# SCOTTSBORD WATER SEWER & GAS BOARD SCOTTSBORO, ALABAMA

# **INTAKE PUMP STATION IMPROVEMENTS** SRF PROJECT No. FS010198-03

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## RUDOLPH JONES (HIGHWAY 35) WATER TREATMENT PLANT

**NOVEMBER 2023** 

Municipal Consultants, Inc. Birmingham, Alabama



The PDF digital Contract Documents for this project consist of the Drawings and Specifications and are being released by the Engineer solely as a convenience to the Bidders. Actual hard copies of Contract Documents bearing a stamp and signature of a professional engineer shall be used for the purpose of providing a bid proposal for this project.

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Please note that it is the Bidder's responsibility to obtain all documents including any addenda.









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### ABBREVIATIONS

© ADMIN ADOT AFF AL, ALUM APPROX ASP, ASPH ASSY AVG AWWA	AT ADMINISTRATION ALABAMA DEPT. OF TRANSPORTATION ABOVE FINISHED FLOOR ALUMINUM APPROXIMATE ASHPALT ASSEMBLY AVERAGE AMERICAN WATER WORKS ASSOCIATION	
BFV	BUTTERFLY VALVE	
BLDG	BUILDING	
BLK	BLOCK	
BOD		
	BIOCHEMICAL OXIGEN DEMAND	
DUI, DIM RS	BOTTOM BOTH SIDES	
CB	CATCH BASIN	
CI	CAST IRON	
CIP	CAST IRON PIPF	
CJ	CONSTRUCTION JOINT	
¢_	CENTER LINE	
CL2, C	CHLORINE	
CL	CLASS	
CLR	CLEAR	
CMU	CONCRETE MASONRY UNIT	
COL	COLUMN	
CONC	CONCRETE	
CONN	CONNECTION	
CONT	CONTINUOUS	
CTSIF	CUT TO SUIT IN FIELD	
CU YD	CUBIC YARD	
CV	CHECK VALVE	
CW	COLD WATER	
D	DOOR	
DIA	DIAMETER	
DI	DUCTILE IRON	
DIP	DUCTILE IRON PIPE	
DIFF	DIFFUSER	
DWN	DOWN	
DWG	DRAWING	
E	EAST, EXHAUSTER	
EA	EACH	
EF	EACH FACE	
ELEC	ELECTRICAL	
EL, ELEV	ELEVATION	
EQ	EQUAL	
EW	EACH WAY, EFFLUENT WATER	
EX, EXIST	EXISTING	
EXP	EXPANSION	
EXT	EXTINGUISHER	

H IG IN GR L LG M PM T TG	FLANGED COUPLING ADAPTER FIRE HYDRANT FIGURE FINISH GRADE FLOW LINE FLANGED FORCE MAIN FEET PER MINUTE FOOT FOOTING
A AL ALV L PD PM R V	GAUGE GALLON(S) GALVANIZED GAS LINE GALLONS PER DAY GALLONS PER MINUTE GRADE GATE VALVE
,HGT,HT D ORIZ P R W W WL WY Z	HEIGHT HOT DIPPED HORIZONTAL HORSEPOWER HOUR HOT WATER HIGH WATER LEVEL HIGHWAY HERTZ
) -    V	INSIDE DIAMETER INSIDE FACE INCHES INVERT
Т	JOINT
CF	
••	THOUSAND CUBIC FEET
AR B EN G OC T WL	LOUVER LENGTH AS REQUIRED POUND LEGNTH LINEAL, LINEAR LONG LOCATION LEFT LOW WATER LEVEL

Ν	NORTH
NIC	NOT IN CONTRACT
NO., #	NUMBER
NOM	NOMINAL
NORM	NORMAL
NPW	NON POTABLE WATER
NTS	NOT TO SCALE
NWL	NORMAL WATER LEVEL
00	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OHP	OVERHEAD POWER
OZ	OUNCE
 DF	
PFJ	PIPE EXPANSION JOINT
PH	PHASE
PI	POINT OF INTERSECTION
PL, PLS	PLACES
PL	PLATE
PM	PROCESS MAIN
PO	PUSH ON
PPD	POUNDS PER DAT
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
P5I	POUNDS PER SQUARE INCH
PV DVC	
	FOLTWINTE CHEORIDE
RAS	RETURN ACTIVATED SLUDGE
R, RAD	RADIUS
RCP	REINFORCED CONCRETE PIPE
	DEDUQED
RED	REDUCER
RED REINF	REDUCER REINFORCING REQUIRED
RED REINF REQD R-I	REDUCER REINFORCING REQUIRED RESTRAINED JOINT
RED REINF REQD RJ ROW R/W	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY
RED REINF REQD RJ ROW, R/W	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT
RED REINF REQD RJ ROW, R/W RS RT	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT
RED REINF REQD RJ ROW, R/W RS RT	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT
RED REINF REQD RJ ROW, R/W RS RT S	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE
RED REINF REQD RJ ROW, R/W RS RT S SCFM	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE
RED REINF REQD RJ ROW, R/W RS RT S SCFM SCH	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SCHEDULE
RED REINF REQD RJ ROW, R/W RS RT S SCFM SCH SECT SE	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SOLLARE FEET
RED REINF REQD RJ ROW, R/W RS RT S SCFM SCFM SCH SECT SF SHT	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET
RED REINF REQD RJ ROW, R/W RS RT S SCFM SCFM SCH SECT SF SHT SIM	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SIMILAR
RED REINF REQD RJ ROW, R/W RS RT S SCFM SCFM SCH SECT SF SHT SIM SL	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SIMILAR SURVEY LINE
RED REINF REQD RJ ROW, R/W RS RT S S SCFM SCFM SCH SECT SF SHT SIM SL SP	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SHEET SIMILAR SURVEY LINE STATIC PRESSURE
RED REINF REQD RJ ROW, R/W RS RT S SCFM SCFM SCH SECT SF SHT SIM SL SP SPD	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SHEET SIMILAR SURVEY LINE STATIC PRESSURE STANDARD PROCTOR DENSITY
RED REINF REQD RJ ROW, R/W RS RT S S SCFM SCFM SCH SECT SF SHT SIM SL SP SPD SPECS	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SHEET SIMILAR SURVEY LINE STATIC PRESSURE STANDARD PROCTOR DENSITY SPECIFICATIONS
RED REINF REQD RJ ROW, R/W RS RT S SCFM SCFM SCH SECT SF SHT SIM SL SP SPD SPECS SQ	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SIMILAR SURVEY LINE STATIC PRESSURE STANDARD PROCTOR DENSITY SPECIFICATIONS SQUARE
RED REINF REQD RJ ROW, R/W RS RT S S SCFM SCH SECT SF SHT SIM SL SP SPD SPECS SQ SRT	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SIMILAR SURVEY LINE STATIC PRESSURE STANDARD PROCTOR DENSITY SPECIFICATIONS SQUARE SOLIDS RETENTION TIME
RED REINF REQD RJ ROW, R/W RS RT S SCFM SCH SCH SECT SF SHT SIM SL SP SPD SPECS SQ SRT SS	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SIMILAR SURVEY LINE STATIC PRESSURE STANDARD PROCTOR DENSITY SPECIFICATIONS SQUARE SOLIDS RETENTION TIME SANITARY SEWER
RED REINF REQD RJ ROW, R/W RS RT S SCFM SCFM SCH SECT SF SHT SIM SL SP SPD SPECS SQ SRT SS ST CT	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SIMILAR SURVEY LINE STATIC PRESSURE STANDARD PROCTOR DENSITY SPECIFICATIONS SQUARE SOLIDS RETENTION TIME SANITARY SEWER STREET, STORMWATER
RED REINF REQD RJ ROW, R/W RS RT S SCFM SCFM SCH SECT SF SHT SIM SL SP SPD SPECS SQ SRT SS ST STA	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SIMILAR SURVEY LINE STATIC PRESSURE STANDARD PROCTOR DENSITY SPECIFICATIONS SQUARE SOLIDS RETENTION TIME SANITARY SEWER STREET, STORMWATER STATION
RED REINF REQD RJ ROW, R/W RS RT S S SCFM SCH SECT SF SHT SIM SL SP SPD SPECS SQ SRT SS ST STA STD ST ST SC	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SIMILAR SURVEY LINE STATIC PRESSURE STANDARD PROCTOR DENSITY SPECIFICATIONS SQUARE SOLIDS RETENTION TIME SANITARY SEWER STREET, STORMWATER STATION STANDARD
RED REINF REQD RJ ROW, R/W RS RT S SCFM SCFM SCH SECT SF SHT SIM SL SP SPD SPECS SQ SRT SS ST STA STD ST STL,SS	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SIMILAR SURVEY LINE STATIC PRESSURE STANDARD PROCTOR DENSITY SPECIFICATIONS SQUARE SOLIDS RETENTION TIME SANITARY SEWER STREET, STORMWATER STATION STANDARD STAINLESS STEEL SANITARY SEWEP
RED REINF REQD RJ ROW, R/W RS RT S S SCFM SCH SECT SF SHT SIM SL SP SPD SPECS SQ SRT SS ST STA STD ST STL,SS SS SS SS	REDUCER REINFORCING REQUIRED RESTRAINED JOINT RIGHT-OF-WAY RESILIENT SEAT RIGHT SOUTH, SLUDGE STANDARD CUBIC FEET PER MINUTE SCHEDULE SECTION SQUARE FEET SHEET SIMILAR SURVEY LINE STATIC PRESSURE STANDARD PROCTOR DENSITY SPECIFICATIONS SQUARE SOLIDS RETENTION TIME SANITARY SEWER STREET, STORMWATER STATION STANDARD STANDARD STAINLESS STEEL SANITARY SEWER

T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCHMARK
TC	THRUST COLLAR
TEMP	TEMPORARY, TEMPERED
ТНК	THICKNESS
TL	TRANSFER LINE
TOC	TOP OF CURB
TOW	TOP OF WALL
TYP	TYPICAL
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UE	UNDERGROUND ELECTRIC
۷	VALVE, VENTILATOR, VOLTS
VC	VITRIFIED CLAY
VERT	VERTICAL
VICT	VICTAULIC
VT	VENTILATOR
W	WEST, WIDTH, WINDOW, WATER
W W/	WEST, WIDTH, WINDOW, WATER WITH
W W/ W/O	WEST, WIDTH, WINDOW, WATER WITH WITHOUT
W W/ W/O WAS	WEST, WIDTH, WINDOW, WATER WITH WITHOUT WASTE ACTIVATED SLUDGE
W W/ W/O WAS WC	WEST, WIDTH, WINDOW, WATER WITH WITHOUT WASTE ACTIVATED SLUDGE WATER COLLAR
W W/ WAS WC WL	WEST, WIDTH, WINDOW, WATER WITH WITHOUT WASTE ACTIVATED SLUDGE WATER COLLAR WATER LINE, WATER LEVEL
W W/O WAS WC WL WS	WEST, WIDTH, WINDOW, WATER WITH WITHOUT WASTE ACTIVATED SLUDGE WATER COLLAR WATER LINE, WATER LEVEL WATERSTOP
W W/O WAS WC WL WS WTM	WEST, WIDTH, WINDOW, WATER WITH WITHOUT WASTE ACTIVATED SLUDGE WATER COLLAR WATER LINE, WATER LEVEL WATERSTOP WATER TRANSMISSION MAIN
W W/O WAS WC WL WS WTM WWF	WEST, WIDTH, WINDOW, WATER WITH WITHOUT WASTE ACTIVATED SLUDGE WATER COLLAR WATER LINE, WATER LEVEL WATERSTOP WATER TRANSMISSION MAIN WELDED WIRE FABRIC
W W/O WAS WC WL WS WTM WWF WTP	WEST, WIDTH, WINDOW, WATER WITH WITHOUT WASTE ACTIVATED SLUDGE WATER COLLAR WATER LINE, WATER LEVEL WATERSTOP WATER TRANSMISSION MAIN WELDED WIRE FABRIC WATER TREATMENT PLANT

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BY

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	PROPOSED
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	DEMOLITIO
FM	PROPOSED
SS	EXISTING S
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GM	exist. Uni
CATV	exist. Uni
CH	CHEMICAL
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— — OHP— —	EXISTING
— — PM — —	PROCESS
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P	PROPERTY
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	SLOPE DIR
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o	PROPOSED
=======	EXISTING S
+++++	RAILROAD
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	LE	<u>GEND</u>		pal	tants	rk south, suire 212 bama 35226 7
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PROP	OSED ASPHALT PAVING	600	PROPOSED GROUND CONTOUR MAJOR	<b>.</b>	S S	Birmin (205)
EXIST	ING CONCRETE		- STEFL ENCASED PIPE		, n ,	, <b>,</b>
PROP	OSED 6" CONCRETE PAVING					
PROP	OSED CONCRETE PAVING FOR VALKS, MOW STIPS, ETC.		CLEANOUT			-
PROP	OSED GRAVEL LANDSCAPED AREAS	X	RAILROAD CROSSING			
GRAV	FI ROAD OR DRIVE	(S)	SEWER MANHOLE			
RIP R		ÂR	PROPOSED AIR RELIEF ASSEMBLY, TYPE DENOTED			
DEMO	LITION AND DISPOSAL		VALVE			
	OSED SEWER FORCE MAIN	ж Х	FIRE HYDRANT			
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EXIST	ING WATER MAIN	<b>Ф</b> вн #_	BORE HOLE LOCATION		ITS	
- EXIST	ING SANITARY SEWER FORCE MAIN		TREE OR SHRUB		1EN	
- EXIST	. UNDERGROUND FIBER OPTIC CABLE	A CP 1			/EV	
- EXIST	. UNDERGROUND TELEPHONE				ATP 30/	
- EXIST	. UNDERGROUND GAS MAIN	$\mathbf{\nabla}$			v s MPF	
- EXIST	. UNDERGROUND CABLE TV		11.25 BEND 22.5° BEND		Ш Ц Z Z	m
- CHEM	ICAL LINE	⊷	45* BEND		1 TIO	202;
- PROP	OSED UNDERGROUND ELECTRIC	Г	90° BEND		TA.	
- EXIST	ING OVERHEAD POWER	ь Т	TEE			
- PROC	ESS MAIN	г г	WYE CAP OR PILIG	<u> </u>	NU	
- RAW	WATER		REDUCER	၂ ဟ	— с. Ш	
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SLOPE	E DIRECTION INDICATOR		FXISTING STORM SEWER INLET			
J TREE	LINE		CATCH BASIN			
	RING AND GRUBBING LIMITS					
- PROP	OSED FENCE					
	INC STOPM SEWER		TELEPHONE OR FOC PEDESTAL			
		<del></del>	SIGN	- mill	NUMBROWN	URE
- Railr	OAD	M	UTILITY MANHOLE (TYPE $T = TELEPHONE$ )	S MARINA A	ICENSED	SIGNATI
EX. G	ROUND CONTOUR MINOR		(TYPE E = ELECTRICAL)		NO. 33656	*
EX. G	ROUND CONTOUR MAJOR	-À-	EXISTING YARD LIGHT	A	NGINEE	TIM (

### SECTION AND DETAIL MARKS



А

- SHEET ON WHICH DETAIL APPEARS OR IS FROM

NOTE: DETAILS ALSO REFERENCED BY NAME OR IDENTIFYING MARE SUCH AS "TYPICAL OR "TYP"

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Drav	ving	Title	the state of the s		
Proj	ect No.		NO. PROF		
Date	11-2023	LEGEND AND ABBREVIATIONS	BAM ENSE 33656 ESSION/ I-3-2	RUDOLPH JONES WTP	Ŭ
Scale	NONE		23 1"		
Shee	it 2	BID SET	NOT VALID WITHOUT SIGNATURE	2023	

#### **GENERAL NOTES**

1. THE CONTRACTOR IS FULLY AND SOLELY RESPONSIBLE FOR SAFETY DURING CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROCEDURES, TECHNIQUES, MEANS AND METHODS OF CONSTRUCTION.

2. WATER TREATMENT PLANTS AND INTAKE PUMP STATIONS CONTAIN MANY DANGERS AND HAZARDS. THESE INCLUDE, BUT ARE BY NO MEANS LIMITED TO. SUCH DANGERS AS CONFINED SPACES. ATMOSPHERES WITH DANGEROUSLY LOW OXYGEN LEVELS. TOXIC AND EXPLOSIVE GASES. POTENTIALLY HAZARDOUS GASES STORED AND USED ONSITE, SEWAGE AND SLUDGE WITH PATHOGENS, ELECTRICAL HAZARDS, FALLING HAZARDS, DROWNING HAZARDS, NATURAL GAS HAZARDS, UNANTICIPATED EQUIPMENT STARTING, AND TRENCH DANGERS, AMONG OTHERS. NOTE THAT POWER IN A PANEL, AN ENCLOSURE, OR AT EQUIPMENT, ETC., MAY ORIGINATE FROM MULTIPLE, DIFFERENT AND INDEPENDENT SOURCES. THE CONTRACTOR SHALL HAVE A THOROUGH UNDERSTANDING OF ALL THE DANGERS AND HAZARDS ASSOCIATED WITH THIS TYPE OF WORK. THE CONTRACTOR SHALL INSURE THAT ALL HIS PERSONNEL AND ALL SUBCONTRACTOR PERSONNEL, ETC., FOLLOW ALL APPROPRIATE SAFETY PRECAUTIONS AT ALL TIMES. CONTINUOUSLY COMPLY WITH ALL OSHA REGULATIONS AND REQUIREMENTS, ETC. AND ALWAYS FOLLOW GOOD SAFETY PRACTICES. THE CONTRACTOR SHALL BE AWARE THAT THIS IS AN OPERATING FACILITY AND THAT PERSONNEL MUST MAKE THEIR ROUNDS THROUGH ALL AREAS OF THE BOOSTER STATION THROUGHOUT THE DAY. AS SUCH, THE CONTRACTOR MUST CAREFULLY PLAN HIS ACTIVITIES AND ALWAYS PROVIDE ADEQUATE SAFETY BARRIERS AND OTHER MEASURES AS DESIRABLE, ETC., TO CONTINUOUSLY PROTECT PERSONNEL AND VISITORS, AS WELL AS HIS OWN PERSONNEL. SAFETY IS THE RESPONSIBILITY SOLELY OF THE CONTRACTOR. NEITHER THE OWNER NOR THE ENGINEER HAVE ANY DUTY TO REVIEW THE SAFETY PRACTICES OF THE CONTRACTOR.

3. THE CONTRACTOR SHALL PROVIDE TEMPORARY FACILITIES FOR SAFETY, INCLUDING BUT BY NO MEANS LIMITED TO, GUARDRAILS, BARRIERS, LIGHTING, AND SIGNS, ETC., AS DESIRABLE FOR THE PROTECTION OF THE PLANT VISITORS AND PERSONNEL WHO MUST OPERATE AND MAINTAIN THE PLANT THROUGHOUT THE COURSE OF CONSTRUCTION. THE CONTRACTOR SHALL PERFORM HIS WORK AND MAINTAIN CLEAN AND CLEAR PASSAGES IN A MANNER TO ELIMINATE TRIPPING HAZARDS DURING CONSTRUCTION TO THE GREATEST EXTENT POSSIBLE.

4. CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS EQUIPMENT AND MATERIALS REQUIRED FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM AT NO ADDITIONAL COST TO THE OWNER.

5. THIS IS AN EXISTING WATER TREATMENT PLANT AND INTAKE PUMP STATION THAT HAS BEEN MODIFIED AFTER THE ORIGINAL CONSTRUCTION. PUMP STATION INFORMATION IS BASED ON OLD DRAWINGS PREPARED FOR THE CONSTRUCTION OF THE ORIGINAL PLANT AND OTHER ADDITIONS AND THIS INFORMATION HAS NOT BEEN FIELD VERIFIED. CONTRACTOR SHALL FIELD VERIFY INFORMATION AS REQUIRED FOR THE TIMELY PROSECUTION OF THE WORK. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, ETC. OF EXISTING STRUCTURES BEFORE ORDERING EQUIPMENT.

6. THIS INTAKE PUMP STATION AND ITS STRUCTURES ARE EXISTING. THE CONTRACTOR SHALL BE AWARE THAT ALL PIPING, ELECTRICAL, ELECTRICAL CONDUIT, CONTROL PANELS, HANDRAIL, EQUIPMENT, ETC. MAY NOT BE SHOWN IN PLAN VIEW OR SECTIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY/IDENTIFY ANY CONFLICTS/PROBLEMS WITH THE PROPOSED IMPROVEMENTS AND THE EXISTING MATERIAL AND MAKE ANY ADJUSTMENTS NECESSARY FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM.

7. THIS PROJECT REQUIRES WORK IN AND CONNECTIONS TO AN EXISTING, ACTIVE, OPERATING WATER TREATMENT PLANT AND INTAKE PUMP STATION. AS SUCH, THE CONTRACTOR SHOULD ANTICIPATE THE PROBLEMS ASSOCIATED WITH SUCH WORK, INCLUDING BUT NOT LIMITED TO, COORDINATION OF ALL WORK WITH THE OWNER (THROUGH THE ENGINEER) INCLUDING MAKING TIE-INS, ELECTRICAL TIE-INS AND MODIFICATIONS, AND INTERRUPTIONS DURING SUITABLE PERIODS, THOROUGHLY PLANNING WORK ACTIVITIES TO MINIMIZE INTERRUPTIONS OF NORMAL OPERATIONS, MAINTAINING SITE SAFETY FOR THE OPERATIONS AND MAINTENANCE STAFF, AND LEAKING GATES AND VALVES, ETC. SOME ACTIVITIES MAY BE BEST PERFORMED DURING THE EARLY MORNING HOURS OF DRY WEATHER. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER/ENGINEER DURING LOW DEMAND TIMES. THIS MAY REQUIRE WEEKEND AND OR NIGHT TIME WORK (NO ADDITIONAL PAYMENTS WILL BE MADE FOR THIS WORK IF NEEDED).

8. ALL WORK ACTIVITIES (INCLUDING ELECTRICAL) THAT AFFECT PUMP STATION OPERATIONS MUST BE SEQUENCED WITH THE WATER TREATMENT PLANT OPERATIONS AND THE OWNER. THESE SHALL BE CAREFULLY PLANNED AND COORDINATED WITH BOTH THE OWNER AND THE ENGINEER TO RESULT IN A MINIMUM OF INTERFERENCE WITH THE EXISTING OPERATIONS. THE CONTRACTOR SHALL PERFORM AS MUCH PRELIMINARY OR ASSEMBLY WORK AS POSSIBLE PRIOR TO INITIATING OPERATIONS REQUIRING SEQUENCING. WHERE APPLICABLE, THE CONTRACTOR SHALL HAVE STANDBY EQUIPMENT ON SITE SUCH THAT THE LOSS OF INDIVIDUAL EQUIPMENT WILL NOT PREVENT THE COMPLETION OF SUCH CONNECTIONS, FTC.

9. ONCE TIE-INS OR OTHER ACTIVITIES INTERRUPT NORMAL PLANT AND INTAKE OPERATION, WORK EXPEDITIOUSLY TO COMPLETE THE WORK AND RETURN THE PLANT AND INTAKE TO NORMAL OPERATIONS AS SOON AS POSSIBLE.

10. THE CONTRACTOR SHOULD ANTICIPATE THAT EXISTING VALVES, GATES, OR OTHER FLOW CONTROL STRUCTURES OR DEVICES WILL LEAK. THE CONTRACTOR SHALL MAKE ALL PROVISIONS AND PROVIDE ALL REQUIRED EQUIPMENT (I.E. PLUGS, CAPS, COVERS, ETC.) TO HANDLE THE EXISTING FLOW, PRESSURES, ETC. WHILE PERFORMING THE REQUIRED WORK.

11. WHERE WORK TIES TO, OR IS LOCATED IN OR ADJACENT TO, EXISTING STRUCTURES OR PIPING, CAREFULLY INSPECT FACILITIES AND VERIFY MATERIALS, DEPTHS, DIMENSIONS, AND ANY POSSIBLE CONFLICTS PRIOR TO PLANNING THE WORK OR ORDERING MATERIALS, ETC. DEWATER OR EXCAVATE EXISTING FACILITIES AS REQUIRED FOR THESE INSPECTIONS. THE CONTRACTOR SHALL ANTICIPATE THAT CHANGES WILL BE NECESSARY AS A RESULT OF THESE INSPECTIONS AND THERE SHALL BE NO EXTRA PAYMENT OR TIME FOR THESE CHANGES OR ADJUSTMENTS.

12. RESERVED

13. NOTE THAT THE PROGRESS OF THE WORK MAY BE AFFECTED BY THE PLANT DEMANDS WHICH VARY DURING THE DAY. SEASONABLY, AND WITH RAINFALL, TIE-INS AND OTHER MODIFICATIONS TO EXISTING STRUCTURES MAY HAVE TO BE PERFORMED DURING LOW DEMAND PERIODS. COORDINATE TIE-INS WITH THE OWNER/ENGINEER.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE DRAINAGE, STORM WATER PERMITS AND COMPLIANCE WITH ALL GOVERNMENTAL STORM WATER REGULATIONS. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS (IF REQUIRED).

15. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL WATER LOSSES. SHUTDOWNS, BYPASSES, OR OVERFLOWS, ETC., RESULTING FROM HIS WORK, AND FOR ANY AND ALL SUBSEQUENT DAMAGES, FINES, PENALTIES, OR OTHER COSTS INCURRED, INCLUDING ANY AND ALL COSTS INCURRED BY THE OWNER, CAUSED BY WORK BY THE CONTRACTOR.

16. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH SCOTTSBORO RULES AND REGULATIONS. CONTRACTOR SHALL OBTAIN & PAY FOR ALL PERMITS REQUIRED FOR CONSTRUCTION.

17. A CITY BUSINESS LICENSE WILL BE REQUIRED TO PERFORM WORK INSIDE SCOTTSBORO CITY LIMITS. CONTRACTOR MUST OBTAIN AND KEEP UP TO DATE ALL REQUIRED LICENSES, PERMITS, ETC. TO PERFORM WORK INSIDE THE CITY LIMITS.

#### **DEMOLITION NOTES**

1. THE CONTRACTOR SHALL REMOVE AND DEMOLISH ALL ITEMS NOTED OR INFERRED IN REGARDS TO THE EXISTING PUMPS 1 AND 2, ELECTRICAL DISCONNECT, MANUAL TRANSFER SWITCH, AND ORIGINAL MCC-2. THE CONTRACTOR SHALL BE AWARE THAT ALL EQUIPMENT. COMPONENTS, PIPING, ELECTRICAL, ETC. THAT WILL BE REQUIRED TO BE REMOVED MAY NOT BE SHOWN OR NOTED ON THE PLAN VIEW OR SECTIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REMOVE AND PROPERLY DISPOSE OF ALL EQUIPMENT, MATERIALS, ETC. REQUIRED TO COMPLETE THE PROJECT.

2. THE OWNER RETAINS THE OPTION TO KEEP ALL ITEMS REMOVED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL, LOADING, HAULING (TRANSPORTATION), AND UNLOADING ALL OWNER DESIRED ITEMS REMOVED AT THE WATER TREATMENT PLANT (OR OTHER LOCATION WITHIN 10 MILES AS CHOSEN BY THE OWNER). ALL COST(S) ASSOCIATED WITH THIS WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

3. FOR ALL OTHER ITEMS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE PROPER DISPOSAL OF ANY AND ALL EXCESS MATERIALS, EQUIPMENT, ETC. RESULTING FROM THE WORK PERFORMED. ANY AND ALL EXCESS MATERIALS, EQUIPMENT, CONSTRUCTION WASTE, ETC. SHALL BE HAULED OFF-SITE AND PROPERLY DISPOSED OF BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. ALL COST(S) ASSOCIATED WITH THIS WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

4. ALL UNUSED/OLD ANCHOR BOLTS, MISCELLANEOUS METAL, ETC. SHALL BE CUT AND GROUND SMOOTH FLUSH (OR BELOW THE SURFACE) WITH SURROUNDING CONCRETE FLOORS, WALLS, ETC.

5. CONTRACTOR SHALL REMOVE, CUT/GRIND, ETC. ALL EXISTING UNUSED CONDUITS INSIDE AND AROUND THE PUMPING STATION THAT ARE NO LONGER IN USE ONCE IMPROVEMENTS ARE COMPLETE. ALL EXISTING EXPOSED CONDUIT THAT WILL NO LONGER BE IN USE SHALL BE REMOVED. UNUSED CONDUITS SHALL BE CUT FLUSH WITH FINISHED FLOOR SO NOT TO CREATE TRIPPING HAZARDS AND PATCH WITH NON-SHRINK GROUT. THE CONTRACTOR SHALL REMOVE THE WIRES IF POSSIBLE.

6. CONTRACTOR SHALL BE AWARE THAT NOT ALL OVERHEAD UTILITIES ARE SHOWN ON SITE PLAN. ONCE IMPROVEMENTS ARE COMPLETE, CONTRACTOR SHALL COORDINATE WITH POWER COMPANY AND OTHER UTILITIES TO REMOVE ALL OVERHEAD POWER AND UTILITY CABLES. NO OVERHEAD UTILITIES SHOULD REMAIN ONCE THE PROJECT IS COMPLETE.

#### PROJECT NOTES:

1. THE CONTRACTOR SHALL INSTALL AND MAKE FULLY FUNCTIONAL A NEW 480V GENERATOR, TRANSFER SWITCH, TWO VERTICAL TURBINE PUMPS, AND ALL ASSOCIATED ELECTRICAL EQUIPMENT AND COMPONENTS REQUIRED. CONTRACTOR SHALL PROPERLY INSTALL, SECURE, CONNECT, SETUP, WRE, GROUND, ETC. GENERATOR AND TRANSFER SWITCH AS REQUIRED TO MAKE FULLY FUNCTIONAL. THE CONTRACTOR SHALL HAVE FULL SYSTEM RESPONSIBILITY.

2. THIS IS AN EXISTING INTAKE PUMP STATION THAT HAS BEEN MODIFIED AFTER THE ORIGINAL CONSTRUCTION. THEREFORE, MANY LOCATIONS, DEPTHS, SIZES, AND OTHER FEATURES OF EXISTING PIPING AND ELECTRICAL ARE UNKNOWN. THE CONTRACTOR SHALL DETERMINE THE INFORMATION REGARDING THE EXISTING INTAKE PIPING AND ELECTRICAL THAT AFFECT THE WORK IN A TIMELY MANNER SO AS NOT TO DELAY CONSTRUCTION AND TO ALLOW TIMELY ORDERING OF CORRECT MATERIALS, COORDINATION WITH OTHER PROJECT ELEMENTS, AND EFFICIENT SCHEDULING. THERE SHALL BE NO ADDITIONAL PAYMENT OR TIME IF THE CONTRACTOR FAILS TO DO THIS.

3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE LOCATION, TYPE, AND SIZE OF ALL EXISTING UTILITIES, OBSTRUCTIONS, DRAINAGE, ETC. AND THEIR SATISFACTORY REPAIR OR REPLACEMENT. UTILITIES ON PLANS AND PROFILES ARE SHOWN IN APPROXIMATE LOCATIONS AND MAY BE AT ASSUMED ELEVATIONS. CONTRACTOR TO VERIFY ALL. CONTRACTOR SHALL REPAIR AND/OR REPLACE IN-KIND ANY SUCH ITEMS THAT ARE DAMAGED BY HIS CREWS DURING CONSTRUCTION.

4. ELECTRICAL FACILITIES, WIRING, CONDUIT, DUCT BANKS, AND APPURTENANCES ARE NOT SHOWN. USE APPROPRIATE MEASURES AND SAFETY PRECAUTIONS TO AVOID DIGGING INTO ELECTRICAL LINES AND OTHER POTENTIAL ELECTRICAL DANGERS.

5. COORDINATE ALL WORK WITH EQUIPMENT PROVIDED, PROPOSED GENERATOR, TRANSFER SWITCH, ETC, AND ADJUST AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

6. CONTRACTOR IS RESPONSIBLE FOR, IN A TIMELY MANNER, VERIFYING ALL EXISTING SIZES, MATERIALS, LOCATIONS, DEPTHS, AND DIMENSIONS OF PIPING, ELECTRICAL, ETC. PRIOR TO ORDERING MATERIALS FOR CONNECTIONS, POURING FOUNDATIONS, OR OTHER PROPOSED WORK. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, LOCATIONS, ETC. ASSOCIATED WITH THE WORK REQUIRED.

7. ONSITE POWER DEMANDS OF THE CONTRACTOR MAY BE SERVED FROM THE OWNERS EXISTING ONSITE POWER SUPPLY. WHERE CONSTRUCTION DEMANDS (E.G. CONCRETE VIBRATORS) EXCEED ONSITE POWER AVAILABILITY AT A LOCATION, PROVIDE AUXILIARY POWER AT NO ADDITIONAL COST TO THE OWNER. CONTRACTOR SHALL MAKE ALL UTILITY CONNECTION(S) REQUIRED. ANY POWER DEMANDS OF THE CONTRACTOR THAT INTERFERE WITH PLANT AND/OR INTAKE OPERATION (E.G. NUISANCE TRIPPING OF BREAKERS) SHALL BE REMOVED IMMEDIATELY AND REPLACED WITH AUXILIARY POWER.

8. CONTRACTOR SHALL PROVIDE A DUMPSTER (IF NEEDED) AND PORTABLE TOILET FACILITIES FOR HIS FORCES, COORDINATE LOCATION OF FACILITIES WITH OWNER AND ENGINEER.

9. RESERVED

10. THE CONTRACTOR SHALL BE AWARE OF THE EXISTING HIGH VOLTAGE POWER LINES THAT EXTEND OVER AND THROUGH THIS SITE. COORDINATE WITH THE POWER COMPANY FOR POWER DISCONNECTION AND REMOVAL OF LINES ONCE NEW POWER IS INSTALLED. COORDINATE WITH THE OWNER/ENGINEER. COORDINATE ALL WORK WITH THE ELECTRICAL UTILITY COMPANY AND PROVIDE ALL ITEMS AND WORK REQUIRED BY THE UTILITY COMPANY.

11. ALL ANCHOR BOLTS, WEDGE ANCHORS, EPOXY ANCHORS, MOUNTING HARDWARE, ETC. AND APPURTENANCES (I.E. BOLTS, WASHER, NUTS, ETC.) ON THE PROJECT SHALL BE 304 STAINLESS STEEL (MIN.). ALL THREADS ON STAINLESS STEEL BOLTS USED SHALL BE COATED WITH ANTI-GALLING COMPOUND DESIGNED FOR STAINLESS STEEL.

12. ALL LINK SEAL ASSEMBLIES REQUIRED IN THESE PLANS SHALL BE MODEL S-316 UNLESS INDICATED OTHERWISE OR RECOMMENDED OTHERWISE BY THE MANUFACTURER FOR THE APPLICATION AND APPROVED BY THE ENGINEER.

13. ALL UNUSED/OLD ANCHOR BOLTS, MISCELLANEOUS METAL, ETC. SHALL BE CUT AND GROUND SMOOTH FLUSH (OR BELOW THE SURFACE) WITH SURROUNDING CONCRETE FLOOR TO PREVENT TRIPPING HAZARDS.

14. THE OWNER WILL PROVIDE ALL NATURAL GAS FOR STARTUP AND GENERATOR TESTING.

15. THE OWNER WILL PROVIDE AND INSTALL THE NATURAL GAS LINE FROM THE MAIN LINE CONNECTION TO THE GENERATOR INCLUDING THE REGULATOR. THE CONTRACTOR SHALL PROPERLY COORDINATE THE INSTALLATION OF THE GAS LINE WITH THE OWNER IN A TIMELY MANNER SO AS NOT TO DELAY CONSTRUCTION AND TO ALLOW TIMELY ORDERING OF CORRECT MATERIALS, COORDINATION WITH OTHER PROJECT ELEMENTS, AND EFFICIENT SCHEDULING. THERE SHALL BE NO ADDITIONAL PAYMENT OR TIME ALLOWED IF THE CONTRACTOR FAILS TO DO THIS. THE CONTRACTOR SHALL COORDINATE WITH OWNER AND PROVIDE ALL NECESSARY PIPING, FLEXIBLE PIPING, FITTINGS, REDUCERS, INCREASERS, BUSHINGS, ETC. AS REQUIRED TO MAKE FINAL CONNECTION TO GENERATOR AND FOR A COMPLETE AND FUNCTIONAL INSTALLATION PIPING SYSTEM. THE CONTRACTOR SHALL VERIFY ALL INFORMATION REQUIRED FOR GAS SYSTEM TO DETERMINE CORRECT SIZES, TYPES, FITTINGS, ETC. PRIOR TO ORDERING MATERIALS. ALL ITEMS PROVIDED (IF ANY) SHALL BE RATED FOR NATURAL GAS USE AND SHALL BE APPROVED BY THE OWNER. THE SIZE OF THE LINE TO THE GENERATOR SHALL BE DETERMINED BY THE GENERATOR MANUFACTURER AND OWNER (2" MAX.).

16. THE CONTRACTOR SHALL INCORPORATE ALL SIGNALS/ALARMS SHOWN INTO THE EXISTING SCADA PANEL. CONTRACTOR SHALL VERIFY ALL NEEDED INFORMATION REGARDING EXISTING SCADA PANEL. ATS. GENERATOR, ETC. REQUIRED TO COMPLETE IMPROVEMENTS. SEE SCADA REQUIREMENTS ON THE DRAWINGS.

17. THE CURRENT SCADA SUPPLIER IS DEXTER FORTSON ASSOCIATES (DFA). THE CONTRACTOR SHALL CONTRACT WITH DFA TO PROVIDE ALL NECESSARY COMPONENTS, PROGRAMMING, ANTENNAS, ETC. TO FULLY INCORPORATE ALL REQUIRED SIGNALS/ALARMS INTO EXISTING SCADA SYSTEM. THE SCADA SUPPLIER SHALL PROVIDE NEW SCREENS, ALARM TAGS, PROGRAM BUTTONS, ETC. AS REQUIRED BY THE OWNER DURING CONSTRUCTION.

18. THE PROPOSED ATS SHALL BE EQUIPPED WITH A CONTROLLER FOR EXERCISING AND CONTROLLING THE GENERATOR. ONCE THE GENERATOR AND TRANSFER SWITCH ARE INSTALLED AND MADE FUNCTIONAL, THE CONTRACTOR SHALL PROPERLY SETUP AND ADJUST THE ATS CONTROLLER SUCH THAT IT CONTROLS THE GENERATOR IN AN AUTOMATIC FORMAT. COORDINATE WITH OWNER/ENGINEER FOR EXERCISING TIME FRAMES AND SETTINGS.

19. THE CONTRACTOR SHALL COORDINATE ALL CIRCUIT BREAKERS, MCCB, TRIP UNITS, FUSES, ETC. TRIP AND OVERLOAD SETTINGS PRIOR TO STARTUP SUCH THAT THEY PROPERLY SERVE THEIR INTENDED PURPOSE AND DO NOT RESULT IN NUISANCE TRIPS AND MAKE ADJUSTMENTS AS NECESSARY. COORDINATE WITH EQUIPMENT MANUFACTURERS AND PROVIDERS, ENGINEER, AND OWNER. ADJUST AS NECESSARY AFTER STARTUP. PROPERLY ADJUST ALL TRIP AND OVERLOAD SETTINGS TO PROTECT EQUIPMENT, COMPONENTS, WIRING, ETC. IN ACCORDANCE WITH THE COORDINATION STUDY.

20. CONTRACTOR SHALL BE AWARE THAT THIS PROJECT IS TAKING PLACE ON AN ALDOT RIGHT OF WAY. CONTRACTOR SHALL FOLLOW ALL RULES, REGULATIONS, REQUIREMENTS, ETC. CONSISTENT WITH THE CURRENT ALDOT PERMIT. SEE SPECIFICATIONS FOR COPY OF ROADWAY PERMIT.

#### **PIPING NOTES:**

1. CONTRACTOR IS RESPONSIBLE FOR, IN A TIMELY MANNER, VERIFYING EXISTING LINE SIZES, MATERIAL, LOCATIONS, DEPTHS, AND DIMENSIONS PRIOR TO ORDERING MATERIALS FOR CONNECTIONS. ALL PIPING AND CONNECTION ITEMS MAY NOT BE SPECIFICALLY CALLED OUT ON THE DRAWINGS.

2. ALL FITTINGS, VALVES, & PUMP DIMENSIONS SHOULD BE COORDINATED WITH EQUIPMENT SUPPLIED. CONTRACTOR SHALL MAKE ALL PIPING MODIFICATIONS TO CONNECT TO EXISTING DISCHARGE PIPING AS REQUIRED. CONTRACTOR SHALL PROVIDE ALL PIPING, SPOOL PIECES, FITTINGS, COUPLINGS, ETC. FOR PROPER CONNECTION. CONTRACTOR SHALL VERIFY ALL SIZES, DIMENSIONS, ELEVATIONS, ETC. CONTRACTOR SHALL COORDINATE WITH THE APPROVED SUBMITTALS AND SHALL ADJUST AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

3. ALL BRACKETS, SUPPORTS, UNI-STRUT, ETC., SHALL BE STAINLESS STEEL OR ALUMINUM UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER. ALL MOUNTING HARDWARE (I.E. BOLTS, NUTS, WASHERS, ETC.) SHALL BE STAINLESS STEEL.

4. ONCE PIPING IS CONNECTED TO PUMP, CONTRACTOR SHALL PAINT NEW AND EXISTING PIPING (TO FLANGE OF TEE) WITH TNEMEC COATINGS. NEW PUMP SHOULD BE PAINTED WITH MATCHING COLOR. SEE PAINTING SPECIFICATIONS.

5. CONTRACTOR SHALL PROVIDE AND INSTALL ALL AIR VALVE PIPING FOR CONNECTION TO EXISTING LINES IN PUMP STATION. PROVIDE ALL NECESSARY MATERIALS, EQUIPMENT, FITTINGS, ETC.

6. ALL DUCTILE IRON PIPING AND FITTINGS SHALL BE CEMENT LINED DUCTILE IRON PRIMED WITH TNEMEC N140 PRIMER.

7. THE CONTRACTOR SHALL PROVIDE ALL PIPE HARDWARE (I.E. BOLTS, NUTS, WASHERS, GASKETS, ETC.) AS REQUIRED TO PROPERLY SECURE ALL PIPING.

8. CONTRACTOR SHALL FURNISH AND INSTALL ALL REQUIRED PIPING, TEES, FITTINGS, REDUCERS, INCREASERS, BUSHINGS, SPOOL PIECES, ETC. AS REQUIRED FOR A COMPLETE AND FUNCTIONAL PIPING SYSTEM INSTALLATION. CONTRACTOR SHALL VERIFY EXACT CONNECTION FITTINGS, SIZES, TYPES, ETC. PRIOR TO ORDERING MATERIALS.

#### SITE NOTES:

INSTALLED ITEMS.

DURING CONSTRUCTION.

BEGINNING CONSTRUCTION OR PLACEMENT.

#57 CRUSHED LIMESTONE.

CAPABLE OF MAINTAINING A COMPLETE STAND OF GRASS.

FREE.

#### PARTIAL SEQUENCING NOTES:

OWNER.

SHALL NOT MAKE A SHUTDOWN/TIE-IN WITHOUT OWNER APPROVAL.

EXISTING MCC-2 (SECTION 1) DEMOLISHED AND REMOVED.

OPERATE TROUBLE FREE FOR A MINIMUM OF 7 DAYS. STATION..



ALL EXISTING YARD PIPING, STRUCTURES, ELECTRICAL FACILITIES, DUCT BANKS, ETC. NOT SHOWN, WHERE SHOWN,	
LL EXISTING PIPING AND EXISTING ELECTRICAL IS APPROXIMATE AND MUST BE FIELD VERIFIED BY THE CONTRACTOR. SE APPROPRIATE MEASURES AND SAFETY PRECAUTIONS TO AVOID DIGGING INTO UTILITIES, PIPING, ELECTRICAL LINES, ND OTHER POTENTIAL ELECTRICAL DANGERS.	
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. RETURN ALL EXISTING SURFACES, STRUCTURES, LANDSCAPING, ASPHALT, GRAVEL, PAVEMENT, CONCRETE, FENCING, TC. TO THEIR PRE-CONSTRUCTION CONDITIONS, EXCEPT WHERE IMPROVEMENTS OR CHANGES ARE SHOWN ON THE RAWINGS.	
. CONTRACTOR SHALL BE AWARE THAT NOT ALL OVERHEAD UTILITIES ARE SHOWN. CONTRACTOR SHALL BE AWARE F LOW CLEARANCES TO TELEPHONE CABLES, INTERNET, ETC. THAT MAY BE BELOW POWER LINES. ONCE IPROVEMENTS ARE COMPLETE, CONTRACTOR SHALL COORDINATE WITH POWER COMPANY AND OTHER UTILITIES TO EMOVE ALL OVERHEAD POWER AND UTILITY CABLES. NO OVERHEAD UTILITIES SHOULD REMAIN ONCE THE PROJECT IS OMPLETE	
. THE STORM INLET BOX SHALL BE SET APPROXIMATELY 4" BELOW SURROUNDING GRADE TO PROMOTE PROPER RAINAGE INTO INLET BOX. STORM PIPING SHALL BE LAID AT A CONSTANT DOWNHILL SLOPE AT 1% (MIN) AND HAVE 4" (MIN.) BURY DEPTH.	RETAINING WALL POINTS P1 34
. THE CURRENT SITE AND ENTRANCE ROAD IS CURRENTLY GRAVEL AS INDICATED. ONCE IMPROVEMENTS ARE OMPLETE, ALL NEW AREAS INDICATED AND DISTURBED AREAS SHALL BE COVERED WITH 6" OF COMPACTED PUG MIX ITH #57 GRAVEL IN TOP CONSISTENT WITH THE GRAVEL LANDSCAPED DETAIL. ALL EXISTING GRAVEL AREAS INSIDE ENCING AND TO 1' OUTSIDE OF FENCING SHALL BE COVERED WITH 4" (MIN.) PUGMIX AND GRAVEL COMPACTED ONSISTENT WITH SAME DETAIL COORDINATE EXACT LIMITS WITH THE OWNER DURING CONSTRUCTION	P2 34 P3 34 P3 34 P4 34
. THE NATURAL GAS LINE REQUIRED FOR THE GENERATOR WILL BE PROVIDED AND INSTALLED BY THE OWNER UP TO HE GENERATOR. THE CONTRACTOR WILL BE REQUIRED TO MAKE FINAL CONNECTION TO GENERATOR AS REQUIRED. LL PIPING, FITTINGS, FLEXIBLE HOSE, ETC. INSTALLED SHALL MEET OR EXCEED THE UTILITY REQUIREMENTS. THE ONTRACTOR SHALL COORDINATE WITH OWNER FOR FINAL LOCATION OF GAS LINES AND REGULATOR. COORDINATE ALL ITH THE OWNER.	
. THE CONTRACTOR SHALL REMOVE THE CONCRETE CURB IN THE MIDDLE OF THE PARKING AREA 6" BELOW FINAL RADE. GRADUALLY SLODE GRADING ACROSS THIS AREA FOR A SMOOTH SURFACE.	EXISTING SMALL LINE TO PUMP S
GRAVE	L ROAD eww
→ OHP →	EWM
	NEW UTIL
	NEW UTIL For Pow
GRADING NOTES:         1. ALL MATERIAL SHALL BE DEPOSITED ON SLOPES IN SUCH A MANNER AS TO LEAVE SLOPE UNIFORM AND SMOOTHLY GRADED.         2. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING FROM THE SITE AND DISPOSING OF EXCESS MATERIAL NOT UTILIZE FOR BACKFILL EXCESS MATERIAL SHOULD BE HAULED TO AREA BY WTP AS DIRECTED BY THE OWNER.         3. ALL DAMAGED OR DISTURBED AREAS DURING CONSTRUCTION SHALL BE BACKFILLED AND/OR GRADED TO MATCH SURROUNDING GRADES OR PROPOSED GRADES SHOWN.         4. RETURN ALL EXISTING SURFACES, STRUCTURES, LANDSCAPING, ASPHALT, GRAVEL, GRASSING, ETC. TO THEIR PRE-CONSTRUCTION CONDITIONS, EXCEPT WHERE IMPROVEMENTS OR CHANGES ARE SHOWN ON THE DRAMINGS.         5. CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL SITE GRADING AS REQUIRED FOR PROPER AND POSITIVE SITE DRAINAGE. NO PONDING OR STANDING WATER WILL BE ALLOWED OR ACCEPTED.         6. CONTRACTOR SHALL CLEAR AND GRUB AREAS REQUIRED FOR GRADING TO REMOVE ALL TREES, STUMPS, UNDERBRUSH, ETC.         7. ALL ROCK EXCAVATION (IF ANY) SHALL BE INCLUDED IN THE BID PRICE. NO ADDITIONAL PAYMENT WILL BE MADE FOR ROCK EXCAVATION.         8. THE CURRENT SITE AND ENTRANCE ROAD IS CURRENTLY GRAVEL AS INDICATED. ONCE IMPROVEMENTS ARE COMPLETE, ALL NEW AREAS INDICATED AND DISTURBED AREAS SHALL BE COVERED WITH 6° OF PUG MIX WITH #57 GRAVEL COMPACTED IN TO CONSISTENT WITH THE GRAVEL LANDSCAPED DETAIL AT 6° OF PUG MIX WITH #57 GRAVEL COMPACTED INTO CONSISTENT WITH SAME DETAIL.         9. ALL OTHER DISTURBED AREAS ON THE SITE (OUTSIDE OF FENCING SHALL BE COVERED WITH 4° (MIN.) PUGMIX AND GRAVEL COMPACTED CONSISTENT WITH SAME DETAIL.	
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<ul> <li>STRACTOR SHALL BE RESPONSIBLE FOR REMOVING FROM THE SITE AND DISPOSING OF EXCESS MATERIAL NOT UTILIZED FOR BACKFILL.</li> <li>EXCESS MATERIAL NOT UTILIZED FOR BACKFILL. EXCESS MATERIAL SHOULD BE HAULED TO AREA BY WTP AS DIRECTED BY THE OWER.</li> <li>ALL DAMAGED OR DISTURBED AREAS DURING CONSTRUCTION SHALL BE BACKFILLED AND/OR GRADED TO MATCH SURROUNDING GRADES OR PROPOSED GRADES SHOWN.</li> <li>RETURN ALL EXISTING SURFACES, STRUCTURES, LANDSCAPING, ASPHALT, GRAVEL, GRASSING, ETC. TO THEIR PRE-CONSTRUCTION CONDITIONS, EXCEPT WHERE IMPROVEMENTS OR CHANGES ARE SHOWN ON THE DRAMMS.</li> <li>CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL SITE GRADING AS REQUIRED FOR PROPER AND POSITIVE SITE DRAINAGE. NO PONDING OR STANDING WATER WILL BE ALLOWED OR ACCEPTED.</li> <li>CONTRACTOR SHALL CLEAR AND GRUB AREAS REQUIRED FOR GRADING TO REMOVE ALL TREES, STUMPS, UNDERBRUSH, ETC.</li> <li>ALL ROCK EXCAVATION (F ANY) SHALL BE INCLUDED IN THE BID PRICE. NO ADDITIONAL PAYMENT WILL BE MADE FOR ROCK EXCAVATION.</li> <li>THE CURRENT SITE AND ENTRANCE ROAD IS CURRENTLY GRAVEL AS INDICATED. ONCE IMPROVEMENTS ARE COMPLETE, ALL NEW AREAS INDICATED AND DISTURED AREAS SHALL BE COVERED WITH 6° OF PUG MIX WITH #57 GRAVEL COMPACTED IN TOP CONSISTENT WITH THE GRAVEL LANDSCAPED DETAL. ALL EXISTING GRAVEL AREAS INSIDE FENCING AND TO 1'OUTSIDE OF FENCING SHALL BE COVERED WITH 4" ((MIN) PUGMIX AND GRAVEL COMPACTED CONSISTENT WITH THE GRAVEL LANDSCAPED DETAL. ALL EXISTING GRAVEL AREAS INSIDE FENCING AND TO 1'OUTSIDE OF FENCING SHALL BE COVERED WITH 4" ((MIN) PUGMIX AND GRAVEL COMPACTED CONSISTENT WITH THE GRAVEL LANDSCAPED DETAL. ALL EXISTING GRAVEL AREAS INSIDE FENCING AND TO 1'OUTSIDE OF FENCING SHALL BE COVERED WITH 4" ((MIN) PUGMIX AND GRAVEL COMPACTED CONSISTENT WITH THE GRAVEL LANDSCAPED DETAL. ALL EXISTING GRAVEL AREAS INSIDE FENCING AND TO 1'OUTSIDE OF FENCING SHALL BE COVERED WITH 4" ((MIN) PUGMIX AND GRAVEL COMPACTED CONSISTENT WITH THE GRAVEL LANDSCAPED DETAL. ALL EXISTING GRAVEL AREAS INSIDE FENCING AND TO 1'OUTSIDE OF FENCING) SH</li></ul>	EXSTING SMALL M
<ul> <li>Section 2012 Contractor shall be responsible for removing from the site and disposing of excess material should be hauled to area by with as directed by the owner.</li> <li>Contractor shall be responsible for removing from the site and disposing of excess material should be hauled to area by with as directed by the owner.</li> <li>And Damaed or disturbed areas during construction shall be backfilled and/or graded to material should be hauled to area by with as directed by the owner.</li> <li>Return all existing surfaces, structures, Landscaphing, asphalt, gravel, grassing, etc. to their pre-construction conditions, except where improvements or changes are shown on the directed by site of probability of the owner.</li> <li>Contractor shall be responsible for final site grading as required for proper and positives the drained on standing water will be allowed or accepted.</li> <li>Contractor shall clear and cult areas required for grading to remove all trees, surges, undereded in the bid price. No additional payment will be wade for rock excavation.</li> <li>All rock excavation (if any) shall be included in the bid price. No additional payment will be asses what be claused of muscave by one program of the or program with a for gravel compacted in the oracit all all existing gravel areas inside feation and distinged areas shall be covered with 4° (in), pugnix and gravel compacted in the site (outside of fencing) shall be grassed unless the distinged areas on the site (outside of fencing) shall be grassed unless during otherwise.</li> </ul>	EXISTING SMALL W
Strength       Strength         1. ALL MATERIAL SHALL BE DEPOSITED ON SLOPES IN SUCH A MANNER AS TO LEAVE SLOPE UNIFORM AND SMOOTHLY GRADED.         2. CONTRACTOR SHALL BE RESPONSELE FOR REMOVING FROM THE SITE AND DISPOSING OF EXCESS MATERIAL NOT UTILIZED FOR BACKFILL. EXCESS MATERIAL SHOULD BE HAULED TO AREA BY WTP AS DIRECTED BY THE OWNER.         3. ALL DAMAGED OR DISTURBED AREAS DURING CONSTRUCTION SHALL BE BACKFILLED AND/OR GRADED TO MATCH SURGNUDBING GRADES OR PROPOSED GRADES SHOWN.         4. RETURN ALL EXISTING SURFACES, STRUCTURES, LANDSCAPING, ASPHALT, GRAVEL, GRASSING, ETC. TO THEIR PRE-CONSTRUCTION CONDITIONS, EXCEPT WHERE IMPROVEMENTS OR CHANCES ARE SHOWN ON THE DRAWNOS.         5. CONTRACTOR SHALL BE RESPONSELE FOR FINAL SITE GRADING AS REQUIRED FOR PROPER AND PONDING OR STANDING WATER WILL BE ALLOWED OR ACCEPTED.         6. CONTRACTOR SHALL GLEAR AND GRUB AREAS REQUIRED FOR GRADING TO REMOVE ALL TREES, STUMPS, UNDERBRUSH, ETC.         7. ALL ROCK EXCAVATION. (F ANY) SHALL BE INCLUDED IN THE BID PRICE. NO ADDITIONAL PAYMENT MILL BE MADE FOR ROCK EXCAVATION.         8. THE CURENT SITE AND DIMTRANCE ROAD IS CURRENTLY GRAVEL AS INDICATED. ONCE IMPROVEMENTS ARE COMPLETE, ALL NEW AREAS INDICATED AND DISTURBED AREAS SHALL BE COVERED WITH 4° (MIN.) PUGMIX AND GRAVEL COMPACTED INTO TO USISSIENT WITH THE GRAVEL LANDSCAPED DETAIL. ALL ALL SETSING GRAVEL AREAS INDICATED ON TO 1' OUTSIDE OF FRENCING SHALL BE COVERED WITH 4° (MIN.) PUGMIX AND GRAVEL COMPACTED CONSISTENT WITH SAME DETAIL.         8. ALL OTHER DISTURBED AREAS ON THE SITE (OUTSIDE OF FENCING) SHALL BE COVERED WITH 4° (MIN.) PUGMIX AND GRAVEL COMPACTED CONSISTENT WITH SAME DETAIL.         8. ALL OTHER DISTURBED AREAS ON THE SITE (OUTSIDE OF FENCING SHAL	EXISTING SMALL WILLING TO PUMP ST
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![](_page_5_Figure_2.jpeg)

![](_page_6_Figure_0.jpeg)

GHT © MUNICIPAL CONSULTANTS, INC.

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GHT © MUNICIPAL CONSULTANTS, INC.

![](_page_8_Figure_0.jpeg)

![](_page_9_Figure_1.jpeg)

CONTRACTOR SHALL DEMOLISH AND ----REMOVE ALL EXISTING UNUSED CONDUIT FROM EXTERIOR AND INTERIOR WALLS ONCE IMPROVEMENTS ARE MADE. THIS IS TYPICAL OF PROJECT. NOTE: WIDTH OF NEW MCC SECTION MAY BE WIDER THAN EXISTING MCC. COORDINATE WITH MANUFACTURER/SUBMITTAL FOR SIZE REQUIREMENTS. CHEMICAL TANK MAY NEED TO SHIFT TOWARDS TVA PANEL. CONTRACTOR SHALL PROVIDE AND — INSTALL NEW MCC IN EXISTING MCC LOCATION. SEE ELECTRICAL DRAWINGS. CONTRACTOR SHALL DEMOLISH AND -REMOVE EXISTING SERVICE EQUIPMENT CONTRACTOR SHALL PROVIDE \_\_\_\_\_ AND INSTALL NEW RAW WATER \_\_\_\_\_ PUMP IN PUMP #1 LOCATION. \_\_\_\_\_ ONCE NEW SERVICE AND EQUIPMENT IS FULLY OPERATIONAL. ELECTRICAL EQUIPMENT REMOVED SHALL BE RETURNED TO OWNER. =221 PUMP 1 OIL RESERVOIR-88 200 CONTRACTOR SHALL FULLY DEMOLISH -AND REMOVE EXISTING MCC PAD. CONTRACTOR SHALL FORM AND POUR NEW CONCRETE PAD FOR MCC TO BE PROVIDED AND INSTALLED. SEE ELECTRICAL SHEETS AND DETAILS. - REPLACE 10" CHECK VALVE. SEE SPECIFICATIONS. REPLACE SPOOL PIPE AS REQUIRED 10" GATE VALVE TO REMAIN AS IS NOTE: EXISTING 8" X 10" REDUCERS MAY NOT BE NECESSARY FOR CONNECTION TO NEW PUMP COLUMNS. MODIFY DISCHARGE PIPING AS NEEDED TO MAKE PROPER CONNECTION. · D <sup>⊳</sup>8" X 10" REDUCER \_\_\_\_\_ WET WELL PUMP **B** - SCREEN -A 12 Þ Δ.

![](_page_9_Figure_4.jpeg)

![](_page_10_Figure_0.jpeg)

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![](_page_10_Figure_2.jpeg)

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#### BMP GENERAL NOTES:

THE FOLLOWING REQUIREMENTS ARE TO BE CONSIDERED MINIMUM STANDARDS. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING EROSION AND SEDIMENT CONTROL IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL LAWS, CODES AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN AND MAINTAIN AN NPDES PERMIT FOR THE PROPOSED WORK AS REQUIRED BY THE ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (ADEM). BY BIDDING THE PROJECT, THE CONTRACTOR IS CERTIFYING THAT IF AWARDED THE CONTRACT, HE WILL BE THE SOLE PERMITEE ON THIS PERMIT AND THAT HE SHALL INDEMNIFY THE OWNER AGAINST AND SHALL BE SOLELY RESPONSIBLE FOR ANY FINES OR MONETARY DAMAGES ASSOCIATED WITH STORMWATER RUNOFF AND CONTROL.

1. THE CONTRACTOR SHALL IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES (BMP'S) FOR THE PREVENTION AND CONTROL OF NONPOINT SOURCES OF POLLUTANTS DURING AND AFTER PROJECT IMPLEMENTATION. THE CONTRACTOR, AT A MINIMUM, MUST IMPLEMENT BMP'S AS PROVIDED IN THE ALABAMA HANDBOOK FOR EROSION CONTROL, SEDIMENT CONTROL & STORMWATER MANAGEMENT ON CONSTRUCTION SITES & URBAN AREAS, AS AMENDED, AND THE EPA STORMWATER POLLUTION PREVENTION FOR CONSTRUCTION ACTIVITIES-DEVELOPING POLLUTION PREVENTION PLANS AND BEST MANAGEMENT PRACTICES, AS AMENDED. THE EROSION CONTROL DEVICES SHOWN ON THIS PLAN ARE A MINIMUM. ALL REQUIRED EROSION CONTROL DEVICES SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER AS REQ'D TO PREVENT SILTATION. EROSION. & OTHER DEGRADATION OR POLLUTION TO SITE OR ADJACENT PROPERTIES, STREAMS, DITCHES, PUBLIC ROADWAYS, ETC.

2. SITE GRADING SHALL BE MAINTAINED SO THAT NO UPSLOPE DRAINAGE ENTERS EXCAVATED OR DISTURBED AREAS.

3. TO THE EXTENT PRACTICAL, THE CONTRACTOR SHALL SCHEDULE HIS ACTIVITIES TO MINIMIZE THE AMOUNT OF AREA DISTURBED AT ANY ONE TIME.

4. ALL STOCKPILE EXCAVATED MATERIAL SHALL BE GRASSED OR COVERED WITHIN 72 HOURS OF STOCKPILING. GRASSING AND FERTILIZATION OF STOCKPILED SOILS SHALL BE AS PER THE ALABAMA HANDBOOK FOR EROSION CONTROL, SEDIMENT CONTROL & STORMWATER MANAGEMENT ON CONSTRUCTION SITES & URBAN AREAS. SEED RATES SPECIFIED IN THE MANUAL SHALL BE DOUBLED.

5. CONTRACTOR SHALL AS A MINIMUM INSPECT STORMWATER CONTROLS ONCE EVERY TWO WEEKS AND FOLLOWING A 1/2" OR GREATER RAINFALL IN ANY 24 HOUR PERIOD. SILT FENCING SHALL ALSO BE CHECKED WHEN WIND GUSTS EXCEED 25 MPH. DEFICIENCIES FOUND IN STORMWATER CONTROLS SHALL BE CORRECTED IMMEDIATELY. THE CONTRACTOR SHALL MAINTAIN A LOG OF ALL INSPECTION ACTIVITIES.

6. THE CONTRACTOR SHALL INSTALL SILT FENCING AS REQUIRED AROUND THE PROJECT PERIMETER PRIOR TO COMMENCING PROJECT. IN THE EVENT THAT THE PROJECT REQUIRES TEMPORARY CHANNELIZATION OF STORMWATER RUNOFF, THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN APPROPRIATE BMP CONTROLS (SETTLING BASINS, CHECK DAMS, ETC.)

7. PERMANENT VEGETATION OF ALL DISTURBED AREAS IS REQUIRED. ONCE ALL LAND DISTURBANCES HAVE CEASED & ALL DISTURBED AREAS ARE PERMANENTLY STABILIZED, EROSION CONTROL DEVICES SHALL BE REMOVED.

8. THE CONTRACTOR SHALL REMOVE ANY SEDIMENT TRACKED ON PUBLIC ROADWAYS/HIGHWAYS IMMEDIATELY. NO TRACKING OF MUD, ETC. ONTO PUBLIC STREETS OR HIGHWAYS WILL BE ALLOWED. WASH DOWN CONSTRUCTION TRAFFIC AS REQUIRED.

9. ALL DISTURBED AREAS LEFT INACTIVE FOR LONGER THAN 13 DAYS SHALL BE TEMPORARILY GRASSED OR COVERED TO PREVENT EROSION.

10. PERMANENT TURF REINFORCEMENT MATS ARE REQUIRED ON ALL SLOPES 2:1 OR STEEPER, AS WELL AS ALL DITCH LINES & SIDES.

11. BMP MEASURES MAY BE REQUIRED OUTSIDE OF CONSTRUCTION LIMITS AND/OR RIGHTS OF WAY. CONTRACTOR SHALL NOT INSTALL BMP'S BEYOND PROJECT BOUNDARIES.

12. CONTRACTOR IS RESPONSIBLE FOR THE RENEWAL OF ALL NPDES PERMITS AS REQUIRED FOR THE PROJECT.

13. THE CONTRACTOR SHALL PERIODICALLY REMOVE ACCUMULATED SEDIMENT AWAY FROM SILT FENCING, HAY BALES, AND ALL OTHER BMP'S AS REQUIRED.

![](_page_13_Figure_15.jpeg)

![](_page_13_Figure_17.jpeg)

SCALE: N.T.S.

WOODEN STAKE, REBAR, OR STAKED AND STEEL PICKET (2 PER BALE) ENTRENCHED hay bale COMPACTED SOIL BINDING TWINE TO PREVENT PIPING OR WIRE FLOW 4" MIN. FLOW 12" MIN. HAY BALE STAKING DETAIL

SCALE: N.T.S.

![](_page_13_Figure_23.jpeg)

#### GENERAL ELECTRICAL, CONTROL, INSTRUMENTATION & SCADA REQUIREMENTS

1. SAFETY, INCLUDING BUT BY NO MEANS LIMITED TO COORDINATION WITH OTHERS FOR CIRCUITS OR EQUIPMENT THAT IS LIVE OR MAY BECOME LIVE, IS THE RESPONSIBILITY SOLELY OF THE CONTRACTOR. THE OWNER OR THE ENGINEER ARE NOT RESPONSIBLE FOR SAFETY.

2. ALL ELECTRICAL EQUIPMENT PROVIDED AND INSTALLED FOR THIS PROJECT SHALL MEET THE REQUIREMENTS OF UNDERWRITERS LABORATORIES STANDARDS FOR SAFETY OR OTHER EQUIVALENT NATIONALLY RECOGNIZED STANDARDS (E.G. ANSI) FOR THE SPECIFIC PRODUCT. SEE THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS (IF ANY) REGARDING LISTING.

3. CONTRACTOR SHALL COORDINATE ALL COMPONENTS IN A TIMELY MANNER.

4. CONTRACTOR SHALL PROVIDE ALL MEANS, METHODS, AND MISCELLANEOUS APPURTENANCES, ETC., AS REQUIRED TO PERFORM AND PROPERLY COMPLETE THE WORK.

5. ALL WORK AND MATERIAL(S) SHALL BE IN FULL COMPLIANCE WITH ALL APPLICABLE CODES, LAWS, AND ORDINANCES, THE NATIONAL ELECTRICAL CODE (NEC) AND THE REGULATIONS OF THE LOCAL UTILITY COMPANIES. OBTAIN AND PAY FOR ANY AND ALL REQUIRED PERMITS, INSPECTIONS, CERTIFICATES OF INSPECTIONS AND APPROVAL, AND THE LIKE.

6. TYPICAL ALL ELECTRICAL PANELS, CONTROL PANELS, MOTOR CONTROL CENTERS, ETC. WITH VFD'S, PLC'S, STARTERS, ETC. OR OTHER EQUIPMENT THAT ARE SUSCEPTIBLE TO HEAT: FURNISH WITH COOLING FANS AND OVERSIZED DUST FILTERS UNLESS REQUIRED OTHERWISE. SIZE VENTILATION FOR HEAT PRODUCTION TO AVOID NUISANCE TRIPPING OF BREAKERS AND STARTERS. PROVIDE CONDENSATION HEATERS AND THERMOSTATS.

7. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED WIRING, ELECTRICAL COMPONENTS, MOUNTING HARDWARE, ETC. FOR A COMPLETE AND FULLY FUNCTIONAL PROJECT.

8. INSTALL SEALTIGHT FLEX CONDUIT WITH T & B FLEX CONDUIT FITTINGS ON BOTH ENDS AT ALL EQUIPMENT. PROVIDE SUFFICIENT FLEX CONDUIT TO ALLOW MOTOR TO BE REMOVED FROM EQUIPMENT AND SET ON FLOOR. INSTALL GROUND WIRE IN FLEX CONDUIT PER NEC TABLE 250-95 OR PER SCHEDULE, WHICHEVER IS LARGER. GALVANIZED, PLATED, OR SIMILAR MATERIALS THAT ARE SUBJECT TO CORROSION IN HIGHLY CORROSIVE ATMOSPHERES SHALL NOT BE ALLOWED ON ANY FLEXIBLE TYPE CONDUIT OR SIMILAR DEVICES.

9. GROUND SPARE WIRES.

10. INSTALL PULL CORD ("PC") IN EMPTY CONDUITS.

11. THE CONTRACTOR SHALL COORDINATE THE WIRING REQUIREMENTS, CONTROLS, AND RELAYS, ETC, WITH SUBMITTALS AND WITH EQUIPMENT ACTUALLY PROVIDED. MAKE ADJUSTMENTS TO WIRING SCHEDULES AS NECESSARY. NO ADDITIONAL TIME OR COMPENSATION SHALL BE GRANTED FOR SUCH COORDINATION AND ADJUSTMENTS.

12. PROVIDE AND INSTALL ENGRAVED NAMEPLATES ON ALL PANELS AND CONTROL STATIONS, SWITCHGEAR, SWITCHBOARDS, MCC'S, AND ALL ELECTRICAL DEVICES, ETC. THE NAMEPLATE SHALL CONTAIN THE NAME OF THE PANEL AND STATE THE LOCATION OF THE PANEL FROM WHICH THE PANEL IS POWERED.

13. ALL 480V BREAKERS SHALL BE FURNISHED WITH AN INTEGRAL BRACKET SUCH THAT THEY ARE CAPABLE OF EASILY BEING PADLOCKED IN THE OFF POSITION. NO SEPARATE UNATTACHED DEVICE SHALL BE NEEDED FOR PADLOCKING.

14. ALL UNDERGROUND CONDUIT SHALL BE ENCASED IN CONCRETE (WITH STEEL REINFORCING WHERE CALLED FOR) REGARDLESS OF WHETHER INCLUDED IN A DUCT BANK OR INDIVIDUAL RUNS. INSTALL A MINIMUM OF 6" OF CONCRETE AROUND ALL SIDES FOR INDIVIDUAL RUNS.

15. ALL CONDUITS, FITTINGS, ETC. INSTALLED SHALL BE RUN NEAT, PLUMB, LEVEL. ETC. TO THE MAXIMUM EXTENT POSSIBLE.

16. ALL INSTRUMENTATION CIRCUITS, RADIO CIRCUITS, SIGNAL CIRCUITS, D.C. CONTROL CIRCUITS, SCADA OR TELEMETRY CIRCUITS, AND SHIELDED CABLE AND SIMILAR CIRCUITS, ETC., SHALL BE INSTALLED IN ALUMINUM CONDUIT WHERE EXPOSED AND IN PVC COATED RIGID STEEL CONDUIT OR GALVANIZED STEEL CONDUIT WHERE BURIED IN DUCT BANKS. ALL SUCH CONDUIT SHALL BE SEPARATED FROM POWER CONDUITS BY A MINIMUM OF 18 INCHES. WHERE THESE CONDUITS ARE LOCATED IN A DUCTBANK, FLOOR SLAB, POURED CONCRETE WALL, OR MASONRY WALL, THE PORTION WITHIN THE CONCRETE OR MASONRY MAY BE RIGID GALVANIZED STEEL. PROVIDED IT TRANSITIONS TO COATED ALUMINUM BEFORE EXITING THE CONCRETE OR MASONRY. THE TRANSITION TO COATED ALUMINUM SHALL BE MADE WELL WITHIN THE CONCRETE OR MASONRY. THESE REQUIREMENTS ALUMINUM OR GALVANIZED STEEL APPLY TO ALL CONDUITS LISTED IN THE ELECTRICAL SCHEDULES IDENTIFIED AS CONTROLS AND SCADA, OR SCADA AND CONTROLS, OR SIMILARLY, CONDUIT THREADS SHALL BE COMPLETELY SPRAY GALVANIZED AND ALL OVERSPRAY SHALL BE CLEANED FROM CONDUIT AND OTHER SURFACES, ETC.

17. ALL EXPOSED AND/OR VISIBLE CONDUIT, FITTINGS, WIREWAYS, GUTTERS, APPURTENANCES, ETC. SHALL BE ALUMINUM, EXCEPT LOW VOLTAGE CIRCUITS AS NOTED ABOVE OR UNLESS NOTED OTHERWISE. CONDUITS TO BE RUN NEAT, PLUMB, LEVEL. ETC. TO THE MAXIMUM EXTENT POSSIBLE.

18. RUN BARE 4/0 COPPER CABLE WITH ALL DUCT BANKS, CONNECT TO GROUNDING SYSTEM WITH CADWELD AT EVERY MCC. ETC.

19. ALL HANGERS, UNISTRUT, CABLE TRAYS (WHERE AND IF SHOWN ON DRAWINGS), BRACKETS, ATTACHMENTS, CLAMPS, SCREWS, BOLTS, ANCHOR BOLTS, NUTS, WASHERS, HARDWARE, AND APPURTENANCES, ETC., USED SHALL BE STAINLESS STEEL OR ALUMINUM. ALL ATTACHMENT HARDWARE (I.E. BOLTS, NUTS, WASHERS, ANCHOR BOLTS, ETC.) SHALL BE STAINLESS STEEL.

20. ALL CONDUIT. PANELS, ETC. SHALL BE INSTALLED USING ALUMINUM OR STAINLESS STEEL UNI-STRUT. STRUCTURAL MEMBERS, ETC. OR AS APPROVED BY THE ENGINEER. ALL ALUMINUM MOUNTED TO CONCRETE SHALL BE COATED WITH A BITUMASTIC COATING. THE CONTRACTOR SHALL PROVIDE ALL SUPPORTS REQUIRED.

21. FOR FACILITIES AND STRUCTURES BEING DEMOLISHED, DISCONNECT ELECTRICAL AND CONTROLS AT BOTH THE SUPPLY SOURCE AND THE POINT OF USE.

22. THE CIRCUITS LISTED IN THE CIRCUIT SCHEDULES REPRESENT ONE METHOD OF ACHIEVING THE REQUIRED PERFORMANCE FOR THE EQUIPMENT SPECIFIED. IF, DUE TO THE EQUIPMENT PROVIDED, MORE OR DIFFERENT CIRCUITS ARE REQUIRED THAN SHOWN, THE CONTRACTOR SHALL PROVIDE THOSE CIRCUITS AT NO ADDITIONAL COST OR TIME TO THE OWNER.

23. FURNISH AND INSTALL ALL CTS, PTS, TRANSFORMERS, RELAYS, AND APPURTENANCES, ETC. AS REQUIRED BY EQUIPMENT PROVIDED.

24. SPARE CIRCUITS AND WIRING MAY BE LISTED IN SOME OF THE CIRCUIT SCHEDULES. THESE ARE LISTED TO ESTABLISH A QUANTITY OF CONDUIT AND WRE. HOWEVER. THESE QUANTITIES MAY BE USED IN MULTIPLE DIFFERENT CIRCUITS AND LOCATIONS AS REQUIRED AND AS DETERMINED AT ANY TIME.

25. AT EXISTING FACILITIES, PERFORM ALL ELECTRICAL WORK IN A SEQUENCE AND MANNER THAT MINIMIZES DISTURBANCE TO PLANT OPERATIONS. SEE OTHER SEQUENCE NOTES IN OTHER PARTS OF THE PLANS AND CONTRACT DOCUMENTS. CAREFULLY PLAN AND SCHEDULE ALL WORK REQUIRED. ALL SHUTDOWNS OR INTERRUPTIONS SHALL HAVE PRIOR APPROVAL FROM THE OWNER.

26. ALL SWITCHGEAR, MCC'S, MOTORS, ELECTRICAL OR CONTROL OR INSTRUMENTATION PANELS & DEVICES, JUNCTION BOXES, EQUIPMENT, ETC. SHALL BE CAPABLE OF PROPERLY ATTACHING ALL REQUIRED WIRING AND OTHER APPURTENANCES, ETC. THE CONTRACTOR SHALL PROVIDE WHATEVER APPURTENANCES AND DEVICES, ETC. THAT MAY BE REQUIRED.

27. THE CONTRACTOR SHALL PROVIDE SS JUNCTION BOXES AND OTHER REQUIRED APPURTENANCES ADJACENT TO EQUIPMENT AND DEVICES, ETC. WHERE THE WIRE SIZE IS LARGER THAN THE SIZE THAT CAN BE CONNECTED TO THE BREAKER, SWITCH, RECEPTACLE, OR MOTOR, ETC. THE WIRE SHALL BE DOWNSIZED IN THE SS JUNCTION BOX, IF LARGER LUGS, ETC., CANNOT BE OBTAINED.

28. MOUNT ALL ELECTRICAL EQUIPMENT, BRACKETS, AND STANDS, ETC. SUCH THAT SHARP EDGES OR CORNERS DO NOT POSE A POTENTIAL HAZARD TO PERSONNEL. GRIND AND SMOOTH EDGES AND CORNERS WHERE DESIRABLE OR REQUIRED.

29. THESE PLANS DO NOT SHOW ALL THE APPURTENANCES, DETAILS, AND MATERIALS, ETC. REQUIRED TO PROPERLY PERFORM THE WORK. THE CONTRACTOR SHALL PROVIDE ALL APPURTENANCES, DETAILS, AND MATERIALS, ETC. REQUIRED AT NO EXTRA TIME OR COST.

30. THESE PLANS DO NOT, IN GENERAL, SHOW EXACT LOCATIONS OR CONFIGURATIONS OF CONDUIT ROUTING AND METHODS, INCLUDING THE METHOD OF ACCESSING STRUCTURES. THE CONTRACTOR SHALL PROPOSE TO THE ENGINEER AND OWNER HIS REQUESTED ROUTING (FOR BOTH NEW AND EXISTING STRUCTURES) FOR THEIR APPROVAL OR DENIAL OF APPROVAL. ROUTING WILL HAVE TO BE ADJUSTED IN THE FIELD TO AVOID NEW, PROPOSED, OR EXISTING PIPING, STRUCTURES, AND EQUIPMENT CONFLICTS, ETC.

31. PROVIDE GFCI RECEPTACLES ON ALL CIRCUITS POWERING RECEPTACLES THAT ARE OUTSIDE (INCLUDING THOSE UNDER SHEDS OR PARTIALLY ENCLOSED AREAS, ETC.), IN WET AREAS, OR IN POTENTIALLY WET AREAS, ETC. ALL SUCH RECEPTACLES SHALL BE WATERPROOF EQUAL TO RED DOT HEAVY USE IN SERVICE COVER ON 20 AMP DUPLEX OUTLET WITH GFI.

32. CAREFULLY EXAMINE GENERAL CONDITIONS, OTHER SPECIFICATION SECTIONS, AND OTHER DRAWINGS (IN ADDITION TO ELECTRICAL) IN ORDER TO BE FULLY ACQUAINTED WITH THEIR EFFECT ON ELECTRICAL WORK.

33. COOPERATE AND COORDINATE WITH OTHER TRADES AND CONTRACTORS AT JOB SITES. PERFORM WORK IN SUCH MANNER AND AT SUCH TIMES AS NOT TO DELAY OR CONFLICT WITH WORK OF OTHER TRADES. COMPLETE ALL WORK AS SOON AS STRUCTURE AND INSTALLATIONS OF EQUIPMENT AND THE OVERALL SEQUENCE WILL PERMIT.

34. THE CONTRACTOR SHALL INSPECT ALL SITES WHERE WORK IS NEEDED TO DETERMINE DIMENSIONS AND ALL CONDITIONS AFFECTING ELECTRICAL WORK. FAILURE TO DO SO SHALL IN NO WAY RELIEVE CONTRACTOR OF HIS RESPONSIBILITY UNDER CONTRACT.

35. THE ELECTRICAL SUBCONTRACTOR, HIS KEY MANAGEMENT, ONSITE SUPERINTENDENT, AND OPERATING PERSONNEL ONSITE, HIS KEY PERSONNEL IN THE OFFICE AND ONSITE, AND HIS STAFF SHALL BE WELL-EXPERIENCED IN PERFORMING QUALITY WORK OF SIMILAR OR GREATER COMPLEXITY ON PROJECTS OF SIMILAR OR GREATER MAGNITUDE AND DIFFICULTY AT WATER AND WASTEWATER PLANTS. WHERE WORK INVOLVES 4160 VOLT OR HIGHER CIRCUITS, THE CONTRACTOR AND SUPERINTENDENT SHALL BE WELL-EXPERIENCED INSTALLING 5 KV OR HIGHER SYSTEMS. THE CONTRACTOR'S EXPERIENCE SHALL BE SATISFACTORY TO THE OWNER.

36. GROUND COMPUTER SYSTEM, SCADA SYSTEM, INSTRUMENTATION, AND RTU'S, ETC., PER MANUFACTURER'S RECOMMENDATIONS. COMPLY WITH ALL MANUFACTURER GROUNDING RECOMMENDATIONS FOR ALL EQUIPMENT AND SYSTEMS. PROVIDE ISOLATED AND EXTRA GROUNDS PER EQUIPMENT MANUFACTURER RECOMMENDATIONS.

37. COORDINATE ALL WORK WITH INSTRUMENTATION, SCADA, AND SECURITY SYSTEMS.

38. NO CONDUIT OR ELECTRICAL FACILITY OR APPURTENANCE SHALL BE INSTALLED IN A MANNER THAT CREATES A POTENTIAL TRIPPING HAZARD OR AN OBSTRUCTION TO PASSAGE OR HEADROOM, ETC. CONDUITS FOR FUTURE EQUIPMENT SHALL STOP FLUSH AT GRADE (WITH RECESSED PLUG) TO AVOID CREATING A POTENTIAL TRIPPING HAZARD. FOR CONDUIT RUN OVERHEAD, 8' MINIMUM CLEARANCE REQUIRED.

39. GROUND EACH END OF ALL SWITCHGEAR, SWITCHBOARD, MCC, AND TRANSFER SWITCH, ETC., WITH SEPARATE BARE COPPER CONDUCTORS CADWELDED TO THE PUMP STATION GROUND GRID. PROVIDE A 4/0 BARE COPPER CONDUCTOR FROM EVERY EXTERIOR PANEL DIRECTLY TO THE PUMP STATION GROUND GRID. CADWELD CONNECT EVERY SUCH GROUND DETAIL BY A 4/0 BARE COPPER TO THE 4/0 COPPER RUNNING WITH DUCT BANKS. PROVIDE 500 MCM GROUND CONNECTION IF SHOWN ON DRAWINGS. ALL SMALL PANELS, INCLUDING BUT NOT LIMITED TO, INSTRUMENTATION AND SCADA, SHALL HAVE A #4 BARE COPPER EXTENDED DIRECTLY TO GROUNDING GRID, UNLESS THE PANEL/INSTRUMENT MANUFACTURER RECOMMENDS AN INDEPENDENT GROUND.

40. CADWELD ALL GROUND FIELDS AND THE 4/0 BARE RUN WITH DUCT BANKS TOGETHER WITH THE 4/0 BARE COPPER. EXTEND FULL LENGTH PIECE OF REBAR OUT OF BOTTOM OF CONCRETE SLABS AT EACH CORNER OF EVERY STRUCTURE AND CONNECT TO GROUNDING GRID SYSTEM WITH APPROVED BONDING CLAMP.

41. PROVIDE A 3/4"x10' COPPERWELD ROD CADWELDED TO THE GROUND FIELD AT EVERY 480V /208-120V TRANSFORMER.

42. UNUSED SPACE IN MCC'S SHALL BE PREPARED SPACE.

43. ALL LEVEL SENSORS, FLOWMETERS, AND OTHER ELECTRICAL OR INSTRUMENTATION COMPONENTS ETC., SHALL BE MOUNTED WITH STAINLESS STEEL AND ALUMINUM COMPONENTS.

44. PROVIDE O & M MANUALS ON ALL ELECTRICAL GEAR AND CONTROL PANELS, ETC. SEE THE GENERAL SPECIFICATIONS FOR THE (ENTIRE) PROJECT AND OTHER SPECIFICATIONS ETC., FOR O & M MANUAL REQUIREMENTS AND OTHER SUBMITTAL REQUIREMENTS.

45. PROPERLY PROTECT ALL CONDUIT AND WIRING FROM CONCRETE OR OTHER CORROSIVE MATERIALS.

46. PROVIDE WHATEVER FACILITIES MAY BE REQUIRED TO TERMINATE OVERSIZED WIRE OR PARALLEL CONDUCTORS, ETC. AT MOTORS, MCC'S, PANELS, RECEPTACLES, ETC.

47. THE CONTRACTOR SHALL COMPARE MOTORS AND OTHER EQUIPMENT ACTUALLY APPROVED BY THE SUBMITTALS TO THAT SHOWN HEREIN AND SIZE CIRCUIT BREAKERS, MOTOR OVERLOADS, HEATERS, AND SIMILAR EQUIPMENT ACCORDINGLY. INSTALL EQUIPMENT AND SIZES AS REQUIRED BY CODES. VERIFY OTHER EQUIPMENT REQUIREMENTS BASED ON THE SUBMITTALS AND PROVIDE ALL REQUIRED CONDUITS & CIRCUITS. ADJUST AS REQUIRED FOR ACTUAL HORSEPOWER, VOLTAGE, AMPERAGES, AND PHASES, ETC.

48. PROVIDE 4" HIGH CONCRETE PAD UNDER ALL MCC'S, SWITCHBOARDS, SWITCHGEAR, TRANSFORMERS, ETC. UNLESS INDICATED OTHERWISE. USE #4 @ 12" E.W. CHAMFER ALL EDGES.

49. THE CONTRACTOR SHALL COORDINATE EQUIPMENT ACTUALLY PROVIDED WITH OTHER REQUIREMENTS. COMPONENTS, AND SUBMITTALS, ETC., AND MAKE ADJUSTMENTS AS NECESSARY.

50. PROVIDE DANGER SIGNS, VOLTAGE LABELS, AND ARC FLASH LABELS FOR ALL PANELS, MCC'S, EQUIPMENT, DISCONNECT SWITCHES, ETC. PER NEC.

51. PROVIDE DANGER LABELS ON ALL PANELS OR BOXES OR MCC'S. ETC., WHERE POWER IS FED FROM MORE THAN ONE SOURCE OR WHERE TURNING OFF THE MAIN BREAKER OR SWITCH DOES NOT AUTOMATICALLY KILL ALL POWER INSIDE THE PANEL.

52. NOTE THAT ALL ELECTRICAL REQUIREMENTS ARE NOT SHOWN IN ANY ONE LOCATION OF THE PLANS OR SPECIFICATIONS. IT IS NECESSARY TO HAVE AN UNDERSTANDING OF THE ENTIRE ELECTRICAL PLANS AND SPECIFICATIONS IN ORDER TO KNOW ALL THE PROJECT REQUIREMENTS. CIRCUITS THAT EXTEND FROM ONE BUILDING TO ANOTHER BUILDING ARE TYPICALLY LISTED ONLY AT ONE BUILDING.

53. PROVIDE APPROPRIATE WARNING LABELS ON ALL TYPES OF ENCLOSURES THAT CONTAIN DEVICES (SUCH AS CAPACITORS) THAT MAY CONTAIN ENERGY OR PRESENT A SHOCK HAZARD EVEN AFTER THE MAIN POWER SUPPLY IS DISCONNECTED. THIS ALSO APPLIES TO SITUATIONS WHERE AN ENCLOSURE IS FED FROM A POWER SOURCE SEPARATE FROM THE MAIN POWER SUPPLY.

54. THE ELECTRICAL SYSTEM AND EQUIPMENT SHALL BE RATED FOR NOT LESS THAN THE AIC AS SHOWNIN THE DRAWINGS.

55. ALL SYSTEMS, ASSEMBLIES, AND COMPONENTS SHALL BE UL LISTED.

56. PROVIDE PERMANENTLY ENGRAVED SIGNS ON ALL ELECTRICAL PANELS (SWITCHGEAR, MCC, POWERPANEL, DISCONNECT SWITCHES, MANUFACTURER-PROVIDED PANELS, VFD PANELS, EQUIPMENT PANELS, CUSTOM PANELS, ETC.) STATING THE SOURCE FROM WHICH THE POWER TO THE PANEL ORIGINATES. FOR EXAMPLE: "POWER TO THIS PANEL ORIGINATES FROM MCC-XX IN THE YY BUILDING". THE SIGNS SHALL BE A MINIMUM OF 4" HIGH X 6" WIDE AND SHALL BE ATTACHED IN A WATERPROOF MANNER WITH STAINLESS STEEL SCREWS.

57. ALL DETAILS, APPURTENANCES, CONNECTIONS, COMPONENTS AND WIRING, ETC. ARE NOT SHOWN. PROVIDE ALL COMPONENTS AND DEVICES, ETC., AS REQUIRED FOR A COMPLETE AND PROPERLY OPERATIONAL SYSTEM. PROVIDE THOROUGH AND TIMELY COORDINATION.

58. PROVIDE PERMANENT WATERPROOF ADHESIVE BLACK NUMBERS IDENTIFYING ALL EQUIPMENT. THE NUMBERING SHALL CORRESPOND TO THE NUMBERING IN ALL PANELS POWERING THE EQUIPMENT. THE CONTRACTOR AND HIS ELECTRICAL SUBCONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT ALL EQUIPMENT, DISCONNECTS, PANELS, AND CIRCUIT BREAKERS, ETC., ARE CORRECTLY AND ACCURATELY LABELED.

59. RESERVED

60. IF ALLOWED, CABLE TRAYS SHALL BE VENTILATED SS OR ALUMINUM TRAYS WITH COVERS. (LADDER TRAY SHALL NOT BE ACCEPTABLE.) APPURTENANCES SHALL BE STAINLESS STEEL OR ALUMINUM. TRAY SHALL BE SUPPORTED WITH STAINLESS STEEL OR ALUMINUM COMPONENTS. ALL CABLE INSTALLED IN TRAY SHALL BE RATED AND LABELED FOR CABLE TRAY USE.

	GENERAL ELECTRICAL LEGEND
₽ <sup>wp</sup>	WALL OUTLET - DUPLEX - 15A - 125V - 2P - 3W - GROUNDING - "GFI" TYPE WEATHERPROOF - HUBBELL GF-5362 WITH WEATHERPROOF PLATE.
⇔	WALL OUTLET - DUPLEX - 20A - 125V - 2P - 3W - GROUNDING - "GFI" TYPE - HUBBELL GF-5362.
$\frown$	BRANCH CIRCUIT - EXPOSED ON WALLS OR CEILING.
	BRANCH CIRCUIT - EXPOSED ON WALLS OR CEILING.
/->	BRANCH CIRCUIT - CONCEALED IN FLOOR SLAB OR DIRT FILL
$\frown$	BRANCH CIRCUIT - HOMERUN
\$	SWITCH OUTLET - S.P.S.T 15A - 120-277VAC - HUBBELL 1201.
T	TRANSFORMER - POWER.
ď	DISCONNECT SWITCH - FUSED.
	DISCONNECT SWITCH - NONFUSED.
M	MOTOR OUTLET - SIZE AS SHOWN.
SPD	SURGE PROTECTION DEVICE

61. INSTALL ALL INSTRUMENTS PER MANUFACTURER'S RECOMMENDATIONS. INSTALL WIRING AS REQUIRED FOR PROPER PERFORMANCE. MOUNT SENSOR PIPING SO THAT AIR IS NOT TRAPPED OR ENTRAINED, ETC., ON WATER SENSORS AND SUCH THAT WATER IS NOT TRAPPED ON AIR SENSORS. INSTALL TRANSMITTERS ASSOCIATED WITH AIR PIPING ABOVE THE AIR PIPING TO PREVENT INTERFERENCE FROM WATER IN THE AIR SYSTEM. INSTALL TRANSMITTERS ASSOCIATED WITH WATER PIPING BELOW THE WATER PIPING TO PREVENT INTERFERENCE FROM AIR IN THE SYSTEM. GROUND ALL CAPACITANCE LEVEL SENSORS, ETC., AND OTHER INSTRUMENTATION AS REQUIRED BY MANUFACTURER.

62. SHIELDED INSTRUMENTATION CABLE SHALL BE GROUNDED AT ONE END ONLY EXCEPT WHERE THE MANUFACTURER SPECIFICALLY RECOMMENDS IN WRITING TO DO OTHERWISE. THE GROUNDING PLAN SHALL BE DEVELOPED BY THE ELECTRICAL CONTRACTOR IN COORDINATION WITH THE MANUFACTURERS OF THE EQUIPMENT AND CONTROLS, ETC., BEING INSTALLED. WHERE SEPARATE GROUNDS (INDEPENDENT OF PUMP STATION GROUNDING GRID) ARE RECOMMENDED BY AN EQUIPMENT MANUFACTURER, PROVIDE THE SEPARATE GROUND SYSTEM CONNECTED TO A TRIAD WITH A MINIMUM OF 3 - 10' GROUND RODS, ON 20' CENTERS CONNECTED WITH #4/0 BARE COPPER BURIED A MINIMUM OF 3'. BOND SUCH SEPARATE GROUNDS TO MAIN PUMP STATION GROUNDING SYSTEM WITH #4/0 COPPER IF RECOMMENDED BY MANUFACTURER.

63. INSTALL ALL EQUIPMENT, PANELS, AND ELECTRICAL INSTRUMENTATION CONNECTIONS, ETC., SUCH THAT IF CONNECTING CONDUIT FILLS WITH WATER, IT WILL NOT ENTER OR AFFECT THE EQUIPMENT TO WHICH IT CONNECTS. FOR ALL CONDUIT ENTERING BELOW GROUND, OR CONDUIT ENTERING FROM EXTERIOR LOCATIONS, PROVIDE A TEE WITH A DRAIN FITTING TO ALLOW LEAKAGE INTO THE CONDUIT TO DRAIN OUT OF THE CONDUIT. INSTALL ALL EQUIPMENT, PANELS, JUNCTION BOXES, AND CONNECTED EQUIPMENT, ETC., ABOVE THE ELEVATION OF THE ENTERING CONDUIT (AND DRAIN FITTING) TO PROHIBIT WATER FROM ENTERING THE STRUCTURE OR CONDUIT.

64. INSTALL CABLE (INCLUDING FIBER OPTIC CABLE) IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. DO NOT EXCEED MINIMUM RECOMMENDED BEND RADIUS, INCLUDING DURING INSTALLATION AND PULLING.

65. KEEP FREE ENDS OF CABLE TIGHTLY CLOSED TO PREVENT THE ENTRANCE OF ANY MOISTURE DURING STORAGE AND AT ALL TIMES WHEN CABLE IS NOT BEING PULLED OFF A REEL, ETC.

66. RESERVED

67. INSTALL ALL GEAR AND ALL OTHER PANELS PER MANUFACTURER RECOMMENDATIONS AND DETAILS. PROVIDE EMBEDDED CHANNELS AS RECOMMENDED BY MANUFACTURER. COORDINATE MOUNTING PAD WITH MANUFACTURER RECOMMENDATIONS. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH ELECTRICAL MANUFACTURER RECOMMENDATIONS AND TOLERANCES, ETC.

TRANSFORMERS ACCORDINGLY.

69. MANUFACTURERS OF ELECTRICAL EQUIPMENT, GEAR, CONTROL PANELS, MCC'S, CONTROLS, STARTERS, ETC., SHALL DESIGN AND SELECT THE PROPER TIMERS AND TIMING RELAYS ETC REQUIRED TO PROVIDE FOR PROPER OPERATION OF ALL CONTROLLED EQUIPMENT AND MOTORS, ETC. TIME DELAYS ON MOTOR RESTARTS SHALL BE ADJUSTABLE UP TO ONE HOUR. LONGER DELAYS SHALL BE PROVIDED ON LARGER MOTORS OR WHERE THE MOTOR MANUFACTURER RECOMMENDS A LONGER PERIOD. THE CONTRACTOR SHALL PROPERLY ADJUST ALL THE TIMERS AT PROJECT STARTUP TO STAGGER EQUIPMENT STARTS AND TO PREVENT PROBLEMS DURING POWER TRANSFERS.

70. THE CONTRACTOR SHALL ADJUST ALL EQUIPMENT, CONTROLS, RELAYS, APPURTENANCES, TIMERS, FLOATS, SETPOINTS, AND ALARMS, ETC., PRIOR TO STARTUP SUCH THAT THEY PROPERLY SERVE THEIR INTENDED PURPOSE AND DO NOT RESULT IN NUISANCE TRIPS OR ALARMS. COORDINATE WITH EQUIPMENT MANUFACTURERS AND PROVIDERS, ENGINEER, AND OWNER. ADJUST AS NECESSARY AFTER STARTUP. PROPERLY ADJUST ALL TIMER RELAYS, ETC., TO PREVENT SIMULTANEOUS RESTART AFTER POWER OUTAGES OR TRANSFERS, ETC., AND TO PROTECT EQUIPMENT.

71. WHERE FUSES ARE REQUIRED, PROVIDE AND INSTALL PROPERLY SIZED FUSES. COORDINATE WITH THE EQUIPMENT MANUFACTURER FOR CORRECT SIZE AND TYPE OF FUSES. PROVIDE AND CLEARLY LABEL 3 SPARE FUSES FOR EVERY SIZE AND TYPE UTILIZED ON THE PROJECT.

72. THE LOCATIONS SHOWN ON THE DRAWINGS FOR PANELS, STARTER, DISCONNECTS, AND ALL OTHER ELECTRICAL EQUIPMENT ARE CONCEPTUAL. TYPICAL FOR ALL EQUIPMENT: ACTUAL EQUIPMENT LAYOUT, SIZE, AND EQUIPMENT CONTROL PANEL LOCATION WILL VARY FROM THAT INDICATED. STUB UP ALL CONDUITS PER FINAL APPROVED SUBMITTAL DRAWINGS. THE CONTRACTOR SHALL VERIFY EXACT REQUIREMENTS FOR ALL EQUIPMENT. THE FINAL LOCATION SHALL BE BASED ON THE DIMENSIONS AND LOCATION OF THE ACTUAL EQUIPMENT FURNISHED AND SHALL PROVIDE THE CLEARANCES REQUIRED BY THE CODE, ETC. ALL GEAR AND PANELS, ETC., MUST FIT IN THE SPACE INDICATED ON THE DRAWINGS AND IN THE SPACE AVAILABLE.

73. THE CONTRACTOR SHALL USE HIS OWN PADLOCKS TO LOCK OUT ALL BREAKERS AND EQUIPMENT, ETC., WHICH IS NOT SUPPOSED TO BE POWERED OR OPERATED. THE CONTRACTOR SHALL TAKE THE MEASURES NECESSARY TO PREVENT THE OPERATION OF ANY EQUIPMENT (BY THE OWNER OR OTHERS) WHEN IT IS NOT INTENDED TO BE OPERATED. THIS REQUIREMENT APPLIES DURING ALL PHASES OF THE WORK, INCLUDING BUT NOT LIMITED TO, STORAGE, INSTALLATION. TESTING. STARTUP, EARLY PHASES OF OPERATION. TROUBLESHOOTING. REPAIRS, AND MODIFICATIONS, ETC. APPROVAL OF THE MANUFACTURER SHALL BE OBTAINED PRIOR TO MAKING GEAR HOT.

74. ALL ELECTRICAL PANELS SHALL BE STORED INDOORS IN A BUILDING OR WAREHOUSE. PANELS INCLUDE METAL CLAD GEAR, SWITCHGEAR, SWITCHBOARDS, MCC'S, STARTERS, CONTROL PANELS, INSTRUMENT PANELS, AND ALL OTHER SIMILAR ELECTRICAL PANELS. THE INDOOR AREA SHALL BE HEATED (60° MINIMUM) DURING COOLER PERIODS OF THE YEAR. ALL STORED AND INSTALLED PANELS SHALL BE HEATED AT ALL TIMES BY AN INTERNAL CONDENSATION HEATER OR BY TEMPORARY LIGHT BULBS (MINIMUM 1 - 60 WATT PER SECTION) TO PREVENT CONDENSATION. EQUIPMENT SHALL NOT BE PAID FOR IF NOT PROPERLY STORED IN ACCORDANCE WITH THESE AND ANY ADDITIONAL REQUIREMENTS IMPOSED BY THE MANUFACTURER. IF EQUIPMENT HAS ALREADY BEEN PAID FOR AS STORED OR INSTALLED MATERIALS BUT IS NOT PROPERLY HEATED OR OTHERWISE PROTECTED FROM DUST, WATER, HUMIDITY, AND WEATHER, ETC., THE COST OR PARTIAL COST OF IT MAY BE DEDUCTED FROM SUBSEQUENT PAYMENT REQUESTS. ARRANGE STORED PANELS TO ALLOW FOR EASE OF ENGINEER VERIFICATION (ON REGULAR BASIS) THAT PANEL HEATERS OR LIGHT BULBS ARE IN OPERATION.

75. CONNECT SINGLE PHASE AND OTHER LOADS IN A MANNER TO BALANCE PHASE LOADING ON THE PANELS AND TRANSFORMERS.

76. CONTROL DIAGRAMS AND SCHEMATICS CONTAINED IN THESE DRAWINGS ARE PROVIDED FOR CONCEPT ONLY. THESE DRAWINGS SHOW ONLY SOME OF THE REQUIREMENTS OF THE PROJECT. ALL DETAILS AND REQUIRED CONTROLS ARE NOT SHOWN. THE PANEL MANUFACTURER SHALL DESIGN THE PANELS AND PROVIDE ADDITIONAL RELAYS. SWITCHES, TIME DELAY RELAYS, AND OTHER COMPONENTS AND CIRCUITRY AS REQUIRED. COORDINATE WITH THE MANUFACTURERS OF ALL CONNECTING OR CONTROLLED EQUIPMENT FOR REQUIRED COMPONENTS. AS A MINIMUM, COORDINATE WITH MOTOR AND EQUIPMENT MANUFACTURERS, SCADA MANUFACTURER, VALVE MANUFACTURER, AND MANUFACTURERS OF INSTRUMENTATION ASSOCIATED WITH EQUIPMENT. THESE DRAWINGS AND THE SPECIFICATIONS SHALL BE USED BY THE STARTER MANUFACTURER TO DESIGN THE CONTROL DIAGRAMS AND WIRING. ETC. THE PANEL MANUFACTURER IS RESPONSIBLE FOR THE DETAILED DESIGN OF THE CONTROL SYSTEMS.

77. DURING BIDDING AND AGAIN PRIOR TO MAKING ANY SUBMITTALS, CLARIFY WITH ALL ELECTRICAL GEAR AND ALL PANEL MANUFACTURERS WHAT COMPONENTS SHOWN OR REQUIRED INSIDE THEIR GEAR MUST BE FIELD INSTALLED BY CONTRACTOR. ALSO CLARIFY ANY COMPONENTS AND INSTRUMENTATION, ETC. THAT MUST BE SEPARATELY PROVIDED BY THE CONTRACTOR.

78. THE "ALL EQUIPMENT SPECIFICATION" APPLIES TO ALL ELECTRICAL, CONTROL, INSTRUMENTATION, AND SCADA WORK ON THIS PROJECT.

79. WHEN WORKING ON EXISTING OR NEW FACILITIES, BE AWARE THAT PANELS, ETC., ARE OFTEN SUPPLIED FROM MORE THAN ONE POWER SUPPLY. THEREFORE, TURNING OFF THE MAIN DISCONNECT MAY NOT KILL ALL POWER. TAKE APPROPRIATE PRECAUTION.

80. CHECK ALL CIRCUIT BREAKER LABELS BY TURNING OFF BREAKER AND FIELD VERIFYING THAT POWER IS INTERRUPTED AT THE CONTROLLED EQUIPMENT AND DEVICES. ETC. PROVIDE WRITTEN CERTIFICATION ON A FORM PROVIDED BY THE ENGINEER CERTIFYING THAT BREAKERS HAVE BEEN CHECKED TO VERIFY THE ALL LABELS ARE CORRECT.

81. CONDUITS FOR ALL EQUIPMENT AND ALL ITEMS HAVING AN ELECTRICAL OR SIMILAR CONNECTION SHALL BE STUBBED UP IN A LOGICAL LOCATION FOR CONNECTION. LOCATIONS SHOWN ON DRAWINGS MAY BE CONCEPTUAL ONLY. CONSIDERATIONS IN ESTABLISHING STUB UP LOCATIONS SHALL INCLUDE BUT NOT BE LIMITED TO SAFETY. ACCESS. AND MAINTENANCE. CAREFULLY COORDINATE ALL STUB UP LOCATIONS WITH FINAL SUBMITTALS AND WITH THE ENGINEER. STUB UP LOCATIONS INSIDE OR AT PACKAGE ENCLOSURES WILL BE ESPECIALLY IMPORTANT.

82. ALL CONTROL PANELS SHALL HAVE THE ABILITY TO BE PADLOCKED.

83. PROVIDE CONDUITS, PADS, POLES, AND OTHER APPURTENANCES, ETC., AS REQUIRED TO SET UTILITY METERING. COORDINATE WITH THE UTILITY TO ARRANGE FOR SERVICE. PROVIDE ALL SERVICES AND MATERIALS, ETC., AS REQUESTED BY THE UTILITY. COORDINATE ALL WORK WITH THE ELECTRICAL UTILITY COMPANY AND PROVIDE ALL ITEMS AND WORK REQUIRED BY THE UTILITY COMPANY FOR A COMPLETE SERVICE. (SEE BID ITEMS)

84. PROVIDE AND INSTALL ONE 6"X8" SIGN ON EACH PUMP. THE SIGN SHALL BE RED WITH ENGRAVED WHITE LETTERING. THE SIGNS SHOULD READ "THE PUMP AND WINDING HEATER ARE POWERED FROM THE MCC-2. THE MAIN BREAKER TO EACH PUMP DISCONNECTS ALL POWER TO THE PUMP AND WINDING HEATER. VERIFY ALL POWER IS DISCONNECTED PRIOR TO SERVICING PUMP". COORDINATE LOCATION WITH ENGINEER BEFORE PLACING SIGNS. INSTALL WITH STAINLESS STEEL HARDWARE WHERE POSSIBLE.

85. THE CONTRACTOR SHALL COORDINATE ALL CIRCUIT BREAKERS, MCCB, TRIP UNITS, ETC. TRIP AND OVERLOAD SETTINGS PRIOR TO STARTUP SUCH THAT THEY PROPERLY SERVE THEIR INTENDED PURPOSE AND DO NOT RESULT IN NUISANCE TRIPS AND MAKE ADJUSTMENTS AS NECESSARY. COORDINATE WITH EQUIPMENT MANUFACTURERS AND PROVIDERS, ENGINEER, AND OWNER. ADJUST AS NECESSARY AFTER STARTUP. PROPERLY ADJUST ALL TRIP AND OVERLOAD SETTINGS TO PROTECT EQUIPMENT. COMPONENTS, WIRING, ETC, IN ACCORDANCE WITH THE COORDINATION STUDY.

ELECTRICAL CONTRACTOR SHALL SEE ALL PROJECT NOTES AND ALL OTHER SHEETS AND SPECIFICATIONS FOR ALL PROJECT REQUIREMENTS AND RELATED INFORMATION.

68. ALL TRANSFORMERS SHALL BE FURNISHED WITH ADJUSTABLE RATIOS TO ALLOW COMPENSATION FOR VOLTAGE DROPS. CONNECT WIRING TO

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MCC SECTION

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MCC - PUMP CONTROL LAYOUT

SCALE: N.T.S.

	ENGRAVING SCHEDULE
I.D.	WORDING
A B C D E F G H I J AA	PUMP NO. 1 OR PUMP NO. 2 HAND – OFF – REMOTE PUMP CALLED TO RUN RUNNING OFF START STOP VFD FAULT MOTOR HEATER ON TEST WARNING: EQUIPMENT STARTS
	AUTOMATICALLY. DISABLE REMOTE CAPABILITY PRIOR TO SERVICING EQUIPMENT

#### SCADA AND CONTROL NOTES AND REQUIREMENTS:

1. THE CURRENT SCADA SUPPLIER IS DEXTER FORTSON ASSOCIATES (DFA). THE CONTRACTOR SHALL CONTRACT WITH DFA TO PROVIDE ALL NECESSARY COMPONENTS, PROGRAMMING, ANTENNAS, ETC. TO FULLY INCORPORATE ALL REQUIRED SIGNALS/ALARMS INTO EXISTING SCADA SYSTEM. THE SCADA SUPPLIER SHALL PROVIDE NEW DISPLAY SCREENS, ALARM TAGS, PROGRAM BUTTONS, ETC. AS REQUIRED BY THE OWNER DURING CONSTRUCTION.

2. SEE SCADA AND CONTROLS I/O TABLE FOR REQUIRED CONTACT INPUTS/OUTPUTS TO BE TERMINATED INSIDE GENERATOR AND/OR TRANSFER SWITCH.

3. THE CONTRACTOR/SCADA SUPPLIER SHALL INCORPORATE ALL OF THE SIGNALS SHOWN IN THE SCADA AND CONTROL I/O TABLE INTO THE EXISTING SCADA PANEL AND SYSTEM UNDER THIS CONTRACT. THE CONTRACTOR/SCADA SUPPLIER SHALL MODIFY THE EXISTING SCADA PANEL AND PROGRAMMING AS REQUIRED TO INCORPORATE NEW SCADA I/O INDICATED. CONTRACTOR SHALL PROVIDE ALL SCADA COMPONENTS, EQUIPMENT, ETC. REQUIRED TO COMPLETE THE WORK REQUIRED.

4. THE CONTRACTOR/SCADA SUPPLIER SHALL INCORPORATE AND TERMINATE THE COMMUNICATION CABLES EXTENDING FROM THE ATS AND THE GENERATOR IN THE SCADA PANEL. THE SCADA SUPPLIER SHALL TRANSMIT ALL INFORMATION FROM COMMUNICATIONS TO THE WTP. CONTRACTOR SHALL COORDINATE WITH THE OWNER/ENGINEER TO DETERMINE WHAT INFORMATION WILL BE DISPLAYED FROM ATS AND GENERATOR DURING CONSTRUCTION.

5. THE SCADA PANEL AND/OR GENERATOR AND/OR ATS SHALL SUPPLY POWER TO REMOTE DRY CONTACTS AS REQUIRED. CONTRACTOR SHALL VERIFY. POWER SOURCES FOR ALL DRY CONTACTS AND OTHER SIGNALS SHALL BE PROPERLY COORDINATED DURING SUBMITTALS.

6. CONTRACTOR SHALL VERIFY ALL NEEDED INFORMATION REGARDING EXISTING SCADA PANEL REQUIRED TO COMPLETE IMPROVEMENTS AND REQUIRED WORK. THIS SHALL BE DONE PRIOR TO BIDDING. THE CONTRACTOR SHALL INCLUDE ANY AND ALL COSTS FOR ADDITIONAL EQUIPMENT, WIRES, BOXES, PROGRAMMING, ETC. INTO BID PRICE FOR A COMPLETE PROJECT. NO ADDITIONAL MONEY WILL BE GRANTED DURING CONSTRUCTION FOR FAILING TO DO THIS.

7. CONTRACTOR/SCADA SUPPLIER SHALL PROVIDE ALL NECESSARY SCADA COMPONENTS, EQUIPMENT, BOXES, WIRES, ANTENNAS, I/O TERMINAL CARDS, PLC'S, ETC. REQUIRED TO FULLY INCORPORATE ALL SIGNALS/ALARMS INTO EXISTING SCADA SYSTEM AND COMPLETE THE WORK REQUIRED.

8. THE SCADA SUPPLIER SHALL PERFORM ALL PROGRAMMING FOR SCADA OPERATIONS AT THE WTP EXISTING CONTROL COMPUTER AS REQUIRED. ALL ALARMS SHALL BE INCORPORATED/DISPLAYED INTO THE EXISTING ALARM SYSTEM TO DISPLAY ON SCREENS AND ANNUNCIATE AS REQUIRED. COORDINATE WITH THE OWNER/ENGINEER DURING CONSTRUCTION FOR PREFERENCES/REQUIREMENTS.

9. CHANGES TO SCADA SYSTEM SHOULD BE COORDINATED WITH THE OWNER/ENGINEER FOR SEQUENCING.

10. THE NEW AUTOMATIC TRANSFER SWITCH SHALL BE CONNECTED TO THE GENERATOR SUCH THAT THE ATS WILL START THE GENERATOR DURING A POWER OUTAGE AND ITS WEEKLY EXERCISING. THE CONTRACTOR SHALL MAKE ALL WIRE CONNECTIONS AND PROVIDE ALL REQUIRED COMPONENTS AS REQUIRED.

11. THERE ARE SPARE WIRES REQUIRED THAT EXTEND FROM THE GENERATOR AND/OR THE ATS TO THE EXISTING SCADA PANEL. DURING CONSTRUCTION, THE OWNER MAY ADD ADDITIONAL SIGNALS/ALARMS (UP TO 8) USING THE SPARE WIRES. THE CONTRACTOR AND/OR SCADA SUPPLIER SHALL PROVIDE TERMINATIONS, CONNECTIONS, PROGRAMMING, ETC. TO INCORPORATE THESE ADDITIONAL SIGNALS/ALARMS (IF ANY) IDENTIFIED BY THE OWNER INTO THE SCADA SYSTEM AT NO ADDITIONAL COST OR TIME TO THE OWNER. COORDINATE DURING CONSTRUCTION.

![](_page_17_Figure_29.jpeg)

SCADA AND CONTROL I/O											
#	DESCRIPTION	DI	DO	AI	AO	DC	FUTURE	COMMENTS			
1	ATS NORMAL POSITION	1						FROM ATS			
2	ATS GENERATOR POSITION	1						FROM ATS			
3	UTILITY POWER AVAILABLE	1						FROM ATS			
4	LOAD SIDE SPD FAULT	1						FROM ATS			
5	GENERATOR START COMMAND		1					FROM ATS			
6	COMMUNICATIONS					1		FROM ATS			
7	GENERATOR BREAKER TRIPPED	1						FROM GENERATOR			
8	GENERATOR RUNNING	1						FROM GENERATOR			
9	GENERATOR FAIL	1						FROM GENERATOR			
10	BATTERY CHARGER ALARM	1						FROM GENERATOR			
11	MAJOR COMMON ALARM	1						FROM GENERATOR			
12	MINOR COMMON ALARM	1						FROM GENERATOR			
13	COMMUNICATIONS					1		FROM GENERATOR			
14	PUMP #1 START/STOP		1					FROM SCADA			
15	PUMP #2 START/STOP		1					FROM SCADA			
16	PUMP #1 RUN INDICATION	1						FROM PUMP CONTROL PANEL/VFD			
17	PUMP #2 RUN INDICATION	1						FROM PUMP CONTROL PANEL/VFD			
18	PUMP #1 FAULT	1						COMMON FAILURE FROM PUMP CONTROL PANEL			
19	PUMP #2 FAULT	1						COMMON FAILURE FROM PUMP CONTROL PANEL			
20	PUMP #1 IN REMOTE	1						FROM PUMP CONTROL PANEL			
21	PUMP #2 IN REMOTE	1						FROM PUMP CONTROL PANEL			
22	PUMP #1 SPEED SETTING				1			FROM SCADA			
23	PUMP #2 SPEED SETTING				1			FROM SCADA			
							-				

CONTROL PATH

LEGEND							
D1 = DISCRETE INPUT							
DO = DISCRETE OUTPUT							
A1 = ANALOG INPUT							
AO = ANALOG OUTPUT							
DC = DIGITAL CONTROL/							
COMMUNICATIONS							

SCADA REQUIREMENTS

	Municipal Consultants, Inc. 200 Century Park South, Suite 212 Jnc. 822-0387										
		RUDOLPH JONES WTP	2023								
	RAR = 1"										
Title		BID SET									
wing	ect No.	11-2023	NONE	t 17 [							

![](_page_18_Figure_0.jpeg)

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![](_page_19_Figure_0.jpeg)