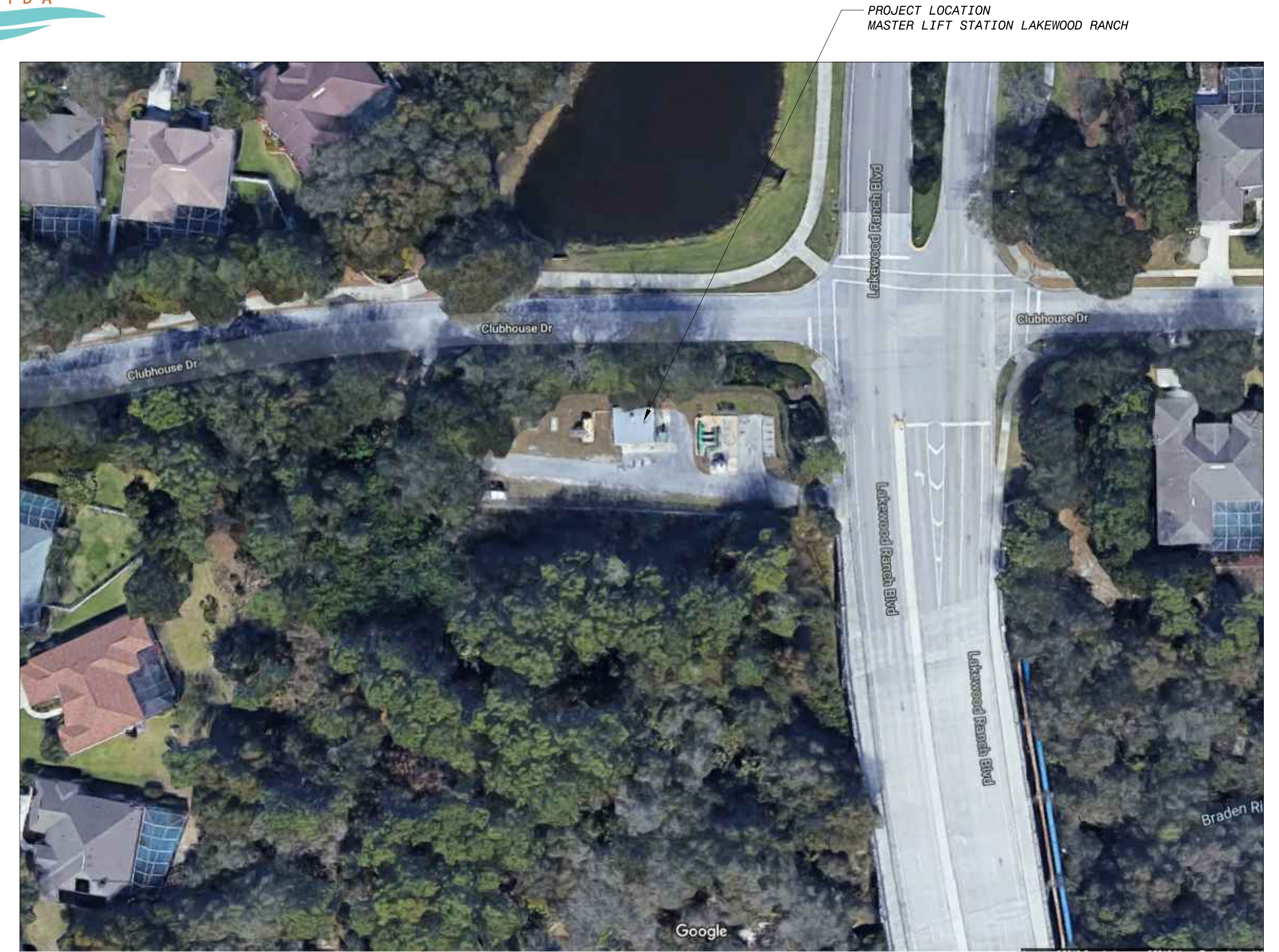
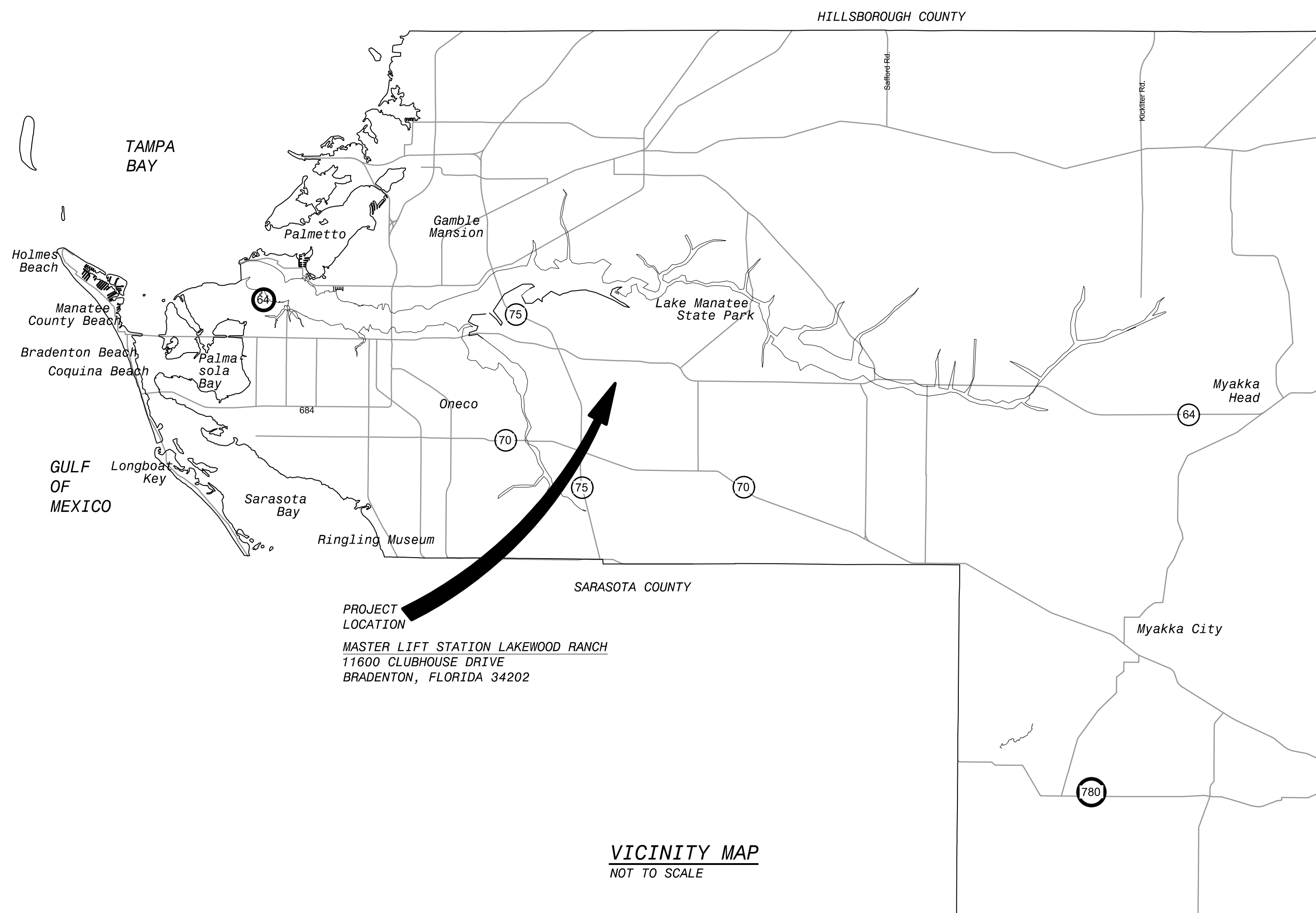


MANATEE COUNTY IMPROVEMENTS AT MASTER LIFT STATION LAKEWOOD RANCH



**48 HOURS BEFORE YOU DIG
CALL SUNSHINE
1-800-432-4770 or 811
IT'S THE LAW IN FLORIDA**

FLORIDA LAW REQUIRES EXCAVATORS TO NOTIFY OWNERS OF UNDERGROUND FACILITIES NO LESS THAN TWO (2) DAYS PRIOR TO EXCAVATION



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GENERAL, DEMOLITION,
CIVIL & MECHANICAL

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY PHILIP D RISHEL, ON 09/16/2022 AND SEALED BY PHILIP D RISHEL, A REGISTERED ARCHITECT IN THE STATE OF FLORIDA, NO. AR101040

ARCHITECTURAL

**100% SUBMITTAL
SEPTEMBER 2022
PROJECT #402142**



BLACK & VEATCH

Black & Veatch Corporation
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Tampa, Florida Certificate No. 8132

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY MICHELE ROTH, ON 09/16/2022 AND SEALED BY MICHELE ROTH, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 82002

HVAC

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY JULIE GLOSS, ON 09/16/2022 AND SEALED BY JULIE GLOSS, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 86822

STRUCTURAL

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY RYAN BINKLEY, ON 09/16/2022 AND SEALED BY RYAN BINKLEY, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 89014

ELECTRICAL

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY LARRY BROUILLETTE, ON 09/16/2022 AND SEALED BY LARRY BROUILLETTE, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 57973

INSTRUMENTATION

ISSUED FOR CONSTRUCTION

<u>DISCIPLINE</u>	<u>DRAWING NO.</u>	<u>DRAWING TITLE</u>
GENERAL		
1	-	COVER SHEET AND VICINITY MAP
2	G-01	GENERAL - INDEX OF DRAWINGS
3	G-02	GENERAL - NOTES, LEGEND AND ABBREVIATIONS
DEMOLITION		
4	D-01	DEMOLITION - PLAN BUILDING
5	D-02	DEMOLITION - SITE PLAN
6	D-03	DEMOLITION - PUMP PIPING AND SECTIONS
7	D-02	DEMOLITION - GENERATOR AND ELECTRICAL EQUIPMENT
8	D-03	DEMOLITION - BUILDING, PIPING AND VALVE VAULT
SITework		
9	C-01	CIVIL - SITE PLAN LAKEWOOD RANCH PUMP STATION
10	C-02	CIVIL - TYPICAL DETAILS
ARCHITECTURAL		
11	A-01	ARCHITECTURAL - ELECTRICAL BUILDING FLOOR AND LIFE SAFETY PLANS
12	A-02	ARCHITECTURAL - ELECTRICAL BUILDING ELEVATIONS
13	A-03	ARCHITECTURAL - DETAILS AND SCHEDULES
STRUCTURAL		
14	S-01	STRUCTURAL - GENERAL NOTES
15	S-02	STRUCTURAL - STANDARD CONCRETE REINFORCEMENT AND CMU DETAIL
16	S-03	STRUCTURAL - MASTER LIFT STATION PLAN AND DETAILS
17	S-04	STRUCTURAL - FUEL TANK AND GENERATOR FOUNDATION PLAN AND SECTIONS
MECHANICAL		
18	M-01	MECHANICAL - PIPING PLAN AND SECTIONS
HVAC		
19	H-01	HVAC - LEGEND, ABBREVIATIONS AND GENERAL NOTES
20	H-02	HVAC - PLAN, SCHEDULES, DETAILS AND SEQUENCE OF OPERATIONS
ELECTRICAL		
21	E-01	ELECTRICAL - LEGENDS
22	E-02	ELECTRICAL - ABBREVIATIONS AND NOTES
23	E-03	ELECTRICAL - STANDARD DETAILS 1
24	E-04	ELECTRICAL - STANDARD DETAILS 2
25	E-05	ELECTRICAL - SITE PLAN
26	E-06	ELECTRICAL - LIGHTING FIXTURE AND PANELBOARD SCHEDULES
27	E-07	ELECTRICAL - EXISTING MCC DEMOLITION ONE-LINE DIAGRAM
28	E-08	ELECTRICAL - SWBD-1 ONE-LINE DIAGRAM
29	E-09	ELECTRICAL - DFS-RTU362 ONE-LINE DIAGRAM
30	E-10	ELECTRICAL - MISCELLANEOUS ONE-LINE DIAGRAMS
31	E-11	ELECTRICAL - ELECTRICAL EQUIPMENT ROOM DEMOLITION PLAN
32	E-12	ELECTRICAL - ELECTRICAL EQUIPMENT ROOM POWER AND GROUNDING PLAN
33	E-13	ELECTRICAL - ELECTRICAL EQUIPMENT ROOM LIGHTING PLAN
34	E-14	ELECTRICAL - SCHEMATICS
35	E-15	ELECTRICAL - PUMP STATION POWER AND GROUNDING PLAN
36	E-16	ELECTRICAL - PUMP STATION DEMOLITION PLAN
INSTRUMENTATION		
37	I-01	INSTRUMENTATION - LEGEND & ABBREVIATIONS (SHEET 1 OF 3)
38	I-02	INSTRUMENTATION - LEGEND & ABBREVIATIONS (SHEET 2 OF 3)
39	I-03	INSTRUMENTATION - LEGEND & ABBREVIATIONS (SHEET 3 OF 3)
40	I-04	INSTRUMENTATION - P&ID MASTER LIFT STATION
41	I-05	INSTRUMENTATION - P&ID ENGINE GENERATOR & FUEL STORAGE TANK
42	I-06	INSTRUMENTATION - INSTALLATION DETAILS
43	I-07	INSTRUMENTATION - NETWORK BLOCK DIAGRAM

SEPT 2022	100% SUBMITTAL	C	AD	AW	MNT
FEB 2020	90% SUBMITTAL	B	AD	NE	AW
OCT 2019	50% SUBMITTAL	A	AD	NE	AW
DATE	REVIEWS AND RECORD OF ISSUE	NO.	BY	CR	APP
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	G-01.dwg				
	SAVED: DUT48884, 9/14/2022 1:00:37 PM				
	PLOTTED: DUT48884, 9/15/2022 4:37:19 PM				
	USER: DUT48884				

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MICHAEL N. TACHE,
ON 09/16/2022 AND
SEALED BY
MICHAEL N. TACHE,
A LICENSED
PROFESSIONAL
ENGINEER IN THE
STATE OF FLORIDA,
NO. 83893

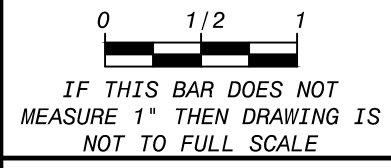


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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH

GENERAL
INDEX OF DRAWINGS

DESIGNED: AD
DETAILED: AD
CHECKED: AW
APPROVED: MNT
DATE: SEPT 2022



PROJECT NO.
402142

G-01
SHEET
2 OF 43

ISSUED FOR CONSTRUCTION

GENERAL

- 1. ALL EXISTING AND NEW MANATEE COUNTY UTILITIES VALVES, VALVE BOXES, AIR RELEASE VALVES, FIRE HYDRANTS, MANHOLES, MANHOLE COVERS, ETC IN CONFLICT WITH ROADWAY AND OTHER NEW WORK SHALL BE PROTECTED AND ADJUSTED BY CONTRACTOR TO FINISH GRADE AS INDICATED ON THE DRAWINGS.
2. UTILITIES CONSTRUCTION DIVISION SHALL BE NOTIFIED AT LEAST TWENTY ONE (21) DAYS PRIOR TO ANY CONSTRUCTION ACTIVITY WITHIN PROXIMITY OF ANY UTILITIES, INCLUDING TIE-IN AND VALVE OPERATIONS.
3. THE CONTRACTOR SHALL COORDINATE ALL PUMP STATION OPERATION AND SHUT DOWN CONTROL WITH A UTILITIES INSPECTOR. CONTRACTOR SHALL PROVIDE 24 HOUR BYPASS MONITORING WHILE STATION IS BEING BYPASSED.
4. ALL NEW VALVES BEING INSTALLED SHALL REMAIN CLOSED DURING CONSTRUCTION. KEEP VALVES ON ALL WET TAPS CLOSED UNTIL CLEARED BY FDEP. DO NOT CONNECT ANY PROPOSED WATER MAIN TO ANY EXISTING WATER MAIN UNLESS CLEARED BY FDEP AND UTILITIES.
5. THE UTILITY IMPROVEMENTS AND ADJUSTMENTS SHOWN ON THESE PLANS ARE INTENDED TO MAINTAIN THE INTEGRITY OF THE MANATEE COUNTY WATER, WASTEWATER AND RECLAIMED WATER SYSTEMS. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. THE PLANS DO NOT INCLUDE WORK PERFORMED ON OR FOR UTILITY SYSTEMS OWNED BY OTHERS UNLESS STATED OTHERWISE ON THE PLANS.
6. EXISTING UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS KNOWN, OR MADE AVAILABLE TO, OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. THE LOCATIONS, CONFIGURATIONS, AND ELEVATIONS OF SUBSURFACE FACILITIES AND UTILITIES ARE APPROXIMATE, AND NOT ALL UTILITIES AND FACILITIES MAY BE INDICATED. THE CONTRACTOR SHALL VERIFY THE EXACT HORIZONTAL AND VERTICAL LOCATION OF UNDERGROUND UTILITIES IN THE AREA OF CONSTRUCTION PRIOR TO PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL MAKE ALL NECESSARY ARRANGEMENTS AND PAY ALL COSTS ASSOCIATED WITH THE TEMPORARY RELOCATION, SUPPORT, MONITORING, PROTECTION, OR OTHER INTERACTION WITH UTILITY FEATURES WHICH MIGHT BE AFFECTED BY THE WORK. PROVIDE REQUIRED NOTICE TO OTHERS FOR SUCH WORK TO ALLOW THE PROJECT TO CONTINUE IN ACCORDANCE WITH THE CONTRACT SCHEDULE. THE COST OF SUCH WORK SHALL BE INCORPORATED INTO THE VARIOUS ITEMS OF WORK REQUIRED AND RELATED TO SUCH RELOCATION, SUPPORT, MONITORING OR PROTECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL DAMAGE WHICH MIGHT RESULT FROM HIS FAILURE TO EXACTLY LOCATE AND PROTECT ANY AND ALL UTILITIES, WHETHER ABOVE OR BELOW GRADE. ANY DAMAGE SHALL BE REPAIRED AT NO ADDITIONAL COST TO OWNER.
7. CONTRACTOR SHALL RETURN SITE BACK TO ORIGINAL CONDITION BEFORE FINAL PAYMENT IS ISSUED. THIS INCLUDES SEEDING AND SODDING WORK.
8. CONTRACTOR SHALL EMPLOY A LAND SURVEYOR LICENSED IN THE STATE OF FLORIDA TO MARK ALL CONSTRUCTION AREAS, CONSTRUCTION EASEMENTS, PROPERTY LINES AND CONFIRM EXISTING CONDITIONS AS DOCUMENTED ON THESE DRAWINGS, PRIOR TO CONSTRUCTION.
9. EXISTING UTILITIES AND STRUCTURES (UNDERGROUND, SURFACE, OR OVERHEAD) ARE INDICATED ONLY TO THE EXTENT THAT SUCH INFORMATION WAS KNOWN, OR MADE AVAILABLE TO, OR DISCOVERED BY THE ENGINEER IN PREPARING THE DRAWINGS. NOTE ALL UTILITIES AND FACILITIES MAY BE INDICATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE WHICH RESULTS FROM HIS FAILURE TO ADEQUATELY LOCATE AND PROTECT ANY AND ALL UTILITIES OF FACILITIES, WHETHER ABOVE OR BELOW GROUND. ALL DAMAGE SHALL BE REPAIRED AT NO ADDITIONAL COST TO OWNER.
10. ONLY MANATEE COUNTY UTILITIES SHALL OPERATE WATER, WASTEWATER, AND RECLAIMED WATER VALVES. COORDINATE VALVE OPERATION WITH APPROPRIATE UTILITIES INSPECTOR.
11. CONTRACTOR'S STAGING AREA SHALL BE LIMITED TO THE LOCATION(S) SHOWN ON THE DRAWINGS.
12. CONTRACTOR SHALL INSTALL ALL PIPELINES, PAVING, AND WALKWAYS AT A UNIFORM GRADE BETWEEN ELEVATIONS DEPICTED ON THE DRAWINGS.
13. THE MANATEE COUNTY UTILITIES, STANDARD FOR DESIGN AND CONSTRUCTION OF WATER, WASTEWATER AND RECLAIMED WATER FACILITIES (LATEST EDITION) SHALL BE USED FOR DETAILS AND INFORMATION NOT SHOWN HEREIN.
14. COATINGS AND LININGS SHALL BE AS SPECIFIED IN SECTION 09940. OTHER BUILDING FINISHES (E.G. INTERIOR PAINTING OF EXISTING PUMP BUILDING) ARE COVERED IN OTHER DIVISION 9 SPECIFICATIONS.
15. THE EXISTING PUMP STATION MUST BE KEPT IN CONTINUOUS OPERATION THROUGHOUT THE CONSTRUCTION PERIOD. SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS.
16. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL PROPERTIES ADJACENT TO THE WORK THROUGHOUT THE PERIOD OF CONSTRUCTION, AND AT NO TIME SHALL HIS OPERATIONS BLOCK OR RESTRICT ACCESS TO COUNTY O&M STAFF WITHOUT ADVANCED NOTIFICATION AND APPROVAL.
17. FOR ALL SITE GRADING, SMOOTH PARABOLIC TRANSITIONS SHALL BE MADE BETWEEN CHANGES IN SLOPE.
18. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHEN EXCAVATING. PIPING AND UTILITY LOCATIONS SHOWN ON PLANS ARE NOT EXACT OR GUARANTEED. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING UTILITY LOCATIONS.
19. "SCREENED" (LIGHT) DELINEATION INDICATED ON THE DRAWINGS DENOTES EXISTING FACILITIES. "SCREENED" INFORMATION WAS TAKEN FROM EXISTING CONSTRUCTION DRAWINGS AND DATA, AND IS FOR REFERENCE ONLY, AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO THE ORDERING OF MATERIALS AND BEGINNING OF CONSTRUCTION. "BOLD" DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
20. CONTRACTOR SHALL PROTECT AND MAINTAIN ALL EXISTING TREES, SHRUBS, AND PLANTS, UNLESS OTHERWISE NOTED.
21. CONTRACTOR SHALL PROTECT EXISTING INFRASTRUCTURE / EQUIPMENT FROM DAMAGE DURING THE DURATION OF CONSTRUCTION. THE CONTRACTOR, AT THE CONTRACTOR'S EXPENSE, SHALL IMMEDIATELY REPAIR ALL DAMAGES TO UTILITIES, MAINS AND FACILITIES. IF THE REPAIR IS NOT MADE IN A TIMELY MANNER, AS DETERMINED BY OWNER, OWNER MAY PERFORM REQUIRED REPAIRS AND CLEANUP. THE CONTRACTOR WILL BE CHARGED FOR ALL EXPENSES ASSOCIATED WITH THE REPAIR.
22. CONTRACTOR SHALL NOT ADVERSELY IMPACT DRAINAGE SYSTEMS DURING CONSTRUCTION. TEMPORARILY RECONFIGURE THE DRAINAGE SYSTEM, AS NEEDED AS THE CONSTRUCTION WORK PROGRESSES, TO NOT CAUSE ADVERSE IMPACTS TO SURFACE WATER DRAINAGE EFFICIENCY. DO NOT IMPAIR SURFACE WATER DRAINAGE CAPACITY. FOLLOW THE REQUIREMENTS OF THE APPROVED POLLUTION PREVENTION PLAN FOR THE PROJECT.
23. THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO CONNECTING TO OR DISRUPTING ANY EXISTING SERVICES (PIPING, ELECTRICAL, ETC). COUNTY INSPECTOR SHALL BE NOTIFIED BY CONTRACTOR TWENTY-ONE (21) DAYS IN ADVANCE OF CONNECTING INTO EXISTING FACILITIES / PIPING.
24. THE UTILITY IMPROVEMENTS AND ADJUSTMENTS SHOWN ON THESE PLANS ARE INTENDED TO MAINTAIN THE INTEGRITY OF THE MANATEE COUNTY WATER, WASTEWATER AND RECLAIMED WATER SYSTEMS. ALL MATERIALS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS. THE PLANS DO NOT INCLUDE WORK PERFORMED ON OR FOR UTILITY SYSTEMS OWNED BY OTHERS UNLESS STATED OTHERWISE ON THE PLANS.
25. THE CONTRACTOR SHALL PROVIDE AT LEAST 48-HOURS NOTICE TO THE VARIOUS UTILITIES COMPANIES IN ORDER TO PERMIT THE LOCATION OF EXISTING UNDERGROUND UTILITIES IN ADVANCE OF CONSTRUCTION. THE CONTRACTOR SHALL CONTACT THE UTILITIES NOTIFICATION CENTER, SUNSHINE STATE ONE CALL OF FLORIDA.
26. THE COUNTY SHALL HAVE RIGHT OF FIRST REFUSAL FOR ANY SALVAGED MATERIALS. IF REFUSED, MATERIAL / EQUIPMENT SHALL BECOME THE CONTRACTOR'S RESPONSIBILITY AND DISPOSED IN ACCORDANCE WITH THE DEMOLITION SPECIFICATION.
27. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL SURPLUS EXCAVATION MATERIALS AND DEBRIS FROM THE SITE AND SHALL MAINTAIN THE SITE IN A NEAT AND ORDERLY CONDITION.
28. THE SOIL EROSION AND SEDIMENT CONTROL DEVICES SHALL BE INSTALLED PRIOR TO CONSTRUCTION, MAINTAINED THROUGHOUT CONSTRUCTION AND UNTIL THE SITE IS PERMANENTLY STABILIZED. THE CONTRACTOR SHALL PROVIDE AND INSTALL SILT SCREENS AROUND THE PROPOSED CONSTRUCTION ACTIVITY, AS NECESSARY, TO PREVENT THE TRANSPORT OF SEDIMENT DOWNSTREAM INTO STREET, STORM SEWERS, OPEN DITCHES, LAKES, DETENTION PONDS, ETC., AND SHALL PERFORM ALL NECESSARY INSPECTIONS AT A MINIMUM.

ABBREVIATIONS

Table with 2 columns: Abbreviation and Description. Includes entries for AL (ALUM), ALT (ALTERNATE), ALUM (ALUMINUM), APPROX (APPROXIMATE), AWG (AMERICAN WIRE GAGE), BF (BLIND FLANGE), BFV (BUTTERFLY VALVE), BLDG (BUILDING), BM (BENCHMARK), BV (BALL VALVE), CFM (CUBIC FEET PER MINUTE), C&G (CURB AND GUTTER), CI (CAST IRON), CIP (CAST IRON PIPE), C/L (CENTERLINE), CONT (CONTINUOUS, CONTINUATION), CPLG (COUPLING), CTR(S) (CENTER(S)), CV (CHECK VALVE), CW (COLD WATER), DI (DUCTILE IRON), DIA (DIAMETER), DIP (DUCTILE IRON PIPE), DMJ (DISMANTLING JOINT), DN (DOWN), DRN (DRAIN), DWG(S) (DRAWING(S)), E (EAST), EA (EACH), ECC (ECCENTRIC), EFF (EFFLUENT), EL, ELEV (ELEVATION), EQ (EQUAL), EQUIP (EQUIPMENT), EXIST (EXISTING), FCA (FLANGED COUPLING ADAPTER), FH (FIRE HYDRANT), FIN (FINISHED), FL (FLOOR), FLEX (FLEXIBLE), FLG (FLANGE), FM (FORCE MAIN), FRP (FIBERGLASS REINFORCED), FT (FOOT), FWD (FORWARD), G (GAS), GA (GAUGE), GAL (GALLON), GALV (GALVANIZED), GPM (GALLONS PER MINUTE), GR (GRADE), GV (GATE VALVE), HB (HOSE BIBB), HF (HOSE FAUCET), HMC (HARNESSED MECHANICAL COUPLING), HORIZ (HORIZONTAL), HP (HORSEPOWER), HW (HOT WATER), HWY (HIGHWAY), ID (INSIDE DIAMETER), IN (INCHES), INC (INCORPORATED), INV (INVERT), LAT (LATERAL), LBR (LIMEROCK BEARING RATIO), LB(S) (POUNDS), LOC (LIMITS OF CONSTRUCTION), LT (LEFT), MAX (MAXIMUM), MFM (MAGNETIC FLOWMETER), MFR(S) (MANUFACTURER(S)), MGD (MILLION GALLONS PER DAY), MH (MANHOLE), MIN (MINIMUM), MISC (MISCELLANEOUS), MJ (MECHANICAL JOINT), MLS (MASTER LIFT STATION), N (NORTH), N/A (NOT APPLICABLE), NC (NORMALLY CLOSED), N.O. (NORMALLY OPEN), NO.(S) (NUMBER(S)), NPT (NATIONAL PIPE THREAD), NPW (NONPOTABLE WATER), NTS (NOT TO SCALE), OC (ON CENTER), OD (OUTSIDE DIAMETER), OF (OVERFLOW), OH (OVERHEAD), OZ (OUNCE), P (CHEMICAL FEED PIPE), PDPS (PLANT DRAIN PUMP STATION), PE (PLAIN END), POLY (POLYMER), PP (POWER POLE), PRV (PRESSURE REDUCING VALVE), PS (PIPE SUPPORT), PSF (POUNDS PER SQUARE FOOT), PSI (POUNDS PER SQUARE INCH), PT (POINT), PV (PLUG VALVE), PVC (POLYVINYL CHLORIDE), PVCP (POLYVINYL CHLORIDE PIPE), PVM (PAVEMENT), PW (POTABLE WATER), R (RADIUS), RCP (REINFORCED CONCRETE PIPE), RD (ROAD), RED (REDUCER, REDUCING), REQD (REQUIRED), RPM (REVOLUTIONS PER MINUTE), RT (RIGHT), R/W (RIGHT OF WAY), RAS (RETURN ACTIVATED SLUDGE), S (SOUTH), SCH (SCHEDULE), SIM (SIMILAR), SPEC(S) (SPECIFICATION(S)), SQ (SQUARE), SS (SANITARY SEWER, STAINLESS STEEL), ST SWR (STORM SEWER), STA (STATION), STD (STANDARD), SYM (SYMMETRICAL), SYS (SYSTEM), T (TOP), TBM (TEMPORARY BENCHMARK), TH (TEST HOLE), TYP (TYPICAL), UGND (UNDERGROUND), UNO (UNLESS NOTED OTHERWISE), USGS (UNITED STATES GEOLOGICAL SURVEY), V (VALVE, VENT), VCP/VC (VITRIFIED CLAY PIPE), VERT (VERTICAL), VR (AIR/VACUUM RELEASE VALVE), VV (VENT VALVE), W (WEST, WATER), W/J (WITH), WAS (WASTE ACTIVATED SLUDGE), WL (WATER LEVEL), WM (WATER METER), W/O (WITHOUT), WT (WEIGHT), WW (WET WELL), X (BY, TIMES), YH (YARD HYDRANT), & (AND), @ (AT), ° (DEGREE), < (DEFLECTION ANGLE), # (NUMBER), % (PER CENT)

GENERAL LEGEND

Table with 2 columns: Symbol and Description. Includes symbols for NEW PIPING, UNDERGROUND PIPING, EXISTING PIPING, PROPERTY LINE, EASEMENT LINE, FENCE, CENTERLINE, SILT FENCE, WATER OR GAS VALVE, WATER OR GAS METER, TELEPHONE OR POWER POLE WITH GUY ANCHOR, MANHOLE (MH), FIRE HYDRANT (FH), YARD, POST HYDRANT (YH), STREET LIGHT POLE, HEDGE, BRUSH, SHRUBS, WOODS, TREE, SECTION NUMBER OR DETAIL LETTER, DRAWING NUMBER ON WHICH SECTION OR DETAIL APPEARS, DEMOLISH AND DISPOSE, NEW CMU INFILL, DRAINAGE ARROW, EXISTING SPOT ELEVATION, PROPOSED SPOT ELEVATION.

MATERIALS LEGEND

Table with 2 columns: Material Symbol and Description. Includes symbols for EARTH OR GRADE, GRANULAR FILL (CRUSHED STONE OR GRAVEL), CONCRETE, ASPHALT PAVEMENT.

Table with 2 columns: Date and Description. Includes entries for SEPT 2022 100% SUBMITTAL, FEB 2019 90% SUBMITTAL, OCT 2019 50% SUBMITTAL, and a row for REVIEWS AND RECORD OF ISSUE.

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY MICHAEL N. TACHE, M.S., P.E., REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, LICENSE NO. 83993

Logo for Manatee County and Black & Veatch Corporation. Text: Black & Veatch Corporation, 3405 W. Dr. M. L. King Jr. Blvd, Suite 125, Tampa, Florida. Certificate No. 8132

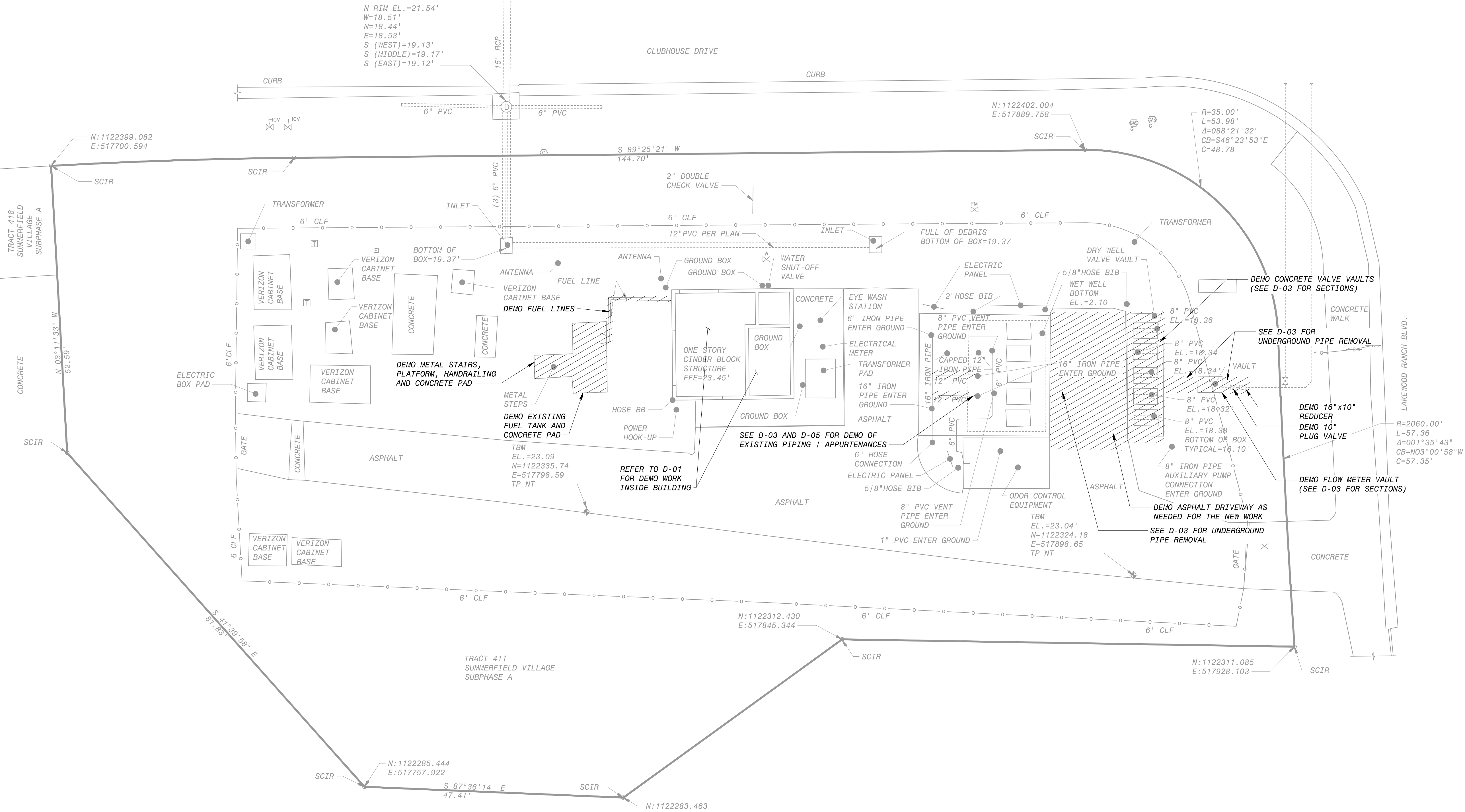
MANATEE COUNTY, FLORIDA IMPROVEMENTS AT MASTER LIFT STATION LAKEWOOD RANCH. GENERAL NOTES, LEGEND AND ABBREVIATIONS.

DESIGNED: AZ, DETAILED: AD, CHECKED: AW, APPROVED: MNT, DATE: SEPT 2022

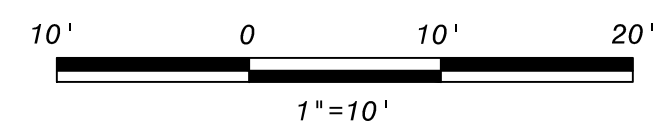
Scale bar showing 0, 1/2, 1. Text: IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE.

PROJECT NO. 402142, G-02 SHEET 3 OF 43

ISSUED FOR CONSTRUCTION



SITE PLAN
1" = 10'-0"



ISSUED FOR CONSTRUCTION

SEPT 2022	100% SUBMITTAL	C	AD	AW	MNT
FEB 2020	90% SUBMITTAL	B	AD	NE	AW
OCT 2019	50% SUBMITTAL	A	AD	NE	AW
DATE	REVIEWS AND RECORD OF ISSUE	NO.	BY	CHK	APP
60-3073 - M.L.S. Lakewood Ranch					
D-02.dwg					
SAVED: DUT48884, 9/19/2022 11:34:47 AM					
PLOTTED: DUT48884, 9/19/2022 11:47:08 AM					
USER: DUT48884					

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FOR CONSTRUCTION BY
MICHAEL N. TACHE,
ON 09/16/2022 AND
SEALED BY
MICHAEL N. TACHE,
A LICENSED
PROFESSIONAL
ENGINEER IN THE
STATE OF FLORIDA,
NO. 83893

Manatee County

BLACK & VEATCH

Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd, Suite 125
Tampa, Florida
Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH

DEMOLITION
SITE PLAN

DESIGNED: NE
DETAILED: HT/AD
CHECKED: AW
APPROVED: MNT
DATE: SEPT 2022

PROJECT NO.
402142

D-02
SHEET
5 OF 43



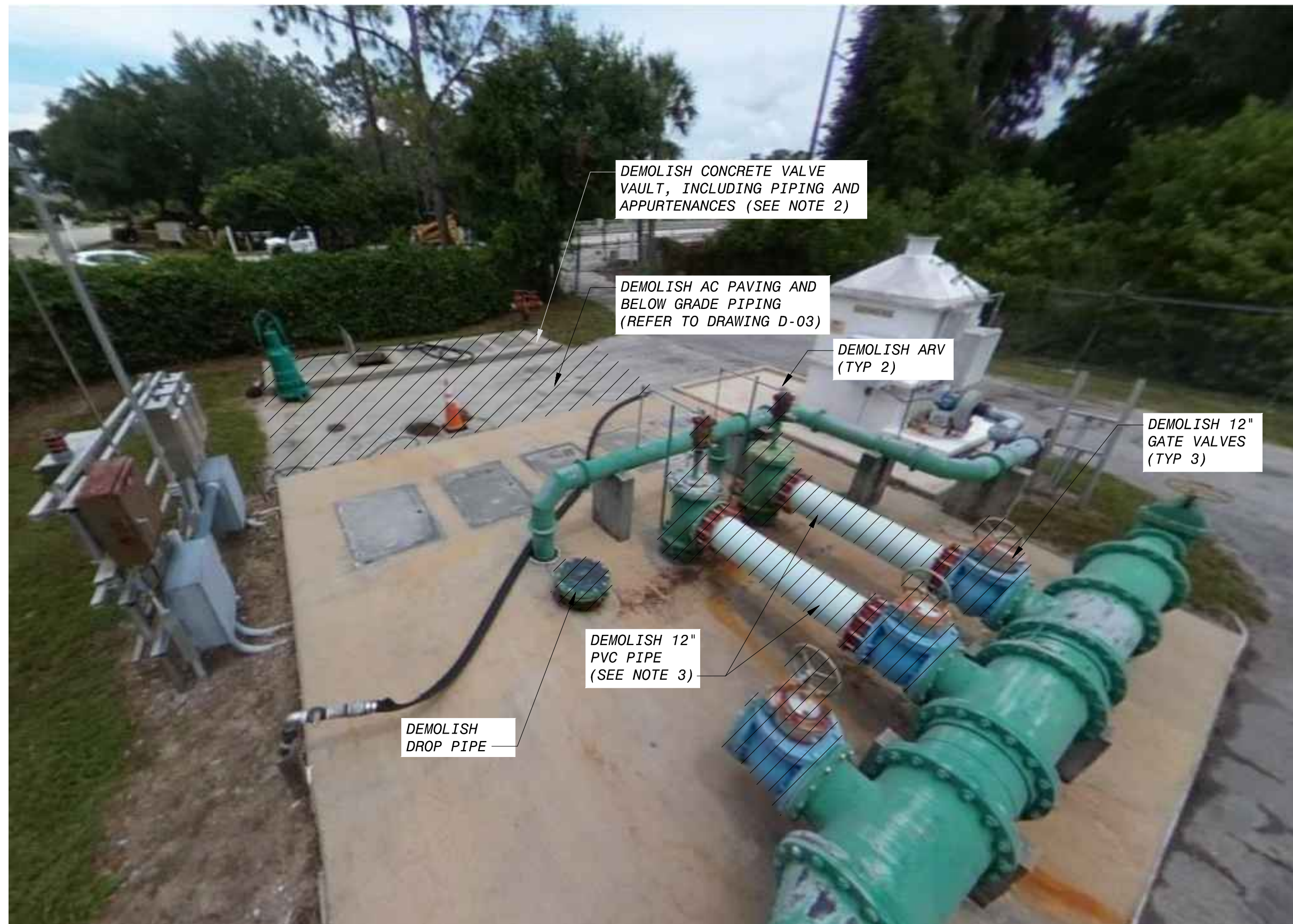
DEMOLISH GENERATOR EXHAUST AND PATCH WALL OPENING IN ACCORDANCE WITH STRUCTURAL DRAWINGS. EXISTING WALL VENT

DEMOLISH EXISTING STEEL LOUVERS (SEE NOTE 4)

DEMOLISH EXISTING LOUVERED DOUBLE DOOR (SEE NOTE 4)

DEMOLISH EXISTING LOUVERED SINGLE DOOR (SEE NOTE 4)

ELECTRICAL BUILDING
NO SCALE



DEMOLISH CONCRETE VALVE VAULT, INCLUDING PIPING AND APPURTENANCES (SEE NOTE 2)

DEMOLISH AC PAVING AND BELOW GRADE PIPING (REFER TO DRAWING D-03)

DEMOLISH ARV (TYP 2)

DEMOLISH 12" GATE VALVES (TYP 3)

DEMOLISH 12" PVC PIPE (SEE NOTE 3)

DEMOLISH DROP PIPE

PIPING AND VALVES
NO SCALE



DEMOLISH STEEL PLATFORM (HANDRAILING, ETC) AND STAIRS (INCLUDING CONCRETE PAD)

DEMOLISH CONCRETE PAD UNDER FUEL TANK

DEMOLISH FUEL TANK AND ASSOCIATED APPURTENANCES

DEMOLISH FUEL LINES UP TO EXISTING GENERATOR

FUEL TANK
NO SCALE

LEGEND:

DEMOLITION WORK

DEMO NOTES:

1. ALL WIRING / CABLING ASSOCIATED WITH ELECTRICAL GEAR AND OTHER EQUIPMENT SHALL BE DEMOLISHED, AND PROPERLY TERMINATED.
2. EXISTING FLOWMETER VAULT SHALL BE DEMOLISHED PER DRAWING D-3. VAULT IS NOT SHOWN ON PHOTO AND IS LOCATED IMMEDIATELY TO THE EAST OF THE EXISTING VALVE VAULT. APPROXIMATE DIMENSIONS OF CONCRETE FLOWMETER VAULT ARE 5FT LONG, 4FT WIDE, AND 6FT DEEP.
3. DEMOLISH PVC PIPING AND INSTALL NEW GRINDER AND APPURTENANCES IN ACCORDANCE WITH THE MECHANICAL DRAWINGS.
4. REFER TO STRUCTURAL DRAWINGS FOR REPAIRS TO EXISTING BUILDING.
5. CONTRACTOR SHALL COORDINATE DEMOLITION OF THE FUEL TANK WITH THE COUNTY'S FUEL SERVICES DIVISION. TANK IS FDEP REGULATED AND CONTRACTOR SHALL SUPPORT COUNTY WITH FILING TANK CLOSURE DOCUMENTATION AND DRAINING THE FUEL TANK.
6. CONTRACTOR SHALL DEMOLISH CONCRETE PAD UNDERNEATH FUEL TANK AND AT BASE OF STAIRS. APPROXIMATE DIMENSIONS OF TANK PAD IS 14' x 6' x 1.5' AND APPROXIMATE DIMENSIONS OF STAIR PAD IS 5' x 5' x 1.5'. STEEL FUEL TANK IS 1,000 GALLONS. ALL ABOVE GROUND PIPING SHALL BE DEMOLISHED AND PROPERLY TERMINATED BELOW GRADE. ALL OTHER PIPING AND ELECTRICAL SHALL BE PROPERLY TERMINATED BELOW GROUND.

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CHK	APP
SEPT 2022	100% SUBMITTAL	A	AD	AW	MNT
60-3040 - General Drawings					
D-05.dwg					
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USER: D:\T4884_9					
DWS: VEG-1000					

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY MICHAEL N. TACHE, M.D. ON 09/16/2022 AND RESEALED BY MICHAEL N. TACHE, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 83893

Manatee County
BLACK & VEATCH
Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd, Suite 125
Tampa, Florida
Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
DEMOLITION
BUILDING, PIPING AND VALVE VAULT

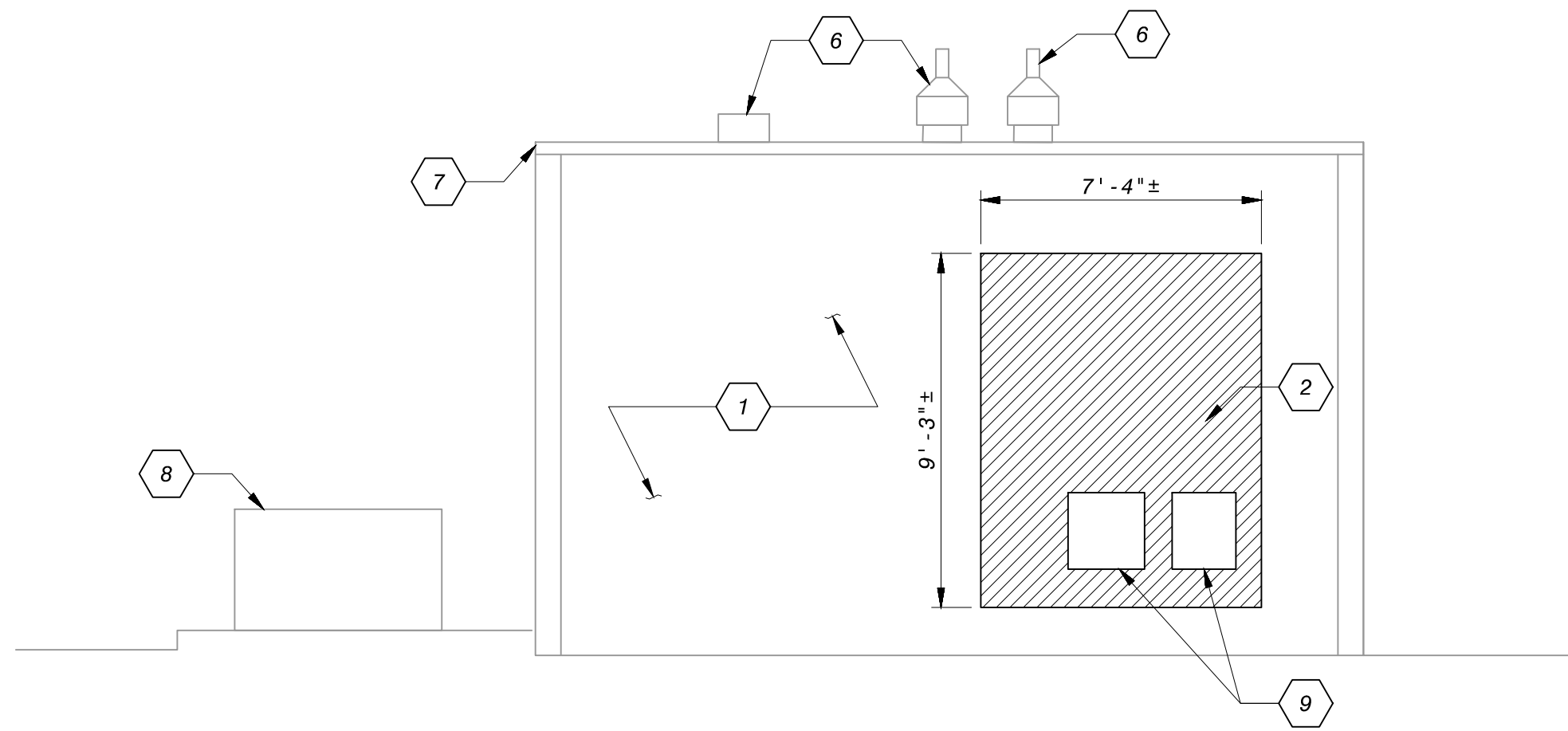
DESIGNED: AZ
DETAILED: AD
CHECKED: AW
APPROVED: MNT
DATE: SEPT 2022

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

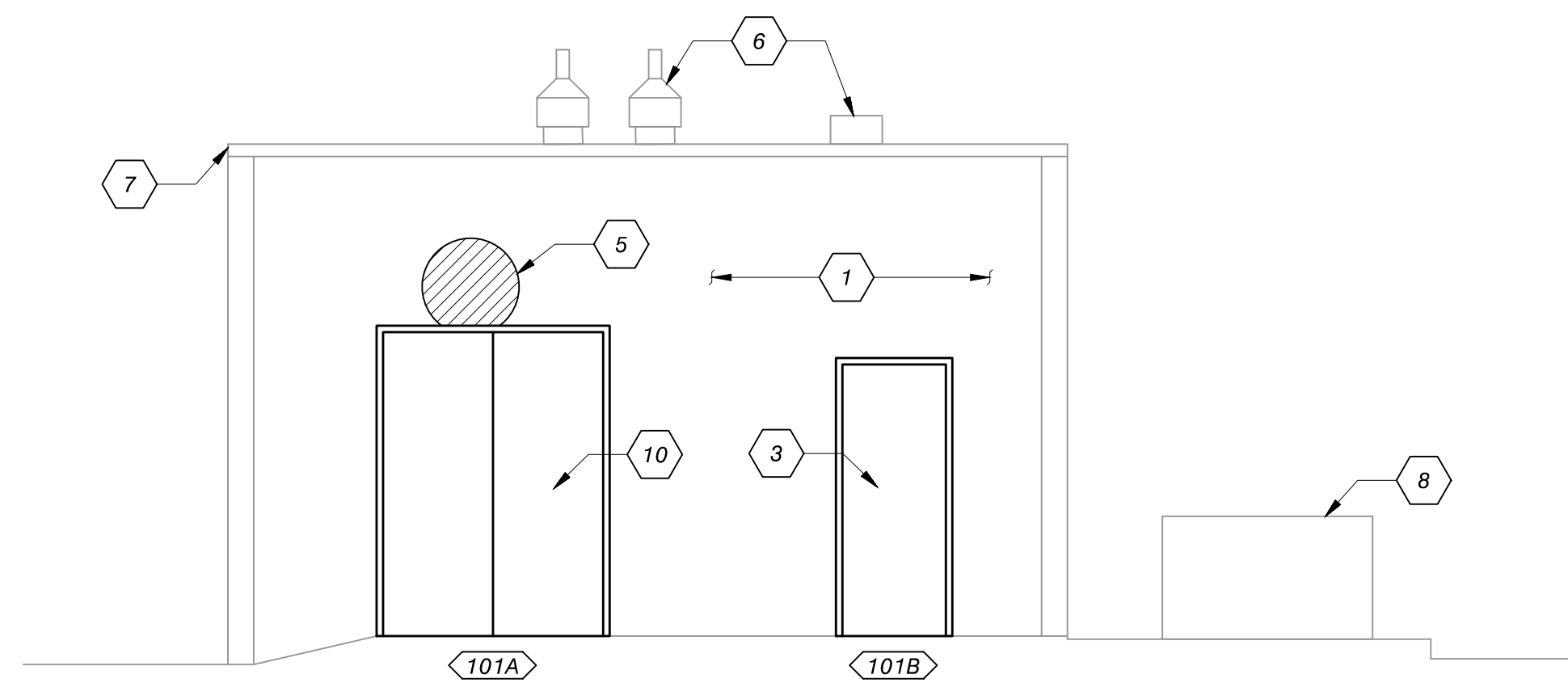
PROJECT NO.
402142

D-05
SHEET
8 OF 43

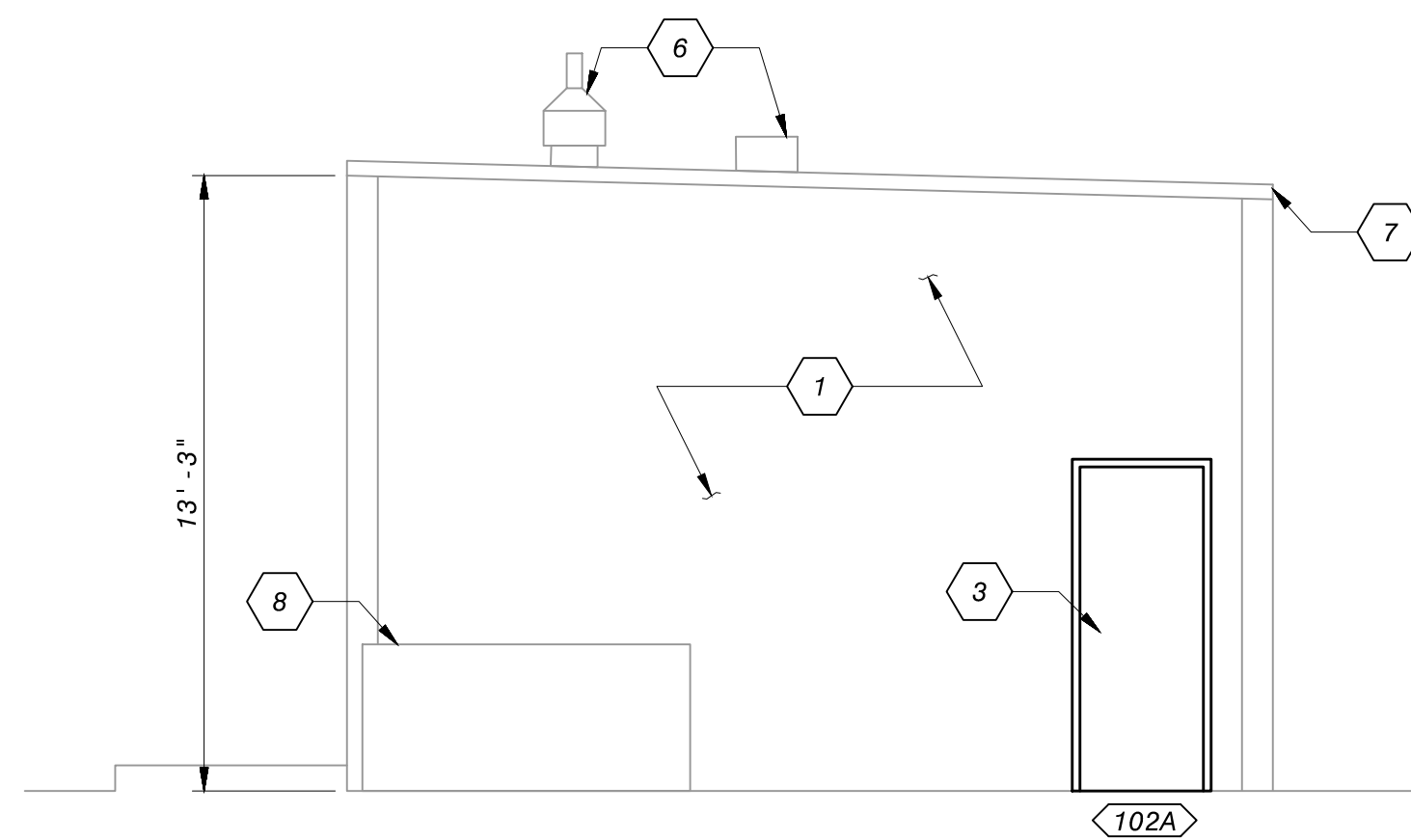
ISSUED FOR CONSTRUCTION



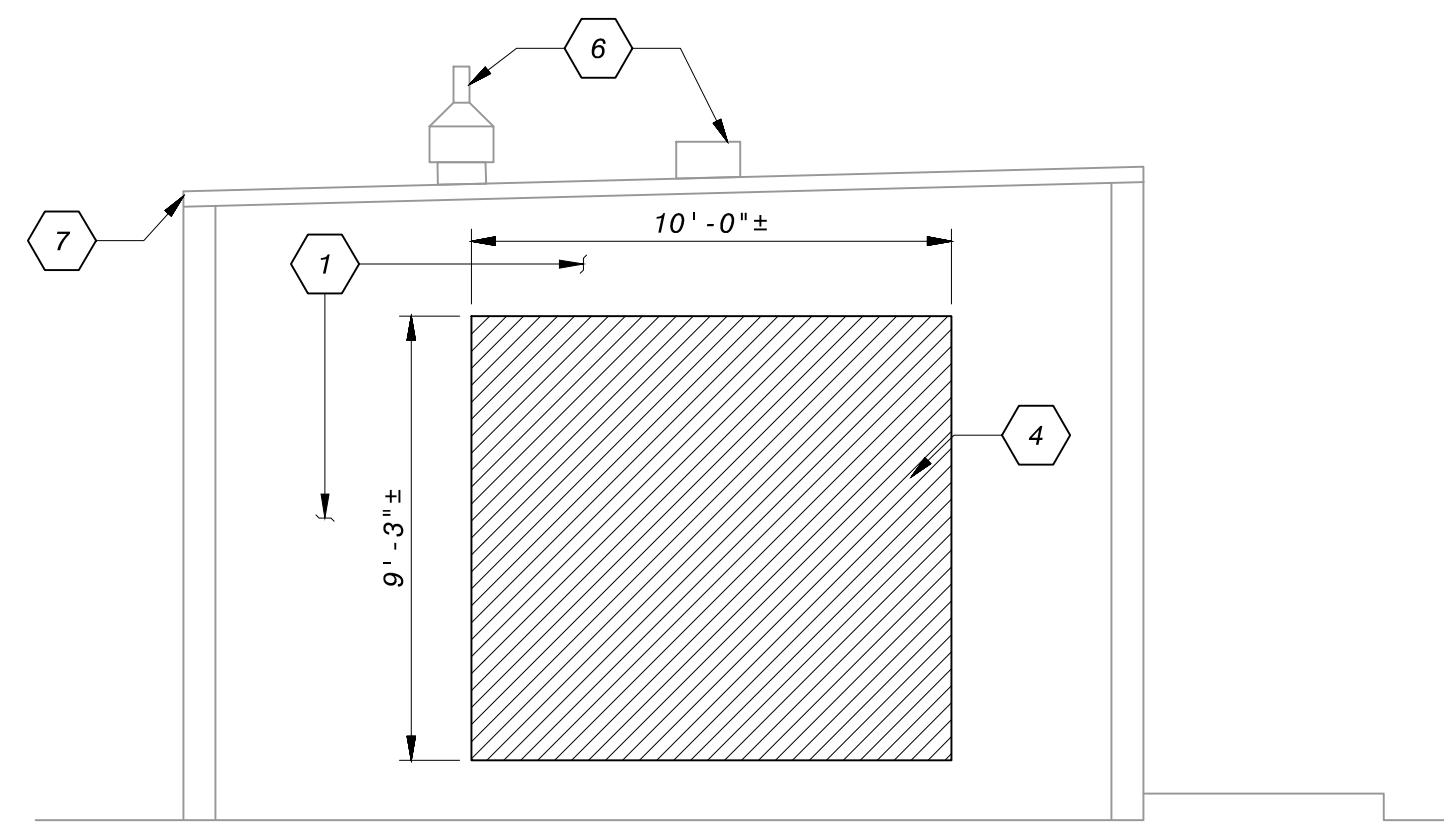
NORTH ELEVATION
1/4" = 1'-0"



SOUTH ELEVATION
1/4" = 1'-0"



EAST ELEVATION
1/4" = 1'-0"



WEST ELEVATION
1/4" = 1'-0"

GENERAL SHEET NOTES

SHEET KEYNOTES

1. PAINT EXISTING STUCCO FINISH, TYPICAL.
2. NEW CMU INFILL AND STUCCO WHERE GENERATOR EXHAUST VENT REMOVED. REPAIR FINISHES TO MATCH ADJACENT SURFACES.
3. NEW DOORS AND FRAMES IN EXISTING OPENINGS. REFER TO SCHEDULE ON A-03.
4. NEW CMU INFILL AND STUCCO WHERE LOUVER REMOVED. REPAIR FINISHES TO MATCH ADJACENT SURFACES.
5. NEW CMU INFILL AND STUCCO WHERE GENERATOR EXHAUST REMOVED. REPAIR FINISHES TO MATCH ADJACENT SURFACES.
6. MECHANICAL, SEE MECHANICAL DRAWINGS.
7. EXISTING METAL DRIP.
8. ELECTRICAL TRANSFORMER, SEE ELECTRICAL DRAWINGS.
9. DUCT PENETRATIONS, SEE DETAIL A1A-03. COORDINATE WITH HVAC DRAWINGS.
10. NEW DOOR AND FRAME IN EXISTING OPENING. INCREASE OPENING HEIGHT TO 8'-8" (ROUGH OPENING), SEE STRUCTURAL DRAWINGS FOR NEW LINTEL INFORMATION.

ARCHITECTURAL SYMBOL LEGEND

101A NEW DOOR

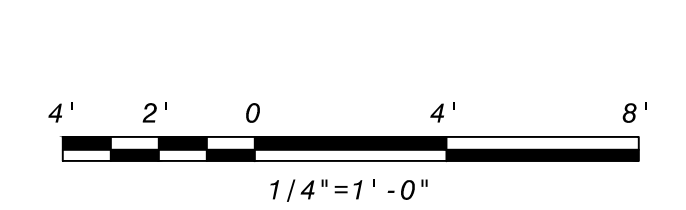
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H	AD	PR	INT
I	AD	PR	INT
J	AD	PR	INT
K	AD	PR	INT
L	AD	PR	INT
M	AD	PR	INT
N	AD	PR	INT
O	AD	PR	INT
P	AD	PR	INT
Q	AD	PR	INT
R	AD	PR	INT
S	AD	PR	INT
T	AD	PR	INT
U	AD	PR	INT
V	AD	PR	INT
W	AD	PR	INT
X	AD	PR	INT
Y	AD	PR	INT
Z	AD	PR	INT

THIS DRAWING WAS
ORIGINALLY APPROVED
FOR CONSTRUCTION BY
PHILIP D RISHEL,
ON 09/16/2022 AND
SEALED BY
PHILIP D RISHEL,
A REGISTERED
ARCHITECT IN THE
STATE OF FLORIDA,
NO. A0101040

Black & Veatch Architects, PLLC
Florida Registered
License Number: AAZ6002279
8400 Ward Parkway
Kansas City, Missouri

MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
ARCHITECTURAL
ELECTRICAL BUILDING ELEVATIONS

DESIGNED: RAB
DETAILED: HT
CHECKED: PR
APPROVED: MINT
DATE: SEPT 2022



IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

PROJECT NO.
402142

A-02
SHEET
12 OF 43

ISSUED FOR CONSTRUCTION

ROOM FINISH SCHEDULE																			
ROOM NO.	ROOM NAME	FLOOR		WALLS									CEILING			REMARKS			
		MATERIAL	FINISH	NORTH			EAST			SOUTH			WEST						
				MATERIAL	FINISH	BASE	MATERIAL	FINISH	BASE	MATERIAL	FINISH	BASE	MATERIAL	FINISH	BASE		MATERIAL	FINISH	HEIGHT
101	ELECTRICAL ROOM	CO	FS	CB	PT	NO	CB	PT	NO	CB	PT	NO	CB	PT	NO	CO	PT	12'-0"±	
102	TOILET	CO	EX	CB	PT	NO	CB	PT	NO	CB	PT	NO	CB	PT	NO	CO	PT	12'-0"±	

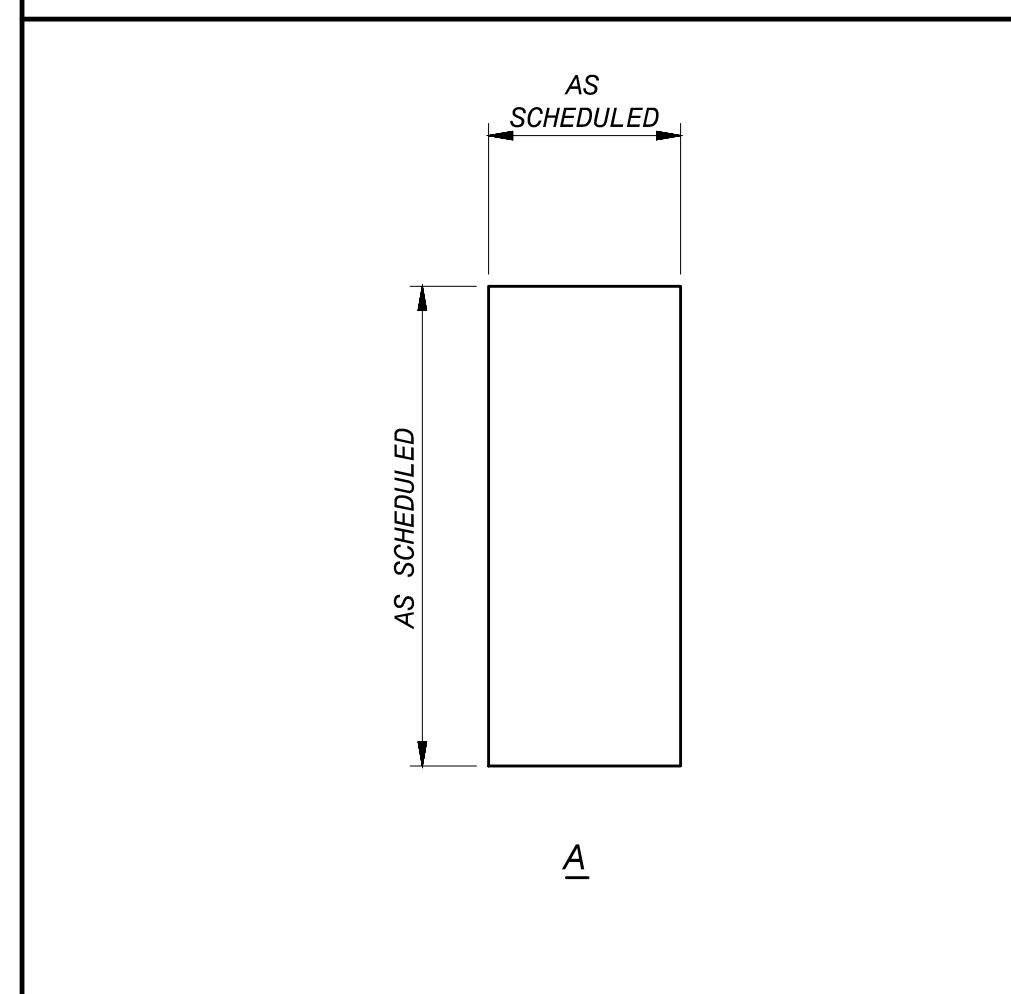
DOOR SCHEDULE																
LEVEL	DOOR ID	DOOR SIZE			DOOR							FRAME				REMARKS
	NO. (D)	WIDTH	HEIGHT	MATERIAL	HEAD	JAMB	SILL	TYPE (D)	HARDWARE	RATING	MATERIAL	HEAD	JAMB	DEPTH		
OPERATING LEVEL	101A	PR	3'-0"	7'-10"	ALUM	1 (SIM)	2	3	A	1	-	ALUM	2"	2"	6"	CONTRACTOR SHALL FIELD VERIFY EXISTING OPENING
OPERATING LEVEL	101B		3'-0"	7'-2"	ALUM	1	2	3	A	2	-	ALUM	2"	2"	6"	CONTRACTOR SHALL FIELD VERIFY EXISTING OPENING
OPERATING LEVEL	102A		3'-0"	7'-2"	ALUM	1	2	3	A	2	-	ALUM	2"	2"	6"	CONTRACTOR SHALL FIELD VERIFY EXISTING OPENING

SCHEDULE LEGEND

AL	ACTIVE LEAF
ALUM	ALUMINUM
CB	CONCRETE BLOCK
CO	CONCRETE
EX	EXISTING
FS	FLOOR SEALER
NO	NONE
PR	PAIR
PT	PAINT

SEPT 2022	100% SUBMITTAL	MINT
FEB 2020	90% SUBMITTAL	AW
OCT 2019	50% SUBMITTAL	AW
DATE	REVISED AND RECORD OF ISSUE	AW
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USER: D:\48884		XREF4:

DOOR TYPES



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Black & Veatch Architects, PLLC
 Florida Registered
 License Number: AA2600279
 8400 Ward Parkway
 Kansas City, Missouri

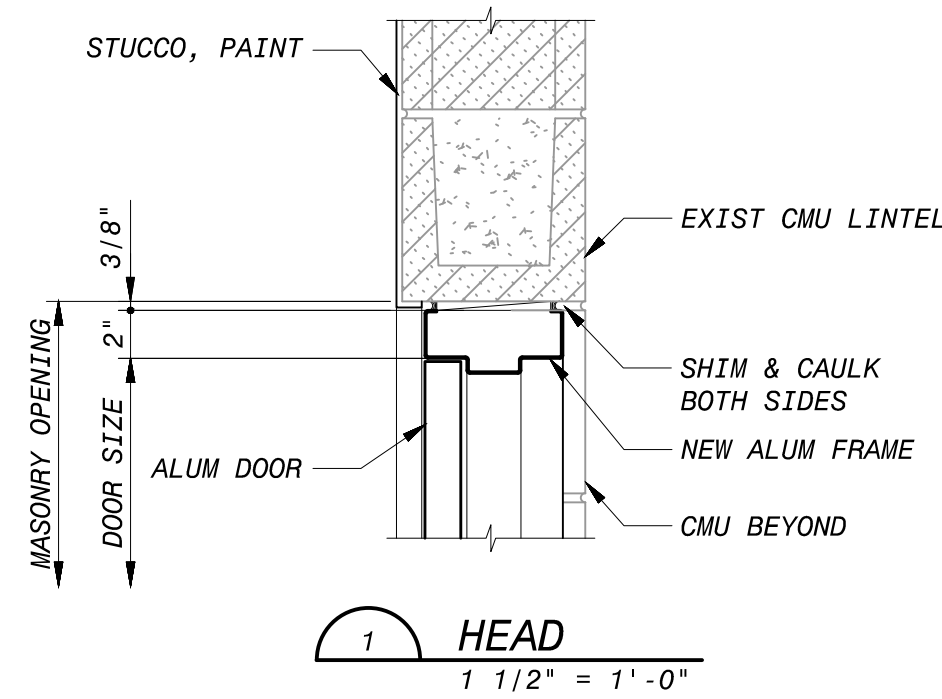
MANATEE COUNTY FLORIDA
 IMPROVEMENTS AT
 MASTER LIFT STATION LAKEWOOD RANCH
 ARCHITECTURAL
 DETAILS AND SCHEDULES

DESIGNED: RAB
 DETAILED: SMH
 CHECKED: PR
 APPROVED: MINT
 DATE: SEPT 2022

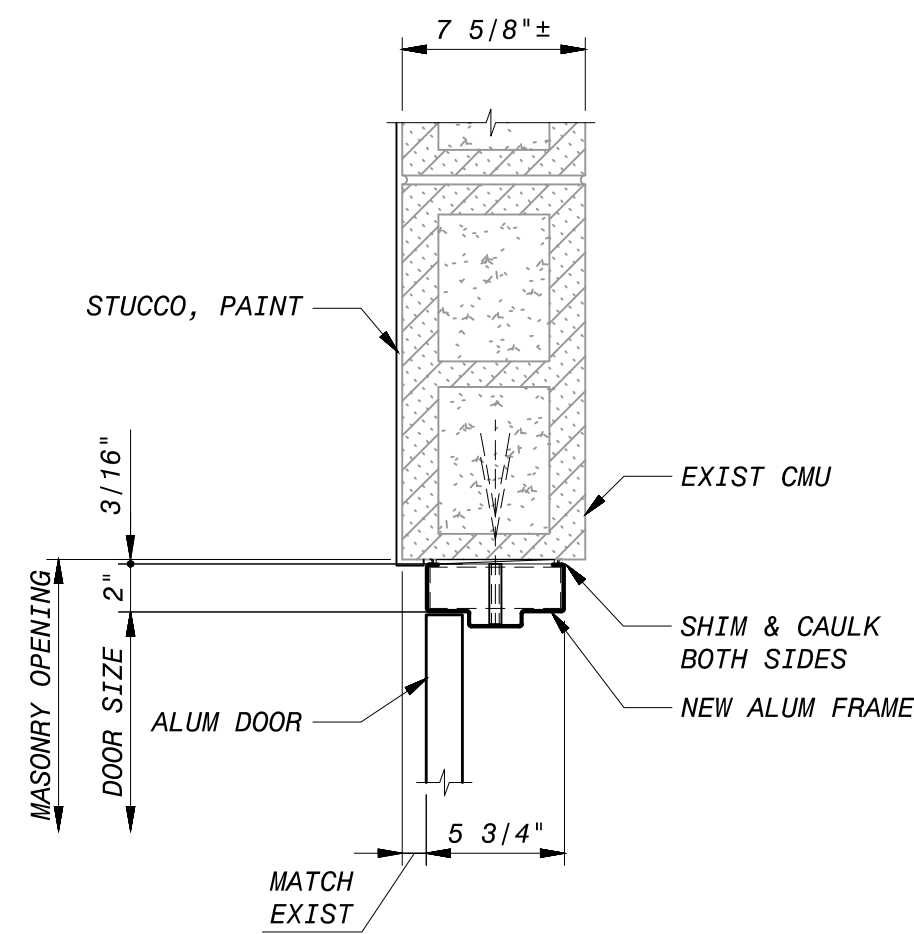
0 1/2 1
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
 402142

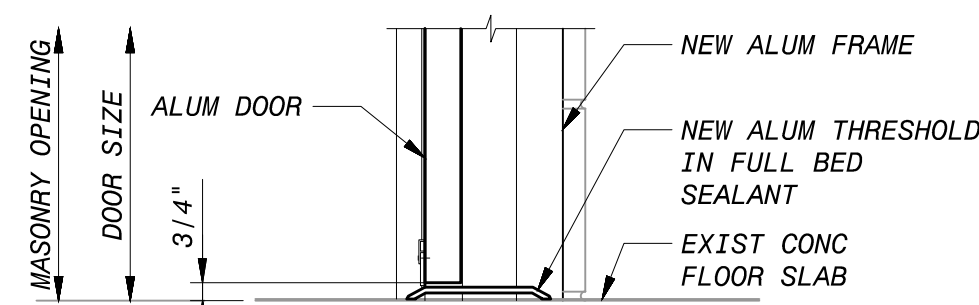
A-03
 SHEET
 13 OF 43



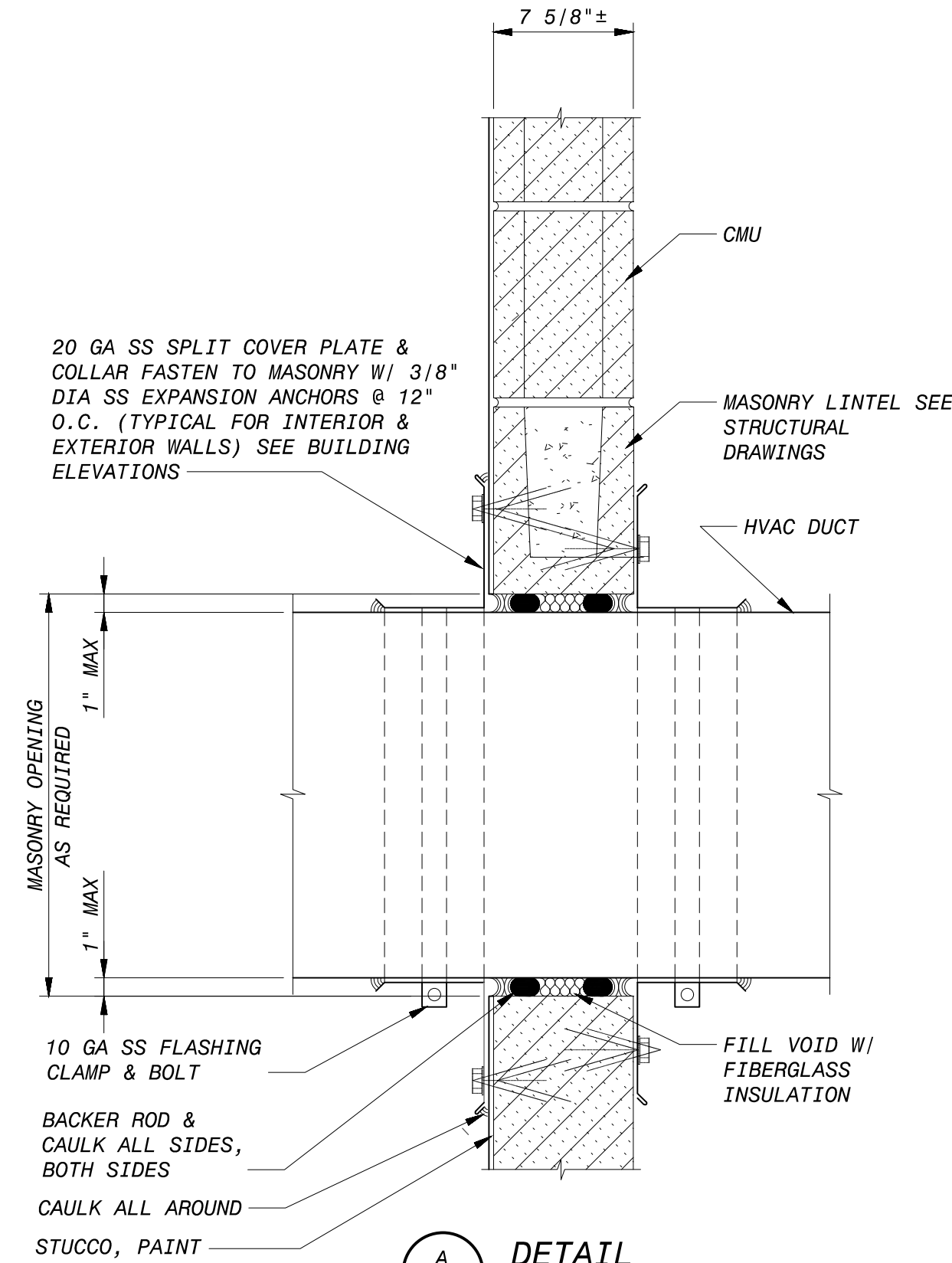
1 HEAD
 1 1/2" = 1'-0"



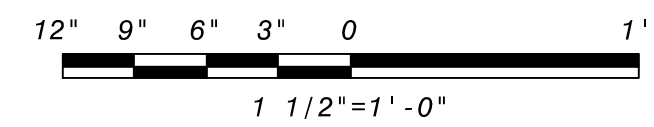
2 JAMB
 1 1/2" = 1'-0"



3 SILL
 1 1/2" = 1'-0"



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



ISSUED FOR CONSTRUCTION

STRUCTURAL NOTES

EXISTING STRUCTURES

LOADING CRITERIA

GENERAL

- 1. THE APPLICABLE BUILDING CODE IS THE 2020 FLORIDA BUILDING CODE (FBC) BASED ON IBC 2018.
- 2. THE REQUIREMENTS INDICATED ON THIS SHEET ARE INTENDED AS A BASIC SUMMARY OF THE MATERIAL AND CONSTRUCTION REQUIREMENTS FOR THE PROJECT. ADDITIONAL, MORE STRINGENT REQUIREMENTS ARE GIVEN IN THE PROJECT DETAIL DRAWINGS AND SPECIFICATIONS.
- 3. ALL STRUCTURAL RELATED SHOP DRAWINGS SHALL BE REVIEWED BY THE ENGINEER PRIOR TO CONSTRUCTION.
- 4. STRUCTURES MAY BE BUOYANT WHEN EMPTY DURING CONSTRUCTION. CONTRACTOR SHALL PROTECT STRUCTURES AGAINST FLOTATION UNTIL CONSTRUCTION IS COMPLETE.

- 1. THE DRAWINGS DEPICT WORK AT EXISTING STRUCTURES. ALL DIMENSIONS AND ALL DEPICTIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS, STARTING FABRICATION, OR STARTING CONSTRUCTION.
- 2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE, REPAIRS OR STRUCTURAL MODIFICATIONS THAT ARE REQUIRED DUE TO DEMOLITION BEYOND THE LIMITS IDENTIFIED ON THE DRAWINGS.
- 3. REINFORCEMENT FOR ANY EXISTING CONCRETE OR MASONRY ELEMENT SHALL NOT BE DAMAGED UNLESS THE ELEMENT IS TO BE DEMOLISHED. WHEN LOCATING EXISTING REINFORCEMENT IS REQUIRED, IT SHALL BE LOCATED USING NON-DESTRUCTIVE METHODS. REINFORCING STRANDS IN EXISTING PRESTRESSED CONCRETE SHALL NOT BE CUT, UNLESS INDICATED ON THE DRAWINGS OR OTHERWISE AUTHORIZED BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE, REPAIRS OR STRUCTURAL MODIFICATIONS THAT ARE REQUIRED DUE TO DAMAGE OF CONCRETE, MASONRY OR REINFORCEMENT THAT HAS BEEN IDENTIFIED ON THE DRAWINGS TO REQUIRE FIELD VERIFICATION.
- 4. CORE DRILLING AND SAW CUTTING SHALL NOT BE PERFORMED UNLESS INDICATED ON THE DRAWINGS OR APPROVED BY ENGINEER.
- 5. EXPOSED CONCRETE SURFACES THAT REMAIN AFTER DEMOLITION SHALL BE REPAIRED TO MATCH ADJACENT CONCRETE SURFACES.
- 6. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, EXPOSED CONCRETE SURFACES WITH REINFORCEMENT, ANCHOR BOLTS, HANGER RODS, OR OTHER EXPOSED METAL EMBEDMENTS SHALL BE REPAIRED BY CUTTING OFF THE METAL AT THE FACE OF THE CONCRETE, GRINDING SMOOTH, AND COATING. COATING SHALL EXTEND A MINIMUM OF 1" BEYOND THE EDGE OF ANY EXPOSED METAL.

- 1. DEAD LOAD CALCULATED
- 2. LIVE LOADS:
OPERATING AND PROCESS FLOORS..... 150 PSF
STAIRS, SERVICE PLATFORMS & LANDINGS..... 100 PSF
- 3. WIND LOAD:
ULTIMATE DESIGN WIND SPEED..... 156 MPH
NOMINAL DESIGN WIND SPEED..... 123 MPH
EXPOSURE..... C
RISK CATEGORY..... III
INTERNAL PRESSURE COEFFICIENT +/-0.55
- 4. SEISMIC LOAD:
MAPPED MCE SHORT PERIOD SPECTRAL RESPONSE ACCELERATION (S_s)..... 0.050g
MAPPED MCE ONE SECOND PERIOD SPECTRAL RESPONSE ACCELERATION (S₁)..... 0.027g
DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (S_{ps})..... 0.053g
DESIGN SPECTRAL RESPONSE ACCELERATION AT ONE SECOND PERIOD (S_{o1})..... 0.044g
SITE CLASS (ASSUMED)..... D
RISK CATEGORY III
SEISMIC DESIGN CATEGORY A
- 5. SNOW LOAD:
GROUND SNOW LOAD (P_g)..... 0 PSF
- 6. FEMA FLOOD RISK OUTSIDE THE 100 YEAR FLOODPLAIN.

CAST-IN-PLACE CONCRETE

- 1. A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c) OF 4,000 PSI WAS UTILIZED IN THE DESIGN OF STRUCTURAL REINFORCED CONCRETE. SEE SPECIFICATIONS FOR CONSTRUCTION STRENGTH REQUIREMENTS.
- 2. THE LOCATION OF ALL CONSTRUCTION JOINTS AND OTHER TYPES OF JOINTS, OTHER THAN THOSE SPECIFIED OR SHOWN ON THE PLANS, SHALL BE ACCEPTABLE TO THE ENGINEER PRIOR TO PLACING CONCRETE.

REINFORCING STEEL

- 1. ALL REINFORCING BAR SHALL BE GRADE 60, DEFORMED, ASTM A615, UNLESS NOTED OTHERWISE.
- 2. DIMENSIONS TO REINFORCING BARS ARE TO BAR CENTERLINES, UNLESS NOTED OTHERWISE. BAR COVER IS THE CLEAR DISTANCE BETWEEN THE BAR AND THE CONCRETE SURFACE.
- 3. NO WELDING OF REINFORCING BARS SHALL BE PERMITTED UNLESS APPROVAL IS OBTAINED FROM THE ENGINEER PRIOR TO CONSTRUCTION.

POST-INSTALLED ANCHORS

- 1. POST-INSTALLED ANCHORS SHALL INCLUDE ADHESIVE ANCHORS (THREADED RODS, BOLTS OR REINFORCING BARS), EXPANSION ANCHORS, AND UNDERCUT ANCHORS INSTALLED INTO HARDENED CONCRETE OR MASONRY. SEE THE ANCHORAGE IN CONCRETE AND MASONRY SPECIFICATION SECTION FOR ADDITIONAL REQUIREMENTS.
- 2. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE INDICATED ON THE DRAWINGS. CONTRACTOR SHALL OBTAIN APPROVAL FROM ENGINEER PRIOR TO USING POST-INSTALLED ANCHORS FOR MISSING OR MISPLACED CAST-IN-PLACE ANCHORS.
- 3. CARE SHALL BE TAKEN TO AVOID CONFLICTS WITH EXISTING REINFORCING STEEL AND OTHER EMBEDDED ITEMS WHEN DRILLING HOLES. REINFORCING BARS SHALL NOT BE DAMAGED DURING DRILLING OR ANCHOR INSTALLATION. HOLES SHALL BE DRILLED AND CLEANED PER THE PRODUCT MANUFACTURER'S INSTRUCTIONS. ANCHORS SHALL BE INSTALLED PER THE PRODUCT MANUFACTURER'S INSTRUCTIONS AT NOT LESS THAN MINIMUM EDGE DISTANCES AND/OR SPACINGS INDICATED IN THE MANUFACTURER'S LITERATURE.
- 4. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE LISTED IN THE SPECIFICATION OR INDICATED ON THE DRAWINGS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW AND APPROVAL. PRODUCT ICC-ESR EVALUATION REPORTS SHALL BE INCLUDED WITH THE SUBMITTAL PACKAGE. IF REQUESTED, CALCULATIONS PREPARED BY A REGISTERED PROFESSIONAL ENGINEER USING METHODS AND PROCEDURES REQUIRED BY THE BUILDING CODE MAY BE REQUIRED AS PART OF THE SUBMITTAL PACKAGE.
- 5. UNLESS NOTED OTHERWISE, THE MINIMUM EMBEDMENT PROVIDED FOR ADHESIVE ANCHORED REINFORCING BARS SHALL DEVELOP THE FULL TENSILE STRENGTH OF THE BAR.
- 6. SPECIAL INSPECTION WILL BE PROVIDED FOR ALL POST-INSTALLED ANCHORS.

MASONRY

- 1. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90. THE TOTAL MASONRY ASSEMBLAGE SHALL HAVE A COMPRESSIVE STRENGTH EQUAL TO 2500 PSI AT 28 DAYS.
- 2. MASONRY MORTAR SHALL CONFORM TO ASTM C270, TYPE S.
- 3. ALL BOND BEAMS AND ANY BLOCK CELLS CONTAINING REINFORCING STEEL, ANCHORS OR OTHER EMBEDMENTS SHALL BE FILLED WITH GROUT MEETING THE REQUIREMENTS OF ASTM C476. WALLS SHALL BE FULLY GROUTED WHEN INDICATED ON THE DRAWINGS.
- 4. BOND BEAM REINF SHALL BE CONTINUOUS AT CORNERS, INTERSECTIONS, AND CONTROL JOINTS.

SOIL AND FOUNDATIONS

- 1. FOUNDATION CONSTRUCTION SHALL NOT BEGIN UNTIL ANY REQUIRED SPECIAL INSPECTION HAS BEEN COMPLETED AND THE CONTRACTOR NOTIFIED TO PROCEED.
- 2. TO FACILITATE SCHEDULING, AT LEAST 48 HOURS ADVANCE NOTICE SHALL BE GIVEN TO THE ENGINEER PRIOR TO THE REQUIRED INSPECTIONS.
- 3. UNLESS NOTED OTHERWISE, BACKFILL SHALL NOT BE PLACED AGAINST WALLS WHICH SUPPORT A CONCRETE SLAB OR WALKWAY UNTIL THE TOP SLAB OR WALKWAY HAS BEEN PLACED IN ITS ENTIRETY AND ALL CONCRETE HAS REACHED THE SPECIFIED DESIGN STRENGTH.
- 4. THE FOLLOWING NET ALLOWABLE BEARING PRESSURES WERE UTILIZED IN THE DESIGN OF THE FOUNDATIONS.
MAT FOUNDATIONS 1000 PSF

SPECIAL INSPECTIONS


- 1. THRESHOLD INSPECTIONS ARE NOT REQUIRED FOR THIS PROJECT.

DELEGATED DESIGN

- 1. THE FOLLOWING ITEMS ARE IDENTIFIED IN THE DRAWINGS AND SPECIFICATIONS AS BEING DESIGNED AND SEALED BY OTHERS. SUBMITTALS FOR THESE ITEMS SHALL BE PREPARED BY THE SUPPLIERS AND SUBMITTED TO ENGINEER AND CODE OFFICIAL FOR REVIEW.
SECTION 05550 - EQUIPMENT ANCHORAGE

SEPT 2022	100% SUBMITTAL	REVISIONS AND RECORD OF ISSUE	NO. BY CK APP
FEB 2020	90% SUBMITTAL		
OCT 2019	50% SUBMITTAL		
DATE			
60-3071 - M.L.S. 27-A			
S-01.dwg			
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USER: DUT48884			
			DWG. VER: 1000

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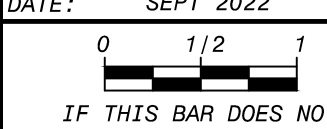


BLACK & VEATCH
Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd, Suite 125
Tampa, Florida
Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENT AT
MASTER LIFT STATION LAKEWOOD RANCH

STRUCTURAL
GENERAL NOTES

DESIGNED: JCG
DETAILED: BPT
CHECKED: RAZ
APPROVED: JCG
DATE: SEPT 2022

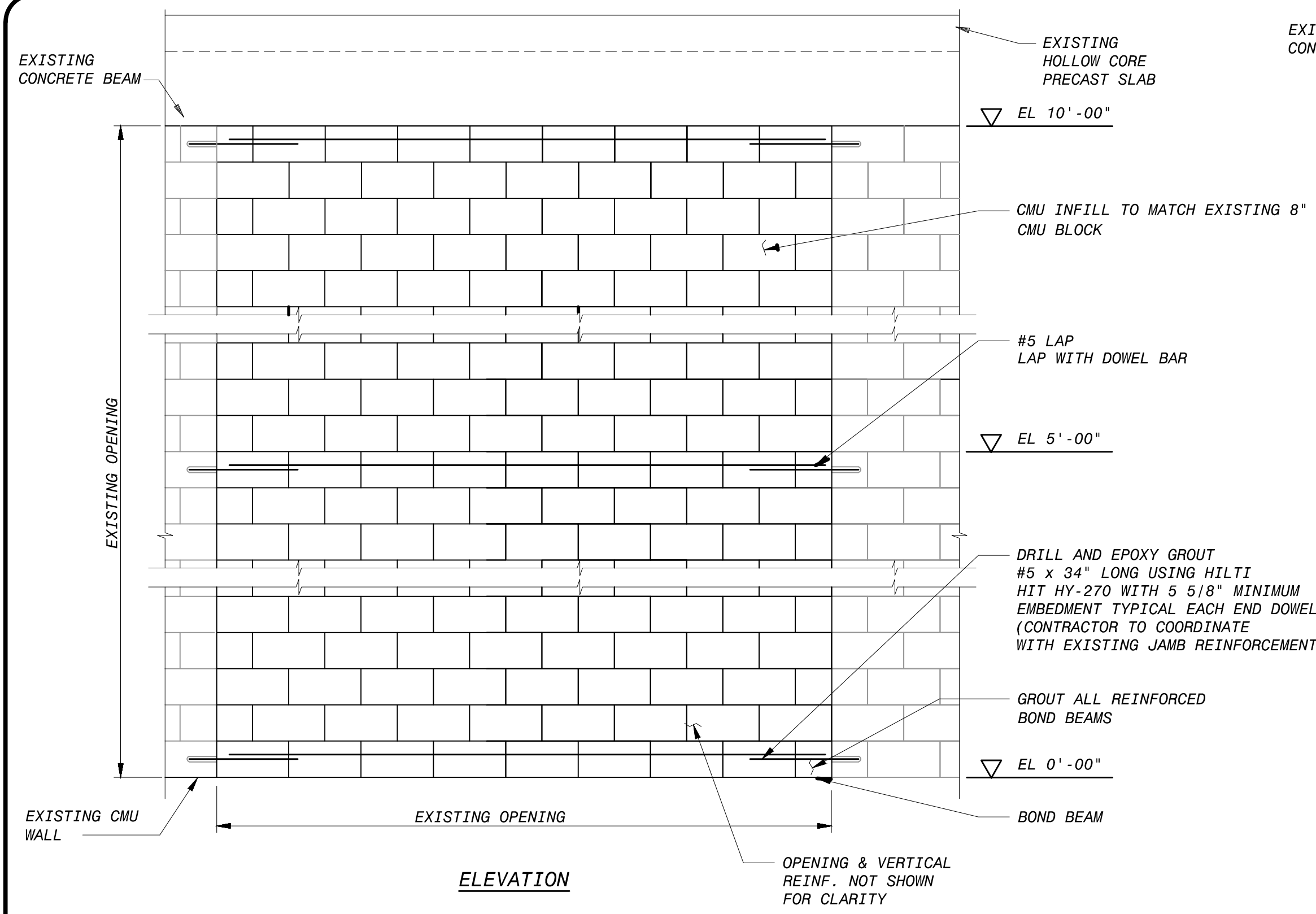


IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

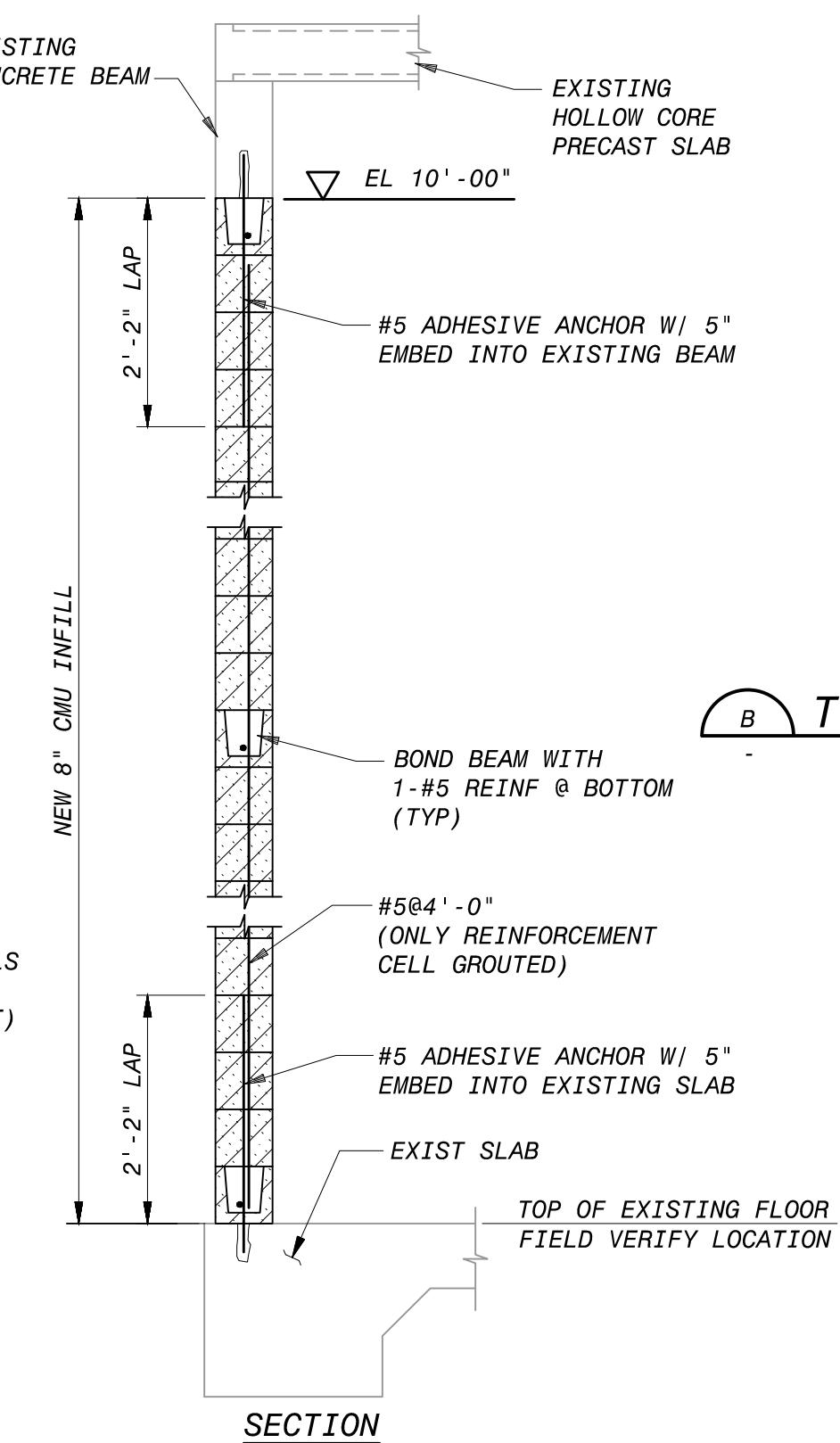
PROJECT NO.
402142

S-01
SHEET
14 OF 43

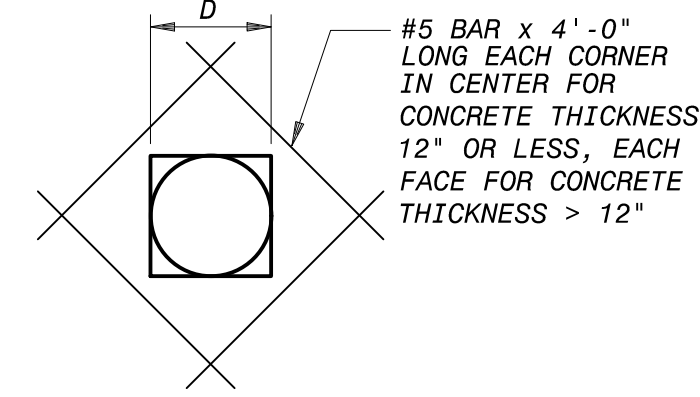
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ELEVATION

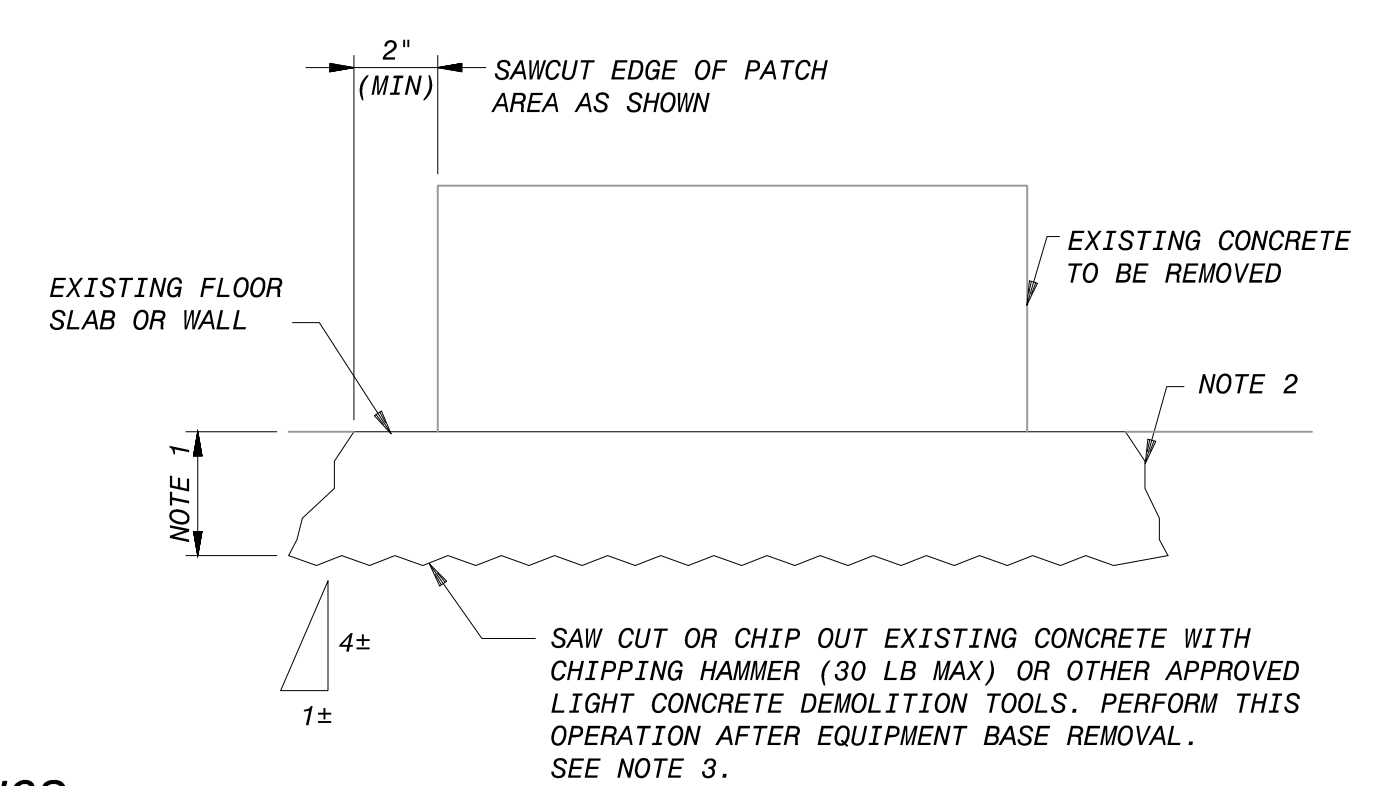


SECTION



FOR OPENINGS
12" ≤ D ≤ 21"

TYPICAL EXTRA REINFORCING AT OPENINGS
(TYPICAL REQUIRED UNLESS ADDITIONAL REINFORCEMENT SPECIFICALLY INDICATED AT OPENINGS ON DRAWINGS)



- NOTE:
- DEPTH OF CONCRETE SAW CUTTING SHALL BE A MINIMUM OF 2" BUT SHALL NOT EXCEED THE DEPTH OF CONCRETE COVER ABOVE THE EXISTING SLAB REINF. DO NOT CUT EXISTING HORIZONTAL REINFORCING STEEL.
 - PATCHING MATERIAL FOR CHIPPED OUT ARE SHALL BE A RAPID SET HIGH STRENGTH PATCHING GROUT OR CONCRETE (f'c = 4,000 PSI MIN) INSTALLED AND CURED PER MANUFACTURERS BY MASTER BUILDERS, FIVE STAR HALLEMITE (PORROK), FOSROC OR APPROVED EQUAL.
 - CARE SHALL BE TAKEN BY CONTRACTOR TO AVOID DAMAGING CONCRETE SUBSTRATE DURING CHIPPING OPERATION.

TYPICAL REPAIR OF FLOOR SLAB SURFACES BELOW DEMOLISHED EQUIPMENT BASES AND ITEMS WHERE FLOOR WILL REMAIN EXPOSED

NO SCALE

CMU INFILL DETAIL
S-03 NO SCALE

LINTEL AND JAMB SCHEDULE

BUILDING	WALL	LINTEL				JAMB			REMARKS
		CLEAR SPAN	DEPTH	REINFORCEMENT TOP	REINFORCEMENT BOTTOM	OPENING SIZE	WIDTH	REINFORCEMENT PER CELL	
CLIMATE CONTROLLED ELECTRICAL ROOM	NORTH	0'-0" TO 2'-0"	8"	-	1-#5	2'-0"	8"	2-#4 (EACH FACE)	HVAC DUCTS THROUGH NEW INFILL WALL

LENGTH OF LAP SPLICES FOR REINFORCEMENT (INCHES) IN CMU
(f'c = 2500 PSI, IBC 2012, 2015 & 2018)

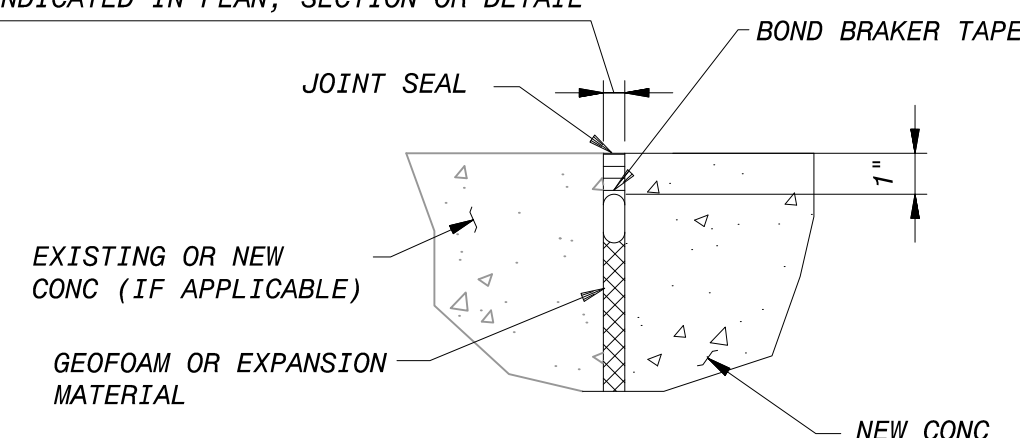
BAR SIZE	8" CMU		12" CMU	
	SINGLE REINF	DOUBLE REINF	SINGLE REINF	DOUBLE REINF
4	12	20	12	17
5	18	32	12	27

1. NON-CONTACT LAP SPLICES SHALL NOT BE USED.

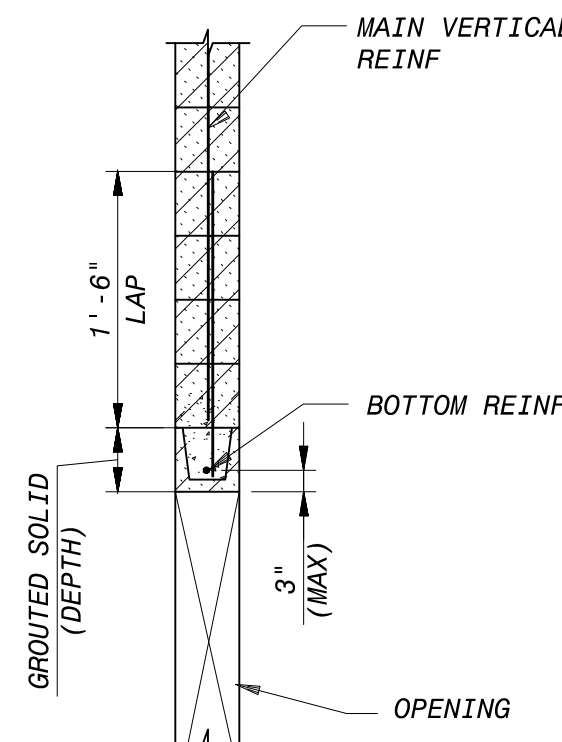
LENGTH OF LAPPED SPLICES FOR REINFORCEMENT (INCHES) IN CONCRETE (f'c=4000 PSI) (UNLESS NOTED OTHERWISE ON THE DRAWINGS)					CONCRETE COVER FOR REINFORCEMENT		
BAR SIZE *	BEAMS & COLUMNS		WALLS & SLABS		BAR SIZE	LOCATION	MINIMUM COVER
	**TOP BARS	OTHERS	**TOP BARS	OTHERS			
3	16	16	16	16	3	UNFORMED SURFACES ADJACENT TO EXCAVATION	3"
4	19	16	19	16	4	SURFACES INSIDE OF OZONE CONTACTORS EXPOSED TO OZONE IN WATER OR AIR	3"
5	24	18	24	18	5	TOP SURFACES OF SLABS THAT ARE SUBMERGED	3"
6	33	26	29	22	6	FORMED SURFACES THAT ARE SUBMERGED, AND FORMED OR TOP SURFACES EXPOSED TO WEATHER, SATURATED AIR, OR EARTH.	2"
7	55	42	48	37	7		
8	69	53	60	46	8		
9	84	65	74	57	9	OTHER LOCATIONS: BEAMS OR GIRDERS	1 1/2"
10	103	79	91	70	10	SLABS, WALLS AND JOISTS	1 1/2"
11	122	94	108	83	11	#6 AND LARGER	1"
						#5 AND SMALLER	1"

NOTES:
1. COVER IS MEASURED TO NEAREST BAR, STIRRUP, TIE, OR SPIRAL, AS APPLICABLE.
2. TOLERANCES FOR CONCRETE COVER AND THE FABRICATION AND PLACING OF REINFORCEMENT SHALL CONFORM TO ACI 117.

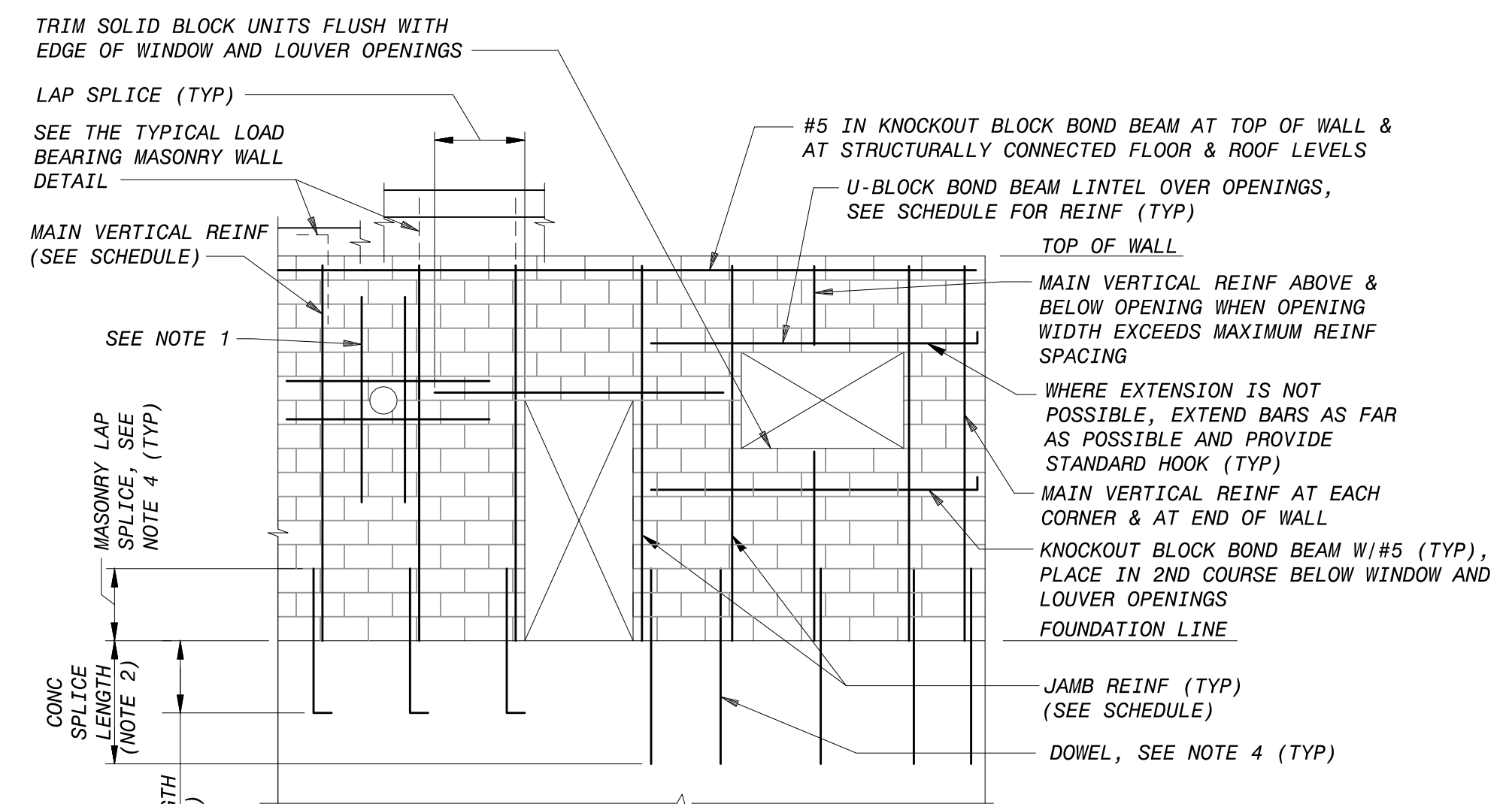
AS INDICATED IN PLAN, SECTION OR DETAIL



EXPANSION JOINT
NO SCALE



TYPICAL LINTEL
NO SCALE



NOTES:

- EXTEND JAMB BARS FULL WALL HEIGHT WHERE OPENING WIDTH EXCEEDS 1'-4", OTHERWISE, EXTEND ONE SPLICE LENGTH OR 2'-0" MIN PAST OPENINGS.
- SEE STANDARD CONCRETE REINFORCING DETAILS FOR SPLICE LENGTH IN CONCRETE.
- MINIMUM HOOK EMBEDMENT SHALL BE 10" FOR #6 AND SMALLER BARS, 12" FOR #7 BARS AND 14" FOR #8 BARS. STRAIGHT BARS MAY BE USED IN LIEU OF HOOKS IF ADEQUATE CONCRETE THICKNESS IS AVAILABLE.
- AT EACH VERTICALLY REINFORCED CELL, PROVIDE A SINGLE DOWEL CENTERED IN THE CMU WALL, UNO. LAP SPLICE LENGTH FOR DOWEL SHALL BE BASED ON A SINGLE REINF WALL, EVEN IF JAMB OR MAIN VERTICAL REINF IS DOUBLE CURTAIN. DOWEL BAR SIZE SHALL MATCH SIZE OF JAMB OR MAIN VERTICAL REINF.

TYPICAL MASONRY REINFORCING ELEVATION
NO SCALE

DATE	DESCRIPTION	BY	CHK	APP
SEPT 2022	100% SUBMITTAL	JCG	IMT	
FEB 2020	90% SUBMITTAL	JCG	BAZ	JCG
OCT 2019	50% SUBMITTAL	JCG	BAZ	JCG
	REVIEWS AND RECORD OF ISSUE			

60-3071 - M.S. 27-A
S-02.dwg
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PLOTTED: DUT48884, 9/15/2022 8:03:41 PM
USER: DUT48884
CWE: VER-1000

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY JCG ON 09/16/2022 AND SEALED BY JULIE GLOSS, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 98822

Manatee County
BLACK & VEATCH
Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd, Suite 125
Tampa, Florida
Certificate No. 8132

MANATEE COUNTY FLORIDA
IMPROVEMENT AT
MASTER LIFT STATION LAKEWOOD RANCH
STRUCTURAL CONCRETE REINFORCEMENT AND CMU DETAIL

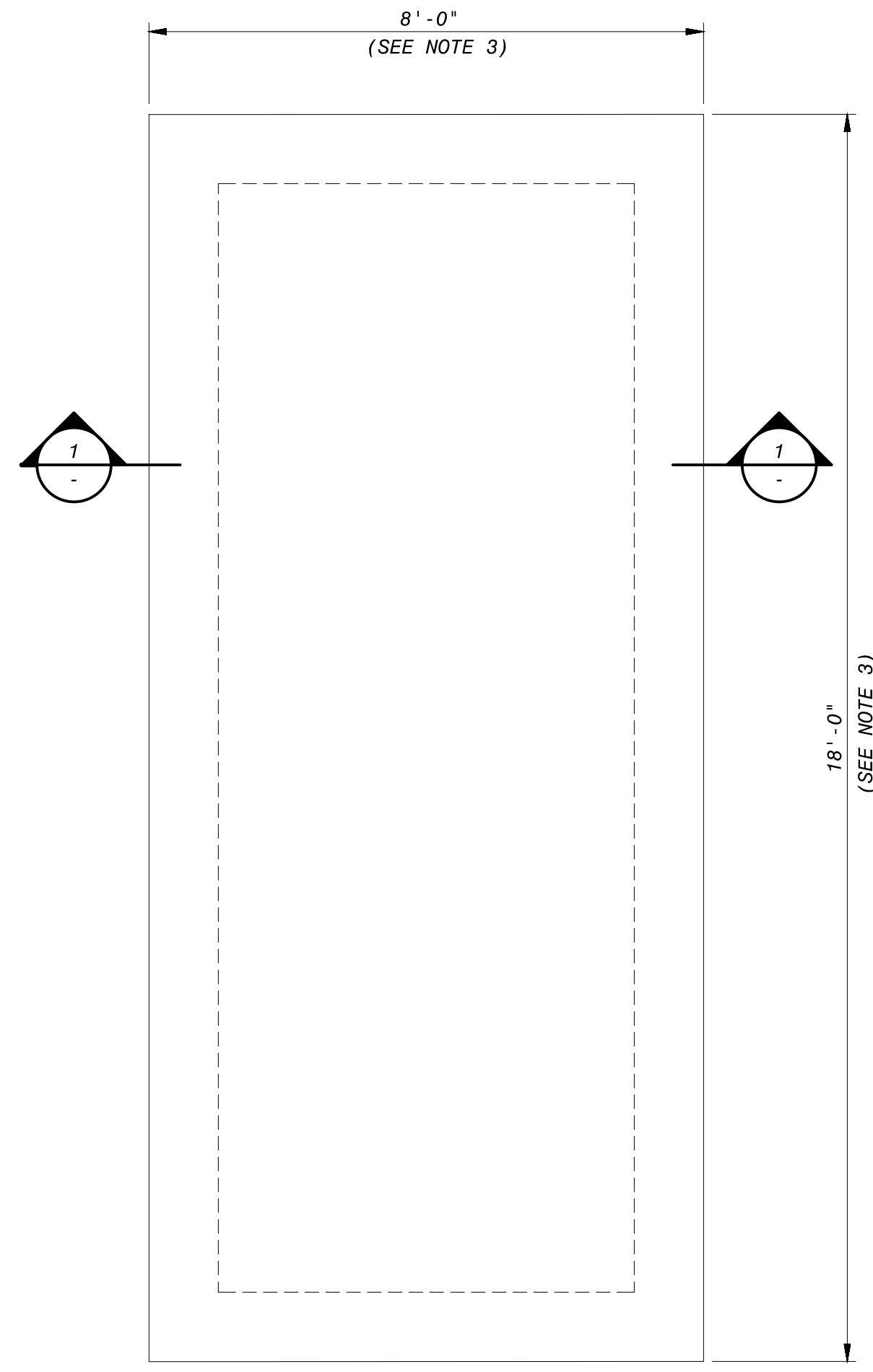
DESIGNED: JCG
DETAILED: BPT
CHECKED: RAZ
APPROVED: JCG
DATE: SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

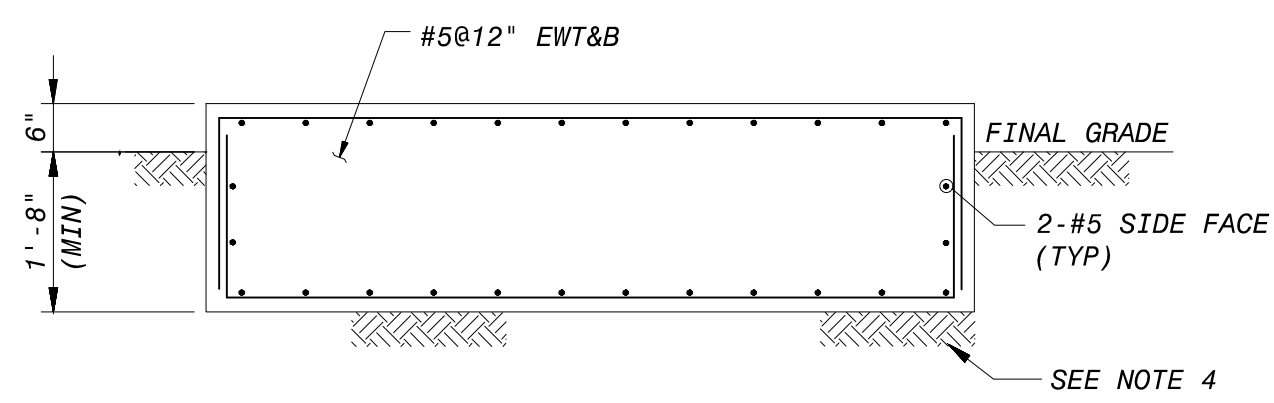
PROJECT NO.
402142

S-02
SHEET
15 OF 43

ISSUED FOR CONSTRUCTION

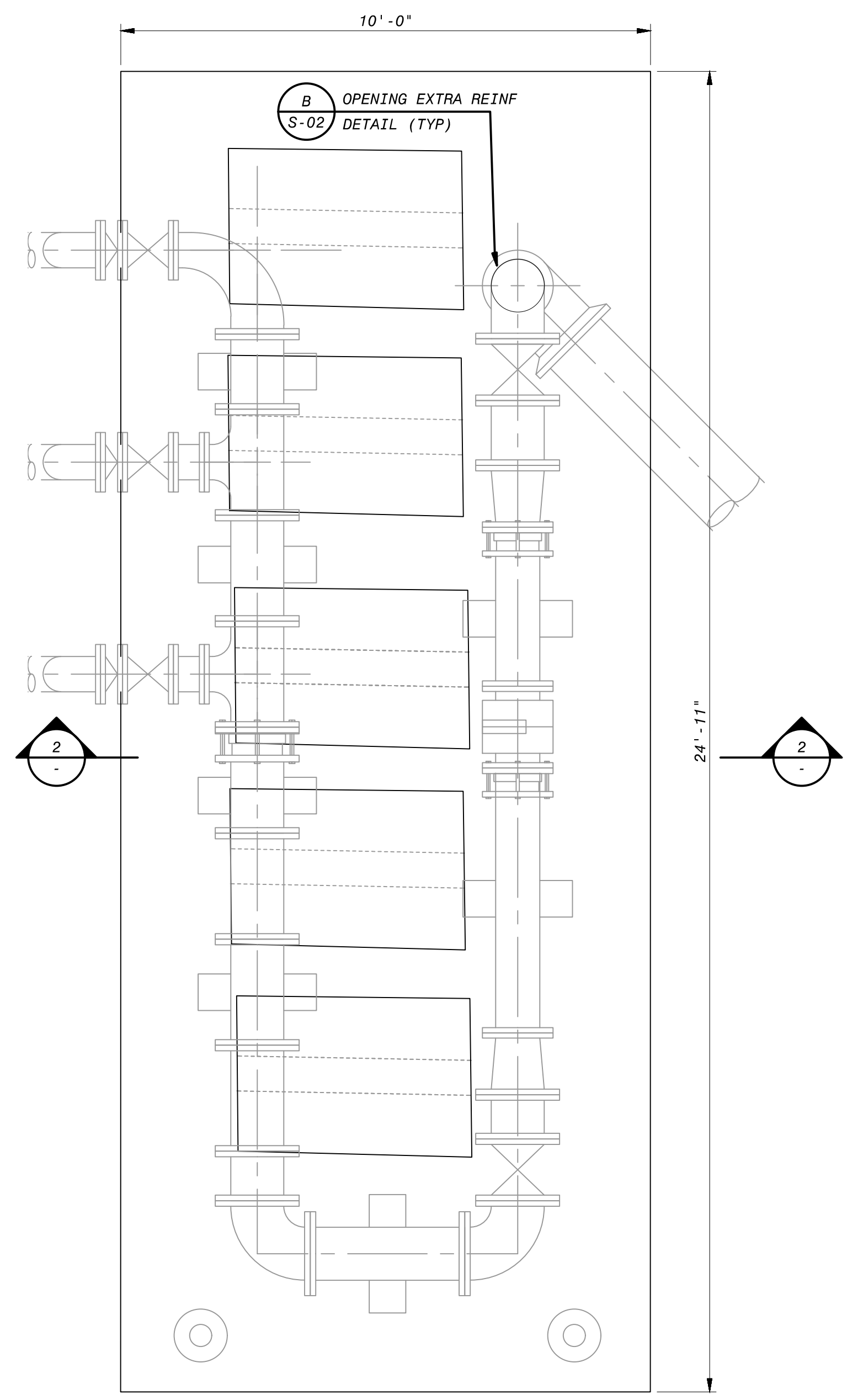


GENERATOR FOUNDATION PLAN
1/2" = 1'-0"

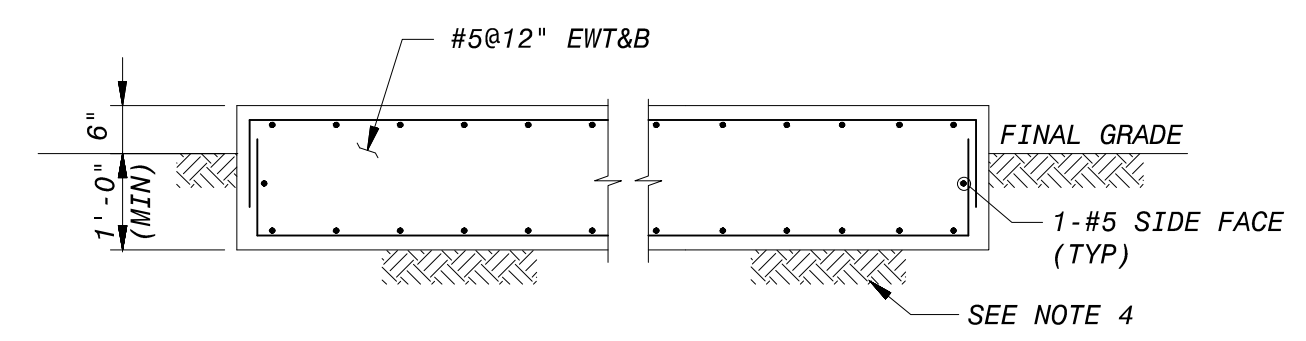


SECTION 1
1/2" = 1'-0"

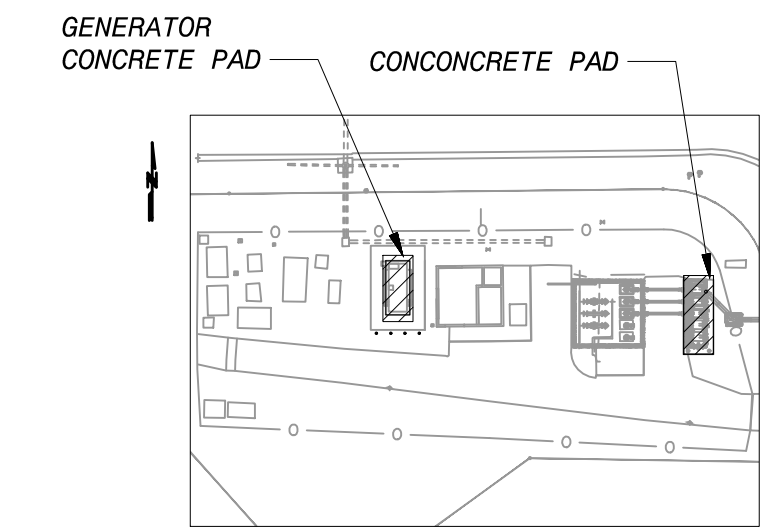
- NOTES:**
- SEE CIVIL SITE PLAN FOR PAD LOCATIONS.
 - FOR GENERAL NOTES AND STANDARD DETAILS, SEE S-01 AND S-02.
 - CONTRACTOR SHALL COORDINATE SIZE AND LOCATION OF EQUIPMENT FOUNDATIONS WITH EQUIPMENT FURNISHED. CONTRACTOR SHALL MAINTAIN EDGE DISTANCE FOR EQUIPMENT ANCHORS PER EQUIPMENT SUPPLIER BUT NOT LESS THAN 12".
 - REMOVE UNSUITABLE SOIL AND REPLACE WITH SELECT FILL.



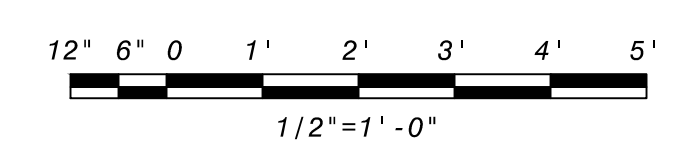
NEW CONCRETE PAD
1/2" = 1'-0"



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



KEY PLAN
NO SCALE



SEPT 2022	100% SUBMITTAL	C	AD	JCG	INT
FEB 2020	90% SUBMITTAL	B	JCG	PAZ	JCG
OCT 2019	50% SUBMITTAL	A	JCG	PAZ	JCG
DATE	REVISED AND RECORD OF ISSUE	NO.	BY	CHK	APP
60-3040 - General Drawings	S-04.dwg				
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PLOTTED: DUT48884, 9/19/2022 7:24:43 PM XREF2:					
USER: DUT48884 DWS: VER: 1000 XREF3:					
XREF4:					

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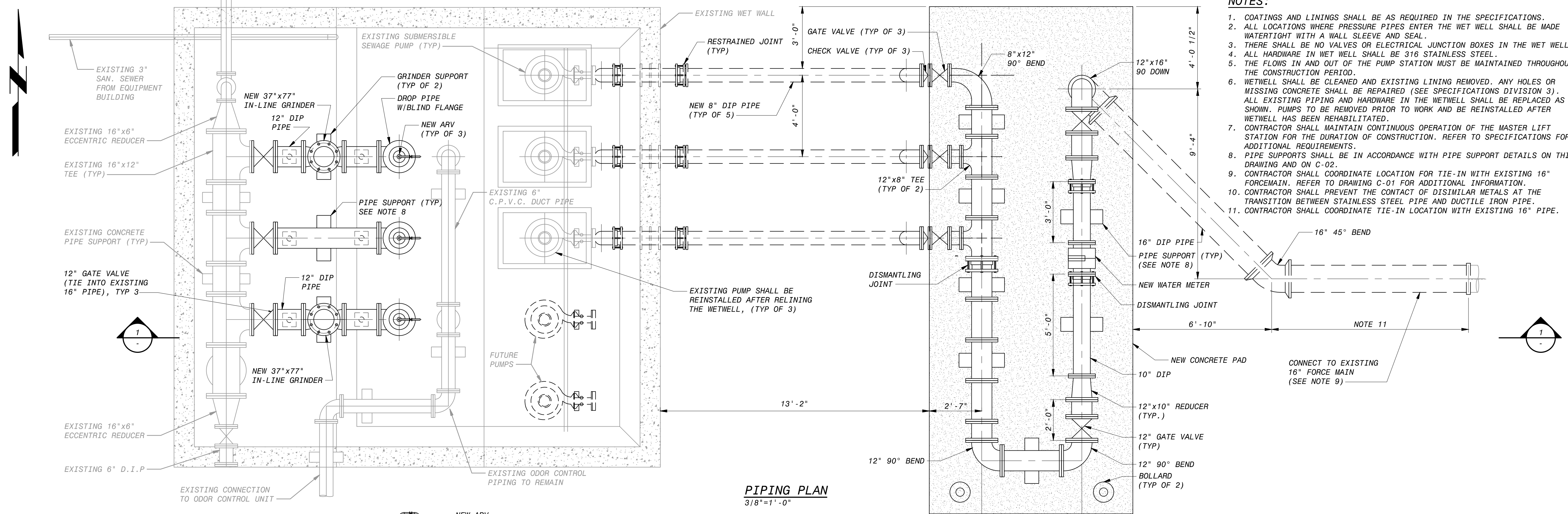
MANATEE COUNTY FLORIDA
IMPROVEMENT AT
MASTER LIFT STATION LAKEWOOD RANCH
STRUCTURAL
FUEL TANK AND GENERATOR FOUNDATION
PLAN AND SECTIONS

DESIGNED: JCG
DETAILED: BPT
CHECKED: RAZ
APPROVED: JCG
DATE: SEPT 2022

PROJECT NO.
402142

S-04
SHEET
17 OF 43

ISSUED FOR CONSTRUCTION



PIPING PLAN
3/8"=1'-0"

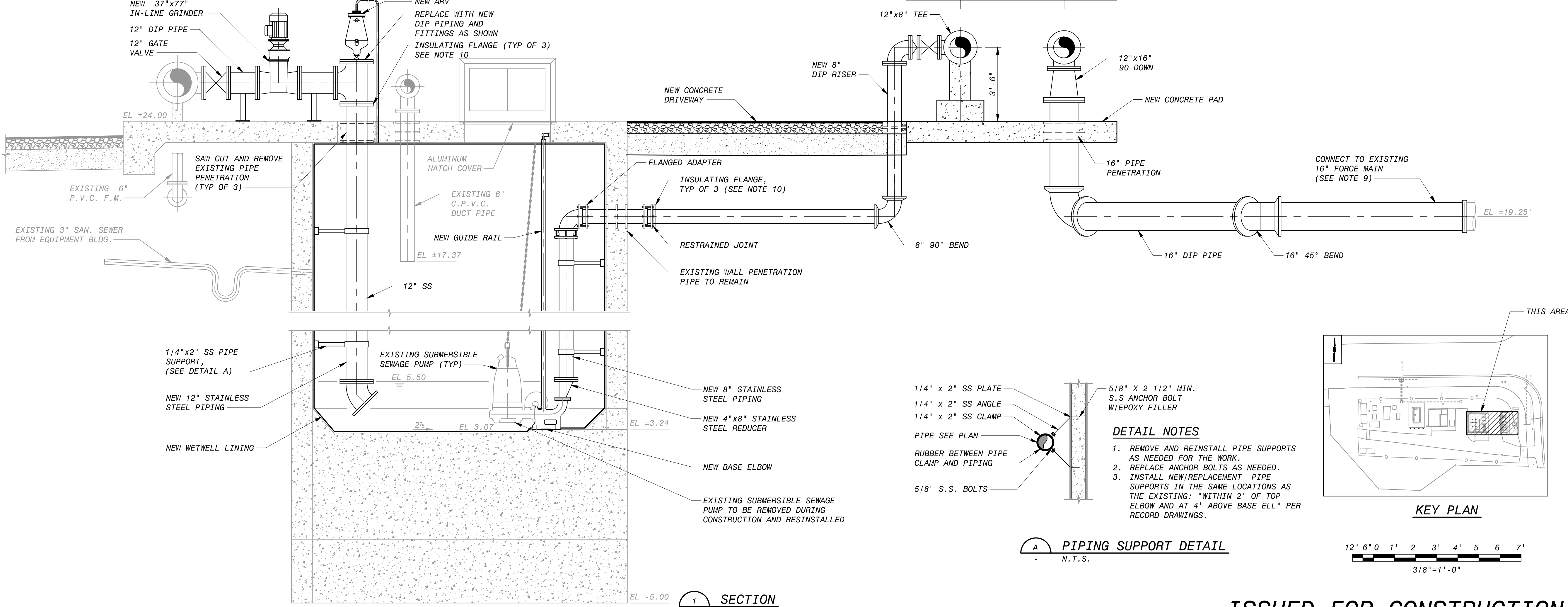
- NOTES:**
1. COATINGS AND LININGS SHALL BE AS REQUIRED IN THE SPECIFICATIONS.
 2. ALL LOCATIONS WHERE PRESSURE PIPES ENTER THE WET WELL SHALL BE MADE WATERTIGHT WITH A WALL SLEEVE AND SEAL.
 3. THERE SHALL BE NO VALVES OR ELECTRICAL JUNCTION BOXES IN THE WET WELL.
 4. ALL HARDWARE IN WET WELL SHALL BE 316 STAINLESS STEEL.
 5. THE FLOWS IN AND OUT OF THE PUMP STATION MUST BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
 6. WETWELL SHALL BE CLEANED AND EXISTING LINING REMOVED. ANY HOLES OR MISSING CONCRETE SHALL BE REPAIRED (SEE SPECIFICATIONS DIVISION 3). ALL EXISTING PIPING AND HARDWARE IN THE WETWELL SHALL BE REPLACED AS SHOWN. PUMPS TO BE REMOVED PRIOR TO WORK AND BE REINSTALLED AFTER WETWELL HAS BEEN REHABILITATED.
 7. CONTRACTOR SHALL MAINTAIN CONTINUOUS OPERATION OF THE MASTER LIFT STATION FOR THE DURATION OF CONSTRUCTION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 8. PIPE SUPPORTS SHALL BE IN ACCORDANCE WITH PIPE SUPPORT DETAILS ON THIS DRAWING AND ON C-02.
 9. CONTRACTOR SHALL COORDINATE LOCATION FOR TIE-IN WITH EXISTING 16" FORCEMAIN. REFER TO DRAWING C-01 FOR ADDITIONAL INFORMATION.
 10. CONTRACTOR SHALL PREVENT THE CONTACT OF DISSIMILAR METALS AT THE TRANSITION BETWEEN STAINLESS STEEL PIPE AND DUCTILE IRON PIPE.
 11. CONTRACTOR SHALL COORDINATE TIE-IN LOCATION WITH EXISTING 16" PIPE.

SEPT 2022	100% SUBMITTAL	DATE	60-3083 - M.L.S. Lakewood Ranch	REVISED AND RECORD OF ISSUE	NO. BY CK APP
FEB 2020	90% SUBMITTAL	DATE	M-01.dwg	REVISED	NO. BY CK APP
OCT 2019	50% SUBMITTAL	DATE	M-01.dwg	REVISED	NO. BY CK APP
THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY MICHAEL N. TACHE, P.E., ON 09/16/2020 AND SEALED BY MICHAEL N. TACHE, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 83893			XREF1: XREF2: XREF3: XREF4:		

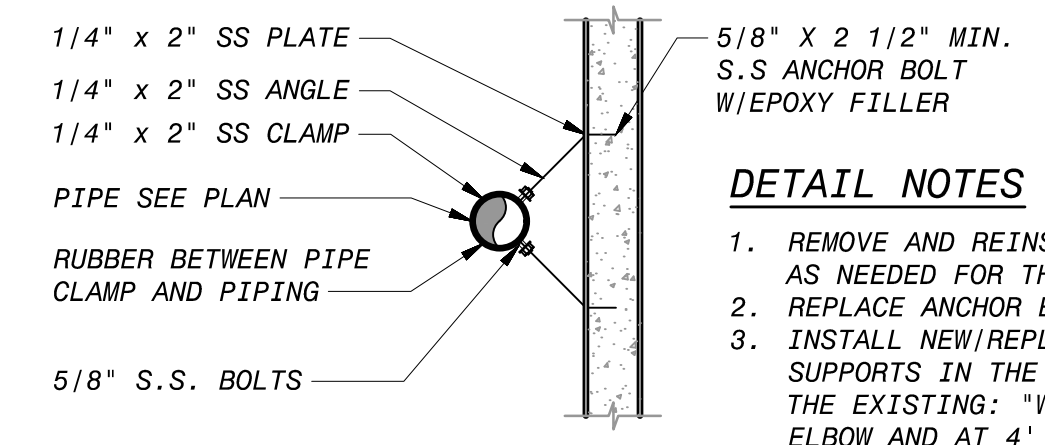
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MANATEE COUNTY FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
MECHANICAL PIPING PLAN AND SECTIONS

DESIGNED: NE	DATE: SEPT 2022
DETAILED: HT	
CHECKED: AW	
APPROVED: MNT	
PROJECT NO. 402142	
M-01 SHEET 18 OF 43	



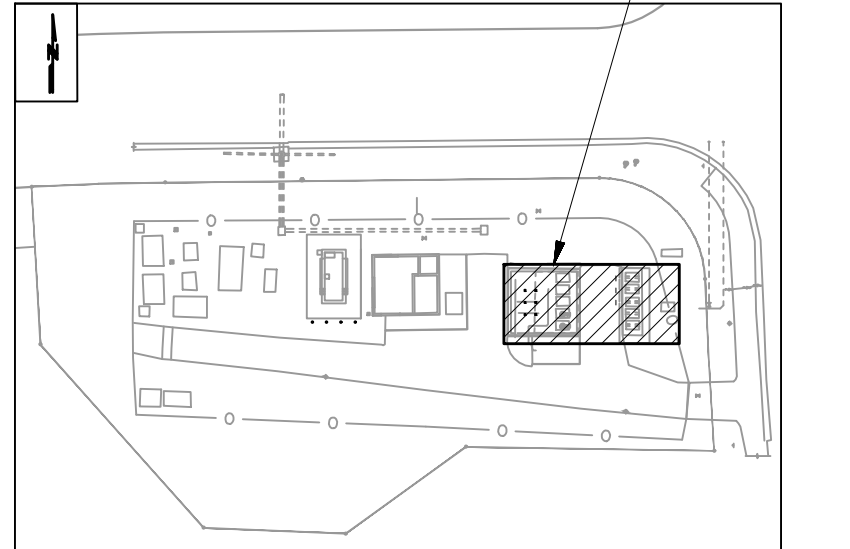
SECTION 1
3/8"=1'-0"



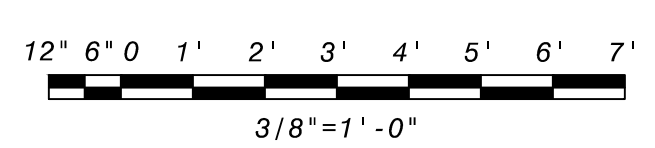
DETAIL NOTES

1. REMOVE AND REINSTALL PIPE SUPPORTS AS NEEDED FOR THE WORK.
2. REPLACE ANCHOR BOLTS AS NEEDED.
3. INSTALL NEW/REPLACEMENT PIPE SUPPORTS IN THE SAME LOCATIONS AS THE EXISTING: "WITHIN 2' OF TOP ELBOW AND AT 4' ABOVE BASE ELL" PER RECORD DRAWINGS.

PIPING SUPPORT DETAIL
N.T.S.



KEY PLAN



ISSUED FOR CONSTRUCTION

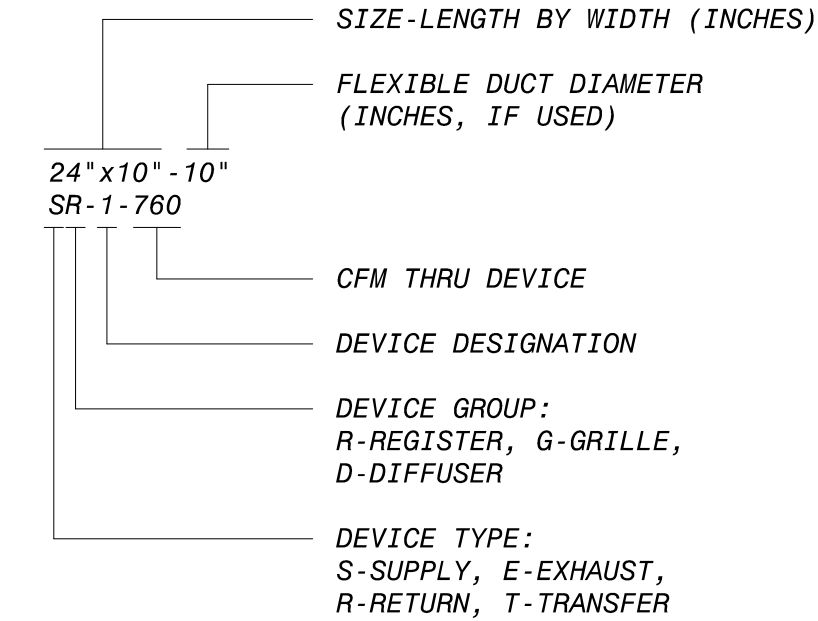
ABBREVIATIONS

A	ALARM, COMPRESSED AIR OUTLET	CH	CONVECTION HEATER	EVS	EMERGENCY VENTILATION SWITCH	HR	HEAT RECOVERY UNIT, HOUR,	OCSD	ODOR CONTROL SHUTOFF DAMPER	SRP	SCRUBBER RECIRCULATION PUMP
AC	AIR COMPRESSOR	C/L	CENTERLINE	EWC	ELECTRIC WATER COOLER	HOSE	HOSE REEL	OD	OUTSIDE DIAMETER	SS	STAINLESS STEEL
AD	ACCESS DOOR, AIR DRYER	CO	CLEANOUT	EWI	ELECTRIC WATER HEATER	HUH	HEATING WATER UNIT HEATER	ORD	OVERFLOW ROOF DRAIN	SSK	SERVICE SINK
AF	AIR FLOW, AIRFOIL	CONC	CONCRETE	EWI	ENTERING WATER TEMPERATURE	HUM	HUMIDIFIER	ORP	OXIDATION REDUCTION POTENTIAL	SSP	SUBMERSIBLE SUMP PUMP
AFD	ADJUSTABLE FREQUENCY DRIVE	CONN	CONNECTION	EXIST	EXISTING	HV	HOSE VALVE	P	PNEUMATIC	STD	STANDARD
AFV	ADJUSTABLE FREQUENCY DRIVE	CONT	CONTINUATION	F	DEGREES FAHRENHEIT	HWB	HEATING WATER BOILER	PD	PRESSURE DROP (INCHES OF WATER FOR AIR, FEET OF WATER FOR FLUIDS)	SV	SERVICE VALVE, SHUTOFF VALVE, SUPPLY VALVE, SOLENOID VALVE
AFM	AIR FLOW MONITOR	CP	CIRCULATING PUMP	FA	FOUL AIR	HWP	HEATING WATER PUMP	PAC	PACKAGED AIR CONDITIONING UNIT	TCP	TEMPERATURE CONTROL PANEL
AHU	AIR HANDLING UNIT	CS	CUP SINK	FBD	FACE AND BYPASS DAMPER	HZ	HERTZ	PAH	PACKAGED AIR HANDLING UNIT	TCV	TEMPERATURE CONTROL VALVE
ALUM	ALUMINUM	CT	COOLING TOWER	FC	FORWARD CURVE, FAN COIL	I	INTAKE	PDI	PLUMBING AND DRAINAGE INSTITUTE	TD	TRENCH DRAIN
AP	ACCESS PANEL	CU	CONDENSING UNIT	FOO	FLOOR CLEANOUT	ID	INSIDE DIAMETER	PDS	PRESSURE DIFFERENTIAL SWITCH	TE	TEMPERATURE ELEMENT
APPROX	APPROXIMATE	CV	CHECK VALVE, CONTROL VALVE	FD	FIRE DAMPER, FLOOR DRAIN	IN	INCHES	PF	PROPPELLER FAN	TL	TOP LEVEL
AR	AIR RECEIVER	CWP	CHILLED WATER PUMP	FDB	DEGREES FAHRENHEIT DRY BULB	INV	INVERT	PHP	PACKAGED HEAT PUMP	TP	TRAP PRIMER
AS	AIR SEPARATOR	CWW	CLEAR WATER WASTE	FEF	FUME EXHAUST FAN	JS	JANITOR'S SINK	PL	PLATE	TS	TIP SPEED, TAMPER SWITCH
ATU	AIR TERMINAL UNIT	D	DIRECT DRIVE, DRAW-THRU DRY BULB	FLEX	FLEXIBLE	KS	KITCHEN SINK	POS	POSITION	TYP	TYPICAL
AUTO	AUTOMATIC	DB	DRY BULB	FM	FEET PER MINUTE	L	LINED DUCT, LOUVER	PPM	PARTS PER MILLION	UR	URINAL
AVG	AVERAGE	DDC	DIRECT DIGITAL CONTROL	FRM	FUNNEL RECEPTOR	LAT	LEAVING AIR TEMPERATURE	PROP	PROPELLER	V	VERTICAL
AVS	AUTOMATIC VALVE STATION	DEH	DEHUMIDIFIER	FRP	FIBERGLASS REINFORCED PLASTIC	LAV	LAVATORY	PRS	PRESSURE REDUCING STATION	VAC	VACUUM OUTLET
B	BELT DRIVE, BLOW THROUGH	DF	DRINKING FOUNTAIN, DUCT FAN	FRP	FIBERGLASS REINFORCED PLASTIC	LBS	POUNDS	PRV	POWER ROOF VENTILATOR, PRESSURE REDUCING VALVE	VANE	VANEAXIAL
BDD	BACKDRAFT DAMPER	DIA	DIAMETER	FUR	FURNACE	LD	COMBINATION LOUVER/DAMPER	PS	PRESSURE SWITCH	VAV	VARIABLE AIR VOLUME
BL	BLIND FLANGE	DM	DUCT MOUNTED	FS	FLOOR SINK, FLOW SWITCH	LI	LEVEL INDICATOR	PSIA	POUNDS PER SQUARE INCH ABSOLUTE	VB	VACUUM BREAKER
BFF	BELOW FINISH FLOOR	DN	DOWN	FSD	COMBINATION FIRE/SMOKE DAMPER	LS	LABORATORY SINK, LEVEL SWITCH	PSIG	POUNDS PER SQUARE INCH GAUGE	VCD	VOLUME CONTROL DAMPER
BFP	BACKFLOW PREVENTER	DSN	DOWNSPOUT NOZZLE	FSW	FILTER SURFACE WASH	LWT	LEAVING WATER TEMPERATURE	PSIA	POUNDS PER SQUARE INCH ABSOLUTE	VF	VANEAXIAL FAN
BH	BASEBOARD HEATER	DX	DIRECT EXPANSION	FT	FEET, FIN TUBE HEATER, FLOW TUBE	MAU	MAKEUP AIR UNIT	PSIG	POUNDS PER SQUARE INCH GAUGE	VP	VACUUM PUMP
BI	BACKWARD INCLINED, BUILT-IN THERMOSTAT	E	ELECTRIC, ELECTRIC OPERATOR, EXHAUST	FUR	FURNACE	MAX	MAXIMUM	PTAC	PACKAGED TERMINAL AIR CONDITIONER	VSP	VERTICAL COLUMN SUMP PUMP
BL	BOTTOM LEVEL	EA	EACH, EXHAUST AIR	FWB	DEGREES FAHRENHEIT WET BULB	MCA	MINIMUM CIRCUIT AMPS	RA	REACTIVATION AIR, RETURN AIR	VTR	VENT THRU ROOF
BLDG	BUILDING	EAT	ENTERING AIR TEMPERATURE	G	GAS	ME	MIST ELIMINATOR	RAC	ROOM AIR CONDITIONER	WB	WET BULB
BLR	BLOWER	EC	ECONOMIZER, EVAPORATIVE COOLER	GA	GAS	MFR	MANUFACTURER	RCS	REMOTE CONTROL STATION	WB	WATER BOOSTER PUMP
BOD	BOTTOM OF DUCT ELEVATION	ECH	ELECTRIC CABINET HEATER	GALV	GALVANIZED	MOC	MAXIMUM OVERCURRENT PROTECTION	RD	ROOF DRAIN	WC	WATER CHILLER, WATER CLOSET
BOT	BOTTOM	ECP	EQUIPMENT CONTROL PANEL	GD	GARBAGE DISPOSER	MIN	MINIMUM	REQD	REQUIRED	W	WATER COLUMN
BT	BIOTRICKLING FILTER	EDH	ELECTRIC DUCT HEATER	GTH	GAS INFRARED HEATER	MOD	MODULATING	RH	RELATIVE HUMIDITY, ROOF HOOD	WCO	WALL CLEANOUT
BTUH	BRITISH THERMAL UNITS PER HOUR	EEW	EMERGENCY EYE WASH	GPM	GALLONS PER MINUTE	MS	MOP SINK	RSF	ROOF SUPPLY FAN	WF	WALL FAN
BU	BELL-UP	EF	EXHAUST FAN	GUH	GAS UNIT HEATER	NC	NORMALLY CLOSED	SA	SUPPLY AIR	WG	WATER GAUGE
BV	BALL VALVE	EFF	EFFICIENCY	GV	GATE VALVE	NO	NORMALLY OPEN, NUMBER	SCD	SMOKE CONTROL DAMPER	WH	WALL HEATER, WALL HYDRANT
CV	CHANNEL, CONVECTOR, COOLING, COOLING (MAKE ON RISE)	EGS	EMERGENCY GAS SCRUBBER	GW	GLASS WASHER	NPSHR	NET POSITIVE SUCTION HEAD REQUIRED	SCFM	STANDARD CUBIC FEET PER MINUTE	WHA	WATER HAMMER ARRESTOR
CAU	CARBON ADSORPTION UNIT	EIH	ELECTRIC INFRARED HEATER	GWH	GAS WATER HEATER	NT	NEUTRALIZATION TANK	SCP	SCRUBBER CONTROL PANEL	WM	WALL MOUNTED
CB	CENTRIFUGAL BLOWER	EL	ELEVATION	H	HAND OPERATOR, HEATING, HEATING (MAKE ON FALL), HEIGHT, HORIZONTAL, HUMIDISTAT	OA	OUTSIDE AIR	SF	SQUARE FEET, SUPPLY FAN	WT	WEIGHT
CB	COUNTERBALANCE BACKDRAFT DAMPER	EP	EXPLOSION PROOF EQUIPMENT	ES	EQUIPMENT	OC	ODOR CONTROL	SH	SHEET SHOWER	WY	WATER CONTROL VALVE
CC	COOLING COIL	EQ	EQUIPMENT	ES	EMERGENCY SHOWER, EMERGENCY SWITCH	OCB	ODOR CONTROL BALANCE DAMPER	SIM	STIMULAP	ZD	ZONE DAMPER
CCU	CARBON CANISTER UNIT	ES/EW	EMERGENCY SHOWER AND EYEWASH	HC	HEATING COIL	OCF	ODOR CONTROL FAN	SMD	SMOKE DETECTOR		
CD	CONTROL DAMPER	ET	EXPANSION TANK	HE	HEAT EXCHANGER, HELIUM	OCFS	ODOR CONTROL FLOW SWITCH	SP	STATIC PRESSURE (INCHES OF WATER)		
CDWP	CONDENSER WATER PUMP	ESP	EXTERNAL STATIC PRESSURE	HF	HOSE FAUCET	OCLS	ODOR CONTROL LEVEL SWITCH	SPS	STATIC PRESSURE SENSOR		
CENTR	CENTRIFUGAL	ET	EXPANSION TANK	HO	HAND-OFF	OCP	ODOR CONTROL PANEL				
CF	CABINET FAN	EUH	ELECTRIC UNIT HEATER	HOA	HAND-OFF-AUTO	OCP	ODOR CONTROL PANEL				
CFM	CUBIC FEET PER MINUTE	EV	EXHAUST VALVE	HP	HEAT PUMP, HORSEPOWER	OCS	ODOR CONTROL SCRUBBER				

LEGEND

GENERAL	HVAC/ODOR CONTROL	PIPING SPECIALTIES	HVAC	CONTROLS AND INSTRUMENTATION
-----	---CWR---	---S---	□	⊙
PIPING ABOVE FLOOR OR GRADE	CHILLED WATER RETURN	AUTOMATIC VALVE STATION	DIFFUSER FOR FLEXIBLE DUCT	DIAL TYPE THERMOMETER
-----	---CWS---	---S---	□	⊙
PIPING BELOW FLOOR OR GRADE	CHILLED WATER SUPPLY	BASKET STRAINER	DUCTWORK DIMENSIONS, THE FIRST DIMENSION IS THE SIDE SEEN OR SIDE THE LEADER LINE TOUCHES. SEE GENERAL MECHANICAL NOTES.	DRAFT GAUGE
○-○	---C---	---S---	30"x20" (L)	⊙E
PIPE TURNING UP	CONDENSATE DRAIN	COMBINATION PUMP DISCHARGE VALVE	□	ELECTRIC OPERATOR (EXPLOSION PROOF)
○-○	---CDWR---	---S---	□	⊙EM
PIPE TURNING DOWN	CONDENSER WATER RETURN	---S---	□	ELECTRIC OPERATOR (MODULATING)
	---CDWS---	---S---	□	ELECTRIC OPERATOR (2 POSITION)
	---FA---	---S---	□	⊙EVS 1
	---HWR---	---S---	□	EMERGENCY VENTILATION SWITCH W/ NUMBER
	---HWS---	---S---	□	⊙FS
	---LPC---	---S---	□	FLOW SWITCH
	---LPS---	---S---	□	GAUGE ACTIVATOR/ISOLATOR
	---R---	---S---	□	⊙H1
	---SR---	---S---	□	HUMIDISTAT W/ NUMBER
	SCRUBBER RECIRCULATION	---S---	□	⊙I
		---S---	□	INSTRUMENT TEST OPENING
		---S---	□	⊙LS
		---S---	□	LEVEL SWITCH
		---S---	□	⊙PDS 1
		---S---	□	PRESSURE DIFFERENTIAL SWITCH W/ NUMBER
		---S---	□	⊙P
		---S---	□	PRESSURE GAUGE W/ SHUTOFF VALVE
		---S---	□	⊙PS
		---S---	□	PRESSURE SWITCH
		---S---	□	⊙SMD 1
		---S---	□	SMOKE DETECTOR W/ NUMBER
		---S---	□	⊙S
		---S---	□	SOLENOID OPERATOR
		---S---	□	⊙TS
		---S---	□	STEM TYPE THERMOMETER
		---S---	□	⊙T1
		---S---	□	TEMPERATURE SENSOR
		---S---	□	⊙V
		---S---	□	THERMOSTAT WITH NUMBER
		---S---	□	⊙V
		---S---	□	VACUUM GAUGE W/ SHUTOFF VALVE

AIR INLET AND OUTLET IDENTIFICATION



GENERAL MECHANICAL NOTES

- THIS IS GENERAL LEGEND AND ABBREVIATION SHEET FOR HVAC DRAWINGS. SOME ITEMS CONTAINED ON THIS SHEET MAY NOT BE USED ON THIS SPECIFIC PROJECT.
- ALL MECHANICAL HVAC WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING APPLICABLE CODES:
2017 FLORIDA BUILDING CODE
2017 FLORIDA ENERGY CONSERVATION CODE
2017 FLORIDA EXISTING BUILDING CODE
2017 FLORIDA MECHANICAL CODE
- FOR ROOFTOP EQUIPMENT CURBS, FLUES, AND FLASHING DETAILS, SEE ARCHITECTURAL DRAWINGS.
- SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR ALL EQUIPMENT BASE DETAILS.
- "SCREENED" DELINEATION DENOTES EXISTING AND NEW FACILITIES AND IS FOR REFERENCE ONLY. "LIGHT" LINE DELINEATION DENOTES EXISTING MECHANICAL EQUIPMENT AND SYSTEMS. EXISTING FACILITY AND MECHANICAL SYSTEMS INFORMATION WAS TAKEN FROM PREVIOUS DRAWINGS, CONSTRUCTION RECORDS, DATA, AND FIELD SURVEY INFORMATION. ACTUAL LOCATION, ARRANGEMENT, AND DIMENSIONS SHALL BE FIELD VERIFIED AND WORK INSTALLED TO MEET ACTUAL CONDITIONS AND LOCATIONS ENCOUNTERED. "BOLD" (DARK) DELINEATION IS NEW WORK TO BE CONSTRUCTED UNDER THIS CONTRACT.
- ALL MATERIALS, FITTINGS, COVERS, AND EQUIPMENT INSTALLED IN RETURN AIR PLENUMS SHALL BE NONCOMBUSTIBLE AND UL LISTED FOR USE IN RETURN AIR PLENUMS.
- ALL PIPE AND DUCT PENETRATIONS THROUGH FIRE RESISTANCE RATED ASSEMBLIES SHALL BE PROVIDED WITH FIRE STOP SYSTEMS, EQUIPMENT AND ACCESSORIES TO RESIST THE PASSAGE OF FIRE, SMOKE AND OTHER GASES. THE ORIGINAL FIRE RESISTANCE RATING OF THE ASSEMBLY PENETRATED SHALL BE MAINTAINED FOR ALL TYPES OF PENETRATIONS.
- METAL ROOF DECKING OR BOTTOM CHORD OF BAR JOISTS SHALL NOT BE USED FOR THE SUPPORT OF EQUIPMENT, PIPING, OR DUCTWORK.
- ALL HANGERS, BRACKETS, OR BRACES FOR DUCTWORK, EQUIPMENT, AND PIPING ARE NOT INDICATED ON THE DRAWINGS. REFER TO THE SPECIFICATIONS FOR SUPPORT REQUIREMENTS NOT SHOWN ON THE PLANS.
- OUTSIDE AIR INLETS SHALL BE LOCATED A MINIMUM OF 10' AWAY FROM ANY EXHAUST AIR OR PLUMBING VENT OUTLET.
- ALL EQUIPMENT, PIPING, AND DUCTWORK FINAL LOCATIONS SHALL BE COORDINATED TO AVOID INTERFERENCES WITH STRUCTURE, OTHER PIPING, EQUIPMENT, DUCTWORK, AND CONDUIT. UNLESS SPECIFICALLY DIMENSIONED, THE PIPE AND DUCTWORK ROUTING SHOWN IS INTENDED TO INDICATE GENERAL LOCATION ONLY. INSTALL DUCTWORK TO ALLOW FOR PIPING TO BE ROUTED AGAINST WALLS.
- ALL PIPING AND DUCTWORK SHALL BE ROUTED AS HIGH AS POSSIBLE WITH A MINIMUM HEIGHT OF 8'-0" ABOVE THE WALKING SURFACE UNLESS OTHERWISE INDICATED BY A CENTERLINE, INVERT, OR BOTTOM OF DUCT ELEVATION.
- DUCTWORK SHALL BE FABRICATED, REINFORCED, SUPPORTED AND SEALED FOR OPERATING PRESSURES INDICATED IN THE SCHEDULES FOR THE EQUIPMENT IT SERVES. ALL DUCTWORK SHALL HAVE A MINIMUM SMACNA PRESSURE CLASSIFICATION OF ONE INCH.
- DUCT SIZES INDICATED ARE CLEAR DIMENSIONS INSIDE THE DUCT OR DUCT LINING. SHEET METAL SIZES ARE LARGER FOR INTERNALLY LINED DUCTWORK.
- MINIMUM INSULATION THICKNESSES FOR DUCTWORK SHALL BE AS INDICATED IN THE SPECIFICATIONS UNLESS OTHERWISE INDICATED ON THE PLANS WITH A "L" OR "W" DESIGNATION. WHERE AN INSULATION THICKNESS IS INDICATED ON THE DRAWINGS, IT SHALL GOVERN. THE FOLLOWING DENOTES THE DIFFERENT INSULATION THICKNESSES INDICATED ON THE DRAWINGS:
L, L1 - 1 INCH INTERNALLY LINED W, W1 - 1 INCH EXTERNALLY WRAPPED
L15 - 1.5 INCH INTERNALLY LINED W15 - 1.5 INCH EXTERNALLY WRAPPED
L2 - 2 INCH INTERNALLY LINED W2 - 2 INCH EXTERNALLY WRAPPED
- DUCT CONNECTIONS TO EQUIPMENT, PIPING SIZES TO EQUIPMENT, AND EQUIPMENT SUPPORTS SHALL BE VERIFIED AND ADJUSTED TO MATCH ACTUAL EQUIPMENT FURNISHED.
- THE LOCATION OF PIPING AND VALVES TO THE AIR HANDLING EQUIPMENT SHALL NOT INTERFERE WITH FILTER REMOVAL OR AIR HANDLING EQUIPMENT SERVICING.
- SEISMIC RESTRAINTS/BRACING SHALL BE PROVIDED FOR ALL EQUIPMENT, DUCTWORK, PIPING AND ACCESSORIES IN ACCORDANCE WITH THE LATEST SMACNA SEISMIC RESTRAINT MANUAL AND LOCAL BUILDING CODES. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SEISMIC SUPPORTS AND ADDITIONAL MISCELLANEOUS STEEL REQUIRED FOR PROPER INSTALLATION OF SUPPORTS. SUPPORTS AND SEISMIC RESTRAINTS DESIGN SUBMITTALS SHALL BEAR THE STAMP AND SIGNATURE OF A LICENSED ENGINEER.
- INSULATION SHALL BE PROVIDED FOR EQUIPMENT, PIPING, AND DUCT SYSTEMS AS INDICATED IN THE SPECIFICATIONS.

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY MICHAELE BOOTH, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 82002

DATE: SEPT 2022

100% SUBMITTAL

90% SUBMITTAL

50% SUBMITTAL

DATE: SEPT 2022

60-3063 - M.L.S. Lakewood Ranch

H-01.dwg

SAVED: DUT48884, 9/16/2022 11:42:42 AM

PLOTTED: DUT48884, 9/16/2022 11:43:52 AM

USER: DUT48884

QWG: VEB-1011

MANATEE COUNTY FLORIDA IMPROVEMENTS AT MASTER LIFT STATION LAKEWOOD RANCH

HVAC ABBREVIATIONS AND GENERAL NOTES

DESIGNED: KYS

DETAILED: RKS

CHECKED: DV

APPROVED: MFR

DATE: SEPT 2022

0 1/2 1

IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

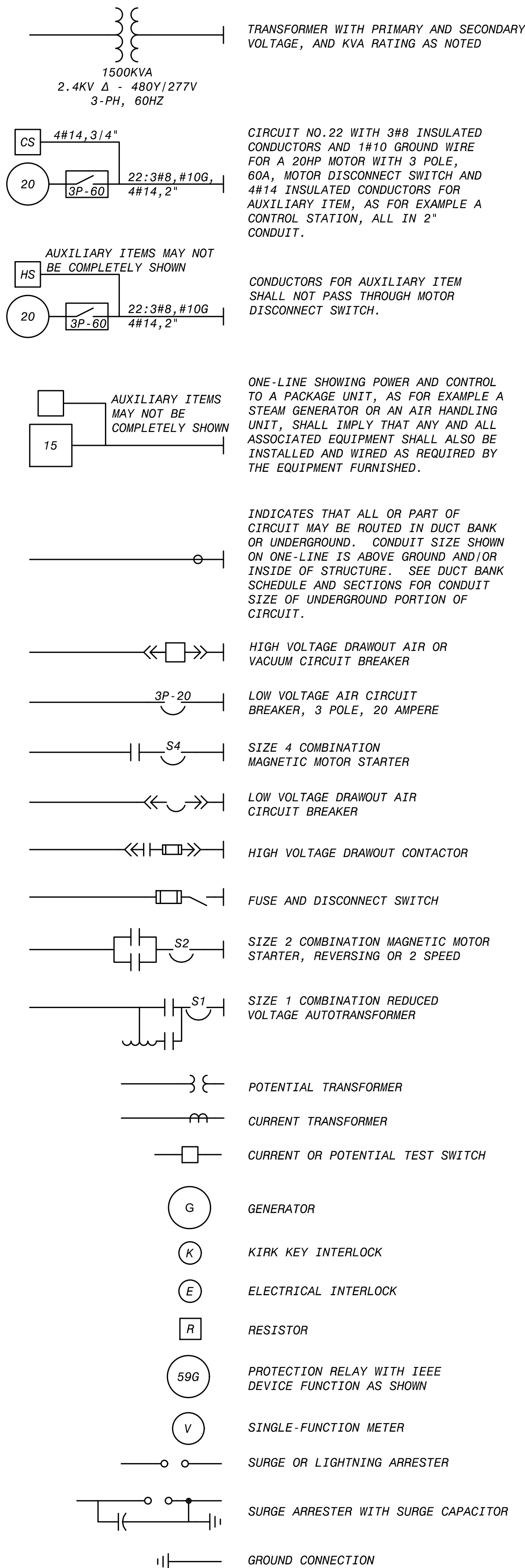
PROJECT NO. 402142

H-01 SHEET 19 OF 43

ISSUED FOR CONSTRUCTION

ELECTRICAL LEGENDS

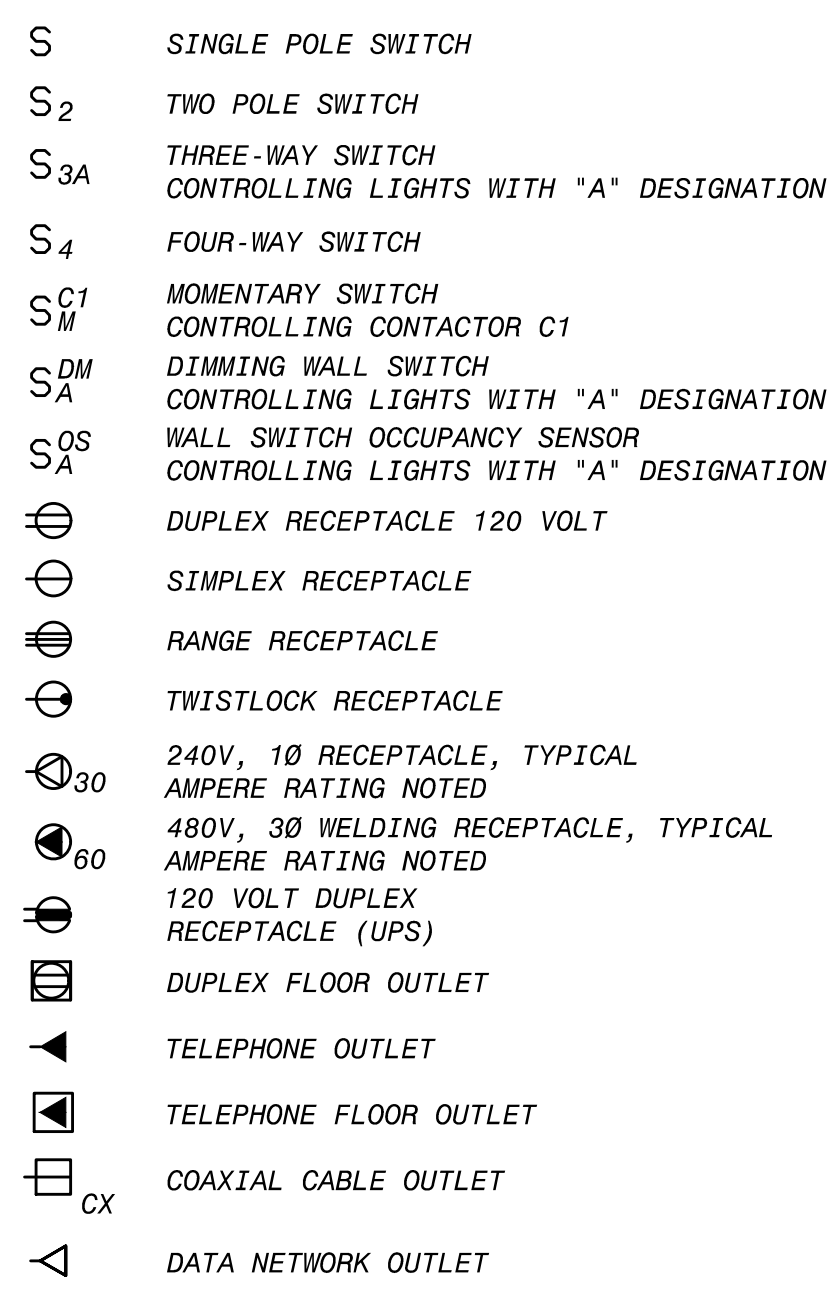
ONE-LINE DIAGRAM LEGEND



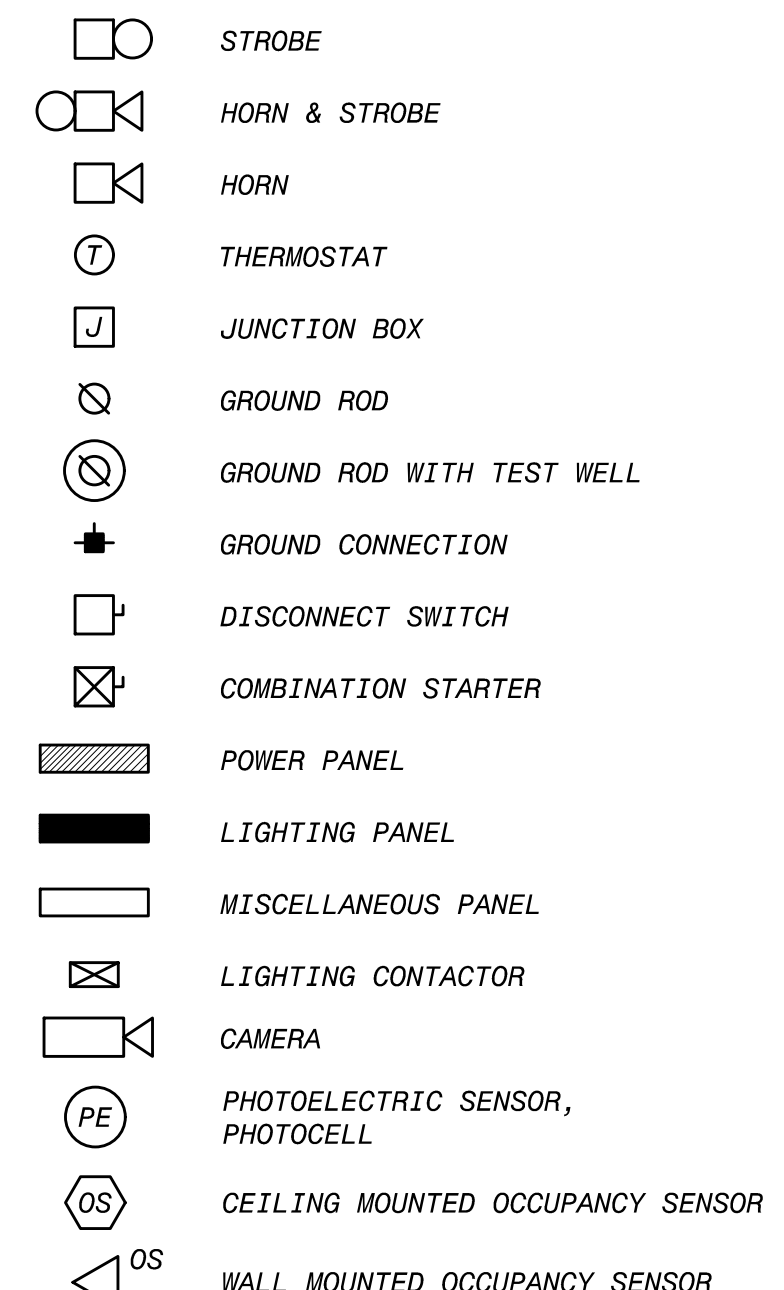
SCHEMATIC SYMBOLS



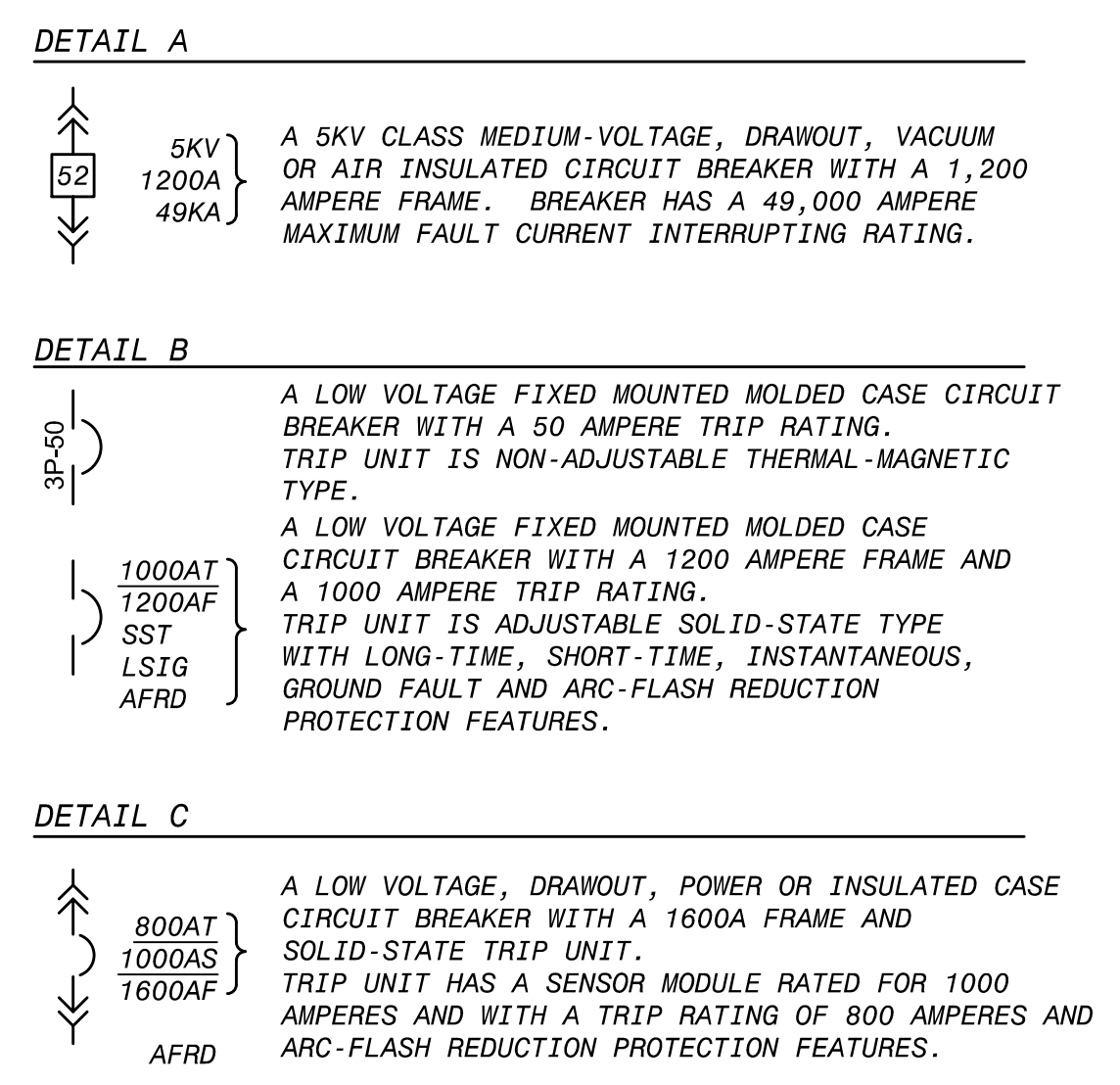
SWITCH & OUTLET SYMBOLS



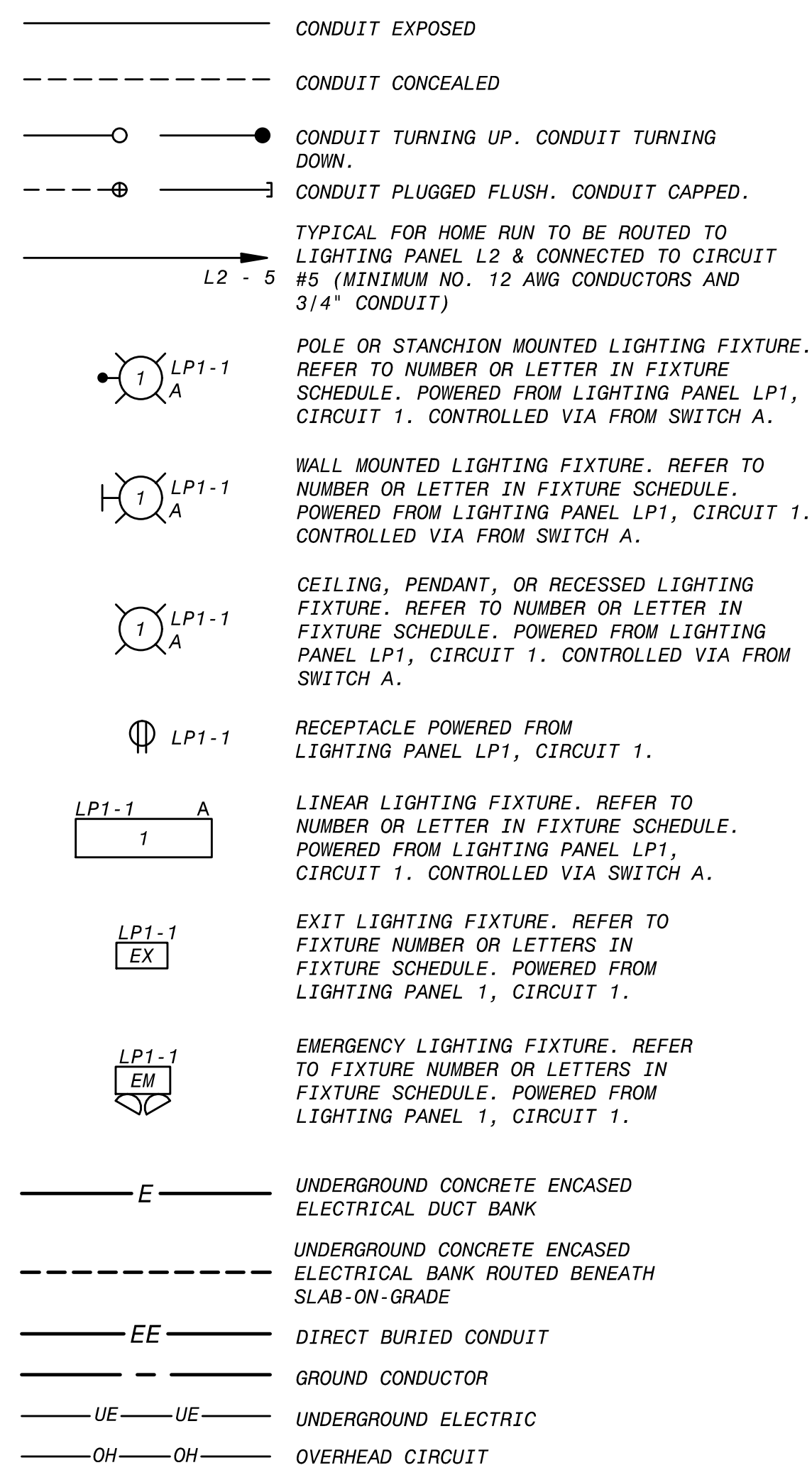
MISCELLANEOUS SYMBOLS



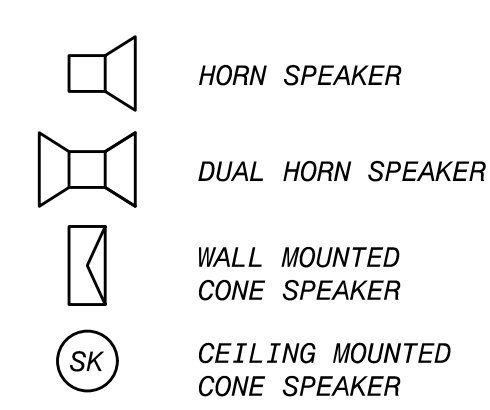
BREAKER DETAILS



CONDUIT & WIRING INSTALLATION LEGEND



COMMUNICATION SYMBOLS



PROTECTION/RELAY DEVICE NUMBERS

- 25 - SYNCHRONIZING OR SYNCHRONISM-CHECK DEVICE
- 27 - UNDERVOLTAGE RELAY
- 32 - DIRECTIONAL POWER RELAY
- 37 - UNDERCURRENT OR UNDERPOWER RELAY
- 46 - REV. PHASE OR PHASE-BAL. CURRENT RELAY
- 47 - PHASE SEQ. OR PHASE BAL. VOLTAGE RELAY
- 49 - MACHINE OR TRANSFORMER THERMAL RELAY
- 50 - INSTANTANEOUS OVERCURRENT
- 51 - AC TIME OVERCURRENT RELAY
- 52 - AC CIRCUIT BREAKER
- 59 - OVERVOLTAGE RELAY
- 63 - PRESSURE SWITCH
- 64 - GROUND DETECTOR RELAY
- 67 - AC DIRECTIONAL OVERCURRENT RELAY
- 71 - LIQUID OR GAS LEVEL RELAY
- 81 - FREQUENCY RELAY
- 83 - AUTOMATIC SELECTIVE CONTROL OR TRANSFER RELAY
- 86 - LOCKOUT RELAY
- 87 - DIFFERENTIAL PROTECTIVE RELAY

DESIGNED: JG/AP
 DETAILED: KP
 CHECKED: DG
 APPROVED: RB
 DATE: SEPT 2022

0 1/2 1
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PROJECT NO.
402142

E-01
 SHEET
 21 OF 43

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60-3063 - M.L.S. Lakewood Ranch
 E-01.dwg
 XREF1:
 XREF2:
 XREF3:
 XREF4:
 USER: DUT48884 | DWS: VER: 1.001

MANATEE COUNTY, FLORIDA
 IMPROVEMENTS AT
 MASTER LIFT STATION LAKEWOOD RANCH

BLACK & VEATCH
 Black & Veatch Corporation
 3405 W. Dr. L. King Jr. Blvd, Suite 125
 Tampa, Florida
 Certificate No. 8132

ELECTRICAL LEGENDS

ISSUED FOR CONSTRUCTION

ELECTRICAL ABBREVIATIONS & NOTES

ELECTRICAL GENERAL NOTES

- SOLID LINES (—————) INDICATE NEW WORK OR EQUIPMENT.
- SCREENED LINES (————) INDICATE EXISTING WORK OR EQUIPMENT.
- DASHED LINES (- - - - -) INDICATE FUTURE WORK OR EQUIPMENT.
- REFER TO INDIVIDUAL DISCIPLINE CONTRACT DRAWINGS FOR ADDITIONAL ABBREVIATIONS, DETAILS, AND GENERAL DESIGN NOTES.
- LEGEND SHEETS ARE GENERAL. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
- INFORMATION RELATED TO CIRCUIT IDENTIFICATION, WIRE & CONDUIT SIZES, AND ROUTING, IS ON THE FOLLOWING DRAWING TYPES.
 - ONE-LINE DIAGRAMS SHOW CIRCUIT IDENTIFICATION, WIRE QUANTITY AND SIZES, AND CONDUIT SIZE WITHIN STRUCTURES. ONE-LINE DIAGRAMS ALSO INDICATE ORIGIN AND DESTINATION OF CIRCUITS, AND IDENTIFY CIRCUITS ROUTED UNDERGROUND.
 - FOR CIRCUITS WITHOUT UNDERGROUND PORTIONS, BUILDING FLOOR PLANS SHOW LOCATION OF EQUIPMENT FOR DETERMINING CIRCUIT LENGTH WITHIN THE STRUCTURE. FOR CIRCUITS WITH UNDERGROUND PORTIONS, ANTICIPATED PENETRATION OF UNDERGROUND CONDUITS ARE SHOWN ON STRUCTURE PLANS FOR DETERMINING THE LENGTH OF THE IN-STRUCTURE PORTIONS OF CIRCUITS. BUILDING FLOOR PLANS MAY ALSO SHOW HOME RUNS FOR LIGHTING, RECEPTACLE, AND OTHER MISCELLANEOUS EQUIPMENT CIRCUITS.
 - SITE PLANS INDICATE THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS. CIRCUITS ROUTED IN UNDERGROUND CONDUITS OR DUCT BANKS ARE INDICATED IN DUCT BANK SECTIONS REFERENCED ON THE SITE PLAN.
 - DUCT BANK SECTIONS AND SCHEDULES IDENTIFY CONDUIT SIZE, CONDUIT MATERIAL, ARRANGEMENT OF THE UNDERGROUND CONDUITS, AND CIRCUITS ROUTED IN EACH UNDERGROUND CONDUIT.

AREA DESIGNATIONS

THE SPECIAL AREA DESIGNATION BOXES, AS DEFINED BELOW, ARE LOCATED ON THE PLAN DRAWINGS TO DEFINE ELECTRICAL INSTALLATION REQUIREMENTS. DESIGNATION BOXES ARE LOCATED WITHIN ROOM OR BELOW ROOM NUMBER. ALL INDOOR AREAS NOT INDICATED OTHERWISE ARE AREA TYPE 1 AND MINIMUM NEMA TYPE 1 ENCLOSURES.

- | | |
|--------------|---|
| AREA TYPE 1A | CORROSIVE CHEMICAL FEED AND STORAGE ROOMS. CONDUIT SYSTEM SHALL BE EXPOSED SCHEDULE 80 PVC RIGID NON-METALLIC CONDUIT WITH PVC FITTINGS, BOXES AND ACCESSORIES. |
| AREA TYPE 4 | INDOOR WET LOCATIONS SUCH AS VAULTS, HOSEDOWN AREAS, BASEMENTS, ETC. MINIMUM NEMA TYPE 4 ENCLOSURE FOR EQUIPMENT AND GASKETED FITTINGS IN A CONDUIT SYSTEM. |
| AREA TYPE 7A | CLASS I, DIVISION 1 AREA AS DEFINED BY NEC. ALL EQUIPMENT AND CONDUIT SYSTEMS SHALL BE RATED FOR USE IN THIS AREA. |
| AREA TYPE 7B | CLASS I, DIVISION 2, GROUP C AND D (METHANE, GASOLINE) AS DEFINED BY NEC. EQUIPMENT AND CONDUITS SYSTEMS SHALL BE RATED FOR USE IN THIS AREA. |
| AREA TYPE 12 | INDOOR, DRY, DIRTY AREA. REQUIRES MINIMUM NEMA TYPE 12 GASKETED ENCLOSURES FOR ALL EQUIPMENT AND GASKETED FITTINGS IN CONDUIT SYSTEMS. |

GENERAL REQUIREMENTS


- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS NOT SHOWN ON THE PLANS. THIS SHALL INCLUDE ALL CONDUITS SHOWN ON THE ONE-LINES AND HOME-RUNS SHOWN ON THE PLAN DRAWINGS. CONDUITS SHALL BE ROUTED AS DEFINED IN THE SPECIFICATION.
- SPARE WIRES SHALL BE TAPED AND COILED AND LABELED TO INDICATE WHERE OTHER END OF SPARE WIRE IS LOCATED.
- IF EQUIPMENT SUPPLIED BY MANUFACTURER HAS A LARGER LOAD THAN VALUE SHOWN, THE CABLE CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE ENLARGED, AS REQUIRED, TO ACCOMMODATE THE HIGHER VALUE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PROPERLY SIZED STARTER OVERLOADS FOR EQUIPMENT FURNISHED.
- LIGHTING AND RECEPTACLE CIRCUITS DESIGNATED ON THE FLOOR PLANS ARE NOT SHOWN ON THE ONE-LINES. CONDUCTORS FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM NO. 12AWG. CONDUIT FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM 3/4".
- IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, ETC. NO CONDUITS SHALL BE RUN OVERHEAD THAT WILL INTERFERE WITH THE OPERATION OF THE EQUIPMENT.

ELECTRICAL ABBREVIATIONS

<p>A</p> <p>A AMBER, AMPERE, ALARM AC ALTERNATING CURRENT ACB AIR CIRCUIT BREAKER ACR ACCESS CARD READER AF AMPERE FRAME AFD ADJUSTABLE FREQUENCY DRIVE AFRD ARC-FLASH REDUCTION DEVICE AM AMMETER ANN ANNUNCIATOR AR ALARM RELAY AS AMMETER SWITCH, AMPERE SENSOR AT AMPERE TRIP ATS AUTOMATIC TRANSFER SWITCH AUX AUXILIARY AWG AMERICAN WIRE GAUGE</p> <p>B</p> <p>B BUS BC BATTERY CHARGER BKR BREAKER BR BRAKE BT BEARING TEMPERATURE</p> <p>C</p> <p>C CLOSE, COUNTER, CONTACTOR, CONTROL, CCTV CAMERA CAP CAPACITOR CB CIRCUIT BREAKER CB*A* CIRCUIT BREAKER AUXILIARY CONTACT (OPEN WHEN BREAKER IS OPEN) CB*B* CIRCUIT BREAKER AUXILIARY CONTACT (CLOSED WHEN BREAKER IS OPEN) CD CONTROL DAMPER CI CELL INTERLOCK CKT CIRCUIT CL2 CHLORINE COS CABLE OPERATED SWITCH CP CONTROL PANEL CPT CONTROL POWER TRANSFORMER CR CURRENT OF CONTROL RELAY, CARD READER CS CONTROL STATION CT CYCLE TIMER OR CURRENT TRANSFORMER CTC CYCLE TIMER CLUTCH CTM CYCLE TIMER MONITOR 2/C 2 CONDUCTOR 4"C 4" CONDUIT</p> <p>D</p> <p>DC DIRECT CURRENT, DOOR CONTACT DI DOOR INTERLOCK DM DAMPER MOTOR, DEMAND METER, DIMMER SWITCH DPDT DOUBLE POLE DOUBLE THROW DPST DOUBLE POLE SINGLE THROW DPR DIFFERENTIAL PRESSURE REGULATOR DPS DIFFERENTIAL PRESSURE SWITCH DS DISCONNECT SWITCH, DOOR SWITCH, DESKTOP STATION DVLS DISCHARGE VALVE LIMIT SWITCH</p> <p>E</p> <p>E ELECTRIC OPERATOR FOR CONTROL DAMPER OR VALVE EC EMPTY CONDUIT EDS ELECTRICAL DOOR STRIKE EL ELEVATION, EMERGENCY LIGHT EMH ELECTRICAL MANHOLE ER ELECTRODE RELAY ES END SWITCH, REQUEST TO EXIT SENSOR E-STOP EMERGENCY STOP ETM ELAPSED TIME METER EX EXISTING EXP EXPLOSION PROOF</p> <p>F</p> <p>F FORWARD, FIELD FO FIBER OPTIC FPR FEEDER PROTECTION RELAY FS FLOW SWITCH</p> <p>G</p> <p>G GREEN, GROUND, GENERATOR, GROUND FAULT GD GROUND DETECTOR GEN GENERATOR GFCI, GFI GROUND FAULT CURRENT INTERRUPTOR, GROUND FAULT INTERRUPTOR GLS GEARED LIMIT SWITCH GPR GENERATOR PROTECTION RELAY GND GROUND #BG #8 GROUND WIRE</p> <p>H</p> <p>H HIGH, HUMIDISTAT HH HANDHOLE HMT HIGH MOTOR TEMPERATURE HOA HAND-OFF-AUTO HOR HAND-OFF-REMOTE HP HORSEPOWER HS HAND STATION HWCO HIGH WATER CUTOFF HZ HERTZ (CYCLE)</p>	<p>I</p> <p>I/O INPUT/OUTPUT I INSTANTANEOUS IJB INTERCOM JUNCTION BOX</p> <p>J</p> <p>J, JB JUNCTION BOX</p> <p>K</p> <p>K KEY INTERLOCK KAIC THOUSAND AMPERES INTERRUPTING CURRENT KCMIL THOUSAND CIRCULAR MIL KO KEY OPERATED KV KILOVOLT KVA KILOVOLT AMPERE KVAR KILOVAR KW KILOWATT KWH KILOWATT HOUR</p> <p>L</p> <p>L LOW, LEVEL, LONG-TIME LA LIGHTNING ARRESTER LAN LOCAL AREA NETWORK LC LIGHTING CONTRACTOR LCE LIGHTING CONTRACTOR ENCLOSURE LCP LOCAL CONTROL PANEL LCS LOCAL CONTROL STATION LOA LOCAL-OFF-AUTO LOR LOCAL-OFF-REMOTE LOS LOCK OUT STOP LP LIGHTING PANEL LS LIMIT OR LEVEL SWITCH LTG LIGHTING LWCO LOW WATER CUTOFF</p> <p>M</p> <p>M MAGNETIC MOTOR STARTER MA MILLIAMPERE MCB MAIN CIRCUIT BREAKER MCC MOTOR CONTROL CENTER MCLU MOTOR CONTROL LINEUP MD MOISTURE DETECTOR, MOTION DETECTOR MDL MAGNETIC DOOR LOCK MFR MANUFACTURER MH MANHOLE, MOUNTING HEIGHT MOV MOTOR OPERATED VALVE MPR MOTOR PROTECTION RELAY MS MANUAL MOTOR STARTER MSH MOTOR SPACE HEATER MTS MANUAL TRANSFER SWITCH MV MILLIVOLT, MEDIUM VOLTAGE MVA MEGAVOLT AMPERE</p> <p>N</p> <p>N NEUTRAL NGR NEUTRAL GROUNDING RESISTOR NGT NEUTRAL GROUNDING TRANSFORMER NC NORMALLY CLOSED NO NORMALLY OPEN, NUMBER</p> <p>O</p> <p>O OPEN OL OVERLOAD OOA ON-OFF-AUTO OOR ON-OFF-REMOTE OS OCCUPANCY SENSOR O/U OVER/UNDER</p> <p>P</p> <p>P PRIMARY, POWER, POLE PCS PLANT CONTROL SYSTEM PB PUSH BUTTON, PULL BOX PE PHOTOELECTRIC SENSOR, PHOTOCCELL PF POWER FACTOR PFCC POWER FACTOR CORRECTION CAPACITOR PH PHASE PL PILOT LIGHT PLC PROGRAMMABLE LOGIC CONTROLLER PP POWER PANEL PR PAIR PRS PROXIMITY SWITCH PS PRESSURE SWITCH PT POTENTIAL TRANSFORMER, PROGRAM TIMER</p> <p>Q</p> <p>NOT USED</p> <p>R</p> <p>R RED, RAISE, RELAY, REVERSE RECP RECEPTACLE RES RESISTOR RH REMOTE HANDSET RT REPEATING TIMER RTD RESISTANCE TEMPERATURE DETECTOR RTU REMOTE TERMINAL UNIT RVSS REDUCED VOLTAGE SOLID STATE STARTER</p>	<p>S</p> <p>S SHORT-TIME, SHIELDED, STARTER SA SURGE ARRESTER, SPEAKER AMPLIFIER SCADA SUPERVISORY CONTROL AND DATA ACQUISITION SF6 SULFUR HEXAFLUORIDE SH SPACE HEATER SN SOLID NEUTRAL SO SOLENOID OILER SP SINGLE POLE SPD SURGE PROTECTION DEVICE SPDT SINGLE POLE DOUBLE THROW SPST SINGLE POLE SINGLE THROW SS SELECTOR SWITCH, START/STOP, STAINLESS STEEL SSM SOLID-STATE METERING SSS SOLID STATE STARTER SST SOLID-STATE TRIP SUPV SUPERVISORY CONTROL SV SOLENOID VALVE SWB, SWBD SWITCHBOARD SWG, SWGR SWITCHGEAR</p> <p>T</p> <p>T THERMOSTAT, TIMER, TOTALIZER, TRANSFORMER TACH TACHOMETER TB TERMINAL BLOCK TC TIMER CLUTCH TD TIME DELAY RELAY TEMP TEMPERATURE TM TIMER MOTOR TQ TORQUE TR TIMER RELAY, TRIAD TS TEMPERATURE SWITCH TTB TELEPHONE TERMINAL BOARD</p> <p>U</p> <p>UG UNDERGROUND UPS UNINTERRUPTIBLE POWER SUPPLY</p> <p>V</p> <p>V VOLTS, VOLTAGE RESTRAINED VA VOLT AMPERE VAR VARMETER VFD VARIABLE FREQUENCY DRIVE VI VACUUM INTERRUPTER VLS VALVE LIMIT SWITCH VM VOLTMETER VPI VALVE POSITION INDICATOR VS VOLTMETER SWITCH</p> <p>W</p> <p>W WHITE, WATTS WH WATTHOUR METER WM WATT METER WP WEATHERPROOF WPI WEATHERPROOF IN-USE WS WALL STATION</p> <p>X</p> <p>X AUXILIARY RELAY XFMR TRANSFORMER XP EXPLOSION PROOF</p> <p>Y</p> <p>YELLOW</p> <p>Z</p> <p>Z AUXILIARY RELAY, IMPEDANCE ZS POSITION SWITCH ZSS ZERO SPEED SWITCH</p> <p>1-1PR#16S ONE, SINGLE PAIR, TWISTED SHIELDED #16 CABLE 3-7/C#14 THREE, SINGLE, SEVEN CONDUCTOR #14 MULTICONDUCTOR CONTROL CABLES</p>
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SEPT 2022	100% SUBMITTAL	REVISIONS AND RECORD OF ISSUE	NO. BY CK APP
FEB 2020	90% SUBMITTAL		
OCT 2019	50% SUBMITTAL		
DATE			
50-3063 - MLS Lakewood Ranch			
E-02.dwg			
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PLOTTED: D:\T48884, 9/15/2022 11:47:26 AM XREF2:			
USER: D:\T48884 XREF3:			
DWE: VEG-1001 XREF4:			

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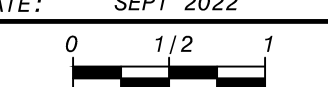


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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH

ELECTRICAL ABBREVIATIONS AND NOTES

DESIGNED: JG/AP
DETAILED: KP
CHECKED: DG
APPROVED: RB
DATE: SEPT 2022

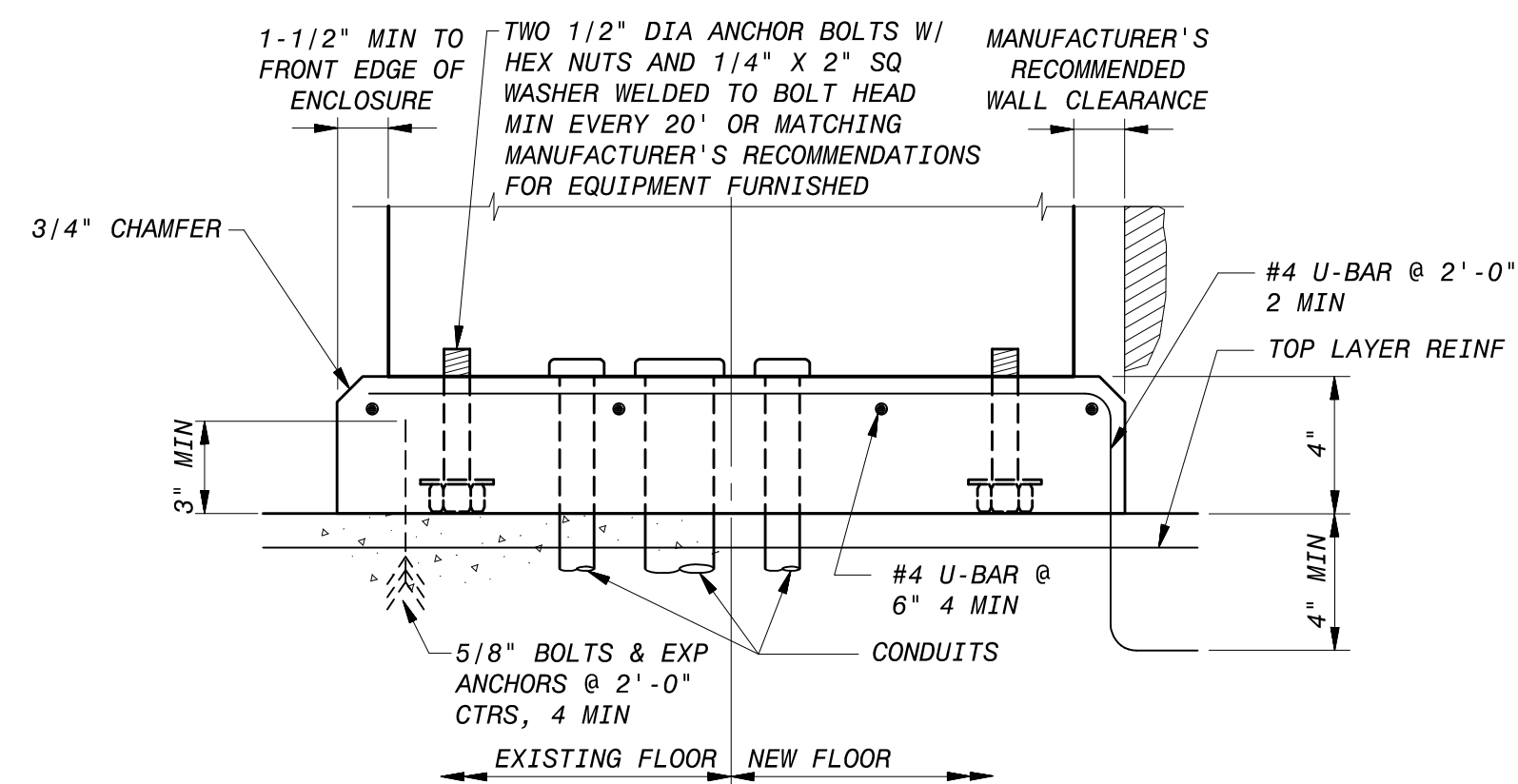


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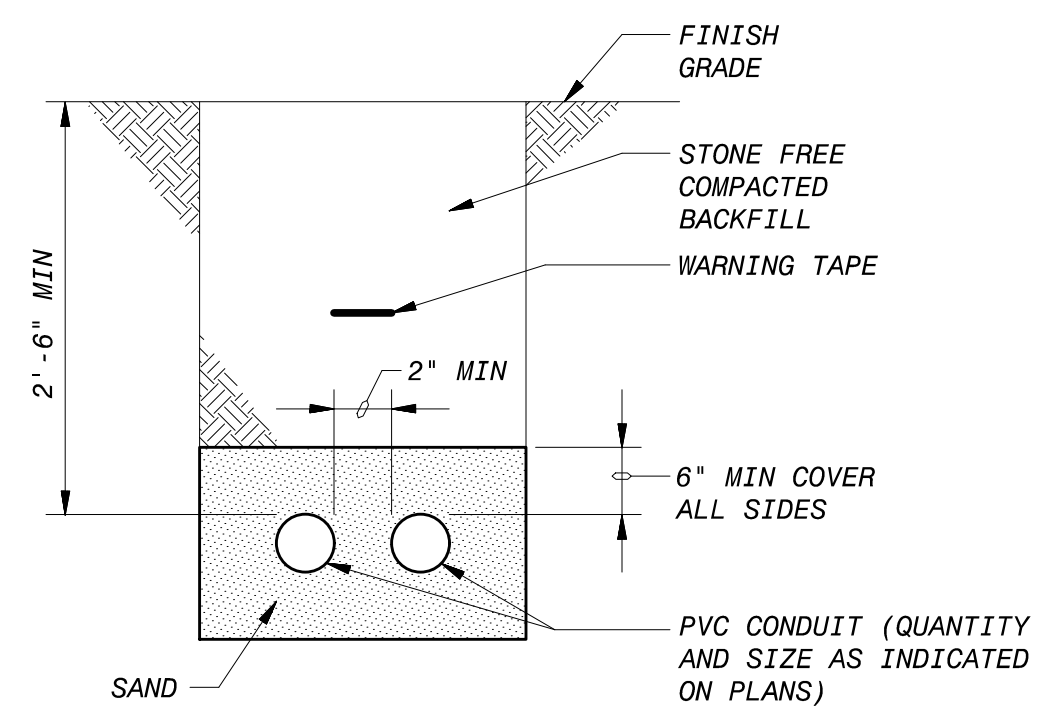
PROJECT NO.
402142

E-02
SHEET
22 OF 43

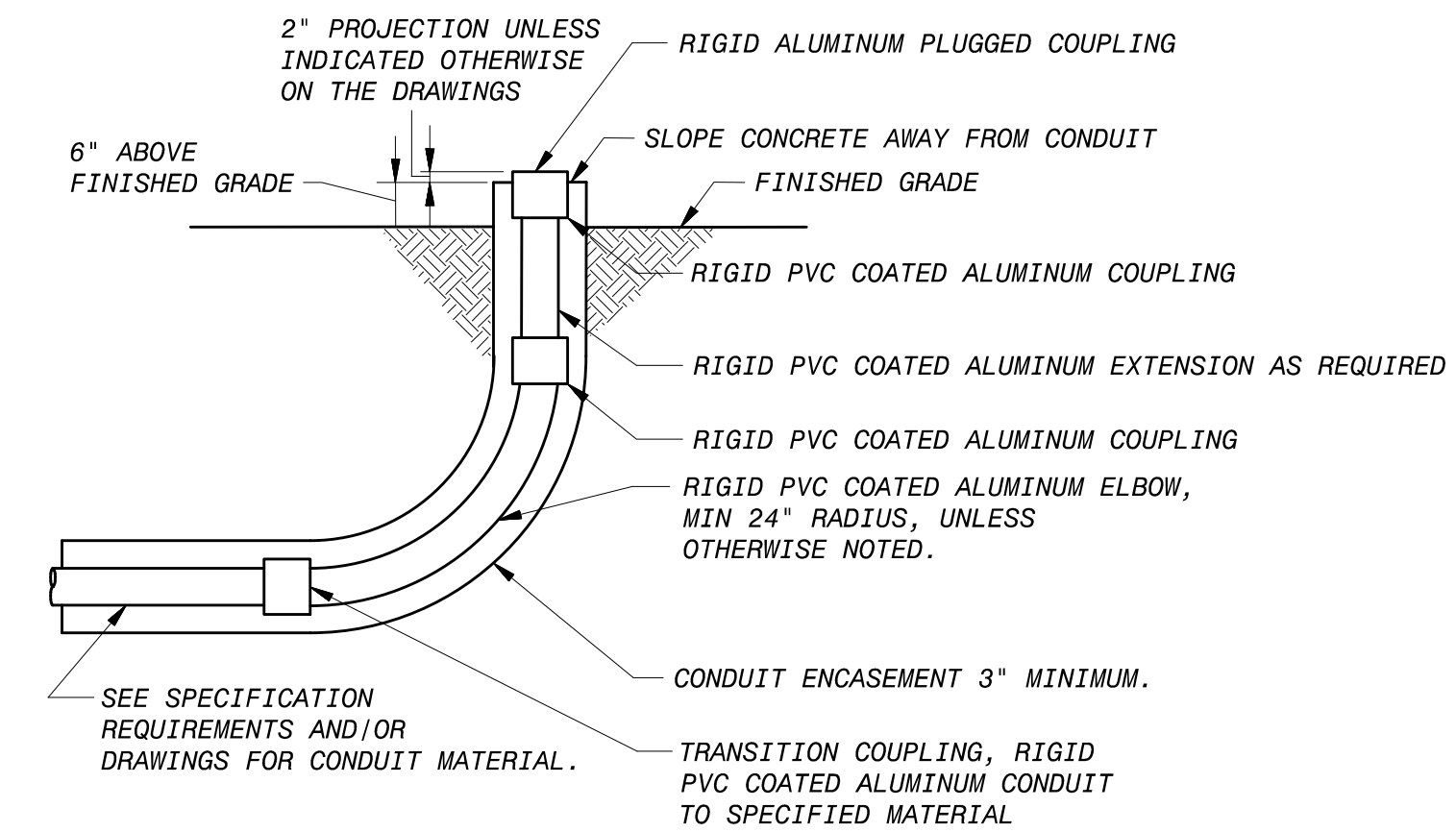
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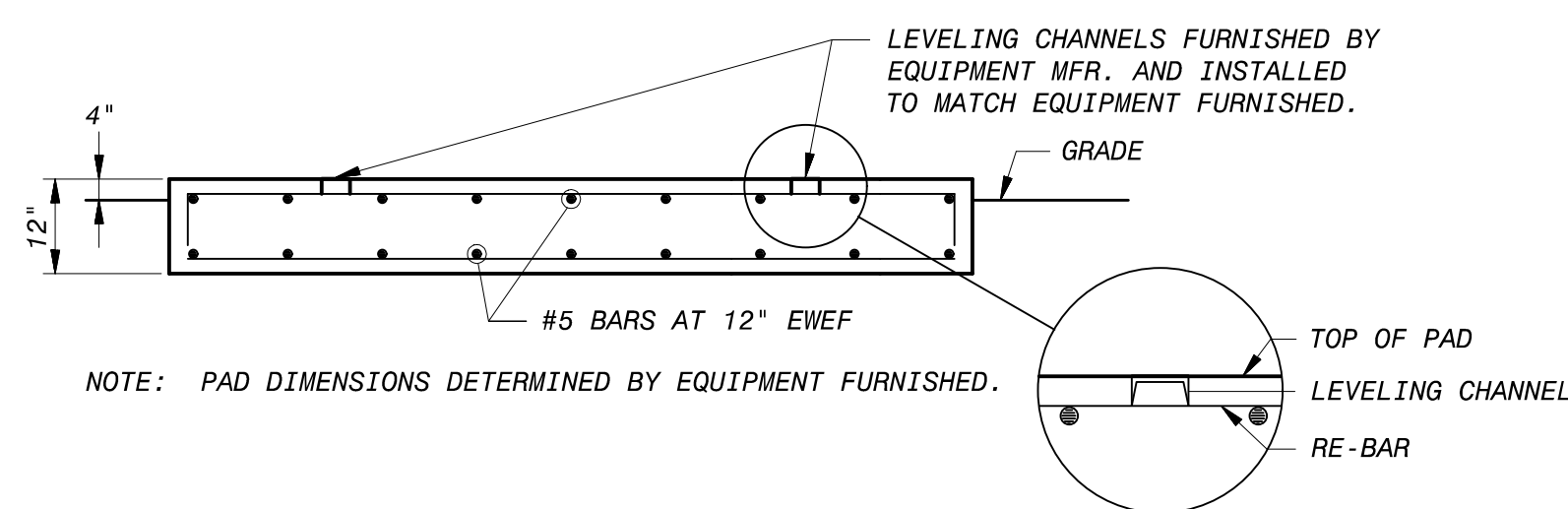
A ELECTRICAL EQUIPMENT BASE
NO SCALE



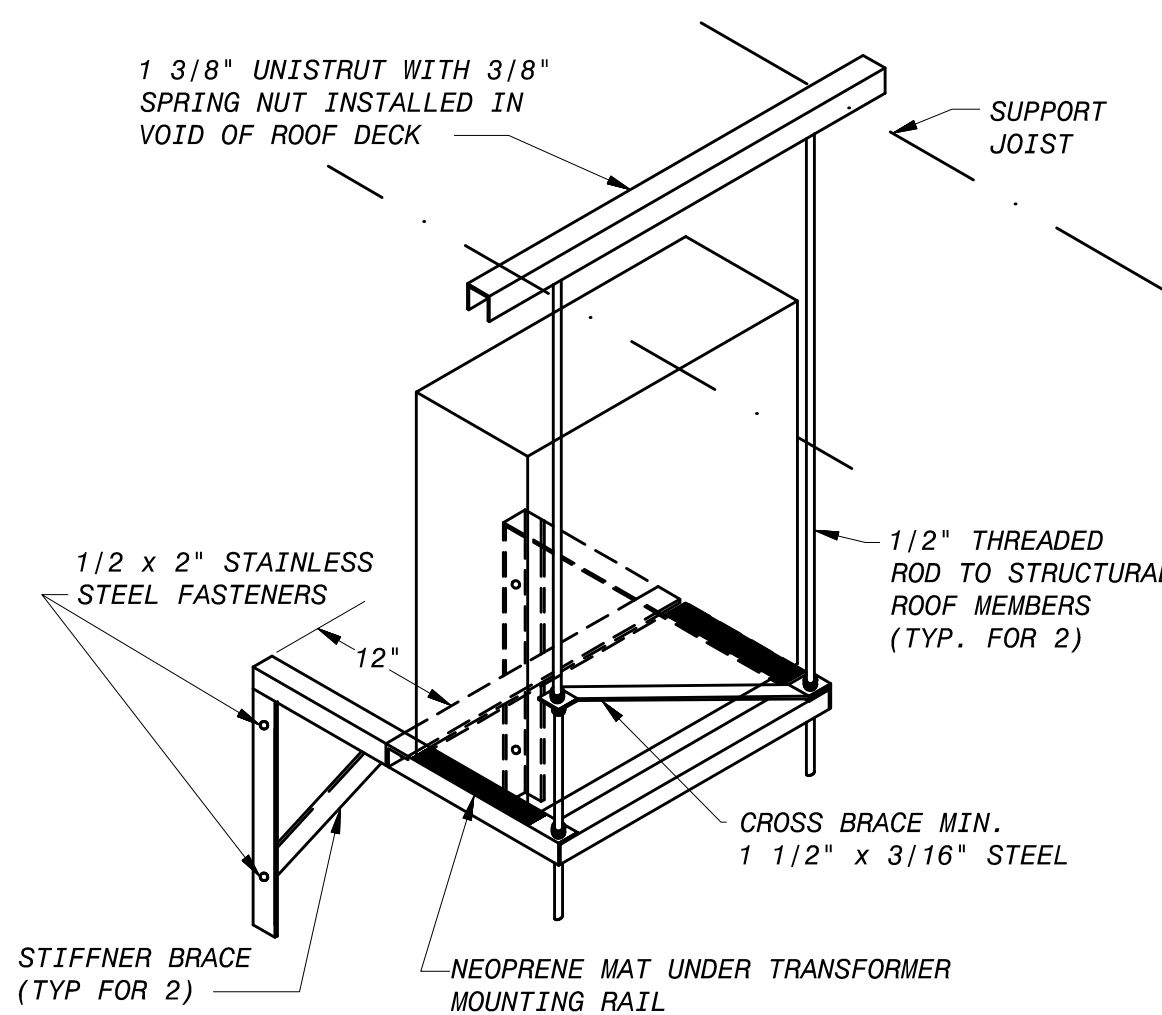
B TYPICAL DIRECT BURIED CONDUIT SECTION
NO SCALE



C TYPICAL CONDUIT RISER TERMINATING IN SOIL
NO SCALE

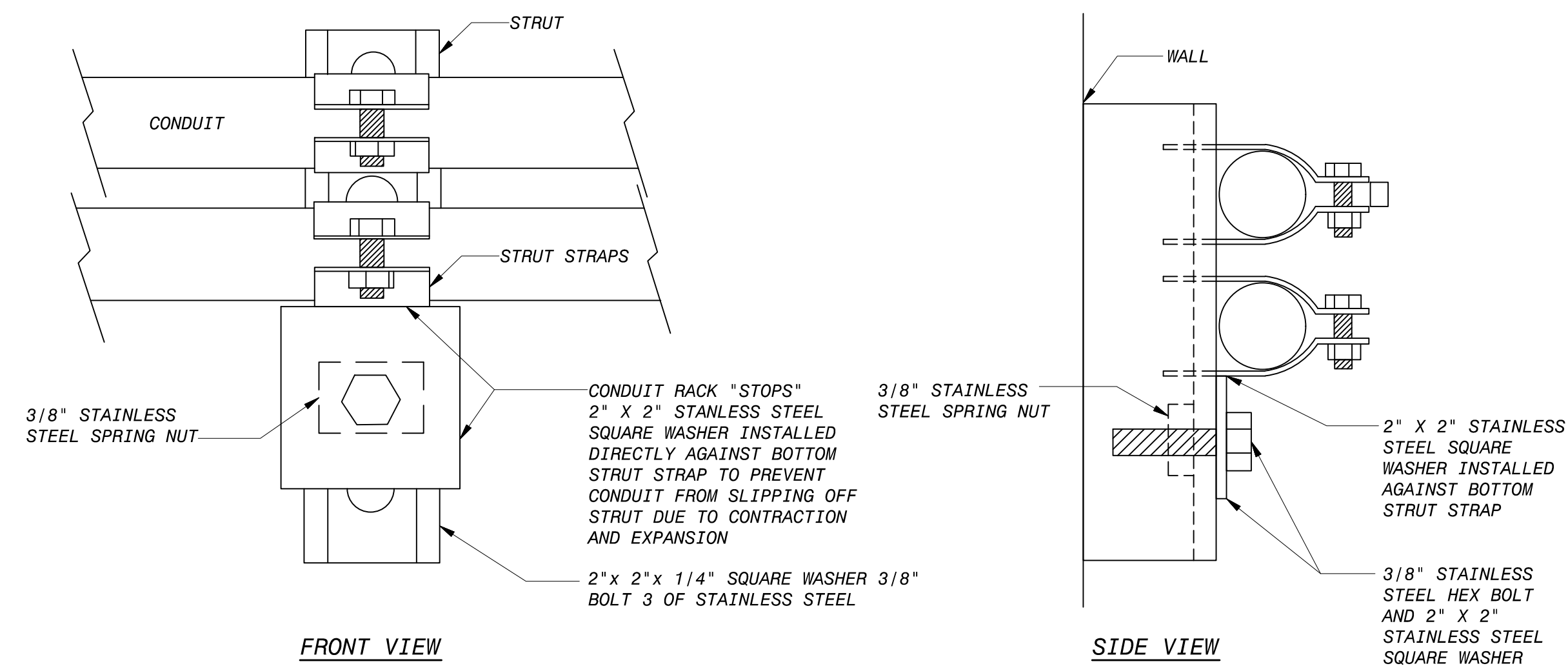


D TYPICAL EQUIPMENT PAD DETAIL
NO SCALE



- NOTES:**
1. FRAME TO BE MINIMUM 2"x 2"x 1/4".
 2. FULL WELD AT ALL JOINTS.
 3. EPOXY ENAMEL PAINT ASSEMBLY PRIOR TO INSTALLATION.

E TYPICAL WALL MOUNTED TRANSFORMER SUPPORT FOR UP TO 50KVA UNITS
NO SCALE



F TYPICAL WALL SYSTEM SUPPORT
NO SCALE

NOTE:

1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.

DESIGNED: JG/AP	DATE: SEPT 2022
DETAILED: KP	100% SUBMITTAL
CHECKED: DG	90% SUBMITTAL
APPROVED: RB	REVISED AND RECORD OF ISSUE
PROJECT NO. 402142	NO. BY CK APP
E-03 SHEET 23 OF 43	NO. BY CK APP

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Manatee County

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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH

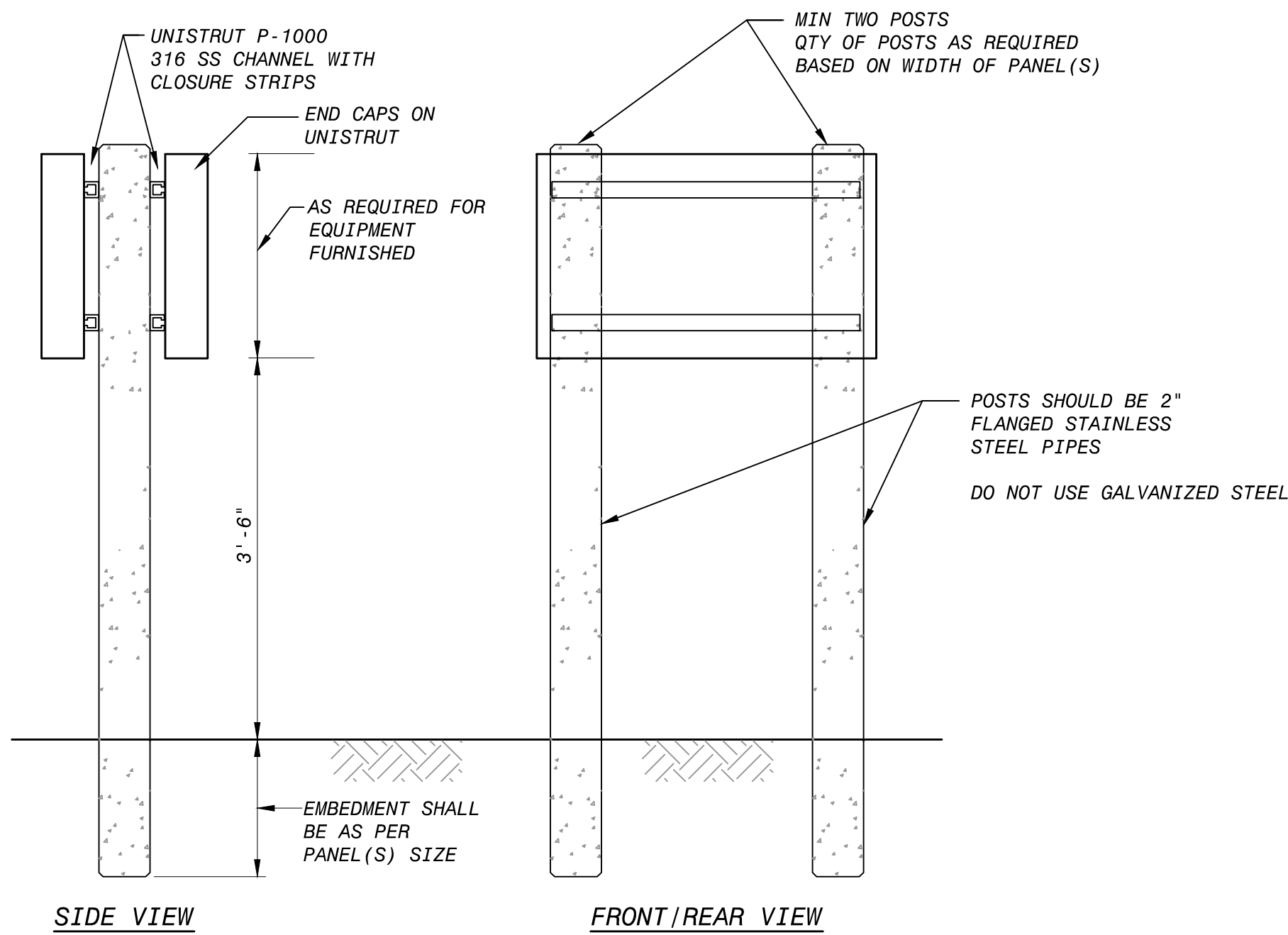
ELECTRICAL
STANDARD DETAILS 1

DESIGNED: JG/AP
DETAILED: KP
CHECKED: DG
APPROVED: RB
DATE: SEPT 2022

PROJECT NO. 402142

E-03
SHEET
23 OF 43

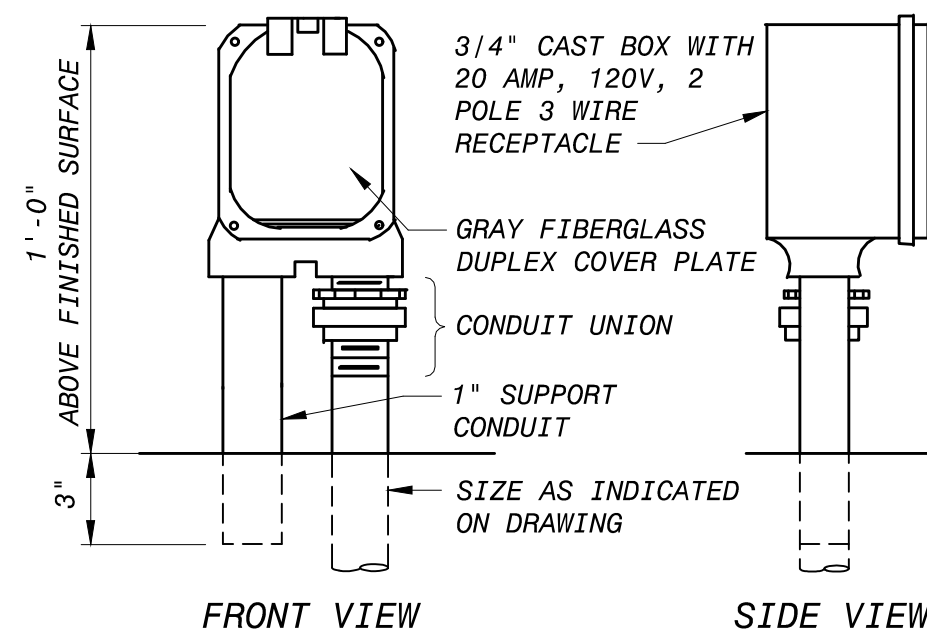
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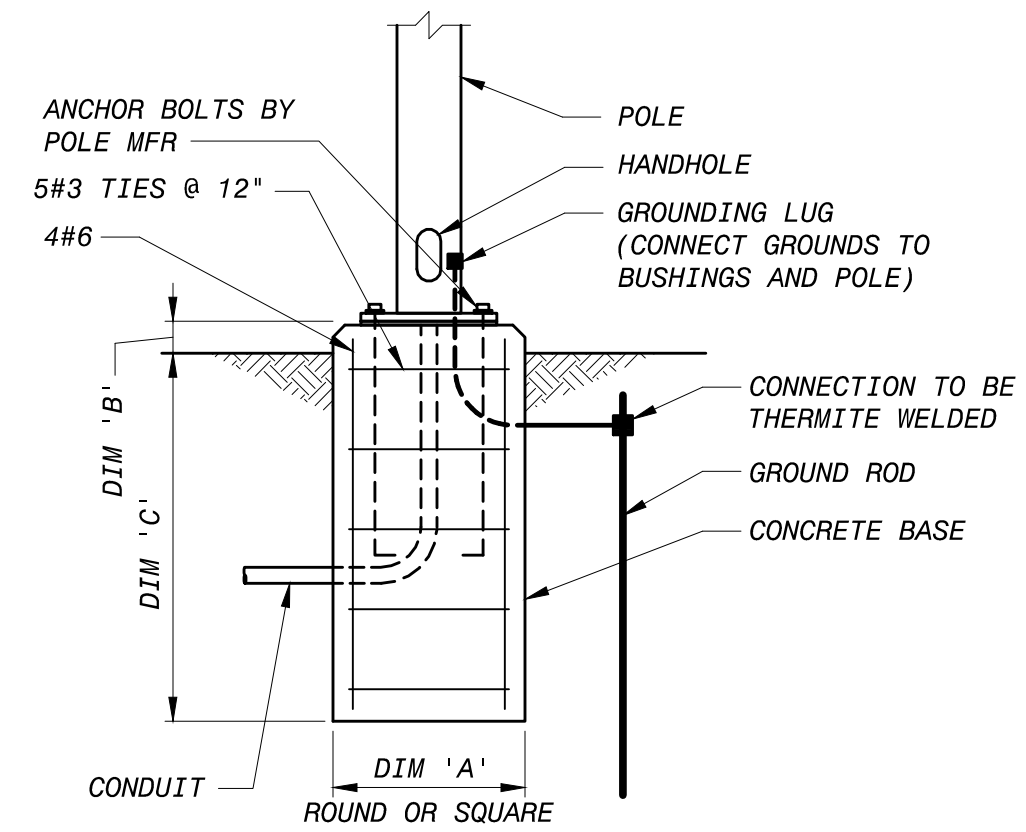
1. ALL INSTRUMENT MOUNTING HARDWARE SHALL BE 316 STAINLESS STEEL.
2. POSITION PANEL BOXES SO OPERATOR'S BACK IS NOT TO WET WELL WHILE FACING BOX.
3. PANEL BOXES TO BE LOCATED TO ALLOW UNOBSTRUCTED ACCESS TO WET WELL.

G TYPICAL OUTDOOR EQUIPMENT MOUNTING DETAIL
NO SCALE



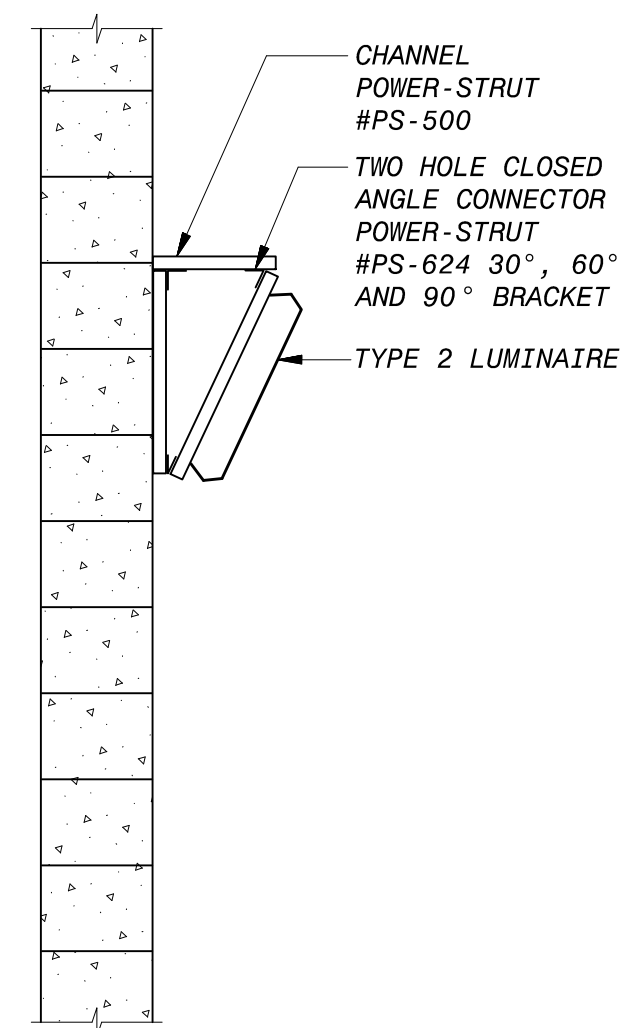
NOTE: ALL EXPOSED CONDUIT SHALL BE PVC SCHEDULE 80.

H WEATHERPROOF RECEPTACLE MOUNTING DETAIL
NO SCALE

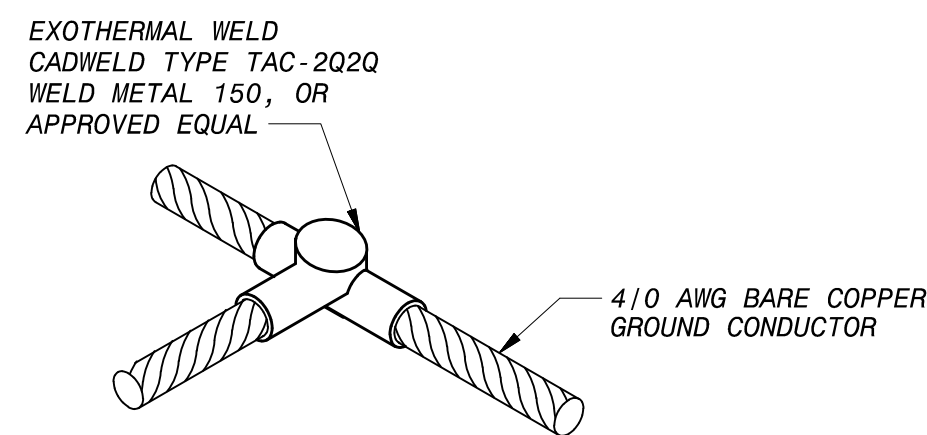


A	B	C	POLE LENGTH
1'-0"	2"	3'-0"	10' TO 12'
1'-6"	2"	4'-0"	12' TO 20'
2'-0"	2"	5'-0"	20' TO 40'
2'-0"	2'-6"	5'-0"	20' TO 40'

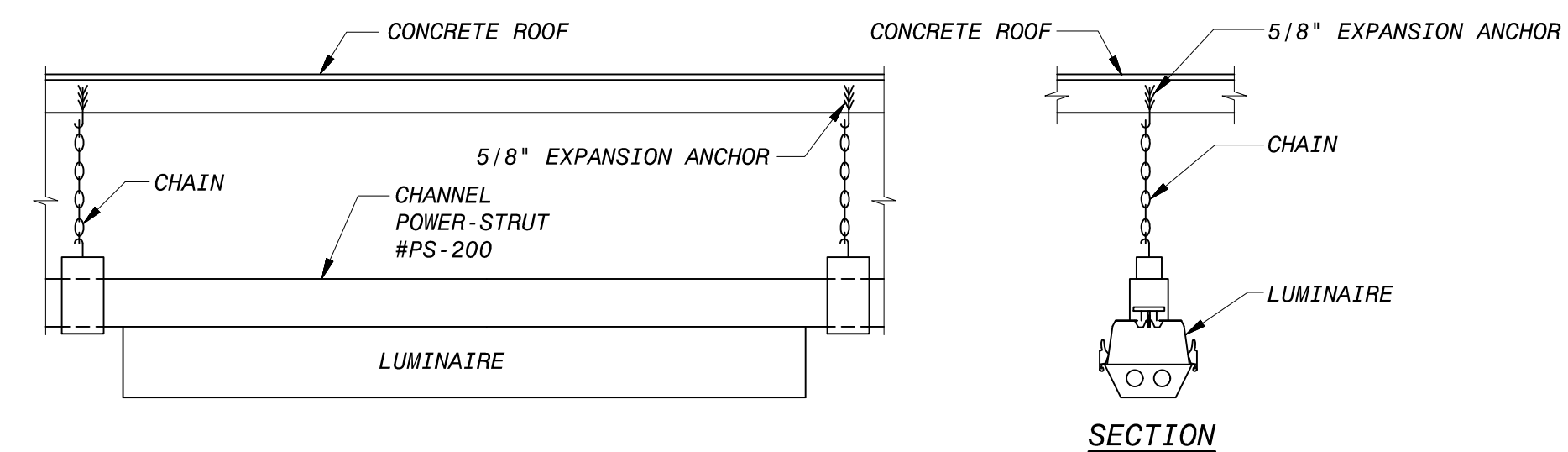
J TYPICAL POLE MOUNTING DETAIL
NO SCALE



K TYPE 2 LUMINAIRE INSTALLATION DETAIL
NO SCALE



L TYPICAL EXOTHERMAL WELD TEE CONNECTION
NO SCALE



M LIGHTING INSTALLATION DETAIL
NO SCALE

NOTE:

1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.

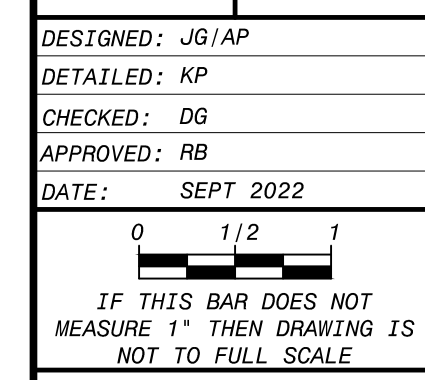
NO.	BY	CHK	APP
A	AD	RT	NE
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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH

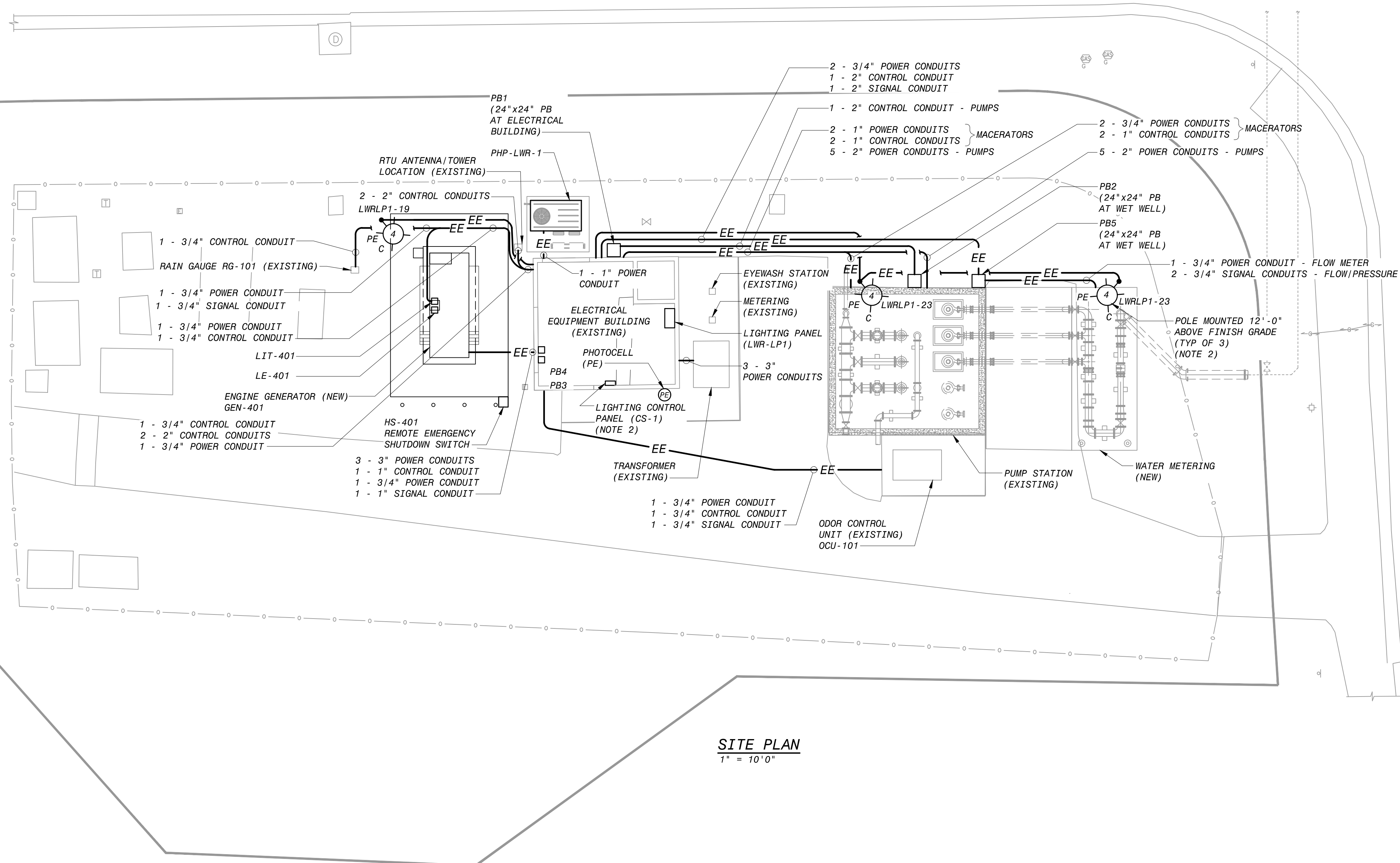
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APPROVED: RB
DATE: SEPT 2022



PROJECT NO.
402142
E-04
SHEET
24 OF 43

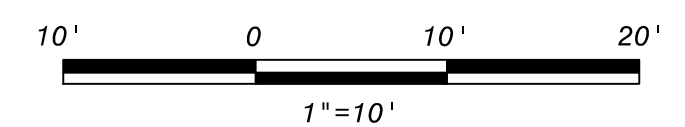
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SITE PLAN
1" = 10' 0"

NOTES:

1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.
2. ALL EXTERIOR LIGHT FIXTURES ARE CONTROLLED BY PHOTOCELL (PE) THROUGH LIGHTING CONTACTOR "C" IN LIGHTING CONTROL PANEL CS-1.



ISSUED FOR CONSTRUCTION

SEPT 2022	100% SUBMITTAL	B	AD	RE	INT
FEB 2020	90% SUBMITTAL	A	AD	RT	NE
DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CHK	APP
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	PLOTTED: DUT48884, 9/19/2022 7:27:03 PM				
	USER: DUT48884				
	DWG VER: 1001				

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PROJECT NO. 402142, AND
ON 09/16/2022 AND
SEALED BY
RYAN BINKLEY,
A LICENSED
PROFESSIONAL
ENGINEER IN THE
STATE OF FLORIDA,
NO. 89014



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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH

ELECTRICAL
SITE PLAN

DESIGNED: JG/AP
DETAILED: KP
CHECKED: DG
APPROVED: RB
DATE: SEPT 2022

0 1/2 1
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PROJECT NO.
402142

E-05
SHEET
25 OF 43

LIGHTING FIXTURE SCHEDULE					
FIXTURE	LAMP	MTG HGT	DESCRIPTION	MANUFACTURER	REMARK
1	LED 30 WATT 4342 LUMENS	AS NOTED ON PLANS	EMS LED, LINEAR L48, PENDANT MOUNT, FIBERGLASS HOUSING WITH NEMA 4X GASKET, IP65, IP66 AND IP67 RATED, SUITABLE FOR DAMP LOCATIONS, DIFFUSER WITH ACRYLIC CLEAR DEEP LENS, MEDIUM DISTRIBUTION, GZ10 DRIVER, 4000K, 80CRI, MVOLT, 60HZ	HOLOPHANE #EMS L48 4000LM IMACD MD MVOLT GZ10 40K 80CRI	ELECTRICAL ROOM
1E	LED 30 WATT 4342 LUMENS	AS NOTED ON PLANS	SAME AS FIXTURE NO.1, EXCEPT WITH BODINE EMERGENCY LED BATTERY PACK BSL520	HOLOPHANE #EMS L48 4000LM IMACD MD MVOLT GZ10 40K 80CRI BSL520	ELECTRICAL ROOM
2	LED 25 WATT 3511 LUMENS	AS NOTED ON PLANS	WST WALL MOUNT LED, DIE-CAST ALUMINUM HOUSING, IP65 RATED, POWDER COAT FINISH, WELL CRAFTED REFLECTOR OPTICS, SUPERIOR WIDE VISUAL COMFORT DISTRIBUTION, ZERO UPLIGHT AND QUALIFES AS A NIGHTTIME FRIENDLY PRODUCT, WITH PERFORMANCE PACKAGE 2, WITH DARK BRONZE FINISH, 4000K, MVOLT, 60HZ.	LITHONIA #WST LED P2 40K VW MVOLT DDBXD	ELECTRICAL BUILDING EXTERIOR
2E	LED 25 WATT 3511 LUMENS	AS NOTED ON PLANS	SAME AS FIXTURE NO.2, EXCEPT WITH LITHONIA EMERGENCY BATTERY PACK E7WH	LITHONIA #WST LED P2 40K VW MVOLT E7WH DDBXD	ELECTRICAL BUILDING EXTERIOR
3E	LED 12 WATT 1659 LUMENS	AS NOTED ON PLANS	FEM LED, LINEAR L48, FIBERGLASS HOUSING WITH NEMA 4X GASKET, IP65 RATED, SUITABLE FOR WET LOCATION, DIFFUSER WITH ACRYLIC, CLEAR DEEP LENS, MEDIUM DISTRIBUTION, GZ10 DRIVER, 4000K, MVOLT, 60HZ, WITH LITHONIA EMERGENCY BATTERY PACK E10WCP.	LITHONIA #FEM L48 IMACD MD MVOLT GZ10 40K 80CRI E10WCP	TOILET
4	LED 105 WATT 10202 LUMENS	AS NOTED ON PLANS	DSX1 POLE MOUNT LED AREA LUMINAIRE, IP66 RATED, SINGLE PIECE DIE-CAST ALUMINUM HOUSING, INTEGRAL HEAT SINK, ZINC-INFUSED SUPER DURABLE TGIC THERMOSET POWDER COAT FINISH, ACRYLIC LENS, NIGHTTIME FRIENDLY PRODUCT, WITH (1) 30 LED LIGHT ENGINES, TYPE III MEDIUM DISTRIBUTION, 700mA, 4000K, MVOLT DRIVER, MAST ARM POLE MOUNTED, BLACK FINISH, MVOLT, 60HZ	LITHONIA #DSX1 LED 30C 1000 40K T3M MVOLT MA DBLXD LITHONIA POLE # RSA 12 4-5C PT DBL MAST ARM # AMACE T20 US2 DBL	PUMP STATION AND FUEL TANK AREA
EXIT	LED	WALL MOUNT 1'-0" ABOVE DOOR	INDUSTRIAL EMERGENCY EXIT SIGN, WHITE THERMOPLASTIC HOUSING, STENCIL FACE, RED LETTERS, UNIVERSAL MOUNTING CANOPY, NICKEL-CADMIUM BATTERY, TYPE WITH 3 NUMBER OF FACES, DUAL VOLTAGE INPUT CAPABILITY, 60HZ.	LITHONIA #LOM S W 3 R 120/277 ELN	ELECTRICAL ROOM

LIGHTING FIXTURE SCHEDULE
NO SACLE

PHASE			PANELBOARD: LWR-LP1	BUS: COPPER				MAINS: 3P-150A MAIN BREAKER				PHASE		
"A"	"B"	"C"	SERVICE: 120/208V, 3PH, 4W, S/N	RATING: 225A				LOCATION: ELECTRICAL EQUIPMENT ROOM				"A"	"B"	"C"
V.A.	V.A.	V.A.	MOUNTING: SURFACE	P	BKR	CKT #	BKR	P	LOAD	V.A.	V.A.	V.A.		
50			LIT-100	1	20	1	2	20	1	LIGHTING CONTROL PANEL, CS-1	150			
	50		FIT-100	1	20	3	4	20	1	RECP-ELECTRICAL ROOM		360		
		1440	EXISTING ODOR CONTROL UNIT	1	20	5	6	20	1	SPARE				
720			EXISTING DFS-RTU362	1	20	7	8	20	1	LIGHTS-ELECTRICAL ROOM	248			
	180		RECP-WET WELL PUMP STATION	1	20	9	10	20	1	RECP-ELECTRICAL ROOM		540		
			SPARE	1	20	11	12	20	1	SPARE				
			SPARE	1	20	13	14	20	1	RECP-TOILET	180			
	31		LIGHT-TOILET	1	20	15	16	20	1	RECP-ELECT.BLDG EXTERIOR		540		
			SPARE	1	20	17	18	20	1	SPARE				
144			LIGHT-FUEL TANK	1	20	19	20	20	1	LIGHTS-ELECT.BLDG EXTERIOR	172			
			SPARE	1	20	21	22	20	1	HORN STROBE HIGH LEVEL		200		
		289	LIGHTS-WET WELL PUMP STATION	1	20	23	24	20	1	ROTATING BEACON-FUEL TANK LEAK			200	
			SPARE	1	20	25	26	20	1	LIT-401	50			
			SPARE	1	20	27	28	20	1	SPARE				
			SPARE	1	20	29	30	20	1	SPARE				
			SPARE	1	20	31	32	20	1	SPACE				
			SPARE	1	20	33	34	20	1	SPACE				
			SPARE	1	20	35	36	20	1	SPARE				
			SPARE	1	20	37	38	20	1	SPARE				
			SPACE	1		39	40		1	SPACE				
			SPACE	1		41	42		1	SPACE				
914.4			TOTAL "A"							TOTAL "A"	799			
	261		TOTAL "B"							TOTAL "B"		1640		
		1729	TOTAL "C"							TOTAL "C"			200	
			TOTAL										5543	

PANELBOARD SCHEDULE
NO SACLE

NOTE:

1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.

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	60-3063 - M/S Lakewood Ranch		XREF4:
	E-06.dwg		

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RYAN BINKLEY, A LICENSED
ELECTRICAL ENGINEER IN THE
STATE OF FLORIDA,
NO. 89014

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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
ELECTRICAL
LIGHTING FIXTURE AND PANELBOARD SCHEDULES

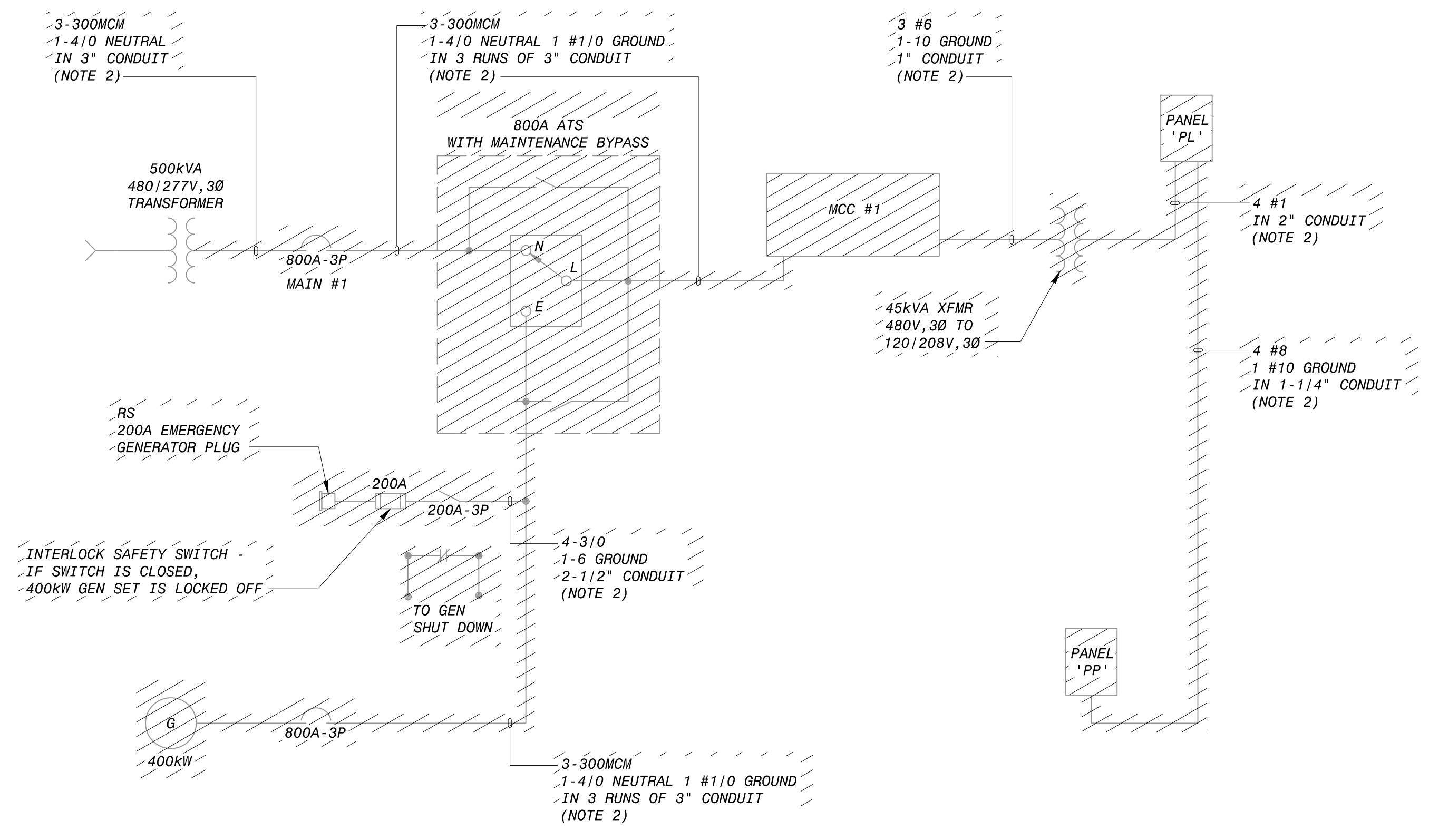
DESIGNED: JG/AP
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APPROVED: RB
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PROJECT NO.
402142

E-06
SHEET
26 OF 43

ISSUED FOR CONSTRUCTION



EXISTING MCC DEMOLITION ONE-LINE DIAGRAM
NO SCALE

NEW PANEL 'PL' 125A MAIN BREAKER, 120/208V, 3Ø, 4W, 42 POLES
NEMA 1, SURFACE, 10,000 AIC, BOLT ON BREAKERS COPPER BUS

CKT. NO.	WIRE SIZE	DESCRIPTION	BREAKERS			AMP			BREAKERS			DESCRIPTION	WIRE SIZE	CKT. NO.
			POLE	AMP	AØ	BØ	CØ	AMP	POLE	DESCRIPTION				
(NOTE 4)	1	6"	1	40	12	-	-	20	1	1	PLANT LIGHTS	12	2	(NOTE 3)
(NOTE 3)	3	12	1	20	-	12	-	20	1	1	PLANT OUTLETS	12	4	(NOTE 3)
(NOTE 3)	5	12	1	20	-	-	10	20	1	1	JACKET HEATER	12	6	(NOTE 3)
(NOTE 4)	7	12	1	20	6	-	-	20	1	1	BATTERY CHARGER	12	8	(NOTE 3)
(NOTE 3)	9	8	3	50	-	15	-	20	1	1	SPARE	10	10	(NOTE 3)
	11	8	-	-	-	-	15	20	1	1	TO DIGITAL -UPC	12	12	(NOTE 3)
	13	8	-	-	-	10	-	30	3	1	SURGE SUPPRESSOR	10	14	(NOTE 3)
(NOTE 3)	15	12	1	20	-	10	-	-	-	-	LIGHTS/OUTLETS TO 'PP'	10	16	(NOTE 3)
(NOTE 3)	17	12	1	20	-	-	12	-	-	-	TO 'PP'	10	18	(NOTE 3)
(NOTE 3)	19	12	1	20	6	-	-	20	1	1	EXHAUST FAN #1	12	20	(NOTE 3)
	21					6	-	20	1	1	EXHAUST FAN #2	12	22	(NOTE 3)
	23												24	
	25												26	
	27												28	
	29												30	
	31												32	
	33												34	
	35												36	
	37												38	
	39												40	
	41												42	

NEW PANEL 'PP' 60A MLO, 120/208V, 3Ø, 4W, 12 POLES, NEMA 3R, 10,000 AIC

CKT. NO.	WIRE SIZE	DESCRIPTION	BREAKERS			AMP			BREAKERS			DESCRIPTION	WIRE SIZE	CKT. NO.
			POLE	AMP	AØ	BØ	CØ	AMP	POLE	DESCRIPTION				
(NOTE 3)	1	12	1	20	3	-	-	20	1	1	TO OUTLET-GFI	12	2	(NOTE 3)
	3	-	1	20	-	-	-	20	1	1	TO FLOW SWITCH	-	4	(NOTE 3)
	5	-	-	-	-	-	-	20	1	1	SPARE	-	6	(NOTE 3)
	7	-	-	-	-	-	-	-	-	-	-	-	8	(NOTE 3)
	9	-	-	-	-	-	-	-	-	-	-	-	10	(NOTE 3)
	11	-	-	-	-	-	-	-	-	-	-	-	12	(NOTE 3)

- NOTES:**
- SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.
 - CONTRACTOR TO DEMOLISH EXISTING CABLES AND ABOVE GROUND CONDUITS AND SEAL AND ABANDON CONCEALED CONDUITS IN PLACE.
 - CONTRACTOR TO DEMOLISH EXISTING CABLES AND EXISTING LOADS ON EXISTING LIGHTING PANEL AS SHOWN.
 - CONTRACTOR TO DEMOLISH EXISTING CABLES OF EXISTING LOADS AND TRANSFER THESE EXISTING LOADS TO NEW LIGHTING PANEL LWR-LP1 WITH NEW CABLES.

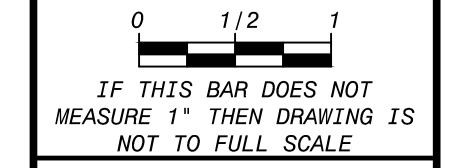
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ON 09/16/2022 AND
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RYAN BINKLEY,
A LICENSED
PROFESSIONAL
ENGINEER IN THE
STATE OF FLORIDA,
NO. 89014

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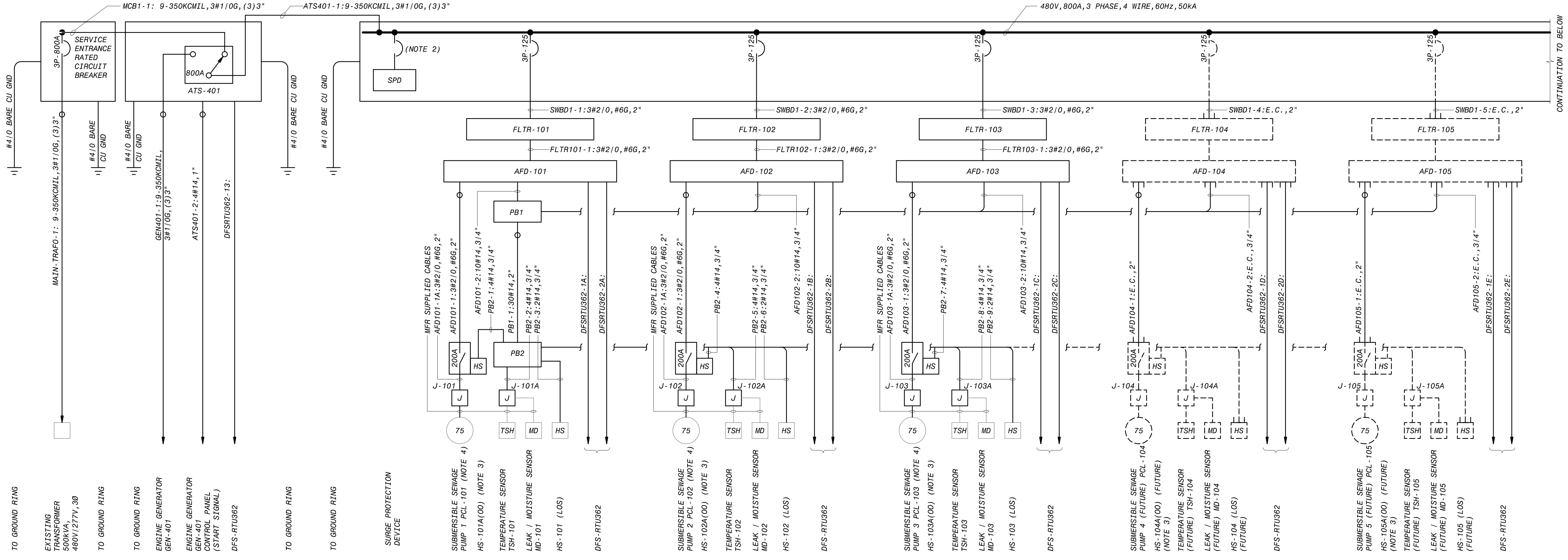
MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
ELECTRICAL
EXISTING MCC DEMOLITION ONE-LINE DIAGRAM

DESIGNED: JG/AP
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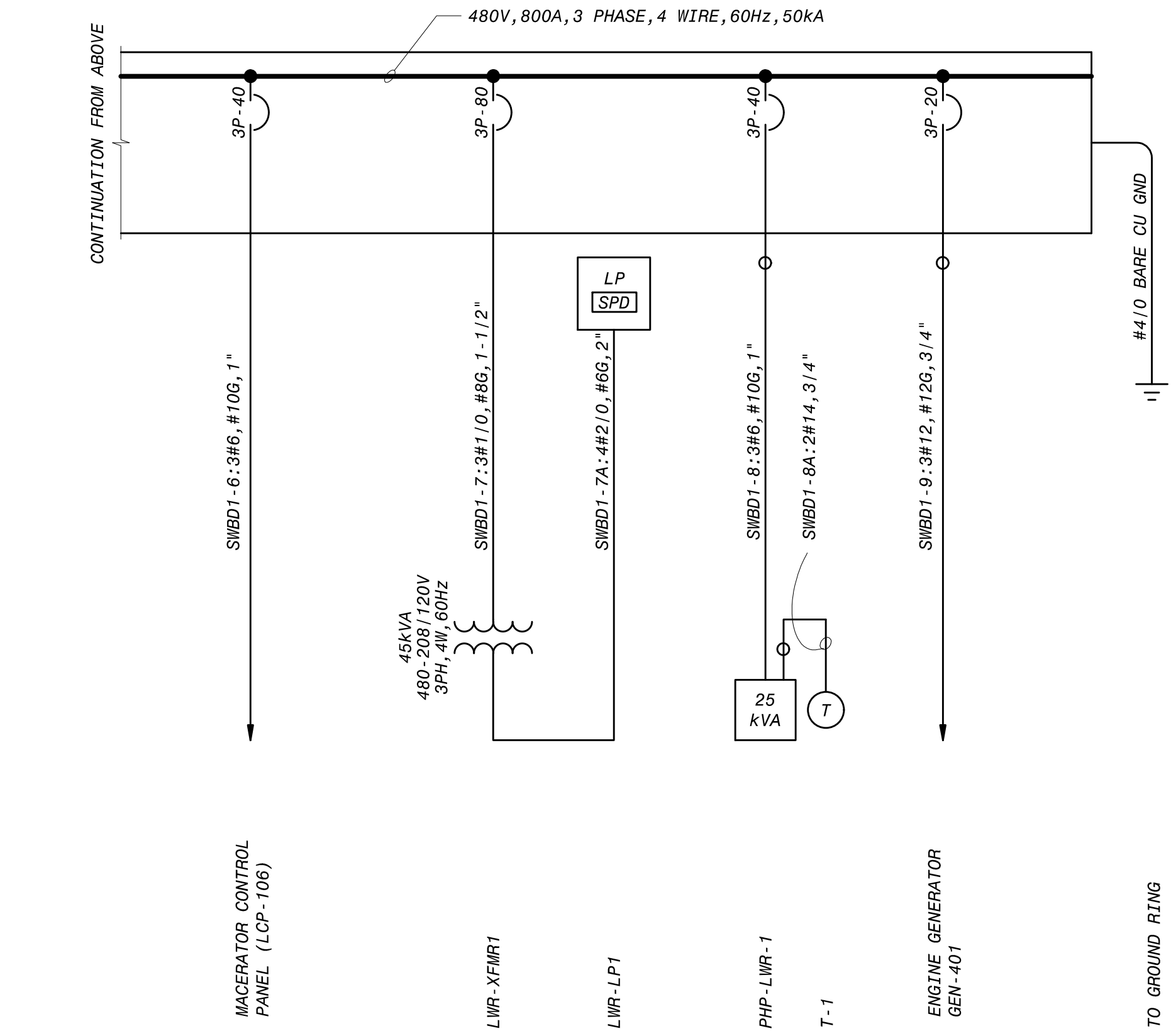


PROJECT NO.
402142
E-07
SHEET
27 OF 43

ISSUED FOR CONSTRUCTION



SWBD-1 ONE-LINE DIAGRAM
NO SCALE



SWBD-1 ONE-LINE DIAGRAM
NO SCALE

NOTES:

- SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.
- SPD CIRCUIT BREAKER SHALL BE SIZED PER MFR RECOMMENDATIONS. INTERNAL CABLING SHALL BE SIZED, FURNISHED AND INSTALLED BY THE EQUIPMENT MANUFACTURER.
- OFF-ON SWITCH MOUNTED ON FRONT OF DISCONNECT SWITCH.
- EXISTING PUMPS ARE BEING TEMPORARILY REMOVED TO PERFORM REPAIRS INSIDE THE WET WELL. CONTRACTOR SHALL REINSTALL THE PUMPS IN THE SAME LOCATION AFTER REPAIRS TO THE WET WELL ARE COMPLETED. CONTRACTOR SHALL REPLACE THE POWER CABLES BETWEEN THE PUMPS AND THE JUNCTION BOX.

DESIGNED: JG/AP	DATE: SEPT 2022
DETAILED: KP	PROJECT NO. 402142
CHECKED: DG	E-08 SHEET 28 OF 43
APPROVED: RB	

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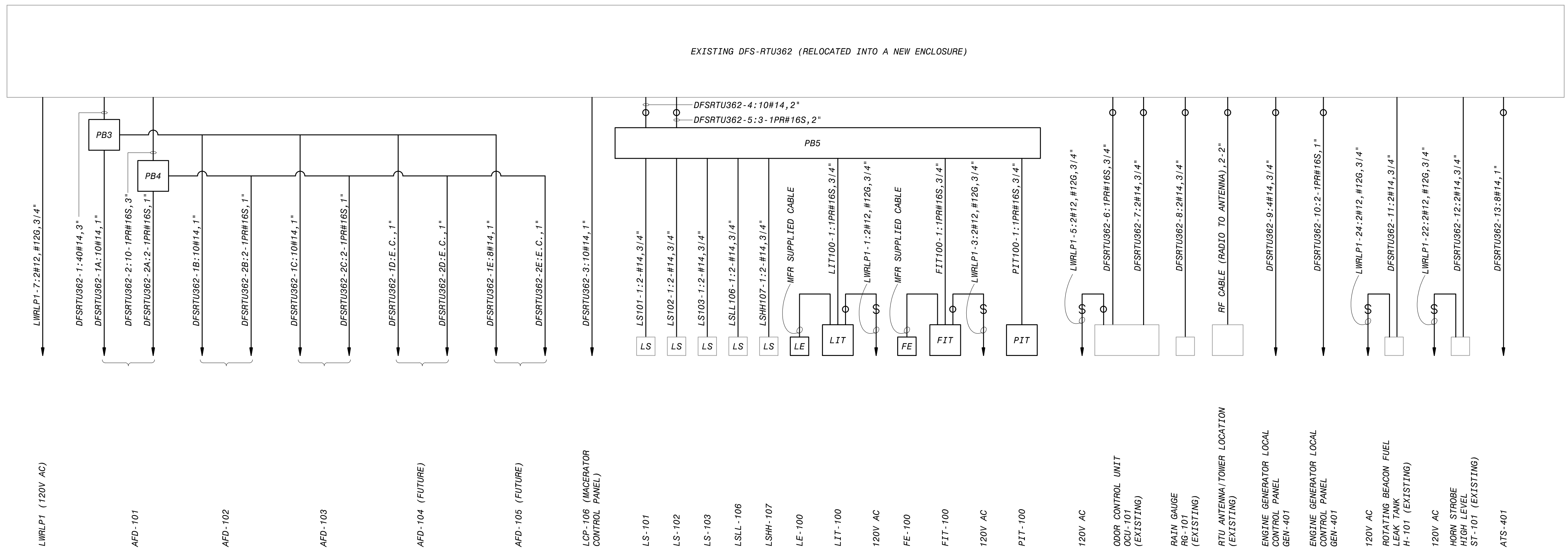
MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
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OCT 2019	50% SUBMITTAL
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USER: DUT48884	XREF4:

ISSUED FOR CONSTRUCTION



EXISTING DFS-RTU362 (RELOCATED INTO A NEW ENCLOSURE)

DFS-RTU362 ONE-LINE DIAGRAM
NO SCALE

NOTE:
1. SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.

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DETAILED: KP	100% SUBMITTAL
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	B AD RE INT

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50-3063 - MLS Lakewood Ranch
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USER: DUT48884 | DWS: VEG-1001

MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH

ELECTRICAL
DFS-RTU362 ONE-LINE DIAGRAM

DESIGNED: JG/AP
DATE: SEPT 2022

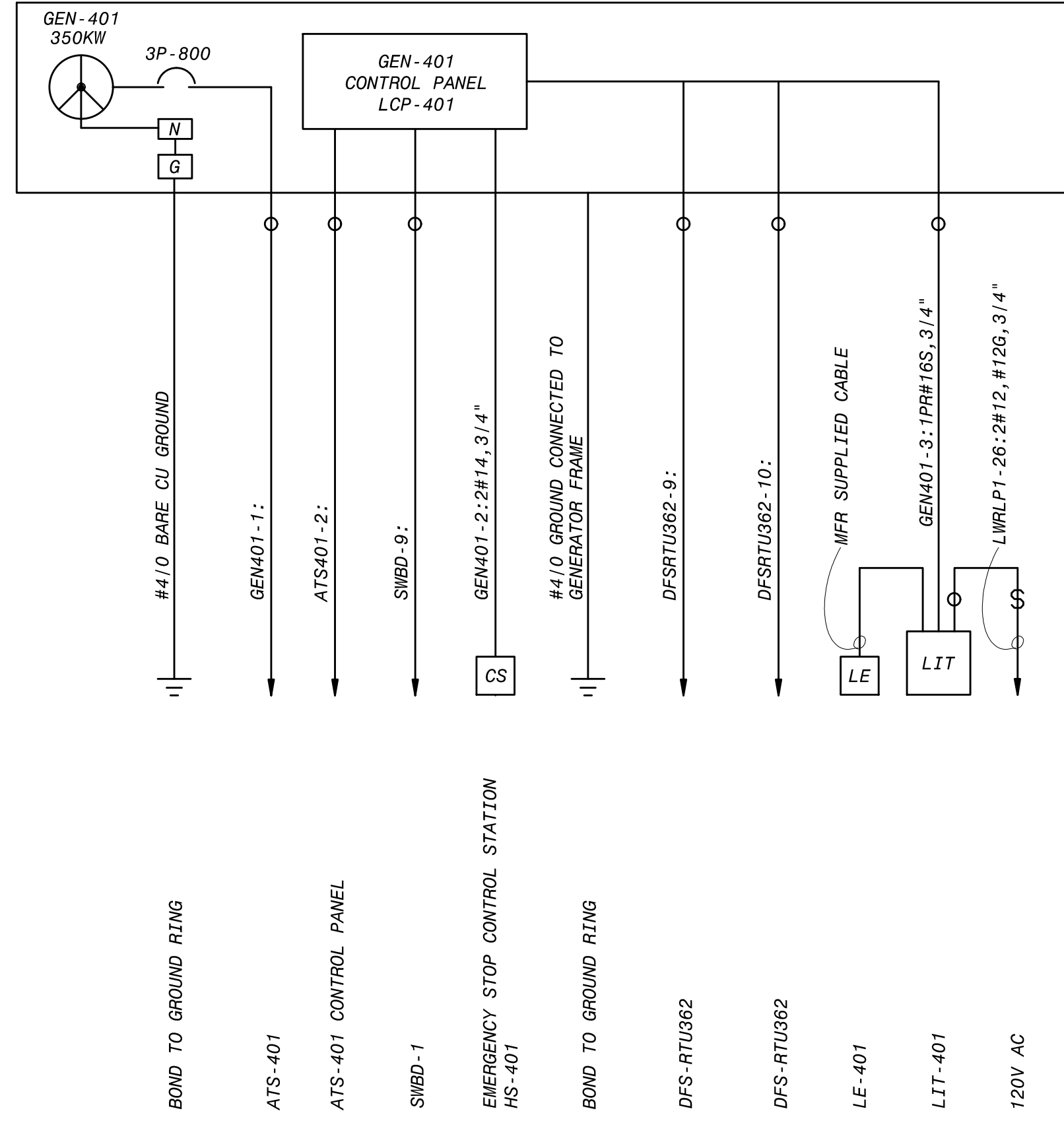
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PROJECT NO.
402142

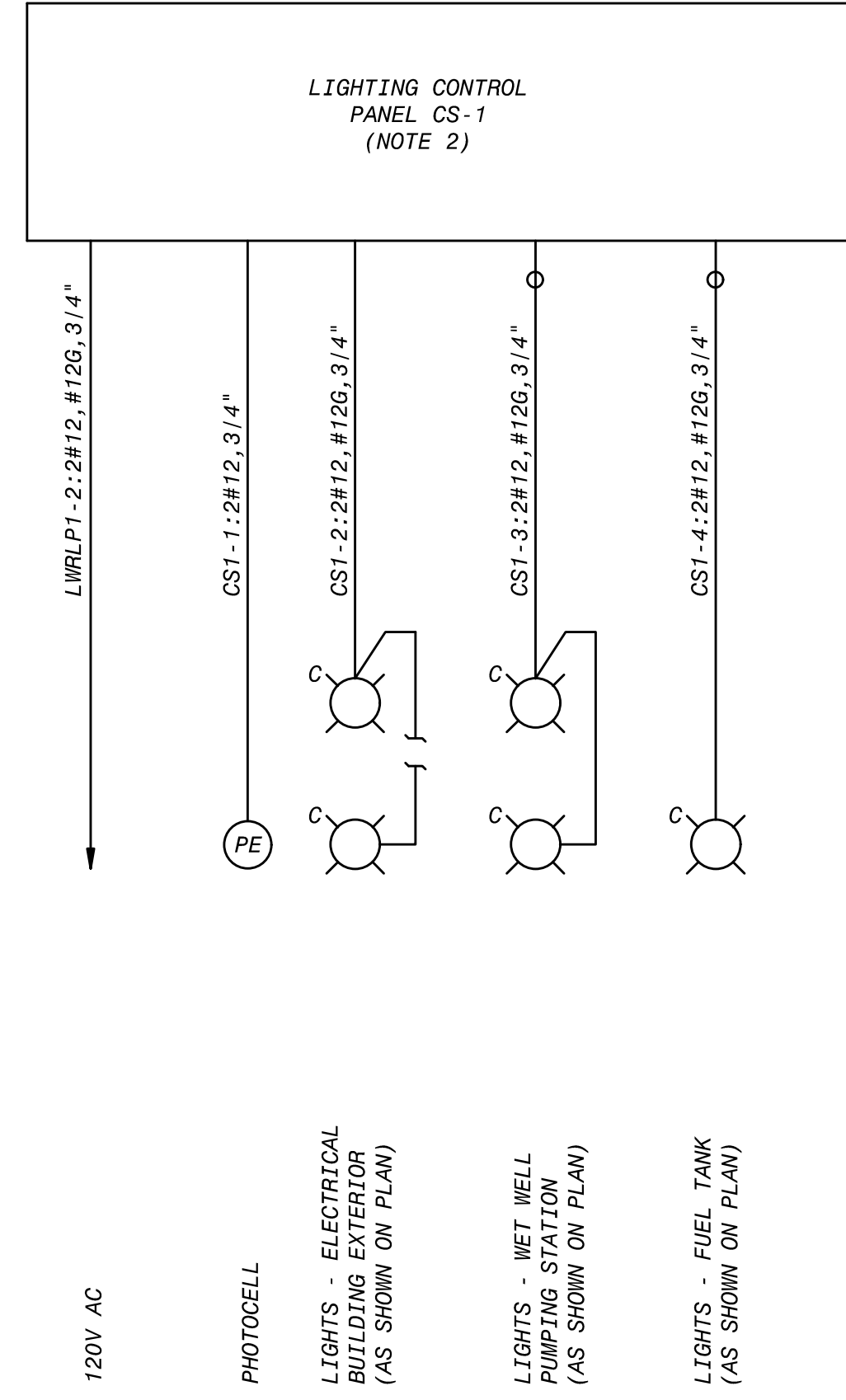
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29 OF 43

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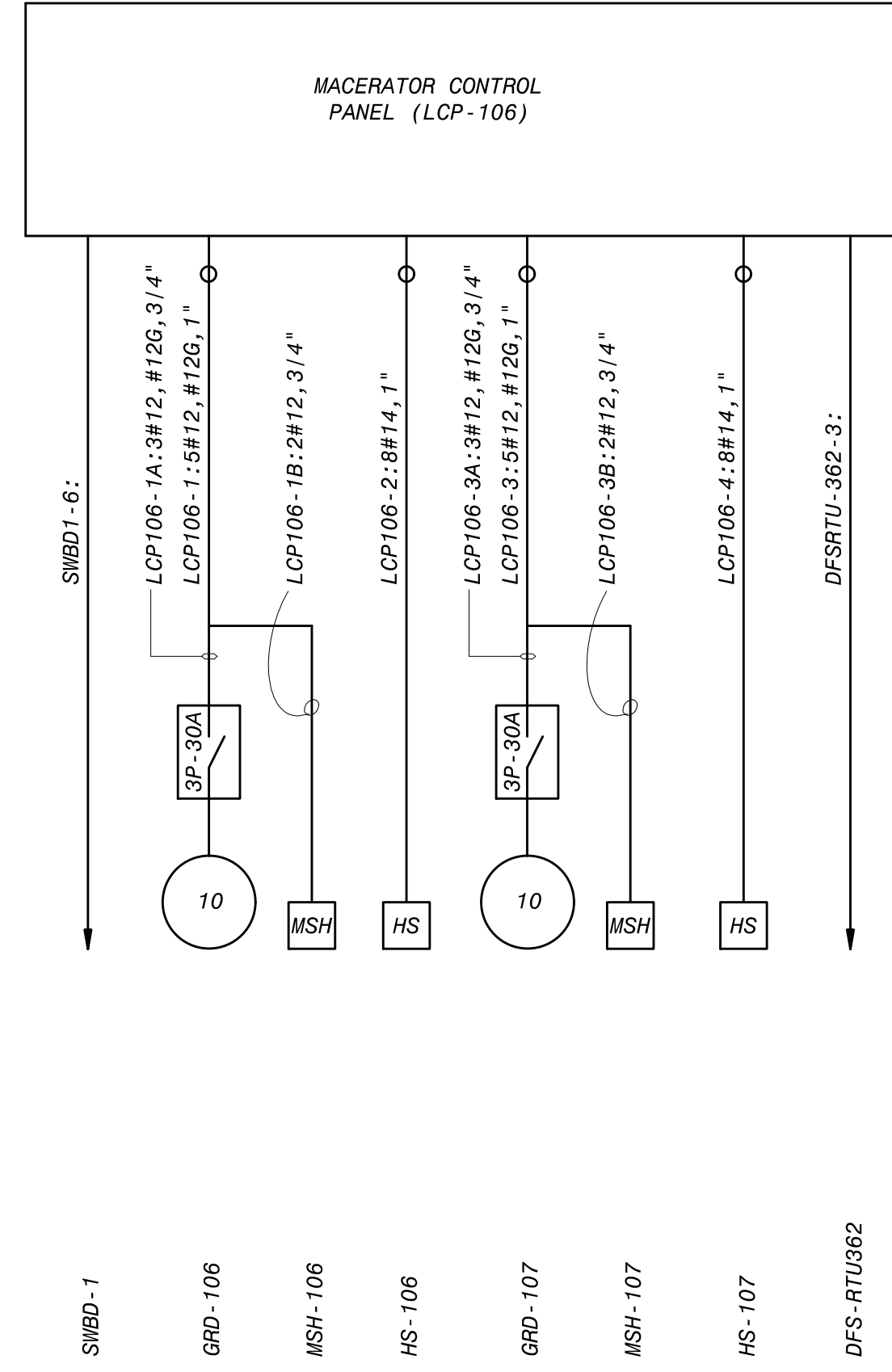
ISSUED FOR CONSTRUCTION



GEN-401 ONE-LINE DIAGRAM
NO SCALE



CS-1 ONE-LINE DIAGRAM
NO SCALE



LCP-106 ONE-LINE DIAGRAM
NO SCALE

NOTES:

- SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.
- EXTERIOR LIGHTING CONTROL PANEL (CS-1) CONSISTS OF (1) ON-OFF-AUTO CONTROL STATION AND (1) LIGHTING CONTACTOR C. THE ENCLOSURE SHALL BE NEMA 12.

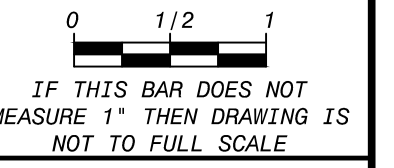
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A	AD	RT	NE

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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
 ELECTRICAL
 MISCELLANEOUS ONE-LINE DIAGRAMS

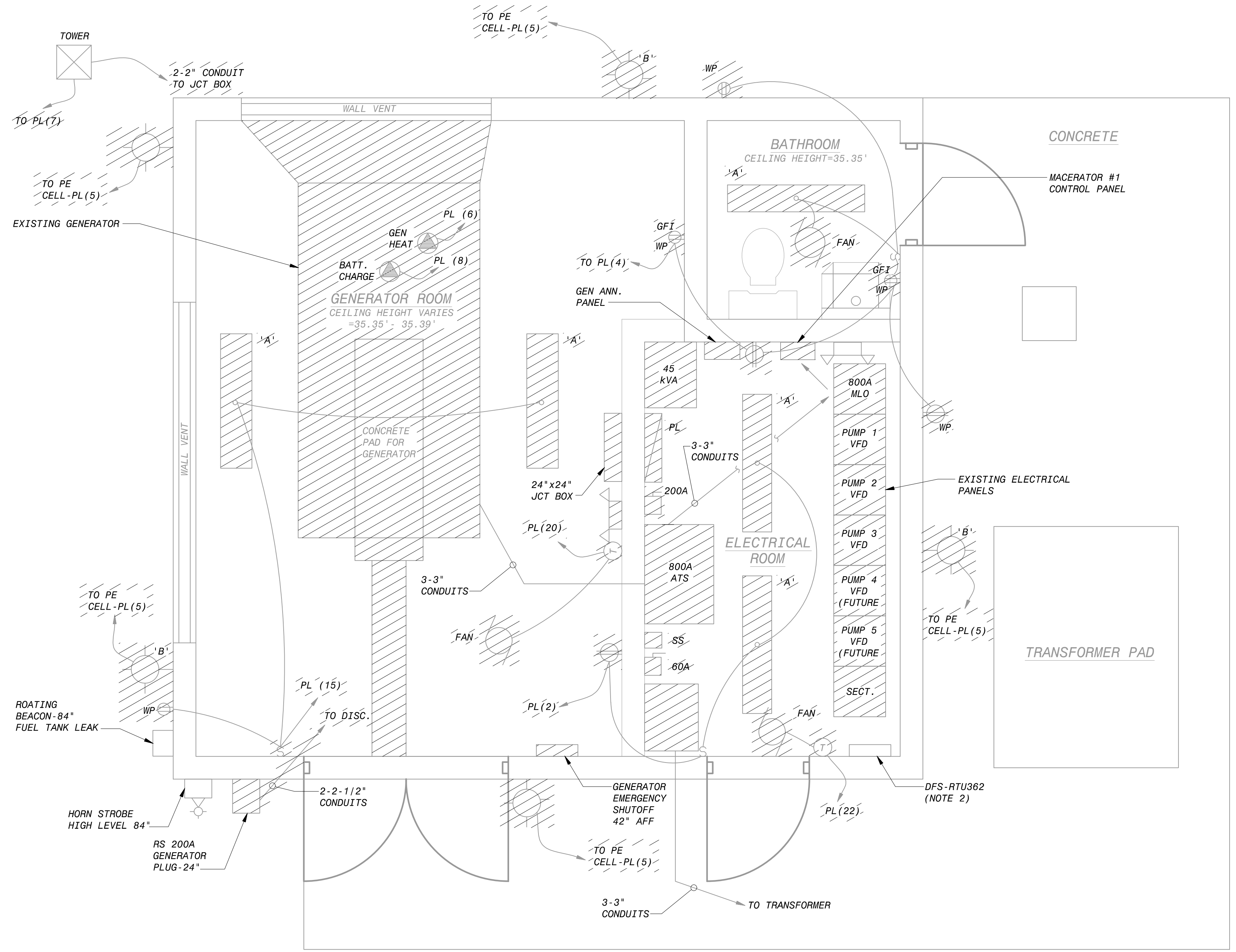
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 DATE: SEPT 2022



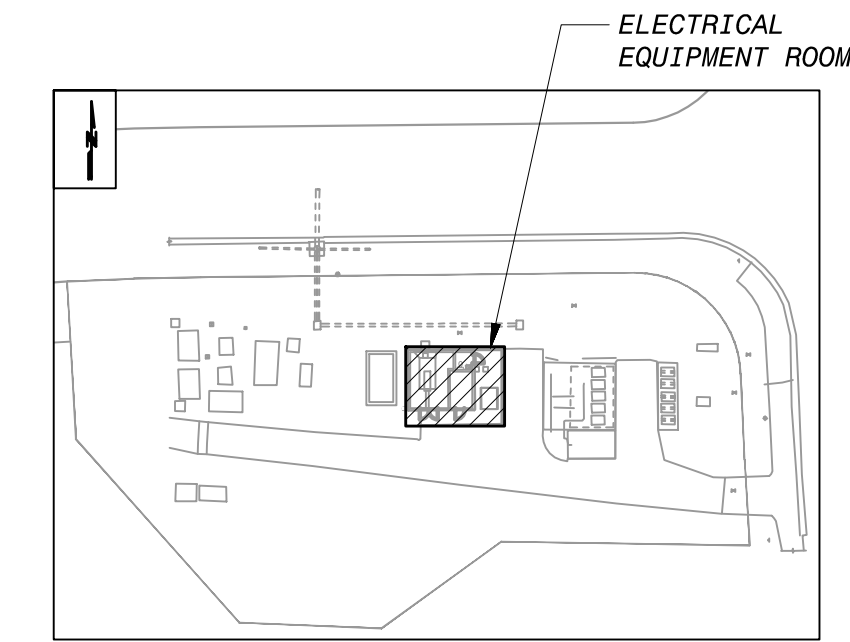
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E-10
 SHEET
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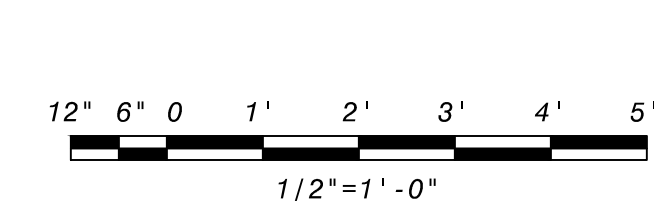
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ELECTRICAL EQUIPMENT ROOM DEMOLITION PLAN
1/2" = 1'-0"



KEY PLAN



- NOTES:**
- SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.
 - CONTRACTOR TO DISCONNECT EXISTING CABLES OF EXISTING DFS-RTU362 #1 CONTROL PANEL AND RECONNECT IT TO RELOCATED DFS-RTU362 PANEL WITH CABLES AND CONDUITS AS SHOWN ON DRAWING E-12.
 - REFER TO DRAWING D-01 FOR DEMOLITION OF WALLS AND DOORS.

NO.	BY	CHK	APP
A	AD	RT	NE
B	AD	RE	INT
SEPT 2022 100% SUBMITTAL			
FEB 2020 90% SUBMITTAL			
DATE	REVISITONS AND RECORD OF ISSUE		
60-3063 - MLS Lakewood Ranch	E-11.dwg		
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USER: DUT48884	XREF3:		
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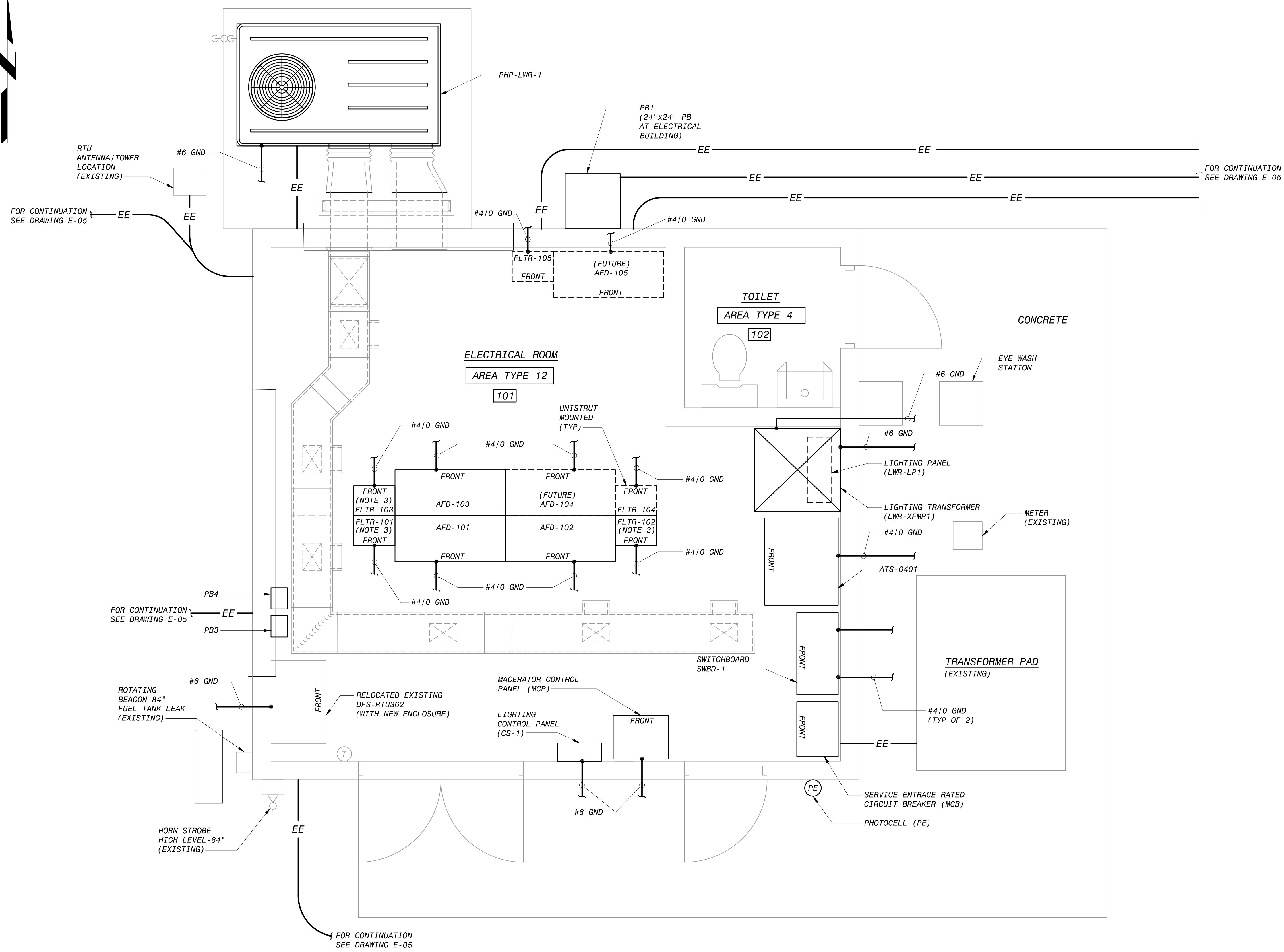
MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
ELECTRICAL EQUIPMENT ROOM DEMOLITION PLAN

DESIGNED:	JG/AP
DETAILED:	KP
CHECKED:	DG
APPROVED:	RB
DATE:	SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

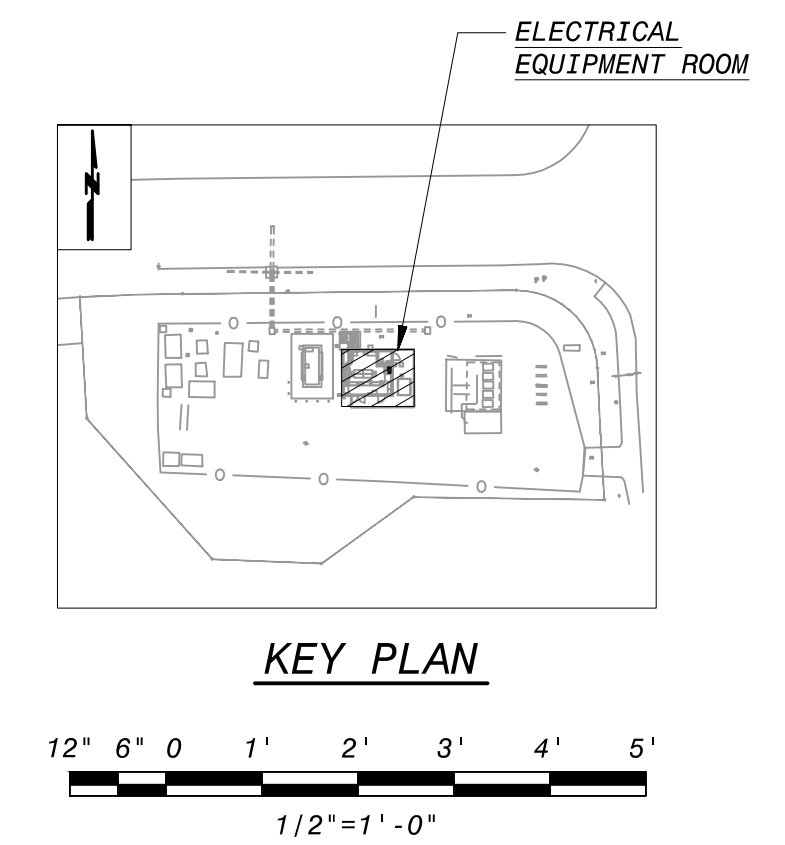
PROJECT NO.
402142
E-11
SHEET
31 OF 43

ISSUED FOR CONSTRUCTION



**ELECTRICAL EQUIPMENT ROOM
POWER AND GROUNDING PLAN**
1/2" = 1'-0"

- NOTES:**
- SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.
 - CONTRACTOR TO IDENTIFY EXISTING GROUND RING TO CONNECT NEW GROUND RISERS.
 - CONTRACTOR SHALL INSTALL FILTER UNIT PANEL WITH HELP OF UNISTRUTS.
 - TIE NEW GROUND CONDUCTORS INTO EXISTING GROUND GRID.



SEPT 2022	100% SUBMITTAL	C	AD	RE	INT
FEB 2020	90% SUBMITTAL	B	AD	RT	NE
OCT 2019	50% SUBMITTAL	A	AD	RT	NE
DATE	REVISED AND RECORD OF ISSUE	NO.	BY	CHK	APP
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	USER: DUT48884				
	DWG. VER: 1000				

THIS DRAWING WAS
ORIGINALLY APPROVED
FOR CONSTRUCTION BY
PROJECT NO. 402142, 1,
ON 09/16/2022 AND
SEALED BY
RYAN BINKLEY,
A LICENSED
PROFESSIONAL
ENGINEER IN THE
STATE OF FLORIDA,
NO. 89014

BLACK & VEATCH
Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd, Suite 125
Tampa, Florida
Certificate No. 8132

**MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH**

**ELECTRICAL EQUIPMENT ROOM
POWER AND GROUNDING PLAN**

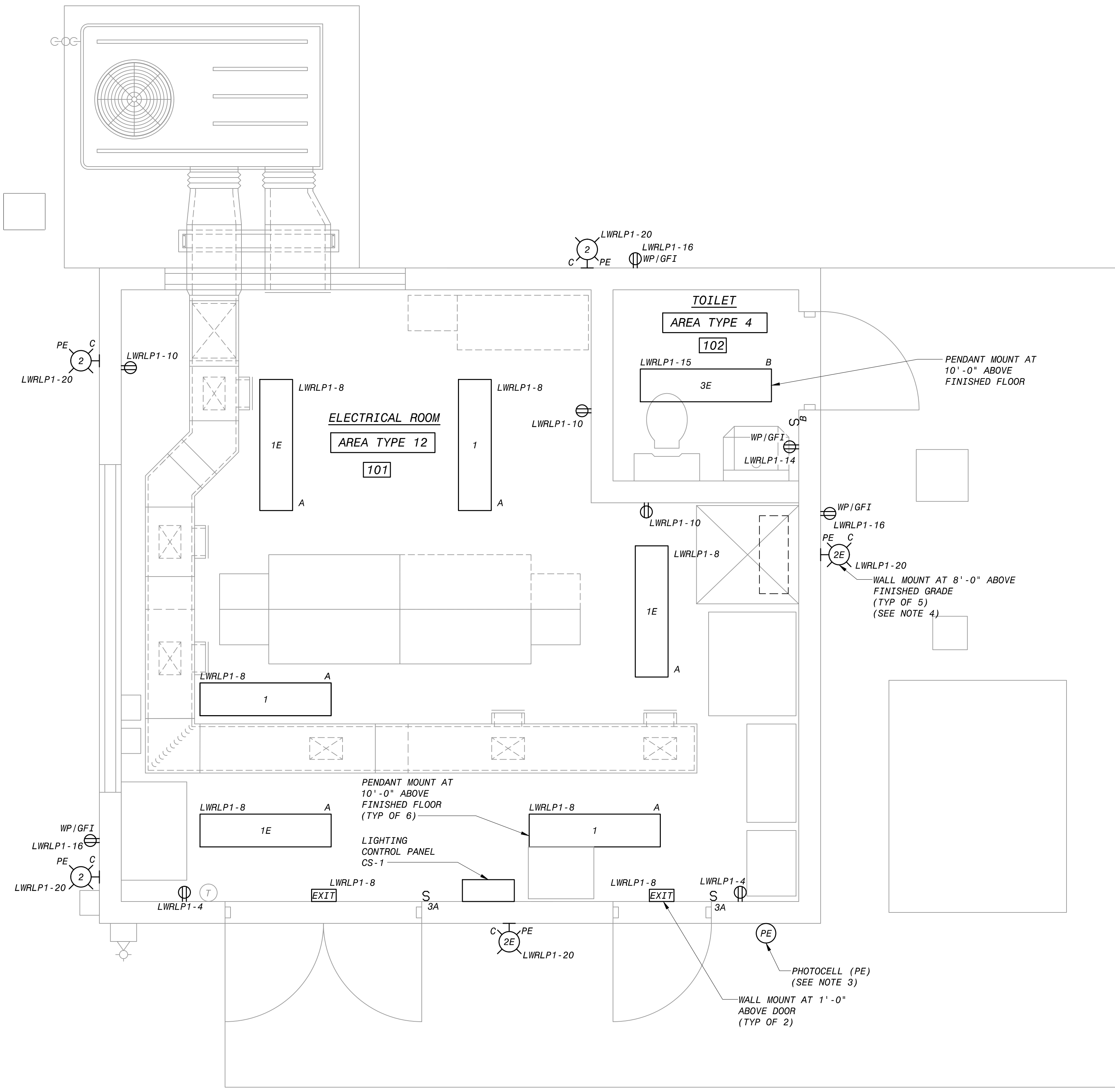
DESIGNED:	JG/AP
DETAILED:	KP
CHECKED:	DG
APPROVED:	RB
DATE:	SEPT 2022

IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

PROJECT NO.
402142

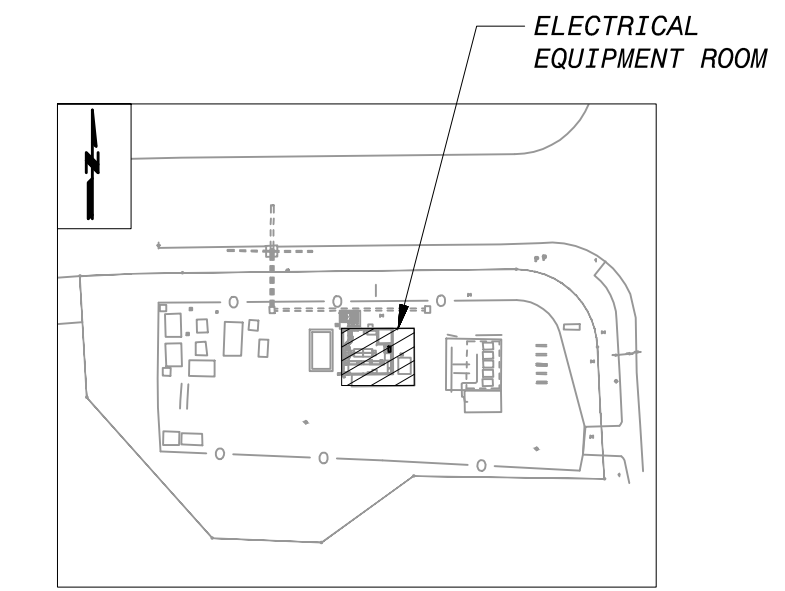
E-12
SHEET
32 OF 43

ISSUED FOR CONSTRUCTION



ELECTRICAL EQUIPMENT ROOM LIGHTING PLAN
1/2" = 1'-0"

- NOTES:**
- SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.
 - SEE DRAWING E-06 FOR LIGHTING FIXTURE AND PANELBOARD SCHEDULES.
 - PHOTOELECTRIC CELL SHALL BE WALL MOUNTED CLOSE TO ROOFLINE. CABLE AND CONDUIT SHALL BE ROUTED TO LIGHTING CONTROL PANEL (CS-1) LOCATED IN THE ELECTRICAL ROOM.
 - WET WELL PUMP STATION, FUEL TANK AND BUILDING EXTERIOR LIGHTING SHALL BE CONTROLLED BY LIGHTING CONTROL PANEL (CS-1) CONSISTING OF (1) ON-OFF-AUTO CONTROL STATION AND (1) LIGHTING CONTACTOR C. THE ENCLOSURE SHALL BE NEMA 12.



KEY PLAN
1/2" = 1'-0"

NO.	BY	CHK	APP
A	AD	RT	NE
B	AD	RE	INT
SEPT 2022 100% SUBMITTAL			
FEB 2020 90% SUBMITTAL			
DATE REVISIONS AND RECORD OF ISSUE			
60-3063 - MLS Lakewood Ranch			
E-13.dwg			
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PLOTTED: DUT48884, 9/15/2022 2:29:01 PM			
USER: DUT48884			
DWS: VER: 1000			

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RYAN BLINKLEY, P.E.,
ON 09/16/2022 AND
SEALED BY
RYAN BLINKLEY,
A LICENSED
PROFESSIONAL
ENGINEER IN THE
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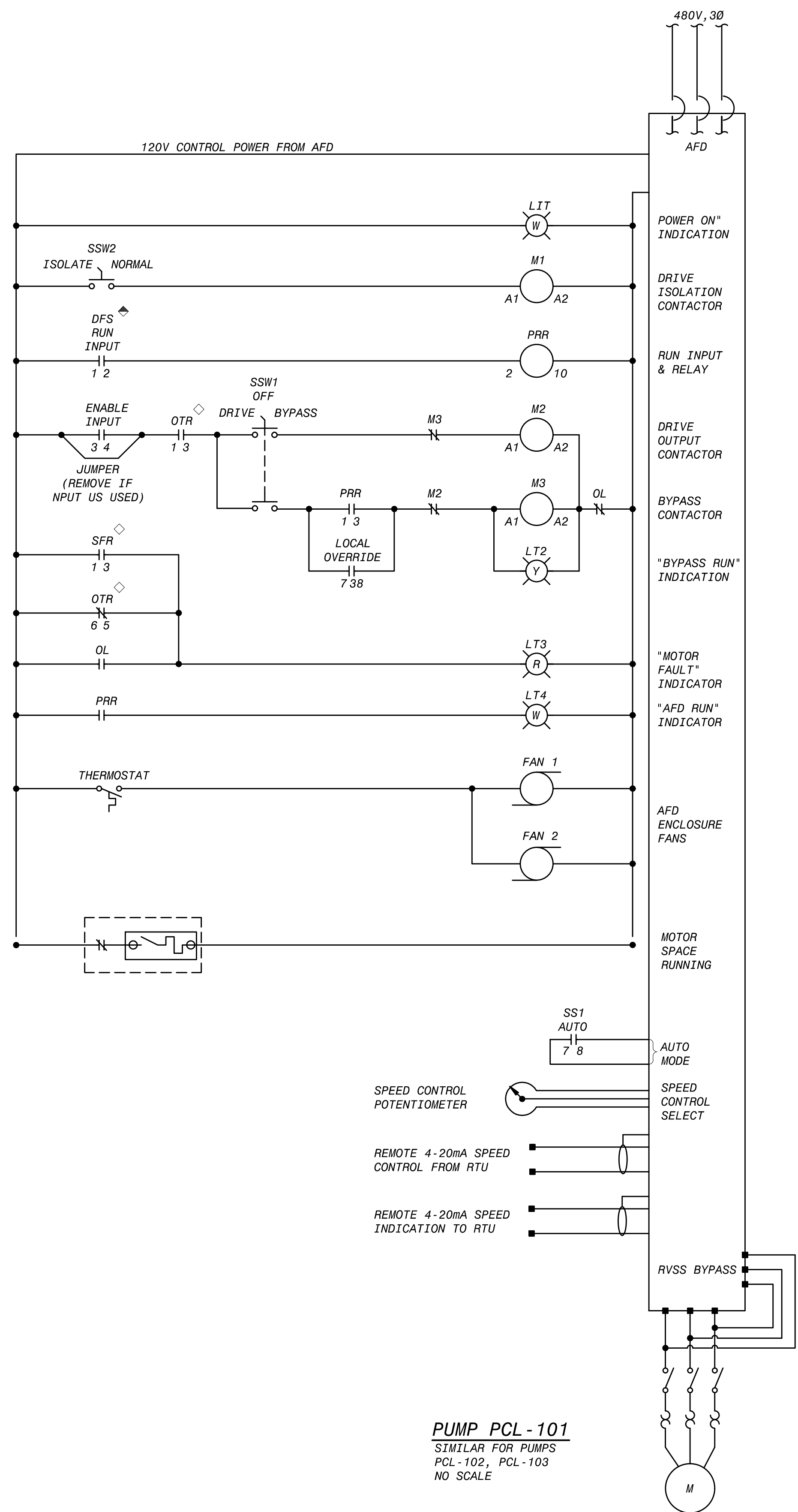
MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
ELECTRICAL EQUIPMENT ROOM LIGHTING PLAN

DESIGNED: JG/AP
DETAILED: KP
CHECKED: DG
APPROVED: RB
DATE: SEPT 2022

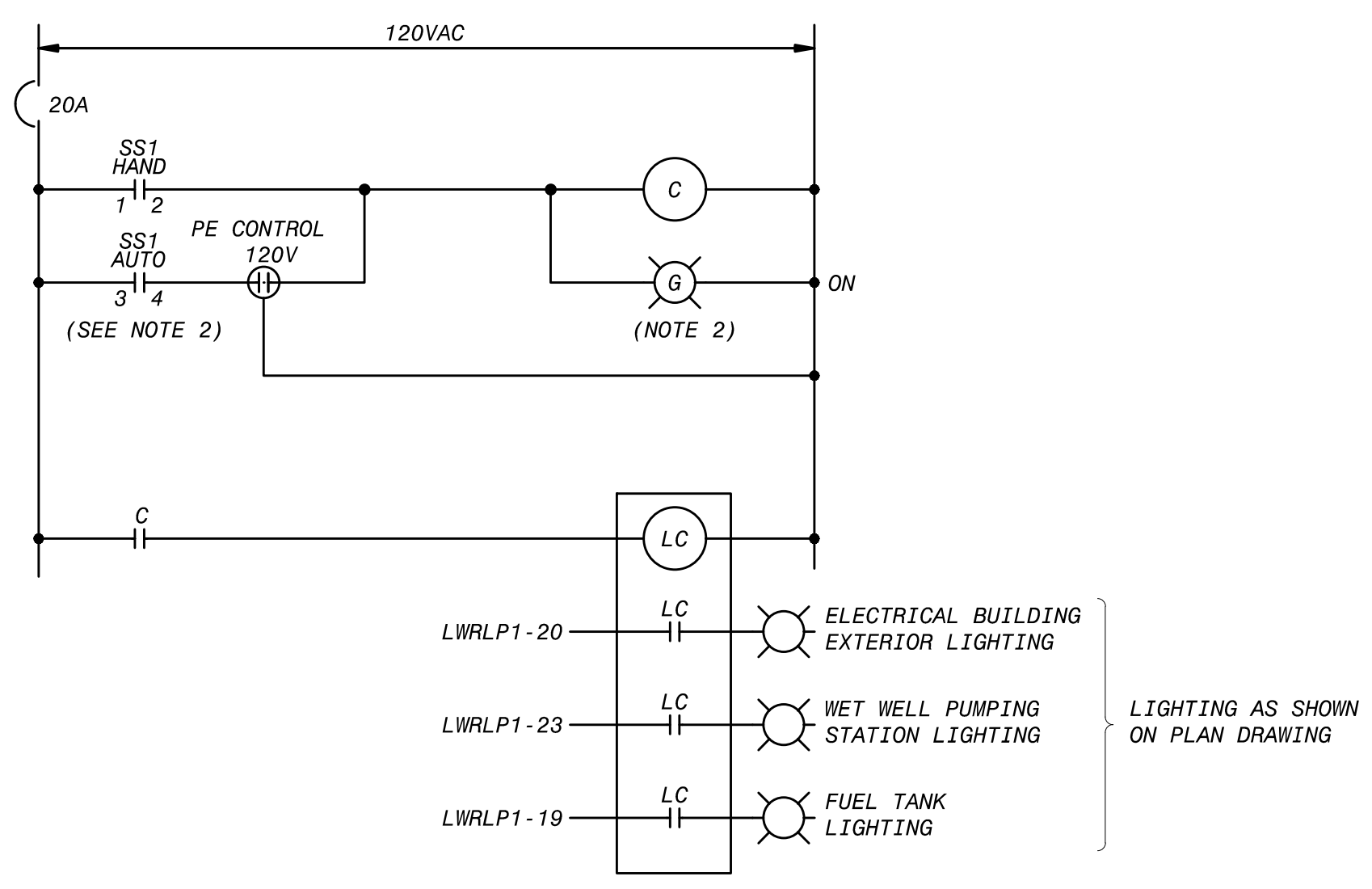
0 1/2 1
12" 6" 0 1' 2' 3' 4' 5'
IF THIS BAR DOES NOT
MEASURE 1" THEN DRAWING IS
NOT TO FULL SCALE

PROJECT NO.
402142
E-13
SHEET
33 OF 43

ISSUED FOR CONSTRUCTION



PUMP PCL - 101
SIMILAR FOR PUMPS
PCL - 102, PCL - 103
NO SCALE



BUILDING EXTERIOR & SITE LIGHTING CONTROL PANEL CS-1
NO SCALE

SS1 SWITCH DEVELOPMENT

CONTACTS	POSITION		
	HAND	OFF	AUTO
1-2	X		
3-4			X
5-6			X

LEGEND:

- ◇ AT DRIVEN EQUIPMENT
- ◆ FROM DFS RTU
- ◆ FROM THERMOSTAT T-1

- NOTES:**
- SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.
 - THE ON-OFF-AUTO SELECTOR SWITCH AND INDICATING LIGHT SHALL BE MOUNTED SEMI-FLUSH ON THE DOOR OF THE LIGHTING CONTROL PANEL (CS-1).
 - OFF-ON SWITCH MOUNTED ON FRONT OF DISCONNECT SWITCH.

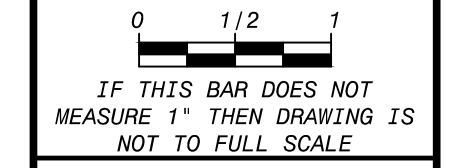
NO.	BY	CHK	APP
A	AD	RT	NE
B	AD	RE	INT
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FOR CONSTRUCTION BY
PROJECT NO. 402142 AND
ON 09/16/2022 AND
SEALED BY
RYAN BINKLEY,
A LICENSED,
PROFESSIONAL
ENGINEER IN THE
STATE OF FLORIDA,
NO. 89014

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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
ELECTRICAL SCHEMATICS

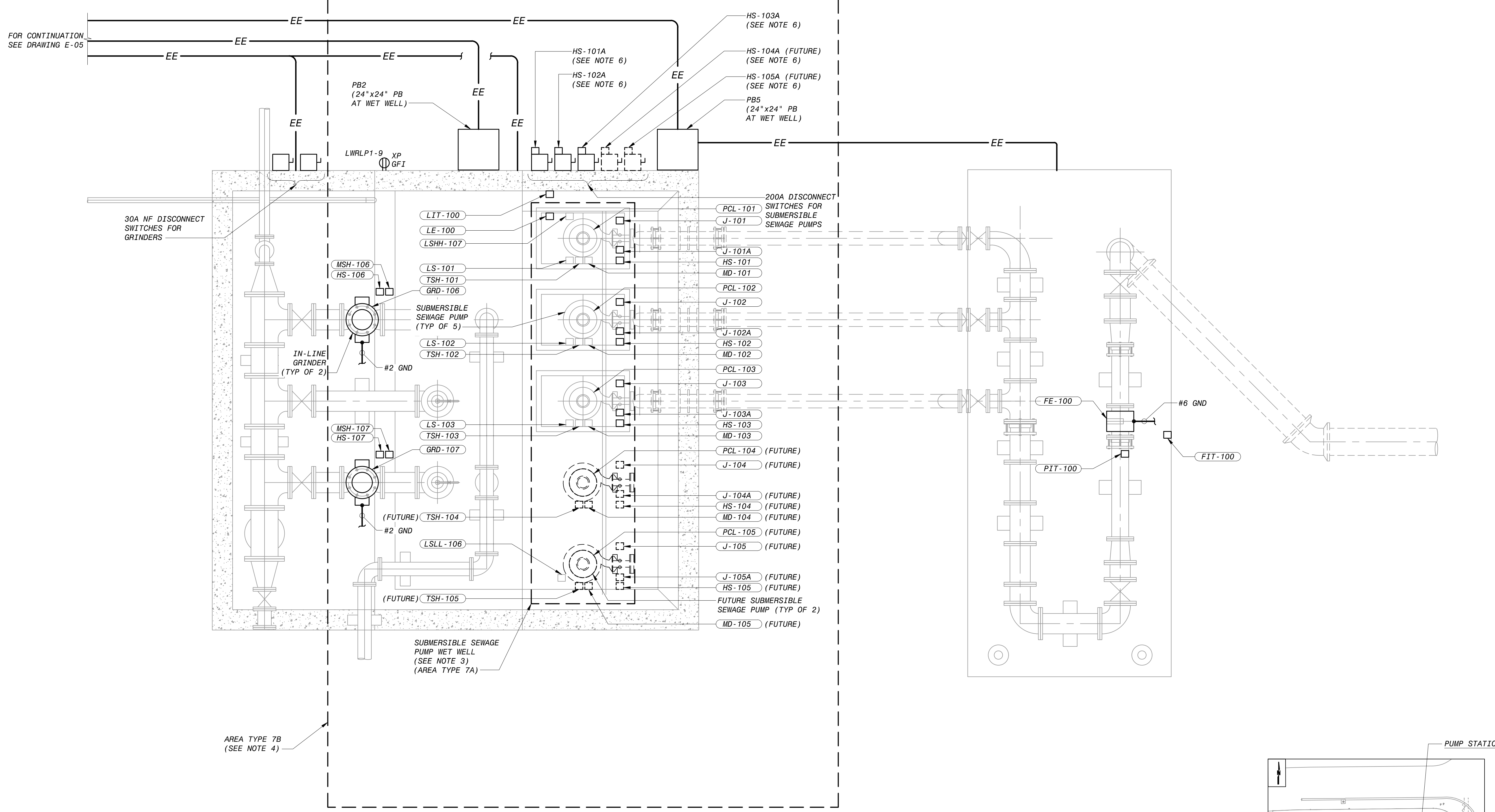
DESIGNED: HK
DETAILED: KP
CHECKED: DG
APPROVED: RB
DATE: SEPT 2022



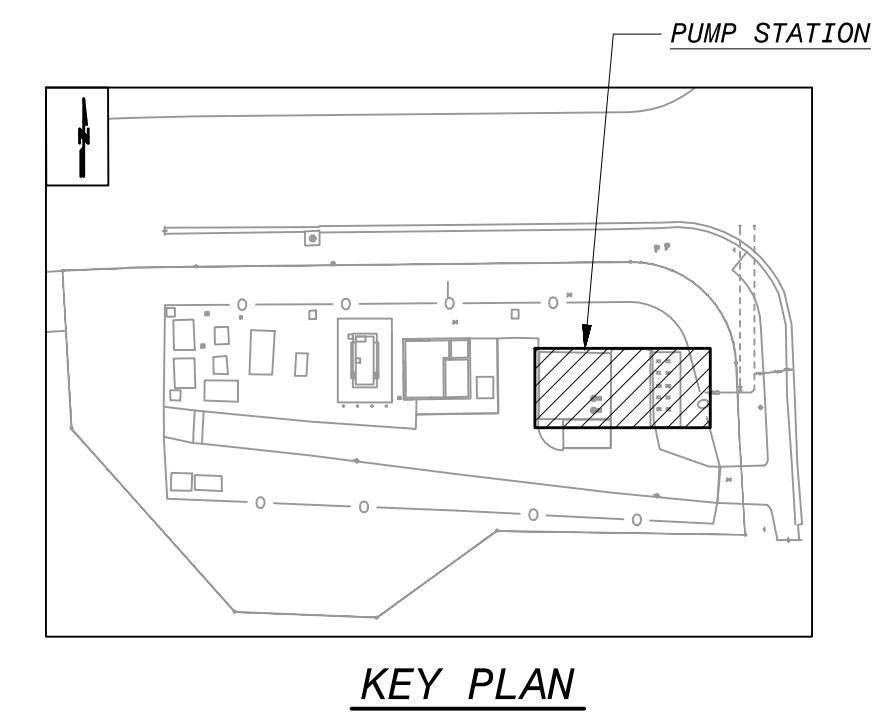
PROJECT NO.
402142

E-14
SHEET
34 OF 43

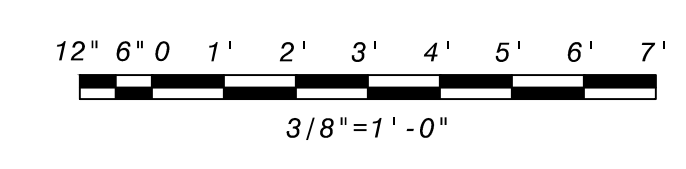
ISSUED FOR CONSTRUCTION



**PUMP STATION
POWER AND GROUNDING PLAN**
3/8"=1'-0"



KEY PLAN



- NOTES:**
- SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.
 - CONTRACTOR TO IDENTIFY EXISTING GROUND RING TO CONNECT NEW GROUND RISERS.
 - INTERIOR OF SEWAGE PUMP WET WELLS ARE CLASSIFIED AS CLASS 1, DIVISION 1 AS PER 2020 EDISON NFPA 820, TABLE 4.2.2, ROW 14, LINE A (ENTIRE SPACE).
 - AREA WITHIN 10 FEET ENVELOPE AROUND ALL WET WELL GRATING IS CLASSIFIED AS CLASS 1, DIVISION 2.
 - TIE ALL NEW GROUNDS INTO EXISTING GROUND GRID.
 - OFF-ON SWITCH MOUNTED ON FRONT OF DISCONNECT SWITCH.

NO.	BY	CHK	APP
A	AD	RT	NE
B	AD	RE	INT
REVISIONS AND RECORD OF ISSUE			
DATE	BY	REVISIONS	RECORD OF ISSUE
SEPT 2022	JG/AP	100% SUBMITTAL	
FEB 2020	DG	90% SUBMITTAL	

THIS DRAWING WAS
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FOR CONSTRUCTION BY
RYAN BINKLEY, P.E.
ON 09/16/2023 AND
SEALED BY
RYAN BINKLEY,
A LICENSED
ENGINEER IN THE
STATE OF FLORIDA,
NO. 89014

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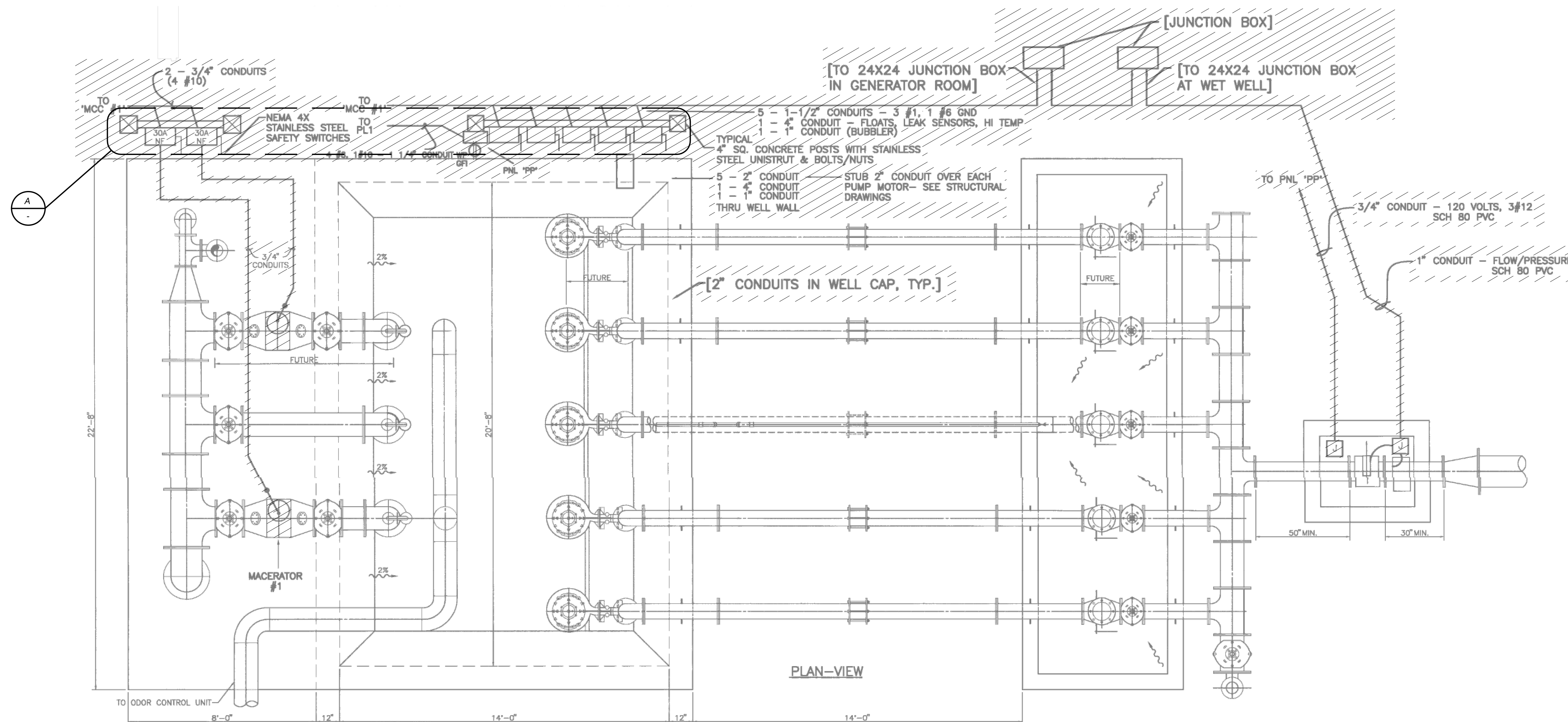
MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
ELECTRICAL
PUMP STATION POWER AND GROUNDING PLAN

DESIGNED: JG/AP
DETAILED: KP
CHECKED: DG
APPROVED: RB
DATE: SEPT 2022

PROJECT NO.
402142

E-15
SHEET
35 OF 43

ISSUED FOR CONSTRUCTION

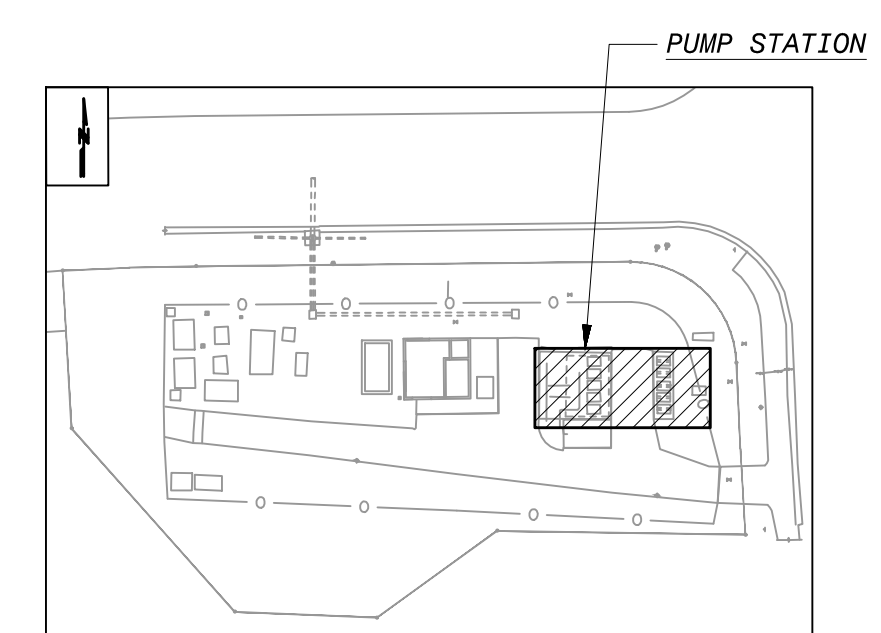


DETAIL A
NO SCALE

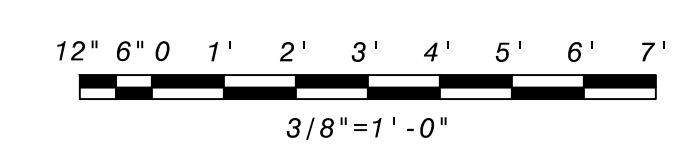
PUMP STATION DEMOLITION PLAN
3/8"=1'-0"

- NEEMA 4X STAINLESS STEEL SAFETY SWITCHES (EXISTING)
- JUNCTION BOX (EXISTING)

- NOTES:**
- SEE DRAWINGS E-01 AND E-02 FOR ELECTRICAL LEGEND & ABBREVIATIONS AND NOTES.
 - CONTRACTOR TO DEMOLISH EXISTING CABLES AND ABOVE GROUND CONDUITS AND SEAL AND ABANDON CANCELED CONDUITS IN PLACE.
 - REFER TO DRAWING D-02 AND D-03 FOR DEMOLITION OF STRUCTURAL COMPONENTS.



KEY PLAN



SEPT 2022	100% SUBMITTAL	B	AD	RE	INT
FEB 2020	90% SUBMITTAL	A	AD	RT	NE
DATE	REVISED AND RECORD OF ISSUE	NO.	BY	CHK	APP
50-3063 - M/S Lakewood Ranch	E-16.dwg				
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USER: D:\48884	XREF4:				

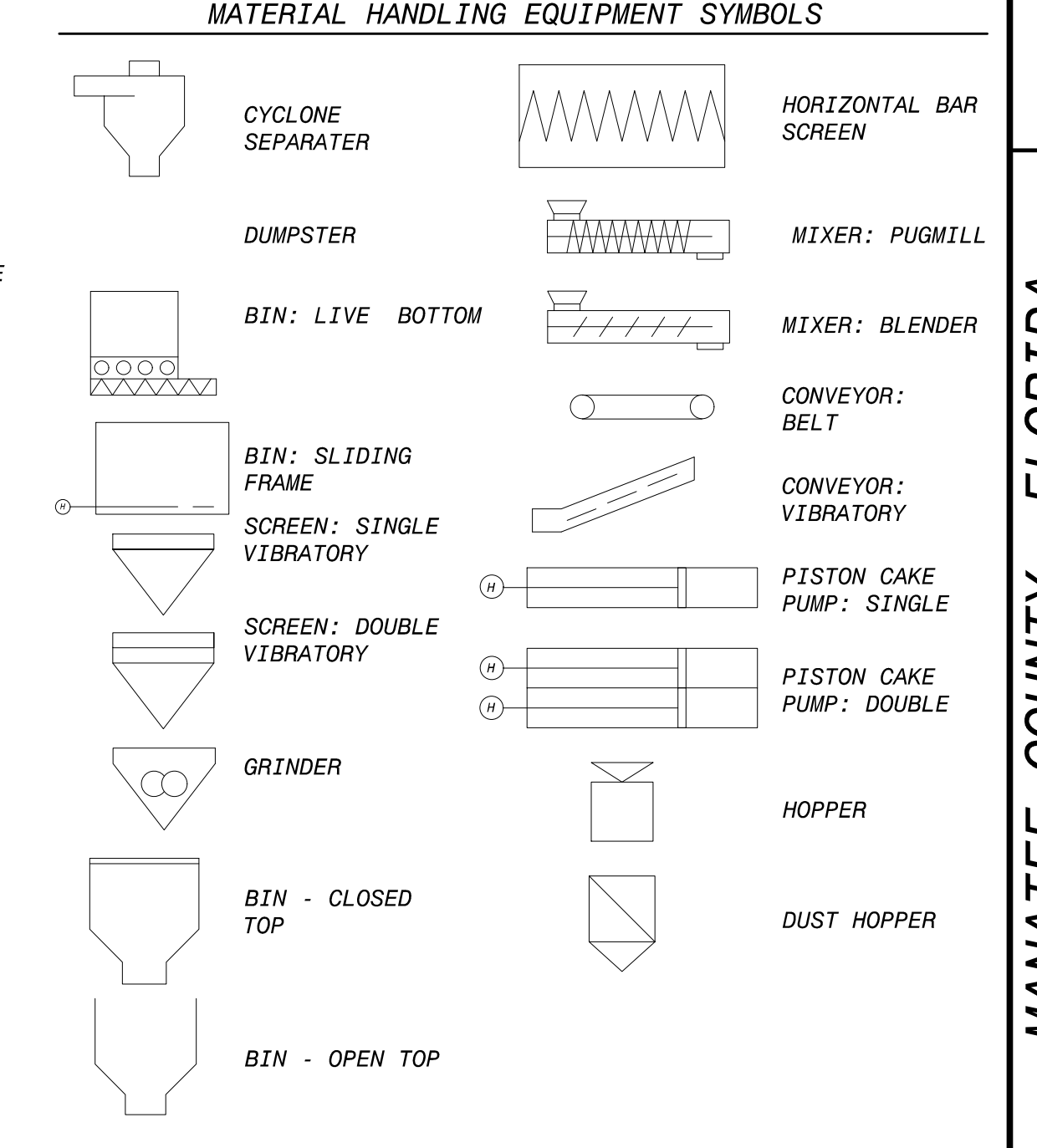
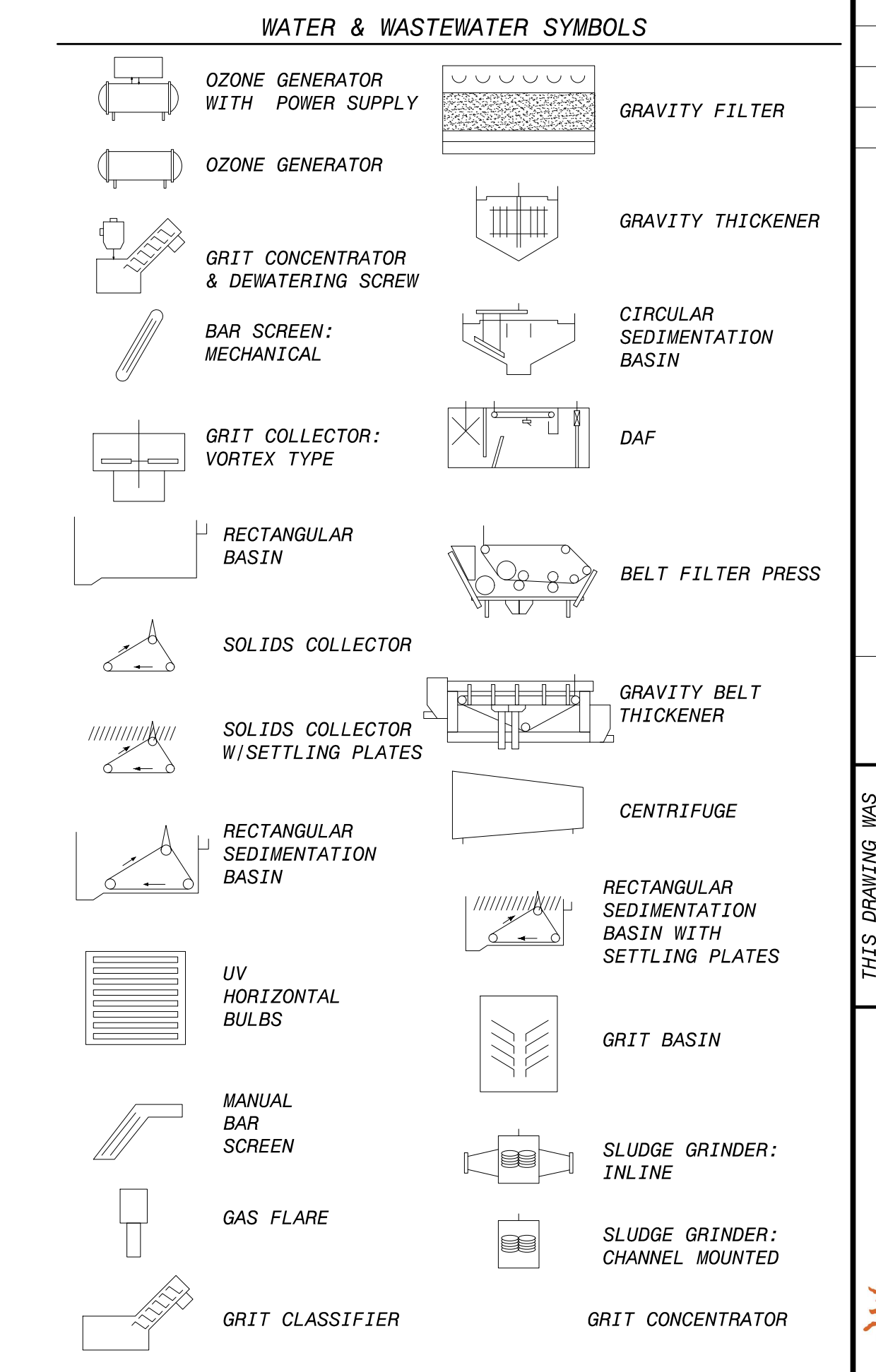
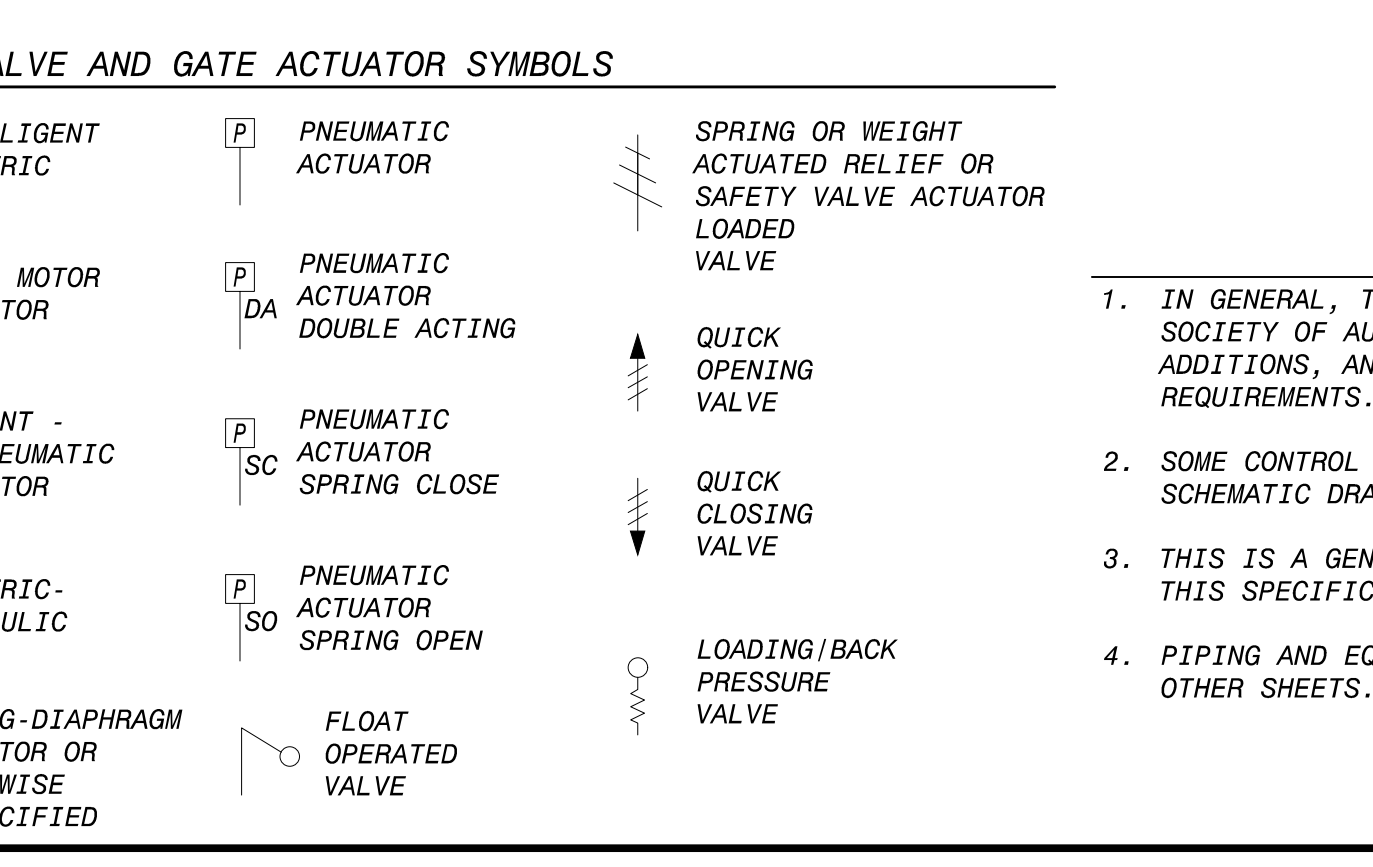
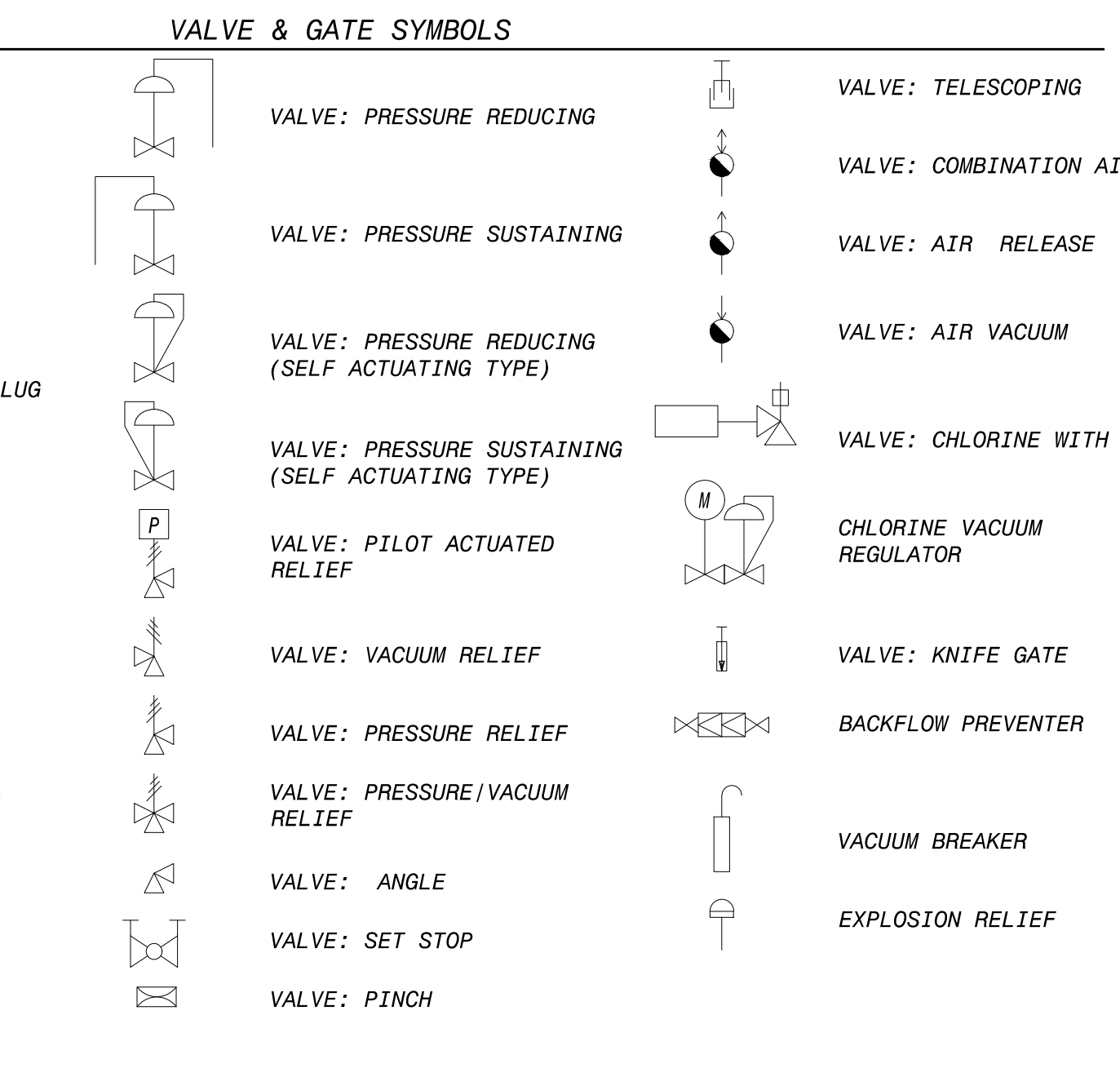
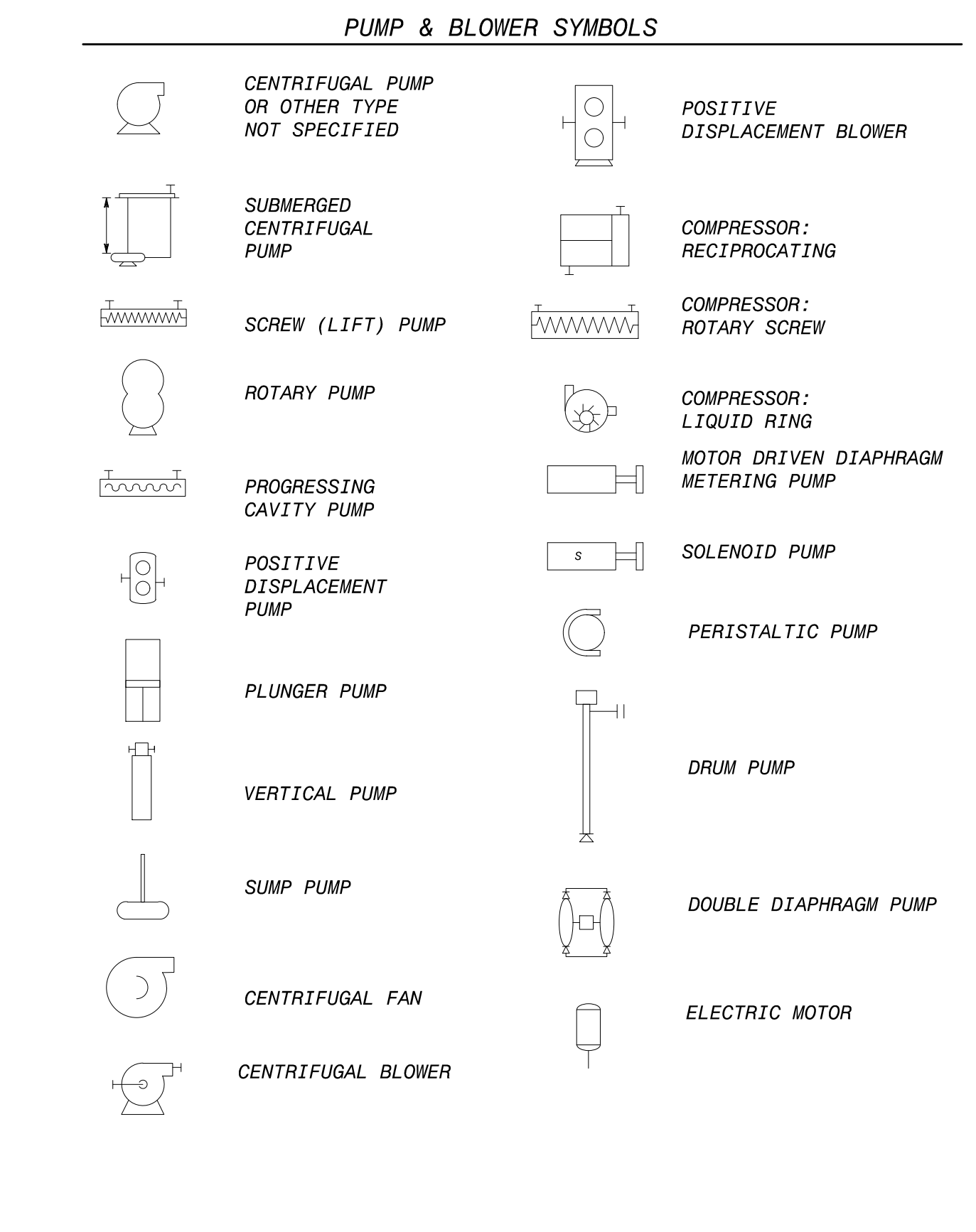
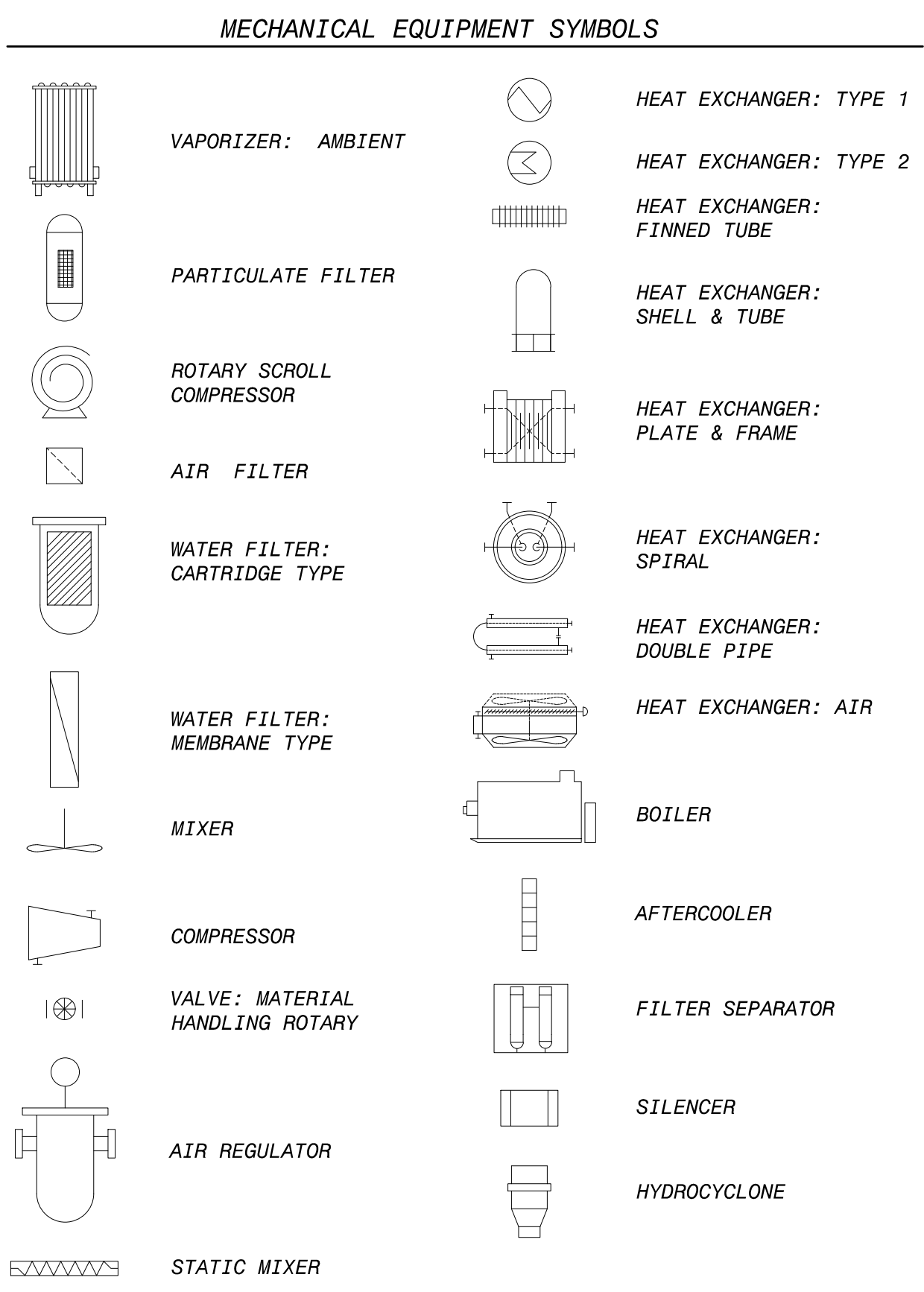
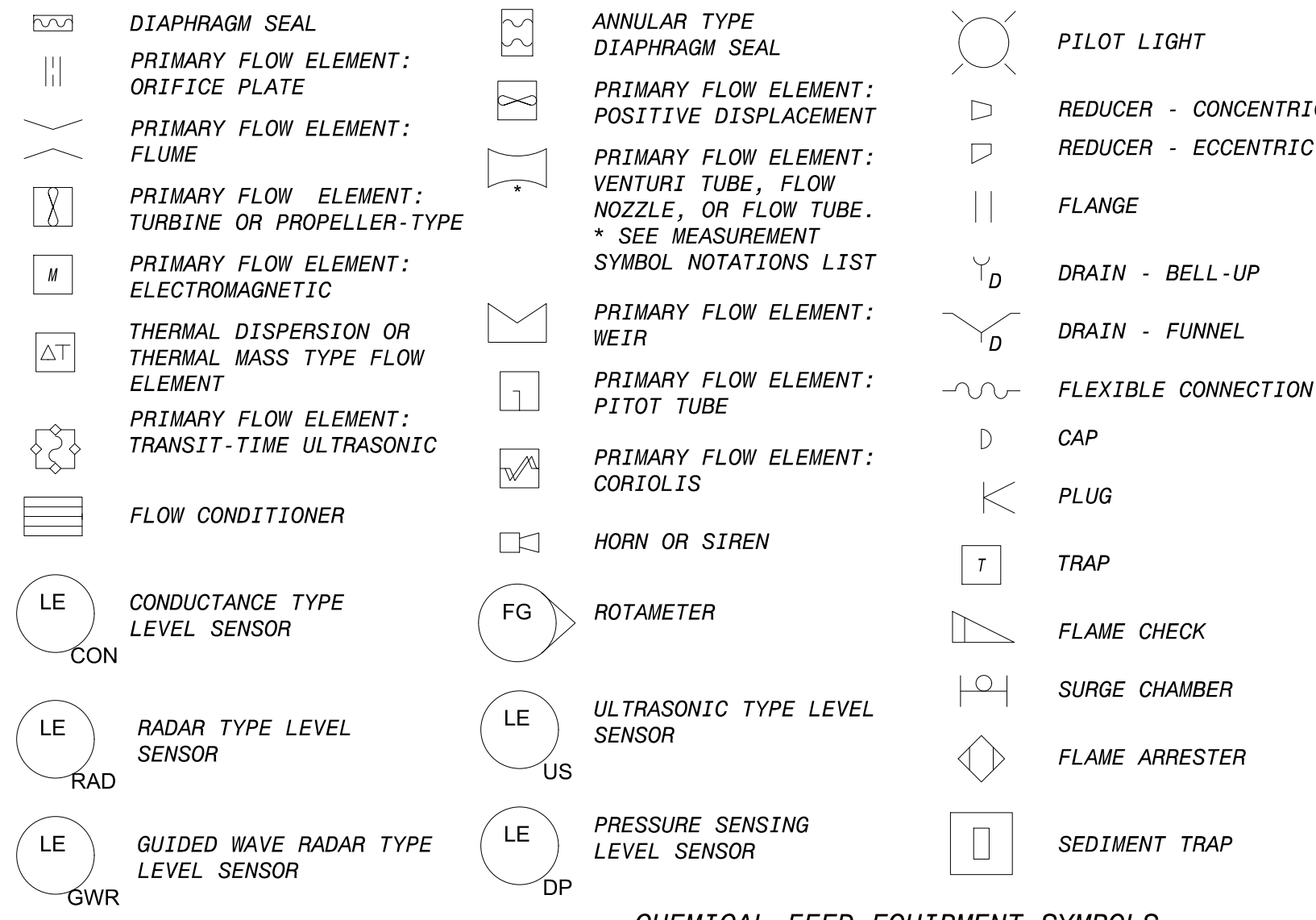
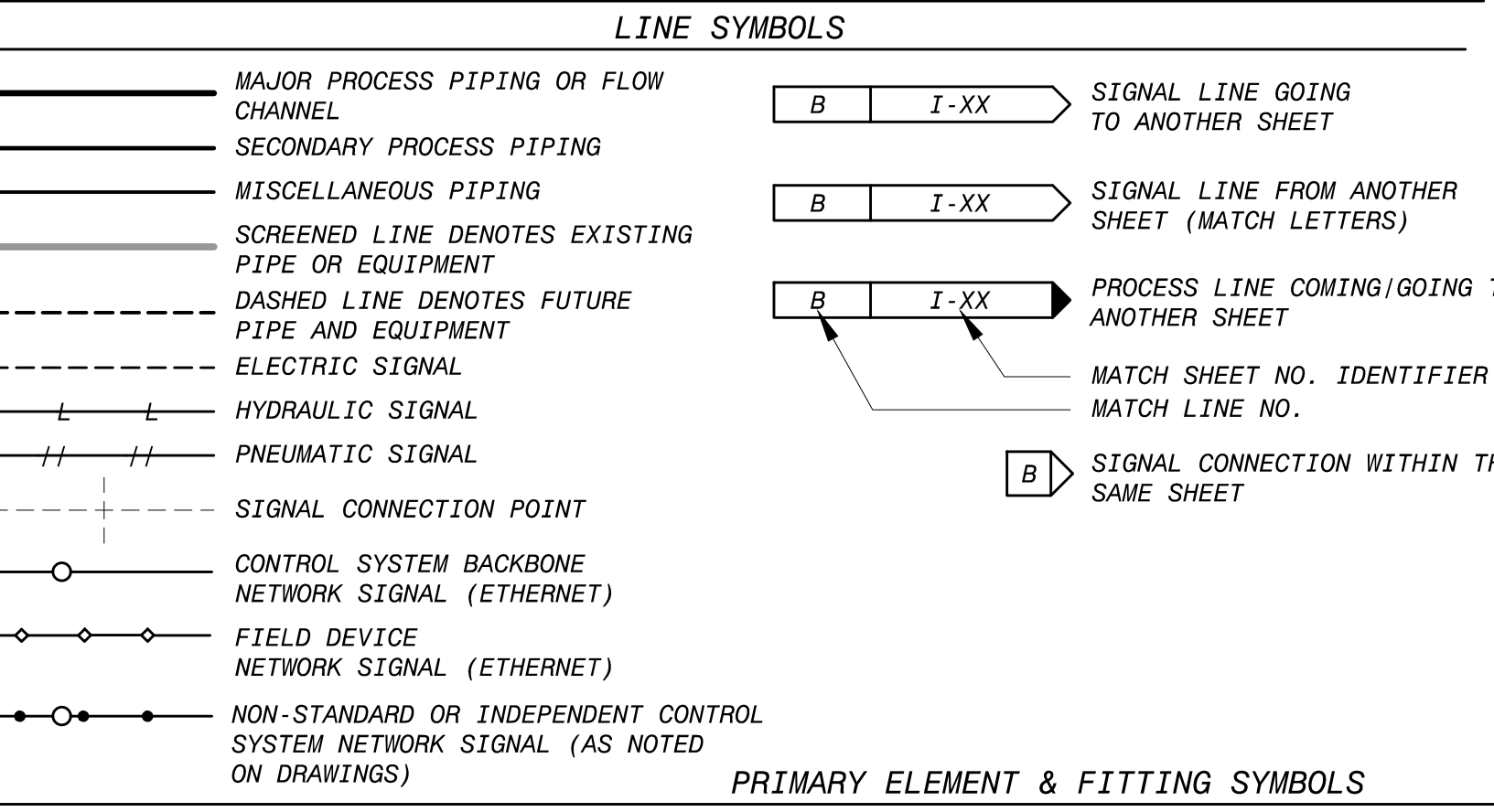
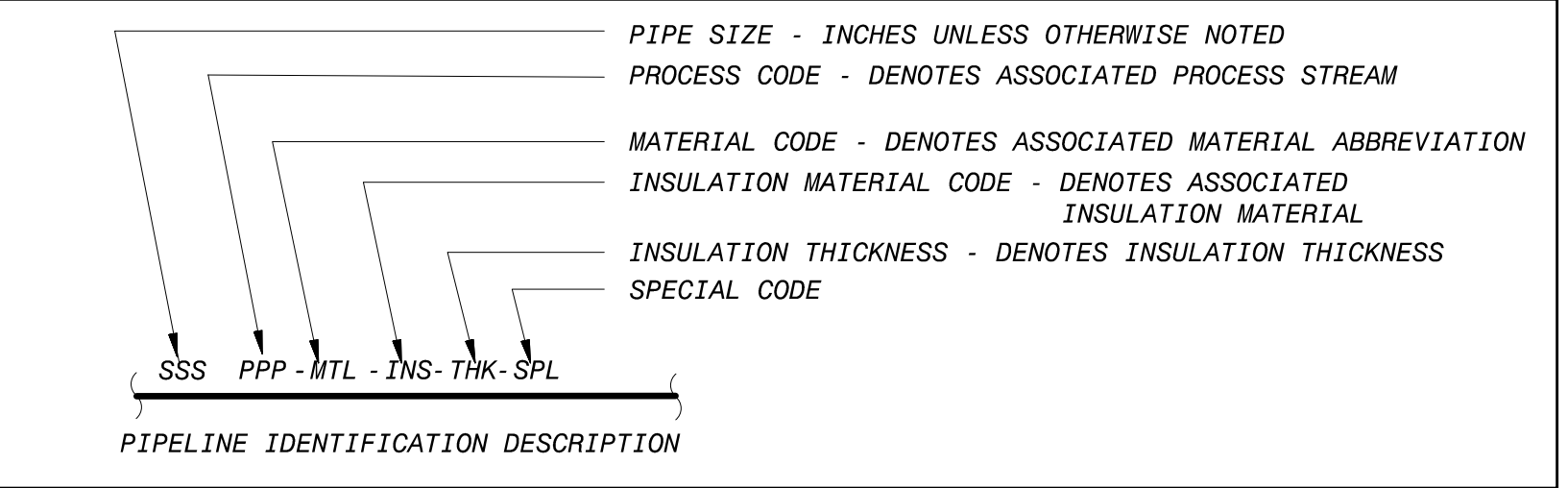
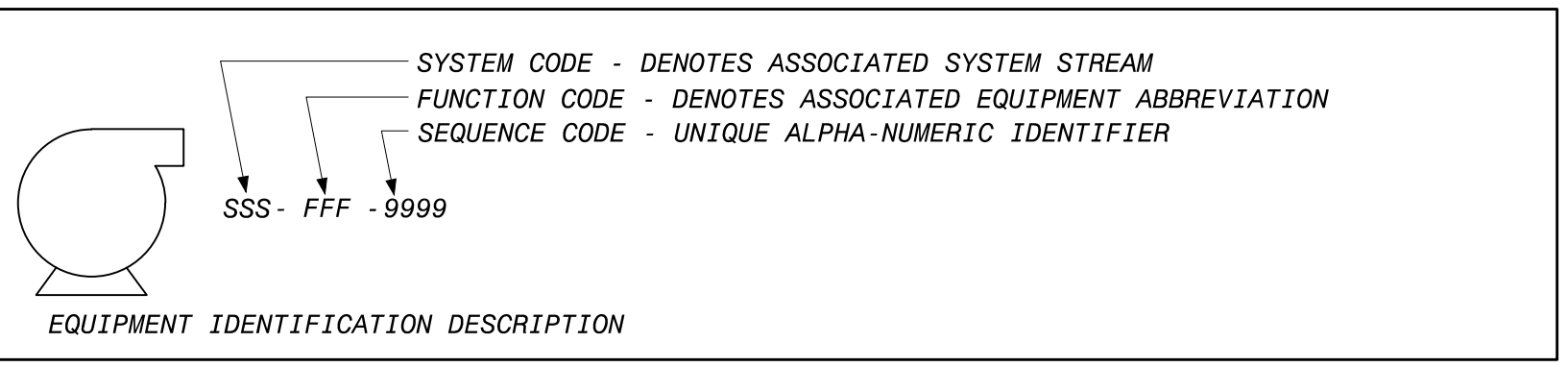
THIS DRAWING WAS
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FOR CONSTRUCTION BY
PROJECT NO. 15-11-1
ON 09/16/2020 AND
SEALED BY
RYAN BLINKLEY,
A LICENSED
PROFESSIONAL
ENGINEER IN THE
STATE OF FLORIDA,
NO. 89014

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Tampa, Florida
Certificate No. 8132

MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
ELECTRICAL
PUMP STATION DEMOLITION PLAN

DESIGNED: JG/AP
DETAILED: KP
CHECKED: DG
APPROVED: RB
DATE: SEPT 2022
PROJECT NO. 402142
E-16 SHEET 36 OF 43

ISSUED FOR CONSTRUCTION



GENERAL NOTES

- IN GENERAL, THE P&ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION, STANDARD PRACTICE ANSI/ISA-5.1 (2009). SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
- SOME CONTROL AND INTERLOCK REQUIREMENTS WHICH CAN BE MORE CLEARLY ILLUSTRATED ON SCHEMATIC DRAWINGS HAVE BEEN OMITTED FROM THE P&ID DRAWINGS.
- THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
- PIPING AND EQUIPMENT LEGEND APPLIES TO P&ID SHEETS ONLY AND MAY DIFFER FROM LEGENDS FOR OTHER SHEETS.

DESIGNED: UB	DATE: SEPT 2022
DETAILED: VM/AD	PROJECT NO. 402142
CHECKED: LB	SHEET 37 OF 43
APPROVED: MINT	

THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY LARRY BROUILLETTE, ON 09/15/2022 BY AND SEALED BY AND DATE: 90-3063 - M.L.S. Lakewood Ranch I-01.dwg

LARRY BROUILLETTE, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 57973

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 Tampa, Florida

MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH

INSTRUMENTATION
 LEGEND & ABBREVIATIONS
 SHEET 1 OF 3

ISSUED FOR CONSTRUCTION

INSTRUMENT AND I/O ABBREVIATIONS
MEANINGS OF IDENTIFICATION LETTERS

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

GENERAL NOTES

- IN GENERAL, THE P&ID SYMBOLS AND DEVICE IDENTIFICATIONS ARE BASED ON INTERNATIONAL SOCIETY OF AUTOMATION, STANDARD PRACTICE ANSI/ISA-5.1 (2009). SOME MODIFICATIONS, ADDITIONS, AND ALTERATIONS HAVE BEEN MADE AS NEEDED TO ACCOMMODATE THE PROJECT REQUIREMENTS.
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PIPELINE MATERIAL CODE ABBREVIATIONS

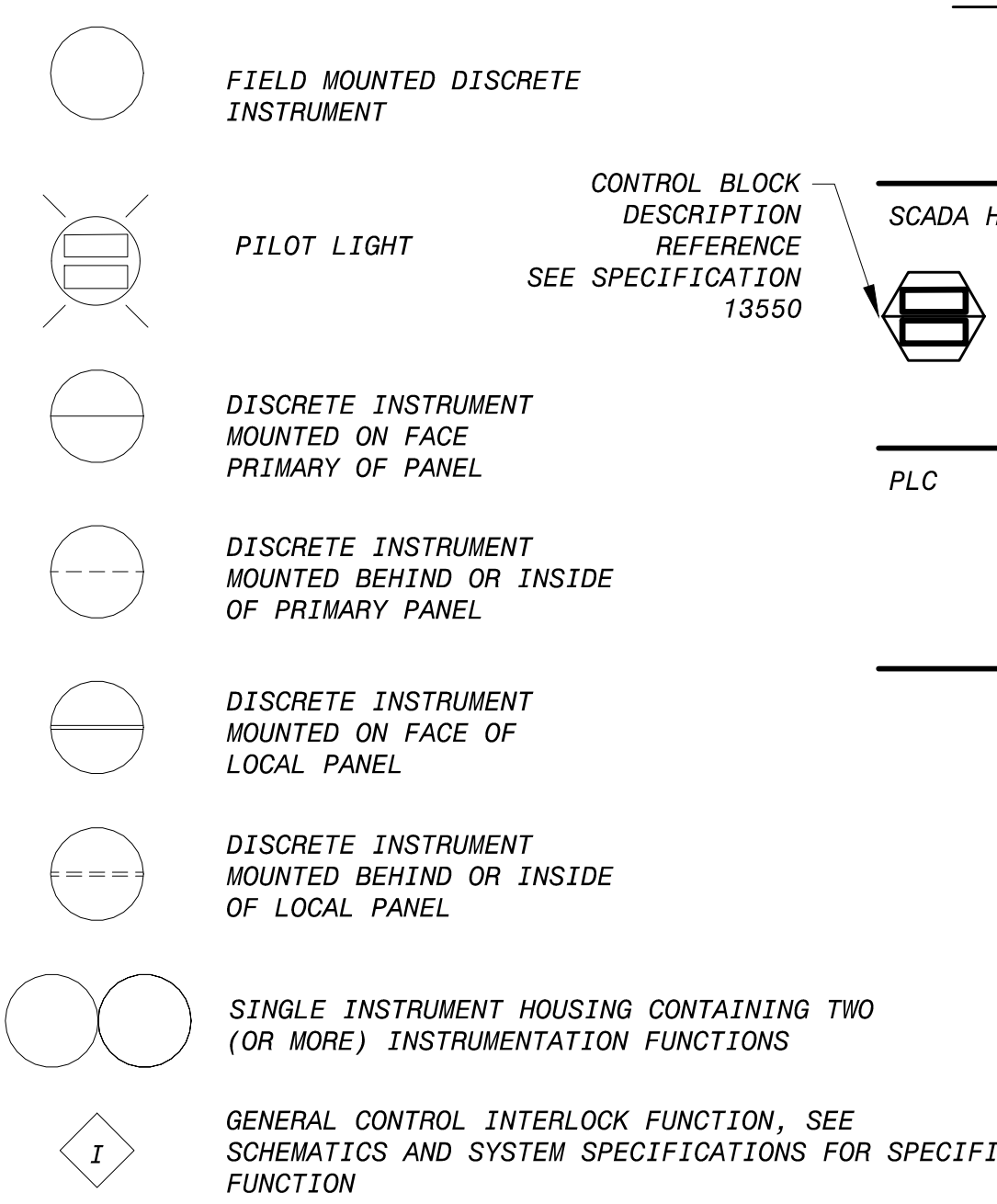
PCCP	SECTION 40 05 39.14, PRESTRESSED CONCRETE CYLINDER PIPE
CBWS	SECTION 40 05 39.16, CONCRETE BAR-WRAPPED, STEEL CYLINDER PIPE
RCP	SECTION 40 05 39.24, CONCRETE PIPE
PVC	SECTION 40 05 31.12, POLYVINYL CHLORIDE PIPE
DIP	SECTION 40 05 19, DUCTILE IRON PIPE
SP	SECTION 40 05 24, STEEL PIPE
SS-XX1	SECTION 40 05 23, STAINLESS STEEL PIPE, TUBING, AND ACCESSORIES
CSG-XX	SECTION 40 05 24.43, MISC. STEEL PIPE, TUBING, AND ACCESSORIES
CS-XX	SECTION 40 05 24.43, MISC. STEEL PIPE, TUBING, AND ACCESSORIES
FRPE-XX	SECTION 40 05 36.11, FIBERGLASS REINFORCED PLASTIC PIPE (EXHAUST AIR SERVICE)
FRP-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PVC-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
CPVC-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PE-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PP-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
PVDF-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
RPT-XX	SECTION 40 05 32, MISCELLANEOUS PLASTIC PIPE, TUBING, AND ACCESSORIES
CI-XX	SECTION 22 13 17, CAST IRON SOIL PIPE AND ACCESSORIES
CU-XX	SECTION 40 05 17, COPPER TUBING AND ACCESSORIES
BR-XX	SECTION 40 05 41, MISCELLANEOUS PIPING AND PIPE ASSEMBLY
HS-XX	SECTION 40 05 41, MISCELLANEOUS PIPING AND PIPE ASSEMBLY
TG-XX	SECTION 40 05 41, MISCELLANEOUS PIPING AND PIPE ASSEMBLY
CRP-XX	SECTION 40 05 41, MISCELLANEOUS PIPING AND PIPE ASSEMBLY

1. XX= numbers 01-20

INSTRUMENT AND I/O ABBREVIATION DEFINITIONS

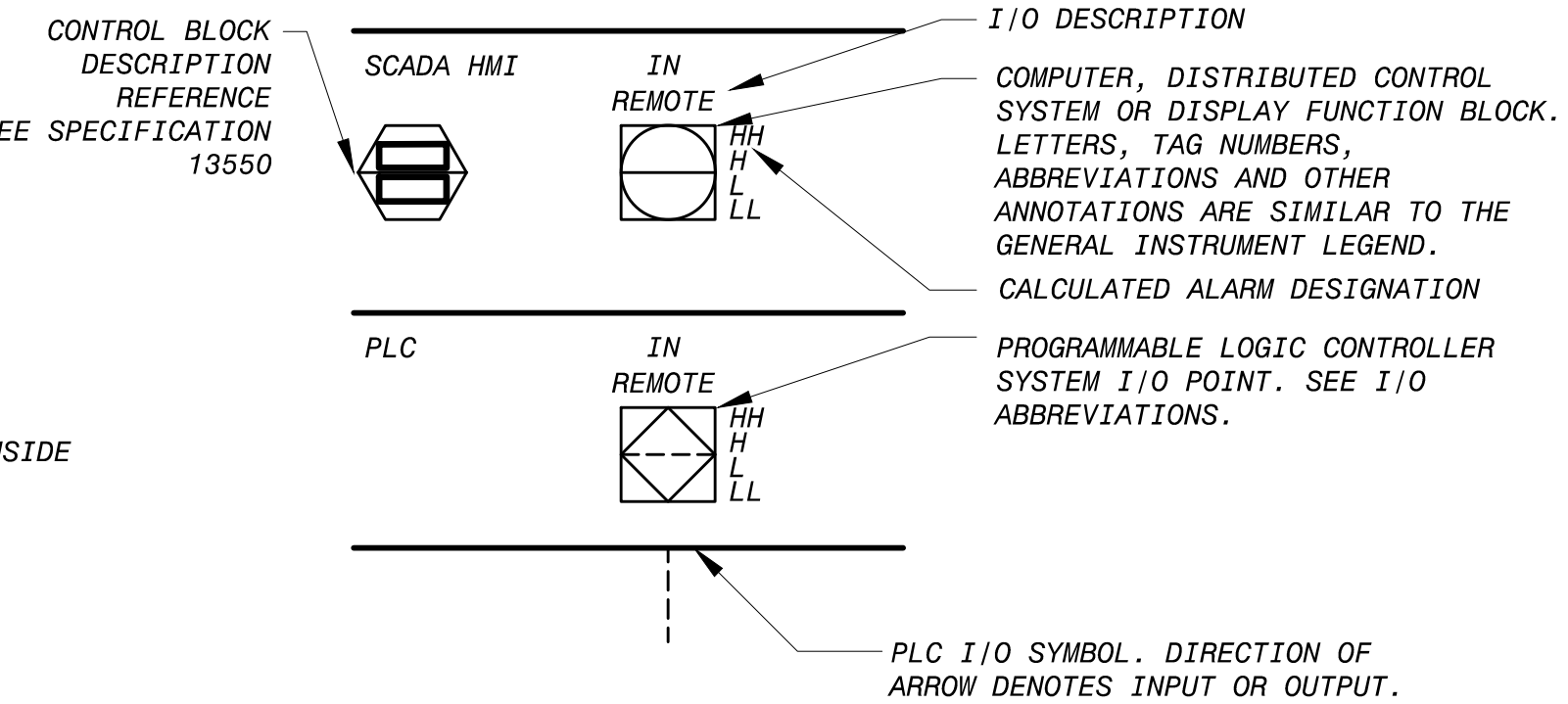
AAH	ANALYZER ALARM HIGH	PDIT	DIFFERENTIAL PRESSURE INDICATING TRANSMITTER
AAHH	ANALYZER ALARM HIGH-HIGH	PDAAH	DIFFERENTIAL PRESSURE ALARM HIGH
AAL	ANALYZER ALARM LOW	PDAAH	DIFFERENTIAL PRESSURE ALARM HIGH-HIGH
AALL	ANALYZER ALARM LOW-LOW	PDSH	DIFFERENTIAL PRESSURE SWITCH HIGH
AAX	ALARM HORN	PDSHH	DIFFERENTIAL PRESSURE SWITCH HIGH-HIGH
AAL	STROBE ALARM LIGHT	PDSL	DIFFERENTIAL PRESSURE SWITCH LOW
AE	ANALYZER SENSOR	PDSLL	DIFFERENTIAL PRESSURE SWITCH LOW-LOW
AI	ANALYZER INDICATION	PE	PRESSURE SENSOR
AIT	ANALYZER INDICATING TRANSMITTER	PG	PRESSURE GAUGE
ASH	ANALYZER SWITCH HIGH	PI	PRESSURE INDICATOR (LED OR SCREEN)
ASHH	ANALYZER SWITCH HIGH-HIGH	PIT	PRESSURE INDICATING TRANSMITTER
CB	CONTROL BLOCK REFERENCE (SCADA LEVEL)	PSL	PRESSURE SWITCH LOW
FAL	FLOW ALARM LOW	PSH	PRESSURE SWITCH HIGH
FAH	FLOW ALARM HIGH	SI	SPEED INDICATION (LED OR SCREEN)
FC	FLOW CONTROLLER	SC	SPEED CONTROL
FI	FLOW DIGITAL INDICATOR (LED OR SCREEN)	SIT	SPEED INDICATING TRANSMITTER
FIC	FLOW INDICATING CONTROLLER	SSL	SPEED SWITCH LOW
FE	PRIMARY FLOW ELEMENT/SENSOR	SIT	SPEED INDICATING TRANSMITTER
FG	FLOW SIGHT GAUGE	TAH	TEMPERATURE ALARM HIGH
FIT	FLOW INDICATING TRANSMITTER	TAHH	TEMPERATURE ALARM HIGH-HIGH
FOG	FLOW TOTALIZING GAUGE	TAL	TEMPERATURE ALARM LOW
FOIT	FLOW TOTALIZING INDICATING TRANSMITTER	TDI	DIFFERENTIAL TEMPERATURE INDICATOR (LED OR SCREEN)
FSH	FLOW SWITCH HIGH		
FSL	FLOW SWITCH LOW		
FY	FLOW SIGNAL CONVERTER, REPEATER, OR ISOLATOR	TDIT	DIFFERENTIAL TEMPERATURE TRANSMITTER (TEMPERATURE SENSOR/RESISTANCE)
HIC	HAND INDICATING CONTROLLER	TE	TEMPERATURE DETECTOR
HMS	MOMENTARY PUSHBUTTON OR SELECTOR SWITCH	TSH	TEMPERATURE SWITCH HIGH
HS	HAND SWITCH	TSHH	TEMPERATURE SWITCH HIGH-HIGH
IE	CURRENT ELEMENT/SENSOR	TSL	TEMPERATURE SWITCH LOW
IAH	CURRENT ALARM HIGH (MOTOR OVERLOAD)	TG	TEMPERATURE GAUGE
ISH	CURRENT SWITCH HIGH USED TO DETECT HIGH TORQUE)	TI	TEMPERATURE INDICATOR (LED OR SCREEN)
JA	POWER FAILURE ALARM	TIT	TEMPERATURE INDICATING TRANSMITTER
JI	POWER INDICATOR	UA	MULTIVARIABLE/COMMON ALARM/COMMON FAULT
JL	POWER INDICATING LIGHT	UCR	RUN COMMAND
JIT	POWER INDICATING TRANSMITTER	UCS	STOP COMMAND
KOI	TIME TOTALIZING INDICATOR	VAH	VIBRATION ALARM HIGH
LAL	LEVEL ALARM LOW	WAH	TORQUE ALARM HIGH
LALL	LEVEL ALARM LOW-LOW	WAHH	TORQUE ALARM HIGH-HIGH
LAL	LEVEL ALARM HIGH	WSH	TORQUE SWITCH HIGH
LAHH	LEVEL ALARM HIGH-HIGH	WSHH	TORQUE SWITCH HIGH-HIGH
LE	PRIMARY LEVEL ELEMENT/SENSOR	WE	PRIMARY WEIGHT SENSOR/LOAD CELL
LG	LEVEL SIGHT GAUGE	WG	WEIGHT GAUGE
LI	LEVEL INDICATOR (LED OR SCREEN)	WIT	WEIGHT INDICATING TRANSMITTER
LSL	LEVEL SWITCH LOW	YA	GENERAL ALARM EVENT
LSSL	LEVEL SWITCH LOW LOW	YI	EVENT INDICATION (LED OR SCREEN)
LSH	LEVEL SWITCH HIGH	YIR	RUNNING INDICATION
LSHH	LEVEL SWITCH HIGH-HIGH	YIS	STOPPED INDICATION
LY	LEVEL SIGNAL CONVERTER, ISOLATOR, OR REPEATER	YL	EVENT INDICATING LIGHT
PAL	PRESSURE ALARM LOW	YLR	RUNNING INDICATING LIGHT
PALL	PRESSURE ALARM LOW-LOW	YLS	STOPPED INDICATING LIGHT
PAH	PRESSURE ALARM HIGH	ZI	POSITION INDICATOR
PAHH	PRESSURE ALARM HIGH-HIGH	ZIC	CLOSED INDICATION
PDG	DIFFERENTIAL PRESSURE GAUGE	ZIO	OPEN INDICATION
PDI	DIFFERENTIAL PRESSURE INDICATOR (LED OR SCREEN)	ZLC	CLOSED INDICATING LIGHT
		ZLO	OPEN INDICATING LIGHT
		ZSC	CLOSED POSITION SWITCH
		ZSO	OPEN POSITION SWITCH
		ZIT	POSITION INDICATING TRANSMITTER
		ZT	POSITION TRANSMITTER

GENERAL INSTRUMENT SYMBOLS



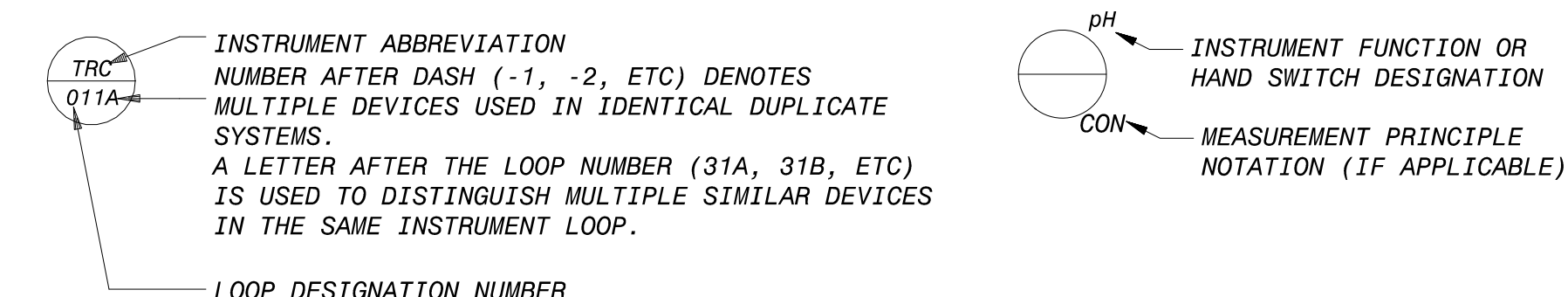
DIGITAL SYSTEMS INTERFACE SYMBOLS

NOTE: REFER TO DETAILED SYSTEM SPECIFICATIONS FOR FUNCTIONAL DESCRIPTION. ALSO SEE I/O SCHEDULES FOR COMPLETE INPUT AND OUTPUT LISTINGS.



- △ DISCRETE INPUT
- ▽ DISCRETE OUTPUT
- ▲ ANALOG INPUT
- ▼ ANALOG OUTPUT
- △ PULSE INPUT

INSTRUMENTATION SYMBOLOGY AND DESIGNATIONS



FUNCTION DESIGNATIONS AND ABBREVIATIONS

MEASUREMENT PRINCIPLE NOTATIONS	INSTRUMENT FUNCTIONS	HAND SWITCH DESIGNATIONS
CON CONDUCTANCE	K GAIN OR ATTENUATE (INPUT:OUTPUT)	FR FORWARD-REVERSE
DP DIFFERENTIAL PRESSURE SENSING	-K GAIN AND REVERSE	HOA HAND-OFF-AUTO
FLN FLOW NOZZLE	Σ ADD OR SUM (ADD AND SUBTRACT)	HOR HAND-OFF-REMOTE
FLT FLOW TUBE	Δ SUBTRACT (DIFFERENCE)	LOA LOCAL-OFF-AUTO
GWR GUIDED WAVE RADAR	√ EXTRACT SQUARE ROOT	LOR LOCAL-OFF-REMOTE
RAD RADAR	F(X) CHARACTERIZE SIGNAL	LR LOCAL REMOTE
US ULTRASONIC	> HIGH-SELECT	OCA OPEN-CLOSE-AUTO
VENT VENTURI TUBE	< LOW-SELECT	OAA ON-OFF-AUTO
	X MULTIPLY	OC OPEN-CLOSE
	J INTEGRATE (TIME INTEGRAL)	OO ON-OFF
	CH4 METHANE	OOR ON-OFF-REMOTE
	CL2 CHLORINE RESIDUAL	OSC OPEN-STOP-CLOSE
	CO2 CARBON DIOXIDE	OO/R ON-OFF/RESET
	DO DISSOLVED OXYGEN	IN ISOLATE/NORMAL
	FL FLUORIDE	DOB DRIVE/OFF/BYPASS
	H2S HYDROGEN SULFIDE	
	LEL LOWER EXPLOSIVE LIMIT	
	MCC MOTOR CONTROL CENTER	
	MLSS MIXED LIQUOR SUSPENDED SOLIDS	
	O2 OXYGEN (PURITY)	
	O3 OZONE	
	PCN PARTICLE COUNTER	
	pH pH	
	SCD STREAMING CURRENT DETECTOR	
	TURB TURBIDITY	
	HI RANG TURB HIGH RANGE TURBIDITY	

TRANSDUCER & CONVERTER DESIGNATION

E	VOLTAGE
FSK	FREQUENCY SHIFT KEYING
H	HYDRAULIC
I	CURRENT
P	PNEUMATIC PULSE
PD	PULSE DURATION
PF	PULSE FREQUENCY
R	RESISTANCE (ELECTRICAL)

EXAMPLE: I/P = CURRENT TO PNEUMATIC TRANSDUCER

POWER SUPPLY ABBREVIATIONS

AS	AIR SUPPLY
ES	ELECTRIC SUPPLY
GS	GAS SUPPLY
HS	HYDRAULIC SUPPLY
NS	NITROGEN SUPPLY
SS	STEAM SUPPLY
WS	WATER SUPPLY
120V	120VAC

POWER SUPPLY SOURCE LABEL. USED ONLY WHERE NECESSARY TO HELP CLARIFY AN INSTRUMENT OR SYSTEM FUNCTION.

DATE	REVISIONS AND RECORD OF ISSUE	NO.	BY	CHK	APP
SEPT 2022	100% SUBMITTAL	B	AD	LE	INT
FEB 2020	90% SUBMITTAL	A	AD	RT	NE

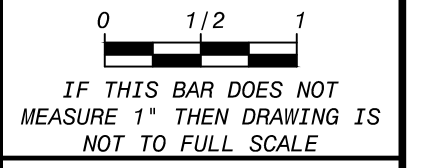
THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY LARRY BROUILLETTE, ON 09/15/2022 AND RESEALED BY LARRY BROUILLETTE, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA, NO. 57973

MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH

BLACK & VEATCH
Black & Veatch Corporation
3405 W. Dr. M. L. King Jr. Blvd, Suite 125
Tampa, Florida
Certificate No. 8132

INSTRUMENTATION LEGEND & ABBREVIATIONS
SHEET 2 OF 3

DESIGNED: UB
DETAILED: VM/AD
CHECKED: LB
APPROVED: MINT
DATE: SEPT 2022



PROJECT NO.
402142

I-02
SHEET
38 OF 43

ISSUED FOR CONSTRUCTION

SYSTEM CODE ABBREVIATIONS

Table with 3 columns: System Code, Abbreviation, Description. Includes entries like ACE ACETIC ACID, GAC ACTIVATED CARBON - GRANULAR, etc.

Table with 3 columns: System Code, Abbreviation, Description. Includes entries like FLC FLOCCULATION, RAS RETURN ACTIVATED SLUDGE, etc.

PROCESS CODE ABBREVIATIONS

Table with 3 columns: Process Code, Abbreviation, Description. Includes entries like ACE_X ACETIC ACID, GAC_X ACTIVATED CARBON - GRANULAR, etc.

Table with 3 columns: Process Code, Abbreviation, Description. Includes entries like RES_X RESIDUALS, RAS_X RETURN ACTIVATED SLUDGE, etc.

FUNCTION CODE ABBREVIATIONS

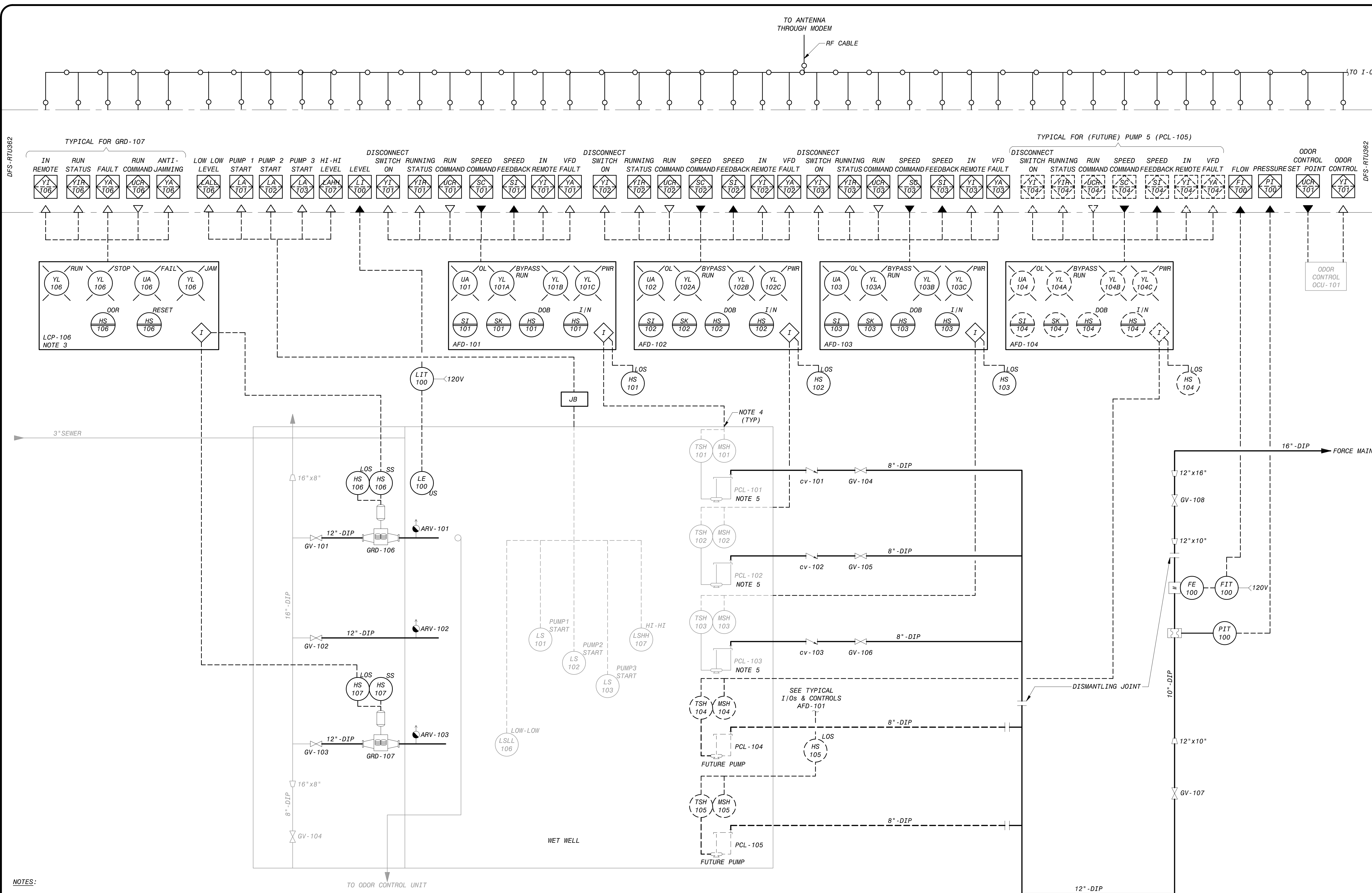
Table with 3 columns: Function Code, Abbreviation, Description. Includes entries like ACMB ACTIVATION CHAMBER, AFD ADJUSTABLE FREQUENCY DRIVE, etc.

Table with 3 columns: Function Code, Abbreviation, Description. Includes entries like RSV RESERVOIR, RCO RESIDUAL COLLECTOR, etc.

Table with 3 columns: Function Code, Abbreviation, Description. Includes entries like VB VACUUM BREAK, VRG VACUUM REGULATOR, etc.

Right margin containing project details: Manatee County logo, Black & Veatch logo, project title 'MANATEE COUNTY, FLORIDA IMPROVEMENTS AT MASTER LIFT STATION LAKEWOOD RANCH', revision table, and drawing title 'I-03 SHEET 39 OF 43'.

X = PROCESS CODE SUFFIX USED TO FURTHER SPECIFY A PROCESS STREAM (I.E. CL2_G FOR CHLORINE GAS OR CL2_S FOR CHLORINE SOLUTION)



- NOTES:
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS I-01, I-02 AND I-03.
 - FACILITY CODE IS 'MLS' FOR ALL INSTRUMENTATION EQUIPMENT AND VALVING OTHERWISE NOTED.
 - LCP-106 IS COMMON FOR GRD-106 & GRD-107. INSTRUMENTS SHOWN HERE IS FOR GRD-106, GRD-107 SHALL HAVE SAME INSTRUMENTS CONFIGURATION AS GRD-106 IN LCP-106.
 - EXISTING WET WELL DEVICES TO BE TERMINATED NEAR THE WET WELL JUNCTION BOX.
 - EXISTING SUBMERSIBLE PUMPS WILL BE REMOVED FROM WETWELL TO SUPPORT THE CLEANING AND RELINING OF WETWELL. PUMPS WILL THEN BE REINSTALLED BEFORE COMMISSIONING COMMENCES.
 - AS NOTED ON DRAWING M-01, ALL PIPING INSIDE WETWELL SHALL BE STAINLESS STEEL PER THE SPECIFICATIONS.

NO.	BY	CHK	APP
A	AD	LE	INT
B	AD	LE	INT

REVISIONS AND RECORD OF ISSUE	DATE	DESCRIPTION
100% SUBMITTAL	SEPT 2022	
90% SUBMITTAL	FEB 2020	

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60-3063 - MLS Lakewood Ranch
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PLOTTED: DUT48884, 9/19/2022 11:07:57 AM
USER: DUT48884
DWG VER: 1001

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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
INSTRUMENTATION
P&ID
MASTER LIFT STATION

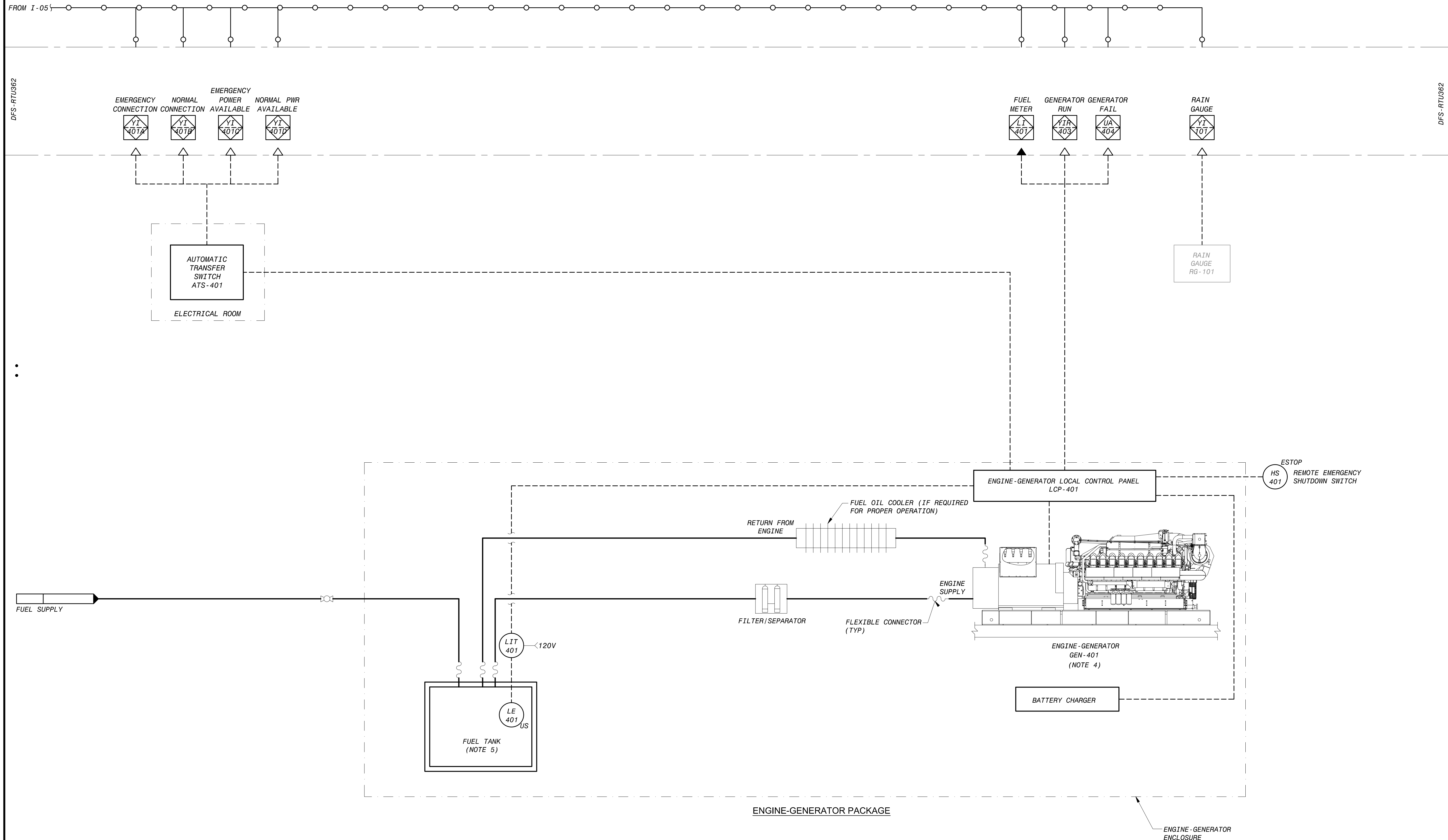
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DETAILED:	VM/AD
CHECKED:	LB
APPROVED:	MINT
DATE:	SEPT 2022

0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE

PROJECT NO.
402142

I-04
SHEET
40 OF 43

ISSUED FOR CONSTRUCTION



- NOTES:**
- SEE LEGEND AND ABBREVIATIONS ON DRAWINGS I-01, I-02 AND I-03.
 - FACILITY CODE IS EG, UNLESS OTHERWISE NOTED.
 - ALL ITEMS INSIDE DASHED LINE IS LOCATED WITHIN THE ENGINE-GENERATOR ENCLOSURE.
 - LOCAL CONTROL DEVICES, SUCH AS LIGHTS AND SWITCHES LOCATED ON EQUIPMENT MAY NOT BE SHOWN ON THIS P&ID.
 - FUEL TANK ACCESSORIES, FUEL PUMPS, VENTS, MISCELLANEOUS EQUIPMENT AND INSTRUMENTS NOT SHOWN FOR CLARITY. REFER TO SECTION 11910.

NO.	BY	CHK	APP
A	AD	LE	MNT
B	AD	LE	MNT

SEPT 2022 100% SUBMITTAL
 FEB 2020 90% SUBMITTAL
 DATE REVISITONS AND RECORD OF ISSUE

60-3063 - M/S Lakewood Ranch
 I-05.dwg
 XREF1:
 XREF2:
 XREF3:
 XREF4:

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 FOR CONSTRUCTION BY
 LARRY BROUILLETTE,
 ON 09/16/2022 AND
 RESEALED BY
 LARRY BROUILLETTE,
 A LICENSED
 PROFESSIONAL
 ENGINEER IN THE
 STATE OF FLORIDA,
 NO. 57973

Manatee County

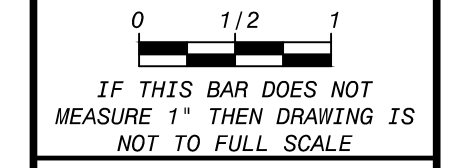
BLACK & VEATCH

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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH

INSTRUMENTATION
P&ID
ENGINE GENERATOR & FUEL STORAGE TANK

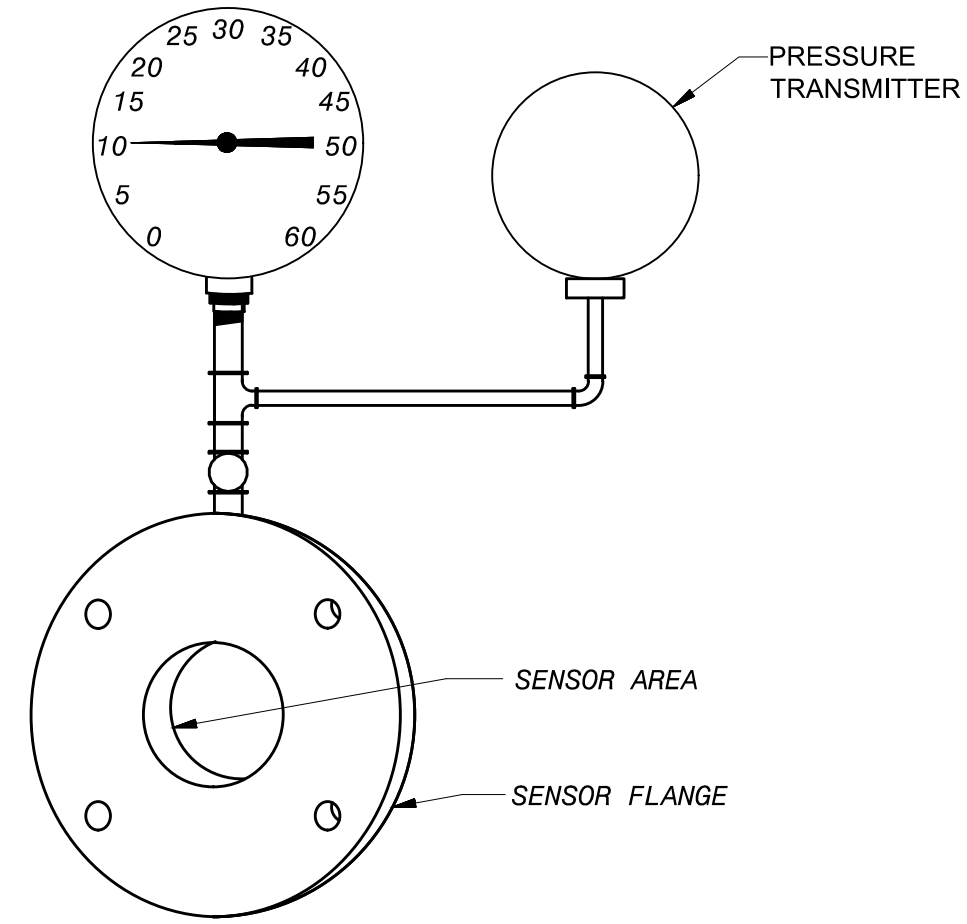
DESIGNED: UB
 DETAILED: VM/AD
 CHECKED: LB
 APPROVED: MNT
 DATE: SEPT 2022



PROJECT NO.
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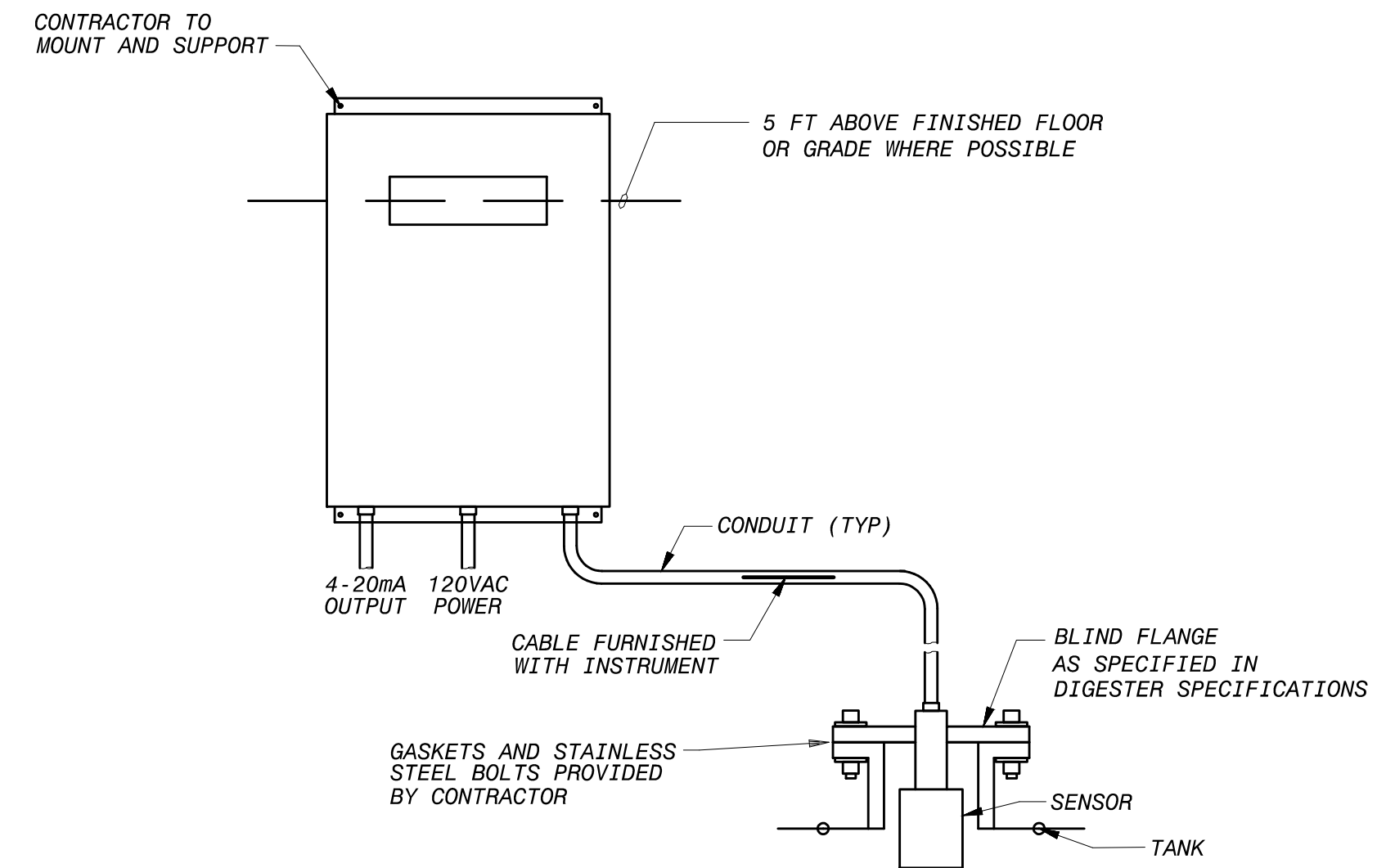
I-05
 SHEET
 41 OF 43

ISSUED FOR CONSTRUCTION



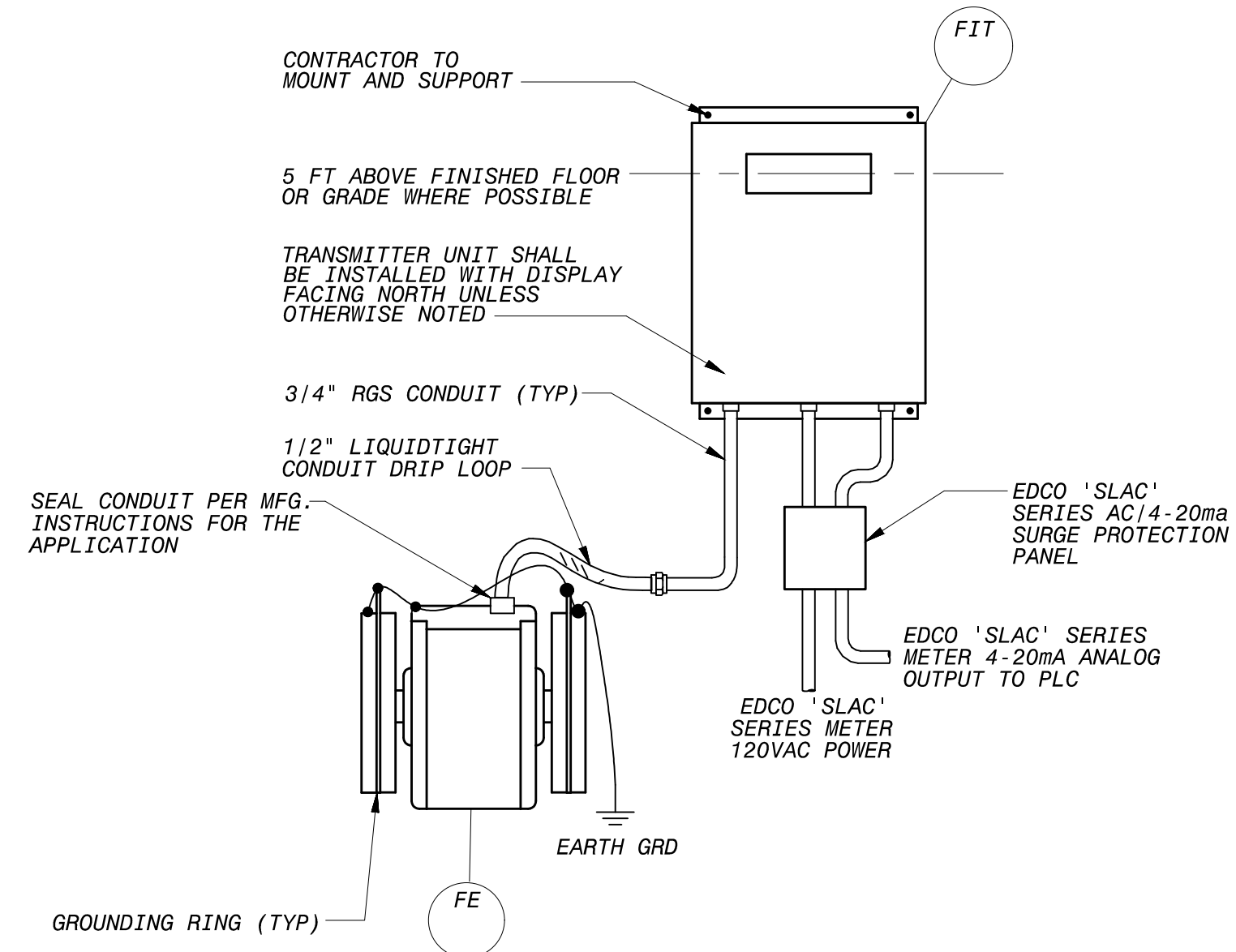
A FIELD-MOUNT PRESSURE GAUGE / SWITCH / TRANSMITTER WITH PRESSURE SENSOR

NO SCALE
(PIT-100)



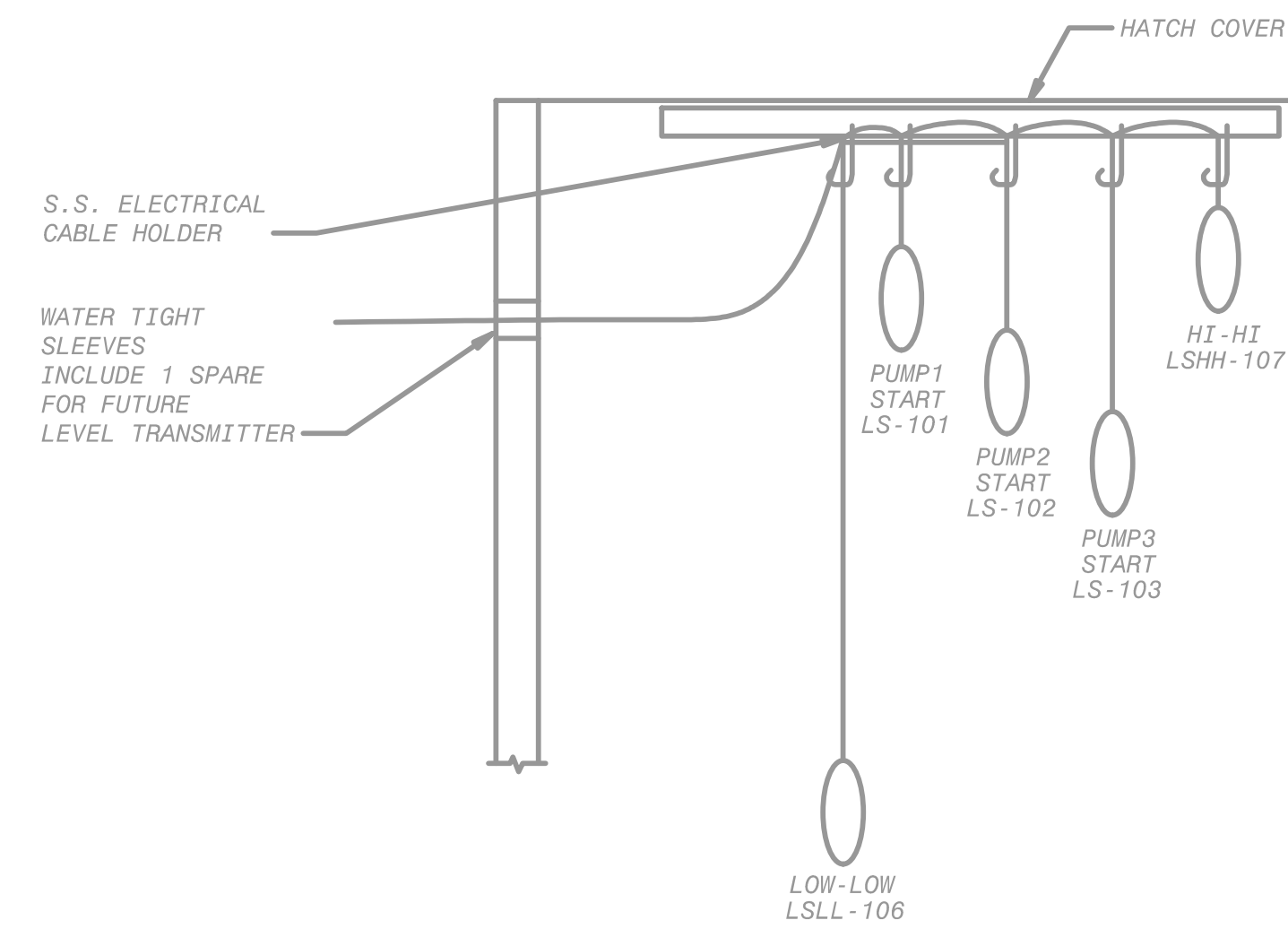
B TANK MOUNTED ULTRASONIC LEVEL TRANSMITTER

NO SCALE
(LE/LIT-100)



C MAGNETIC FLOWMETER

NO SCALE
NOTE: PIPE TO BE SUPPORTED ON BOTH SIDES OF METER.
(FE/FIT-100)



NOTE:
T. INDIVIDUAL WET WELL PENETRATION SLEEVES SHALL BE PROVIDED FOR EACH PUMP CABLE.

D LEVEL FLOAT MOUNTING DETAIL (EXISTING)

NO SCALE
(LSLL-106, LS-101, LS-102, LS-103, LS-104, LS-105, LSHH-107)

NO.	BY	CHK	APP
1	B	AD	LE
2	A	AD	RT
3	M	AD	NE
4			

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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
INSTRUMENTATION
INSTALLATION DETAILS

DESIGNED: UB
DETAILED: VM/AD
CHECKED: LB
APPROVED: MINT
DATE: SEPT 2022

0 1/2 1
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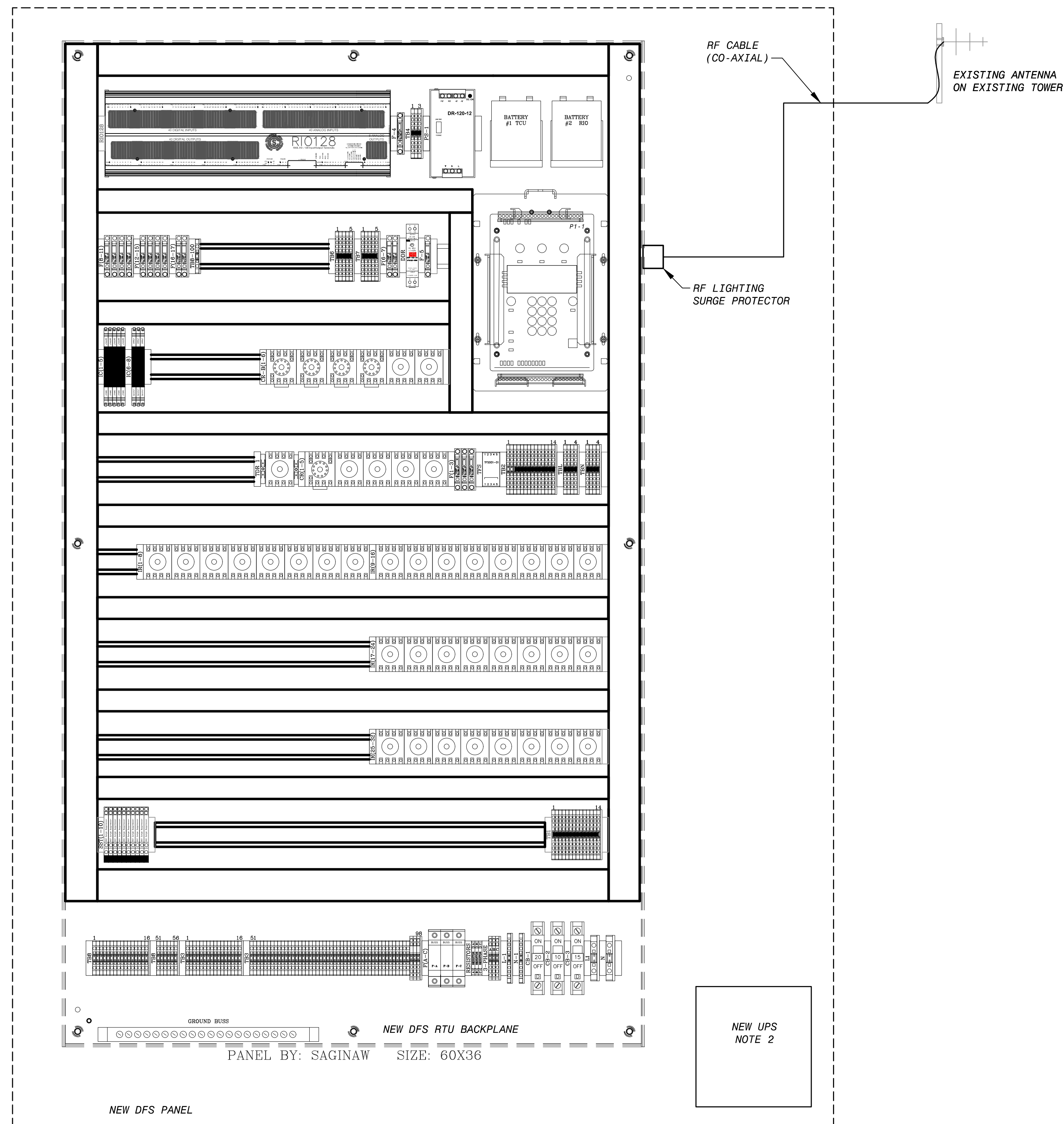
PROJECT NO.
402142

I-06
SHEET
42 OF 43

ISSUED FOR CONSTRUCTION

NOTES:

1. PROVIDE NEW RTU BACKPLANE IN NEW PANEL.
2. PROVIDE NEW "NEWMAR AC UPS 48-2000 IN A CABINET MOUNTED CONFIGURATION.
3. PANEL IS TO BE MODELED ON THE SOUTHEAST MASTER LIFTSTATION 677E PANEL MODIFIED TO ACCOMMODATE THE UPS.



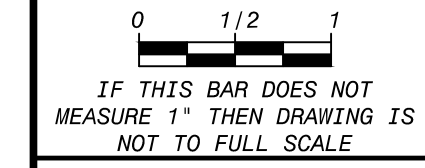
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FEB 2020	90% SUBMITTAL	A	AD	RT	NE
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USER: DUT48884	XREF3:				
	XREF4:				

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FOR CONSTRUCTION BY
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ON 09/15/2022 AND
SEALED BY
LARRY BROUILLETTE,
A LICENSED
PROFESSIONAL
ENGINEER IN THE
STATE OF FLORIDA,
NO. 57973

Manatee County
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MANATEE COUNTY, FLORIDA
IMPROVEMENTS AT
MASTER LIFT STATION LAKEWOOD RANCH
INSTRUMENTATION
NETWORK BLOCK DIAGRAM

DESIGNED: UB
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APPROVED: MNT
DATE: SEPT 2022



PROJECT NO.
402142

I-07
SHEET
43 OF 43

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