ORANGE COUNTY HEALTH SERVICES
BACKUP GENERATOR
2010 EAST MICHIGAN STREET
BUILDING 2002A
ORLANDO, FLORIDA 32806

MAYOR
JERRY L. DEMINGS

COMMISSIONER
BETSY VANDERLEY
DISTRICT 1

COMMISSIONER
CHRISTINE MOORE
DISTRICT 2

COMMISSIONER
MAYRA URIBE
DISTRICT 3

COMMISSIONER
MARIBEL GOMEZ CORDERO
DISTRICT 4

COMMISSIONER
EMILY BONILLA
DISTRICT 5

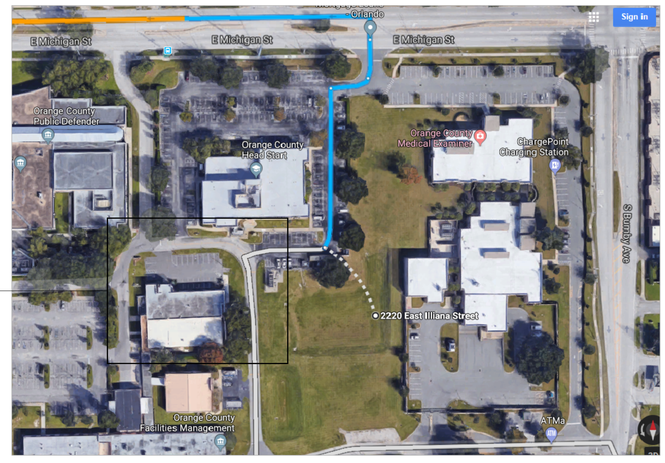
COMMISSIONER
VICTORIA P. SIPLIN
DISTRICT 6

SCOPE OF WORK:

PROVIDE NEW NATURAL GAS FIRED EMERGENCY BACKUP GENERATOR AND SUPPORTING INFRASTRUCTURE FOR BUILDING 2002A.

DRAWING INDEX

SHEET No.	SHEET TITLE
C-001	COVER SHEET
S-101	FRAMING PLAN AND DETAILS
P-001	PLUMBING SYMBOLS LEGEND AND GENERAL NOTES
P-101	PLUMBING SITE PLAN
P-601	PLUMBING RISER DIARAM
E-001	ELECTRICAL SYMBOLS LEGEND
ED-101	ELECTRICAL PLAN - DEMO
E-101	ELECTRICAL PLAN
E-601	ELECTRICAL ONE-LINE DIAGRAM
E-701	ELECTRICAL SCHEDULES
E-801	ELECTRICAL DETAILS



PROJECT LOCATION:
BUILDING 2002A
2010 EAST MICHIGAN STREET
ORLANDO, FLORIDA 32806

LOCATION MAP

ISSUE: 100% BID/PERMIT
DATE: 2019-01-25

SGM ENGINEERING INC.
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Client Name:
ORANGE COUNTY

Issue:

No.	Date	Description
	01/25/19	100% BID/PERMIT SET

Project Name:
ORANGE COUNTY HEALTH SERVICES BACKUP GENERATOR

Project Number: 2018-249
Drawing File Name: 1200-C001-2018249.DWG
Scale: AS SHOWN
Seal:
Design By:
Drawn By:
Checked By:
Engineer of Record:
License Number:

Sheet Name:
COVER SHEET

Sheet Number:
C-001

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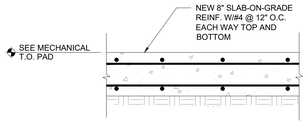

1 S-101 GENERATOR PAD DETAIL

SCALE: N.T.S.

1. STRUCTURE IS DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
   - FLORIDA BUILDING CODE 2017.
   - ASCE 7
2. DESIGN WIND LOADS:

ULTIMATE WIND SPEED	149 MPH
RISK CATEGORY	III
EXPOSURE	B

3. CONCRETE TO BE NORMAL WEIGHT (F'c=4KSI).
4. CONCRETE CONSTRUCTION SHALL CONFORM TO THE CURRENT ACI MANUAL OF CONCRETE PRACTICE.
5. PORTLAND CEMENT SHALL CONFORM TO ASTM C-150 TYPE I OR II.
6. ALL AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL MEET ASTM C 33.
7. ALL REINFORCING SHALL CONFORM TO ASTM A615 GRADE 60.
8. REINFORCEMENT SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH ACI 315.
9. ATTACHMENT OF GENERATOR TO PAD (IF REQUIRED) BY GENERATOR MANUFACTURER.
10. GENERAL CONTRACTOR IS TO PERFORM EXPLORATORY EXCAVATION TO DETERMINE THE EXTENT AND LOCATION OF EXISTING UTILITIES.
11. REFER TO MECHANICAL DRAWINGS FOR GENERATOR PAD SIZE AND LOCATION.

2 S-101 GENERAL NOTES

SCALE: N.T.S.

BASE CONSULTANTS
Engineering + Construction | CGC 1521662

CERTIFICATE OF AUTHORIZATION No. 27343
LAURA BARBERO-BUFFA, P.E. No. 74027

1214 EAST CONCORD STREET
ORLANDO, FLORIDA 32803
P: 407.377.7227

TO THE BEST OF THE ENGINEER'S KNOWLEDGE, THE PLANS AND SPECIFICATIONS COMPLY WITH THE FLORIDA BUILDING CODE 2017

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Client Name:
ORANGE COUNTY

Issue:

No.	Date	Description

Project Name:
ORANGE COUNTY HEALTH SERVICES BACKUP GENERATOR

Project Number: 2018-249	Drawing File Name: S-101.DWG
Scale: AS SHOWN	Seal: LAURA ISABEL BARBERO-BUFFA LICENSE No 74027 STATE OF FLORIDA PROFESSIONAL ENGINEER
Design By: LBB	
Drawn By: MR	
Checked By: LBB	
Engineer of Record: LAURA ISABEL BARBERO-BUFFA	
License Number: 74027	

Sheet Name:
NOTES & GENERATOR PAD DETAIL

Sheet Number:
S-101

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PLUMBING SYMBOL LEGEND

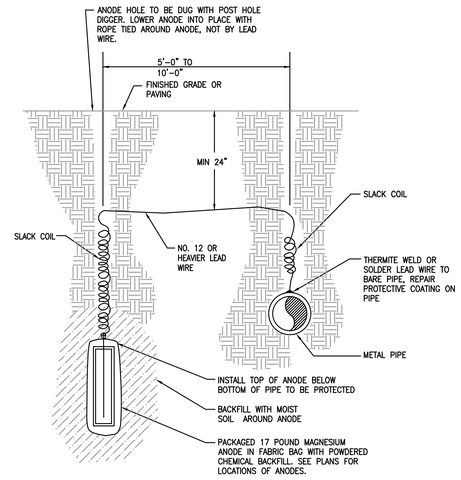
SYMBOL	DESCRIPTION	ABBREVIATION
	SOLENOID VALVE	SV
	SHUT-OFF COCK	-
	PRESSURE REGULATING VALVE	PRV
	ELBOW TURNED DOWN	DN
	ELBOW TURNED UP	UP
	TEE TURNED UP	UP
	TEE TURNED DOWN	DN
	UNION	-
	PRESSURE GAGE	-
EL (-15'-0")	FLOOR SLAB ELEVATION	ELEV
# PXXX / # PXXX	INDICATES RISER/DETAIL NUMBER, SHEET FOUND, AND RISER VIEW, (IF APPLICABLE)	-

PLUMBING SYSTEM LEGEND

SYMBOL	DESCRIPTION	ABBREVIATION
G	NATURAL GAS PIPING	G
G	UNDERGROUND NATURAL GAS PIPING	G
G	EXISTING NATURAL GAS PIPING	G
G	EXISTING UNDERGROUND NATURAL GAS PIPING	G

GENERAL PLUMBING NOTES

1. REFERENCE THE SPECIFICATIONS FOR MATERIALS AND EQUIPMENT STANDARDS.
2. THE INSTALLATION OF THE PLUMBING SYSTEMS AND EQUIPMENT SHALL COMPLY WITH ALL APPLICABLE CODES INCLUDING BUT NOT LIMITED TO STATE AND LOCAL CODES.
3. PLANS ARE NOT COMPLETELY TO SCALE. PIPE ROUTING SHOWN IS SCHEMATIC AND IS NOT INTENDED TO INDICATE EXACT LOCATION OF PIPING AND VALVES. CONTRACTOR SHALL PROVIDE ANY ADDITIONAL FITTINGS REQUIRED FOR PROPER INSTALLATION AND TO MAINTAIN PROPER CLEARANCES. COORDINATE WITH ALL TRADES AND OTHER POTENTIAL OBSTRUCTIONS AND ROUTE PIPING TO AVOID INTERFERENCES.
4. PROVIDE DIELECTRIC UNIONS WHERE CONNECTIONS ARE MADE BETWEEN DISSIMILAR PIPE MATERIALS.
5. SEE RISER DIAGRAMS FOR PIPE SIZES AND ROUTING NOT SHOWN ON PLANS.
6. IF THE INTENT OF THE INFORMATION SHOWN ON THESE DOCUMENTS IS NOT CLEAR, OR IS CAPABLE OF MORE THAN ONE INTERPRETATION, SUCH MATTERS WILL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER IN WRITING BEFORE THE SUBMISSION OF BIDS, AND THE ARCHITECT/ENGINEER SHALL MAKE CORRECTION OR EXPLANATION IN WRITING.
7. WHERE THE CONTRACTOR PROPOSES ALTERNATE SOLUTIONS, DIFFERENT ROUTINGS OF PIPING, DIFFERENT LOCATIONS OF EQUIPMENT, FIXTURES, ETC., THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OF THE RAMIFICATIONS OF THE PROPOSED CHANGE THAT ARE NOT INCLUDED IN HIS PROPOSAL, BUT BECOME APPARENT AT A LATER DATE, AND SHALL BEAR THE CONSEQUENCES OF CORRECTING ANY AND ALL CONFLICTS, DEFICIENCIES OR OTHER PROBLEMS AT NO INCREASE IN COST OR INCREASE IN CONSTRUCTION TIME ALLOTTED.
8. CONTRACTOR SHALL INSTALL ALL EQUIPMENT PER THE MANUFACTURER'S INSTALLATION REQUIREMENTS AND/OR RECOMMENDATIONS.



CATHODIC PROTECTION DETAIL — **X**

No Scale

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Client Name:

ORANGE COUNTY

Issue:

No.	Date	Description
	01/25/19	100% BID/PERMIT SET

Project Name:

ORANGE COUNTY HEALTH SERVICES BACKUP GENERATOR

Project Number: 2018-249	Drawing File Name: 1400-P001-2018249.DWG
Scale: AS SHOWN	Seal: WILLIAM R. HAYGOOD LICENSE No. 39503 STATE OF FLORIDA PROFESSIONAL ENGINEER
Design By: RVA	
Drawn By: RVA	
Checked By: JSS	
Engineer of Record: WILLIAM R. HAYGOOD	
License Number: FL39503	

Sheet Name:

PLUMBING SYMBOLS LEGEND AND GENERAL NOTES

Sheet Number:

P-001

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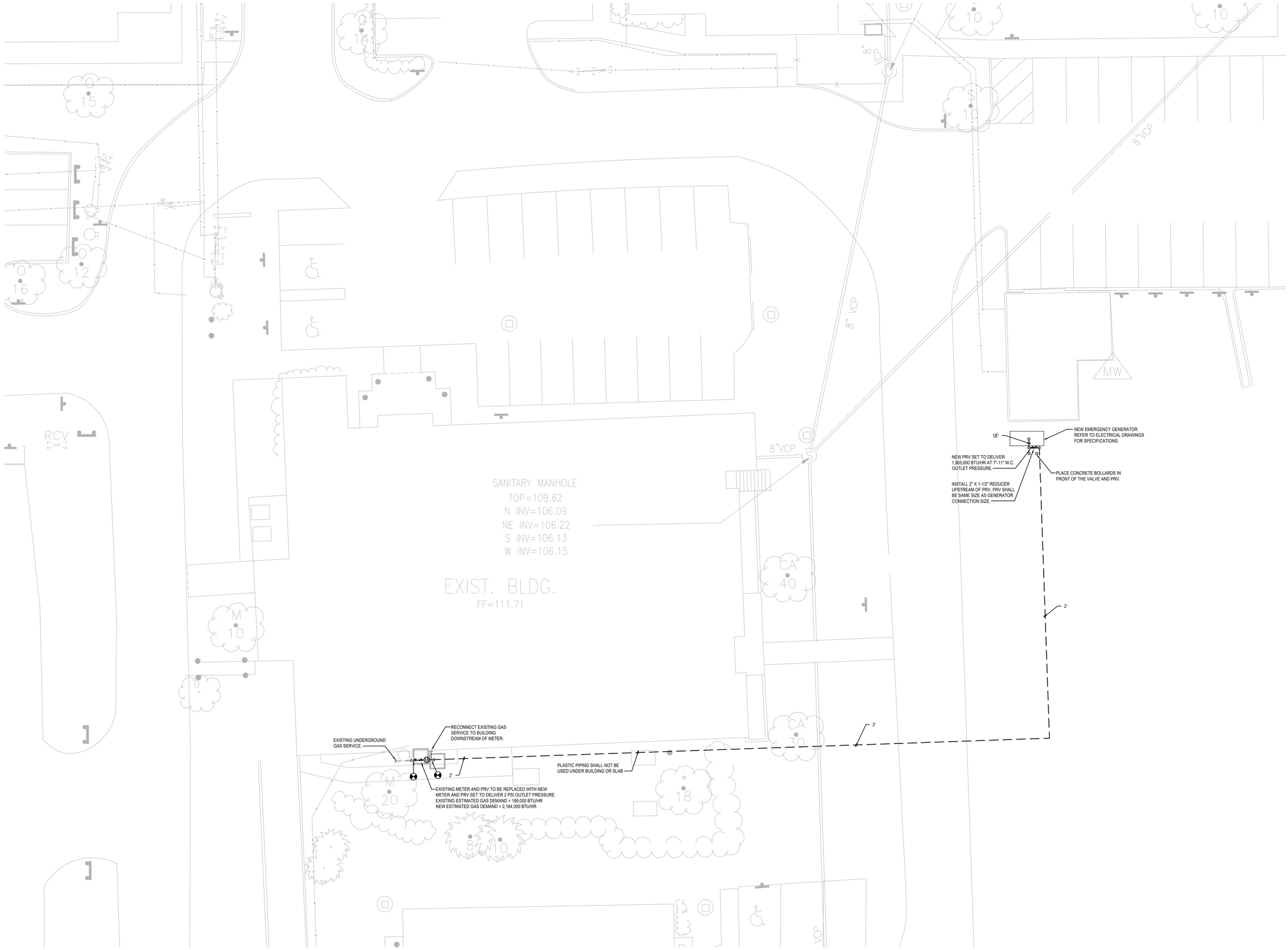

N

PLUMBING SITE PLAN

SCALE: 1"=10'

0 5' 10' 20'

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Client Name:

ORANGE COUNTY

Issue:

No.	Date	Description
	01/25/19	100% BID/PERMIT SET

Project Name:

ORANGE COUNTY HEALTH SERVICES BACKUP GENERATOR

Project Number: 2018-249	Drawing File Name: 1400-P101-2018249.DWG
Scale: AS SHOWN	Seal:
Design By: RWA	
Drawn By: RWA	
Checked By: JSS	
Engineer of Record: WILLIAM R. HAYGOOD	
License Number: FL39503	

WILLIAM R. HAYGOOD LICENSE No. 39503 STATE OF FLORIDA PROFESSIONAL ENGINEER

Sheet Name:

PLUMBING SITE PLAN

Sheet Number:

P-101

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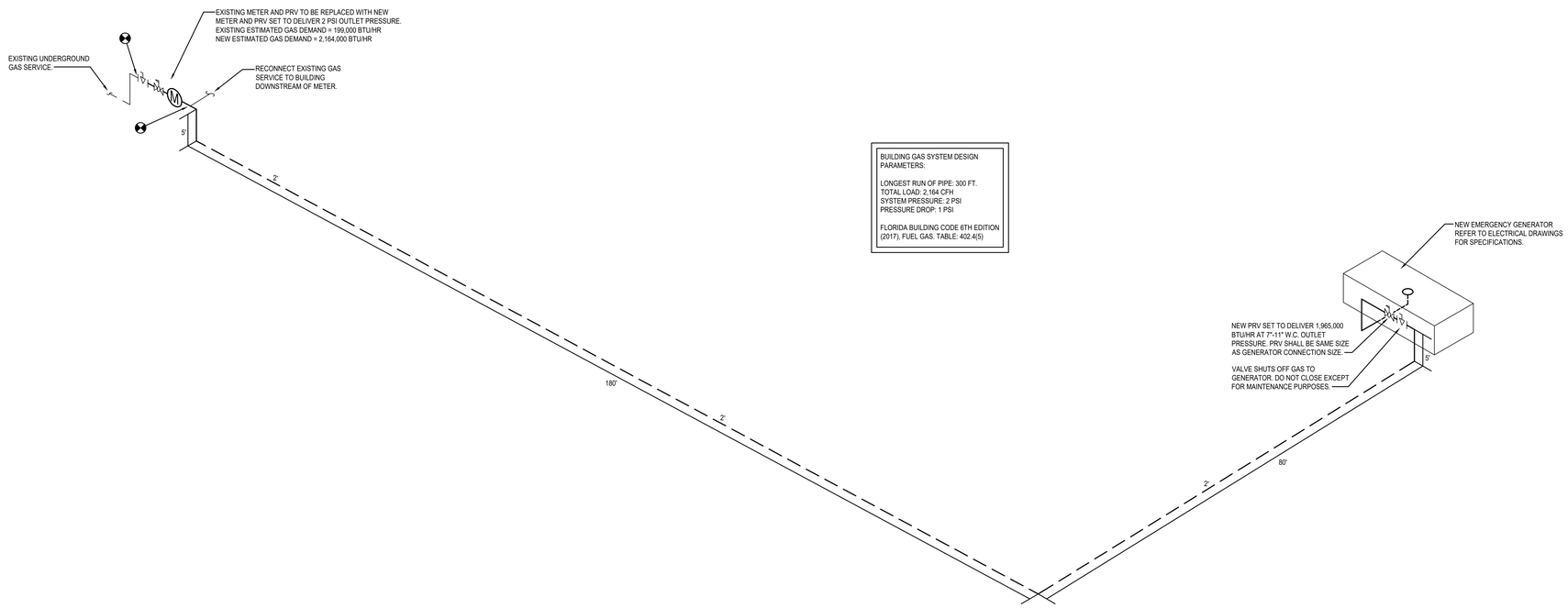

BUILDING GAS SYSTEM DESIGN PARAMETERS:

LONGEST RUN OF PIPE: 300 FT.
TOTAL LOAD: 2,164 CFH
SYSTEM PRESSURE: 2 PSI
PRESSURE DROP: 1 PSI

FLORIDA BUILDING CODE 6TH EDITION (2017), FUEL GAS. TABLE: 402.4(5)

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Issue:

No.	Date	Description
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Project Name:
ORANGE COUNTY HEALTH SERVICES BACKUP GENERATOR

Project Number: 2018-249	Drawing File Name: 1400-P601-2018249.DWG
Scale: AS SHOWN	Seal: WILLIAM R. HAYGOOD LICENSE No. 39503 STATE OF FLORIDA PROFESSIONAL ENGINEER
Design By: RVA	
Drawn By: RVA	
Checked By: JSS	
Engineer of Record: WILLIAM R. HAYGOOD	
License Number: FL39503	

Sheet Name:
PLUMBING RISER DIAGRAM

Sheet Number:
P-601

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LIGHTING FIXTURES

- 1'x4' FIXTURE
- 2'x2' FIXTURE
- 2'x4' FIXTURE
- 4' WALL MOUNT FIXTURE
- 4' WALL MOUNT FIXTURE, EMERGENCY
- 1'x4' FIXTURE, BATTERY/EMERGENCY
- 2'x2' FIXTURE, BATTERY/EMERGENCY
- 2'x4' FIXTURE, BATTERY/EMERGENCY
- 4' STRIP FIXTURE
- 4' STRIP FIXTURE, BATTERY/EMERGENCY
- 4' STRIP FIXTURE, WALL MOUNTED
- 4' STRIP FIXTURE, WALL MOUNTED, BATTERY/EMERGENCY
- TRACK FIXTURE
- CEILING MOUNTED RECESSED, DOWN LIGHT
- CEILING MOUNTED RECESSED, EMERGENCY DOWN LIGHT
- CEILING MOUNTED RECESSED, WALL WASHER (ARROW INDICATES DIRECTION OF WASH)
- SURFACE MOUNTED LIGHTING FIXTURE
- WALL MOUNTED SCONCE FIXTURE, BATTERY/EMERGENCY
- FLOOD LIGHT FIXTURE
- EMERGENCY LIGHT FIXTURE
- SINGLE FACE EXIT LIGHT FIXTURE ARROW INDICATES DIRECTION OF EGRESS
- DOUBLE FACE EXIT LIGHT FIXTURE ARROW INDICATES DIRECTION OF EGRESS
- POLE MOUNTED SITE LIGHTING FIXTURE RECTANGLES INDICATE NUMBER OF FIXTURES
- SINGLE POLE MOUNT LUMINAIRE-RECTANGLES INDICATE NUMBER OF FIXTURES
- POLE MOUNTED LUMINAIRE
- BOLLARD OR PENDANT LIGHT FIXTURE
- BOLLARD OR PENDANT LUMINAIRE, EMERGENCY

SWITCHES

- SWITCH
- SWITCH, 2 POLE
- SWITCH, 3-WAY
- SWITCH, 4-WAY
- SWITCH - LINE VOLTAGE TIMER, 120/277 VAC, WATTSTOPPER TS-400 OR EQUAL.
- SWITCH - PILOT LIGHT
- SWITCH, 1 POLE, LETTER INDICATES SWITCHLEG CONTROLLED.
- SWITCH, 3-WAY, LETTER INDICATES SWITCHLEG CONTROLLED
- SWITCH, KEYSWITCH, 3-WAY
- SWITCH, KEYSWITCH
- MOTOR RATED SWITCH
- SWITCH, EXPLOSION PROOF
- SWITCH, LOW VOLTAGE MOMENTARY
- SWITCH, WEATHERPROOF

LIGHTING CONTROL DEVICES

- PC — PHOTOCELL
- TC — TIMECLOCK
- LC — LIGHTING CONTACTOR
- RB LT — *PIR-WALL MOUNT SENSOR, LOW TEMP, 24 VDC/AC, 20mA, WATTSTOPPER CB-100 OR EQUAL.
- CI — *PIR-CEILING MOUNT SENSOR 24 VDC/VAC, 11mA, WATTSTOPPER CI-205 OR EQUAL.
- DT — *DUAL ULTRASONIC/PIR-CEILING MOUNT SENSOR, 24 VDC/VAC, 35mA, WATTSTOPPER DT-305 OR EQUAL.
- W — *DUAL ULTRASONIC/PIR-WALL MOUNT SENSOR, 24 VAC/VDC, 35mA. WATTSTOPPER DT-205 OR EQUAL.
- C — *ULTRASONIC-CEILING CORRIDOR MOTION SENSOR, 24 VDC/VAC, 40mA. WATTSTOPPER WT-2250 OR EQUAL.
- S — PIR-WALL SWITCH DECORATOR MOTION SENSOR, 120/277 VAC, 800/1200W. WATTSTOPPER PW-100 OR EQUAL.
- D1 — DUAL ULTRASONIC/PIR-WALL SWITCH DECORATOR MOTION SENSOR, 120/277VAC, 800/1200W, WATTSTOPPER DW-100 OR EQUAL.
- D2 — DUAL ULTRASONIC/PIR-DUAL RELAY WALL SWITCH DECORATOR MOTION SENSOR, 120/277VAC, 800/1200W, WATTSTOPPER DW-200 OR EQUAL.
- LVS — UL 924 LISTED FAILSAFE EMERGENCY SWITCHING RELAY, LVS EPC-A OR EQUAL. LOWER CASE LETTER NEXT TO DEVICE INDICATES SWITCHLEG CONTROLLED.
- P — POWER PACK 120/277 VAC; 20 AMPS, 225mA SECONDARY. WATTSTOPPER BZ-250 OR EQUAL.

*FOR LOW VOLTAGE OCCUPANCY SENSORS, PROVIDE POWER PACK(S) 120/277 VAC; 20 AMPS, 225mA SECONDARY AS NEEDED FOR ZONE/AREA CONTROL. WATTSTOPPER BZ-250 OR EQUAL.

POWER DISTRIBUTION

- 120/208V PANELBOARD, RECESSED
- 120/208V PANELBOARD, SURFACE MOUNT
- 277/480V PANELBOARD, SURFACE MOUNT
- 277/480V PANELBOARD, RECESSED
- FEEDER OR BRANCH CIRCUIT CONCEALED IN WALL, CEILING OR FLOOR
- 1R1-1 — HOMERUN CONSISTING OF ONE SINGLE-PHASE, 1-POLE CIRCUIT, SEE SPECIFICATIONS AND/OR FEEDER SCHEDULES FOR WIRE SIZES, PANELBOARD AND CIRCUIT DESIGNATION ARE INDICATED.
- 1M1-1;3 — HOMERUN CONSISTING OF ONE SINGLE-PHASE, 2-POLE CIRCUIT: SEE SPECIFICATIONS AND/OR FEEDER SCHEDULES FOR WIRE SIZES. PANELBOARD AND CIRCUIT DESIGNATIONS ARE INDICATED.
- 1R1-1;3 — HOMERUN CONSISTING OF TWO SINGLE-PHASE CIRCUITS: SEE SPECIFICATIONS AND/OR FEEDER SCHEDULES FOR WIRE SIZES. PANELBOARD AND CIRCUIT DESIGNATION ARE INDICATED.
- 1R1-1;3,5 — HOMERUN CONSISTING OF THREE SINGLE-PHASE CIRCUITS: SEE SPECIFICATIONS AND/OR FEEDER SCHEDULES FOR WIRE SIZES. PANELBOARD AND CIRCUIT DESIGNATIONS ARE INDICATED.
- 1M1-1;3;5 — HOMERUN CONSISTING OF ONE THREE-PHASE CIRCUITS: SEE SPECIFICATIONS AND/OR FEEDER SCHEDULES FOR WIRE SIZES. PANELBOARD AND CIRCUIT DESIGNATIONS ARE INDICATED.

POWER DEVICES

- SINGLE RECEPTACLE
- DUPLEX RECEPTACLE
- DOUBLE DUPLEX RECEPTACLE
- ABOVE COUNTER DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE, HALF SWITCHED
- SPECIAL PURPOSE RECEPTACLE
- SINGLE 250V NON-LOCKING TYPE RECEPTACLE
- C — DUPLEX RECEPTACLE FOR COMPUTER WORKSTATION
- C — QUAD RECEPTACLE FOR COMPUTER WORKSTATION
- TV — DUPLEX RECEPTACLE FOR TV LOCATED AT 84" AFF UNLESS NOTED OTHERWISE.
- TV — DUPLEX RECEPTACLE FOR TV LOCATED AT 18"AFF, LOCATE IN COMMON BOX WITH CCTV
- CEILING MOUNTED RECEPTACLE
- RECESSED FLOOR RECEPTACLE
- DUPLEX RECEPTACLE, GROUND FAULT
- DUPLEX RECEPTACLE, GROUND FAULT, ABOVE COUNTER
- QUAD RECEPTACLE, GROUND FAULT
- WP — DUPLEX RECEPTACLE, GROUND FAULT WITH CAST ALUMINUM WEATHERPROOF "IN USE" COVER
- WP — QUAD RECEPTACLE, GROUND FAULT WITH CAST ALUMINUM WEATHERPROOF "IN USE" COVER
- EWC — DUPLEX RECEPTACLE, GROUND FAULT LOCATE WITHIN ELECTRIC WATER COOLER PER MANUFACTURER'S INSTRUCTIONS
- CLOCK
- PD — POWER/DATA POLE
- PP — POWER POLE
- DISCONNECT SWITCH
- MOTOR STARTER
- STARTER/DISCONNECT SWITCH
- VFD — VARIABLE FREQUENCY DRIVE
- J — JUNCTION BOX
- FLOOR MOUNTED JUNCTION BOX
- PB — PULL BOX
- C — EQUIPMENT CONNECTION
- DOOR BELL PUSH BUTTON
- T — TRANSFORMER
- DB — DOOR BELL
- ST — SHUNT TRIP. MTD. AT 6'-5" AFF/AFG TO TOP OF ENCLOSURE

- MOTOR
- G — GENERATOR
- LB — LOCKBOX
- GROUND BUS BAR
- GROUND ROD WITH TEST INSPECTION WELL. SEE SPECIFICATIONS.
- SPD — SURGE PROTECTION DEVICE, SEE SPECIFICATIONS.

LIGHTNING PROTECTION

- AIR TERMINAL (ALUMINUM CLASS 1 MIN).
- ROOFTOP MAIN CONDUCTOR, RUN EXPOSED ACROSS ROOF.
- DN — DOWN CONDUCTOR, RUN CONCEALED IN STRUCTURE - COPPER CLASS 1
- COPPER-CLAD DRIVEN GROUND ROD AND TEST WELL. SEE SPECIFICATIONS.
- BOLTED 3-WAY SPLICE
- BOLTED 4-WAY SPLICE

MISCELLANEOUS SYMBOL LEGEND

TITLE — DETAIL NUMBER
E200 / SCALE: — DETAIL TITLE REFERENCE
E200 — SHEET NUMBER WHERE DETAIL IS REFERENCED
ADDITIONAL SHEET REFERENCES

XX — DETAIL NUMBER
XX.XX — SHEET NUMBER TO WHERE DETAIL IS REFERENCED

CODES

ALL ELECTRICAL WORK AND MATERIALS SHALL BE IN COMPLIANCE WITH ALL GOVERNING CODES AND STANDARDS. THIS SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING.

A. NFPA 70 NATIONAL ELECTRICAL CODE (2014 EDITION)
B. FLORIDA BUILDING CODE (SIXTH EDITION 2017)
C. NFPA 72 NATIONAL FIRE CODE (2013 EDITION)
D. FLORIDA FIRE PREVENTION CODE (SIXTH EDITION)
E. LOCAL REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION

1

ABBREVIATIONS

A	AMPERES	EXIST	EXISTING	MCB	MAIN CIRCUIT BREAKER
AE	AUDIO ENHANCEMENT	EXP	EXPLOSION PROOF	MCC	MOTOR CONTROL CENTER
AFC	ABOVE FINISHED CEILING	FA	FIRE ALARM	MCP	MOTOR CIRCUIT PROTECTOR
AFF	ABOVE FINISHED FLOOR	FLA	FULL LOAD AMPERES	MFR	MANUFACTURER
AFG	ABOVE FINISHED GRADE	FLUOR	FLUORESCENT	MH	METAL HALIDE
AIC	AMPERES INTERUPTING CAPACITY	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	MIN	MINIMUM
AL	ALUMINUM	GFP	GROUND FAULT PROTECTION	MISC	MISCELLANEOUS
AWG	AMERICAN WIRE GAUGE	GND	GROUND	MMS	MANUAL MOTOR STARTER SWITCH
BFC	BELOW FINISHED CEILING	HGT	HEIGHT	MTR	MOTOR
BFG	BELOW FINISHED GRADE	HID	HIGH INTENSITY DISCHARGE	MTD	MOUNTED
C	CONDUIT	HPS	HIGH PRESSURE SODIUM	MTG	MOUNTING
CAB	CABINET	HOA	HAND-OFF-AUTOMATIC	NAC	NOTIFICATION APPLIANCE CIRCUIT
CKT	CIRCUIT	HP	HORSEPOWER	NEC	NATIONAL ELECTRICAL CODE
CLG	CEILING	HVAC	HEATING/VENTILATING/ AIR CONDITIONING	NL	NIGHT LIGHT, UNSWITCHED
CL	CENTERLINE	HV	HIGH VOLTAGE	PNL	PANEL
CT's	CURRENT TRANSFORMERS	INC	INCANDESCENT	PSI	PULL STATION INSIDE
CU	COPPER	JB	JUNCTION BOX	PVC	POLYVINYL CHLORIDE
DISC	DISCONNECT(ING)	kV	KILO-VOLTS	REC	RECEPTACLE
DWG	DRAWING(S)	kVA	KILO-VOLTS-AMPERES	RGS	RIGID GALVANIZED STEEL
EA	EACH	kVAR	KILO-VOLTS-AMPERES REACTIVE	SPD	SURGE PROTECTION DEVICE
ECB	ENCLOSED CIRCUIT BREAKER	kW	KILO-WATTS	TEL	TELEPHONE
EF	EXHAUST FAN	kWH	KILO-WATT-HOURS	TYP	TYPICAL
EMT	ELECTRICAL METALLIC TUBING	LTG	LIGHTING	UON	UNLESS OTHERWISE NOTED
EQUIP	EQUIPMENT	m	METER	V	VOLTS
EUH	ELECTRIC UNIT HEATER	mm	MILLIMETER	VA	VOLT-AMPERES
EWC	ELECTRIC WATER COOLER	MAX	MAXIMUM	VFD	VARIABLE FREQUENCY DRIVE
EWH	ELECTRIC WATER HEATER			W	WATTS
EXH	EXHAUST			WP	WEATHER PROOF
				XFMR	TRANSFORMER

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Client Name:
ORANGE COUNTY

Issue:

No.	Date	Description
	01/25/19	100% BID/PERMIT SET
1	03/26/19	BLDG DEPT COMMENTS

Project Name:
ORANGE COUNTY HEALTH SERVICES BACKUP GENERATOR

Project Number: 2018-249
Drawing File Name: 1600-E001-2018249.DWG
Scale: AS SHOWN
Design By: BSB
Drawn By: JLM
Checked By: BSB
Engineer of Record: JUSTIN L. MUNDELL
License Number: FL70700
Seal: JUSTIN LOWE MUNDELL LICENSE No. 70700 STATE OF FLORIDA PROFESSIONAL ENGINEER

Sheet Name:
ELECTRICAL SYMBOLS LEGEND

Sheet Number:
E-001

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ELECTRICAL PLAN

SCALE: 1"=10'

0 5' 10' 20'

GENERAL NOTES:

a. REFER TO SYMBOL LEGEND ON SHEET E-001.

b. REFER TO BOOK SPECIFICATIONS.

c. REFER TO EQUIPMENT SCHEDULES ON DRAWING E-601 1 FOR DISCONNECT, CONDUIT AND WIRE SIZES.

d. ALL FEEDERS ARE TO HAVE LESS THAN 2% TOTAL VOLTAGE DROP AND ALL BRANCH CIRCUITS SHALL HAVE LESS THAN 3% VOLTAGE DROP.

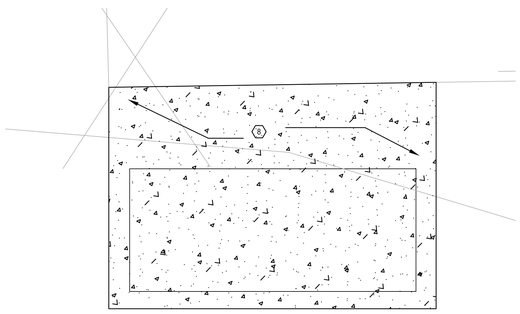
e. IF CIRCUITS ARE COMBINED AND RUN AS MULTI-WIRE BRANCH CIRCUITS SHARING A COMMON NEUTRAL, THEN EACH UNGROUNDED CONDUCTOR MUST BE DISCONNECTED SIMULTANEOUSLY BY A COMMON TRIP CIRCUIT BREAKER. CONTRACTOR MAY, AT THEIR OPTION, PROVIDE EITHER COMMON TRIP MULTI-POLE CIRCUIT BREAKERS OR UTILIZE MANUFACTURERS LISTED HANDLE TIES IN ORDER TO PROVIDE THE SIMULTANEOUS TRIP. THESE DEVICES ARE NOT SHOWN IN THE PANEL SCHEDULES AND MUST BE PROVIDED BY THIS SCOPE OF WORK. NO MORE THAN 3 CIRCUITS MAY BE COMBINED IN A SINGLE RACEWAY WITHOUT PRIOR APPROVAL BY THE ENGINEER.

f. CONTRACTOR IS RESPONSIBLE FOR CUTTING AND PATCHING SIDEWALKS OR DIRECTIONAL BORING UNDER ALL SIDEWALKS AND ROADS. UTILIZE 3000 PSI CONCRETE FOR ANY PATCHING OF ROADWAY (BLACK CONCRETE) OR SIDEWALK. FINISH LOOK OF THE CONCRETE SHALL MATCH THE EXISTING LOOK OF THE SURROUNDING CONCRETE OR ASPHALT. CONTRACTOR SHALL COMPACT ALL TRENCHES NOT UNDER CONCRETE TO 95% AND UNDER CONCRETE TO 98% COMPACTION. MAINTAIN THE FLOW OF TRAFFIC DOWN THE STREET AT ALL TIMES. PROVIDE A WRITTEN MAINTENANCE OF TRAFFIC PLAN PRIOR TO BEGINNING ANY WORK THAT WILL DISRUPT THE NORMAL FLOW OF TRAFFIC. PROVIDE ALL SIGNAGE, FLAGMEN, ETC REQUIRED TO MAINTAIN THE TRAFFIC FLOW. PLANT NEW GRASS WHERE WORK WAS DISTURBED. ALL AREAS SHALL BE BROUGHT TO AN "AS FOUND" CONDITION.

g. CONTRACTOR TO CHECK PHASE ROTATION PRIOR TO DISCONNECTION AND AFTER RECONNECTION OF POWER.

PLAN KEY NOTES: (#)

1. PROVIDE PAD FOR GENERATOR. PAD TO EXTEND 6" BEYOND EACH SIDE OF THE GENERATOR. PAD SHALL COMPLY WITH MANUFACTURER'S REQUIREMENTS FOR STEEL, THICKNESS, ETC.
2. NEW GENERATOR ANNUNCIATOR PANEL TO BE INSTALLED AT LOBBY.
3. COORDINATE WITH DUKE ENERGY UTILITY COMPANY TO HAVE UTILITY TRANSFORMER SHUT DOWN AND SUPPORT FOR ADDITION OF NEW CONDUCTORS AND CONDUIT.
4. PROVIDE EMERGENCY STOP BREAK GLASS STATION OUTSIDE OF GENERATOR ENCLOSURE.
5. STANCHION MOUNT RECEPTACLE
6. PROVIDE 150KW, NATURAL GAS POWERED GENERATOR IN MISSILE IMPACT RATED ENCLOSURE.
7. LED SHOEBOX, 25' MOUNTING HEIGHT, CONCRETE POLE, GARDCO ECF-S 32L 1A NW G2 AR 4 UNV -PCB BZ OR EQUAL
8. NEW CONCRETE PAD SHALL EXTEND UP TO EXISTING EQUIPMENT PAD.
9. PROVIDE TEMPORARY POWER VIA PORTABLE GENERATOR DURING TIMEFRAME REQUIRED TO REPLACE TRANSFER SWITCH AND RESTORE UTILITY POWER.



CONCRETE PAD LAYOUT

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Issue:

No.	Date	Description
	01/25/19	100% BID/PERMIT SET
1	03/26/19	BLDG DEPT COMMENTS

Project Name:
ORANGE COUNTY HEALTH SERVICES BACKUP GENERATOR

Project Number: 2018-249	Drawing File Name: 1600-E101-2018249.DWG
Scale: AS SHOWN	Seal: JUSTIN LOWE MUNDELL LICENSE No. 70700 STATE OF FLORIDA PROFESSIONAL ENGINEER
Design By: BSB	
Drawn By: JLM	
Checked By: BSB	
Engineer of Record: JUSTIN L. MUNDELL	
License Number: FL70700	

Sheet Name:
ELECTRICAL PLAN

Sheet Number:
E-101

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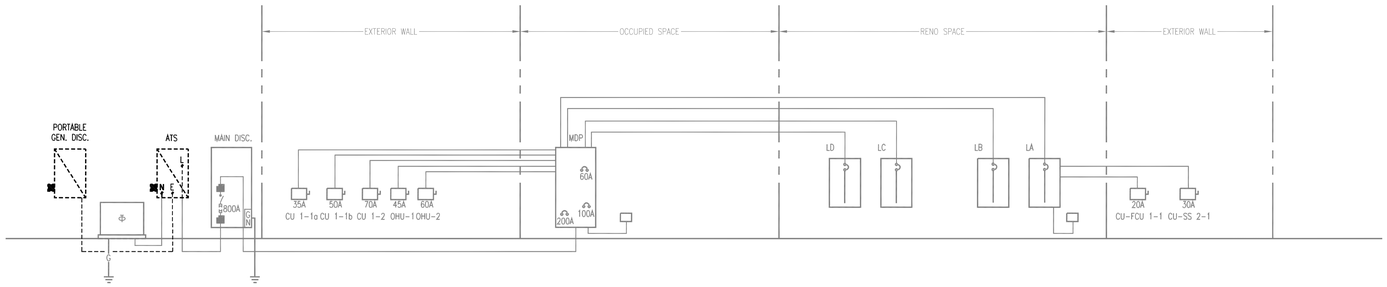
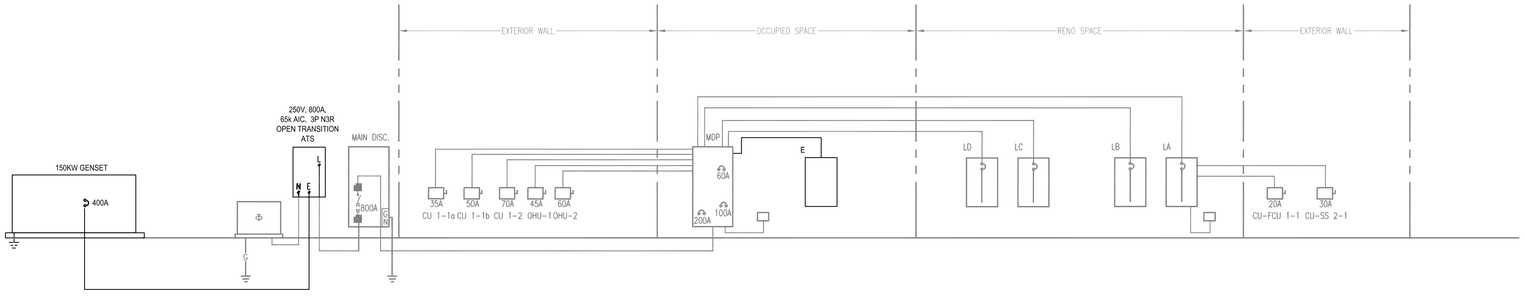


POWER RISER DIAGRAM DEMO

NOT TO SCALE



POWER RISER DIAGRAM RENO

NOT TO SCALE

PANEL FEEDER SCHEDULE:

* WIRE SIZES ARE BASED ON NFPA 70 TABLE 310.15(B)(16) 60 DEGREE COLUMN FOR SIZES OF 100A AND LESS, ALL OTHERS BASED ON 75 DEGREE COLUMN.

**LOAD AMPS AND DISTANCE SHOWN FOR VD CALCULATION ONLY. SEE PANEL SCHEDULE FOR ACTUAL LOAD. ACTUAL DISTANCE MAY VARY DEPENDENT ON ROUTING.

FEEDER DESCRIPTION		VOLTS	PH	NEUT	200% NEUT	GRND	ISO GND	MAIN SIZE	LOAD AMPS**		DISCONNECT SIZE	FUSE	NEMA		WIRE PER PHASE*	NEUT WIRE	ADD NEUT	GND WIRE	ISO GND	SYST BOND JUMP	# OF RUNS	CONDUIT SIZE	APPROX DIST.** FT	VOLT DROP VD%	NOTES
SOURCE	LOAD			Y/N	Y/N	Y/N	Y/N																		
GENSET	ATS	208	3	Y	N	Y		400	320						#500	#500		#3			1	4"	100	0.77%	
MDP	E	208	3	Y	N	Y		100	80						#3	#3		#8			1	1-1/4"	15	0.25%	

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Issue:

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Project Name:
ORANGE COUNTY HEALTH SERVICES BACKUP GENERATOR

Project Number: 2018-249
Drawing File Name: 1600-E601-2018249.DWG
Scale: AS SHOWN
Design By: BSB
Drawn By: JLM
Checked By: BSB
Engineer of Record: JUSTIN L. MUNDELL
License Number: FL70700
Seal: JUSTIN LOWE MUNDELL LICENSE No. 70700 STATE OF FLORIDA PROFESSIONAL ENGINEER

Sheet Name:
ELECTRICAL ONE-LINE DIAGRAM

Sheet Number:
E-601

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MANUFACTURER:	SQ. D.		
TYPE:	NQOD		
AIC RATING:	10	K AMPS	
VOLTS L-N:	120	V	
VOLTS L-L:	208	V	
PHASE	3		

MAIN OPTIONS REQUIRED

MCB:		AMPS
MLO:	125	AMPS
S.E RATED:	N/A	
GFI PROT:	NO	
SHUNT TRIP:	N/A	

PANEL NAME: E

LOCATION:	ELEC RM	
MOUNTING:	SURFACE	
NEMA TYPE:	1	
WIDTH :	20.00	IN
DEPTH :	5.75	IN

NOTES	CKT NO.	IDENTIFICATION	LOAD	LOAD/PHASE (KVA) A	B	C	CIRCUIT BREAKER TRIP	P	P	TRIP	LOAD/PHASE (KVA) A	B	C	LOAD	IDENTIFICATION	CKT NO.	NOTES
	1	BATTERY CHARGER	E	1.20			20	1	2	20	1.00			E	WATER JACKET HEATER	2	
	3	GFCI	R		0.18		20	1				1.00		E		4	
	5	GENERATOR POLE LIGHT	L			0.20	20	1	1	20				S	SPARE	6	
	7	SPACE	S				20	1	1	20				S	SPARE	8	
	9	SPARE	S				20	1	1	20				S	SPARE	10	
	11	SPARE	S				20	1	1	20				S	SPARE	12	
	13	SPACE													SPACE	14	
	15	SPACE													SPACE	16	
	17	SPACE													SPACE	18	
	19	SPACE													SPACE	20	
	21	SPACE													SPACE	22	
	23	SPACE													SPACE	24	
	25	SPACE													SURGE PROTECTION	26	
	27	SPACE							3	30						28	
	29	SPACE														30	
		SUB FEED LUGS AS INDICATED, IF BLANK (NOT USED)															
				1.2	0.2	0.2					1.0	1.0	0.0				

	CONN. LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
LIGHTING (L)	0.20	1.25	0.25
RECEPTACLES 1ST 10 KVA(R)	0.18	1.00	0.18
RECEPTACLES OVER 10KVA(R)	0.00	0.50	0.00
HVAC EQUIPMENT (H)	0.00	1.00	0.00
APPLIANCES (A)	0.00	1.00	0.00
EQUIPMENT (E)	3.20	1.00	3.20
LARGEST MOTOR (M)	0.00	1.25	0.00
OTHER (O)	0.00	1.00	0.00
SPARE (S)	0.00	1.00	0.00
LINKED PANEL (P)	INCLUDED IN ABOVE TOTALS		

TOTAL CONNECTED KVA:	3.58
TOTAL CONNECTED AMPS/PH:	10
TOTAL DEMAND KVA:	3.63
TOTAL DEMAND AMPS/PH:	10

GENERAL NOTES:
a. PROVIDE ARC FLASH LABELING FOR THE PANEL IN ACCORDANCE W/TH NFPA 70 & 70E AS SPECIFIED.
SCHEDULE NOTES:

EQUIPMENT FEEDER SCHEDULE:

* WIRE SIZES ARE BASED ON NFPA 70 TABLE 310.15(B)(16) 60 DEGREE COLUMN FOR SIZES OF 100A OR LESS, ALL OTHERS BASED ON 75 DEGREE COLUMN.
**DISTANCE SHOWN FOR VOLTAGE DROP CALCULATION ONLY. ACTUAL DISTANCE MAY VARY DEPENDENT ON ROUTING.

EQUIPMENT DESCRIPTION	VOLTS	PH	NEUT Y/N	MOTOR (LARGEST) H.P.	FLA	ADDITIONAL MOTORS H.P.	FLA	HEAT STRIPS KW	AMPS	MISC AMPS	TOTAL AMPS	PNL C.B. SIZE	DISCONNECT SIZE	FUSE SIZE	STARTER SIZE	NEMA TYPE	WIRE PER PHASE*	NEUT WIRE	GND WIRE	# OF RUNS	CONDUIT SIZE	APPROX. DIST.** FT	VOLT DROP VD%	NOTES
POLE LIGHT	120	1	Y					0.2	1.7		1.7	20					#12	#12	#12	1	3/4"	100	0.96%	
BLOCK HEATER	208	1	Y					2.0	9.6		9.6	20					#12	#12	#12	1	3/4"	100	1.85%	
BATTERY CHARGER	120	1	Y							10.0	10.0	20					#10	#10	#10	1	3/4"	100	2.00%	

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Issue:

No.	Date	Description
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Project Name:
ORANGE COUNTY HEALTH SERVICES BACKUP GENERATOR

Project Number: 2018-249	Drawing File Name: 1600-E701-2018249.DWG
Scale: AS SHOWN	Seal:
Design By: BSB	
Drawn By: JLM	
Checked By: BSB	
Engineer of Record: JUSTIN L. MUNDELL	
License Number: FL70700	

JUSTIN LOWE MUNDELL LICENSE No. 70700 STATE OF FLORIDA PROFESSIONAL ENGINEER

Sheet Name:
ELECTRICAL SCHEDULES

Sheet Number:
E-701

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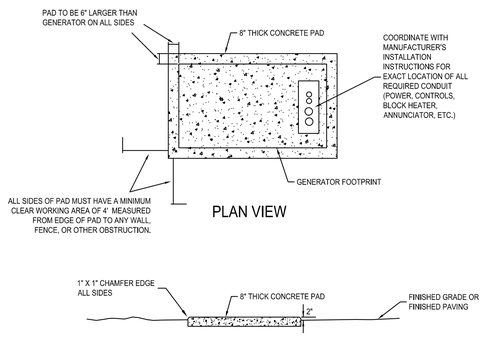
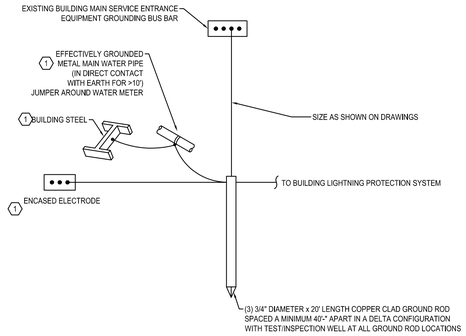


NOTES:
1) THE GROUND SHALL BE LEVELED AND THOROUGHLY COMPACTED BEFORE THE PAD IS INSTALLED.
2) PAD TO BE REINFORCED WITH MINIMUM 5/8" REBAR ON 8" CENTERS AND 2" AWAY FROM TOP AND BOTTOM.
3) TOP SURFACE OF PAD TO HAVE BROOM FINISH AND TOP EDGES TO HAVE 1" CHAMFER.
4) PRECAST PADS ARE NOT REQUIRED TO HAVE BROOM FINISH.

GENERATOR PAD
No Scale

1



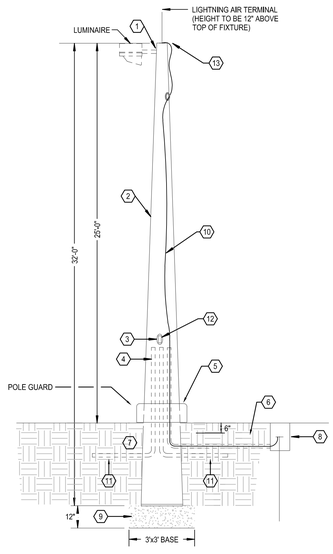
DETAIL NOTE:

SERVICE GROUND PER N.E.C. AND SPECIFICATIONS. ALL CONNECTIONS TO GROUND RODS AND BUILDING STEEL SHALL BE EXOTHERMIC TYPE. ALL OTHERS SHALL BE TORQUE BOLTED.

KEY NOTE:

1. CONTRACTOR TO CONFIRM ALL EXISTING GROUND ELECTRODE REQUIRED COMPONENTS ARE EXISTING. PROVIDE CONNECTION TO STEEL AND EFFECTIVELY GROUND TO WATER PIPE IF SYSTEM IS NOT EXISTING.

GROUNDING ELECTRODE
2



LIGHT POLE NOTES:

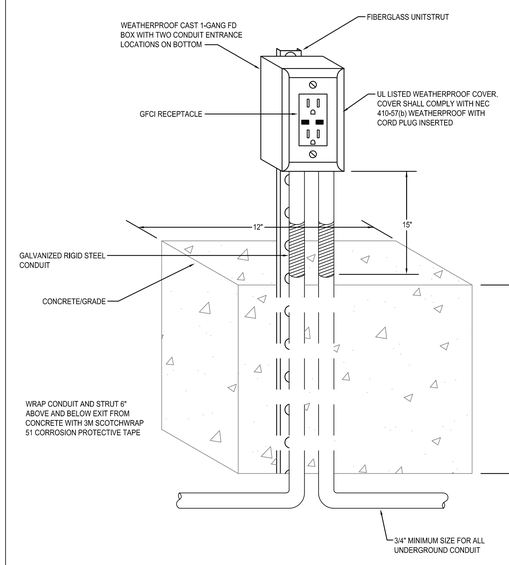
1. FIXTURE ATTACHED TO TOP OF POLE WITH PROVISION FOR WIRING. COORDINATE WITH POLE AND LUMINAIRE MANUFACTURER.
2. FIBERGLASS/COMPOSITE, ROUND, TAPERED DIRECT BURIAL POLE; SHAKESPEARE H-SERIES OR APPROVED EQUAL.
3. WIRING HANDHOLE - MINIMUM 3" x 5" WITH ALUMINUM COVER AND STAINLESS STEEL SCREWS.
4. TERMINATE CONDUITS INTERNALLY ADJACENT TO HANDHOLE.
5. PROVIDE POLE GUARD SIMILAR TO SHAKESPEARE TUFF-PROTECTOR MOUNTED WITH BOTTOM OF PROTECTOR LEVEL WITH SURROUNDING GRASS/LANDSCAPE. COLOR TO MATCH POLE COLOR.
6. BACKFILL EQUAL TO EXISTING SURROUNDING AREA.
7. COMPACT TO 95% COMPACTION 2' AROUND POLE.
8. 5/8" x 20' COPPERWELD GROUND ROD AND EXOTHERMIC WELD CONNECTION TO LIGHTNING PROTECTION DOWN LEAD. PROVIDE TEST WELL.
9. 12" COARSE GRAVEL SETTING BED.
10. COPPER DOWN CONDUCTOR ROUTED THROUGH HOLLOW POLE.
11. CONDUIT AND WIRE FROM/TO NEXT FIXTURE.
12. PROVIDE IN-LINE FUSING AND SURGE PROTECTION DEVICE IN EACH POLE HANDHOLE. SPD TO BE UL1449 3RD EDITION TYPE TWO 40KA SURGE WITH PHASE TO GRD. AND NEUTRAL TO GRD. CONNECTIONS. NO SPLICES OR DEVICES SHALL BE PLACED IN BOXES BELOW GRADE.
13. COPPER DOWN CONDUCTOR FROM AIR TERMINAL TO GROUND ROD.

GENERAL NOTE:

PROVIDE SHOP DRAWINGS AND CALCULATIONS FOR ALL EXTERIOR POLE MOUNTED FIXTURES WITH SIGNATURE AND SEAL OF A FLORIDA REGISTERED PROFESSIONAL ENGINEER CERTIFYING THAT THE FOUNDATION AND POLE/FIXTURE ASSEMBLY MEETS OR EXCEEDS SREF AND ASCE 7. THE EXTERIOR POLE MOUNTED LIGHT FIXTURE ASSEMBLIES SHALL BE CAPABLE OF WITHSTANDING WINDLOADS IN ACCORDANCE WITH ASCE 7-10. DESIGN WIND VELOCITY SHALL BE 150 MPH.

DIRECT BURIAL POLE INSTALLATION
No Scale

3



STANCHION MOUNT RECEPTACLE DETAIL
No Scale

4

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Client Name:
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Issue:

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Project Name:
ORANGE COUNTY HEALTH SERVICES BACKUP GENERATOR

Project Number: 2018-249
Drawing File Name: 1600-E801-2018249.DWG
Scale: AS SHOWN
Design By: BSB
Drawn By: JLM
Checked By: BSB
Engineer of Record: JUSTIN L. MUNDELL
License Number: FL70700
Seal: JUSTIN LOWE MUNDELL LICENSE No. 70700 STATE OF FLORIDA PROFESSIONAL ENGINEER

Sheet Name:
ELECTRICAL DETAILS

Sheet Number:
E-801

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ELECTRICAL PLAN - DEMO

SCALE: 1"=10'

0 5' 10' 20'

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Issue:

No.	Date	Description
	01/25/19	100% BID/PERMIT SET

Project Name:

ORANGE COUNTY HEALTH SERVICES BACKUP GENERATOR

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Drawn By: JLM	
Checked By: BSB	
Engineer of Record: JUSTIN L. MUNDELL	
License Number: FL70700	

JUSTIN LOWE MUNDELL LICENSE No. 70700 STATE OF FLORIDA PROFESSIONAL ENGINEER

Sheet Name:

ELECTRICAL PLAN - DEMO

Sheet Number:

ED-101

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