISER DIAGRAM
NOT TO SCALE

SWWRF SLUDGE TRANSFER PUMPS PLAN - NEW WORK

NOT TO SCALE

NOTE: BACKGROUND PLAN OBTAINED FROM SOUTHEAST REGIONAL WWTP EXPANSION COUNTY PROJECT #98-6958-DC.

GENERAL NOTES:

1. FOR ONE-LINE DIAGRAM SEE DWG E-00-504.
2. FOR EXISTING INSTALLATION SEE DWG ED-00-615.
3. PROVIDE NEW SLUDGE FEED PUMPS CONTROL PANEL PER SPECIFICATIONS AT THE LOCATION SHOWN.
4. MATCH EXISTING INSTALLATION UNLESS OTHERWISE NOTED.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN EXISTING SYSTEMS AND NEW SYSTEMS IN ORDER TO PROVIDE A FULLY OPERATIONAL BELT FILTER PRESS SYSTEM. ALL EQUIPMENT, MATERIAL AND LABOR SHALL BE PROVIDED AS REQUIRED.

KEY NOTES:

1. SLUDGE FEED PUMPS CONTROL PANEL (SWR82-VCP-101).
2. SLUDGE FEED PUMPS CONTROL PANEL (SWR82-VCP-102).
3. FOR LOCATION SEE DRWING E-00-616
4. FOR LOCATION SEE DRAWING E-00-612
5. USE CIRCUITS MADE AVAILABLE PER DRAWING ED-00-615.

A RISER DIAGRAM
NOT TO SCALE
(NOTE:X = 1, 2, 3, 4, 5, 6)

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SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

FILENAME
E-00-615.DWG

BC PROJECT NUMBER
152270

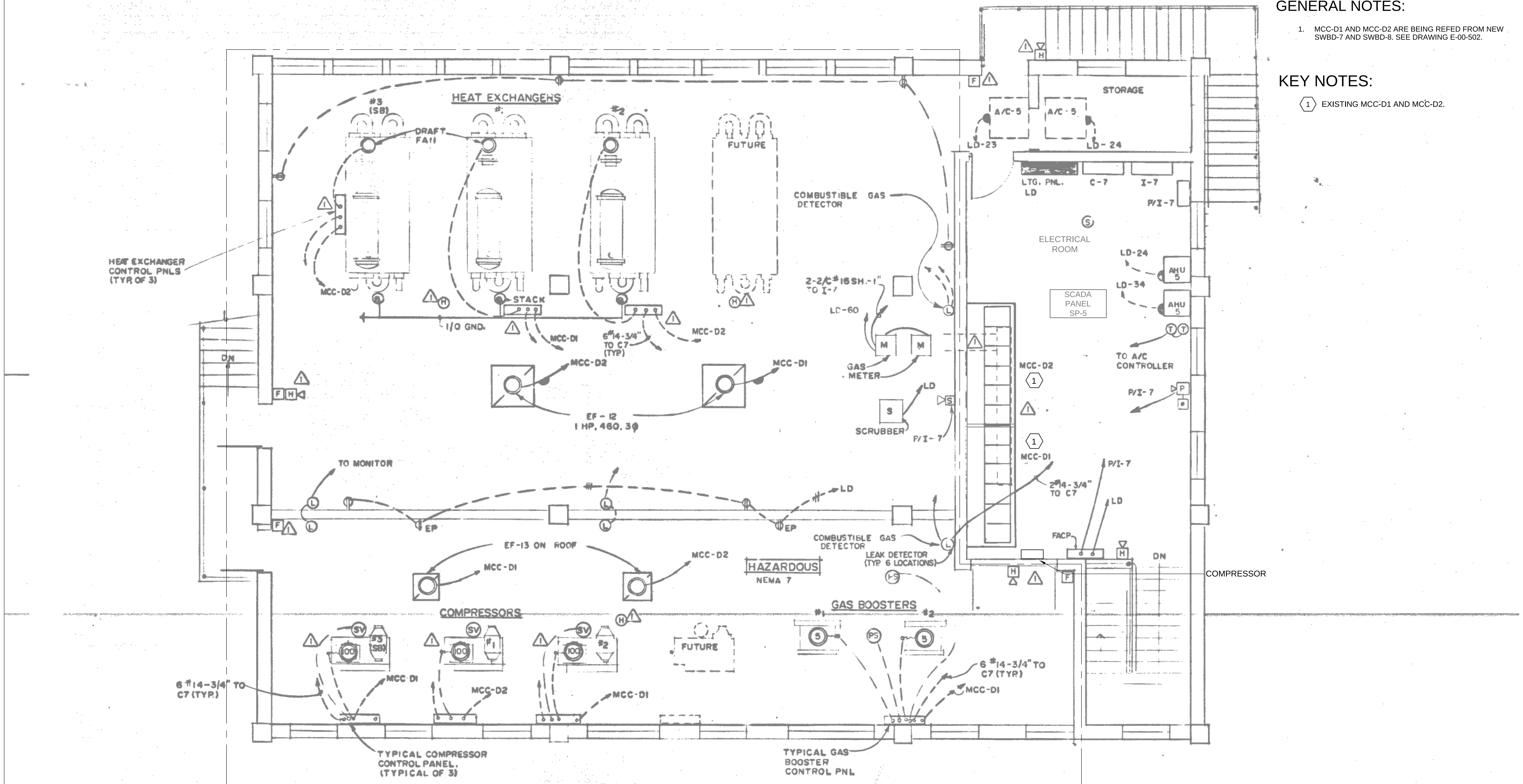
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SWRRF

POWER PLAN DIGESTER BUILDING - LOWER LEVEL

DRAWING NUMBER
E-00-615

67 SHEET NUMBER OF 72



POWER PLAN - UPPER LEVEL DIGESTER BLDG

SCALE: 1/4" = 1'

GENERAL NOTES:

1. MCC-D1 AND MCC-D2 ARE BEING REFED FROM NEW SWBD-7 AND SWBD-8. SEE DRAWING E-00-502.

KEY NOTES:

1. EXISTING MCC-D1 AND MCC-D2.

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ENGINEER OF RECORD
VINOD TREHAN, PE 72349

BID SET

Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: V. TREHAN
DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN
FILENAME E-00-616.DWG
BC PROJECT NUMBER 152270
CLIENT PROJECT NUMBER 6091680

ELECTRICAL SWWRF

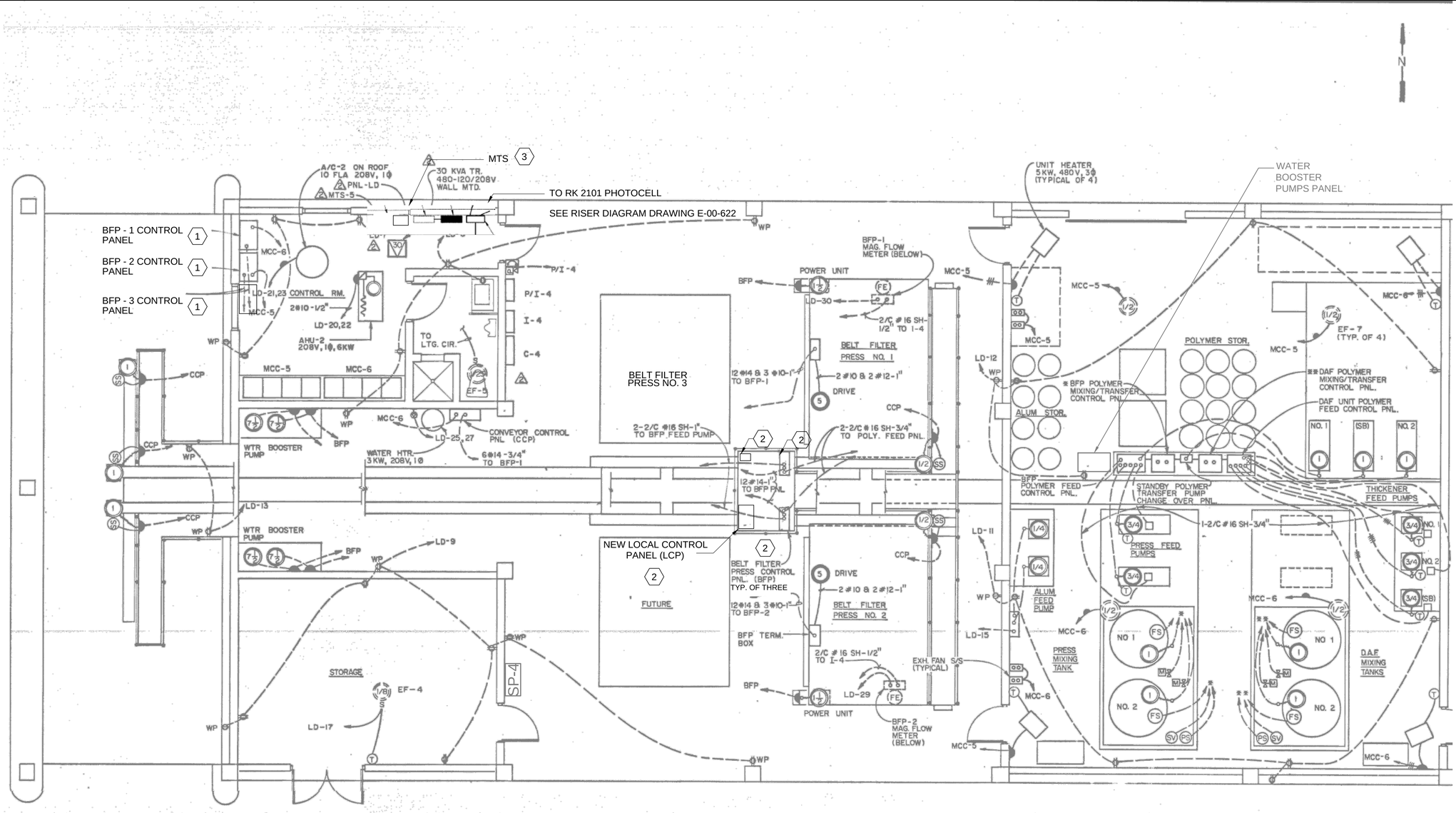
POWER PLAN DIGESTER BUILDING UPPER LEVEL

DRAWING NUMBER E-00-616

SHEET NUMBER 68 OF 72

Path: \\BCSUNFP01\PROJECTS\MANATEE COUNTY\152270-BFP REHAB PROJECT\000-BIM\03-AUTOCAD\05-AUTOCAD\02-SHEETS FILENAME: E-00-616.DWG PLOT DATE: 5/14/2019 4:06 PM CAD USER: ANDREW HUTT

manateeco-logo.png



SEWRF - DEWATERING/CHEMICAL BUILDING-POWER PLAN

KEY NOTES:

1. REPLACE EXISTING BELT FILTER PRESS CONTROL PANELS WITH WITH A NEW MAIN CONTROL PANEL - IN PLACE OF EXISTING BFP #1 CONTROL PANEL AND BFP # 2 CONTROL PANEL. KEEP BFP # 3 CONTROL PANEL FUNCTIONAL UNTIL NEW MAIN CONTROL PANEL AND BFP#1 AND BFP # 2 ARE FUNCTIONAL. REMOVE EXISTING CONDUITS CABLES AND REPLACE THEM WITH NEW AS SHOWN.CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN THE EXISTING SYSTEMS AND THE NEW SYSTEMS IN ORDER TO PROVIDE A FULLY OPERATIONAL BELT FILTER PRESS SYSTEM. ALL EQUIPMENT MATERIAL AND LABOR SHALL BE PROVIDED AS REQUIRED.

2. REPLACE EXISTING BELT FILTER PRESS CONTROL PANELS WITH SINGLE NEW LOCAL CONTROL PANEL, AT THE NEW LOCATION SHOWN. REMOVE EXISTING CONDUITS CABLES AND REPLACE THEM WITH NEW FOR THE EXISTING EQUIPMENT, UNLESS SHOWN OTHERWISE. MATCH EXISTING CABLE SIZES. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN THE EXISTING SYSTEMS AND THE NEW SYSTEMS IN ORDER TO PROVIDE A FULLY OPERATIONAL BELT FILTER PRESS SYSTEM. ALL EQUIPMENT MATERIAL AND LABOR SHALL BE PROVIDED AS REQUIRED.

3. PROVIDE 100 A, 480 V, 3-PHASE, 65 KAIC, HEAVY DUTY, MANUAL TRANSFER SWITCH (MTS).

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Manatee County FLORIDA

SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	V. TREHAN
DRAWN:	K. PALMER
CHECKED:	B. DICKERSON
CHECKED:	B. DICKERSON
APPROVED:	V. TREHAN

FILENAME
E-00-617.DWG

BC PROJECT NUMBER
152270

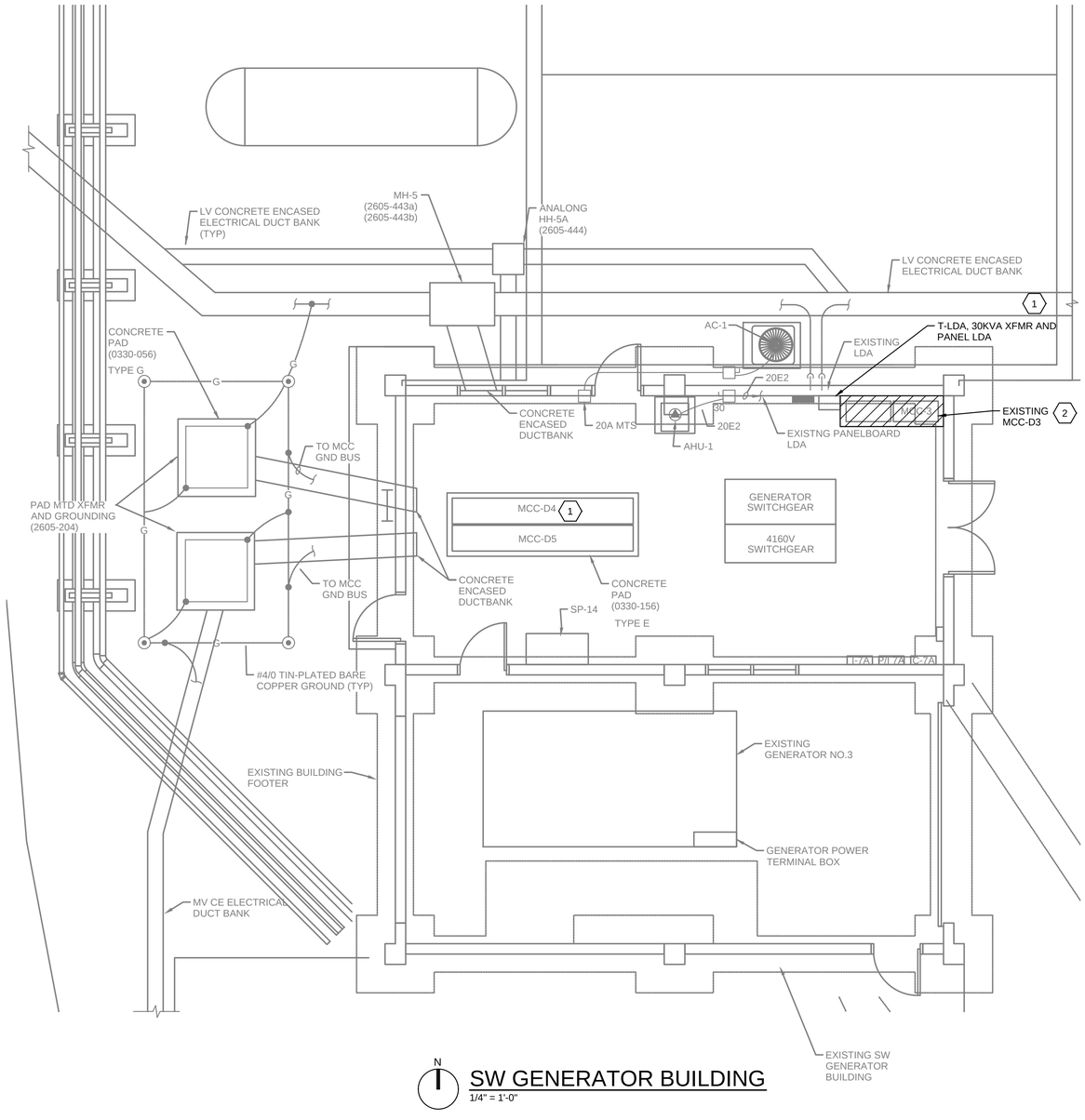
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SEWRF

POWER PLAN
DEWATERING
BUILDING

DRAWING NUMBER
E-00-617

SHEET NUMBER 69 OF 72



N

SW GENERATOR BUILDING

1/4" = 1'-0"

SHEET KEYNOTES

1. DISCONNECT EXISTING TRANSFORMER FROM MCC-D3 AND RECONNECT FROM MCC-D4 AS SHOWN ON E-00-505.
2. DEMOLISH EXISTING MCC-3. REMOVE EXISTING CABLES, SURFACE CONDUIT AND ASSOCIATED ACCESSORIES BACK TO SOURCE. ABANDON EXISTING UNDERGROUND CONDUIT 12" BELOW GROUND AND CAP.

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SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

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DRAWN:	K. PALMER
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CHECKED:	B. DICKERSON
APPROVED:	V. TREHAN

FILENAME
E-00-618.DWG

BC PROJECT NUMBER
152270

CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SWWRF

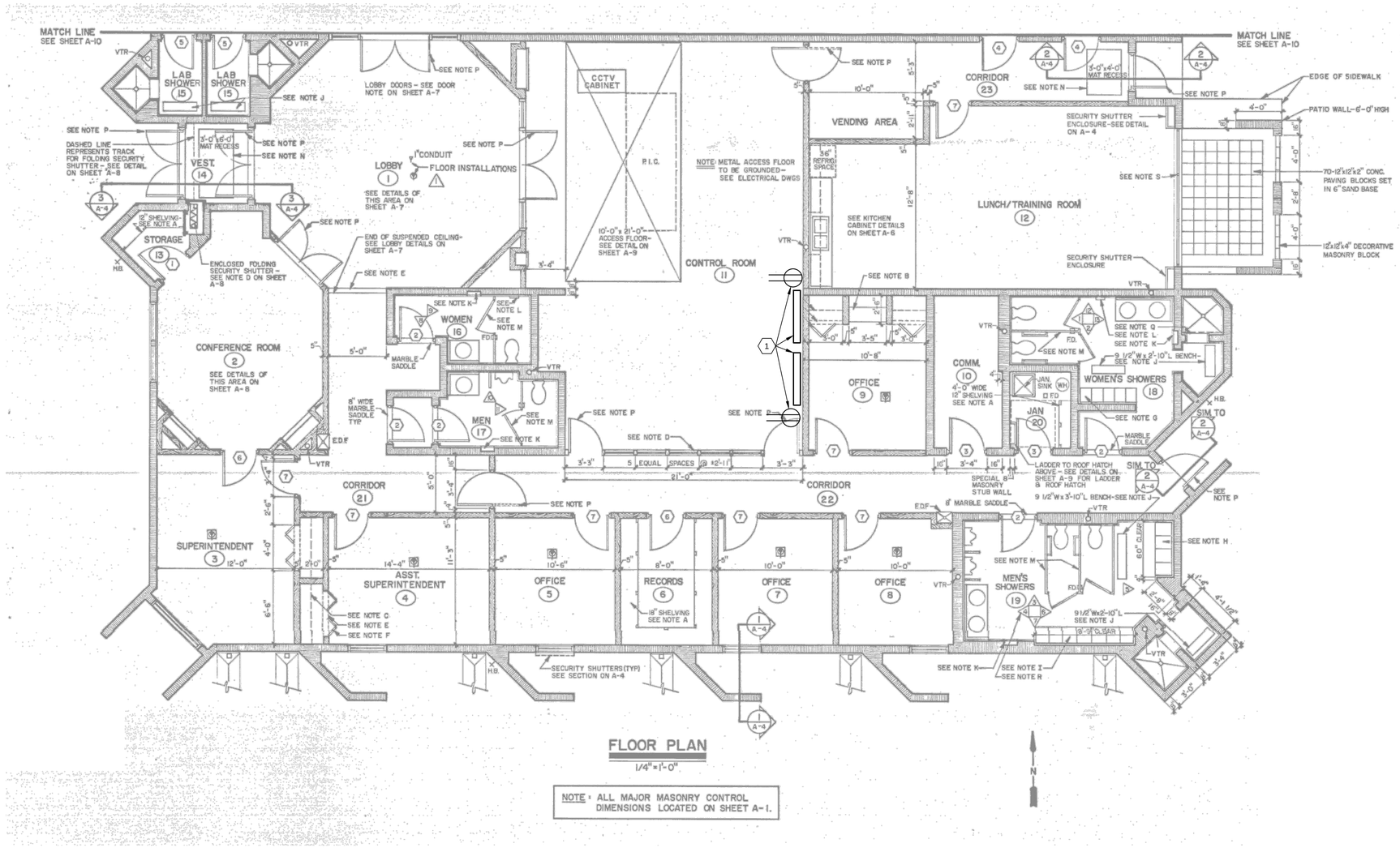
EXISTING SOUTHWEST GENERATOR BUILDING

DRAWING NUMBER
E-00-618

70 SHEET NUMBER OF 72

KEY NOTES:

1. PROVIDE TWO SAMSUNG 65" SMART TV'S PER SPECIFICATIONS SECTION 17715 IN THE EXISTING CONTROL ROOM. PROVIDE DUPLEX RECEPTACLES FOR EACH TV. FIELD LOCATE AND CONNECT TO THE NEAREST CIRCUIT AVAILABLE. PROVIDE CONDUITS, AND WIRES, AND CIRCUIT BREAKERS AS REQUIRED. FIELD COORDINATE LOCATION AND HEIGHT OF THE TV'S AND RECEPTACLES FOR BFP CAMERAS 1 TO 6, AND TRUCK LOAD CAMERAS 1 AND 2. SEE DRAWING E-00-521. PROVIDE ALL MATERIAL AND LABOR TO MAKE BFP BUILDING CAMERA'S WORK.



FLOOR PLAN

1/4"=1'-0"

NOTE: ALL MAJOR MASONRY CONTROL DIMENSIONS LOCATED ON SHEET A-1.

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SWWRF & SEWRF BELT FILTER PRESS REHABILITATION

REVISIONS

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LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	V. TREHAN
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APPROVED:	V. TREHAN
FILENAME	E-00-619.DWG
BC PROJECT NUMBER	152270
CLIENT PROJECT NUMBER	6091680

ELECTRICAL
SWWRF

PARTIAL PLAN - ADMINISTRATION BUILDING

DRAWING NUMBER
E-00-619

SHEET NUMBER 71 OF 72

PANEL 'LDW'	BUS 225 A MLO.	VOLTAGE 120/208 V 3 ϕ 4 W			
LOAD 93 AMPS	POLES 42				
MOUNTING SURFACE	100A MB				
CIR NO	DESCRIPTION	TRIP	POLE	K V A	REMARK
1	CONTROL RM.	20	1	1.000	
2	BATH/INSTR CONTROL			.700	
3	EMER. LTG			.040	
4	LTG			.640	
5	"			.800	
6	"			.640	
7,8,9,10	BELT FILTER LTG.			3.200	
11,12,13	P.F.P.C PNL.			1.000	
14	EXH. FAN			.500	
15,16	RECEPT BKR.			1.800	
17	A/C FCU			.300	
18	A/C FCU			.300	
19	A/C CONDENS UNIT			4.500	
20	"			4.500	
21 22	RECEPT B.F.R			1 800	
23	EXH. FAN			.500	
24	P.C.C.			1. 000	
25	SITE RECEPT.			.720	
26-30	INSTRUMENTATION			.400	
31	PC/TC-4	60	3	10.000	
32	SPARES	20	1	—	
			TOTAL CONN.	34.340	

$$I = \frac{34,340}{208 \times 1.73} = 93 \text{ AMPS}$$

PANEL SCHEDULE - LDW (EXISTING)

PANEL 'LDW'	BUS 225 A MLO.	VOLTAGE 120/208 V 3 ϕ 4 W			
LOAD 93 AMPS	POLES 42				
MOUNTING SURFACE	100A MB				
CIR NO	DESCRIPTION	TRIP	POLE	K V A	REMARK
1	OPS OFFICE/ELEC. ROOMS 1 & 2 LTG	20	1	0.5	
2	EXTERIOR LTG			0.5	
3	EMER. LTG			0.2	
4	LTG			.640	
5	"			.800	
6	"			640	
7,8,9,10	BELT FILTER LTG.			3.200	
11,12,13	P.F.P.C PNL.			1.000	
14	SPARE				
15,16	RECEPT BKR.			1.800	
17	SPARE				
18	SPARE				
19	SPARE				
20	SPARE				
21 22	RECEPT B.F.R			1 800	
23	SPARE				
24	P.C.C.			1. 000	
25	SITE RECEPT.			.720	
26-30	INSTRUMENTATION			.400	
31	PC/TC-4	60	3	10.000	
32	SPARES	20	1	—	
			TOTAL CONN.		

$$I = \frac{23.04}{208 \times 1.73} = 64.5 \text{ AMPS}$$

PANEL SCHEDULE - LDW

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SWWRF & SEWRF
BELT FILTER PRESS
REHABILITATION

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

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DRAWN: K. PALMER
CHECKED: B. DICKERSON
CHECKED: B. DICKERSON
APPROVED: V. TREHAN

FILENAME
E-00-620.DWG
BC PROJECT NUMBER
152270
CLIENT PROJECT NUMBER
6091680

ELECTRICAL
SWWRF

PANEL SCHEDULE

DRAWING NUMBER
E-00-620

72 SHEET NUMBER OF 72