

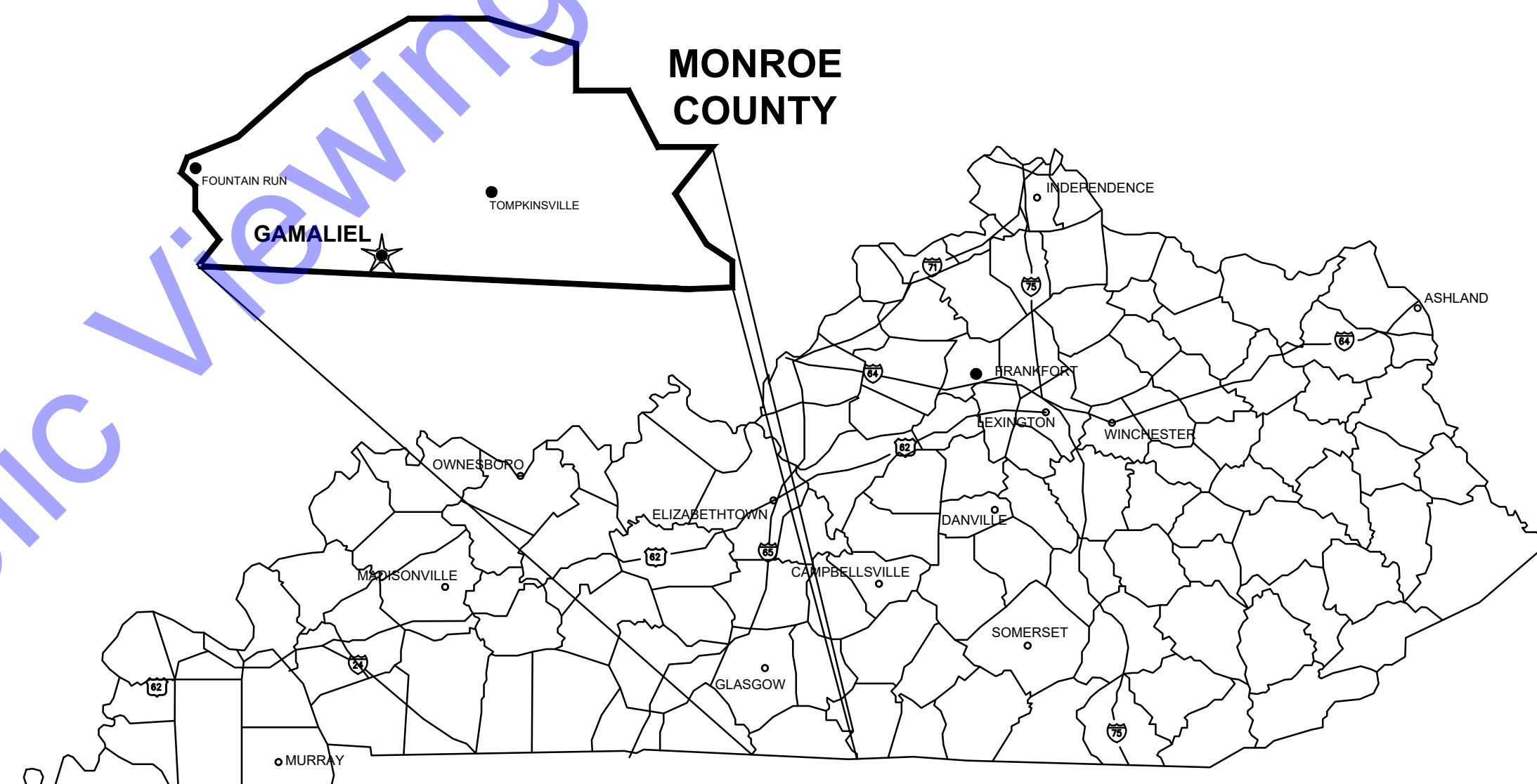
CITY of GAMALIEL MONROE COUNTY, KENTUCKY

WASTEWATER TREATMENT PLANT - DO CONTROL PROJECT

MARCH 2025

GAMALIEL, MONROE COUNTY GAMALIEL CITY COMMISSION

BOB GREER	MAYOR
TOMMY BARTLEY	MEMBER
HILLARY BURGESS	MEMBER
SHERREE EUBANK	MEMBER
JEFF GERALDS	MEMBER
RHONDA ANDREWS	CLERK-TREASURER
BILL CARDER	WASTEWATER SUPERINTENDENT
RICHARD JACKSON	CITY ATTORNEY



GENERAL LOCATION MAP



**COMMONWEALTH™
ENGINEERS, INC.**
A wealth of resources to master a common goal.

QA/QC BY: [Signature] 03/12/2025
TOBY CHURCH DATE :

CERTIFIED BY: [Signature] 03/12/2025
MARK K. NORDMYER DATE :

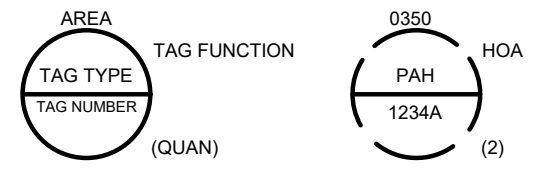
For Public Viewing Only - Not For Downloading

PROCESS AND INSTRUMENTATION DIAGRAM LEGEND

TAG FUNCTION ABBREVIATIONS

Table listing tag function abbreviations such as ALT (ALTERNATE), CM (COMPUTER-MANUAL), and others with their corresponding symbols.

INSTRUMENT TAG IDENTIFICATION

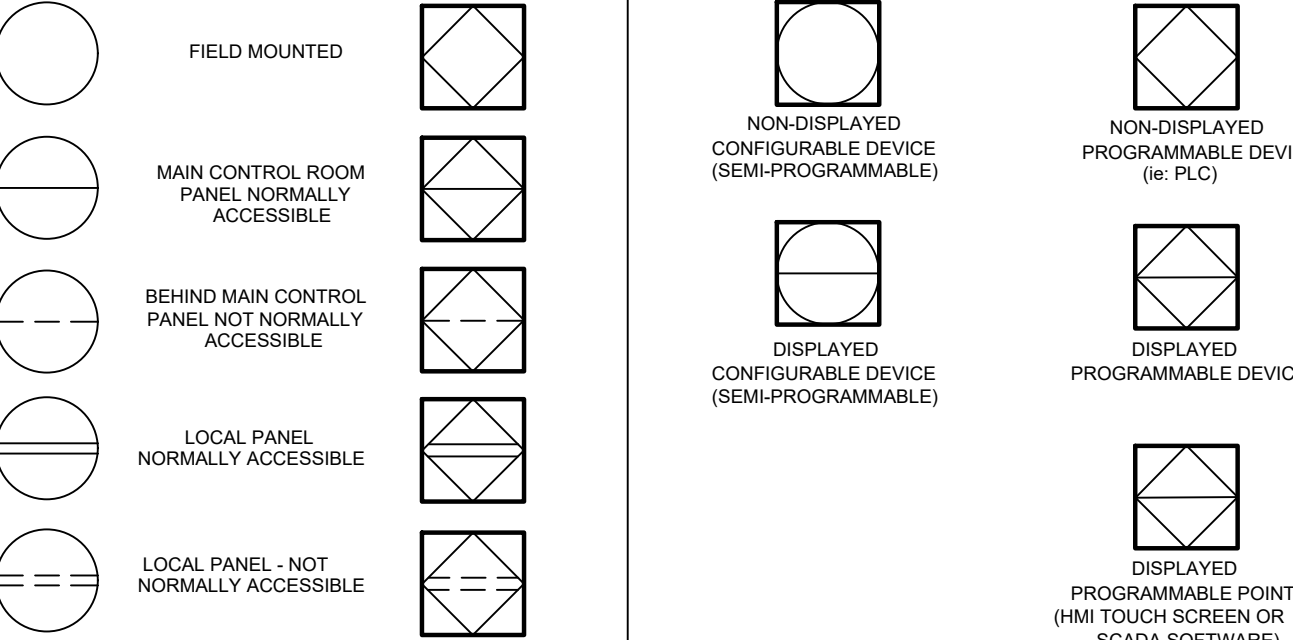


COMPONENT DESIGNATOR

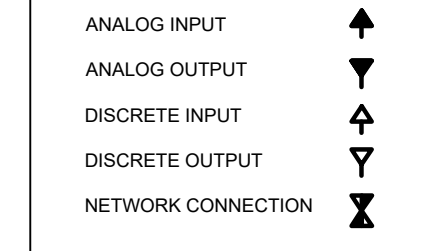
AREA: 0350: BUILDING OR PROCESS AREA NUMBER
TAG TYPE: P: FIRST LETTER, SEE ISA TABLE BELOW
TAG NUMBER: 12: PAID NUMBER
LOOP NUMBER: 3: LOOP NUMBER
DEVICE LETTER IF MULTIPLE DEVICES: A

TAG SYMBOLS

HORIZONTAL BAR SYMBOLS FOR PHYSICAL MOUNTING OF DEVICE
CONTROL AND I/O DEVICES DISPLAY
[ADD APPROPRIATE HORIZ. BAR(S)]



PLC POINT TYPE



INSTRUMENT SOCIETY OF AMERICA TABLE

Table with columns for LETTER, FIRST LETTER(S), MODIFIER, PROCESS OR INITIATING VARIABLE, READOUT OR PASSIVE FUNCTION, OUTPUT FUNCTION, and MODIFIER.

(*) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL

SPECIAL CASES:
ETM - ELARGED TIME METER
JXB - JUNCTION BOX
NOX - INDEX #
MS - MOTOR STARTER
MOR - MOTOR OVERLOAD RELAY
MPR - MOTOR PROTECTION RELAY

CONDUIT NOTES

PVC SCHEDULE 40 BELOW GRADE.
RIGID ALUMINUM OR PVC COATED RGS CONDUIT ABOVE GRADE OUTDOORS.
RIGID ALUMINUM OR PVC COATED RGS CONDUIT IN CLASSIFIED AND CORROSIVE SPACES.
NO CONDUIT SHALL BE RUN ON TOP OF A DECK, ON A WALKWAY, OR IN AN AREA THAT MAY POSE A TRIP HAZARD.

CONTROL WIRING REQUIREMENTS

EACH ANALOG INPUT REQUIRES AN 182 TWISTED SHIELDED PAIR IN 3/4" CONDUIT UNLESS NOTED OTHERWISE.
EACH ANALOG OUTPUT REQUIRES AN 182 TWISTED SHIELDED PAIR IN 3/4" CONDUIT UNLESS NOTED OTHERWISE.

INSTRUMENT POWER

INSTRUMENTS REQUIRING 120 VAC:
1. MAGNETIC FLOW METERS
2. TURBIDITY TRANSMITTERS
3. pH TRANSMITTERS
4. ORP TRANSMITTERS
5. DO TRANSMITTERS
6. ULTRASONIC LEVEL TRANSMITTERS
7. ULTRASONIC FLOW TRANSMITTERS
8. INFLUENT AND EFFLUENT SAMPLERS

ELECTRICAL GENERAL NOTES

- (GENERAL NOTES APPLICABLE TO ALL ELECTRICAL SHEETS)
1. CONTRACTOR SHALL EXAMINE NOT ONLY PLANS AND SPECIFICATIONS FOR ELECTRICAL AND INSTRUMENTATION, BUT PLANS AND SPECIFICATIONS FOR OTHER RELATED SECTIONS.

LEGEND

Table with columns for SYMBOL, DESCRIPTION, and MFG HGT AFF TO CL, UON. Lists symbols for lighting fixtures, emergency units, switches, and other electrical components.

LEGEND

Table with columns for ABBREVIATIONS, ABBREVIATIONS, and ABBREVIATIONS. Lists abbreviations for various electrical components like ABV, AFF, ACLG, etc.

Table with columns for SYMBOL, DESCRIPTION, and MFG HGT AFF TO CL, UON. Lists symbols for raceways, conduits, and other wiring components.

MOTOR CONTROLLER LEGEND

Table with columns for SYMBOL, DESCRIPTION. Lists symbols for motor starters, frequency drives, and other motor control equipment.

LIGHTING LEGEND

Table with columns for SYMBOL, DESCRIPTION. Lists symbols for different types of lighting fixtures.

PUMP AND METER LEGEND

Table with columns for SYMBOL, DESCRIPTION. Lists symbols for various types of pumps and flow meters.

COMMONWEALTH ENGINEERS, INC. logo and contact information including address and phone number.

Professional Engineer seal for Mark Kenneth Nordmeier, State of Kentucky, License No. 30193.

Signature: [Handwritten Signature] Date: 03/12/2025

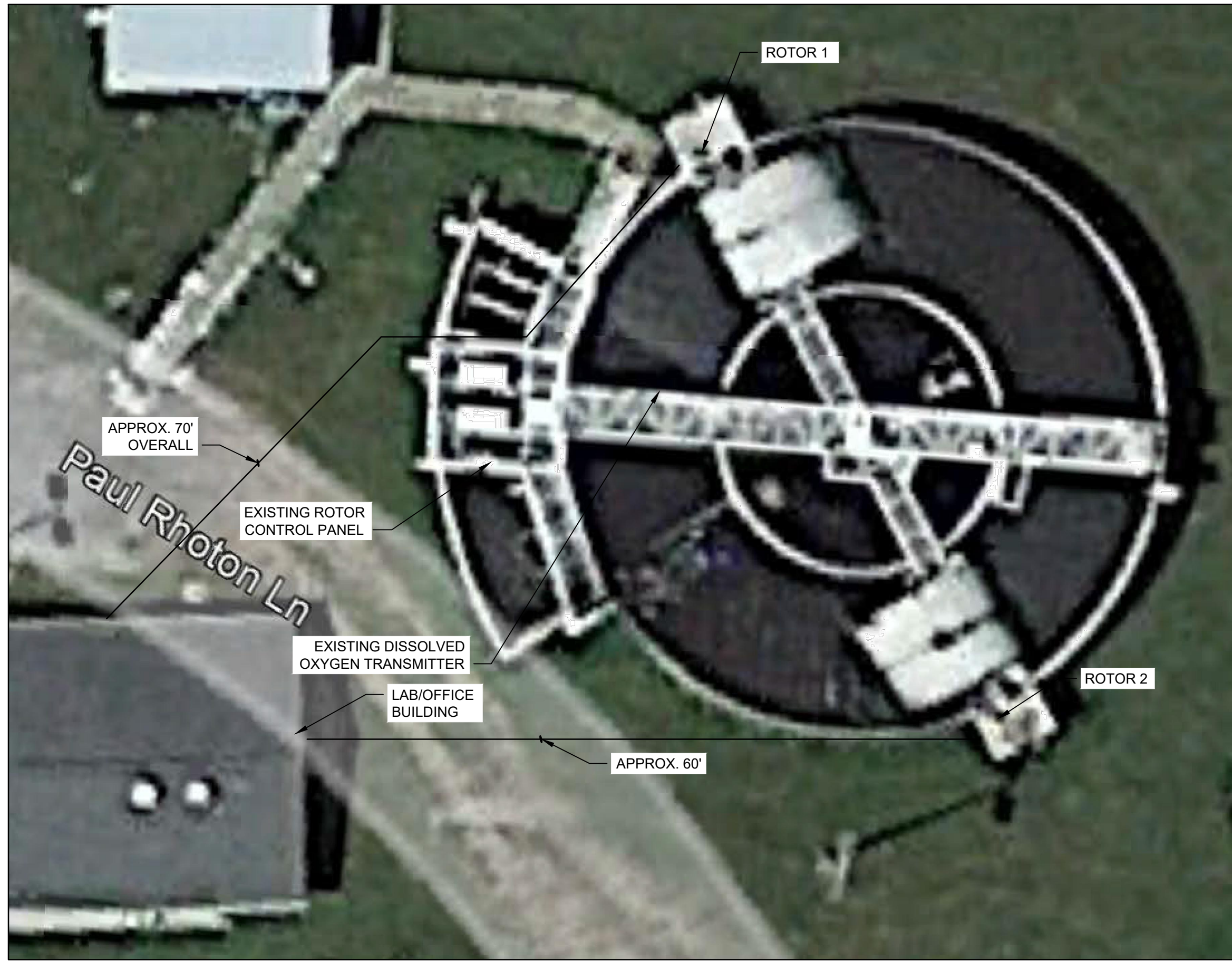
CITY OF GAMALIEL, KENTUCKY
MONROE COUNTY, KENTUCKY
WWTP - DO CONTROL PROJECT

Kentucky 811 logo and text: Know what's below. 811 before you dig. 1-800-382-5544 (ITS THE LAW) (ITS THE LAW)

Table for revision control with columns for No., Date, By, and Description.

Designed By: SD Drawn By: SD Checked By: TLC
Issue Date: 03/12/25 Project No: S24187 Scale: AS SHOWN

LEGENDS AND SCHEDULES
Drawing No: E0-0
Sheet: 1 OF 4



SITE PLAN



VIEW OF LAB/OFFICE FROM AERATION SYSTEM

GENERAL NOTES:

- THE SYSTEM INTEGRATOR IS PROVIDING ONE (1) NEW DISSOLVED OXYGEN TRANSMITTER, TWO (2) VARIABLE FREQUENCY DRIVES, ONE (1) DISSOLVED OXYGEN CONTROL PANEL (DPCP-1) FOR DISSOLVED OXYGEN CONTROL OF THE AERATION DITCH ROTORS. ACTUAL CONDUIT ROUTING SHALL BE DETERMINED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL INSTALL ALL SYSTEM INTEGRATOR FURNISHED EQUIPMENT.
- THE SITE PLANS SHOWS APPROXIMATE DISTANCES FROM LAB OFFICE BUILDING TO THE AERATION DITCH ROTORS. ACTUAL CONDUIT ROUTING SHALL BE DETERMINED BY THE CONTRACTOR.
- THE CONTRACTOR SHALL FURNISH AND INSTALL ALL POWER/CONTROL CONDUIT AND WIRE FROM THE EXISTING ELECTRICAL PANEL TO NEW VARIABLE FREQUENCY DRIVES AND TO THE EXISTING AERATION DITCH ROTORS.
- THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROL CONDUIT/WIRE FROM DISSOLVED OXYGEN CONTROL PANEL TO VARIABLE FREQUENCY DRIVES. ANALOG AND DIGITAL WIRING SHALL BE INSTALLED IN SEPARATE CONDUITS.
- CONDUIT SHALL BE SCHEDULE 40 PVC BELOW GRADE, SCHEDULE 80 PVC ABOVE GRADE AND EMT IN LAB/OFFICE BUILDING.
- THE CONTRACTOR SHALL FURNISH ALL MOUNTING HARDWARE AND BRACKETS NECESSARY FOR A COMPLETE INSTALLATION OF ALL NEW EQUIPMENT.



ELECTRICAL NOTES:

- EXISTING DISSOLVED OXYGEN TRANSMITTER. THE CONTRACTOR SHALL INSTALL NEW TRANSMITTER IN PLACE OF EXISTING. REFER TO MANUFACTURERS INSTRUCTIONS FOR MOUNTING AND WIRING OF NEW EQUIPMENT. EXISTING ANALOG WIRING TO CHART RECORDER TO BE REUSED.
- EXISTING AERATION CONTROL PANEL. THE CONTRACTOR SHALL REMOVE WIRING TO AERATION ROTORS ROTOR DISCONNECT SWITCHES. EXISTING CONDUIT AT CONTROL PANEL TO REMAIN. SEAL EXISTING CONDUITS AT CONTROL PANEL WITH SILICONE CAULK.
- AERATION ROTOR NUMBER 1. THE CONTRACTOR SHALL DEMOLISH DISCONNECT SWITCH, CUT AND SEAL CONDUIT. CONTRACTOR SHALL FURNISH AND INSTALL NEW NEMA 3R DISCONNECT SWITCH. ROUTE NEW CONDUIT BELOW WALKWAY, PAST EDGE OF SIDE WALK TO NEW AERATION ROTOR DISCONNECT SWITCH. INSTALL 1 5/8" STAINLESS STEEL UNISTRUT EMBEDDED IN 18" DEEP CONCRETE AT GRADE TO PLATFORM RAILING TO SUPPORT NEW CONDUIT.
- AERATION ROTOR NUMBER 2. THE CONTRACTOR SHALL DEMOLISH DISCONNECT SWITCH, CUT AND SEAL CONDUIT. CONTRACTOR SHALL FURNISH AND INSTALL NEW NEMA 3R DISCONNECT SWITCH. INSTALL 1 5/8" STAINLESS STEEL UNISTRUT EMBEDDED IN 18" DEEP CONCRETE AT GRADE TO SUPPORT NEW CONDUIT TO NEW AERATION ROTOR DISCONNECT SWITCH.
- THE CONTRACTOR SHALL FURNISH AND INSTALL NEMA 3R DISCONNECT SWITCHES AT AERATION ROTOR MOTORS. DISCONNECT SWITCHES SHALL HAVE AUXILIARY SWITCHES TO OPEN VFD CONTROL CIRCUIT WHEN DISCONNECT IS OPENED.
- THE CONTRACTOR SHALL FURNISH AND INSTALL POWER CONDUIT AND WIRING TO NEW AERATION ROTOR DISCONNECT SWITCHES. CONTRACTOR SHALL INSTALL TWO (2) #12 THWN CONDUCTORS WITH POWER WIRE FOR VFD INTERLOCK TO DISCONNECT SWITCH AUXILIARY CONTACTS.

FILE: Z:\GAMESBY\CLIENTS\ALUCAMMEL\USA\REENERGY SAVINGS PROJECTS\CD\VA MECH\ELECTRICAL.DWG
 SHEET: 3/12/2025 12:31 PM: Paul Rhoton 3/12/2025 5:41:52 PM: Common Wealth, John D. Gibson, EIT 148584687, commonwealth.com

COMMONWEALTH ENGINEERS, INC.
 A member of the Commonwealth Engineers Group, Inc.
<https://commonwealthengineers.com/>

OFFICE LOCATIONS IN:
 INDIANAPOLIS, IN (2)
 EVANSVILLE, IN
 FORT WAYNE, IN
 CROWNING POINT, IN
 BOWLING GREEN, KY
 SOUTH BEND, IN

STATE OF KENTUCKY
 MARK KENNETH NORDMEYER
 30193
 LICENSED PROFESSIONAL ENGINEER

Mark Nordmeyer
 Signature Date 03/12/2025

**CITY OF GAMLIEL
 MONROE COUNTY, KENTUCKY
 WWTP - DO CONTROL PROJECT**

© 2025 BY COMMONWEALTH ENGINEERS, INC. ALL RIGHTS RESERVED. REPRODUCTION OR TRANSMISSION IN ANY FORM OR BY ANY MEANS WITHOUT PERMISSION IS PROHIBITED.

Kentucky 811
 Know what's below. 811 before you dig.
 1-800-382-5544
 (IT'S THE LAW)

No.	Submittal / Revision	Date	By

Designed By: SD	Drawn By: SD	Checked By: TLC
Issue Date: 03/12/25	Project No: S24187	Scale: AS SHOWN

LEGENDS AND SCHEDULES

Drawing No:
E1-0
 Sheet: 2 OF 4

