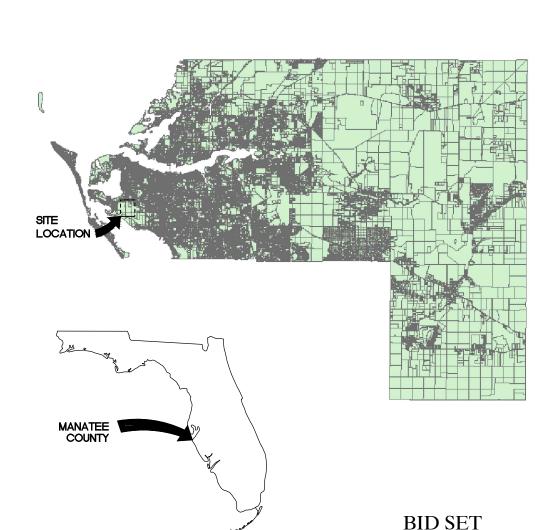


ASR WELL AT SWWRF INFRASTRUCTURE REFURBISHMENT

Manatee County, Florida Project No. 6069082



\$PWPATH



VICINITY MAP

INDEX OF DRAWINGS

SHEET NO.	DESCRIPTION
G1 G2 G3	COVER SHEET PROJECT NOTES ELECTRICAL LEGEND 1
M1 M2 M3 M4 M5 M6 M7	SITE PLAN YARD PIPING LAYOUT ASR RECHARGE PIPING PLAN ASR PIPING AND HSPS TIE-IN ASR PIPING SECTIONS & DETAILS TEMPORARY PIPING TO NORTH STORAGE POND MONITORING WELLS PURGE PIPING MODIFICATIONS
E1 E2 N1	ELECTRICAL ASR WELL PLAN ELECTRICAL SINGLE LINE SCHEMATIC DIAGRAMS 1 & C NOTES

	JACOBS	4350 WEST CYPRESS ST SUITE 600 TAMPA, FLORIDA 33607-4155 LB 0002934 AA C000656						
JL	GENERAL	MANATEE COUNTY ASR WELL AT SWWRF						
ON NG. 1"	COVER SHEET	INFRASTRUCTURE REFURBISHMENT	NO. DATE	2	REVISION	-	BY APVD	
, 2019 39100 G1		MANATEE COUNTY, FLORIDA	DSGN J. GOLDBACH	DR J. MONTMINY	OFF	APVD A. LEWIS	llS	JOSEPH FL P.
) DOCUMENT		REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN AS AN INSTRUMENT OF PROFESSIONAL SERVICE. IS THE PROPERTY OF JACOBS AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF JACOBS.	S INCORPORATED HEREIN, IN PART, FOR ANY OTHER	AS AN INSTRUMENT OF PROFESSION PROJECT WITHOUT THE WRITTEN	ONAL SERVICE, IS THE PROPER AUTHORIZATION OF JACOBS.	RTY OF	@JACO	@JACOBS 2018. ALL R

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GENERAL CONSTRUCTION NOTES

- 1. DETAILING AND DIMENSIONS OF EXISTING PIPING AND STRUCTURES IS BASED ON BEST INFORMATION AVAILABLE AND DO NOT NECESSARILY REPRESENT THE AS—CONSTRUCTED CONDITIONS. THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS AND DETAILING OF EXISTING PIPING AND STRUCTURES PRIOR TO SUBMITTING SHOP DRAWINGS.
- 2. CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO POSITIVELY PRECLUDE EROSION OR WASHING OF SEDIMENT FROM WORK AREA, ONTO ADJACENT PAVEMENT OR ROADS, OR INTO ADJACENT STORMWATER RETENTION AREAS. .THE CONTRACTOR SHALL PROVIDE PERIODIC MAINTENANCE OF ALL EROSION AND SEDIMENTATION CONTROL DEVICES INSTALLED AND SHALL CLEAN—UP AND RESTORE ALL AREAS IMPACTED BY EROSION CONTROL ACTIVITIES AS THE WORK PROCEEDS
- EXISTING SURFACES OR STRUCTURES DISTURBED BY CONSTRUCTION SHALL BE RESTORED BY CONTRACTOR TO AN EQUAL OR BETTER CONDITION. DISTURBED GRASSED AREAS SHALL BE RESTORED WITH SOD.
- 4. CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, AND TOOLS TO PERFORM AND SATISFACTORILY COMPLETE THE WORK SHOWN BY THESE DRAWINGS.
- 5. THE CONTRACTOR SHALL USE CAUTION IN PERFORMING THE WORK TO PREVENT DAMAGE TO EXISTING UTILITY SYSTEMS AND SHALL COORDINATE WITH UTILITY COMPANIES LISTED AND OTHER UTILITY COMPANIES PRIOR TO AND DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS NOTICE TO UTILITY COMPANIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN FIELD LOCATES OF EXISTING UNDERGROUND UTILITIES IN THE VICINITY OF NEW CONSTRUCTION.
- 6. THE CONTRACTOR SHALL PERFORM WORK IN ACCORDANCE WITH THE REQUIREMENTS OF THE SUNSHINE STATE ONE CALL OF FLORIDA, EXCAVATION GUIDE, LATEST EDITION. THE CONTRACTOR SHALL CONTACT SUNSHINE 811 (SUNSHINE811.COM) A MINIMUM OF 48 HOURS PRIOR TO THE PLANNED EXCAVATION OR CONSTRUCTION DATE TO ARRANGE FOR THE FIELD LOCATION OF BURIED UTILITIES WITHIN THE CONSTRUCTION AREA.
- 7. THE CONTRACTOR SHALL PERFORM THE WORK TO MINIMIZE IMPACT AND DAMAGE PRIVATE PROPERTY. DAMAGE TO PRIVATE PROPERTY CAUSED BY THE CONTRACTOR SHALL BE REPAIRED AND RESTORED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE COUNTY.
- 8. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS THAT ARE LOCATED ADJACENT TO THE NEW WORK AND ARE SHOWN TO NOT TO BE RELOCATED.
- 9. ELEVATIONS SHOWN ON THE DRAWINGS ARE BASED ON NGVD 1929. ALL ELEVATIONS REPORTED IN CONTRACTOR PREPARED RECORD DRAWINGS SHALL BE BASED UPON NAVD 88. CONTRACTOR'S SURVEYOR SHALL OBTAIN ELEVATIONS FOR RECORD DRAWINGS AND SHALL PROVIDE CONVERSION FROM NGVD 29 TO NAVD 88.

CONSTRUCTION SEQUENCE REQUIREMENTS:

- 1. CONNECTION OF NEW PIPING TO EXISTING RECLAIMED WATER HIGH SERVICE PUMP STATION (HSPS) PIPING WILL REQUIRE PUMP STATION TO BE SHUT
- 2. CONTRACTOR SHALL SCHEDULE IN ADVANCE WITH MANATEE COUNTY UTILITIES AN ACCEPTABLE TIME WHEN SHUT DOWN CAN TAKE PLACE (TYPICALLY DURING PERIODS OF WET WEATHER).
- 3. CONTRACTOR SHALL PLAN WORK TO LIMIT TIME THAT HSPS IS SHUT DOWN TO BE NO LONGER THAN TWO (2) DAYS.
- 4. VALVES MAY ONLY BE OPERATED BY A REPRESENTATIVE OF MANATEE COUNTY UTILITIES.

PIPING MATERIALS AND APPURTENANCES:

- 1. RECHARGE AND RECOVERY PIPE PVC AWWA C900, DR18, PUSH—ON JOINTS WITH BELL RESTRAINERS. SBR RIEBER GASKETS, OR EQUAL.
- 2. FLANGES SHALL BE CLASS 125 FLAT FACE, DUCTILE IRON.
- 3. TYPE 316 STAINLESS STEEL BOLTING: ASTM A320/A320M GRADE B8M HEX HEAD BOLTS, ASTM A194/A194M GRADE 8M HEAD NUTS, TYPE 316 STAINLESS STEEL WASHERS.
- 4. GASKETS 1/8-INCH-THICK, HOMOGENEOUS BLACK RUBBER (EPDM), HARDNESS 60 (SHORE A), RATED TO 275 DEGREES F, CONFORMING TO ASME B16.21 AND ASTM D2000 4CA 415 A25 B35 C32 EA14 F19.
- 5. FITTINGS FLANGED, AWWA C110/A21.10 DUCTILE IRON, FACED AND

- DRILLED, CLASS 125 FLAT FACE. MECHANICAL JOINT, AWWA C110 OR AWWA C153, DUCTILE IRON. GASKETS; EPDM.
- 6. DIP PIPE AND FITTING LINING STANDARD THICKNESS CEMENT LINING (AWWA C104). NEW FITTINGS LINED SAME AS PIPE.
- DIP PIPE, FITTINGS, AND STEEL SURFACE COATINGS ABOVE GROUND —— SSPC SP—10 SURFACE PREPARATION, 1 COAT EPOXY PRIMER (2.5—MILS MINIMUM DFT), 1 COAT HIGH BUILD EPOXY (4—MILS MINIMUM DFT), 1 COAT POLYURETHANE ENAMEL (3—MILS MINIMUM DFT); TNEMEC OR EQUAL. FINAL COAT COLOR TO MATCH EXISTING CONNECTING PIPE. BELOW GRADE ASPHALTIC COATING AND POLYETHYLENE WRAPPED.
- 8. FLANGED COUPLING ADAPTERS SMITH—BLAIR (SERIES 911)
 FLANGED—LOCK RESTRAINED FCA, OR EQUAL, WITH TYPE 316 STAINLESS
 STEEL HARDWARE, EPDM GASKETS, AND FUSION BONDED EPOXY COATED.
- DOUBLE STRAP SADDLES MALLEABLE OR DUCTILE IRON BODY WITH GALVANIZED STEEL STRAPS AND RUBBER SEAL. TAPE WITH IRON PIPE SIZE THREADS. SMITH—BLAIR (SERIES 313), DRESSER (STYLE 91), OR EQUAL.
- 10. PVC BELL PIPE RESTRAINERS:
 STAR PIPE PRODUCTS SERIES 1100G2C WITH TYPE 316 STAINLESS STEEL
 SIDE CLAMPING BOLTS AND NUTS. TYPE 316 TIE—RODS, NUTS, AND
 WASHERS; AND FACTORY APPLIED HIGH PERFORMANCE COATING ON
 DUCTILE IRON GLANDS
- 11. MECHANICAL JOINT RESTRAINING FLANDS. EBAA IRON MEGALUG, OR EQUAL

SHOP DRAWINGS:

- . THE CONTRACTOR SHALL PREPARE RECORD DRAWINGS AND PROVIDE O&M MATERIALS AS DESCRIBED BY THE CONSTRUCTION CONTRACT DOCUMENTS.
- 2. SUBMIT SHOP DRAWINGS FOR PUMP, INSTRUMENTATION, PIPING, PIPE ACCESSORIES, AND ELECTRICAL COMPONENTS TO ENGINEER FOR APPROVAL PRIOR TO FABRICATION AND SHIPPING OF PRODUCTS.

GENERAL PIPING NOTES:

- 1. ALL FLANGED COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST TIES, AND ANCHORS, UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURE SPECIFIED.
- 2. HYDROSTATICALLY TEST COMPLETED RECHARGE AND RECOVERY PIPING AT 150 PSI. MAINTAIN TEST PRESSURE CONTINUOUSLY FOR 30 MINUTES, MINIMUM, AND FOR SUCH ADDITIONAL TIME AS NECESSARY TO CONDUCT EXAMINATIONS FOR LEAKAGE. FOR A SUCCESSFUL TEST, THERE SHALL BE NO VISIBLE LEAKAGE AND NO APPARENT DROP IN PRESSURE.
- 3. HYDROSTATICALLY TEST COMPLETED MONITOR WELL PURGE PIPING AT 120 PSI.

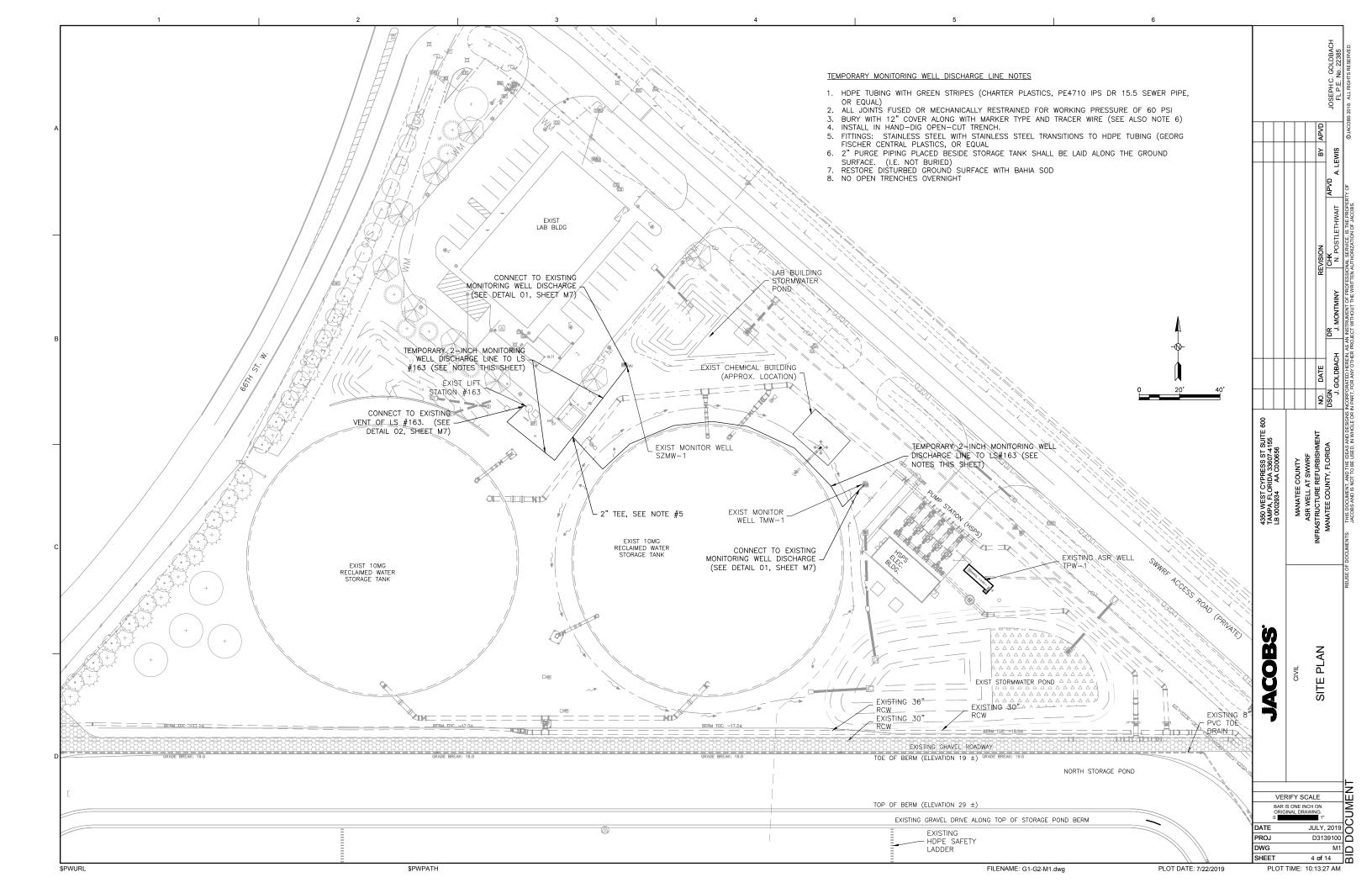
INSTRUMENTATION NOTES:

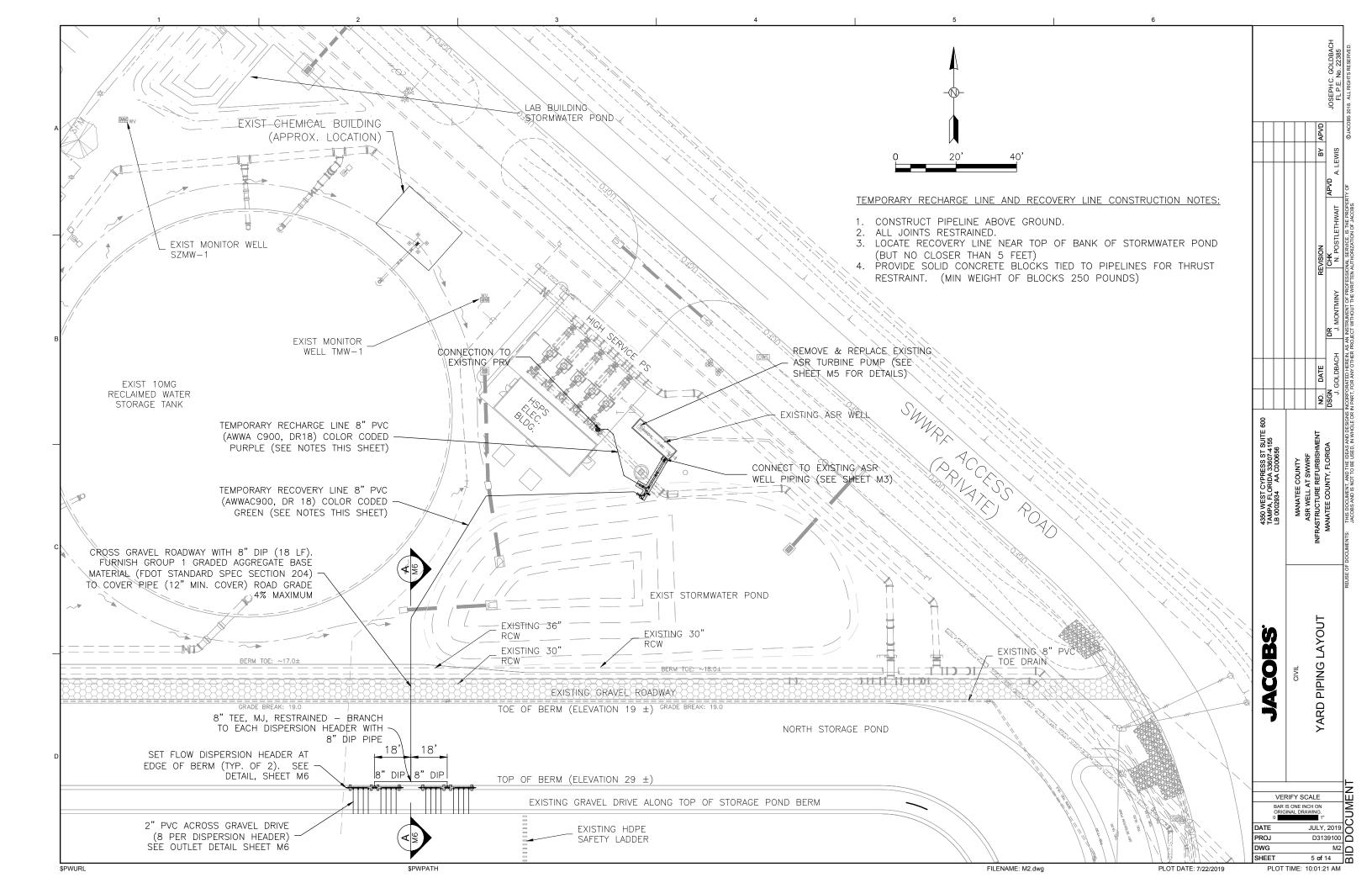
SEE SHEET N1

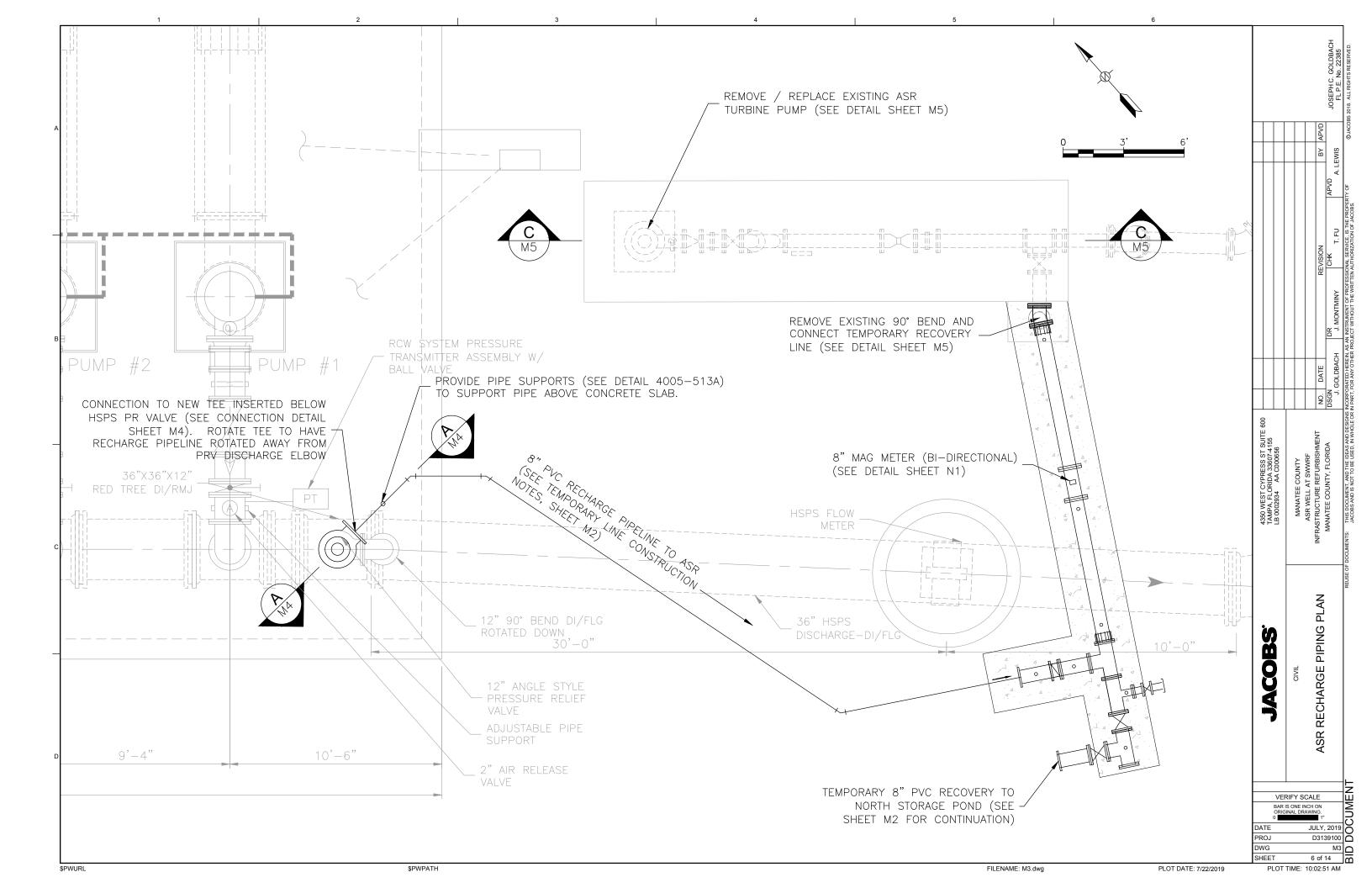
DR. MANATEE COUNTY
ASR WELL AT SWWRF
FRASTRUCTURE REFURBISH
MANATEE COUNTY, FLORI NOTES **COB PROJECT** CALE
NCH ON
AWNING.

JULY, 2019
D3139100 N.T.S. VERIFY SCALE BAR IS ONE INCH ON DATE DWG G2 4 SHEET 2 of 14 PLOT TIME: 10:10:22 AM

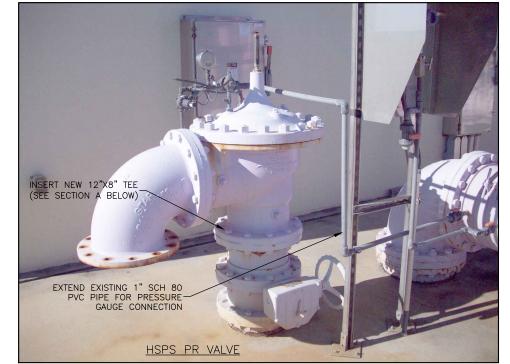
	1	2	3		4 5		6		
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION		
	ONE LINE DIAGRAMS		CONTROL DIAGRAMS		POWER SYSTEM PLAN		POWER SYSTEM PLAN	·····	AVIO DE
≪ —^→>	DRAWOUT AIR CIRCUIT BREAKER, LOW VOLTAGE CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN,	ON OFF	SELECTOR SWITCH, ON-OFF TYPE	▲ MCC-A	CONNECTION POINT TO EQUIPMENT SPECIFIED. RACEWAY, CONDUCTOR, TERMINATION AND CONNECTION IN THIS DIVISION.	100/40	BREAKER, SEPARATELY MOUNTED, CURRENT RATING INDICATED (100/40, 100 = FRAME SIZE; 40 = TRIP RATING) 3 POLE	90 10	4.
AS or AT AF	3 POLE, UNO CIRCUIT BREAKER, STATIC TRIP UNIT, SENSOR AMP TRIP AND FRAME RATINGS SHOWN, 3 POLE, UNO	o o *			MAJOR ELECTRICAL COMPONENT OR DEVICE - NAME OR IDENTIFYING SYMBOL AS SHOWN.) e	CX CONVENIENCE RECEPTACLE - DUPLEX UNLESS NOTED 2	★ TATE	OR OR
100/M	CIRCUIT BREAKER, MAGNETIC TRIP ONLY, TRIP RATING SHOWN, 3 POLE, UNO	À	INDICATING LIGHT, PUSH-TO-TEST, LETTER INDICATES COLOR	LPXXA	PANELBOARD - SURFACE MOUNTED — PANELBOARD LETTER OR NUMBER — FACILITY NUMBER		WP - WEATHERPROOF C - CLOCK HANGER TL - TWIST LOCK GFCI - GROUND FAULT CIRCUIT INTERRUPTER SUBSCRIPT NUMBER AT RECEPTACLE INDICATES CIRCUIT	0000000	NICHOLSC
100	SWITCH, CURRENT RATING INDICATED, 3 POLE, UNO	````	INDIA TINA LIAUT. LETTER INDIA TEA AGUAR		LOW VOLTAGE PANEL DP - DISTRIBUTION PANEL		11111111	PR	
60 (3)	FUSE, CURRENT RATING AND QUANTITY INDICATED	À	INDICATING LIGHT - LETTER INDICATES COLOR A - AMBER G - GREEN S - STROBE B - BLUE R - RED C - CLEAR W - WHITE		BI -DIGINIBOTION FANCE	L20R 20 ©			APVE
1-1	MAGNETIC STARTER WITH OVERLOAD, NEMA SIZE INDICATED, FVNR UNO	ETM	ELAPSED TIME METER		TERMINAL JUNCTION BOX				
AFD	ELECTRONIC STARTER/SPEED CONTROL	0 M)0	MOTOR STARTER CONTACTOR COIL	M	MOTOR, SQUIRREL CAGE INDUCTION		<u>ABBREVIATIONS</u>		
[711.5]	AFD = AC ADJUSTABLE FREQUENCY DRIVE DC = DC ADJUSTABLE SPEED DRIVE	OCRX)O	CONTROL RELAY, X INDICATES NUMERICAL ORDER IN CIRCUIT			A AIC	AMMETER, AMPERES AVAILABLE INTERRUPTING CURRENT		EVISIC STATE
	RVAT = REDUCED VOLTAGE AUTO TRANSFORMER TYPE RVRT = REDUCED VOLTAGE REACTOR TYPE RVSS = REDUCED VOLTAGE SOFT STARTER	O(DR)O	TIME DELAY RELAY, X INDICATES NUMERICAL ORDER	(G)	GENERATOR, VOLTAGE AND SIZE AS INDICATED.	ВС	BY-PASS CONTACTOR		RANA R
			IN CIRCUIT SOLENOID VALVE, X INDICATES NUMERICAL ORDER	─ - LPXXA	HOME RUN - DESTINATION SHOWN	C CB CE CPT	CONDUIT CIRCUIT BREAKER CONCRETE ENCASED		
	CABLE OR BUS CONNECTION POINT		IN CIRCUIT CONTACT - NORMALLY OPEN	or/// _G	EXPOSED CONDUIT AND CONDUCTORS*	CPT CR CU	CONTROL POWER TRANSFORMER CONTROL RELAY COPPER		
K OR K	KEY INTERLOCK		CONTACT - NORMALLY CLOSED	or -/#/ G	CONCEALED CONDUIT AND CONDUCTORS*	DOE	DELAY ON ENERGIZATION		
	SURGE ARRESTER (GAP TYPE)	-0	REMOTE DEVICE	CONDUCTORS IN 3/4 NUMBER OF NO. 12 C	IDUIT RUNS CONSIST OF TWO NO. 12, ONE NO. 12 GROUND " CONDUIT. RUNS MARKED WITH CROSSHATCHES INDICATE CONDUCTORS. CROSSHATCH WITH SUBSCRIPT "G" INDICATES	DPM DWG EXST	DIGITAL POWER METER DRAWING EXSTING	H	TE
3 /	AC MOTOR, SQUIRREL CAGE INDUCTION - HORSEPOWER INDICATED	~~	TIME DELAY RELAY CONTACT, NORMALLY OPEN, CLOSES WHEN ENERGIZED AND TIMED OUT	GREEN GROUND WIF		FO FOC	FIBER OPTIC FIBER OPTIC CABLE		
G 500/625	GENERATOR, KW/KVA RATING SHOWN	Ť	TIME DELAY RELAY CONTACT, NORMALLY CLOSED, OPENS WHEN ENERGIZED AND TIMED OUT		CROSSHATCHES WITH BAR INDICATE NO.10 CONDUCTOR. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE.	G, GND HH HZ	GROUND HANDHOLE HERTZ	Ш	NO. NO.
			TIME DELAY RELAY CONTACT, CLOSES WHEN ENERGIZED, OPENS WHEN DE-ENERGIZED AND TIMED OUT	[1"C - 2#12,	CONDUIT AND CONDUCTOR CALLOUT	IC	ISOLATION CONTACTOR		
	UTILITY REVENUE METER	J°	TIME DELAY RELAY CONTACT, OPENS WHEN ENERGIZED, CLOSES WHEN DE-ENERGIZED AND TIMED OUT	— [1 C - 2#12,	CONDUIT DOWN	KVA KV	KILOVOLT AMPERES KILOVOLT	_ [SF ISHMEN LAND ORIDA
Ţ	GROUND				CONDUIT UP	LS1 LV	LONG TIME, SHORT TIME, INSTANTANEOUS LOW VOLTAGE	TE 400 A 3260 01992 PE 602	OUNTY SWWF EFURB RCO IS TY, FLC
15 KVA 480-120, 1 PH	TRANSFORMER, SIZE, VOLTAGE RATINGS,	0	TERMINAL BLOCK, REMOTE	———	CONDUIT, STUBBED AND CAPPED	MCC MIN MTD MTS MV	MOTOR CONTROL CENTER MINUTE, MINIMUM MOUNTED MANUAL TRANSFER SWITCH MEDIUM VOLTAGE	E, FLORIDA AACO	ANATEE C AWATEE C AWELL AT JCTURE R TY OF MAR EE COUNT
1	AND PHASE INDICATED	0	TERMINAL BLOCK, INTERNAL		CONDUIT TERMINATION AT CABLE TRAY	NEC NEPA	NATIONAL EIRE PROTECTION ASSOCIATION	643 SW 4TH / GAINESVILLE, EB000072	MAN
c 480-120V	POTENTIAL TRANSFORMER, VOLTAGE RATING AND QUANTITY INDICATED			——EX——	EXISTING CONDUIT/ DUCT BANK	OL	OVERLOAD	643 8 GAINI EBO	INF.
100:5	CURRENT TRANSFORMER, RATIO(100:5) AND		FUSE, RATING INDICATED	——ВD——	BUS DUCT - SEE SPECIFICATIONS	PH RMS	PHASE ROOT MEAN SQUARE		
† (3)	QUANTITY INDICATED (3)	CPT	TRANSFORMER, CONTROL POWER	——FO——	FIBER OPTIC CONDUIT	RVSS SEC	REDUCES VOLTAGE SOLID STATE STARTER SECONDS		
•	CONNECTION POINT TO EQUIPMENT SPECIFIED IN OTHER DIVISIONS. RACEWAY, CONDUCTOR AND CONNECTION IN THIS DIVISION	I _{120V}		——DB——	DIRECT BURIED CONDUIT	SPD SW	SURGE PROTECTIVE DEVICE SOUTH WEST		_
SDP	SURGE PROTECTIVE DEVICE		GROUND SYSTEM PLAN	\	CONCRETE ENCASED CONDUIT	TDR TYP	TIME DELAY RELAY TYPICAL	N	N ON
[30]		•	GROUND ROD (2605-235)	×xxx	CONCRETE ENCASED DUCT BANK WHERE XXXX IS THE DUCT BANK ID. SEE DUCT BANK SCHEDULE	V W	VOLTS, VOLTAGE, VOLT METER WITH		
DPM	DIGITAL POWER METER WITH MODBUS CONNUMICATIONS LINK TO DEVICE SHOWN	0	GROUND ROD IN TEST WELL WITH CLAMP (NOT CAD WELD) (2605-202)	T	TRANSFORMER	XFMR Z	TRANSFORMER IMPEDANCE	8	ENERAL
	CONTROL DIAGRAMS	_G_ ← _	CAD WELD CABLE CONNECTION	① or HH	GENERAL CONTROL OR WIRING DEVICE.				TRIC
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN	R	CAD WELD CABLE TO REBAR WITH MINIMUM 2-INCH CONCRETE COVER		LETTER SYMBOLS OR ABBREVIATIONS INDICATE TYPE OF DEVICE			7	ECT
<u> </u>	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED		CLAMP ON BOLTED CONNECTION TO	cs	CONTROL STATION, SEE CONTROL DIAGRAMS FOR CONTROL DEVICE(S) REQUIRED.				
D HAND OFF REMOTE	SELECTOR SWITCH - MAINTAINED CONTACT - CHART IDENTIFIES OPERATION WHEN NEEDED FOR CLARITY:		EQUIPMENT OR STRUCTURAL ELEMENT	30 🖳	NONFUSED DISCONNECT SWITCH, CURRENT RATING INDICATED, 3 POLE				
	POSITION			60/40 🗁	FUSED DISCONNECT SWITCH, CURRENT RATING INDICATED (60/40, 60=SWITCH RATING / 40=FUSE RATING)				
	CKT HAND OFF REMOTE X - CLOSED CONTACT 1 X O O O - OPEN CONTACT 2 O O X	NOTES: 1. THESE ARE STANDA	ARD LEGEND SHEETS. SOME SYMBOLS AND ABBREVIATIONS IE LEGEND AND NOT ON THE DRAWINGS.	2 🔟	3 POLE COMBINATION CIRCUIT BREAKER AND MAGNETIC STARTER, NEMA SIZE INDICATED			BAF	NTS ERIFY SCALE R IS ONE INCH ON IGINAL DRAWING.
	TOGGLE SWITCH, ON-OFF TYPE	2. FOR ADDITIONAL AB	BREVIATIONS OF OTHER DIVISIONS (HVAC, MECHANICAL, AND ITECTURAL) SEE OTHER LEGENDS.					DATE PROJ	JULY 2019 D3139100
								DWG SHEET	G-03 3 of 14
\$PWURL		\\denpwp0^	1\pwicsworking\609000\458966_3\001-G-003_D3139100.dgn			FILE	NAME: 001-G-003_D3139100.dgn PLOT DATE: 7/19/2019		T TIME: 10:56:34 AM







REMOVE BEND & CONNECT -FLOW METER ASSEMBLY (SEE SHEET M5)



FILENAME: M4-M7.dwg

ASR ELEVATION PHOTO (LOOKING NORTH)

HSPS FLOW

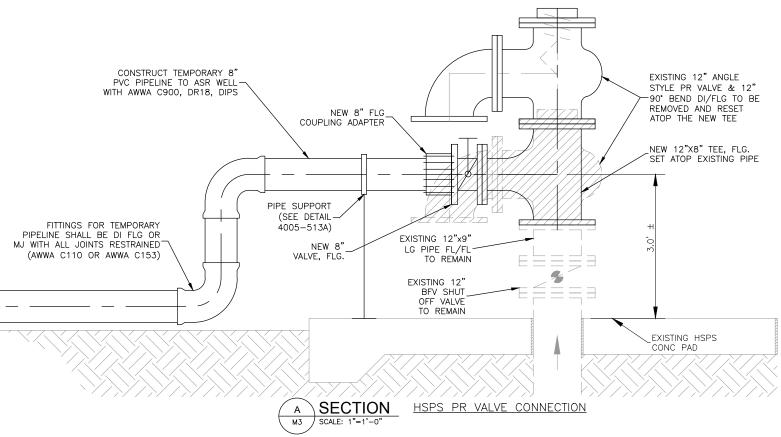
METER VAULT



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ASR ELEVATION PHOTO (LOOKING SOUTH)

1. ROTATE TEMPORARY 8" DISCHARGE APPROXIMATELY 45° TO HAVE NEW 8" VALVE CLEAR OF 12" 90° BEND.



JACOBS ASR PIPING AND HSPS TIE-IN CCALE WE NCH ON RAWING.

JULY, 2019

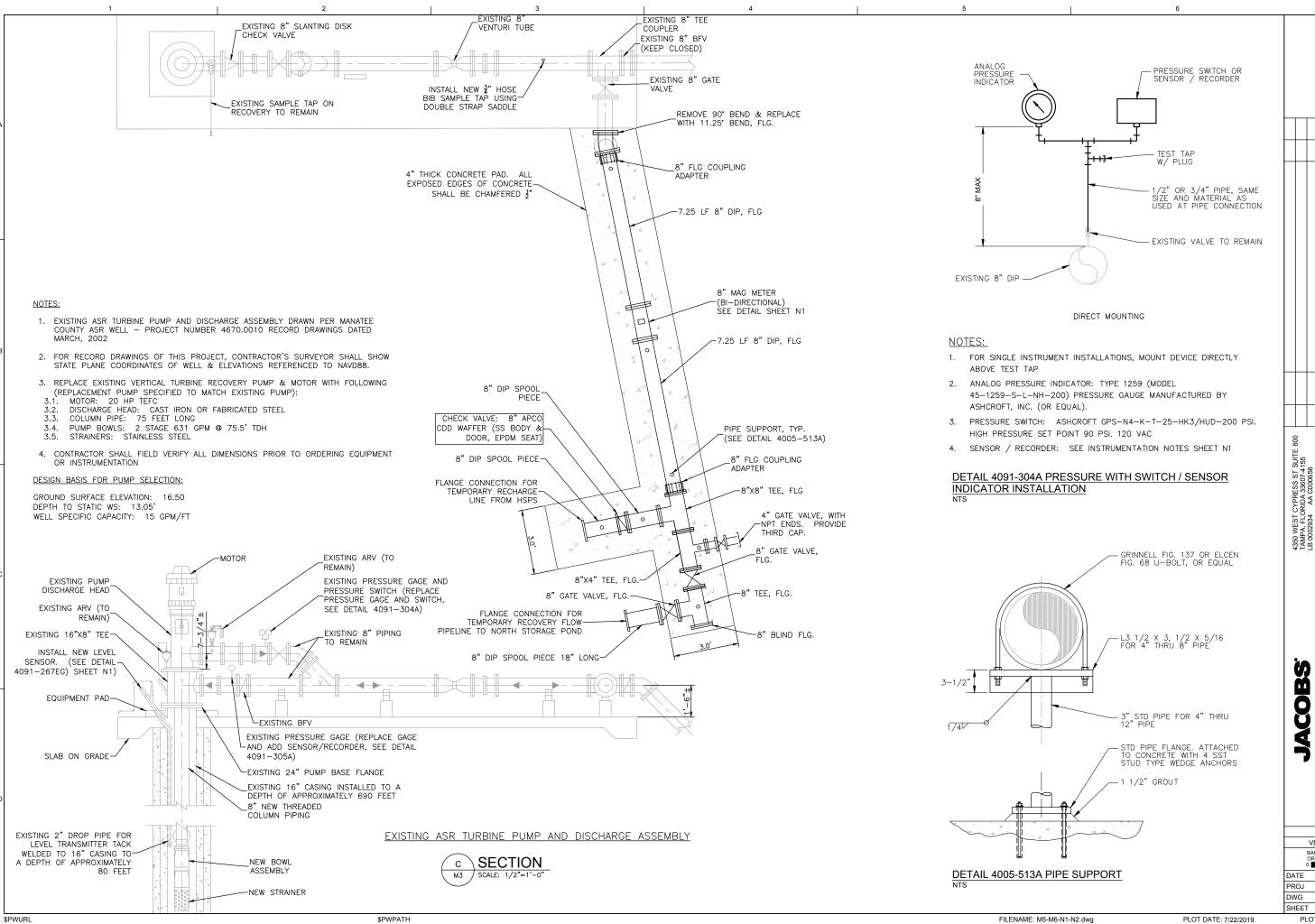
D3139100 VERIFY SCALE BAR IS ONE INCH ON DATE M4 7 of 14 ☐ DWG

\$PWURL

PLOT DATE: 7/22/2019

PLOT TIME: 10:15:35 AM

SHEET



8 of 14 ____ PLOT TIME: 10:18:17 AM

N.T.S.

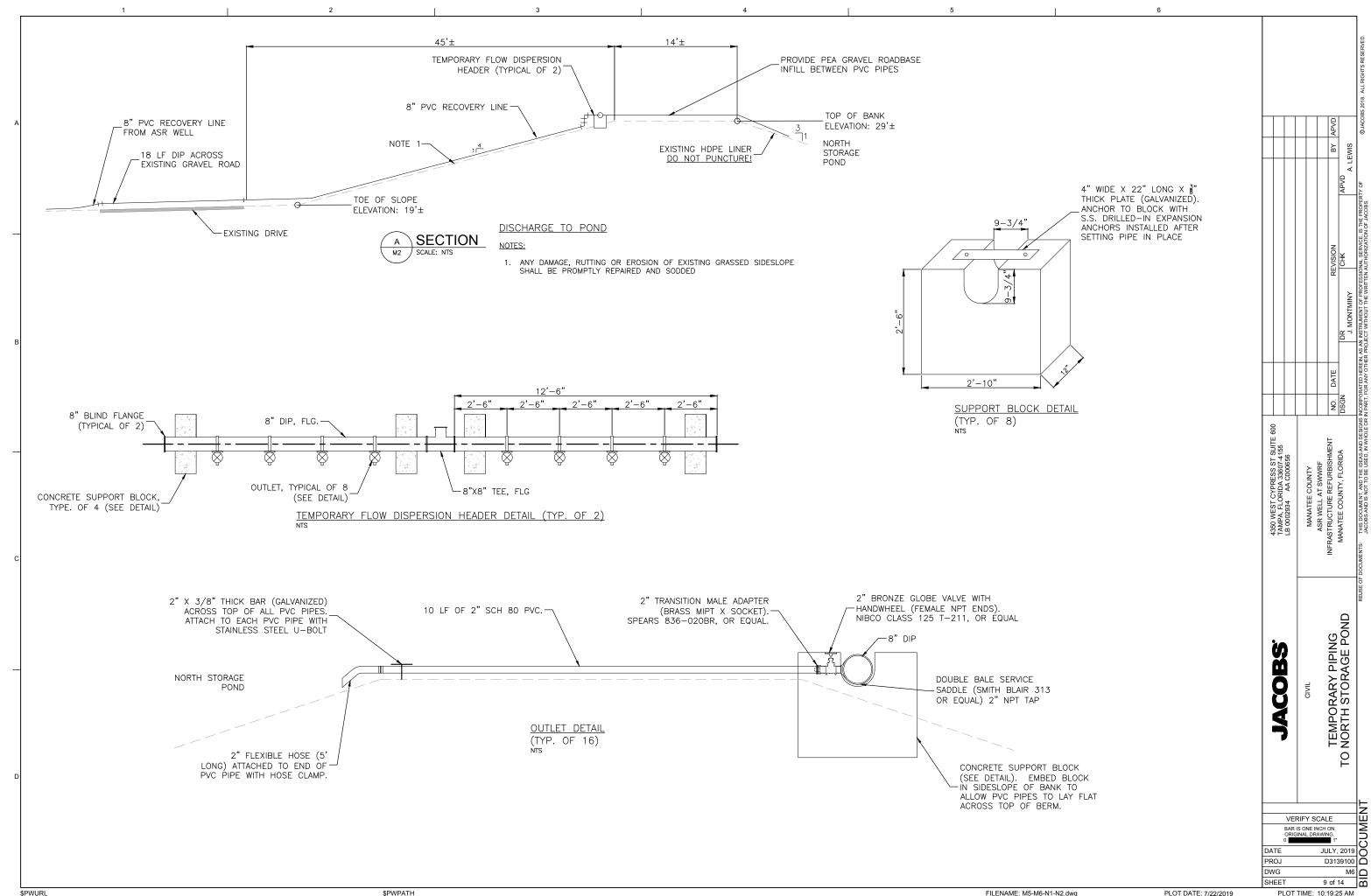
VERIFY SCALE

BAR IS ONE INCH ON

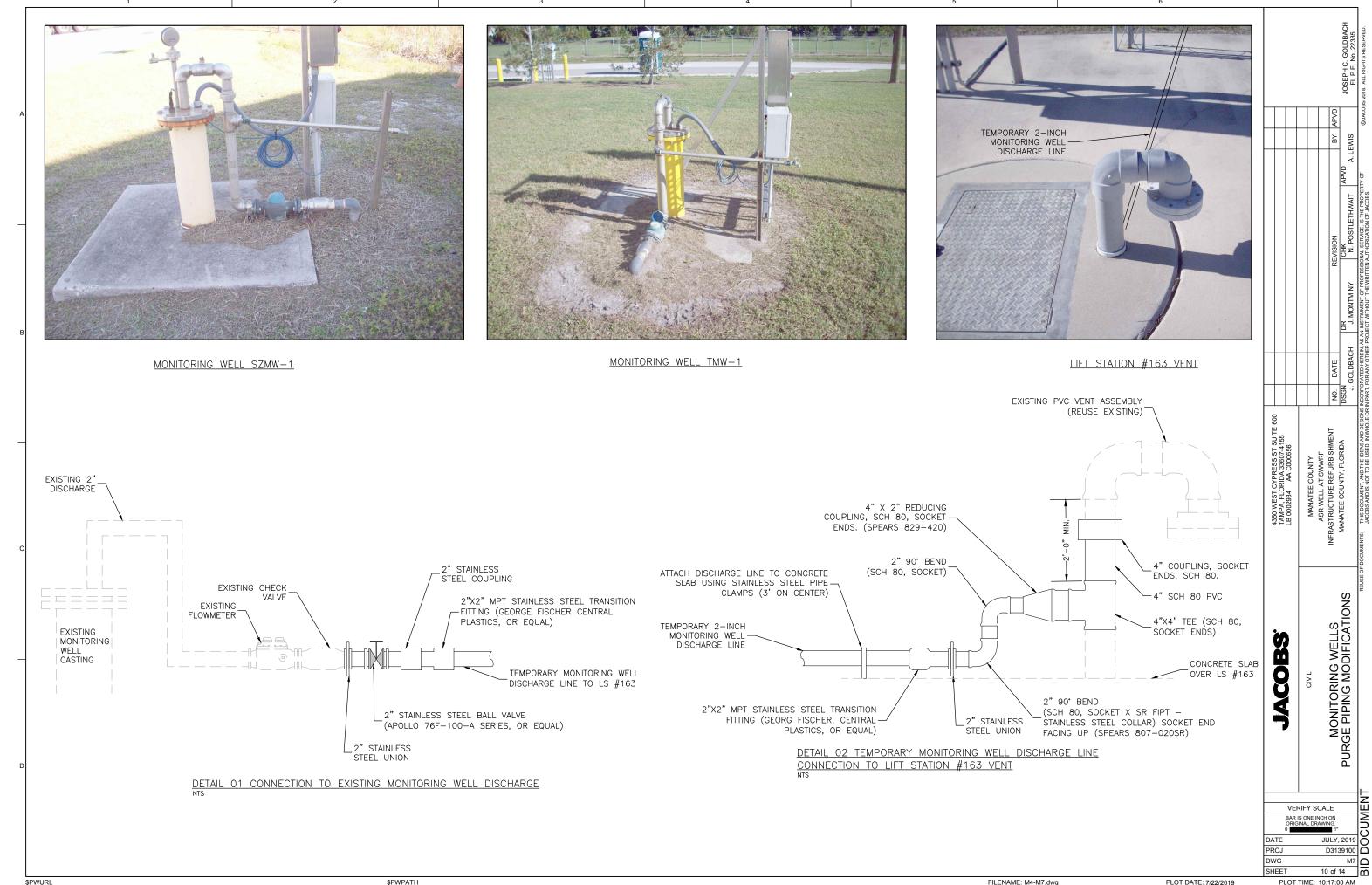
ASR PIPING SECTIONS & DETAILS

CALE WW NG. AWING. JULY, 2019 D3139100

M5 □



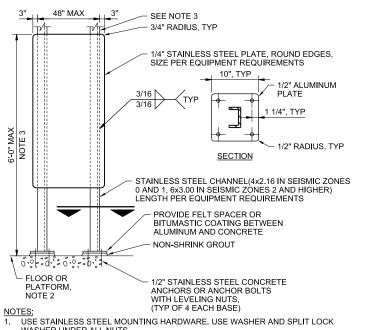
PLOT DATE: 7/22/2019



FILENAME: M4-M7.dwg

PLOT DATE: 7/22/2019

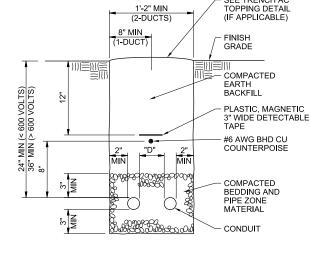
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- FOR YARD LOCATIONS PROVIDE A 6 INCH THICK CONCRETE PAD AT GRADE WITH #4 BAR @ 12" OC EACH WAY, CENTERED. THE PAD SHALL BE 12 INCHES LONGER THAN THE MOUNTING PLATE BY ONE HALF THE HEIGHT OF THE MOUNTING PLATE ABOVE FINISHED GRADE. MINIMUM WIDTH 24 INCHES.
- FOR HEIGHTS EXCEEDING 5'-0" OR WEIGHT OF MOUNTED EQUIPMENT EXCEEDING 200 LBS, SIZE POSTS AND CONNECTIONS FOR LATERAL LOADS. EXTEND POSTS TO STRUCTURE ABOVE WHERE REQUIRED BY CALCULATION, SEE GENERAL ELECTRICAL CONSTRUCTION NOTES ON DRAWINGS

DEVICE MOUNTING, **EQUIPMENT PEDESTAL**

2605-008b



D = 3" MIN FOR 2" AND LARGER CONDUIT

D = 2" MIN FOR 1 1/2" AND SMALLER CONDUIT

TRENCH AND CONDUIT **PLACEMENT**

2605-423c

GENERAL SHEET NOTES

- CONDUIT, WIRE AND EQUIPMENT SIZES AND LOCATIONS SHOWN ARE FOR BID BASIS ONLY AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE ALL WORK WITH APPROVED SHOP DRAWINGS, WITH THE REQUIREMENTS OF EQUIPMENT PROVIDED, WITH FOLIPMENT FURNISHED BY OWNER FOR INSTALLATION BY CONTRACTOR AND WITH REQUIREMENTS OF OTHER DIVISIONS OF THE CONTRACT AS NECESSARY TO PROVIDE COMPLETE AND WORKING SYSTEMS COMPLYING WITH THE CONTRACT DOCUMENTS. ALL PROPOSED DEVIATIONS FROM CONTRACT DOCUMENTS SHALL BE SUBMITTED AND APPROVED BY ENGINEER BEFORE EXECUTION OF THE AFFECTED WORK.
- THE TERMS RACEWAY AND CONDUIT ARE USED IN THESE DOCUMENTS TO DENOTE NOT ONLY THE RACEWAY OR CONDUIT ITSELF BUT ALSO ALL JUNCTION BOXES, PULL BOXES, CONDULETS, FITTINGS, CLAMPS, SUPPORTS AND ALL OTHER ITEMS NECESSARY FOR A COMPLETE AND WORKING SYSTEM COMPLYING WITH THE CONTRACT DOCUMENTS.
- NOTES INDICATED AS "REF", "REFERENCE" OR "REFER TO" ARE PROVIDED TO ASSIST IN LOCATING RELATED CONTRACTUAL REQUIREMENTS BUT ARE NOT CONTRACTUAL INSTRUCTIONS THEMSELVES. MISSING, INCORRECT OR INCOMPLETE REFERENCES SHALL HAVE NO EFFECT ON THE REQUIREMENTS OF THE CONTRACT.
- AT ITEMS MARKED MSC (MANUFACTURER SUPPLIED OR SPECIFIED CABLE) CONTRACTOR SHALL DETERMINE REQUIREMENTS FOR, AND PROVIDE, CONDUIT AND CABLE AS REQUIRED BY MANUFACTURER AND IN COMPLIANCE WITH CONTRACT DOCUMENTS.
- EXCEPT AS NOTED BELOW, ALL WIRE AND CABLE, INCLUDING GROUNDED CONDUCTORS ABOVE GRADE AND FIRER OPTIC CARLE SHALL BE EXCEPTIONS ARE EQUIPMENT CABLES PROVIDED BY EQUIPMENT MANUFACTURERS AND UL LISTED FOR INSTALLATION OUTSIDE OF CONDUIT
- SPARE RUNS OF CONDUCTORS SHALL BE INSULATED OR TERMINATED AND LABELED AT BOTH ENDS. SPARE RUNS OF FIBER OPTIC STRANDS SHALL BE LABELED AND TERMINATED AT BOTH ENDS. ALL CONDUCTORS AND FIBERS SHALL BE TESTED AFTER INSTALLATION AND TEST REPORTS SHALL BE SUBMITTED. REPLACE ALL DEFECTIVE MATERIAL; DO NOT SUBMIT TEST REPORTS SHOWING DEFECTS.
- LOCATIONS AND ELEVATIONS OF ELECTRICAL CONNECTIONS, MOTORS, PANEL BOARDS, SWITCH GEAR, TRANSFORMERS, CONTROL CABINETS AND OTHER ITEMS SHOWN ON DOCUMENTS ARE APPROXIMATE ONLY UNLESS DIMENSIONED COORDINATE EXACT LOCATIONS AND ELEVATIONS WITH REQUIREMENTS OF OTHER DIVISIONS OF THESE DOCUMENTS. IN AREAS WHERE SPACE AVAILABLE IS LIMITED. INCLUDING ALL SPACES CONTAINING PANELBOARDS, MOTOR CONTROL CENTERS, SWITCHBOARDS OR SWITCHGEAR, PREPARE DIMENSIONED DRAWINGS SHOWING EXACT PROPOSED LOCATIONS OF EQUIPMENT AND VERIFYING THAT EQUIPMENT PROPOSED FOR USE CAN BE INSTALLED AS SHOWN ON PLANS IN COMPLIANCE WITH NEC AND MANUFACTURER'S REQUIREMENTS. SUBMIT THESE DRAWINGS AND RECEIVE APPROVAL BEFORE EXECUTING THE WORK. DO NOT SUBMIT SHOP DRAWINGS FOR EQUIPMENT WHICH IS NOT ACCOMPANIED BY DRAWINGS VERIFYING COMPLIANCE WITH CONTRACT REQUIREMENTS
- CONTROL (LADDER LOGIC) DIAGRAMS DEPICT FUNCTIONS REQUIRED, MAJOR COMPONENTS AND THEIR INTERCONNECTIONS, BUT ARE NOT INTENDED TO BE COMPLETE WIRING DIAGRAMS CONTRACTOR SHALL COORDINATE WITH MANUFACTURERS OF FOLIPMENT PROVIDED TO ENSURE THAT ALL MATERIALS AND LABOR ARE PROVIDED WHICH ARE NECESSARY TO SECURE COMPLETE AND WORKING SYSTEMS WITH ALL FUNCTIONS AND COMPONENTS SHOWN ON THE CONTRACT DOCUMENTS, INCLUDING ELECTRICAL, AND INSTRUMENTATION AND CONTROL
- WHERE RAILINGS, FRAMING, PROCESS EQUIPMENT OR OTHER CONDUCTIVE ITEMS WHICH ARE NORMALLY NOT ENERGIZED ARE INSTALLED OUTDOORS BOND TO GROUND RING WITH #4/0 MINIMUM BARE COPPER CONDUCTOR, UL LISTED CLAMPS ABOVE GRADE AND CAD WELDS BELOW
- CONDUCTIVE ENCLOSURES AND OTHER EXTERIOR METAL COMPONENTS OF INSTRUMENTS AND CONTROLS WHICH ARE NOT NORMALLY ENERGIZED SHALL BE CONNECTED TO GROUND WITH #6 MINIMUM COPPER CONDUCTOR.

WHERE THE NUMBER OR SIZE OF CONDUCTORS WHERE THE NUMBER OR SIZE OF CONDUCTIONS SO SHOWN TO BE CONNECTED ARE IN EXCESS OF THE CAPACITY OF THE STANDARD TERMINALS OF THE CONNECTED EQUIPMENT, PROVIDE ADDITIONAL TERMINALS, ENCLOSURES, JUNCTION BOXES, PULLESCTIONS, WIRES, CONDUITS AND ALL OTHER MATERIALS AND LABOR AS NECESSARY TO MAKE OF THE CONDUCTION OF THE CONTROL OF THE CONT THE CONNECTIONS SHOWN IN COMPLIANCE WITH HE CONTRACT DOCUMENTS.

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- ALL MATERIALS AND FOUIPMENT PROPOSED FOR USE SHALL BE FULLY RATED AS SPECIFIED AND SCHEDULED IN THE CONTRACT DOCUMENTS AT THE PROJECT ALTITUDE AND MAXIMUM AMBIENT. TEMPERATURE.
- COORDINATE EARTH WORK AND INSTALLATION OF ELECTRICAL ITEMS WITH INTERFERENCE'S SHOWN ON DOCUMENTS OF ALL DIVISIONS OF CONTRACT, INCLUDING CIVIL AND YARD PIPING, REPORT ALL DAMAGE AT ONCE TO OWNER AND ENGINEER AND REPAIR AS DIRECTED AT NO CHANGE IN CONTRACT
- COORDINATE SIZE AND INSTALLATION OF ALL EQUIPMENT WITH EXISTING CONDITIONS AND WORK IN OTHER DIVISIONS OF CONTRACT TO ENSURE COMPLIANCE WITH THE NEC, INCLUDING BUT NOT LIMITED TO PARAGRAPH 110.26 SPACES ABOUT ELECTRICAL EQUIPMENT.
- STANDARD DETAILS INCLUDED IN THESE DOCUMENTS SHALL BE USED WHERE APPLICABLE WHETHER SPECIFICALLY CALLED OUT ON THE PLANS OR NOT. PRACTICES CUSTOMARY TO THE TRADE MAY BE USED ONLY WHERE NO APPLICABLE STANDARD DETAIL CAN BE FOUND IN THESE DOCUMENTS AND WHERE THE CUSTOMARY PRACTICE WILL RESULT IN A COMPLETE AND WORKING SYSTEM IN COMPLIANCE WITH THESE
- ALL TERMINATIONS OF RIGID METAL CONDUIT IN WALLS OF ENCLOSURES WITHOUT CAST-IN-PLACE THREADED CONDUIT BOSSES, AND WHICH ARE LOCATED OUTDOORS OR IN WET OR DAMP LOCATIONS, SHALL BE MADE USING MYERS HUBS.
- REFER TO DOCUMENTS OF OTHER DIVISIONS OF CONTRACT, INCLUDING BUT NOT LIMITED TO PROCESS MECHANICAL, FOR LOCATIONS OF PROCESS, INSTRUMENTATION, CONTROL, AND OTHER EQUIPMENT REQUIRING ELECTRICAL, OR RACEWAY-ONLY CONNECTIONS TO BE PROVIDED UNDER THIS DIVISION OF CONTRACT. ALL EQUIPMENT LOCATIONS SHOWN ON DRAWINGS IN THIS DIVISION ARE APPROXIMATE ONLY UNLESS DIMENSIONED
- PROVIDE ADDITIONAL RACEWAY, WIRING AND CONNECTIONS AS NECESSARY FOR MOTOR HEATERS, TEMPERATURE PROTECTIVE DEVICES AND OTHER MOTOR AUXILIARIES WHERE RECOMMENDED BY EQUIPMENT MANUFACTURERS. SHOWN IN CONTROL DIAGRAMS OR ON PLANS OR REQUIRED IN SPECIFICATIONS.
- ALL SHEET METAL JUNCTION BOXES, TERMINAL JUNCTION BOXES, CONTROL PANELS AND OTHER
 SHEET METAL ELECTRICAL ENCLOSURES SHALL BE NEMA 4-X STAINLESS STEEL WITH FAST OPERATING CLAMP ASSEMBLIES. PROVIDE HOFFMAN SUFFIX TYPE SSLP WITH AFC412SS CLAMPS OR APPROVED EQUALS. PROVIDE TERMINAL JUNCTION BOXES AND CONTROL PANELS WITH REMOVABLE INTERIOR STEEL PANELS FACTORY PAINTED WHITE.
- ALL FABRICATED ASSEMBLIES SUPPORTING ELECTRICAL EQUIPMENT PROVIDED UNDER THIS DIVISION OF CONTRACT SHALL BE UL LISTED INDIVIDUALLY, UL LISTED AS PART OF AN ASSEMBLY OR SHALL BE FABRICATED TO A DESIGN PREPARED BY A STRUCTURAL ENGINEER
 LICENSED TO PRACTICE IN THE STATE OF FLORIDA
 OR OTHERWISE PERMITTED TO PRACTICE ENGINEERING IN THE STATE OF FLORIDA. WHERE DETAILS IN THE CONTRACT DOCUMENTS CONTAIN SPECIFIC DIMENSIONS, SIZES WELD INSTRUCTIONS OR SIMILAR INFORMATION, THESE SHALL BE INTERPRETED AS MINIMUM CONTRACT REQUIREMENTS AND MAY BE SUPERSEDED BY UL OR DESIGN REQUIREMENTS ABOVE

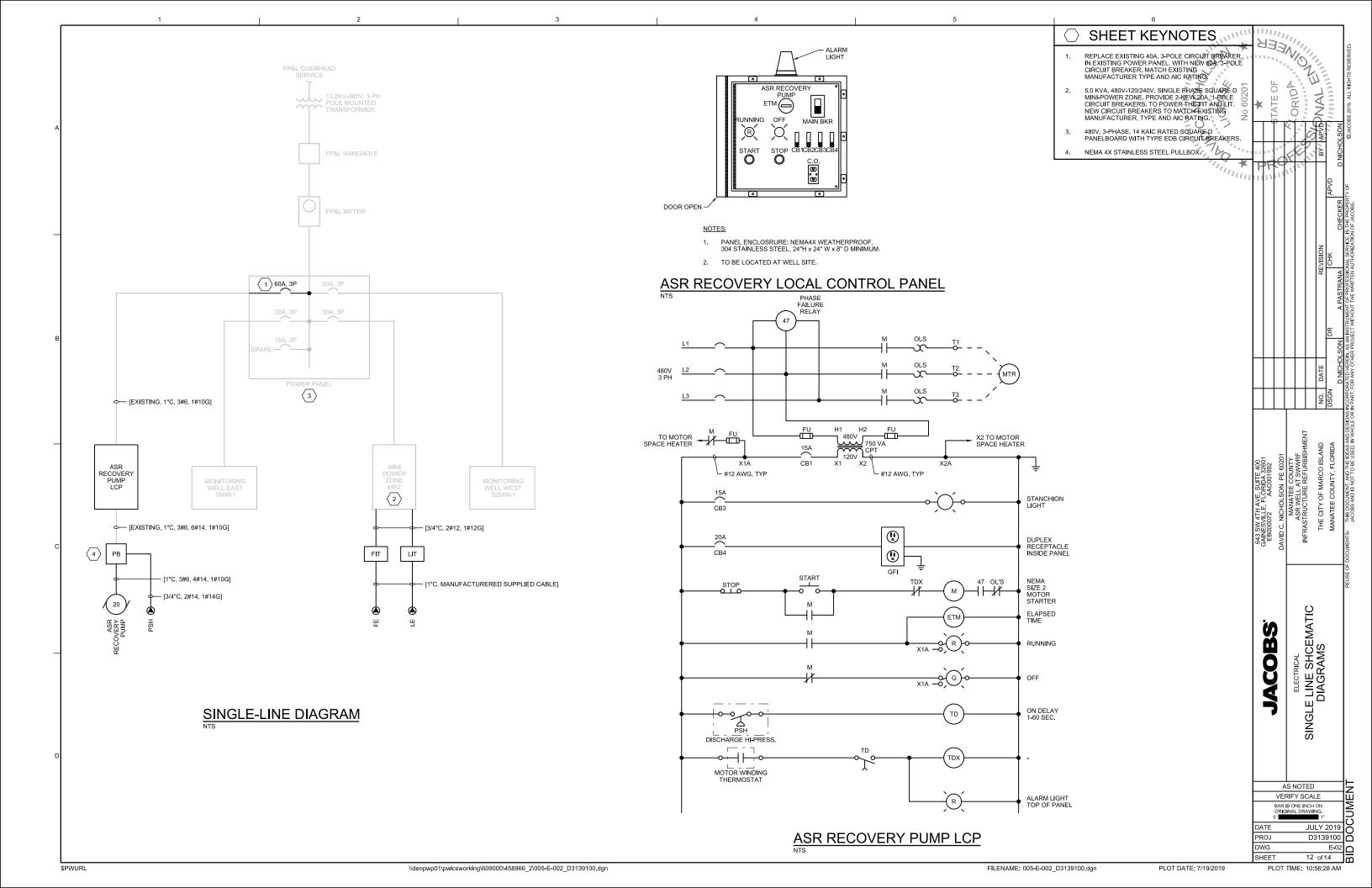
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INSTRUMENTATION NOTES:

- A. FLOW ELEMENT AND TRANSMITTER, ELECTROMAGNETIC BI-DIRECTIONAL
- 1. THE ELECTROMAGNETIC FLOWMETER SHALL MEASURE, INDICATE, AND TRANSMIT THE ASR WELL RECLAIMED WATER FLOW IN BOTH DIRECTIONS. BI-DIRECTIONAL FLOWMETER SHALL BE ABB PROCESSMASTER FEP325 AND SHALL HAVE THE FOLLOWING REQUIREMENTS AND OPTIONS DESCRIBED BELOW. REFER TO DRAWINGS FOR INSTALLATION DETAILS AND LOCATION.
 - a.FLOW SENSOR:
 - 1)METER SIZE: 8-INCH
 - 2) LINER MATERIAL: HARD RUBBER
 - 3) PROCESS CONNECTION TYPE & MATERIAL: 150 LB. ANSI FLANGED CARBON STEEL
 - 4) ELECTRODES MATERIAL: HASTELLOY C
 - 5) GROUNDING RINGS: STAINLESS STEEL
 - 6) MEASURING ACCURACY: PLUS OR MINUS 0.5% OF READING
 - b.FLOW TRANSMITTER:
 - 1)MOUNTING TYPE: REMOTE MOUNT ON STANCHION WITH RAIN HOOD. MANUFACTURER SUPPLIED CABLE BETWEEN FLOW SENSOR AND TRANSMITTER SHALL BE SUPPLIED. CABLE LENGTH SHALL ACCOMMODATE FLOW SENSOR AND TRANSMITTER WITHOUT SPLICING THE CABLE.
 - 2) ENCLOSURE: NEMA 4X
 - 3) FLOW RANGE: 0-1,100 GPM
 - 4) SIGNAL OUTPUT: 4-20MA
 - 5) POWER SUPPLY: 120VAC, 60 HZ.
 - 6) TEMPERATURE RANGE: MINUS 4 TO 140 DEGREES F.
- 2. PROVIDE SURGE PROTECTION DEVICE FOR THE TRANSMITTER SIGNAL AND POWER WIRING. SURGE PROTECTION DEVICE SHALL BE EDCO SLAC OR EQUAL. PROVIDE A NEMA 4X STAINLESS STEEL ENCLOSURE FOR THE SURGE PROTECTION DEVICE. REFER TO INSTALLATION DETAIL ON THE DRAWINGS.
- 3. FACTORY CALIBRATION: CALIBRATED IN AN ISO 9001 AND NIST CERTIFIED FACTORY.
- 4. HAZARDOUS AREA CLASSIFICATION: NON-HAZARDOUS AREA
- 5. PROVIDE AND OUNT DATALOGGER INSIDE SAME CABINET AS FLOW TRANSMITTER.
- 5.1. POWER SUPPLY: PROVIDE EXTERNAL TO SUPPLY 12 VDC TO DATALOGGER
- SOFTWARE: PROVIDE FOR DOWNLOAD AND READING WITH LAPTOP COMPUTER
- B. LEVEL SENSOR/TRANSMITTER, SUBMERSIBLE TYPE, WITH INTEGRAL DATALOGGER:
- THE LEVEL TRANSMITTER WITH INTEGRAL DATALOGGER SHALL MEASURE AND RECORD THE ASR WELL WATER LEVEL. THE LEVEL RECORDER SHALL BE IN-SITU LEVELTROLL DATA LOGGER SYSTEM AND SHALL HAVE THE FOLLOWING REQUIREMENTS AND OPTIONS DESCRIBED BELOW. REFER TO DRAWINGS FOR INSTALLATION DETAILS AND FURTHER REQUIREMENTS.
 - a.LEVEL SENSOR TYPE: SUBMERSIBLE PRESSURE SENSOR SUITABLE FOR RECLAIMED WATER WITH INTEGRAL DATALOGGER.
 - b.LEVEL SENSOR DIAMETER & HOUSING: 0.72-INCH OD., TITANIUM BODY.
 - c. SIGNAL OUTPUT: 4-20 MA.
 - d.EXTERNAL POWER: 24VDC.

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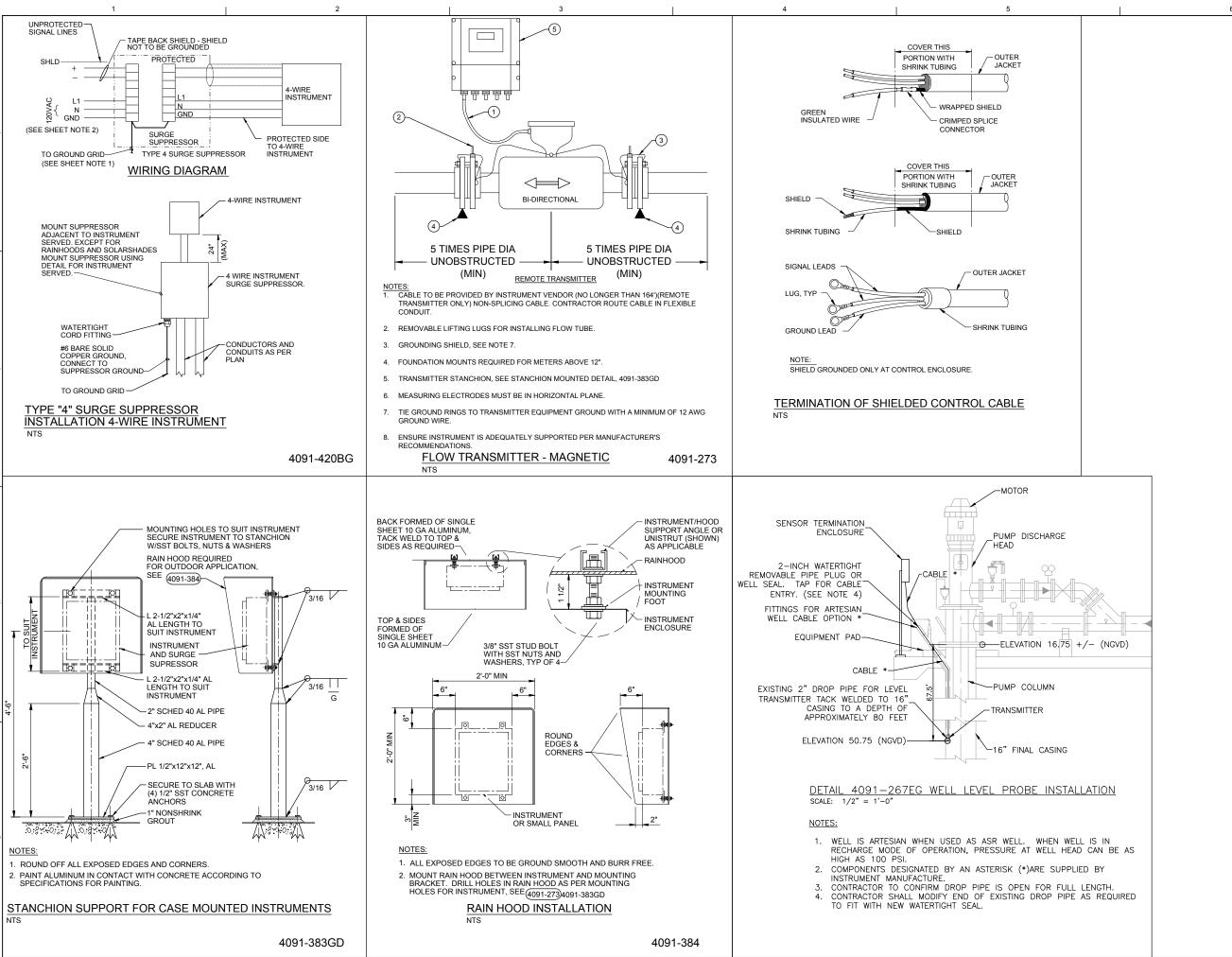
- e. POWER SUPPLY: 3.6V LITHIUM BATTERY.
- f. LEVEL RANGE: REFER TO INSTALLATION DETAIL. POLY VENTED CABLE SHALL BE PROVIDED WITH A SERVICE GRIP MOUNTED OUTSIDE OF THE WELL TO SECURE THE SENSOR CABLE IN A FIXED LOCATION.
- a.MOUNTING ACCESSORIES: ARTESIAN WELL CAP FITTING INSTALLED ON WELL HEAD. TWIST-LOCK BULKHEAD CONNECTOR (TWIST-LOCK CONNECTOR ADAPTER FOR PANEL MOUNTS) WITH GASKET.

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- h.TERMINATION ENCLOSURE: NEMA 4X ENCLOSURE, 316 STAINLESS STEEL TO HOUSE THE EXTRA-LARGE DESICCANT AND TROLL COM. ENCLOSURE SHALL BE PROVIDED WITH A BREATHER/DRAIN WITH DIMENSIONS OF 16"HX12"WX6"D. REFER TO DRAWINGS FOR MOUNTING DETAIL AND LOCATION.
- i. SOFTWARE: PROVIDE SOFTWARE FOR DOWNLOADING AND READING RECORDED DATA WITH A LAPTOP COMPUTER.
- C. PRESSURE SENSOR/RECORDER:
 - THE PRESSURE SENSOR/RECORDER SHALL MEASURE AND RECORD THE ASR WELL PRESSURE. THE PRESSURE RECORDER SHALL BE TRIMBLEWATER, MODEL TELOG LPR 31 AND SHALL HAVE THE FOLLOWING REQUIREMENTS AND OPTIONS DESCRIBED BELOW. REFER TO DRAWINGS FOR INSTALLATION DETAILS AND LOCATION.
 - a.PROCESS CONNECTION: 14-INCH, NPT FEMALE
 - b.PRESSURE SENSOR MATERIAL OF CONSTRUCTION: SUBMERSIBLE SST RATED NEMA 6.
 - c. ACCURACY: PLUS OR MINUS 0.25% FULL SCALE
 - d.POWER SUPPLY: AA LITHIUM BATTERY TO POWER RECORDER UP TO 5 YEARS.
 - e.PRESSURE RANGE: 0-100 PSI
 - f. TEMPERATURE RANGE: MINUS 40 TO 65 DEGREES C.
 - g.RECORDER MEMORY: 128 KBYTES, APPROXIMATELY 80,000 DATA VALUES.
 - h.SOFTWARE: PROVIDE TELOGS FOR WINDOWS SOFTWARE FOR DOWNLOADING AND READING RECORDED DATA WITH LAPTOP COMPUTER.

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