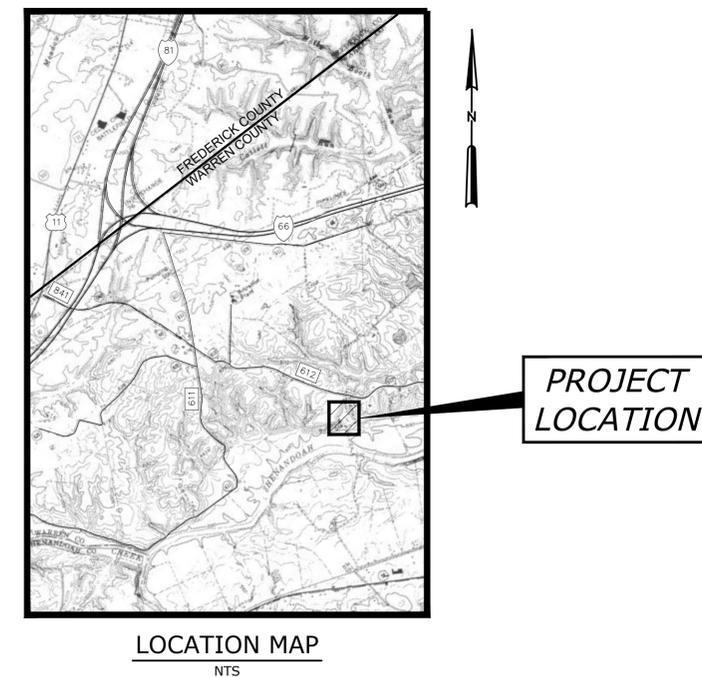
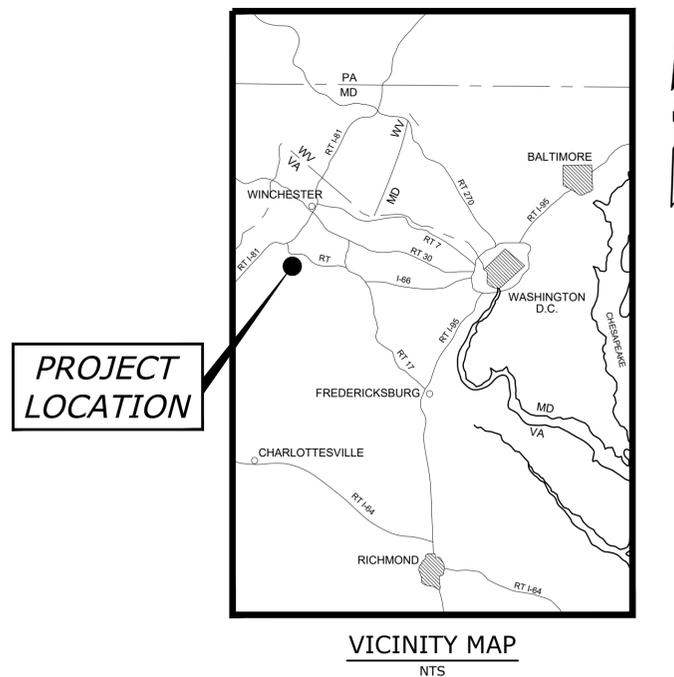


CITY OF WINCHESTER
DEPARTMENT OF PUBLIC SERVICES



PERCY D. MILLER WATER TREATMENT PLANT
RAW WATER PUMP STATION GENERATOR REPLACEMENT

INVITATION TO BID NO. 201816
FINAL DESIGN - ISSUED FOR CONSTRUCTION
AUGUST 2018



OWNER:
CITY OF WINCHESTER
DEPARTMENT OF PUBLIC SERVICES
ROUSS CITY HALL
15 NORTH CAMERON STREET
WINCHESTER, VA 22601



Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VIRGINIA 23230
PHONE: 804-266-1400

GENERAL NOTES

- THE PERCY D. MILLER WTP IS LOCATED AT 32 PENCE LAND ROAD, MIDDLETOWN, VA, 22645. ACCESS TO THE RWPS IS APPROXIMATE 8/10 OF A MILE SOUTHEAST OF THE WTP ENTRANCE ALONG GAF1A LODGE ROAD. ACCESS IS RESTRICTED AND SHALL BE COORDINATED WITH THE OWNER. SEE SPECIFICATION SECTION 01550 SITE ACCESS AND STORAGE.
- ALL EXISTING INFORMATION SHOWN ON THESE DRAWINGS INCLUDING LOCATION, DIMENSIONS, ELEVATIONS, AND CONFIGURATIONS IS DERIVED FROM THE PERCY D. MILLER WTP UPGRADE-DATED MAY 2009, MALCOLM PIRNIE, INC. CONTRACT DRAWINGS AND IS NOT GUARANTEED TO BE COMPLETE OR CORRECT.
- ALL ELEVATIONS ARE BASED ON NGVD 29 BENCH MARKS. A 1% ANNUAL CHANCE FLOOD ELEVATION OF 500.00 WAS ESTABLISHED BASED ON THE LATEST FEMA MAPPING.
- PUMP STATION WITH STANDBY POWER SUPPLY SHALL REMAIN IN SERVICE AT ALL TIMES. SEE REQUIREMENTS OF SECTION 01520 MAINTENANCE OF UTILITY OPERATIONS DURING CONSTRUCTION.
- CONTRACTOR SHALL VERIFY FIELD CONDITIONS BEFORE COMMENCEMENT OF ANY DEMOLITION OR CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL VERIFY EXISTING ELEVATIONS AND DIMENSIONS WHERE NEW WORK WILL MATCH EXISTING. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO THE COMMENCEMENT OF WORK.
- CITY HAS PAID FOR AND OBTAINED A BUILDING PERMIT FROM WARREN COUNTY. CONTRACTOR SHALL OBTAIN ALL OTHER NECESSARY PERMITS FROM THE APPROPRIATE AUTHORITIES, DEPARTMENTS, AND/OR AGENCIES HAVING JURISDICTION PRIOR TO COMMENCING WORK.
- CONTRACTOR SHALL TAKE CARE TO AVOID DAMAGE TO EXISTING PAVEMENT, TREES, VEGETATION, STRUCTURES, AND UTILITIES THAT ARE NOT INDICATED TO BE DEMOLISHED OR REMOVED. ANY DAMAGE TO EXISTING PAVEMENT, TREES, VEGETATION, STRUCTURES, AND UTILITIES NOT INDICATED TO BE DEMOLISHED OR REMOVED SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEY INFORMATION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEIR EXACT LOCATION AND TO AVOID DAMAGE TO THEM. THE CONTRACTOR SHALL CONTACT VIRGINIA 811 AT PHONE NUMBER 811 OR 1-800-552-7001 TO REQUEST UNDERGROUND UTILITY LOCATION MARK-OUT AT LEAST THREE (3) WORKING DAYS BUT NO MORE THAN TEN (10) WORKING DAYS PRIOR TO BEGINNING EXCAVATION, INCLUDING SOIL DRILLING. THE CONTRACTOR SHALL ALSO CONTACT AND REQUEST UTILITY LOCATION MARK-OUT FROM BURIED UTILITY OWNERS WITH UTILITIES ON THE PROJECT SITE THAT ARE NOT PARTICIPANTS OF VIRGINIA 811.
- WHERE PROPOSED WORK IS IN THE VICINITY OF UTILITY POLES, SUCH THAT SUPPORT OF THE POLE(S) WILL BE REQUIRED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE UTILITY OF THE WORK. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE UTILITY FOR SUPPORT OF THE POLE.
- WHERE OVERHEAD POWER LINES ARE PRESENT, CONTRACTOR MUST CONTACT THE UTILITY PRIOR TO CONSTRUCTION ACTIVITIES TO DETERMINE THE MINIMUM REQUIRED EQUIPMENT CLEARANCE (MEC) DISTANCE BASED UPON LINE STRENGTH.
- THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL DEBRIS GENERATED DURING THE PROJECT OFF SITE AT A PROPERLY PERMITTED DISPOSAL FACILITY.
- GROUNDWATER FROM ALL DE-WATERING OPERATIONS SHALL BE DISCHARGED TO AN ENVIRONMENTALLY ACCEPTABLE LOCATION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, OR AS DIRECTED BY THE ENGINEER.

SEQUENCE OF CONSTRUCTION

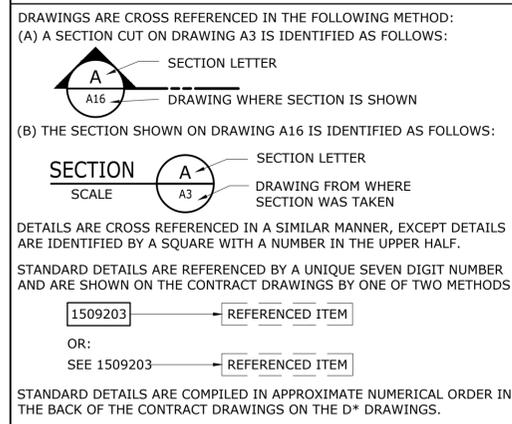
- PROVIDE TEMPORARY FUEL STORAGE (2000 GAL MIN) AND SUPPLY FOR EXISTING/NEW GENERATOR.
- DRAIN AND DEMOLISH EXISTING FUEL TANK. BACKFILL AS SHOWN.
- CONSTRUCT NEW GENERATOR PAD AS SHOWN.
- INSTALL NEW GENERATOR WITH TEMPORARY FUEL SUPPLY AND WIRING TO SERVE PUMP STATION.
- DEMOLISH EXISTING GENERATOR, PAD, CONDUIT AND CABLE AS SHOWN.
- CONSTRUCT NEW FUEL TANK PAD, FUEL TANK AND ACCESSORIES, AND PERMANENT CONDUIT AND CABLE AS SHOWN.
- PERFORM ALL TESTING AND STARTUP PROCEDURES.
- REMOVE ALL TEMPORARY FACILITIES.

ABBREVIATIONS

GENERAL		HP	HORSEPOWER OR HEAT PUMP	SERV	SERVICE
AC	ASBESTOS CEMENT	HPT	HIGH POINT	SF	SQUARE FEET
ADH	ADHESIVE	HVAC	HEATING, VENTILATION AND AIR CONDITIONING	SHT	SHEET
ADJ	ADJUSTABLE	HWY	HIGHWAY	SI	SQUARE INCH
AFF	ABOVE FINISHED FLOOR	HYD	HYDRAULIC	SIM	SIMILAR
AL, ALUM	ALUMINUM	I	IRON	SMH	STORM MANHOLE
ALLOW	ALLOWANCE/ALLOWABLE	ID	INSIDE DIAMETER	SP	SUMP PUMP
ALT	ALTERNATE	IF	INSIDE FACE	SPEC	SPECIFICATION
APPROX	APPROXIMATE	IN	INCH	SQ	SQUARE
ARCH	ARCHITECTURAL	INCL	INCLUDED	SSP	SUBMERSIBLE SUMP PUMP
ASPH	ASPHALT	INT	INTERIOR	SST	STAINLESS STEEL
B	BORING	INT	INTERIOR	STA	STATION OR STACK
BFE	BOTTOM OF FITTING ELEV	INV	INVERT	STD	STANDARD
B	BASELINE	J	JOIST	STG	STORAGE OR STOP GATE (LOG)
BL	BUILDING LINE	JB	JUNCTION BOX	STL	STEEL
BLDG	BUILDING	JCT	JUNCTION	STRU	STRUCTURAL
BLK	BLOCK	JT	JOINT	SUB	SUBSTITUTE
BM	BENCH MARK	L	LENGTH/ANGLE	SUCT	SUCTION
BOC	BACK OF CURB	LB	POUND OR LINE BACK	SUR	SURFACE
BOM	BOTTOM OF MASONRY	LF	LINEAR FEET	SUSP	SUSPENDED
BOT	BOTTOM BEARING	LG	LONG	TBA	TO BE ABANDONED
BRG	BORING	LPT	LOW POINT	TECH	TECHNICAL
CB	CATCH BASIN	MAINT	MAINTENANCE	TEMP	TEMPERATURE
CE	CONSTRUCTION EASEMENT	MANUF	MANUFACTURER	THK	THICK
CF	CUBIC FEET	MATL	MATERIAL	THRU	THROUGH
CFM	CUBIC FEET PER MINUTE	MAX	MAXIMUM	TOC	TOP OF CONCRETE
CL	CENTERLINE	MECH	MECHANICAL	TOM	TOP OF MASONRY/MANHOLE
CLR	CLEAR	MET	METAL	TOS	TOP OF SLAB/ TOP OF STEEL
CO	CLEANOUT	MFR	MANUFACTURER	TOL	TOLERANCE
COL	COLUMN	MG	MILLION GALLONS	TPY	TYPICAL
CONC	CONCRETE	MGD	MILLION GALLONS PER DAY	UG	UNDERGROUND
CONST	CONSTRUCTION	MH	MANHOLE	UGE	UNDERGROUND ELECTRIC
CONT	CONTINUOUS, CONTINUATION	MIN	MINIMUM	UGG	UNDERGROUND GAS
CONTR	CONTRACTOR	MISC	MISCELLANEOUS	UNFIN	UNFINISHED
CORP	CORPORATION	MO	MASONRY OPENING	UNO	UNLESS NOTED OTHERWISE
CP	CONTROL PANEL	MOD	MODIFY OR MODIFIED	UPS	UNINTERRUPTIBLE POWER SUPPLY
CRS	COURSE	MTD	MOUNTED	UTIL	UTILITY
CST	CHEMICAL STORAGE TANK	MTG	MOUNTING	VEL	VELOCITY
CT	CERAMIC TILE	MULT	MULTIPLE	VERT	VERTICAL
CTJ	CONTROL JOINT	N	NORTH	VOL	VOLUME
CU	COPPER	NA	NOT APPLICABLE	W/	WITH
CY	CUBIC YARD	NAD '83	NORTH AMERICAN DATUM OF 1983	W/O	WITHOUT
DET	DETAIL	NAVD '88	NORTH AMERICAN VERTICAL DATUM OF 1988	WP	WATERPROOF
DIA OR Ø	DIAMETER	NC	NORMALLY CLOSED	WPGF	WATER PROOFING
DIAG	DIAGONAL	NF	NEAR FACE	WT	WEIGHT
DIM	DIMENSION	NGVD '29	NATIONAL GEODETIC VERTICAL DATUM OF 1929	WTP	WATER TREATMENT PLANT
DISC	DISCONNECT	NIC	NOT IN CONTRACT	WV	WATER VALVE
DISCH	DISCHARGE	No.	NUMBER	XFMR	TRANSFORMER
DIST	DISTRIBUTION	NO	NORMALLY OPEN	XMH	EXISTING MANHOLE
DL	DEAD LOAD	NTS	NOT TO SCALE	YD	YARD
DN	DOWN	OC	ON CENTER	YR	YEAR
DOZ	DOZEN	OD	OUTSIDE DIAMETER OR OVERHEAD DOOR		
DP	DISTRIBUTION PANEL	OF	OUTSIDE FACE	BF	BLIND FLANGE
D/S	DOWNSTREAM	OHE	OVERHEAD ELECTRIC	BV	BALL VALVE
DT	DAY TANK	OPNG	OPENING	CV	CHECK VALVE
DWG(S)	DRAWING(S)	OPP	OPPOSITE	CPLG	COUPLING
DWL	DOWEL	ORIG	ORIGINAL	FLEX	FLEXIBLE
EA	EACH	PAR	PARALLEL	FLG	FLANGE
ECC	ECCENTRIC	PC	POINT OF CURVE OR PIECE OR PERSONAL COMPUTER	FTG	FITTING
ED	EQUIPMENT DRAIN	PCC	POINT OF COMPOUND CURVE	GV	GATE VALVE
EE	EACH END	PCF	POUNDS PER CUBIC FOOT	PV	PLUG VALVE
EF	EACH FACE OR EXHAUST FAN	PERP	PERPENDICULAR		
EFF	EFFLUENT	PI	POINT OF INTERSECTION	RW	RAW WATER
EL	ELEVATION	PL	PROPERTY LINE OR PLATE	RWB	RAW WATER BACKWASH
ELEC	ELECTRICAL	PNL	PANEL	RWI	RAW WATER INTAKE
EMH	ELECTRICAL MANHOLE	PP	POWER PANEL OR POWER POLE	W	WATER LINE
ENGR	ENGINEER	PREFAB	PREFABRICATED		
ENT	ENTRANCE	PROP	PROPOSED		
EOG	EDGE OF GRAVEL	PSF	POUNDS PER SQUARE FOOT		
EOP	EDGE OF PAVEMENT	PSI	POUNDS PER SQUARE INCH		
EPX	EPOXY	PT	POINT OF TANGENT/POINT PAVEMENT		
EQ	EQUAL	PVMT	PAVEMENT		
EQPT	EQUIPMENT	QTY	QUANTITY		
EQT	EXPANSION TANK	RAD	RADIUS		
ET	EXPANSION UNIT HEATER	RECIR	RECIRCULATION		
EUH	EACH WAY	RECT	RECTANGULAR		
EW	EXISTING	REF	REFERENCE		
EXIST/EX	EXISTING	REINF	REINFORCING		
EXH	EXHAUST	REM	REMOVE		
EXP	EXPANSION	REQD	REQUIRED		
EXT	EXTERIOR	REST	RESTRAINED		
		REV	REVISE		
		RJ	RESTRAINED JOINT		
		RM	ROOM		
		RND	ROUND		
		RO	ROUGH OPENING		
		RT	RIGHT		
		R/W OR ROW	RIGHT OF WAY		
		S	SOUTH OR SLOPE		
		SB	SOIL BORING		
		SBL	SURVEY BASELINE		
		SCH	SCHEDULE		
		SECT	SECTION		

LEGEND

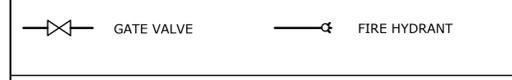
SECTION AND DETAIL KEYING



MATERIALS



SYMBOLS



LINETYPES



VALVES, FITTINGS, ETC.



PROCESS PIPING



INDEX OF DRAWINGS

GENERAL	
-	COVER
G1	INDEX, GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS
CIVIL	
C1	EXISTING CONDITIONS AND DEMOLITION
C2	SITE PLAN AND DETAIL
C3	CIVIL AND STRUCTURAL NOTES & DETAILS
ELECTRICAL	
E1	SYMBOLS AND ABBREVIATIONS
E2	ELECTRICAL SITE PLAN
E3	ONE-LINE DIAGRAM
E4	ELECTRICAL DETAILS
E5	RAW WATER PUMP STATION POWER PLAN
E6	CONTROL ONE-LINE DIAGRAMS
E7	SCHEDULES

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 PLOT DATE: 02/20/18 2:32 PM BY: JEJORDAN

REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER: J. PETERY
 DESIGNED BY: J. PETERY
 DRAWN BY: J. JORDAN
 CHECKED BY: G. ROGERS

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

FINAL DESIGN ISSUED FOR CONSTRUCTION

Hazen

HAZEN AND SAWYER
 1555 ROSENEATH ROAD
 RICHMOND, VIRGINIA 23230
 PHONE: 804-266-1400

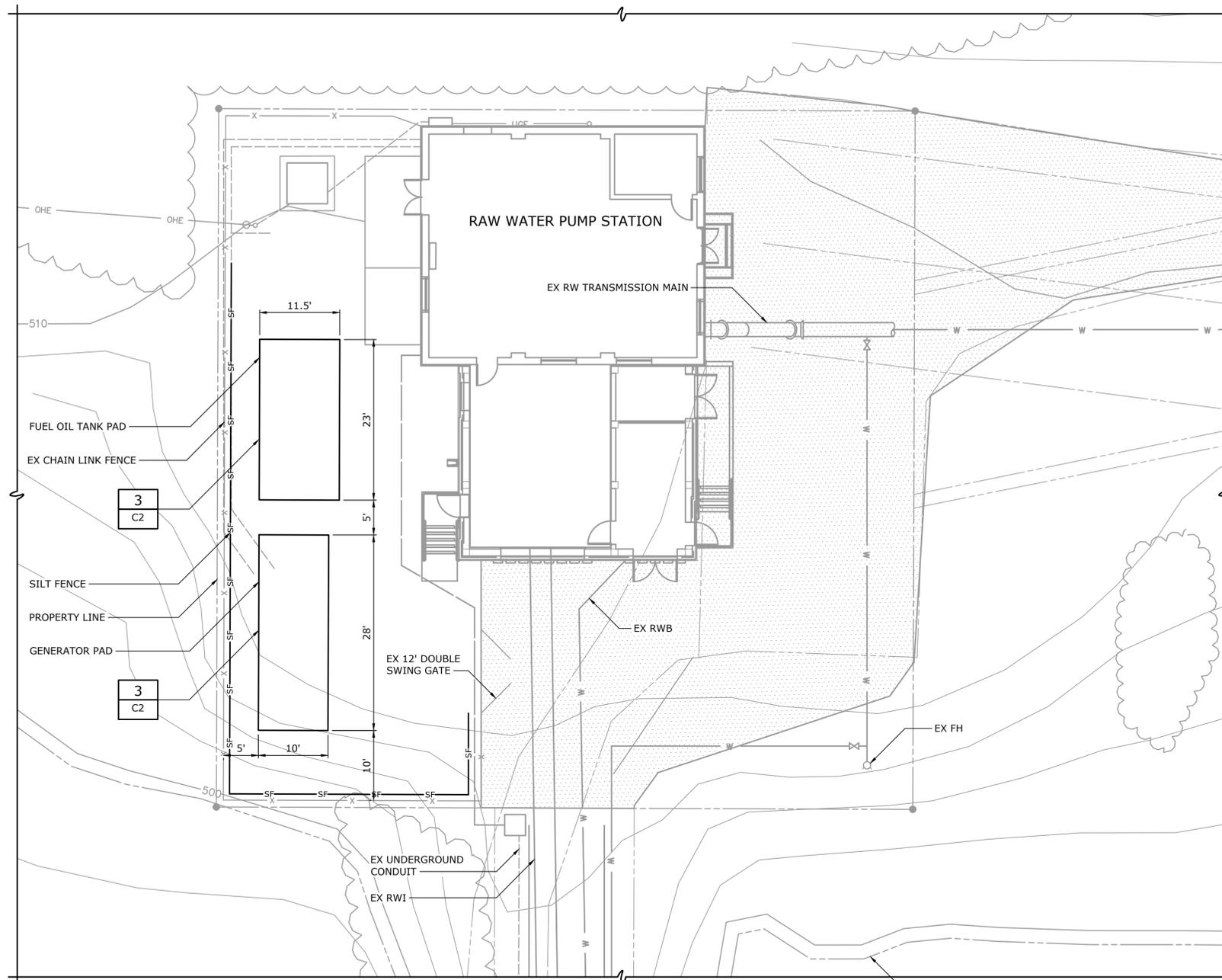
CITY OF WINCHESTER VIRGINIA

PERCY D. MILLER WTP
 RAW WATER PUMP STATION
 GENERATOR REPLACEMENT

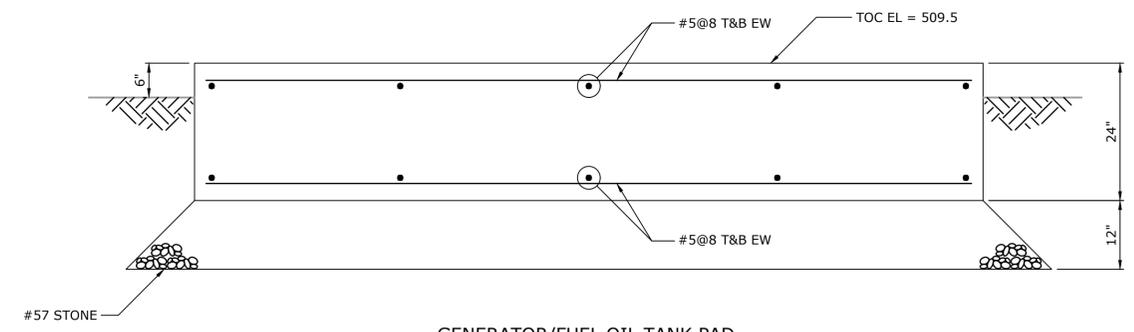
INDEX, GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS

DATE: APRIL 2018
 HAZEN NO.: 31294-008
 CONTRACT NO.: --
 DRAWING NUMBER: **G1**

NOTES:
 1. CONTRACTOR SHALL CONFINE THE LIMITS OF DISTURBANCE TO THE AREA INSIDE THE EXISTING FENCE.



SITE PLAN
 1" = 10'



GENERATOR/FUEL OIL TANK PAD
 DETAIL 3
 3/4" = 1'-0"

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REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J. PETERY
DESIGNED BY:	J. PETERY
DRAWN BY:	J. JORDAN
CHECKED BY:	G. ROGERS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

FINAL DESIGN
 ISSUED FOR
 CONSTRUCTION



Hazen
 HAZEN AND SAWYER
 1555 ROSENEATH ROAD
 RICHMOND, VIRGINIA 23230
 PHONE: 804-266-1400

CITY OF WINCHESTER
 VIRGINIA
 PERCY D. MILLER WTP
 RAW WATER PUMP STATION
 GENERATOR REPLACEMENT

CIVIL
 SITE PLAN AND DETAIL

DATE:	APRIL 2018
HAZEN NO.:	31294-008
CONTRACT NO.:	--
DRAWING NUMBER:	C2

GENERAL STRUCTURAL NOTES

- G-1 THESE NOTES ARE GENERAL AND SUPPLEMENT THE SPECIFICATIONS. THESE NOTES APPLY TO THE ENTIRE PROJECT UNLESS MODIFIED OR NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.
- G-2 DESIGN IS IN ACCORDANCE WITH AND CONSTRUCTION SHALL COMPLY WITH THE PROVISIONS OF THE VIRGINIA CONSTRUCTION CODE. THE DESIGN LOADS AND OTHER DESIGN VALUES GIVEN IN NOTES G-4 THROUGH G-7 WERE USED FOR DESIGN OF STRUCTURES UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- G-3 ALL DIMENSIONS INDICATED (*) SHALL BE VERIFIED EITHER BY FIELD MEASUREMENTS FOR EXISTING STRUCTURES OR BY SHOP DRAWINGS FOR EQUIPMENT FURNISHED. STRUCTURAL DIMENSIONS NOT SHOWN BUT CONTROLLED BY OR RELATED TO EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR WITH THE MANUFACTURER PRIOR TO CONSTRUCTION.
- G-4 THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING INFORMATION IN THE FIELD AS REQUIRED FOR NEW WORK.
- G-5 IF A CONFLICT IS FOUND BETWEEN DIFFERENT PORTIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. CONTINUED CONSTRUCTION OF THE AREA IN CONFLICT SHALL BE AT THE CONTRACTOR'S OWN RISK UNTIL THE CONFLICT IS RESOLVED.
- G-6 EQUIPMENT ANCHOR BOLT SIZES, TYPES, EMBEDMENT AND PATTERNS SHALL BE VERIFIED WITH THE MANUFACTURER. ALL BOLT PATTERNS SHALL BE TEMPLATED TO INSURE ACCURACY OF PLACEMENT.
- G-7 STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND MANUFACTURER'S SHOP DRAWINGS.
- G-8 STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURE. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED BY BRACING AND TEMPORARY SUPPORTS WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR. OVERSTRESSING OF ANY STRUCTURAL ELEMENT IS PROHIBITED.
- G-9 IF CONTRACTOR DESIRES TO TEMPORARILY PLACE OR MOVE LOADS ON OR ADJACENT TO EXISTING STRUCTURES OR UTILITIES DURING CONSTRUCTION PROCESS, CONTRACTOR IS EXCLUSIVELY RESPONSIBLE FOR MAINTAINING STRUCTURAL INTEGRITY AND AVOIDING OVERSTRESSING AND DAMAGING EXISTING STRUCTURES AND UTILITIES. CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATIONS AND DRAWINGS VERIFYING PROPOSED CONSTRUCTION INCLUDING APPLICATION OF TEMPORARY CONSTRUCTION LOADS WILL NOT OVERSTRESS OR DAMAGE EXISTING STRUCTURES AND UTILITIES. DRAWINGS AND CALCULATIONS SHALL BE SEALED BY A PROFESSIONAL ENGINEER CURRENTLY REGISTERED IN THE COMMONWEALTH OF VIRGINIA.
- G-10 NO BACKFILL SHALL BE PLACED AGAINST ANY SUBSTRUCTURE WALLS UNLESS ALL ADJACENT SUPPORTING ELEMENTS HAVE ACHIEVED DESIGN STRENGTH, OR WALLS HAVE BEEN PROPERLY BRACED, AND IN ANY CASE NOT SOONER THAN 28 DAYS AFTER THE PLACING OF CONCRETE UNLESS APPROVED BY THE ENGINEER. SUPPORTING ELEMENTS SHALL INCLUDE ADJACENT WALLS, SLABS, BEAMS AND COLUMNS.

- C-8 WHERE HORIZONTAL CONSTRUCTION JOINTS, LOCATED ABOVE THE FOUNDATION SLAB, EXTEND BEYOND WHERE NEEDED, THEY SHALL BE TERMINATED AT A VERTICAL CONSTRUCTION JOINT APPROVED BY THE ENGINEER.
- C-9 ALL JOINTS WHICH ARE IN MEMBERS IN CONTACT WITH LIQUID OR BELOW GRADE SHALL HAVE A WATERSTOP. CONSTRUCTION JOINTS SHALL HAVE A 6" PVC RIBBED WATERSTOP. EXPANSION JOINTS SHALL HAVE A 9" PVC CENTER BULB RIBBED WATERSTOP. IN VERTICAL JOINTS, WATERSTOPS SHALL TERMINATE NO LESS THAN 18" ABOVE THE MAXIMUM WATER SURFACE OR 18" ABOVE GRADE, WHICHEVER IS HIGHER.
- C-10 SLABS WITH SLOPING SURFACES SHALL HAVE THE INDICATED SLAB THICKNESS MAINTAINED AS THE MINIMUM. SLAB BOTTOMS CAN EITHER SLOPE WITH THE TOP SURFACE OR BE LEVEL. REINFORCEMENT IN SLABS WITH SLOPING SURFACES SHALL BE PLACED AT THE REQUIRED CLEARANCE FROM THE SLAB SURFACE.
- C-11 ALL EXPOSED CORNERS SHALL HAVE A 3/4" CHAMFER OR A 1/2" RADIUS TOOLED CORNER.
- C-12 EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DOCUMENTS, SHALL BE PROVIDED FOR PRIOR TO PLACING CONCRETE.
- C-13 REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY METAL PIPE, PIPE FLANGE, METAL CONDUIT, OR OTHER METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM CLEARANCE OF 2" SHALL BE PROVIDED.
- C-14 DOWELS, ANCHOR BOLTS, PIPES, WATERSTOPS AND OTHER EMBEDDED ITEMS SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.
- C-15 CONDUITS AND OTHER SIMILAR ITEMS EMBEDDED IN OR PENETRATING THROUGH CONCRETE SHALL BE SPACED ON CENTER NOT LESS THAN 3 TIMES THEIR OUTSIDE DIMENSION, BUT NOT LESS THAN 2 1/2" CLEAR. WHEN SUCH ITEMS ARE EMBEDDED IN WALLS OR SLABS, THEY SHALL NOT OCCUPY MORE THAN 1/3 OF THE MEMBER THICKNESS.
- C-16 AT ALL TYPICAL CURBS, EQUIPMENT PADS, AND PIPE SUPPORT PIERS, REINFORCING DOWELS SHOWN MAY BE REPLACED WITH MATCHING DOWELS SET IN EPOXY IN DRILLED HOLES AS SPECIFIED. DOWELS LOCATED CLOSER THAN 3" FROM ANY EDGE OF CONCRETE SHALL NOT BE REPLACED WITH DRILLED DOWELS.
- C-17 DRILLED ADHESIVE DOWELS (WHERE DOWELS ARE SHOWN TO BE PLACED INTO HARDENED CONCRETE):
 - A) THE HOLE DIAMETER SHALL BE NO LARGER THAN 1/8" GREATER THAN THE DIAMETER OF THE REINFORCING BAR AT THE DEFORMATIONS.
 - B) THE DEPTH OF EMBEDMENT SHALL BE 12 BAR DIAMETERS, UNLESS NOTED OTHERWISE.
 - C) ADJUST THE DOWEL LOCATIONS AS NEEDED TO AVOID DRILLING THROUGH ANY REINFORCING BARS. IF THE LOCATION NEEDS TO BE MODIFIED, CONTACT THE ENGINEER. CONTRACTOR SHALL USE NON-DESTRUCTIVE MEANS TO FIELD LOCATE REINFORCEMENT PRIOR TO DRILLING HOLES FOR DOWELS.
- C-18 CLEAR DISTANCE FROM ANCHOR BOLTS TO ANY CONCRETE EDGE SHALL BE 4" MINIMUM UNLESS NOTED OTHERWISE.
- C-19 CONCRETE COMPRESSIVE STRENGTH TESTS SHALL BE AVAILABLE ON THE JOB SITE FOR REVIEW BY THE ENGINEER.

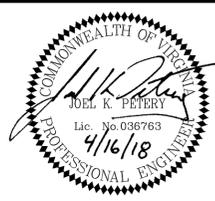
CONCRETE (CAST-IN-PLACE)

- C-1 DESIGN OF CONCRETE ELEMENTS INCLUDING WALLS, FORMED SLABS, BEAMS, AND COLUMNS IS IN ACCORDANCE WITH ACI 318 (CODE REQUIREMENTS FOR STRUCTURAL CONCRETE) AND 350 (CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES).
- C-2 FOR CONCRETE MIX DESIGN SEE SPECIFICATION SECTION 03300.
- C-3 CONCRETE STRENGTH CLASSES (28-DAY COMPRESSIVE STRENGTH):
 - A) CLASS A1 CONCRETE (4,500 PSI): NORMAL WEIGHT CONCRETE SHALL BE USED IN ALL STRUCTURES, SIDEWALKS, PAVEMENTS, EXCEPT WHERE NOTED OTHERWISE IN CONTRACT DOCUMENTS. ALL CONCRETE SHALL BE CLASS A1 CONCRETE UNLESS ANOTHER CLASS IS SPECIFICALLY CALLED FOR ON CONTRACT DOCUMENTS OR SPECIFIED HEREIN.
 - B) CLASS A2 CONCRETE (4,500 PSI): NORMAL WEIGHT CONCRETE TO BE USED FOR INTERIOR SLABS WHERE A CONCRETE HARDENER IS REQUIRED FOR APPLICATION AFTER PLACEMENT OF SLABS.
 - C) CLASS A3 CONCRETE (4,500 PSI): NORMAL WEIGHT STRUCTURAL CONCRETE TO BE USED WHERE SPECIFICALLY CALLED FOR ON CONTRACT DRAWINGS OR WHERE SPECIFICALLY REQUESTED BY CONTRACTOR AND APPROVED BY ENGINEER. CLASS A3 CONCRETE SHALL BE SIMILAR TO CLASS A1 EXCEPT CLASS A3 CONCRETE SHALL CONTAIN A MANDATORY ADDITION OF HIGH RANGE WATER REDUCER TO AID IN PLACEMENT OF CONCRETE.
 - D) CLASS A4 CONCRETE (4,500 PSI): NORMAL WEIGHT STRUCTURAL CONCRETE TO BE USED WHERE SPECIFICALLY CALLED FOR ON CONTRACT DRAWINGS OR AREAS WHERE SPECIFICALLY REQUESTED BY CONTRACTOR AND APPROVED ENGINEER. CLASS A4 CONCRETE IS IDENTICAL TO CLASS A1 CONCRETE EXCEPT THAT COARSE AGGREGATE SHALL BE SIZE #8M IN ACCORDANCE WITH ASTM C33. CLASS A4 CONCRETE MAY ALSO REQUIRE A MANDATORY ADDITION OF HIGH RANGE WATER REDUCER TO AID IN PLACEMENT OF CONCRETE.
 - E) CLASS A5 CONCRETE (4,500 PSI): NORMAL WEIGHT STRUCTURAL CONCRETE USED WHERE CONCRETE IS INDICATED TO BE PLACED UNDER WATER.
 - F) CLASS A6 CONCRETE (4,500 PSI): NORMAL WEIGHT STRUCTURAL CONCRETE USED WHERE CONCRETE IS PLACED UNDER PRESSURE (PUMPED). CLASS A6 CONCRETE SHALL BE USED ONLY WHERE SPECIFICALLY APPROVED BY ENGINEER.
 - G) CLASS B CONCRETE (3,000 PSI): NORMAL WEIGHT STRUCTURAL CONCRETE USED FOR DUCT BANK ENCASUREMENTS, CATCH BASINS, FENCE AND GUARD POST EMBEDMENT, CONCRETE FILL AND OTHER AREAS WHERE SPECIFICALLY NOTED ON CONTRACT DRAWINGS.
- C-4 ALL BAR REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60. WHERE REINFORCEMENT IS TO BE WELDED IN ACCORDANCE WITH AWS D1.4, ASTM A706 GRADE 60 SHALL BE USED. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- C-5 CONCRETE COVER FOR REINFORCING (UNLESS NOTED OTHERWISE ON THE DRAWINGS):
 - A) CONCRETE DEPOSITED DIRECTLY AGAINST SOIL: 3"
 - B) CONCRETE EXPOSED TO WEATHER (#5 OR SMALLER): 1 1/2"
 - CONCRETE EXPOSED TO WEATHER (#6 OR LARGER): 2"
 - C) SLABS: 1 1/2"
 - AT SURFACES CONTACTING FLUID: 2"
 - D) BEAMS AND COLUMNS (TO MAIN REINFORCEMENT): 2"
 - BEAMS AND COLUMNS (TO COLUMN TIES OR STIRRUPS): 1 1/2"
 - E) WALLS 12" OR MORE: 2"
 - WALLS LESS THAN 12" (#5 OR SMALLER): 1 1/2"
 - WALLS LESS THAN 12" (#6 OR LARGER): 2"
 - F) FOR SURFACES EXPOSED TO FLUID IN BEAMS, COLUMNS AND WALLS: ADD 1/2" TO ABOVE VALUES
- C-6 SPLICES SHALL BE CLASS "B" CONFORMING TO THE PROVISIONS OF ACI 318 UNLESS NOTED OTHERWISE. SPLICE LENGTH FOR TWO DIFFERENT SIZED BARS TO BE LAP SPLICED TOGETHER SHALL BE THE LENGTH OF THE LARGER BAR UNLESS NOTED OTHERWISE.
- C-7 CONSTRUCTION JOINTS SHALL BE LOCATED AS SHOWN ON THE DRAWINGS. CONSTRUCTION JOINTS NOT SHOWN SHALL BE SUBMITTED BY THE CONTRACTOR FOR THE APPROVAL OF THE ENGINEER PRIOR TO SUBMITTING REBAR SHOP DRAWINGS. VERTICAL CONSTRUCTION JOINTS IN WALLS AND HORIZONTAL JOINTS IN SLABS SHALL BE PROVIDED AT A SPACING NOT GREATER THAN 45 FEET ON CENTER. FOR EXPOSED WALLS WITH FLUID OR EARTH ON THE OPPOSITE SIDE, THE SPACING BETWEEN VERTICAL AND HORIZONTAL JOINTS SHALL BE A MAXIMUM OF 25 FEET.

File: C:\31294-008\DESIGN\CAD\BIM\DWG\113 Saved by: JEJORDAN Save date: 12/20/17 10:11 AM PLOT DATE: 02/28/18 2:34 PM BY: JEJORDAN

PROJECT ENGINEER:	J. PETERY
DESIGNED BY:	J. PETERY
DRAWN BY:	J. JORDAN
CHECKED BY:	G. ROGERS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR
	DATE
	BY

FINAL DESIGN
ISSUED FOR
CONSTRUCTION



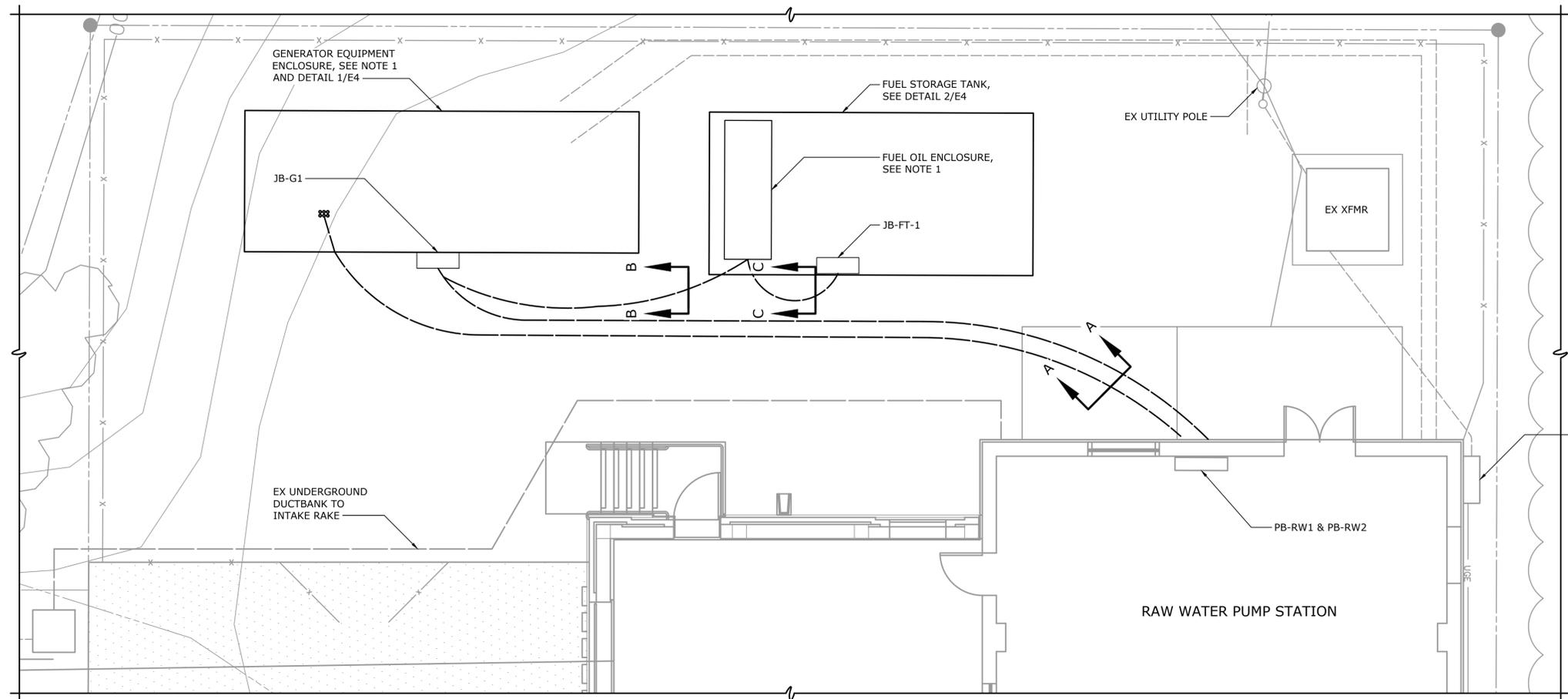
Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VIRGINIA 23230
PHONE: 804-266-1400

CITY OF WINCHESTER
VIRGINIA
PERCY D. MILLER WTP
RAW WATER PUMP STATION
GENERATOR REPLACEMENT

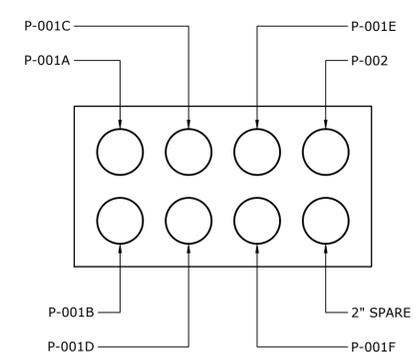
CIVIL AND STRUCTURAL NOTES &
DETAILS

DATE:	APRIL 2018
HAZEN NO.:	31294-008
CONTRACT NO.:	--
DRAWING NUMBER:	C3

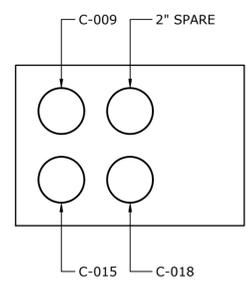
NOTES:
 1. AREAS WITHIN THE OUTDOOR EQUIPMENT ENCLOSURES SHALL BE CONSIDERED INDOOR WET PROCESS LOCATIONS. SEE SPECIFICATIONS FOR THE ELECTRICAL REQUIREMENTS FOR WET LOCATIONS.



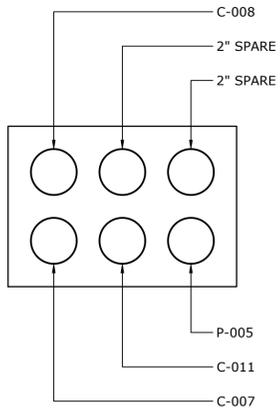
SITE PLAN
 1" = 5'



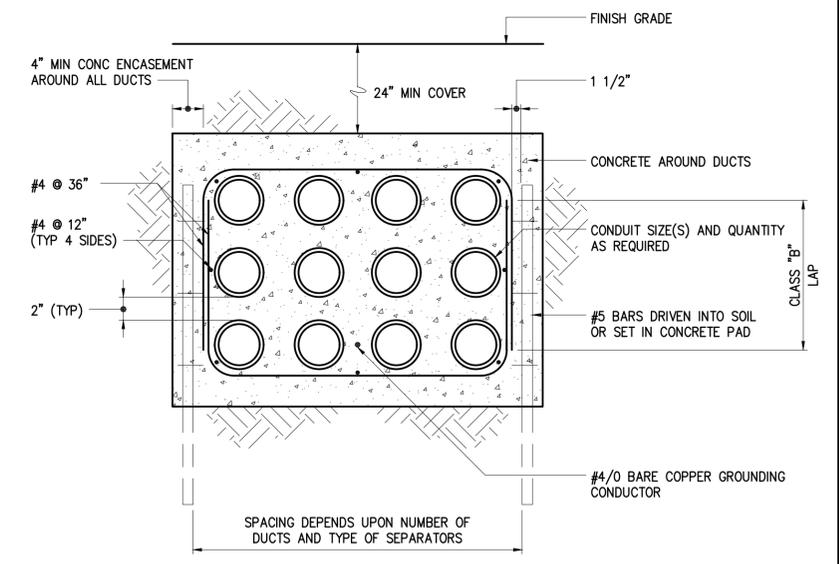
DUCT BANK SECTION A-A
 NTS



DUCT BANK SECTION B-B
 NTS



DUCT BANK SECTION C-C
 NTS



TYPICAL DUCT BANK DETAIL
 1611801

File: 031924-RIC031294-0000-DESIGN-CAD-BIM-VELOC2 Saved by: HNUDD Date: 2/20/2018 4:35 PM
 PLOT DATE: 02/20/18 2:35 PM BY: J.E. JORDAN

PROJECT ENGINEER:	J. PETERY		
DESIGNED BY:	D. WEBER		
DRAWN BY:	J. JORDAN		
CHECKED BY:	D. ATKINSON		
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"		
REV	ISSUED FOR	DATE	BY

FINAL DESIGN
 ISSUED FOR
 CONSTRUCTION

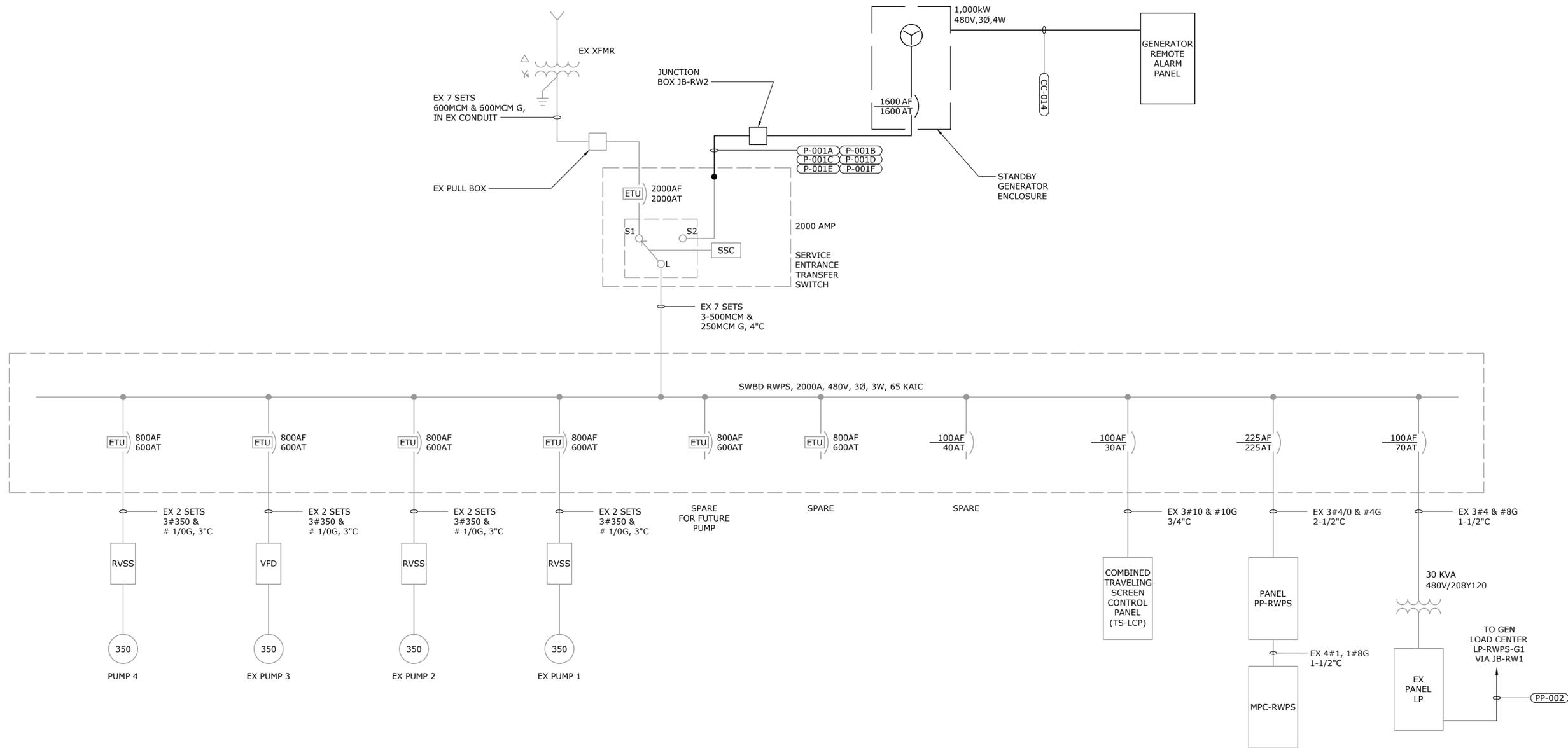


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 HAZEN AND SAWYER
 1555 ROSENEATH ROAD
 RICHMOND, VIRGINIA 23230
 PHONE: 804-266-1400

CITY OF WINCHESTER
 VIRGINIA
 PERCY D. MILLER WTP
 RAW WATER PUMP STATION
 GENERATOR REPLACEMENT

PUMP STATION
 ELECTRICAL
 ELECTRICAL SITE PLAN

DATE:	APRIL 2018
HAZEN NO.:	31294-008
CONTRACT NO.:	--
DRAWING NUMBER:	E2



RAW WATER PUMP STATION
SINGLE LINE DIAGRAM

File: O:\31294-RIC\31294-000\DESIGN\CADD\HWEL\EGES Saved by: HNUDD Date: 2/27/2018 1:31 PM
 PLOT DATE: 02/28/18 2:35 PM BY: J.E. JORDAN

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PROJECT ENGINEER:	J. PETERY
DESIGNED BY:	D. WEBER
DRAWN BY:	J. JORDAN
CHECKED BY:	D. ATKINSON
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

FINAL DESIGN
ISSUED FOR
CONSTRUCTION



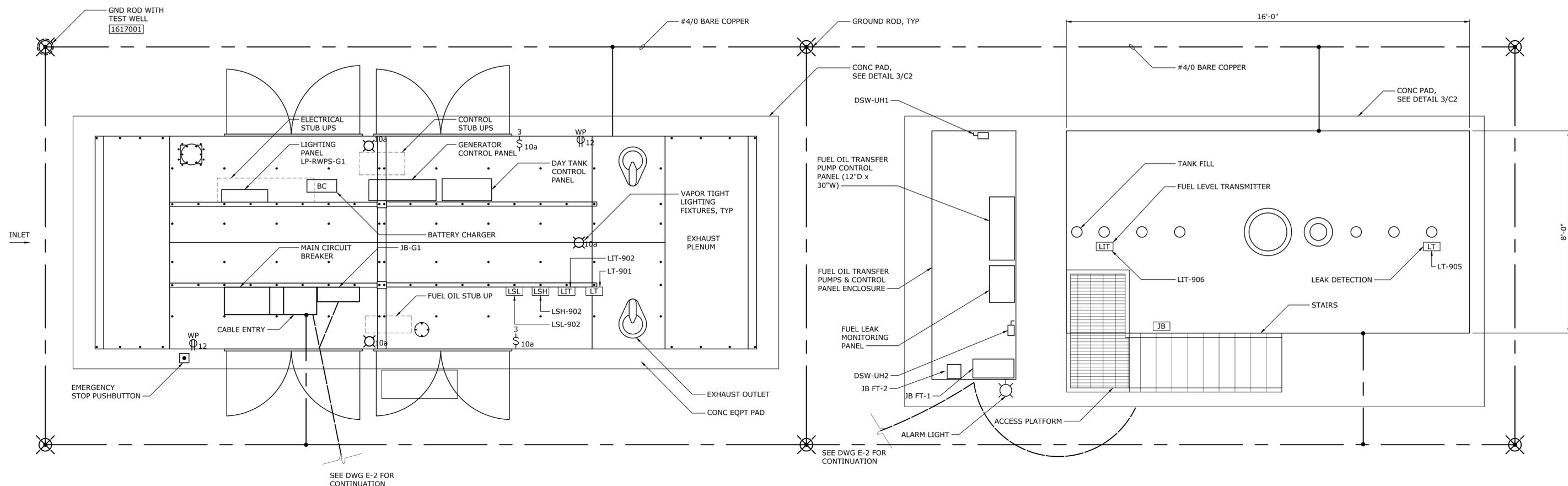
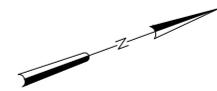
Hazen

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1555 ROSENEATH ROAD
RICHMOND, VIRGINIA 23230
PHONE: 804-266-1400

CITY OF WINCHESTER
 VIRGINIA
 PERCY D. MILLER WTP
 RAW WATER PUMP STATION
 GENERATOR REPLACEMENT

ELECTRICAL
 ONE-LINE DIAGRAM

DATE:	APRIL 2018
HAZEN NO.:	31294-008
CONTRACT NO.:	--
DRAWING NUMBER:	E3



GENERATOR LAYOUT

DETAIL	1
1/2" = 1'-0"	E4

DIESEL FUEL TANK LAYOUT

DETAIL	2
1/2" = 1'-0"	E4

File: O:\1294-RIC\1294-RIC\DESIGN\CAD\HW\ELEC\E4.dwg Saved by: DWEBER, Save date: 2/27/2018 8:01 PM
 PLOT DATE: 02/28/18 2:38 PM BY: J.E. JORDAN

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PROJECT ENGINEER:	J. PETERY
DESIGNED BY:	D. WEBER
DRAWN BY:	J. JORDAN
CHECKED BY:	D. ATKINSON
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

FINAL DESIGN
ISSUED FOR
CONSTRUCTION



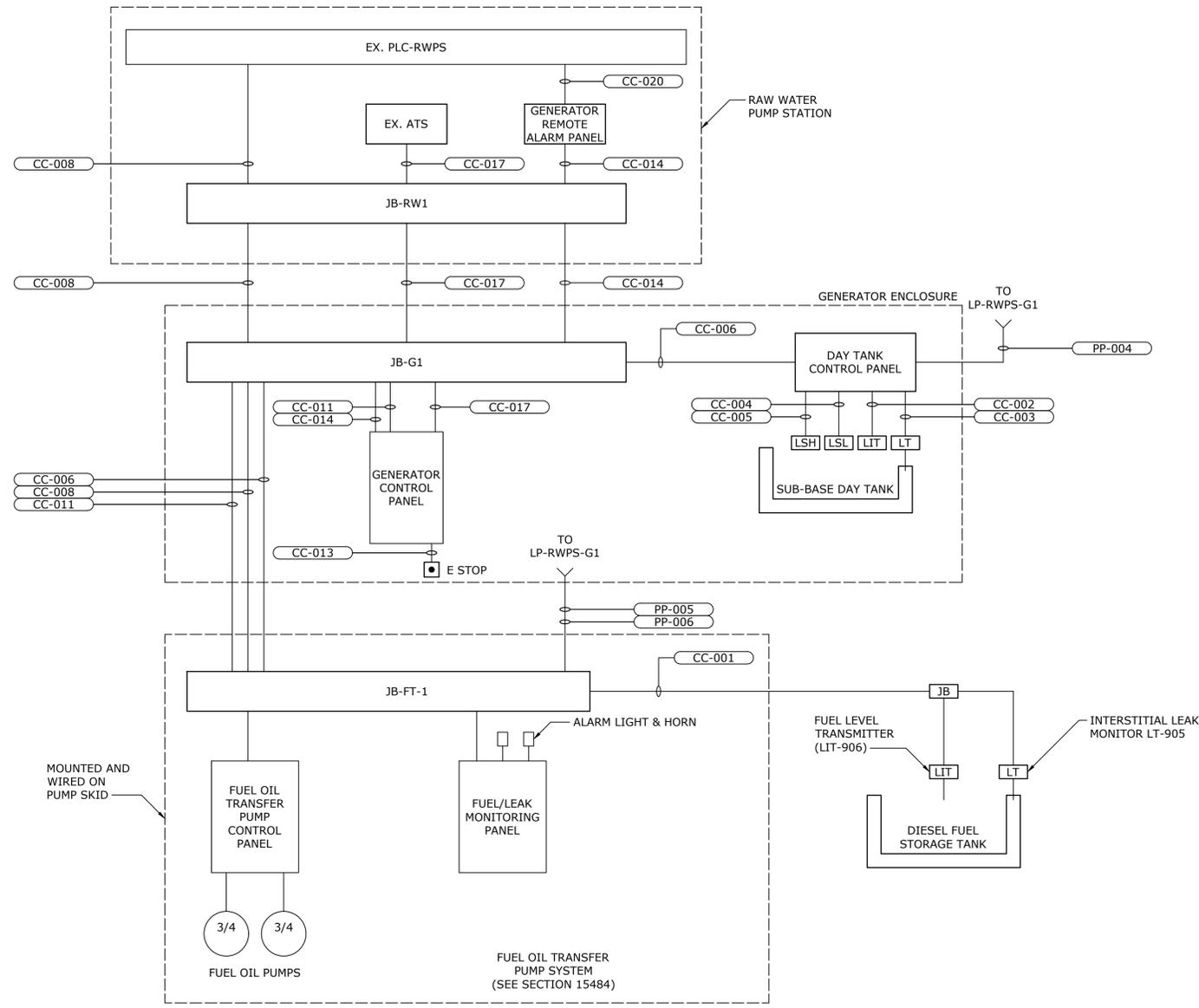
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RICHMOND, VIRGINIA 23230
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CITY OF WINCHESTER
VIRGINIA
PERCY D. MILLER WTP
RAW WATER PUMP STATION
GENERATOR REPLACEMENT

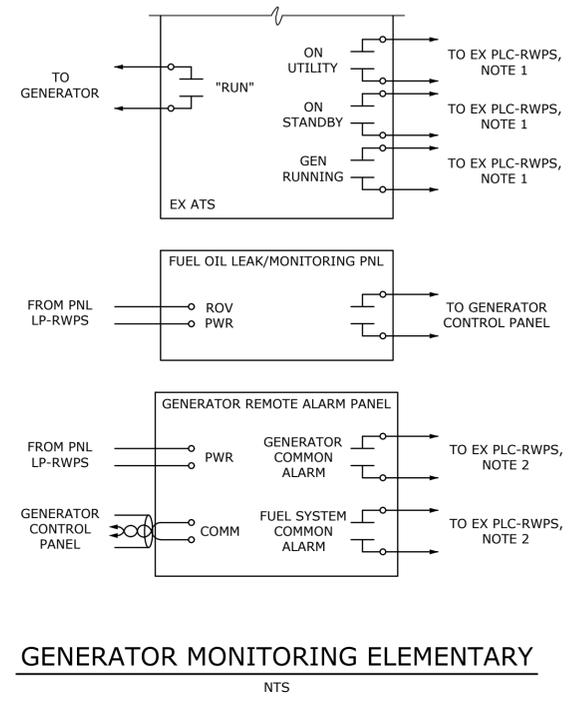
ELECTRICAL
DETAILS

DATE:	APRIL 2018
HAZEN NO.:	31294-008
CONTRACT NO.:	--
DRAWING NUMBER:	E4

- NOTES:**
1. CONTRACTOR SHALL VERIFY THE OPERATION OF EXISTING AUTOMATIC TRANSFER SWITCH AFTER THE INSTALLATION OF THE NEW GENERATOR INCLUDING GENERATOR STARTING AND THE FUNCTIONALITY OF THE REMOTE MONITORING SIGNALS (PLC).
 2. IDENTIFY EXISTING GENERATOR ALARM SIGNALS IN PLC-RWPS PRIOR TO DEMOLITION OF THE EXISTING GENERATOR CONTROLS. TERMINATE NEW SIGNALS ON THE EQUIVALENT ABANDONED I/O POINTS AT PLC-RWPS.



ONE-LINE DIAGRAM
NTS



GENERATOR MONITORING ELEMENTARY
NTS

File: O:\31294-RWPS\31294-RWPS-ELECTRICAL\DWG\31294-RWPS-ELECTRICAL.dwg Saved by: DWEBER, Save date: 2/27/2018 8:58 AM
 PLOT DATE: 02/28/18 2:37 PM BY: J.E. JORDAN

PROJECT ENGINEER:	J. PETERY
DESIGNED BY:	D. WEBER
DRAWN BY:	J. JORDAN
CHECKED BY:	D. ATKINSON
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
0	1/2" 1"
REV	ISSUED FOR
	DATE
	BY

FINAL DESIGN
ISSUED FOR
CONSTRUCTION



Hazen
HAZEN AND SAWYER
1555 ROSENEATH ROAD
RICHMOND, VIRGINIA 23230
PHONE: 804-266-1400

CITY OF WINCHESTER
VIRGINIA
PERCY D. MILLER WTP
RAW WATER PUMP STATION
GENERATOR REPLACEMENT

PUMP STATION
ELECTRICAL
CONTROL ONE-LINE DIAGRAMS

DATE:	APRIL 2018
HAZEN NO.:	31294-008
CONTRACT NO.:	--
DRAWING NUMBER:	E6

208/120 VOLTS 3 PHASE, 4 WIRE				LP-RWPS-G1 MAIN BREAKER 60A 3P				TYPE: NEMA 12 MOUNT: SURFACE						
MODS	DESCRIPTION	WIRE	TRIP	POLE	No.	VOLT-AMPERES			No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
						A	B	C						
-	ENGINE BLOCK HEATER NO.1	NOTE 2.	20	3	1	1,500			2	1	20	NOTE 2.	GEN CONTROL PANEL HEATER	-
-					3		1,500		4	1	20			-
-					5			1,500	6	1	20	NOTE 2.	ENGINE BLOCK HEATER NO. 2	-
-					7	600			8	1	20			-
-	FUEL OIL PUMP CP (1 HP)	PP-006	20	3	9		600		10	1	20	NOTE 2.	LIGHTING	-
-					11			600	12	1	20	NOTE 2.	RECEPTACLES	GFCI
-	DAY TANK CONTROL PNL	PP-004	20	1	13	250			14	1	20	PP-005	FUEL/LEAK MONITORING PANEL	-
-	BATTERY CHARGER	NOTE 2.	20	1	15				16	1	20	PP-010	UNIT HEATER UH-2	-
-	UNI T HEATER UH-1	PP-009	20	1	17				18	1	20		SPARE	-
-	SPARE		20	1	19				20	1	20		SPARE	-
-	SPARE		20	1	21				22	1	20		SPARE	-
-	SPARE		20	1	23				24	1	20		SPARE	-
-	SPARE		20	1	25				26	1	30		SPARE	-
-	SPARE		20	1	27				28	1	20		SPARE	-
-	SPARE		20	1	29				30	1	20		SPARE	-
-	SPARE		20	1	31				32	1	20		SPARE	-
-	SPARE		20	1	33				34	1	20		SPARE	-
-	SPARE		20	1	35				36	1	20		SPARE	-
-	SPARE		20	1	37				38	1	20		SPARE	-
-	SPARE		20	1	39				40	1	20		SPARE	-
-	SPARE		20	1	41				42	1	20		SPARE	-

TOTAL	2,350	2,100	3,600
PHASE TOTAL			
	4,300	5,600	5,460

1,950	3,500	1,860	TOTAL
TOTAL LOAD (VA)			
15,360			
TOTAL LOAD (A)			
43			

MODIFICATION (MODS) LEGEND:
GFCI - GROUND FAULT CIRCUIT INTERRUPTER
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE

NOTES:
22K AIC
100KA SPD

NOTES:

- PROVIDE 2#12, 1#12, AND CONDUCTORS IN A 3/4" CONDUIT UNLESS OTHERWISE INDICATED.
- FACTORY WIRING PROVIDED BY GENERATOR SUPPLIER.
- EXISTING BREAKER AND WIRING.
- DEMOLISH EXISTING CONDUITS POWERING THE EXISTING GENERATOR LIGHTING PANEL. MARK BREAKER AS SPARE. PROVIDE NEW 60A, 3 POLE BREAKER FOR NEW PANEL LP-RWPS-G1.

CIRCUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
P-001A	4"	GENERATOR	EXISTING AUTOMATIC TRANSFER SWITCH		
		GENERATOR	EXISTING AUTOMATIC TRANSFER SWITCH	3-500 KCMIL, 500 KCMIL GND	
P-001B	4"	GENERATOR	EXISTING AUTOMATIC TRANSFER SWITCH		
		GENERATOR	EXISTING AUTOMATIC TRANSFER SWITCH	3-500 KCMIL, 500 KCMIL GND	
P-001C	4"	GENERATOR	EXISTING AUTOMATIC TRANSFER SWITCH		
		GENERATOR	EXISTING AUTOMATIC TRANSFER SWITCH	3-500 KCMIL, 500 KCMIL GND	
P-001D	4"	GENERATOR	EXISTING AUTOMATIC TRANSFER SWITCH		
		GENERATOR	EXISTING AUTOMATIC TRANSFER SWITCH	3-500 KCMIL, 500 KCMIL GND	
P-001E	4"	GENERATOR	EXISTING AUTOMATIC TRANSFER SWITCH		
		GENERATOR	EXISTING AUTOMATIC TRANSFER SWITCH	3-500 KCMIL, 500 KCMIL GND	
P-001F	4"	GENERATOR	EXISTING AUTOMATIC TRANSFER SWITCH		
		GENERATOR	EXISTING AUTOMATIC TRANSFER SWITCH	SPARE	
P-002	2"	GENERATOR LP-RWPS-G1	EXISTING PANEL LP-RWPS		
		GENERATOR LP-RWPS-G1	EXISTING PANEL LP-RWPS	4-#6, #8 GND	
P-003					NOT USED
P-004	3/4"	PANEL LP-RWPS-G1	DAY TANK CONTROL PANEL		
		PANEL LP-RWPS-G1	DAY TANK CONTROL PANEL	2#12, 1#12 GND	
P-005	1"	PANEL LP-RWPS-G1	FUEL TRANSFER PUMP SKID (JB-FT2)		
		PANEL LP-RWPS-G1	FUEL LEAK/LEVEL MONITORING PANEL	2#12, 1#12 GND	
		PANEL LP-RWPS-G1	FUEL OIL TRNSFR PUMP CONTROL PANEL	3#12, 1#12 GND	
		PANEL LP-RWPS-G1	UNIT HEATER UH-1	2#12, 1#12 GND	
		PANEL LP-RWPS-G1	UNIT HEATER UH-2	2#12, 1#12 GND	
P-007	3/4"	EX. PANEL LP-RWPS	GEN. REMOTE ALARM PANEL		
		EX. PANEL LP-RWPS	GEN. REMOTE ALARM PANEL	2#12, 1#12 GND	
P-009	3/4"	JB-FT2	UNIT HEATER UH-1		VIA DSW-UH1
		PANEL LP-RWPS-G1	UNIT HEATER UH-1	2#12, 1#12 GND	
P-010	3/4"	JB-FT2	UNIT HEATER UH-2		VIA DSW-UH1
		PANEL LP-RWPS-G1	UNIT HEATER UH-2	2#12, 1#12 GND	

CONDUIT NO.	CIRCUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
C-001		2"	DIESEL FUEL STORAGE TANK	FUEL OIL TRANSFER PUMP SKID		
	CC-001		DIESEL FUEL STORAGE TANK	FUEL OIL TRANSFER PUMP SKID	2 #16TSP, 1#14 GND	
C-002		3/4"	DAY TANK LEVEL TRANSMITTER LT-901	DAY TANK CONTROL PANEL		
	CC-002		DAY TANK LEVEL TRANSMITTER LT-901	DAY TANK CONTROL PANEL	1 #16TSP, 1#14 GND	
C-003		3/4"	DAY TANK LEVEL TRANSMITTER LIT-902	DAY TANK CONTROL PANEL		
	CC-003		DAY TANK LEVEL TRANSMITTER LIT-902	DAY TANK CONTROL PANEL	1 #16TSP, 1#14 GND	
C-004		3/4"	DAY TANK LEVEL PROBE LSL-902	DAY TANK CONTROL PANEL		
	CC-004		DAY TANK LEVEL PROBE LSL-902	DAY TANK CONTROL PANEL	2#14, 1#14 GND	
C-005		3/4"	DAY TANK LEVEL PROBE LSH-902	DAY TANK CONTROL PANEL		
	CC-005		DAY TANK LEVEL PROBE LSH-902	DAY TANK CONTROL PANEL	2#14, 1#14 GND	
C-006		3/4"	DAY TANK CONTROL PANEL	JUNCTION BOX JB-G1		
	CC-006		DAY TANK CONTROL PANEL	FUEL OIL TRANSFER PUMP SKID	CAT 6	REMOTE I/O CONNECTION
C-007		2"	JUNCTION BOX JB-G1	FUEL OIL TRANSFER PUMP SKID		
	CC-006		DAY TANK CONTROL PANEL	FUEL OIL TRANSFER PUMP SKID	CAT 6	
C-008		2"	FUEL OIL TRANSFER PUMP SKID	JUNCTION BOX JB-G1		
	CC-008		FUEL OIL TRANSFER PUMP SKID	CONTROL PANEL PLC-RWPS	8#14, 1#14 GND	
C-009		2"	JUNCTION BOX JB-G1	JUNCTION BOX JB-RW1		
	CC-008		FUEL OIL TRANSFER PUMP SKID	CONTROL PANEL PLC-RWPS	8#14, 1#14 GND	
C-010		1"	CONTROL PANEL PLC-RWPS	CONTROL PANEL PLC-RWPS		
	CC-008		FUEL OIL TRANSFER PUMP SKID	CONTROL PANEL PLC-RWPS	8#14, 1#14 GND	
C-011		2"	FUEL OIL TRANSFER PUMP SKID	JUNCTION BOX JB-G1		
	CC-011		FUEL OIL TRANSFER PUMP SKID	GENERATOR CONTROL PANEL	2#14,2#14 SP, 1#14 GND	FUEL SYSTEM COMMON ALARM
C-012		3/4"	JUNCTION BOX JB-G1	GENERATOR CONTROL PANEL		
	CC-011		FUEL OIL TRANSFER PUMP SKID	GENERATOR CONTROL PANEL	2#14,2#14 SP, 1#14 GND	
C-013		3/4"	E-STOP PUSHBUTTON	GENERATOR CONTROL PANEL		
	CC-013		E-STOP PUSHBUTTON	GENERATOR CONTROL PANEL	2#14,2#14 SP, 1#14 GND	
C-014		3/4"	GENERATOR CONTROL PANEL	JUNCTION BOX JB-G1		
	CC-014		GENERATOR CONTROL PANEL	GENERATOR REMOTE ALARM PANEL	DATA CABLE PER MFG	
C-015		2"	JUNCTION BOX JB-G1	JUNCTION BOX JB-RW1		
	CC-014		GENERATOR CONTROL PANEL	GENERATOR REMOTE ALARM PANEL	DATA CABLE PER MFG	
C-016		3/4"	JUNCTION BOX JB-RW1	GENERATOR REMOTE ALARM PANEL		
	CC-014		GENERATOR CONTROL PANEL	GENERATOR REMOTE ALARM PANEL	DATA CABLE PER MFG	
C-017		3/4"	GENERATOR CONTROL PANEL	JUNCTION BOX JB-G1		
	CC-017		GENERATOR CONTROL PANEL	(EXIST.) AUTOMATIC TRANSFER SWITCH-ATS	2#14,2#14 SP, 1#14 GND	GENERATOR RUN SIGNAL
C-018			JUNCTION BOX JB-G1	JUNCTION BOX JB-RW1		
	CC-017		GENERATOR CONTROL PANEL	(EXIST.) AUTOMATIC TRANSFER SWITCH-ATS	2#14,2#14 SP, 1#14 GND	
C-019			GENERATOR CONTROL PANEL	(EXIST.) AUTOMATIC TRANSFER SWITCH-ATS		
	CC-017		GENERATOR CONTROL PANEL	(EXIST.) AUTOMATIC TRANSFER SWITCH-ATS	2#14,2#14 SP, 1#14 GND	
C-020			GENERATOR REMOTE ALARM PANEL	CONTROL PANEL PLC-RWPS		
	CC-020	3/4"	GENERATOR REMOTE ALARM PANEL	CONTROL PANEL PLC-RWPS	8#14, 1#14 GND	

208/120 VOLTS 3 PHASE, 4 WIRE				LP-RWPS(EXIST) MAIN BREAKER 150 A 3P				TYPE: NEMA 12 MOUNT: SURFACE						
MODS	DESCRIPTION	WIRE	TRIP	POLE	No.	VOLT-AMPERES			No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
						A	B	C						
-	LIGHTS SOUTH	NOTE 3.	20	1	1	500			2	1	20	NOTE 3.	SCREEN HOUSE LIGHTING	-
-	LIGHTS CENTER	NOTE 3.	20	1	3		500		4	1	20	NOTE 3.	EX FAN SCREEN HOUSE	-
-	LIGHTS NORTH	NOTE 3.	20	1	5			500	6	1	20	NOTE 3.	RECEPTACLES	-
-	SPARE	NOTE 3.	20	1	7	0			8	1	20	NOTE 3.	NW RECEPTACLE AND AC	-
-	OUTDOOR LIGHTING	NOTE 3.	20	1	9		900		10	1	20	NOTE 3.	DIALER	-
-	SCREEN ROOM LIGHTING	NOTE 3.	20	1	11			300	12	1	20	NOTE 3.	TANK MONITOR	-
-	SCREEN ROOM LIGHTING	NOTE 3.	20	1	13	300			14	2	20	NOTE 3.	RIVER LIGHTS	-
-	POT PERM LIGHTING	NOTE 3.	20	1	15		200		16	2	20			-
-	CHEM ROOM LIGHTING	NOTE 3.	20	1	17			300	18	2	20			-
-	OUTDOOR LIGHTING	NOTE 3.	20	1	19	800			20	2	20		SPARE (NOTE 4.)	-
-	RWPS-CP	NOTE 3.	20	1	21		1,200		22					-
-					23			4,000	24	3	20	NOTE 3.	SCREEN HOUSE HEATER	-
-	LIGHTING PANEL LP-RWPS-G1	NOTE 4. P-002	60	3	25	4,000			26					-
-					27		4,000		28					-
-					29			1,500	30	2	15	NOTE 3.	RWPS-ACCU-1	-
-	RWPS-EUH-3	NOTE 3.	20	2	31	1,500			32					-
-					33		1,500		34	2	15	NOTE 3.	RWPS AC-1	-
-	RWPS-EUH-4	NOTE 3.	20	2	35		1,500		36	1	20	NOTE 3.	RECEPTACLES	-
-					37	1,500			38	1	20	NOTE 3.	RECEPTACLES	-
-	RWPS-EUH-5	NOTE 3.	20	2	39		1,500		40	1	20	NOTE 3.	RECEPTACLES	-
-					41			300	42	1	20	NOTE 3.	SPARE	-

TOTAL	8,600	9,800	8,400
PHASE TOTAL			
	13,100	14,100	11,900

4,500	4,300	3,500	TOTAL
TOTAL LOAD (VA)			
39,100			
TOTAL LOAD (A)			
109			

MODIFICATION (MODS) LEGEND:
GFCI - GROUND FAULT CIRCUIT INTERRUPTER
LOD - LOCK-ON DEVICE
LFD - LOCK-OFF DEVICE

NOTES:
22K AIC
100KA SPD

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PLOT DATE: 02/28/2018 2:37 PM BY: J.E. JORDAN

PROJECT ENGINEER:	J. PETERY
DESIGNED BY:	D. WEBER
DRAWN BY:	J. JORDAN
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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

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1555 ROSENEATH ROAD
RICHMOND, VIRGINIA 23230
PHONE: 804-266-1400

CITY OF WINCHESTER
VIRGINIA

PERCY D. MILLER WTP
RAW WATER PUMP STATION
GENERATOR REPLACEMENT

ELECTRICAL
SCHEDULES

DATE:	APRIL 2018
HAZEN NO.:	31294-008
CONTRACT NO.:	--
DRAWING NUMBER:	E7