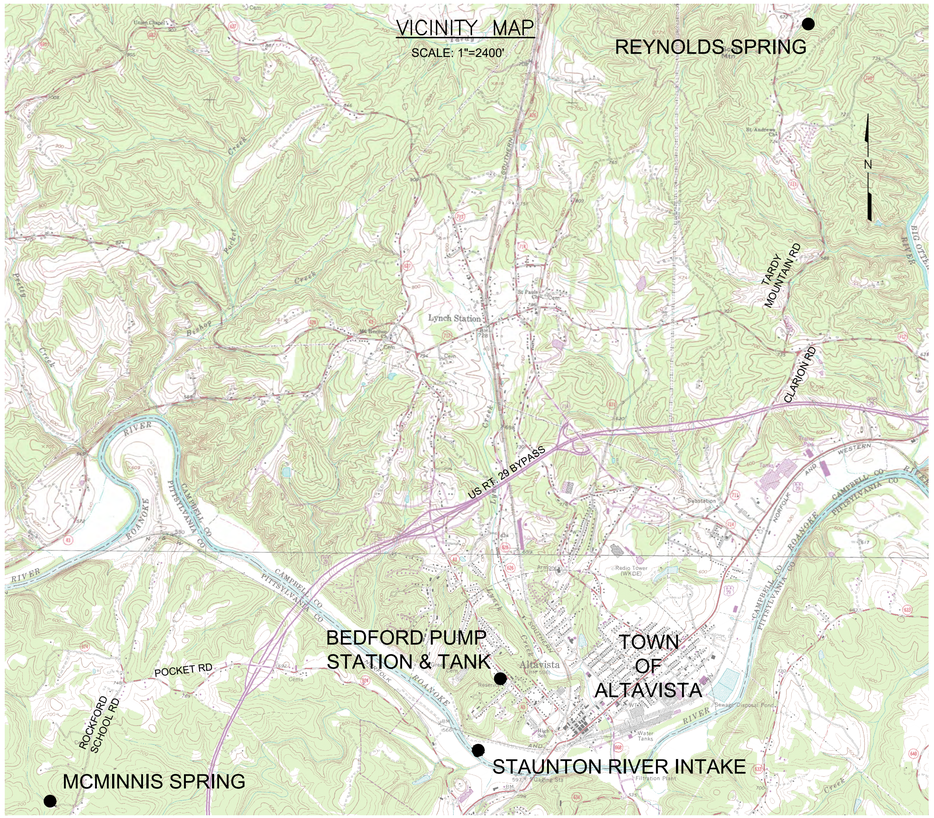

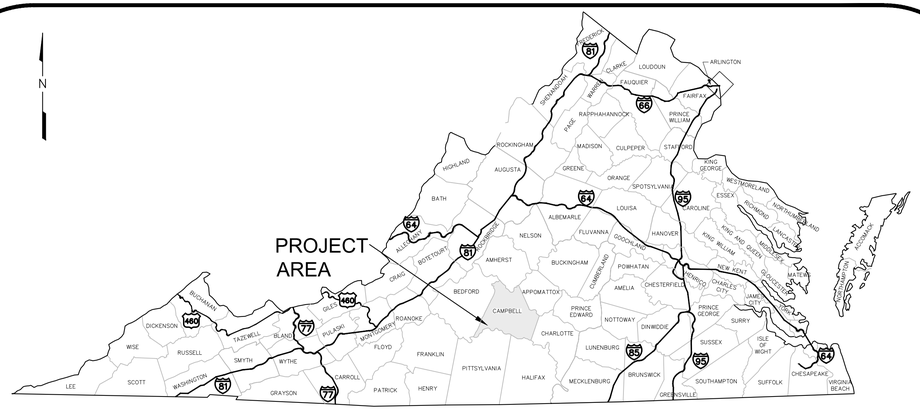

LOCATION MAP
N.T.S.

TOWN OF ALTAVISTA
WATER SUPPLY
SYSTEM WIDE EMERGENCY POWER SOURCE

ALTAVISTA, VIRGINIA

PREPARED FOR:

TOWN OF ALTAVISTA
P.O. BOX 420
ALTAVISTA, VIRGINIA 24517

GENERAL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY CONSTRUCTION PERMITS.
2. ALL DISTURBED AREAS NOT PAVED WILL BE GRASSED WITH PERMANENT SEEDING AS SPECIFIED IN THE SPECIFICATIONS.
3. NOTIFY "MISS UTILITY" AT 1-800-552-7001 AT LEAST 48 HOURS PRIOR TO EXCAVATION IN THE RIGHT-OF-WAY.
4. EXISTING UNDERGROUND UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND DO NOT REPRESENT ALL UNDERGROUND UTILITY OR SERVICE LINES. PRIOR TO EXCAVATION, THE CONTRACTOR SHALL CONTACT "MISS UTILITY" TO HAVE ALL UNDERGROUND UTILITIES LOCATED AND MARKED.
5. CONTRACTOR SHALL CONTACT "MISS UTILITY" PRIOR TO INSTALLING CASINGS AND SHALL DIG A TEST HOLE TO DETERMINE THE ACTUAL HORIZONTAL AND VERTICAL LOCATION OF THE UNDERGROUND UTILITIES THAT WILL BE CROSSED.
6. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING DRAINAGE AROUND AND THROUGH THE CONSTRUCTION AREA AS CURRENTLY EXISTS. NO PONDING WATER IN DITCHES WILL BE PERMITTED DURING THE CONSTRUCTION.
7. CONTRACTOR WILL PROVIDE EROSION CONTROL MEASURES TO PREVENT DISTURBED RUNOFF FROM LEAVING THE SITE. EROSION CONTROL MEASURES MAY INCLUDE BUT ARE NOT LIMITED TO, CHECK DAMS, INLET PROTECTION, CULVERT INLET PROTECTION AND OTHER MEASURES.

PROPERTY INFORMATION:
OWNER: TOWN OF ALTAVISTA
ATTN: TOM FORE - DIRECTOR OF PUBLIC UTILITIES
P.O. BOX 420
ALTAVISTA, VA 24517
(434)-369-5001

INDEX OF SHEETS:

Peed & Bortz, L.L.C.
CIVIL & ENVIRONMENTAL ENGINEERS
20 MIDWAY PLAZA DRIVE - SUITE 100
CHRISTIANSBURG, VIRGINIA 24073
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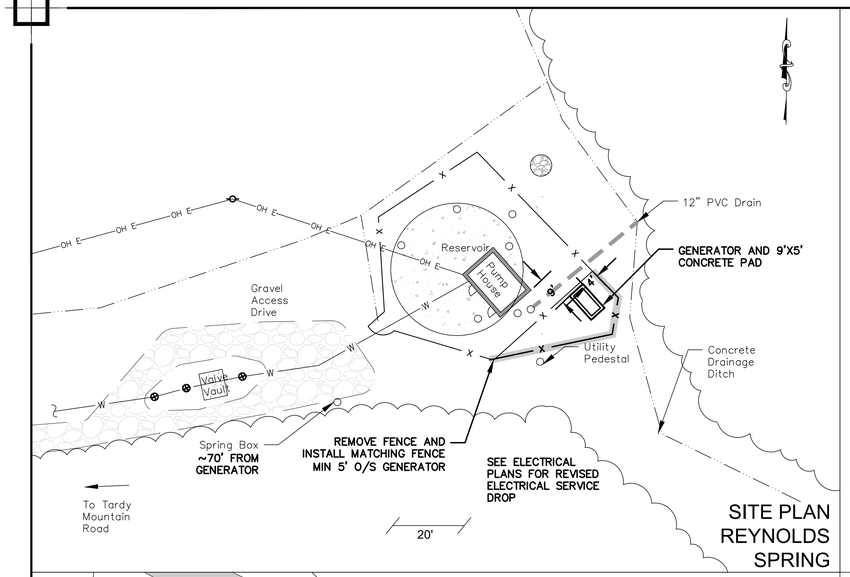
TOWN OF ALTAVISTA
WATER SUPPLY
SYSTEM WIDE EMERGENCY POWER SOURCE
TOWN OF ALTAVISTA VIRGINIA

SEAL
COMMONWEALTH OF VIRGINIA
SCOTT BORTZ
Lic. No. 032379
02/13/2021
CERTIFIED PROFESSIONAL ENGINEER

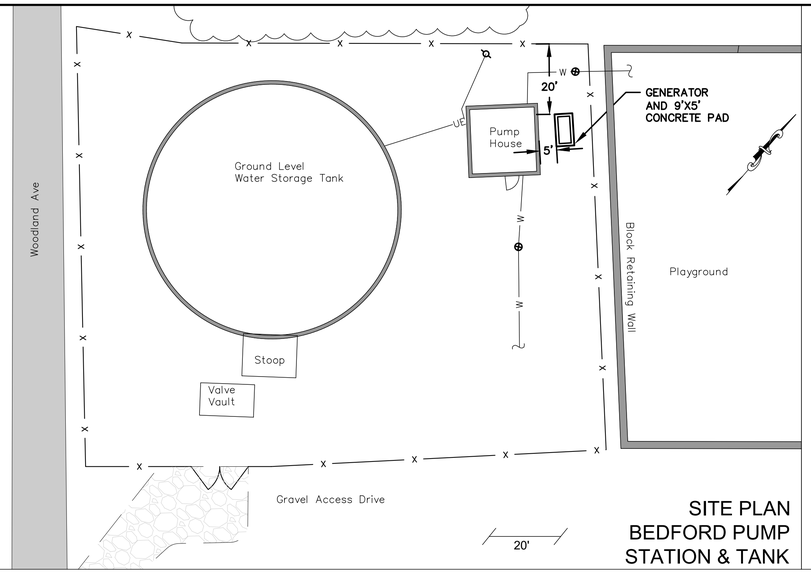
DRAWN BY: J. MCCLURE	SHEET DESCRIPTION: TITLE SHEET
REVIEW BY: S. BORTZ	
DATE: 13 FEB 2021	
REVISION:	

G01

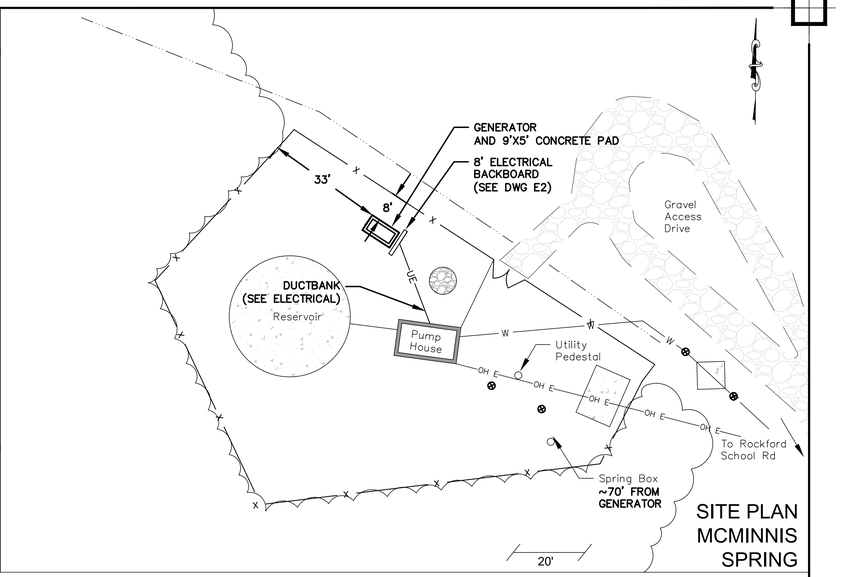
JN: 20-51



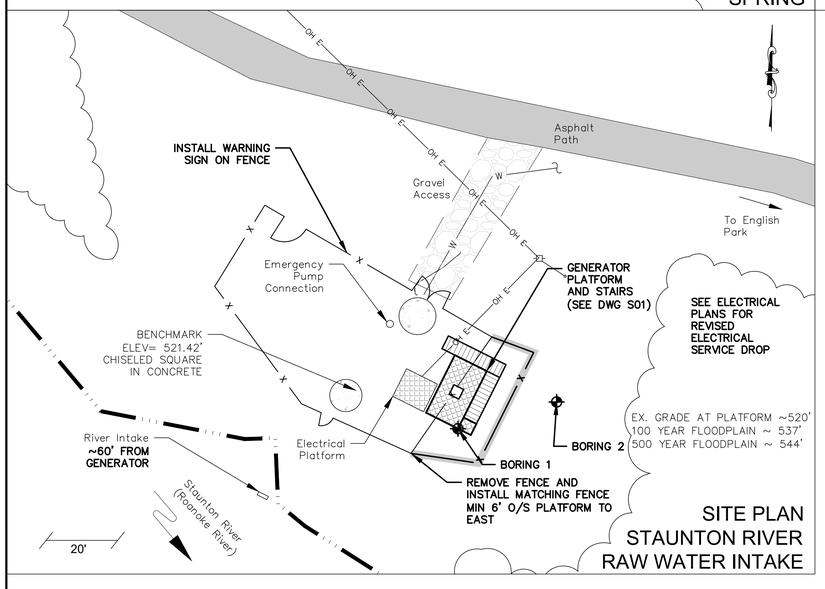
SITE PLAN
REYNOLDS SPRING



SITE PLAN
BEDFORD PUMP STATION & TANK



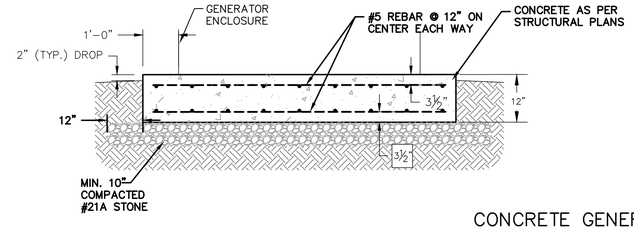
SITE PLAN
MCMINNIS SPRING



SITE PLAN
STAUNTON RIVER RAW WATER INTAKE

NOTES:

1. BY CONVENTION "TITLE CASE" LABELS INDICATE EXISTING FEATURES AND "ALL UPPER CASE" LABELS INDICATE PROPOSED FEATURES.
2. CONTRACTOR MAY INTERRUPT POWER FOR UP TO 8 HOURS FOR EACH NEW ATS INSTALLATION. AFTER THE FIRST 8 HOUR INTERRUPTION, CONTRACTOR MAY BE REQUIRED TO WAIT ADDITIONAL TIME TO ALLOW FOR UTILITIES TO OPERATE PROPERLY. COORDINATE WITH TOWN STAFF FOR PRIOR TO INTERRUPTION OF SERVICE AND AFTER FIRST INTERRUPTION.
3. GENERATOR EQUIPMENT SUPPLIER HAS INDICATED THAT CONDUITS MAY BE CONNECTED TO THE SIDES OF ATS ENCLOSURE, IN ADDITION TO THE CONDUIT CONNECTION AREA ON TOP OF THE ENCLOSURE IDENTIFIED IN THE SUBMITTAL.
4. ALL CONDUIT WILL BE INSTALLED PER ELECTRICAL PLANS UNDERGROUND WITH 18" MINIMUM COVER. INSTALL DUCTBANKS THROUGH WALL OF EXISTING PUMP HOUSES AT ALL GROUND LEVEL SITES.
5. REFER TO ELECTRICAL PLANS FOR DIAMETER AND NUMBER OF CONDUITS.



CONCRETE GENERATOR PAD DETAIL
NTS

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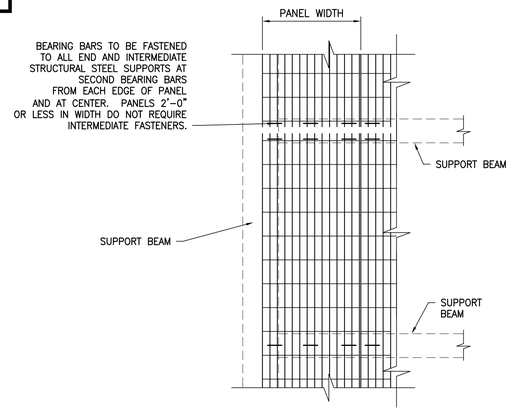
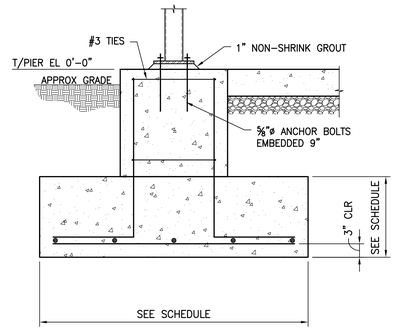


NOTE: GRATING SHALL BE FASTENED TO STRUCTURAL STEEL BY GALVANIZED SADDLE CLIP OR GRATING DISK WITH ¼" STAINLESS STEEL SELF TAPPING SCREW WITH WASHER OR POWDER ACTUATED FASTENING SYSTEMS. FASTENING METHOD THAT WILL DAMAGE THE GALVANIZED GRATING OR THE PAINTED FINISH OF THE STEEL SHALL NOT BE USED.

FLOOR GRATING FASTENING DETAIL
SCALE: NTS



TYPICAL FOOTING DETAIL
SCALE: 3/4"=1'-0"

ABBREVIATIONS

APPROX	APPROXIMATE	GA	GUAGE	PSF	POUNDS PER SQUARE FOOT
CLR	CLEAR	HT	HEIGHT	PSI	POUNDS PER SQUARE INCH
CONN	CONNECTION	IN	INCHES	SCH	SCHEDULE
CONT	CONTINUOUS	LBS	POUNDS	SIM	SIMILAR
DP	DEEP	MAX	MAXIMUM	SQ	SQUARE
EA	EACH	MIN	MINIMUM	T/	TOP
EL	ELEVATION	MPH	MILES PER HOUR	THK	THICK
EXIST	EXISTING	NTS	NOT TO SCALE	TYP	TYPICAL
FT	FEET	OC	ON CENTER	VERT	VERTICAL
FTG	FOOTING	PL	PLATE	W/	WITH

FOOTING SCHEDULE

MARK	FOOTING SIZE	FOOTING REINFORCING
F-1	1'-0"x4'-0"x1'-6" DP	(2) #4 LONG WAY, TOP & BOTTOM
F-2	2'-0"x2'-0"x1'-0" DP	(3) #4 EACH WAY
F-3	3'-0"x3'-0"x1'-0" DP	(4) #4 EACH WAY

STRUCTURAL NOTES

1. GENERAL REQUIREMENTS

1.1. THE STRUCTURE HAS BEEN DESIGNED TO RESIST DESIGN LOADS ONLY AS A COMPLETED STRUCTURE. APPLICATION OF CONSTRUCTION LOADS TO THE PARTIALLY COMPLETED STRUCTURE SHALL BE CONSIDERED BY THE CONTRACTOR AND INCLUDED IN THE DESIGN OF SHORING, BRACING, FORMWORK, AND OTHER SUPPORTING ELEMENTS PROVIDED FOR CONSTRUCTION OF THE STRUCTURE.

1.2. CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS, REPORTING ANY DISCREPANCIES TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. SHOP DRAWINGS SHALL REFLECT FIELD VERIFIED DIMENSIONS BEFORE SUBMITTING TO THE ENGINEER.

1.3. COORDINATE FINAL COLUMN HEIGHTS, BRACING AND STAIR RUN WITH EXISTING GRADE. DRAWINGS ARE BASED ON AVERAGE HEIGHT OF EXISTING PLATFORM OF 22'-0" TO TOP OF GRATING FROM GRADE.

2. APPLICABLE CODES AND STANDARDS

2.1. "VIRGINIA CONSTRUCTION CODE" (2015 INTERNATIONAL BUILDING CODE).
2.2. ACI 318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE".
2.3. AISC, "MANUAL OF STEEL CONSTRUCTION – ALLOWABLE STRESS DESIGN".
2.4. STRUCTURAL WELDING CODE, AWS D1.1.
2.5. "DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS, ROOF DECKS, AND CELLULAR METAL FLOOR DECK WITH ELECTRICAL DISTRIBUTION". SDI-27, STEEL DECK INSTITUTE.

3. DESIGN LOADS

3.1. LIVE LOAD

ROOF	20 PSF
FLOOR	100 PSF, 1,000 LB CONCENTRATED

3.2. WIND LOAD

ULTIMATE WIND SPEED, Vult	115 MPH
RISK CATEGORY	II
EXPOSURE CATEGORY	C

3.3. SNOW LOAD

GROUND SNOW LOAD, Pg	25 PSF
FLAT-ROOF SNOW LOAD, Pf	20 PSF
EXPOSURE FACTOR, Ce	1.0
IMPORTANCE FACTOR, Is	1.0
THERMAL FACTOR, Ct	1.0

3.4. SEISMIC

RISK CATEGORY	IV
IMPORTANCE FACTOR, Ie	1.5
Ss	0.15
S1	0.058
Site Class	D
Sds	0.24
Sd1	0.14
DESIGN CATEGORY	C
BASIC FORCE RESISTING SYSTEM	ORDINARY CONCENTRIC BRACED FRAMES
DESIGN BASE SHEAR	0.074W
RESPONSE COEFFICIENT, Cs	0.074
RESPONSE MOD FACTOR, R	3.25
ANALYSIS PROCEDURE USED	EQUIVALENT LATERAL FORCE

3.5. EQUIPMENT LOAD

GENERATOR	10,500 LBS + 20% IMPACT
ELECTRICAL GEAR/TRANSFER SWITCH	1,000 LBS

4. SOIL BEARING CAPACITY

4.1. THE SOIL BEARING CAPACITY IS 1,500 PSF FOR COLUMN FOOTINGS IN ACCORDANCE WITH GEOTECHNICAL REPORT BY ECS MID-ANTLANTIC., DATED OCT 16 2020.

4.2. ENGINEERED FILL SHALL BE AN APPROVED MATERIAL PLACED IN HORIZONTAL LAYERS WITH A MAXIMUM LOOSE THICKNESS OF 8". EACH LAYER SHALL BE COMPACTED TO A DRY MINIMUM DRY DENSITY OF 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D 698 (STANDARD PROCTOR METHOD). FULL-TIME DENSITY TESTS SHALL BE PERFORMED TO VERIFY COMPACTION REQUIREMENTS ARE MET.

5. MATERIALS

5.1. CONCRETE (COMPRESSIVE STRENGTH AT 28 DAYS) – ALL CONCRETE SHALL BE AIR ENTRAINED 6% ±1%

FOOTING	3,000 PSI
SLABS ON GRADE	4,000 PSI
GROUT UNDER BASE PLATES	5,000 PSI

5.2. REINFORCING STEEL

REINFORCING BARS	ASTM A615, GRADE 60
WELDED WIRE FABRIC	ASTM A1064

DEVELOPMENT LENGTH

BAR SIZE	STRAIGHT	WITH HOOK	LAP SPLICE
#4	22"	6"	29"
#5	28"	8"	37"

5.3. STRUCTURAL AND MISCELLANEOUS STEEL – ALL STEEL SHALL BE GALVANIZED.

STEEL PLATE, ANGLE & CHANNEL	ASTM A36
W SHAPE	ASTM A992
STRUCTURAL BOLTS	ASTM F3125, GRADE A325
TUBE STEEL	ASTM A500, GRADE C
ANCHOR BOLTS	ASTM F1554
WELDING ELECTRODES	E70XX

5.4. POST-INSTALLED ANCHORS
POST-INSTALLED ANCHORS SHALL BE AS NOTED ON THE PLANS AND INSTALLED BY A MANUFACTURER'S CERTIFIED INSTALLER IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS.

5.5. METAL ROOF DECK
DECK SHALL CONFORM TO ASTM A653, GRADE 33. ROOF DECK SHALL BE TYPE B (WIDE RIB) WITH THE FOLLOWING MINIMUM PROPERTIES:

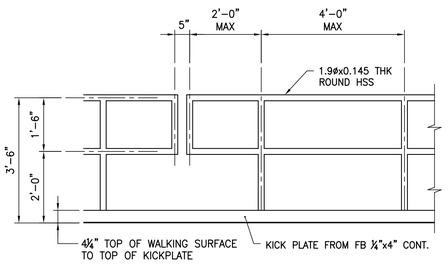
DEPTH	1½"
THICKNESS	20 GAGE
I	0.201 IN(4)/FT
Sp	0.234 IN(3)/FT
Sn	0.247 in(3)/FT
Fy	33 KSI

DECK SHALL BE ATTACHED WITH #12 TEK SCREWS WITH A MINIMUM 36/4 PATTERN AND (2) MECHANICAL SIDELAP CONNECTORS.

5.6. SELF DRILLING SCREWS

AISI	1022

5.7. METAL STAIRS
FABRICATE STAIR ASSEMBLY TO SUPPORT A UNIFORM LIVE LOAD OF 100 PSF AND A CONCENTRATED LOAD OF 300 LB.



GUARD RAIL ELEVATION
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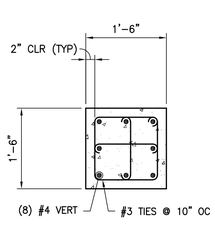
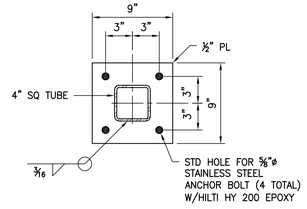
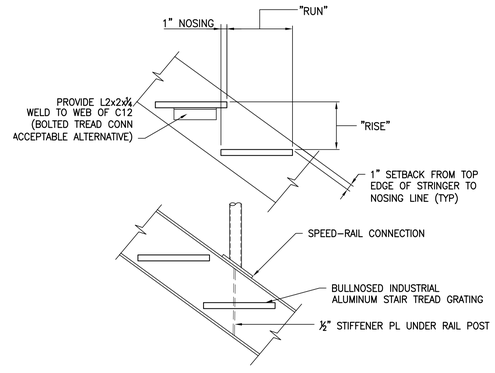


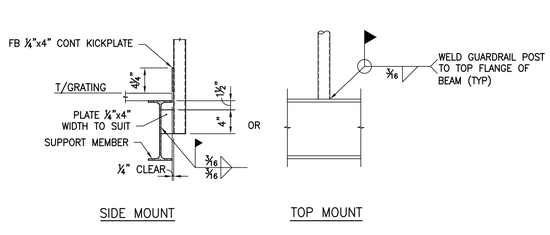
PIER DETAIL - P-1
SCALE: 3/4"=1'-0"



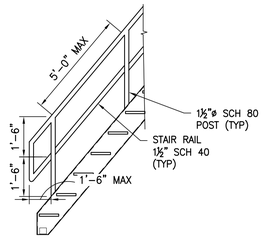
TYPICAL BASE PLATE DETAIL
SCALE: 1 1/2"=1'-0"



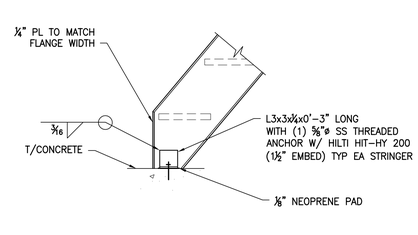
TYPICAL STAIR DETAILS
SCALE: 1"=1'-0"



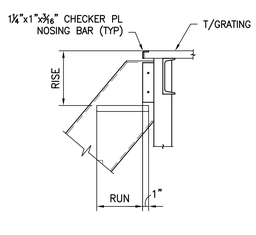
TYPICAL GUARDRAIL MOUNTING
SCALE: NTS



TYPICAL STAIR RAIL DETAIL
SCALE: 3/8"=1'-0"



TYPICAL STAIR BASE
SCALE: 1"=1'-0"



TYPICAL STAIR @ LANDING
SCALE: 1"=1'-0"

MASTER ENGINEERS & DESIGNERS
904 Lakeside Drive, Lynchburg, VA 24501
660-006 434-846-1350 Fax: 434-846-1351

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TOWN OF ALTAVISTA **VIRGINIA**

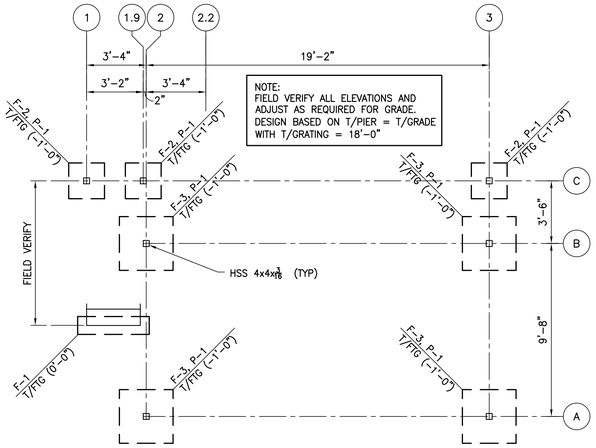
COMMONWEALTH OF VIRGINIA
JEREMY L. LUCAS
Lic. No. 44991
02/15/2021
PROFESSIONAL ENGINEER

DRAWN BY: JLL/ATE
REVIEW BY: JLL/MCS
DATE: 13 FEB 2021
REVISION:

SHEET DESCRIPTION:
STRUCTURAL NOTES
TYPICAL DETAILS

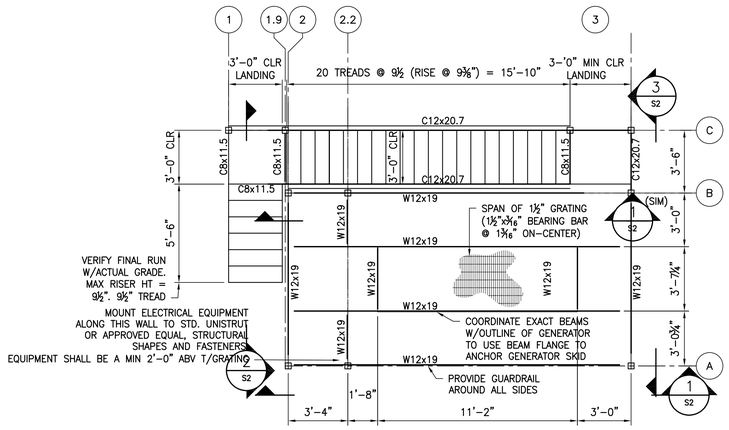
S1

JN: 19-34



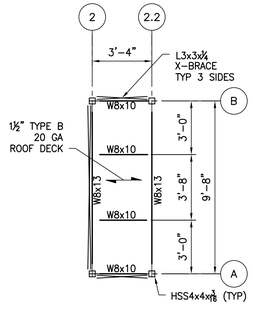
FOUNDATION PLAN

SCALE: 1/4"=1'-0" (ORIENT W/CIVIL DRAWINGS)



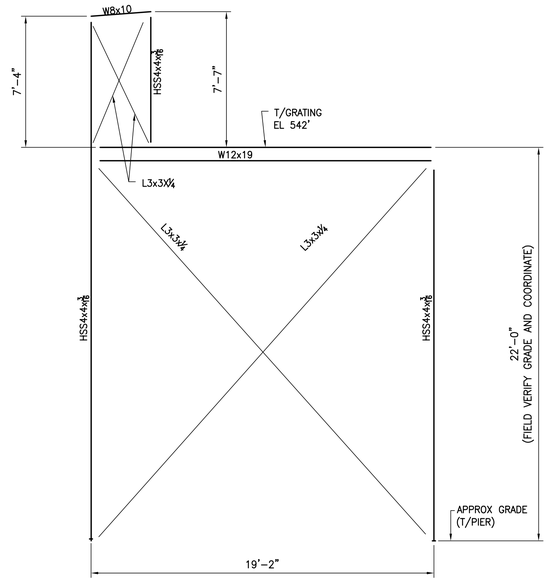
PLATFORM PLAN

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



ROOF PLAN

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



SECTION

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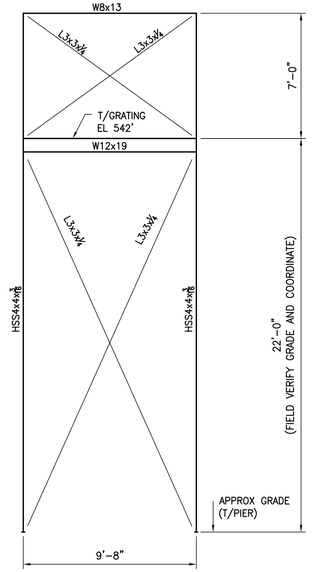

SECTION

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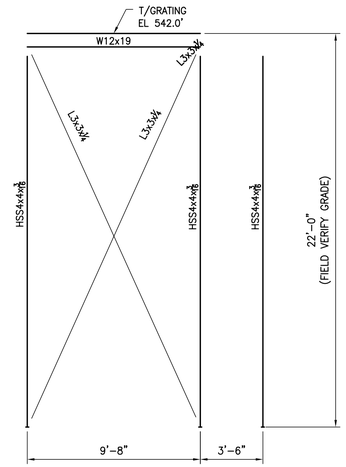

SECTION

SCALE: 1/4"=1'-0" (3 / S2)

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SHEET DESCRIPTION:
STRUCTURAL PLAN AND DETAILS

S2

JN: 19-34

RACEWAY

————	CONDUIT RUN EXPOSED
—— - —— - ——	CONDUIT RUN CONCEALED ABOVE CEILINGS OR IN WALLS
- - - - - - - -	CONDUIT RUN CONCEALED BENEATH FLOORS, IN WALLS OR, IF OUTDOORS, BELOW GRADE
—— D —— D ——	UNDERGROUND DUCTBANK

OVERCURRENT DEVICES

F	SAFETY SWITCH, FUSIBLE: NEMA 1 INDOORS, NEMA 4X OUTDOORS
	STARTER, COMBINATION MAGNETIC, FUSIBLE, NEMA 4X OUTDOORS
SS	STARTER, COMBINATION, SOLID STATE, NEMA 4X OUTDOORS
	STARTER, MAGNETIC, NEMA 4X OUTDOORS
SS	STARTER MAGNETIC, SOLID STATE, NEMA 4X OUTDOORS

MISCELLANIOUS

M	MOTOR
	EQUIPMENT TO BE DEMOLISHED

DRAWING LIST

GENERAL NOTES

GN1. COORDINATION WITH OTHER TRADES: EXECUTE THE WORK IN FULL COOPERATION WITH OTHER CONSTRUCTION TRADES. PRIOR TO STARTING WORK, EXAMINE A COMPLETE SET OF CONSTRUCTION DOCUMENTS FOR ALL TRADES TO VERIFY COORDINATION, CHECK FOR INTERFERENCES, AND DETERMINE POINTS OF CONNECTIONS FOR EQUIPMENT. DUE TO STRUCTURAL CONDITIONS, MECHANICAL DUCT OR PIPING INTERFERENCE, OR OTHER REASONS, THE CONTRACTOR MAY DESIRE TO INSTALL THE WORK IN AN ALTERNATE MANNER FROM THAT SHOWN. SUCH CHANGES SHALL BE PRESENTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL BEFORE PROCEEDING.

GN2. LOCATIONS WHERE CONDUITS PENETRATE FIRE–RATED WALLS, FLOORS, OR CEILINGS SHALL BE FIREPROOFED USING A UL–LISTED METHOD TO MAINTAIN THE EXISTING RATING.

GN3. EXISTING BUILDINGS:

a. PRIOR TO SUBMITTING PROPOSAL FOR THIS WORK, BECOME FAMILIAR WITH THE DRAWINGS AND EXAMINE THE CONTRACT. THE CONTRACTOR WILL NOT BE ENTITLED TO ANY EXTRA COMPENSATION FOR FAILURE TO ALLOW FOR EXISTING CONDITIONS.

b. SUBMITTING A BID OR PROPOSAL WILL BE CONSIDERED EVIDENCE OF THE FACT THAT THE CONTRACTOR HAS INVESTIGATED AND IS FULLY AWARE OF EXISTING CONDITIONS AND IS ABLE TO COMPLETE ALL WORK REQUIRED BY THE CONTRACT.

GN4. BECAUSE EQUIPMENT SUPPLIED MAY HAVE CONNECTION POINTS DIFFERENT THAN SHOWN ON THE DRAWINGS, LOCATE CONDUIT RUNS AND LOCATIONS OF DISCONNECTS, CONTROL STATIONS AND THE LIKE BASED UPON SHOP DRAWINGS OF THE ASSOCIATED EQUIPMENT.

GN5. PERFORM ALL WORK IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC).

GN6. FOR RECORD DRAWING REQUIREMENTS, REFER TO THE GENERAL CONDITIONS. MAINTAIN A DEDICATED SET OF DRAWINGS ON THE JOBSITE AND MARK ALL VARIATIONS TAKEN TO THE CONTRACT DRAWINGS.

GN7. DUE TO THE SMALL SCALE OF THE DRAWINGS, AND TO UNFORESEEN JOB CONDITIONS, ALL REQUIRED OFFSETS AND FITTINGS MAY NOT BE SHOWN BUT SHALL BE PROVIDED AT NO CHANGE IN CONTRACT PRICE.

GN8. CUTTING AND PATCHING SHALL BE IN ACCORDANCE WITH THE GENERAL CONDITIONS. CUTTING AND PATCHING SHALL BE DONE IN A WORKMANLIKE MANNER USING TOOLS AND MATERIALS SUITABLE FOR THE PURPOSE.

GN9. IT IS THE INTENT OF THESE SPECIFICATIONS TO ESTABLISH QUALITY STANDARDS FOR ALL MATERIAL AND EQUIPMENT INCORPORATED IN THE WORK OF THIS DIVISION. ALL MATERIALS AND EQUIPMENT INSTALLED HEREUNDER SHALL BE NEW UNLESS INDICATED TO BE EXISTING, OR EXISTING AND RELOCATED.

GN10. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED SUCH THAT PROPER WORKING CLEARANCES ARE MAINTAINED. WHERE THIS IS NOT POSSIBLE, CONSULT ENGINEER.

ABBREVIATIONS

AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERES INTERRUPTING CAPACITY
AMPS	AMPERES
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
BCSD	BARE COPPER SOFT DRAWN
C	CONDUIT
CKT	CIRCUIT
CONN	CONNECTED
DEMO	DEMOLISH (REMOVE)
EGC	EQUIPMENT GROUNDING CONDUCTOR
ETR	EXISTING TO REMAIN
FLA	FULL LOAD AMPS
FVNR	FULL VOLTAGE NON–REVERSING
GEC	GROUNDING ELECTRODE CONDUCTOR
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
HP	HORSEPOWER
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT–AMPERES
KW	KILOWATTS
L	LINE
MCCB	MOLDED CASE CIRCUIT BREAKER
MIN	MINIMUM OR MINUTES
MOP	MAXIMUM OVERCURRENT PROTECTIVE DEVICE
N, NEUT	NEUTRAL
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NTS	NOT TO SCALE
OHP	OVERHEAD POWER
P	POLE
PVC	POLYVINYL CHLORIDE CONDUIT
RMS	ROOT MEAN SQUARE
RSC	RIGID STEEL CONDUIT
SPECS	SPECIFICATIONS
SYM	SYMMETRICAL
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLTS

660–006 E1 LEGENDS.DWG 11 Feb 2021

MASTER ENGINEERS & DESIGNERS
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TOWN OF ALTAVISTA
WATER SUPPLY
SYSTEM WIDE EMERGENCY POWER SOURCE
TOWN OF ALTAVISTA **VIRGINIA**

SEAL
COMMONWEALTH OF VIRGINIA
MICHAEL C. BEASLEY JR.
Lic. No. 057808
2/13/2021
PROFESSIONAL ENGINEER

DRAWN BY: JHR
REVIEW BY: MGB
DATE: 13 FEB 2021
REVISION:

SHEET DESCRIPTION: LEGENDS, NOTES & ABBREVIATIONS

E1

JN: 19-34

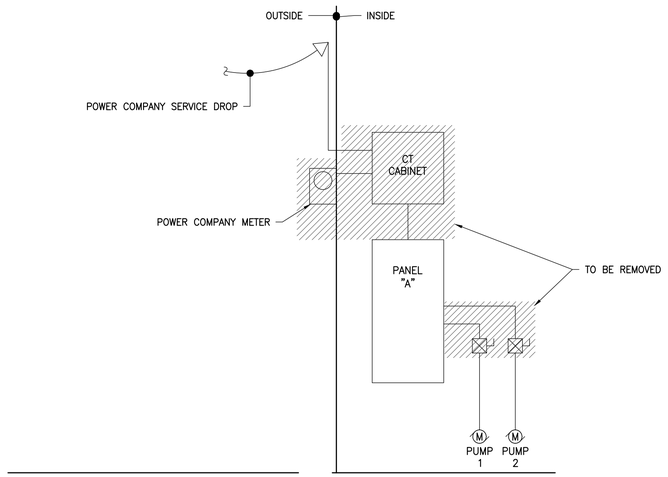
ONE LINE DIAGRAM KEY (SHEET E2)

1. 4 #1 & 1 #6 EGC – 2"C. ALSO PROVIDE CONTROL WIRING IN SEPARATE CONDUIT; AS REQUIRED.
2. 4 #4/0 – 2 1/2"C
3. 4 #4/0 & 1 #4 EGC – 2 1/2"C
4. #2 BCSD GEC – 1"C
5. CONNECT TO EXISTING GROUNDING ELECTRODES. INSTALL NEW GROUND ROD IF NECESSARY. ENSURE GROUND RESISTANCE IS LESS THAN 25 OHMS.
6. 3 #2 & 1 #8 – 1 1/2"C
7. SEPARATE NEUTRALS AND GROUNDS WITHIN PANEL AND REMOVE NEUTRAL–TO–GROUND BONDING JUMPER
8. PROVIDE 1 1/2" CONDUIT AND CIRCUITS AS REQUIRED FOR GENERATOR ACCESSORIES SUCH AS BATTERY CHARGER AND ENGINE BLOCK HEATER. PROVIDE NEW BREAKERS IN PANEL "A" FOR ACCESSORIES. PANEL "A" IS A GE A SERIES PANELBOARD.

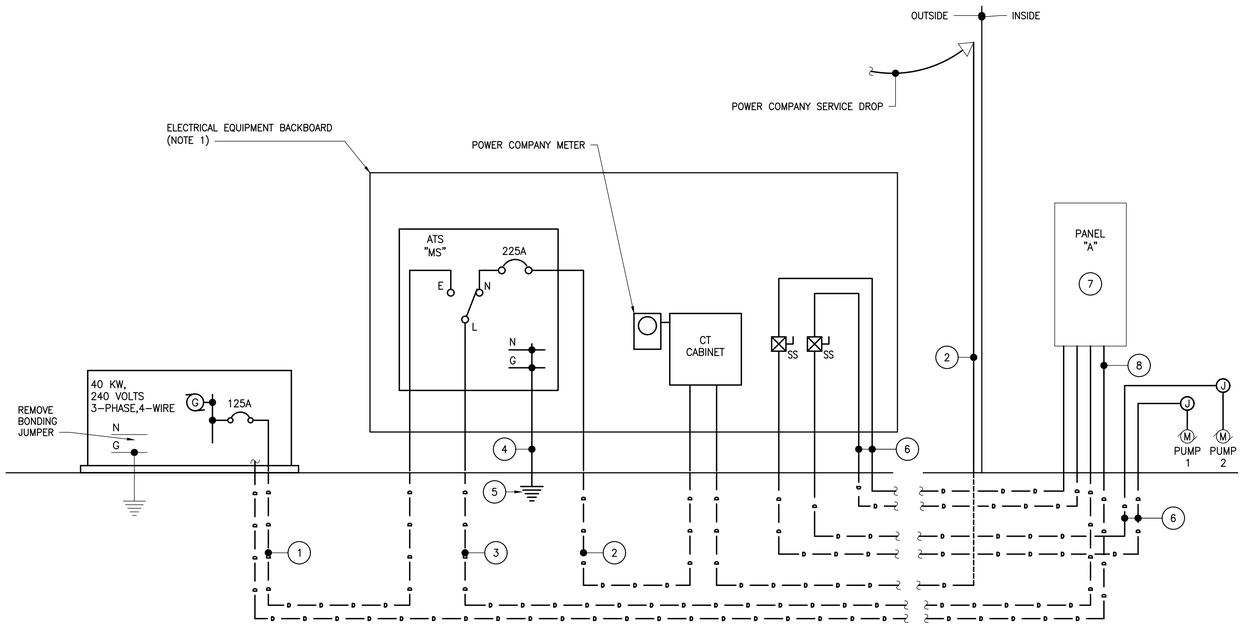
McMinnis Spring Load Table			
LOAD DESIGNATION	LOAD TYPE	LOAD (HP) OR (KVA)	VOLTAGE (V)/Phase
Pump A	Motor	20 HP	240V, 3-phase
Lights	Lights	300VA	120V, 1-phase
Receptacles	Receptacle	1.2 kVA	120V, 1-phase
Pump Controls	Controls	100VA	120V, 1-phase
SCADA Cabinet	Controls	400VA	120V, 1-phase
Recorder	Controls	100VA	120V, 1-phase
Unit Heaters	Resistive	6kW	240V, 1-phase

NOTES (SHEET E2)

1. CONSTRUCT BACKBOARD OUT OF 14 GAUGE, 1 5/8" X 1 5/8" STAINLESS CHANNEL. SIZE ACCORDING TO EQUIPMENT PROVIDED. EQUIPMENT MAY BE MOUNTED ON BOTH SIDES OF BACKBOARD SO LONG AS ELECTRICAL CLEARANCES ARE MAINTAINED. INSTALL BACKBOARD SUPPORTS IN 1'–0" DIAMETER, 3000 PSI CONCRETE, BURIED TO A MINIMUM DEPTH OF 6'–0".
2. INSTALL REMOTE ANNUNCIATOR FOR GENERATOR WITHIN SPRING HOUSE ELECTRICAL / PUMP ROOM. ENSURE ANNUNCIATOR IS INSTALLED IN A NEMA 4X ENCLOSURE AND INCLUDES DRY CONTACTS AS REQUIRED BY GENERATOR SPECIFICATION FOR FUTURE SCADA INTEGRATION.



ONE LINE DIAGRAM - EXISTING
SCALE: 1/4" = 1'–0"



ONE LINE DIAGRAM - REWORKED
SCALE: 1/4" = 1'–0"

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TOWN OF ALTAVISTA
WATER SUPPLY
SYSTEM WIDE EMERGENCY POWER SOURCE
TOWN OF ALTAVISTA VIRGINIA

SEAL: COMMONWEALTH OF VIRGINIA — MICHAEL G. BEASLEY JR. — Lic. No. 057808 — 2/13/2021 — PROFESSIONAL ENGINEER

DRAWN BY:	JHR
REVIEW BY:	MGB
DATE:	13 FEB 2021
REVISION:	

SHEET DESCRIPTION: MCMINNIS SPRING ONE LINE DIAGRAMS

E2

JN: 19-34

660-006 E2 MCMINNIS.DWG 11 Feb 2021

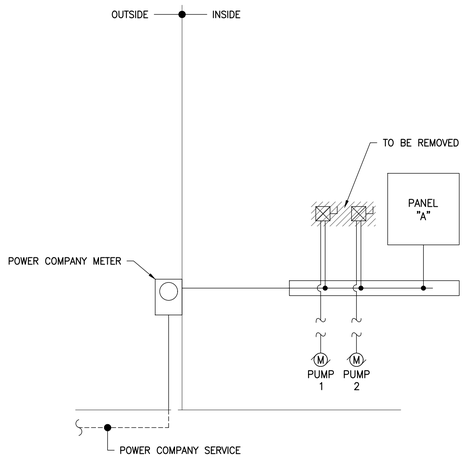
ONE LINE DIAGRAM KEY (SHEET E3)

1. 4 #1/0 & 1 #6 EGC – 2"C. ALSO PROVIDE CONTROL WIRING IN SEPARATE CONDUIT; AS REQUIRED.
2. 4 #4/0 – 2 1/2"C
3. 4 #4/0 & 1 #4 EGC – 2"C
4. 225 AMP FUSED DISCONNECT
5. #2 BCSD GEC – 1"C
6. CONNECT TO EXISTING GROUNDING ELECTRODES. INSTALL NEW GROUND ROD IF NECESSARY. ENSURE GROUND RESISTANCE IS LESS THAN 25 OHMS.
7. PROVIDE 1 1/2" CONDUIT AND CIRCUITS AS REQUIRED FOR GENERATOR ACCESSORIES SUCH AS BATTERY CHARGER AND ENGINE BLOCK HEATER. PROVIDE NEW BREAKERS IN PANEL "A" FOR ACCESSORIES. PANEL "A" IS A WESTINGHOUSE B10B PANELBOARD.

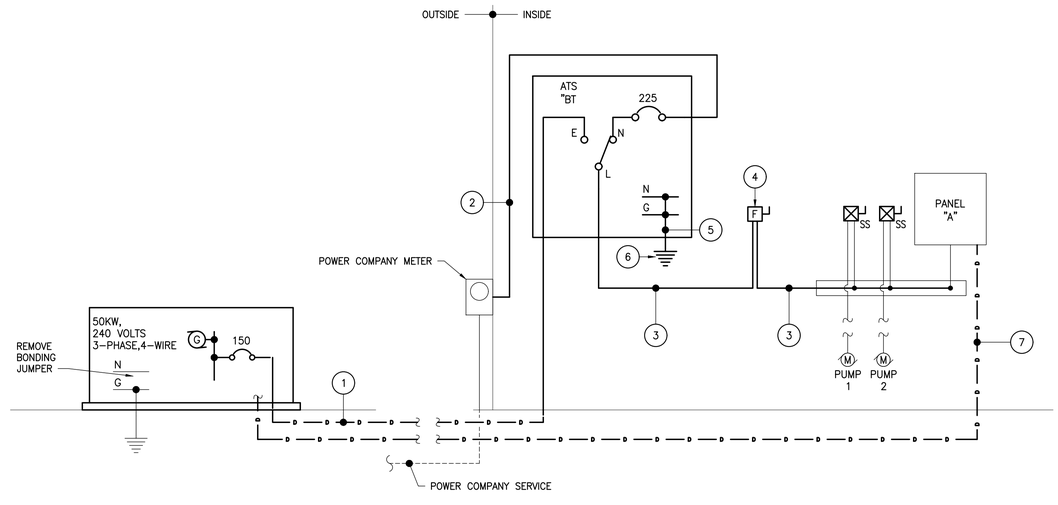
660-006 Bedford Tank			
LOAD DESIGNATION	LOAD TYPE	LOAD (HP) OR (KVA)	VOLTAGE (V)/Phase
Pump A	Motor	30 HP	240V, 3-phase
Lights	Lights	300VA	120V, 1-phase
Receptacles	Receptacle	1.2 kVA	120V, 1-phase
Pump Controls	Controls	100VA	120V, 1-phase
SCADA Cabinet	Controls	400VA	120V, 1-phase
Recorder	Controls	100VA	120V, 1-phase
Unit Heater	Resistive	3kW	240V, 1-phase

NOTES (SHEET E3)

1. LOCATE NEW TRANSFER SWITCH AND FUSED DISCONNECT IN PUMP HOUSE. ENSURE ELECTRICAL CLEARANCES ARE MAINTAINED. NEW STARTER SHALL OCCUPY SAME SPACE AS EXISTING STARTERS.
2. INSTALL REMOTE ANNUNCIATOR FOR GENERATOR WITHIN PUMP HOUSE. ENSURE ANNUNCIATOR IS INSTALLED IN A NEMA 4X ENCLOSURE AND INCLUDES DRY CONTACTS AS REQUIRED BY GENERATOR SPECIFICATION FOR FUTURE SCADA INTEGRATION.



ONE LINE DIAGRAM - EXISTING
SCALE: NOT TO SCALE



ONE LINE DIAGRAM - REWORKED
SCALE: NOT TO SCALE

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DRAWN BY: JHR
REVIEW BY: MGB
DATE: 13 FEB 2021
REVISION:

SHEET DESCRIPTION: BEDFORD TANK ONE LINE DIAGRAMS

E3

JN: 19-34

660-006 E3 BEDFORD TANK.DWG 11 Feb 2021

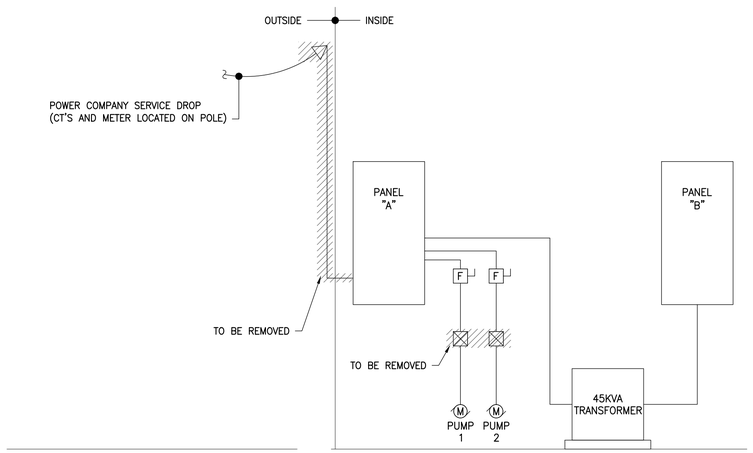
ONE LINE DIAGRAM KEY (SHEET E4)

1. 4 #1/0 & 1#6 EGC – 2"C. ALSO PROVIDE CONTROL WIRING IN SEPARATE CONDUIT; AS REQUIRED.
2. 4 #4/0 & 1 #6 EGC – 2 1/2"C
3. 4 #4/0 – 2 1/2"C
4. #2 BCSD – 1"C
5. CONNECT TO EXISTING GROUNDING ELECTRODES. INSTALL NEW GROUND ROD IF NECESSARY. ENSURE GROUND RESISTANCE IS LESS THAN 25 OHMS.
6. 3 #2 & 1 #8 EGC – 1 1/2"C
7. SEPARATE NEUTRALS AND GROUNDS WITHIN PANEL AND REMOVE NEUTRAL–TO–GROUND BONDING JUMPER
8. PROVIDE 1 1/2" CONDUIT AND CIRCUITS AS REQUIRED FOR GENERATOR ACCESSORIES SUCH AS BATTERY CHARGER AND ENGINE BLOCK HEATER. PROVIDE NEW BREAKERS IN PANEL "B" FOR ACCESSORIES. PANEL "B" IS A GE PANEL THAT ACCEPTS TQHB AND TQD BRANCH CIRCUIT BREAKERS.

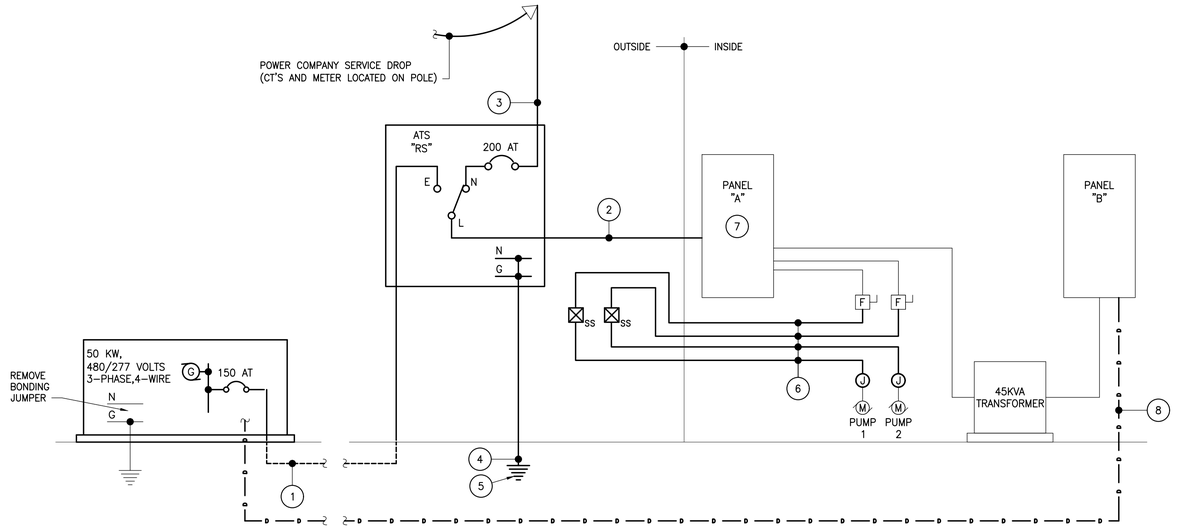
660-006 Reynolds Spring			
LOAD DESIGNATION	LOAD TYPE	LOAD (HP) OR (KVA)	VOLTAGE (V)/Phase
Pump A	Motor	30 HP	480V, 3-phase
Lights	Lights	300VA	120V, 1-phase
Receptacles	Receptacle	1.2 kVA	120V, 1-phase
Recorder	Controls	100VA	120V, 1-phase
Unit Heater	Resistive	3kW	240V, 1-phase
Unit Heater	Resistive	1.4kW	120V, 1-phase

NOTES (SHEET E4)

1. MOUNT NEW TRANSFER SWITCH AND STARTERS TO EXTERIOR NW WALL OF PUMP HOUSE.
2. INSTALL REMOTE ANNUNCIATOR FOR GENERATOR WITHIN PUMP HOUSE. ENSURE ANNUNCIATOR IS INSTALLED IN A NEMA 4X ENCLOSURE AND INCLUDES DRY CONTACTS AS REQUIRED BY GENERATOR SPECIFICATION FOR FUTURE SCADA INTEGRATION.



ONE LINE DIAGRAM - EXISTING
SCALE: NOT TO SCALE



ONE LINE DIAGRAM - REWORKED
SCALE: NOT TO SCALE

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2/13/2021
PROFESSIONAL ENGINEER

DRAWN BY: JHR
REVIEW BY: MGB
DATE: 13 FEB 2021
REVISION:

SHEET DESCRIPTION:
REYNOLDS SPRING
ONE LINE DIAGRAMS

E4

JN: 19-34

660-006 E4 REYNOLDS.DWG 11 Feb 2021

Staunton River Intake			
LOAD DESIGNATION	LOAD TYPE	LOAD (HP) OR (KVA)	VOLTAGE (V)/Phase
Raw Water Pump #1	Motor	75 HP	480V, 3-phase
Lights	Lights	300VA	120V, 1-phase
Receptacles	Receptacle	1.2 kVA	120V, 1-phase
Pump Controls	Controls	100VA	120V, 1-phase
SCADA Cabinet	Controls	400VA	120V, 1-phase

ONE LINE DIAGRAM KEY (SHEET E5)

1. 4 #4/0 – 2 1/2"C
2. 4 #4/0 & 1 #4 EGC – 2 1/2"C
3. 4 #4/0 & 1 #4 EGC – 2 1/2"C. ALSO PROVIDE CONTROL WIRING IN SEPARATE CONDUIT; AS REQUIRED.
4. #2 BCSD – 1"C
5. INSTALL NEW 3/4" X 10' COPPER CLAD STEEL GROUND ROD AT BASE OF NEW STRUCTURE. ALSO BOND TO NEW STRUCTURE STEEL. ENSURE GROUND RESISTANCE IS LESS THAN 25 OHMS.
6. FOR CONDUIT TYPE, SIZE AND FILL, SEE PANEL "H" SCHEDULE.
7. 3 #1 & 1 #6 – 1 1/2"C
8. 12" X 12" X 6" MINIMUM JUNCTION BOX. LOCATE ON SIDE OF NEW STRUCTURE CLOSE TO EXISTING STRUCTURE TO INTERCEPT EXISTING WIRING TO PUMPS. THERE IS 10' TO 15' OF SLACK IN THE EXISTING WIRING.
9. 3 #8 & 1 #10 EGC – 1"C
10. DUPLICATE EXISTING WIRING.
11. EXISTING PUMP FEEDERS.
12. PROVIDE POWER FOR GENERATOR ACCESSORIES SUCH AS BATTERY CHARGER AND BLOCK HEATER. FROM PANEL "L" USE BREAKER MARKED SPARE FOR ACCESSORIES AND LABEL IN FILED AND ON RED LINE DRAWINGS ACCORDINGLY. IF BREAKERS LARGER THAT SPARES PROVIDED ARE NECESSARY, REPLACE AT NO CHANGE TO CONTRACT PRICE.

PANEL "H" SCHEDULE

PANELBOARD CHARACTERISTICS:

VOLTS: 480/277 — SOLID NEUTRAL — NF 18 POLE
PHASES: 3 — GROUND BAR — MAIN BREAKER: 225 AMPS (100% RATED)
WIRES: 4 — MINIMUM SHORT CIRCUIT RATING: 22,000 RMS SYM AMPS

CKT. NO.	POLE NO.	DESCRIPTION	CONN. KVA	CONN. AMPS A	CONN. AMPS B	CONN. AMPS C	BREAKER P	BREAKER AF	BREAKER AT	NO. & WIRE SIZE PHASE	NEUT.	EGC	CONDUIT SIZE
	1			96.0						#1			
3	3	PUMP #1 (75HP)	79.81		96.0		3	225	125	#1	—	#6	1 1/2"
	5					96.0				#1			
	7			96.0						#1			
9	9	PUMP #2 (75HP)	79.81		96.0		3	225	125	#1	—	#6	1 1/2"
	11					96.0				#1			
	13	SPACE & BUS ONLY					1	100					
	15	" " " "											
	17	" " " "											
2	2	PANEL "L" VIA 10 KVA TRANSFORMER	10.00	20.8			2	100	20	#12	—	#12	3/4"
	4				20.8					#12			
6	6	LIGHTS	0.20			0.7	1	100	20	#12	#12	#12	3/4"
	8	SPACE& BUS ONLY											
	10	" " " "											
	12	" " " "											
	14	" " " "											
	16	" " " "											
	18	" " " "											
		TOTALS	169.82	212.8	212.8	192.7							

PANEL "L" SCHEDULE

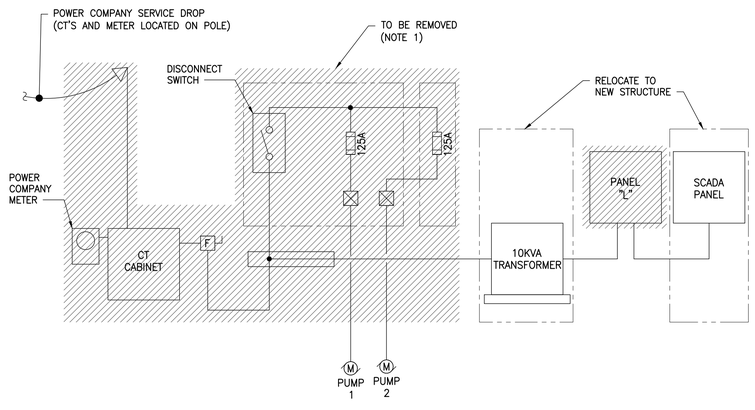
PANELBOARD CHARACTERISTICS:

VOLTS: 120/240 — SOLID NEUTRAL — MAIN BREAKER: 50 AMPS
PHASES: 1 — GROUND BAR
WIRES: 3 — MINIMUM SHORT CIRCUIT RATING: 10,000 RMS SYM AMPS

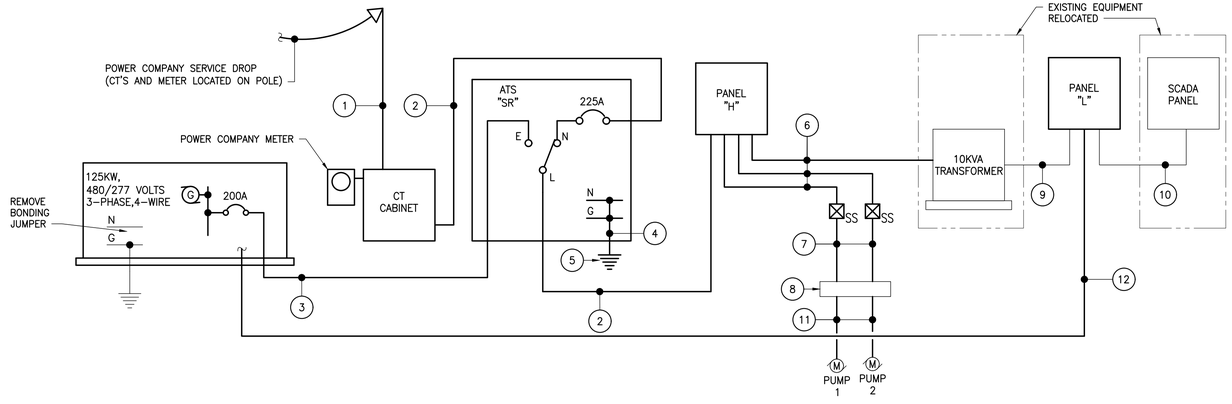
CKT. NO.	POLE NO.	DESCRIPTION	CONN. KVA	CONN. AMPS L1	CONN. AMPS L2	BREAKER P	BREAKER AF	BREAKER AT	NO. & WIRE SIZE LINE	NEUT.	EGC	CONDUIT SIZE	
1	1					1	100	15					NOTE 2
3	3					1	100	15					
5	5					1	100	15					
7	7					1	100	30					
9	9					1	100	20					
	11	SPACE & BUS				1	100						
	2	" " "				"	"						
4	4	RECEPTACLE				1	100	20	#12	#12	#12	3/4"	
6	6	SPARE				1	100	20					
8	8	SPARE				1	100	20					
10	10	SPARE				1	100	20					
12	12	SPARE				1	100	20					
		TOTALS											

NOTES (SHEET E5)

1. CONTRACTOR SHALL ESTABLISH NEW SERVICE DROP AND SET ALL NEW EQUIPMENT SO THAT PUMPS CAN BE SWITCHED TO NEW EQUIPMENT WITHOUT ANY DOWNTIME. THEN, CONTRACTOR MAY DEMO EXISTING EQUIPMENT.
2. DUPLICATE WIRING AS NECESSARY FOR SCADA LOADS. OTHER BREAKERS MAY BE LEFT AS SPARES.



ONE LINE DIAGRAM - EXISTING
SCALE: NOT TO SCALE



ONE LINE DIAGRAM - REWORKED
SCALE: NOT TO SCALE

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SEAL: COMMONWEALTH OF VIRGINIA — MICHAEL C. BEASLEY JR. — Lic. No. 057808 — 2/13/2021 — PROFESSIONAL ENGINEER

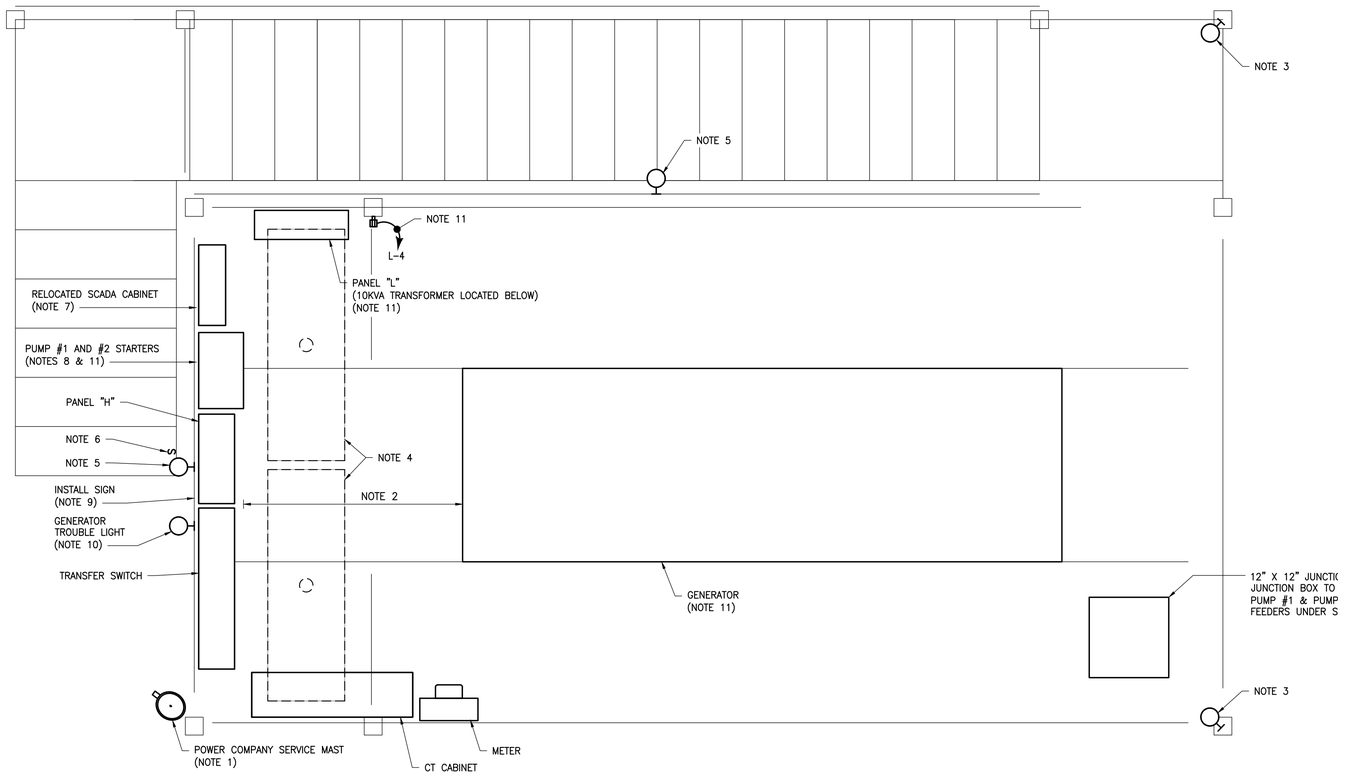
DRAWN BY: JHR
REVIEW BY: MGB
DATE: 13 FEB 2021
REVISION:

SHEET DESCRIPTION: STAUNTON RIVER INTAKE ONE LINE DIAGRAMS & PANEL SCHEDULE

E5

JN: 19-34

660-006 E5 STAUNTON RIVER.DWG 11 Feb 2021



ELECTRICAL EQUIPMENT PLAN
SCALE: 3/4" = 1'-0"

NOTES (SHEET E6)

1. COORDINATE WITH POWER COMPANY. ARRANGE SUCH THAT MAST DOES NOT PENETRATE ROOF OVER ELECTRICAL EQUIPMENT.
2. MAINTAIN MINIMUM 3'-6" CLEARANCE TO ALL ELECTRICAL EQUIPMENT. IF CONTRACTOR PREFERS A DIFFERNT LAYOUT THAN SHOWN, PROVIDE SKETCH TO ENGINEER FOR APPROVAL WITH EQUIPMENT SHOP DRAWINGS.
3. INSTALL FAIL-SAFE FLL-2-30-DL FIXTURE, OR EQUAL. STANCHION MOUNT SUCH THAT FIXTURE IS 7'-0" ABOVE PLATFORM
4. INSTALL LITHONIA FEM-L48-2000LM-IMAFL-MD-40K, OR EQUAL. MOUNT TO UNDERSIDE OF ROOF STRUCTURE.
5. INSTALL LITHONIA TWR1-LED-ALO-40K-MVOLT-DDBTXD, OR EQUAL. FIELD ADJUST LUMEN OUTPUT PER OWNER.
6. INSTALL SWITCH IN WEATHERPROOF ENCLOSURE TO CONTROL ALL LIGHTS. WORE AL LIGHTS TO CIRCUIT INDICATED IN PANEL "A"
7. ENSURE ANTENNA AND ALL OTHER EQUIPMENT IS RELOCATED WITH CABINET. DO NOT PENETRATE ROOF WITH ANTENNA.
8. INSTALL STARTERS ONE OVER TOP OF THE OTHER.
9. INSTALL A SIGN FACING TOWARDS WALKING PATH. SEE DETAIL BELOW. SIGN SHALL BE CONSTRUCTED USING WEATHER-RESISTANT MATERIAL WITH LETTERS AT LEAST 6" IN HEIGHT.
10. INSTALL WARNING LIGHT AND INTERFACE WITH GENERATOR CONTROLLER SUCH THAT LIGHT FLASHES FOR ANY GENERATOR TROUBLE SIGNAL.
11. ENSURE ALL ELECTRICAL EQUIPMENT IS INSTALLED A MINIMUM OF 2'-0" ABOVE PLATFORM GRATING. ENSURE GENERATOR FUEL CAP AND ANY EQUIPMENT ON GENERATOR IS A MINIMUM OF 2'-0" ABOVE GRATING.

STAUNTON RIVER INTAKE PUMP STATION
IN THE EVENT THE RED ALARM LIGHT IS FLASHING OR OTHER EMERGENCY, PLEASE NOTIFY THE TOWN BY CALLING THE WATER TREATMENT PLANT AT 434-324-7251

SIGN DETAIL
SCALE: NOT TO SCALE

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2' 0' 2' 4'
3/4" = 1'-0"
GRAPHIC SCALE

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DRAWN BY:	JHR
REVIEW BY:	MGB
DATE:	13 FEB 2021
REVISION:	

SHEET DESCRIPTION:
STAUNTON RIVER INTAKE
ELECTRICAL PLAN

E6

JN: 19-34

660-006 E6 STAUNTON RIVER PLATFORM PLAN.DWG 11 Feb 2021