ADDENDUM NO. 2

VILLAGE OF COVINGTON
Wastewater Treatment Plant Improvements Phase II
Blower Replacement
February 19, 2019

To: Planholders

From: Mote & Associates, Inc.
214 West Fourth Street
Greenville, Ohio 45331

Phone: (937) 548-7511
Fax: (937) 548-7484
E-mail: info@moteassociates.com

Re: Village of Covington
Wastewater Treatment Plant Improvements Phase II – Blower Replacement

This Addendum forms a part of the Contract Documents and modifies the original Contract Documents dated January 2019 and Addendum #1 dated February 13, 2019. Acknowledge receipt of this Addendum in the space provided on the Bid Proposal form. Failure to do so may subject the Bidder to disqualification.

CHANGES/CLARIFICATIONS TO THE BIDDING REQUIREMENTS:

1. Section 00 41 43, BID FORM

   The Rawdon-Myers, Inc. allowance has been removed from the Base Bid and is now shown as part of Alternate #1. Revised Bid Form #2 reflecting this change is attached.

CHANGES/CLARIFICATIONS TO THE TECHNICAL SPECIFICATION

2. Section 40 23 37 – Valves, has been added to the technical specifications.

CHANGES/CLARIFICATIONS TO THE DETAIL CONSTRUCTION PLANS:

3. Sheet 2A has been updated indicated the amount of air piping to be replaced.

4. Sheets 3A, 4A, 6A, 8A and 9A indicate the changes from fiber-optic to Sensornet Cables.

5. Sheet 5A clarifies the water piping and obsolete equipment to be removed.

GENERAL CLARIFICATIONS:

6. Contractor will be responsible for obtaining any electrical permits required by Miami County.

7. Compressed air supply must be made available at all times as the Village must be able to maintain OEPA compliance.

8. Any wiring between panels should be included in the electrical contractor's Scope of Work. This includes making the terminations on the field side of the terminal blocks.

9. Existing air pipe may be left in place to accommodate piping replacement.

10. The anaerobic digester system in inoperable. However, the anaerobic tank is used for sludge storage. Before removing any pipe fittings, confer with the Plant Operator for sludge level and valve configuration to prevent spills. Flanges will need to be added to any piping that is still operational.

11. The part number for the piping expansion joint is as follows:

    McMaster-Carr, High-Temperature All-Metal Expansion Joints with Flanged Ends, 4" w/liner, 9413K64 and 9413K44.

12. The Pre-Bid Meeting sign-in sheet is attached.

End of Addendum

Attachments: Section 00 41 43, Revised Bid Form #2
Section 40 23 37, Valves
Drawing Sheets 2A-6A, 8A and 9A
Pre-Bid Meeting Sign-In Sheet

REVISED BID FORM #2
00 41 43

ARTICLE 1 - BID RECIPIENT

1.01 This Bid is submitted to: **[Village of Covington, One South High Street, Covington, OH 45318]**

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2 - BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 - BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, and any data and reference items identified in the Bidding Documents, and hereby acknowledges receipt of the following Addenda:

Addendum No.	Addendum, Date
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site, conducted a thorough, alert visual examination of the Site and adjacent areas, and become familiar with and satisfied itself as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

C. Bidder is familiar with and has satisfied itself as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or adjacent to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings, and (2) reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, especially with respect to Technical Data in such reports and drawings.

E. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and any Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder; and (3) Bidder's safety precautions and programs.

F. Bidder agrees, based on the information and observations referred to in the preceding paragraph, that no further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and confirms that the written resolution thereof by Engineer is acceptable to Bidder.

I. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance and furnishing of the Work.

J. The submission of this Bid constitutes an incontrovertible representation by Bidder that Bidder has complied with every requirement of this Article, and that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

K. Bidder agrees that the contracting authority reserves the right to reject any or all bids, to waive any informalities or irregularities in the bids received, and to accept that bid which is considered lowest and to the best interest of the Owner.

ARTICLE 4 - BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. No person interested in this Proposal is directly or indirectly interested in or connected with any other bid or proposal for the said work and no member of the Village of Covington, Ohio, is directly or indirectly interested therein, or in any portion thereof, and he will, if required by the Village of Covington, Ohio, execute and submit from himself as Principal Contractor and from any Subcontractor, the non-collusion affidavits as provided herein.

D. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

E. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 - BASIS OF BID

5.01 Bidder agrees that any item not specifically shown or called out on the plans or within the specifications, but is required to complete the work in place and make fully operational, shall be included in the lump sum bid provided herein.

5.02 Bidder will complete the Work in accordance with the Contract Documents for the following price and will contract to do all the work and furnish all the materials called for by said plans and specifications, and in consideration thereof, to accept from the Owner as full payment for the completion of the project and any required maintenance thereof as hereinafter provided, for the following price:

LUMP SUM BASE BID
WASTEWATER TREATMENT PLANT IMPROVEMENTS PHASE II
BLOWER REPLACEMENT

The undersigned offers to furnish all labor, materials, equipment, and related appurtenances necessary to complete the post aeration tank modifications and replacement of the blowers at the wastewater treatment plant along with associated piping, electric, etc. as included on the construction plans and contract documents in order to make the improvements fully operational for a Lump Sum Bid Amount of:	**$**
TOTAL LUMP SUM BASE BID TOTAL	**$**

Total Lump Sum Base Bid (in words):

_____

_____

****

ALTERNATE BID #1
WASTEWATER TREATMENT PLANT IMPROVEMENTS PHASE II
BLOWER REPLACEMENT

The undersigned offers to furnish all labor, materials, equipment, and related appurtenances necessary to complete the post aeration tank modifications and replacement of the blowers at the wastewater treatment plant with the exception of the Allowance items listed below along with associated piping, electric, etc. as included on the construction plans and contract documents in order to make the improvements fully operational for a Lump Sum Bid Amount of:	**$**
Add: Allowance for the Two (2) RTUs (Blower and Effluent) with the following equipment to be purchased from Rawdon-Myers: - Wall mounted enclosure 48” x 36” x 16", 304SS - Subpanel and inner door with Remote I/O to include processor, power supply, analog input card, discrete input, and discrete output cards - 6 port ethernet switch with 2 fiber ports - 1000VA UPS - 24 VDC power supply Programming and startup; Software as needed Contractor shall include in the Lump Sum Bid price all coordination and installation of the equipment to be purchased from Rawdon-Myers based on the required compatibility of this equipment to interface with the existing treatment facility.	**$ 68,443.00**
TOTAL ALTERNATE #1 BID TOTAL	**$**

Total Alternate #1 Bid (in words):

_____

_____

****

Bidder acknowledges that:

(1) If this Proposal shall be accepted, Bidder will be prepared to discuss with the Village of Covington, Ohio, in detail any matters relating to special features and the methods proposed to be followed for the general conduct of the work, that within ten (10) days after “Notice of Award” the Contract Form with the Village of Covington, Ohio, for performance of the work will be completed and Bidder will furnish a Contract Bond or a Performance and Payment Bond in an amount not less than one hundred percent (100%) of the total bid amount, and with sureties subject to the approval of the Village of Covington, Ohio, as a guarantee of the faithful performance of this Contract; and that Bidder will also submit the required insurance policies.

ARTICLE 6 - TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before **November 1, 2019.**

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages in the amount of $1,000.00 for every consecutive day after the stated date in the Notice to Proceed and along with any time extension given per a Change Order and it may be retained from the monies which may be due.

ARTICLE 7 - ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Required bid security;
B. Affidavit for Corporation;
C. Required Bidder Qualification Statement with supporting data;
D. List of Proposed Subcontractors;
E. Non-Collusion Affidavit; and
F. Certifications as listed in Table of Contents, Section 3–Procurement Forms & Supplements.

ARTICLE 8 - DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 9 - BID SUBMITTAL

BIDDER: *[Indicate correct name of bidding entity]*

_____

By:
[Signature] _____

[Printed name] _____
(If Bidder is a corporation, limited liability company, partnership or joint venture, attach evidence of authority to sign.)

Address for giving notices:

_____

Telephone Number: _____ Fax Number: _____

Bidder's Federal ID No.: _____

Contact Name and e-mail address: _____

VALVES
40 23 37

PART ONE – GENERAL

1.01 Requirements Included

A. Furnish all tools, supplies, materials, equipment, and labor necessary for furnishing, epoxy coating, installing, adjusting, and testing of all valves and appurtenant work, complete and operable as shown on the Drawings and specified herein. Where buried valves are shown, furnish and install valve boxes to grade, with covers, extensions, and tee handles.

B. Furnish all labor, materials, equipment, and incidentals required and all valves and appurtenances as shown on the Drawings and specified herein.

1.02 Related Sections

1.03 References

A. ANSI B16.1 Cast Iron Pipe Flanges and Flanged Fittings, Class 25, 125, 250, and 800.

B. ANSI 816.5 Pipe Flanges and Flanged Fittings, Steel Nickel Alloy and Other Special Alloys.

C. ANSI/ASME B1.20.1 General Purpose Pipe Threads (inch).

D. ANSI/ASME 831.1 Power Piping.

E. ASTM A 36 Specification for Structural Steel.

F. ASTM A 48 Specification for Gray Iron Castings.

G. ASTM A 126 Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

H. ASTM A 536 Specification for Ductile Iron Castings.

I. ASTM B 61 Specification for Steam or Valve Bronze Castings.

J. ASTM B 62 Specification for Composition Bronze or Ounce Metal Castings.

K. ASTM B 148 Specification for Aluminum-Bronze Castings.

L. ASTM B 584 Specification for Copper Alloy Sand Castings or General Applications.

M. ANSI/AWWA C500 Gate Valves for Water and Sewerage Systems.

N. ANSI/AWWA C604 Rubber-Seated Butterfly Valves.

O. ANSI/AWWA 0506 Backflow Prevention Devices - Reduced Pressure. Principle and Double Check Valves Types.

P. ANSI/AWWA 0507 Ball Valves 6 inches through 48 inches.

Q. AWWA C508 Swing-Check Valves for Waterworks Service, 2 inches Through 24 inches NPS.

R. AWWA C550 Protective Interior Coatings for Valves and Hydrants.

S. SSPC-SP-5 White Metal Blast Cleaning.

T. MSS-SP-70 Manufacturers Standardization Society of the Valve and Fitting Industry; Cast Iron Gate Valves. Flanged and Threaded Ends.

1.04 Submittals

A. See Section 01 33 00 – Submittals & Substitutions.

B. Shop Drawings: Shop drawings of all valves and operators including associated wiring diagrams and electrical data (if required).

C. Valve Schedule: Submit a complete valve schedule of all valves being supplied including each valve location, size, type, end connections, and operator type.

D. Valve Labeling: Submit a schedule of valves to be labeled indicating in each case the valve location and the proposed wording for the label.

1.05 Delivery, Storage, and Protection

A. Accept valves on site in shipping containers with labeling in place. Inspect for damage.

B. Provide temporary protective coating on cast iron and steel valves.

C. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system. During laying operations, no debris, tools, clothing or other materials shall be placed in the pipe.

1.06 Quality Assurance

A. The Contractor shall demonstrate that each valve installed as a part of a piping system will operate under field conditions in a manner consistent with the design of the system.

PART TWO – PRODUCTS

2.01 General

A. Valves shall be suitable for use in raw wastewater and sewage applications.

B. The use of a manufacturer's name and/or model or catalog number is for the purpose of establishing the standard of quality and general configuration desired.

C. Valves and appurtenances shall be of the size shown on the Drawings or as noted and as far as possible equipment of the same type shall be identical and from one manufacturer.

D. Valves and appurtenances shall have the name of the manufacturer, nominal size, flow directional arrows, working pressure for which they are designed, cast in raised letters or indelibly marked upon some appropriate part of the body.

E. Unless otherwise noted, items shall have a minimum working pressure of 150 psi or be of the same working pressure as the pipe they are connecting to, whichever is higher and suitable for the pressures noted where they are installed.

F. Valves and appurtenances shall be of the same nominal diameter as the pipe or fittings they are connected to.

G. Provide all special adaptors as required to ensure compatibility between valves, appurtenances and adjacent pipe.

H. Valves and operators located outdoors but not within a building; within maximum 2 feet above liquid; in vaults; or where otherwise noted shall be especially designed for submerged service where water may completely submerge the valve and operator. All other units, shall be as a minimum weather tight.

I. The Contractor shall furnish all valves, operators, actuators, valve-operating units, stem extensions, and other accessories as shown, specified, or required to install a fully functional valve. All valves shall have the name of the manufacturer and the site of the valve cast on the body or bonnet or shown on a permanently attached plate in raised letters. All valves and gates shall be new and of current manufacture. All shut-off valves, 6-inch and larger, shall have operators with position indicators. Where buried, these valves shall be provided with valve boxes and covers containing position indicators, and valve extensions. Shut-off valves mounted higher than 6 feet above working level shall be provided with chain operators.

J. Gate Valve Stems: Manually operated valves shall have silicon-bronze stems conforming to ASTM B 584-875, having minimum tensile strength of 60,000 psi, a minimum yield point of 24,000 psi, and elongation of 16% in 2 inches.

K. Protective Coating: Except where otherwise specified, ferrous surfaces, exclusive of stainless steel surfaces, in the water passages of all valves 4-inch and larger, as well as the exterior surfaces of all submerged valves, shall be coated in accordance with AWWA Standard C550 “Protective Interior Coatings for Valves and Hydrants” and ANSI/NSF Standard 61 – “Drinking Water System Components”, where applicable. Flange faces of valves shall not be coated.”

L. Valve Operators: Where shown, certain valves and gates shall be furnished with electric operators, provided by the valve or gate manufacturer. All operators of a given type shall be furnished by the same manufacturer. Where these operators are supplied by different manufacturers, the Contractor shall coordinate their selection to provide uniformity of each type of electric operator. All valve operators, regardless of type, shall be installed, adjusted, and tested by the valve manufacturer at the manufacturing plant.

M. Nuts and Bolts: All nuts and bolts on valve flanges and supports shall be Type 316 stainless steel.

2.02 Valve Operators

A. The valve manufacturer shall supply and integrally, rigidly mount all operators, including any type of manual or powered operators, on valves at the factory. The valves and their individual operators shall be shipped as a unit.

B. Unless otherwise noted, valves shall be manually operated; non-buried valves shall have an operating wheel, handle or lever mounted on the operator; buried valves and those with operating nuts shall have a non-rising stem with an AWWA 2 inch nut. At least four tee handles shall be provided. Tee handles shown on the Drawings shall be permanently installed and rigidly supported.

C. Except as otherwise shown on the Drawings or specified herein, all valves 3 inch diameter or larger, with the valve center line located 6 feet or more above the operating floor, shall be provided with chain wheel operators complete with chain guides and hot dipped galvanized steel chain, which loop within 4 foot of the operating floor.

D. All operators shall be capable of moving the valve from the full open to full close position and in reverse and holding the valve at any position part way between full open or closed.

E. Gear Operators:

1. Unless otherwise noted on the Drawings, gear operators shall be provided for all valves larger than 12-inch diameter and all buried valves with the operating shaft mounted horizontally (butterfly, plug, etc.).
2. Gear operators shall be of the worm or helical gear type with output shaft perpendicular to the valve shaft, having a removable hand wheel mounted on the output shaft. Unless noted they shall conform to AWWA C504.
3. Operators shall be capable of being removed from the valve without dismantling the valve or removing the valve from the line.
4. Gearing shall be machine-cut steel designed for smooth operation. Bearings shall be permanently lubricated, with hron7e hearing bushings provided to take all thrusts and seals and to contain lubricants. Housings shall be sealed to exclude moisture and dirt, allow the reduction mechanisms to operate in lubricant and be of the same material as the valve body.
5. Maximum handwheel size shall be 24-inch diameter.

F. Each operating device shall have cast on it the word "OPEN" and an arrow indicating the direction of operation.

G. Additional valve operators are included with the individual valve types and as noted on the Drawings.

2.03 Gate Valves

A. Manufacturers:

1. DeZurik
2. Clow Valve Company
3. American Valve
4. Kennedy Valve Company
5. Mueller Company
6. Or Approved Equal

B. General:

1. Gate valves shall meet or exceed the requirements of AWWA standard C500 covering solid wedge gate valves.
2. Buried and submerged valves shall be furnished with mechanical joints and stainless steel hardware.
3. Exposed valves shall be furnished with Class 125 flanged ends; provide valves.
4. Valves shall be non-rising stem, opening by turning stem left or right and provided with 2" square operating nut or handwheel with the word 'open' and an arrow cast in the metal to indicate direction to open.
5. The wedge shall be of cast iron completely encapsulated with rubber.
6. The sealing rubber shall be permanently bonded to the cast iron wedge to meet ASTM tests for rubber metal bond ASTM D429.
7. Valves shall be supplied with O-ring seals at all joints. No flat gaskets allowed
8. Stems for non-rising stem assemblies shall be cast bronze with integral collars in full compliance with AWWA. The non-rising stem stuffing box shall be the O-ring seal type with two O-rings located above thrust collar and one O-ring below. The two O-rings above the thrust collar shall be replaceable with valve fully open and subjected to full rated working pressure.
9. There shall be two low torque thrust bearings located above and below the thrust collar. The stem nut shall be independent of the wedge and shall be made of solid bronze. There shall be a smooth, unobstructed waterway free of all pockets, cavities and depressions in the seat area.
10. The body and bonnet shall be coated with fusion bonded epoxy both interior and exterior, complying with AWWA C-550 and be NSF 61 approved, Each value shall have maker's name, pressure rating and year in which manufactured cast on the body.
11. Prior to shipment from the factory, each valve shall be tested by hydrostatic pressure equal to AWWA (twice the specified working pressure) requirements.
12. Non-rising stem valves shall use a double O-Ring stem seal, except that packing shall be used where geared operators are required.
13. Flanged valves to have face-to-face dimensions per ANSI B16.1 and flanges per ANSI B16.10.
14. Provide geared operator and chain-wheel, chain and chain guides for valves with handwheel centerline more than 6 foot above operating level.
15. Unless otherwise indicated, valves 12 inch and smaller shall be capable of installation in the vertical or horizontal position, and sealing in both directions at the rated pressure.
16. Valves shall be installed with the stem within the upright vertical position to the 90 degrees horizontal position, Valves shall not be installed with the stem projected downward.

C. Buried Valves:

1. Conform to the requirements above, except mechanical joint bell ends per AWWA standard C111.
2. All exposed valve hardware (nuts, bolts, washers, etc.) including bonnet, bonnet cover, stuffing box, gear adaptor and joints shall be Type 304 stainless steel.
3. Non-rising stem design, double O-Ring seals for non-geared valves and shall incorporate packing for geared valves.
4. Provide valve box, 2-inch operating nut and extension stem and stem cover.

D. Tapping Valves and Sleeves:

1. Tapping valves shall comply with the above specifications except they shall have the flanged end and port opening modified for tapping service. Valve shall be capable of passing a full nominal sized cutter without damage to the valve. The tapping sleeve shall be gray cast iron or ductile iron mechanical joint type.

2.04 Knife Gate Valves

A. Manufacturers:

1. Orbinox, www.orbinox.com
2. DeZurik, www.dezurik.com
3. Or Approved Equal
   a. Substitutions: See Section 01 33 00 – Submittals & Substitutions.

B. Valves shall be flanged type, unless otherwise indicated on the drawings rated for a working pressure of 150 psi.

C. Face-to-face dimensions per MSS SP-81 with BI-DIRECTIONAL shut-off.

D. Valve shall have a maximum leakage rate of no more than 20 CC per inch of diameter per minute at 40 psi in both directions without the use of 0-rings, guides or wedges obstructing the port.

E. The seating material shall be metal-to-metal or made from a resilient EPDM or Viton material and completely field replaceable.

F. To prevent atmospheric leakage, the valve features an adjustable packing assembly consisting of multiple layers of braided packing around gate, evenly compressed by a one-piece packing gland.

G. The valve is to have 100% full port flow with no guides or wedges obstructing the port.

H. The gate shall be finished ground on both sides, and made from stainless steel.

I. The body material shall be 304 stainless steel.

J. Valve is equipped with a manual handwheel operator assembly featuring a cast ductile iron handwheel, a heavy-duty foot mounted yoke with an acid resistant bronze stem nut, including a 304 stainless steel rising stem.

K. The gate shall be a beveled knife edge.

L. All wetted surfaces shall be Type 316 stainless steel.

M. Packing gland bolts shall be Type 316 stainless steel with plated, self-locking nuts.

N. The valves shall have full port straight through opening.

O. Flanges shall be drilled to match connecting pipe.

2.05 Plug Valves

A. Manufacturers:

1. Val-Matic, www.valmatic.com
2. DeZurik, www.dezurik.com
3. Milliken, www.millikenvalve.com
4. American, www.american-rd.com
5. Or Approved Equal
    a. Substitutions: See Section 01 33 00 – Submittals & Substitutions.

B. Plug valves shall be of the offset disc type, 1/4 turn, non-lubricated, serviceable (able to be repacked) under full line pressure and capable of sealing in both directions at the rated pressure.

C. The valves shall be designed, manufactured and tested in accordance with American Water Works Association Standards ANSI/AWWA C517.

D. Flanged valves shall have flanges with drilling to ANSI B16.1, Class 125.

E. Mechanical Joint valves shall fully comply with ANSI/AWWA C111/A21.11.

F. The plug shall be of one-piece construction and made of ASTM A126 Class B cast iron with a resilient facing per ASTM D2000-BG and ANSI/AWWA C504 requirements.

G. Radial shaft bearings shall be constructed of self-lubricating type 316 stainless steel. The top thrust bearing shall be Teflon. The bottom thrust bearing shall be Type 316 stainless steel. Cover bolts shall be corrosion resistant with zinc plating.

H. The disc shall be completely out of the flow path when open.

I. All plug valves shall have a minimum port area of 100 percent.

J. Valve bodies shall be of cast iron, ASTM A 126, Grade B, or of ductile iron, ASTM A 536 and of the top entry, bolted bonnet design, cast with integral flanges conforming to the connecting piping. All exposed bolts, nuts and wasters shall be zinc or cadmium-plated, except for buried or submerged plug valves, which shall have Type 316 stainless steel hardware.

K. Shaft bearings shall be permanently lubricated, rigidly backed TFE, stainless steel or bronze at both upper and lower stem journals. The operator shaft shall have easily replaceable seals, which shall be externally adjustable and repackable without removing

the bonnet from the valve, or shall have self-adjusting packing.

L. The valve seating surface shall provide full 360-degree seating by contact of a resilient seating material on the disc mating with welded-in 99% high nickel content overlay seating surface in the body.

1. The seating design shall be resilient and of the continuous interface type having consistent opening and closing torques and shall be non-jamming in the closed position. Screw-in seats shall not be acceptable.
2. Discs shall have a full resilient facing of neoprene or EPDM.

M. Actuators: The methods of mounting the actuator to the valve shall provide an air gap between the two. Actuator shall clearly indicate valve position and an adjustable stop shall be provided. Construction of actuator housing shall be semi-steel. Hardware on actuators shall be of the same materials as the valve.

1. 8 inch and smaller valves shall be equipped with a 2 inch square nut for direct quarter turn operation. The packing gland shall include a friction collar and an open position memory stop. The friction collar shall include a nylon sleeve to produce friction without exerting pressure on the valve packing.
2. When specified, 4 inch and larger valves shall include a totally enclosed and sealed worm gear actuator with position indicator (above ground service only) and externally adjustable open and closed stops. The worm segment gear shall be ASTM A536 Grade 65-45-12 ductile iron with a precision bore and keyway for connection to the valve shaft. Bronzeradial bearings shall be provided for the segment gear and worm shaft. Alloy steel roller thrust bearings shall be provided for the hardened worm.
3. All gear actuators shall be designed to withstand, without damage, a rim pull of 200 lb. on the handwheel and an input torque of 300 ft-lbs for nuts.
4. Buried service actuators shall be packed with grease and sealed for temporary submergence to 20 feet of water.
5. Exposed worm shafts shall be stainless steel.

N. Each plug valve shall be provided with its own securely attached lever. Provide adjustable limit stops for both opening and closing and a clearly marked position indicator.

O. Plug valves shall be installed so that the direction of flow through the valve and the shaft orientation is in accordance with the manufacturer's recommendations. Unless otherwise noted, shaft shall be horizontal, with plug opening up.

2.06 Butterfly Valves

A. Manufacturers:

1. Pratt (Mueller)
2. DeZurik, www.dezurik.com
3. Crane Valve Company, www.cranecpe.com
4. Crispin Valve; www.crispinvalve.com
5. Or Approved Equal
   a. Substitutions: See Section 01 33 00 – Submittals & Substitutions.

B. Butterfly valves and operators up to 72 inch diameter shall conform to AWWA 0504, Class B, except as otherwise noted on the Drawings.

C. Butterfly valves for above grade shall have face to face dimensions in accordance with Table 2 of AWWA C504 Standard for short-body valve.

D. The valve body shall be constructed of close grain cast iron per ASTM A 126, Class B with integrally cast hubs for shaft bearing housings of the through boss-type. Permanently self-lubricating body bushings shall be provided and shall be sized to withstand bearing loads. Stuffing box of liberal dimensions shall be provided at the operator end of the vane shaft.

E. The valve shaft shall be of Type 316 stainless steel and designed for both torsional and shearing stresses when the valve is operated under its greatest dynamic or seating torque.

F. The butterfly valve operator shall conform to the requirements of AWWA C504, as applicable and as specified herein.

G. Gearing for the actuators where required shall be totally enclosed in a gear case in accordance with AWWA C504.

H. Provide gear operators for valves 8 inches and larger, and chain-wheel operators for valves mounted over 6 feet above floor.

I. Compressed Air Service:

1. Temperature Rating – 180° F- 200°F
2. EPDM Seals & Gaskets

2.07 Swing Check Valves

A. Manufacturers:

1. Val-Matic, www.valmatic.com
2. DeZurik, www.dezurik.com
3. Milliken, www.millikenvalve.com
4. Or Approved Equal
   a. Substitutions: See Section 01 33 00 – Submittals & Substitutions.

B. Swing check valves shall meet the requirements of AWWA C508.

C. Valves shall be provided with flanges in accordance with ANSI B16.1, Class 125.

D. The valve body shall be full flow equal to nominal pipe diameter at all points through the valve. The 4 inch valve shall be capable of passing a 3 inch sphere. The seating surface shall be on a 45 degree angle to minimize disc travel. A threaded port with pipe plug shall be provided on the bottom of the valve to allow for field installation of a backfiow actuator, without special tools or removing the valve from the line.

E. The top access port shall be full size, allowing removal of the disc without removing the valve from the line. The access cover shall be domed in shape to provide flushing action over the disc for operating in lines containing high solids content. A threaded port with

pipe plug shall be provided in the access cover to allow for field installation of a mechanical, disc position indicator.

F. The disc shall be of one-piece construction, precision molded with an integral o-ring type sealing surface, and contain alloy steel and nylon reinforcement in the flexible hinge area. The flex portion of the disc shall be warranted for twenty-five years. Nun-Slam closing characteristics shall be provided through a short 35 degree disc stroke and a memory disc return action.

G. The valve disc shall be cycle tested 1,000,000 times in accordance with ANSI/AWWA C508 and show no signs of wear, cracking, or distortion to the valve disc or seat and shall remain drop tight at both high and low pressures. The test results shall be independently certified.

H. The valve body and cover shall be constructed of ASTM A536 Grade 65-45-12 ductile iron or ASTM A126 class B for 30 inches and larger. Optional body materials include ASTM A-351 Grade CF8M, stainless steel (sizes 3" through 8").

I. The exterior and interior of the valve shall be coated with an ANSI/NSF 61 approved fusion bonded epoxy coating.

J. The valves shall be iron body, bronze mounted, single disc with a 150 psi working water pressure.

1. When there is no flow through the line, the disc shall hang lightly against its seat in practically a vertical position. When open, the disc shall swing clear of the waterway.
2. Check valves shall have bronze seat and body rings, extended bronze hinge pins and bronze nuts on the bolts of bolted covers.

K. Valves shall be so constructed that disc and body seat may easily be removed and replaced without removing the valve from the line.

PART THREE – EXECUTION

3.01 Installation

A. General: All valves, gates, operating units, stem extensions, valve boxes, and accessories shall be installed in accordance with the manufacturer's written instructions and as shown and specified. All gates shall be adequately braced to prevent warpage and bending under the intended use. Valves shall be firmly supported to avoid undue stresses on the pipe.

B. Access: All valves shall be installed to provide easy access for operation, removal, and maintenance and to avoid conflicts between valve operators and structural members or handrails.

C. Valve Accessories: Where combinations of valves, sensors, switches, and controls are specified, it shall be the responsibility of the Contractor to properly assemble and install these various items so that all systems are compatible and operating properly. The relationship between interrelated items shall be clearly noted on shop drawing submittals.

D. All valves shall be field tested following installation to demonstrate that the valve operates under field conditions in a manner consistent with the design of the system.

E. When joining PVC pressure pipe to fittings and accessories, pipe ends shall be cut square, deburred, beveled and cleaned in accordance with pipe manufacturer's recommendations. Bevel requirements for PVC pipe bell and PVC push-on fitting joints are the same as a factory bevel. If push on or mechanical Joint butterfly valves are used, PVC pipe ends shall be beveled in accordance with the valve manufacturer's installation instructions.

End of Section

ABBREVIATIONS FOR CONDUIT TYPE:

IMC	Intermediate Metal Conduit
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RAC	Rigid Aluminum Conduit
FMC	Flexible Metal Conduit
LFMC	Liquid-tight Flexible Metal Conduit
PVC	Rigid Polyvinyl Chloride Conduit
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NUCC	Nonmetallic Underground Conduit with Conductors
RTRC	Reinforced Thermosetting Resin Conduit
LFNC	Liquid-tight Flexible Nonmetallic Conduit
EMT	Electrical Metallic Tubing
FMT	Flexible Metallic Tubing
ENT	Electrical Nonmetallic Tubing

TEXT STYLE:
EXISTING CONDITIONS
PROPOSED WORK

PIPING & COLOR LEGEND
EXISTING PROCESS PIPING
EXISTING STORM PIPING
EXISTING AIR PIPING
EXISTING SLUDGE PIPING

SLUDGE DRYING BEDS
INFLUENT PIPING
STORM MANHOLE
STORM MANHOLE
STORM MANHOLE
ASPHALT DRIVE
ELECTRICAL, LABORATORY AND PLANT CONTROL BUILDING
PUMP STATION
PRE-AERATION TANK
AERATION TANK
PRIMARY SETTLING TANK
54'Ø TRICKLING FILTERS
58'Ø TRICKLING FILTERS
EOP
HIGH WATER PUMP STATION VALVE VAULT
HIGH WATER PUMP STATION
ELECTRICAL AND DATA DUCT SYSTEM
POST AERATION TANK
EFFLUENT FLOW DIVERSION STRUCTURE
STORM CATCH BASIN
STORM MANHOLE
CONCRETE SIDEWALK
STORM MANHOLE
EXISTING AIR PIPING SHALL BE REPLACED (EXACT LOCATION IS UNKNOWN)
POST AERATION & DISINFECTION
CONCRETE SIDEWALK
FINAL SETTLING TANK
EXISTING AIR PIPING SHALL BE REPLACED (EXACT LOCATION IS UNKNOWN)
CONCRETE SIDEWALK
ANAEROBIC DIGESTER
FINAL SETTLING TANK
SLUDGE PIPING
THICKENER BUILDING
ASPHALT DRIVE
GRAVITY THICKENER
EOP

NOTES:
1. THIS DRAWING WAS DERIVED FROM THE EXTRACTION OF DATA FROM OLDER DRAWINGS & DOCUMENTS FOUND AT THE WASTEWATER TREATMENT PLANT.
2. CONTRACTOR SHALL TAKE PRECAUTIONS WHEN EXCAVATING WITHIN THE CONFINES OF THE WWTP.

EXISTING SITE PLAN
SCALE = 1" = 10'- 0"

N

REVISIONS

DRM	15 FEB 2019	UPDATED THE DEPICTION OF AIR PIPING TO BE REPLACED

Mote & Associates
Engineering, Land Surveying
214 W. Fourth St., Greenville, OH 45331 937.548.7511 www.moteassociates.com

EXISTING SITE PLAN / PIPING & UTILITIES
WWTP IMPROVEMENTS PHASE 2
VILLAGE OF COVINGTON

PROJ. NO: CV07092717	DWG. NO: 1D15068		SCALE: AS NOTED
DRAWN: DRM	CHECKED: MJB	DATE: 02/15/19	SHEET NO: 2A OF 9

SLUDGE
DRYING BEDS

ELECTRICAL, LABORATORY
AND
PLANT CONTROL BUILDING

EXISTING TREATMENT PLANT MCC AND
MASTER SCADA CONTROL CENTER

PUMP STATION

GRIT CHAMBER
TANKS

AERATION
TANK

PRIMARY
SETTLING TANK

54'Ø TRICKLING FILTERS

58'Ø TRICKLING FILTERS

FINAL SETTLING TANK

FINAL SETTLING TANK

ANAEROBIC DIGESTER

NEW PLANT
BLOWER BUILDING

GRAVITY THICKENER

TIE INTO EXISTING AIR PIPING TO
THIS POINT.

REPLACE EXISTING 4" DIP AIR PIPING
WITH NEW 4" MJ, UNLINED DIP WITH HIGH
TEMPERATURE GASKETS.

PROVIDE 316SS PULL BOX MOUNTED ON
THE SIDE OF THE BUILDING.
DRILL & CORE BUILDING WALL FOR 2"
CONDUIT.

PROVIDE PULL BOX
(QUAZITE OR EQUAL)

NEW 2" CONDUIT WITH 400±LF OF SENSORNET CABLE
PVC UNDERGROUND ALUMINUM ABOVE GROUND

EXISTING POWER DISTRIBUTION BOX

EXISTING COMMUNICATIONS DISTRIBUTION BOX

EXISTING INTRINSICALLY SAFE COMMUNICATIONS DISTRIBUTION BOX

CONDUIT FOR NEW CONTROL PANEL POWER. 1" CONDUIT
WITH 2- #14 CU THHN/THWN PLUS GROUND
(ALUMINUM ABOVE GROUND & PVC BELOW GROUND)

EXISTING SINGLE PHASE POWER PANEL
FIELD LOCATE AVAILABLE EMPTY
POWER 15 AMP CIRCUIT. SUPPLY AND
INSTALL CIRCUIT BREAKER AS NEEDED.

EXISTING COMMUNICATIONS DISTRIBUTION BOX

EXISTING INTRINSICALLY SAFE COMMUNICATIONS DISTRIBUTION BOX

SAW-CUT ASPHALT AND REPAIR
IN-KIND DURING RESTORATION.

POST AERATION &
DISINFECTION

REPLACE EXISTING 4" DIP AIR PIPING
WITH NEW 4" MJ, UNLINED DIP WITH
HIGH TEMPERATURE GASKETS.

NEW 2" CONDUIT FOR YSI
SENSORNET CABLE
PVC UNDERGROUND
ALUMINUM ABOVE GROUND
TERMINATION AT YSI
TERMINALS AT EACH END.

YSI 2020 SENSORNET MIQ MODULE
FIELD LOCATE.
(BLOWER SPEED CONTROL)

NEW 2" CONDUIT WITH 400±LF OF SENSORNET CABLE
PVC UNDERGROUND ALUMINUM ABOVE GROUND

REPLACE ALL EXISTING AIR PIPING AND TIE INTO EXISTING
STAINLESS STEEL AIR PIPING TO THIS POINT.

ABBREVIATIONS FOR CONDUIT TYPE:

IMC	Intermediate Metal Conduit
RMC	Rigid Metal Conduit
RAC	Rigid Aluminum Conduit
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EMT	Electrical Metallic Tubing
FMT	Flexible Metallic Tubing
ENT	Electrical Nonmetallic Tubing

TEXT STYLE:
EXISTING CONDITIONS
PROPOSED WORK

NOTE:
CONTRACTOR SHALL TAKE SPECIAL PRECAUTION WHILE EXCAVATING IN THIS AREA. NUMEROUS PIPES AND CONDUITS IN THIS AREA.

NOTES:
1. REPLACE EXISTING 4" DUCTILE IRON AIR PIPE FROM THE EXISTING BLOWER AREA, TO THE POST AERATION BASIN.
2. REPLACE EXISTING 4" DUCTILE IRON AIR PIPE FROM THE EXISTING BLOWER AREA, RECONNECT TO PIPE SUPPLYING GRIT CHAMBER AIR.
3. CONNECT ALL NEW AIR PIPING TO NEW BLOWERS.
4. THIS DRAWING WAS DERIVED FROM THE EXTRACTION OF DATA FROM OLDER DRAWINGS & DOCUMENTS FOUND AT THE WASTEWATER TREATMENT PLANT.
5. CONTRACTOR SHALL TAKE PRECAUTIONS WHEN EXCAVATING WITHIN THE CONFINES OF THE WWTP.

UNDERGROUND UTILITIES & PIPING IMPROVEMENTS
SCALE: 1" = 10'

0 10 FEET 20

N

REVISIONS:

DRM	15 FEB 2019	REMOVE FIBER-OPTIC AND REPLACE WITH YSI SENSORNET

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PROPOSED SITE PLAN
WWTP IMPROVEMENTS PHASE 2
VILLAGE OF COVINGTON

PROJ. NO: CV07092717	DWG. NO: 1D15069		SCALE: AS NOTED
DRAWN: DRM	CHECKED: MJB	DATE: 2/18/19	SHEET NO: 3A OF 9

SAW CUT ASPHALT PAVEMENT AND REPAIR AFTER PLACEMENT OF NEW AIR PIPING.

EXISTING COMMUNICATIONS DISTRIBUTION BOX

EXISTING INTRINSICALLY SAFE COMMUNICATIONS DISTRIBUTION BOX

EXISTING POWER DISTRIBUTION BOX

EXISTING ASPHALT DRIVE

EXISTING ASPHALT DRIVE

12" EFFLUENT PIPE INV. ELEV. 876.07

EXISTING INTRINSICALLY SAFE COMMUNICATIONS DISTRIBUTION BOX

EXISTING COMMUNICATIONS DISTRIBUTION BOX

NEW 2" CONDUIT FOR YSI 2020 SENSORNET CABLE PVC UNDERGROUND ALUMINUM ABOVE GROUND

REPLACE EXISTING 4" AIR PIPING WITH 4" UNLINED DIP AIR SUPPLY PIPING. ALL PIPE SHALL BE RESTRAINED, USED ONLY HIGH TEMPERATURE MJ PIPE GASKETS. PLACE THE NEW PIPING AT THE SAME DEPTH AS EXISTING UNLESS INSTRUCTED BY THE VILLAGE TO CHANGE.

EXISTING CONCRETE PAD

EXISTING ELECTRICAL CONCRETE PAD

SINGLE PHASE POWER DISTRIBUTION PANEL.

EXISTING CONDUITS

EXISTING MANHOLE

12" EFFLUENT PIPE

EXACT LOCATION OF EXISTING 4" AIR PIPING AND 4x3 REDUCER IS UNKNOWN. CONTRACTOR SHALL CAREFULLY FIELD LOCATE THE EXISTING AIR PIPING, AND CONNECT NEW PIPING TO THE REDUCER.

3" AIR SUPPLY PIPE

TOW ELEV. 889.00

3" FLG, 304SS, WELDED PIPE

3" AIR BF VALVE

DIFFUSERS

EXISTING METAL BRIDGE

NOTE:
EXPOSE ALL EXISTING CONDUIT PRIOR TO EXCAVATION.

NEW 2" CONDUIT FOR YSI 2020 SENSORNET CABLE PVC UNDERGROUND ALUMINUM ABOVE GROUND

INSTALL NEW ¾" PVC CONDUIT FROM SINGLE PHASE PANEL TO YSI 2020 UNIT.

C 1|1

EFFLUENT PUMP STATION WETWELL

EFFLUENT PUMP STATION VALVE VAULT

12" MJ PLUG VALVE

A 1|1

UV DISINFECTION TROUGH

6'

POST AERATION BASIN

18'

12" MJ PLUG VALVE

12" MJ PLUG VALVE

TOW ELEV. 889.00

INSTALL NEW DISSOLVED AIR PROBE IN DIVERSION BOX.

YSI SENSORNET 2020 3G CONTROLLER WITH WIRELESS MODULE PS MIQ/WL PS FIELD LOCATE (BLOWER SPEED CONTROL)

A 4|4

12" EFFLUENT PIPE, ℄ ELEV. 876.07

12" EFFLUENT PIPE

5'ø OUTFALL MANHOLE RIM ELEV. 883.50 (N) UP STREAM INV. 875.85, 12" (E) DOWN STREAM INV. 875.85±, 12"

12" EFFLUENT PIPE (TO RECEIVING STREAM)

5'ø MANHOLE LID ELEV. 893.50 INV ELEV. 875.00

8" EFFLUENT FORCEMAIN, ℄ ELEV. 877.00

8" EFFLUENT FORCEMAIN FROM PUMP STATION

N

PLAN VIEW B 1|1

POST UV & AERATION TANK, PIPING AND CONTROLS
SCALE - 1/4" = 1'- 0"

316SS DOUBLE STRUT POST

SUN SHIELD

YSI SENSORNET 2020 3G CONTROLLER WITH WIRELESS MODULE PS MIQ/WL PS (BLOWER SPEED CONTROL)

ALUMINUM CONDUIT IQ SENSORNET CABLE

SENOR CABLE

1/2" ALUM CONDUIT MULTIPLE CONDUITS MAY BE NEEDED.

6"x6"x4" 316SS, NEMA 4X BOX

316SS DOUBLE STRUT POST

6"x6"x4" 316SS, NEMA 4X BOX

2" ALUM CONDUIT

1/2" ALUM CONDUIT POWER SUPPLY.

MANUFACTURER PROBE SUPPORT

MANUFACTURER CHAIN

D.O. PROBE

MULTI-PARAMETER ANALYZER HMI
A 4|4

SCALE - 1" = 1'- 0"

DEPICTED : YSI 2020 XT

ABBREVIATIONS FOR CONDUIT TYPE:

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TEXT STYLE:
EXISTING CONDITIONS
PROPOSED WORK

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TEXT STYLE:
EXISTING CONDITIONS
PROPOSED WORK

BLOWER REQUIREMENT NOTES:
1. DIFFUSER DESIGN FROM STEVE MILLER OF EVOQUA WATER TECHNOLOGIES.
   1.1. THE ORIGINAL DESIGN WAS BASED ON COARSE BUBBLE DIFFUSERS.
   1.2. 25" OF HEADLOSS.
   1.3. SOTR 120LBS
   1.4. 180 SCFM
   1.5. 2-8 SPD
   1.6. 460-3Ø POWER
2. FINE BUBBLE DIFUSSERS WILL ONLY REQUIRE 80 SCFM.
   2.1. THE FINE BUBBLE DIFFUSERS ARE EDI, FLEXAIR T- SERIES DIFFUSERS (EPDM MEMBRANE)
3. THE BLOWERS SPEED SHALL BE CONTROLLED USING VARIABLE FREQUENCY DRIVE (VFD) AND SHALL BE BASED ON THE THE POST AERATION BASIN D.O. LEVEL.

REVISIONS:

DRM	15 FEB 2019	REMOVE FIBER-OPTIC AND REPLACE WITH YSI SENSORNET

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POST AERATION TANK MODIFICATIONS
WWTP IMPROVEMENTS PHASE 2
VILLAGE OF COVINGTION

PROJ. NO: CV07112617	DWG. NO: 1D15070		SCALE: AS NOTED
DRAWN: DRM	CHECKED: MJB	DATE: 02/15/19	SHEET NO: 4A OF 9

HEAT EXCHANGER TO BE REMOVED

P4 5|5

BLOWER MOTOR DISCONNECTS TO BE REMOVED

P2 5|5

P3 5|5

EXISTING CONCRETE PAD TO BE REMOVED AND BLOWERS TO BE REMOVED. THE CONCRETE PAD TO BE REPLACED WITH NEW.

P3 5|5

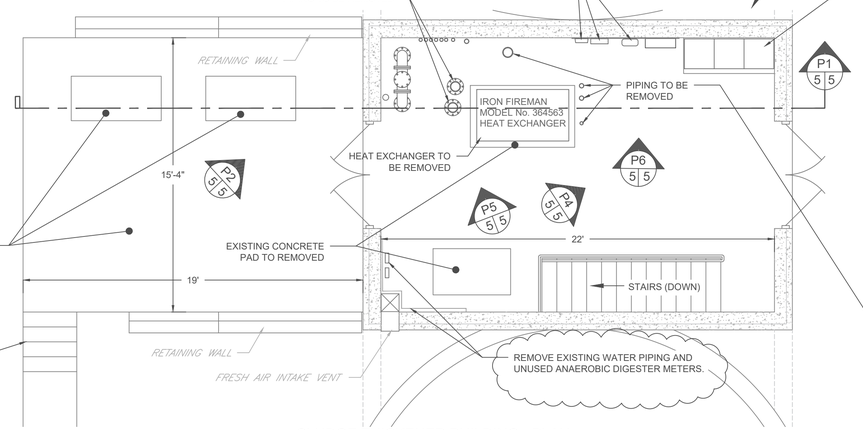
EXISTING CONCRETE STEPS TO REMOVED AND REPLACED WITH NEW.

PIPING TO BE REMOVED

NOTE:
PATCH ANY HOLES NOT BEING COVERED BY NEW BLOWER MAINTENANCE SLAB.

HEAT EXCHANGER COMPONENTS TO BE REMOVED

EXISTING MCC



SLUDGE THICKENER BUILDING - PLAN

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

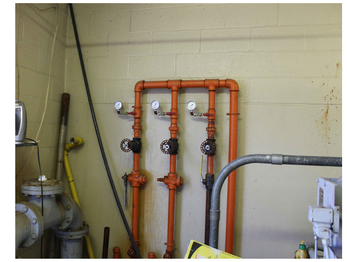
P6 5|5

	SEC 1	SEC 2	SEC 3
A			
B	SPACE		
C			
D	SLUDGE PUMP	BLOWER No. 1	
E			
F	SPACE		
G		BLOWER No. 2	
H	SLUDGE THICKENER DRIVE		
I			
J	SPARE / LT. PNL "B"		
K			
L		GAS PUMP	
M	MAIN BREAKER		

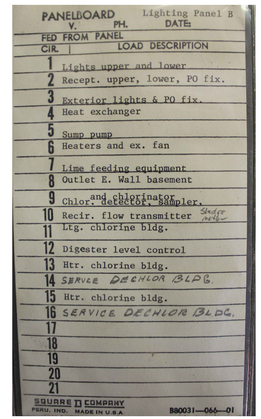
A042529 SECTION 1 OF 3 | A042530 SECTION 2 OF 3 | A042531 SECTION 3 OF 3

SQUARE D COMPANY
MODEL 4 CONTROL CENTER
F.O. 12-62315-2
PLANT 7

NOTE:
MCC IS 460VAC, 3 PHASE



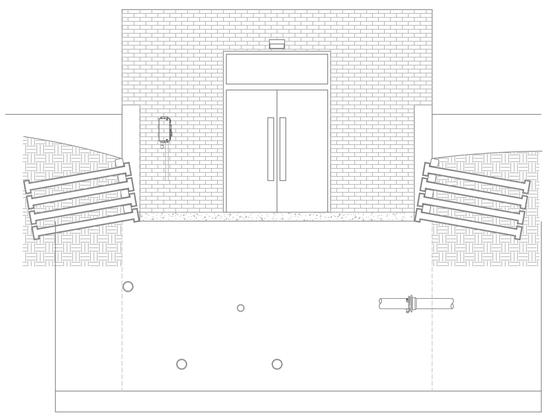
P5 5|5



P6 5|5

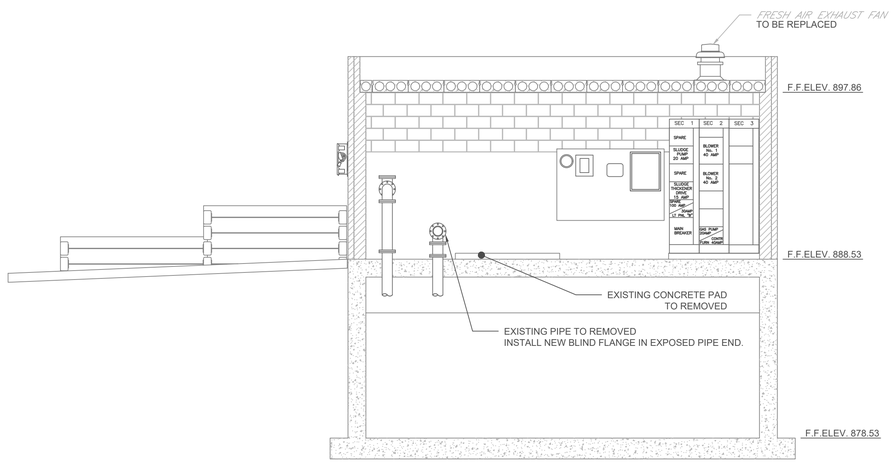
HEAT EXCHANGER TO BE REMOVED TO BE REMOVED

HEAT EXCHANGER TO BE REMOVED



WEST ELEVATION - SLUDGE THICKENER BUILDING

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



SLUDGE THICKENER BUILDING - SECTION VIEW P1 5|5

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

ABBREVIATIONS FOR CONDUIT TYPE:

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TEXT STYLE:
EXISTING CONDITIONS
PROPOSED WORK

REVISIONS:		
DRM	15 FEB 2019	REMOVE FIBER-OPTIC AND REPLACE WITH YSI SENSORNET

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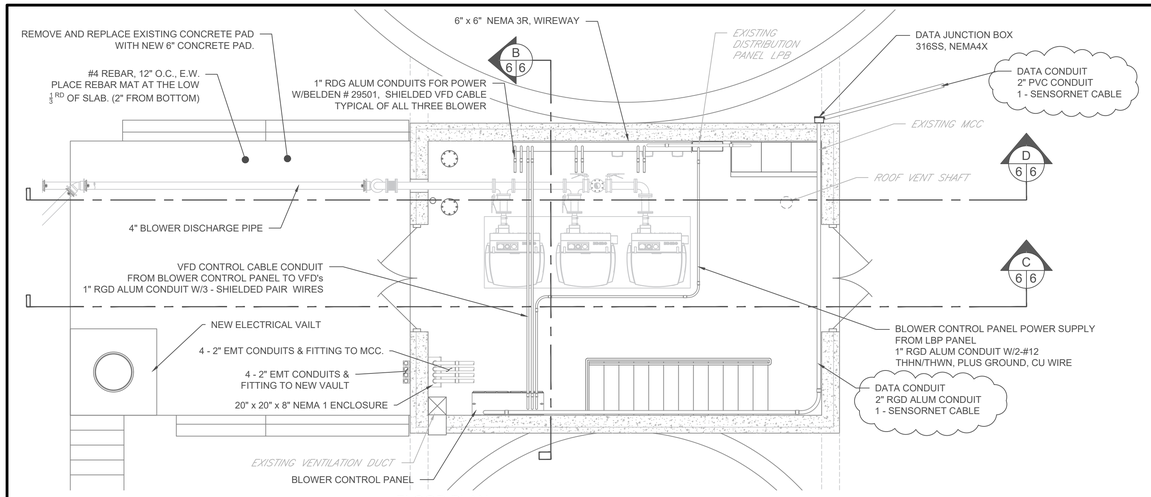
EXISTING THICKENER CONTROL BLDG
WWTP IMPROVEMENTS PHASE 2
VILLAGE OF COVINGTION

PROJ. NO: CV07112617	DWG. NO: 1D15071		SCALE: AS NOTED
DRAWN: DRM	CHECKED: MJB	DATE: 02/15/19	SHEET NO: 5A OF 9



FLOOR PLAN

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

ABBREVIATIONS FOR CONDUIT TYPE:

IMC	Intermediate Metal Conduit
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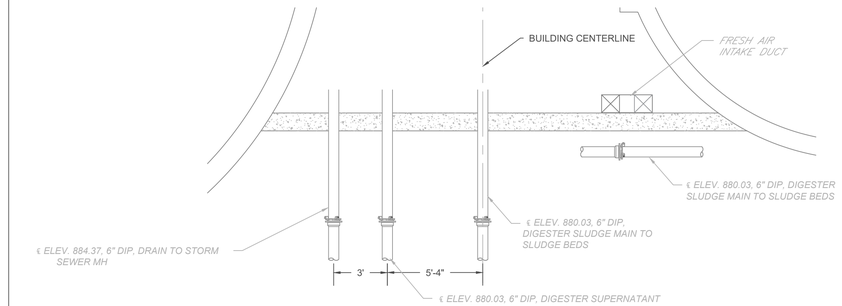
TEXT STYLE:

EXISTING CONDITIONS

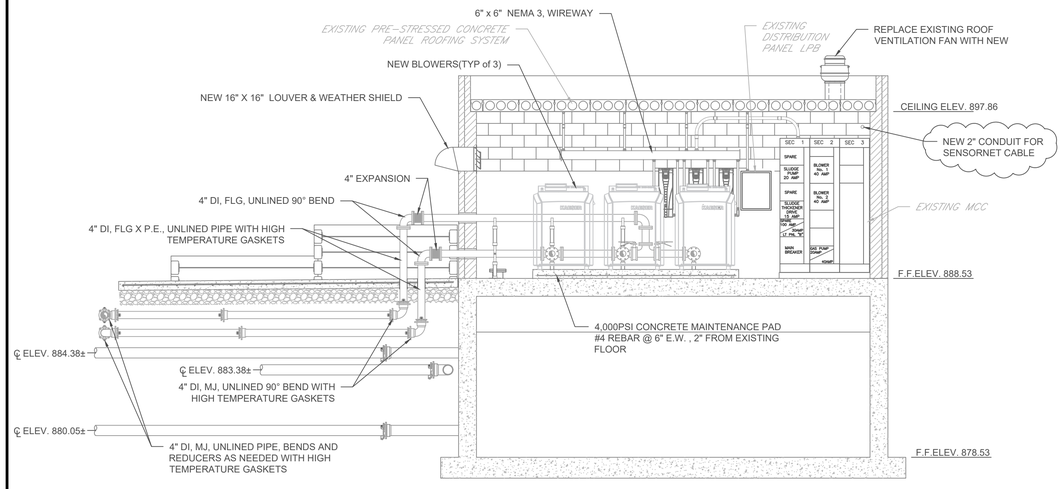
PROPOSED WORK



PLAN VIEW OF BURIED PIPE UNDER BLOWER SLAB

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

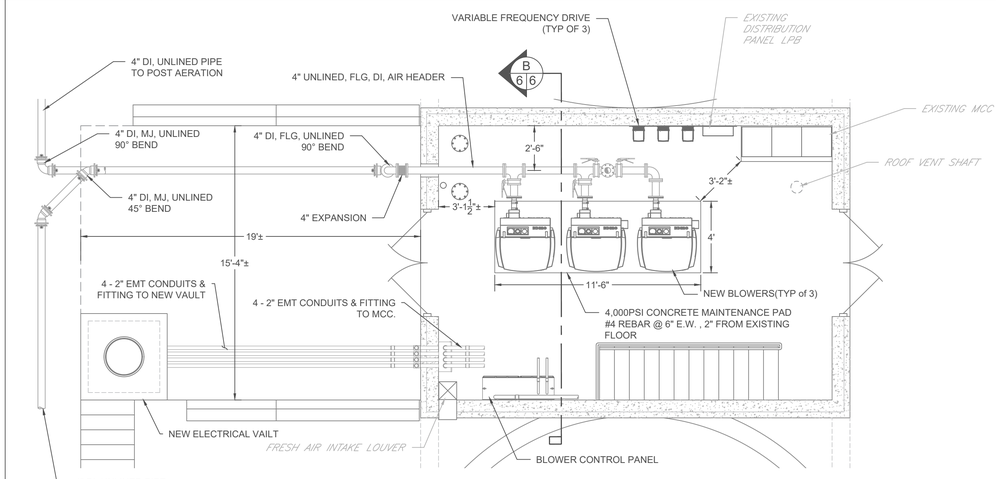
NOTE:
1. SEAL OFF ANY PENETRATIONS THROUGH THE FLOOR BEFORE CONCRETE.
2. OWNER TO REMOVE INTERIOR BUILDING EQUIPMENT PRIOR TO CONSTRUCTION.



SECTION VIEW WITH BLOWERS SHOWN

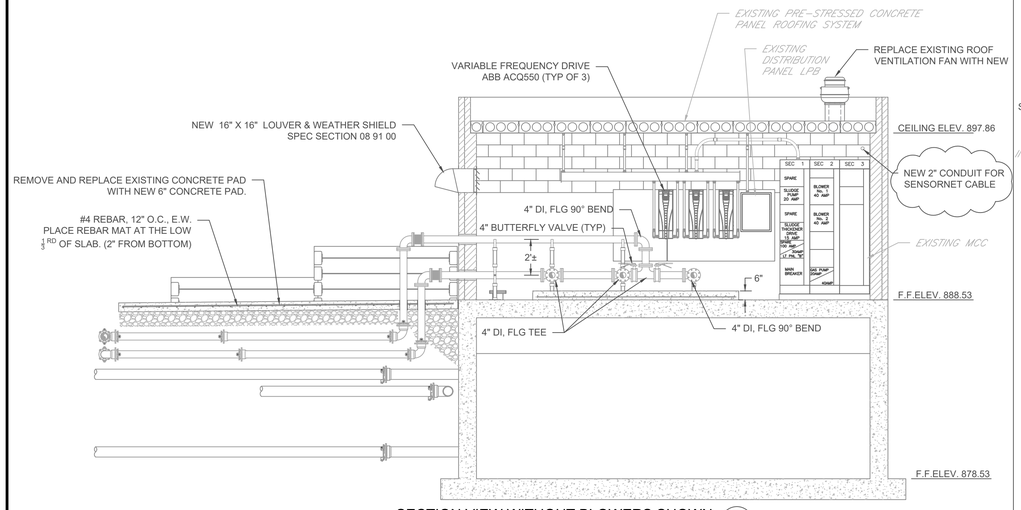
SCALE - 1/4" = 1"- 0'

C 6 6



FLOOR PLAN

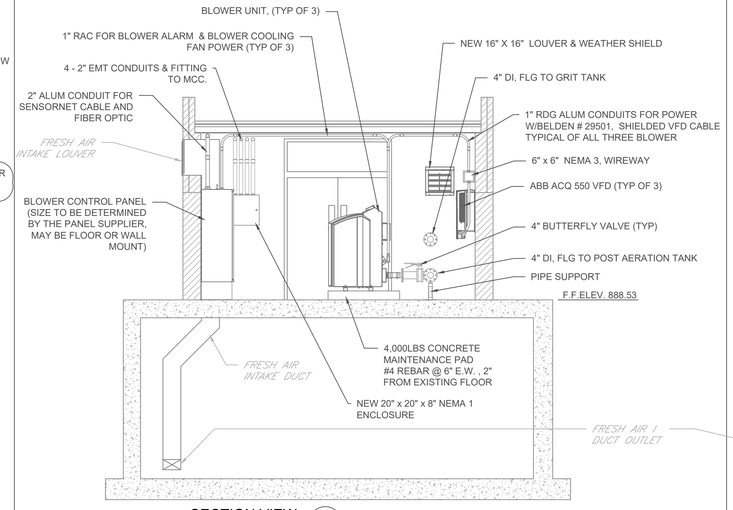
SCALE - 1/4" = 1"- 0'



SECTION VIEW WITHOUT BLOWERS SHOWN

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

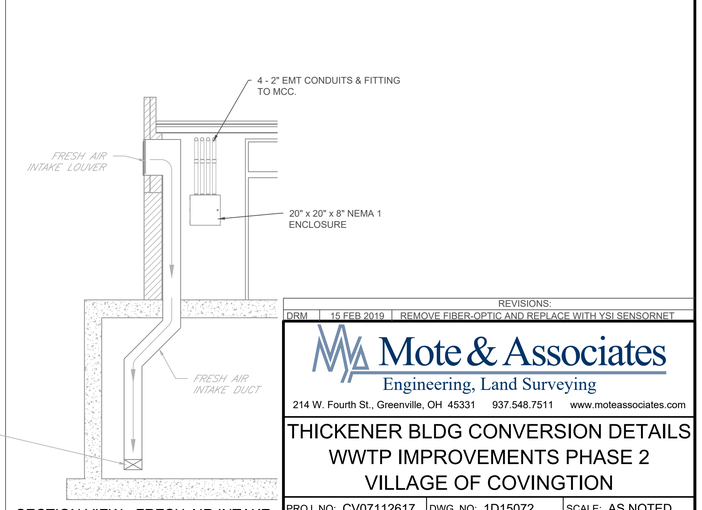
D 6 6



SECTION VIEW

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

B 6 6



SECTION VIEW - FRESH AIR INTAKE

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

REVISIONS:

DRM	15 FEB 2019	REMOVE FIBER-OPTIC AND REPLACE WITH YSI SENSORNET

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THICKENER BLDG CONVERSION DETAILS
WWTP IMPROVEMENTS PHASE 2
VILLAGE OF COVINGTION

PROJ. NO: CV07112617	DWG. NO: 1D15072		SCALE: AS NOTED
DRAWN: DRM	CHECKED: MJB	DATE: 02/15/19	SHEET NO: 6A OF 9

INTERIOR LIGHTING FIXTURE REPLACEMENT
NOT TO SCALE

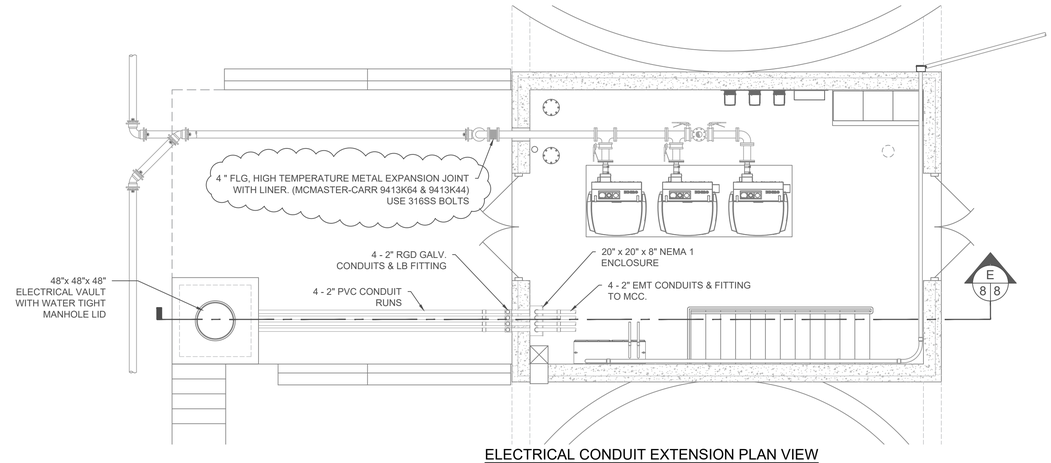
ROOF MOUNTED FAN REPLACEMENT
NOT TO SCALE
TO BE REPLACED IN-KIND

NEW PANEL MOUNTING LOCATION
NOT TO SCALE

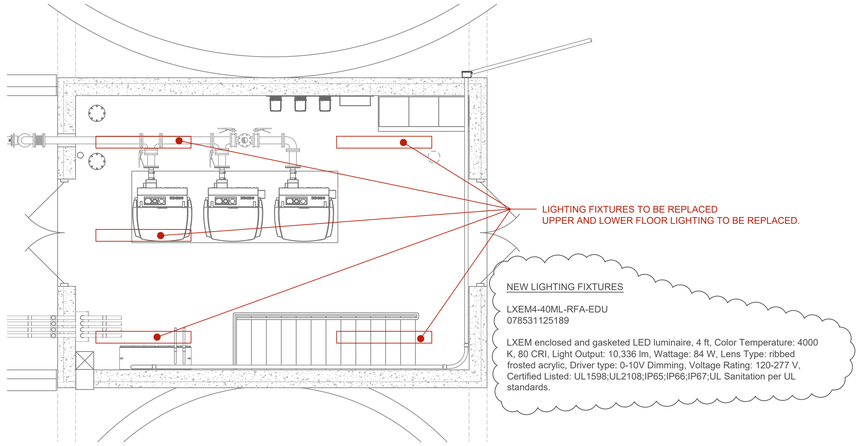
ABBREVIATIONS FOR CONDUIT TYPE:

IMC	Intermediate Metal Conduit
RMC	Rigid Metal Conduit
RAC	Rigid Aluminum Conduit
FMC	Flexible Metal Conduit
LFMC	Liquid-tight Flexible Metal Conduit
PVC	Rigid Polyvinyl Chloride Conduit
HDPE	High Density Polyethylene Conduit
NUCC	Nonmetallic Underground Conduit with Conductors
RTRC	Reinforced Thermosetting Resin Conduit
LFNC	Liquid-tight Flexible Nonmetallic Conduit
EMT	Electrical Metallic Tubing
FMT	Flexible Metallic Tubing
ENT	Electrical Nonmetallic Tubing

TEXT STYLE:
EXISTING CONDITIONS
PROPOSED WORK



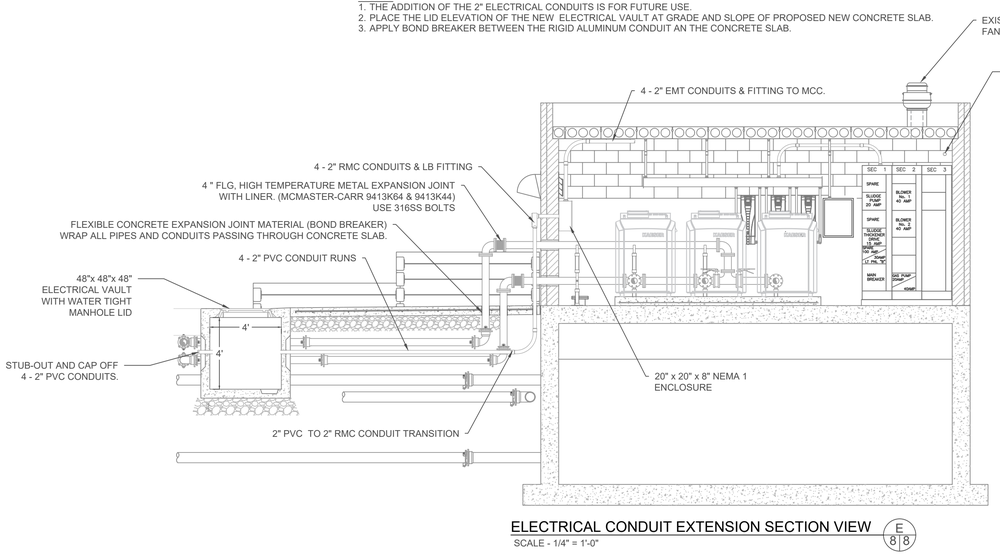
ELECTRICAL CONDUIT EXTENSION PLAN VIEW
SCALE - 1/4" = 1'-0"



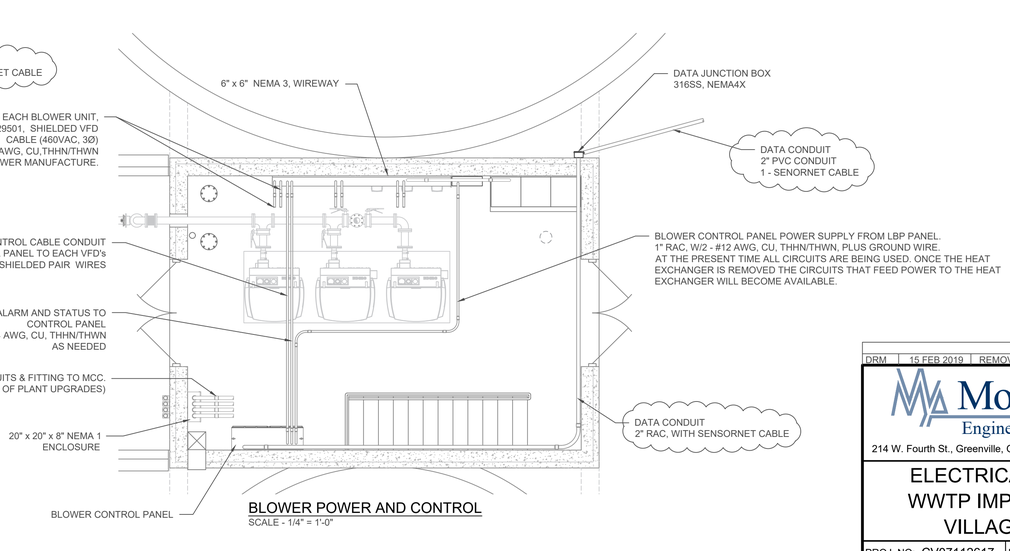
INTERIOR LIGHTING FIXTURE REPLACEMENT
NOT TO SCALE

N

NOTES:
1. THE ADDITION OF THE 2" ELECTRICAL CONDUITS IS FOR FUTURE USE.
2. PLACE THE LID ELEVATION OF THE NEW ELECTRICAL VAULT AT GRADE AND SLOPE OF PROPOSED NEW CONCRETE SLAB.
3. APPLY BOND BREAKER BETWEEN THE RIGID ALUMINUM CONDUIT AN THE CONCRETE SLAB.



ELECTRICAL CONDUIT EXTENSION SECTION VIEW
SCALE - 1/4" = 1'-0"
E 8 8



BLOWER POWER AND CONTROL
SCALE - 1/4" = 1'-0"

REVISIONS:

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ELECTRICAL UPGRADE DETAILS
WWTP IMPROVEMENTS PHASE 2
VILLAGE OF COVINGTION

PROJ. NO: CV07112617	DWG. NO: 1D15074		SCALE: AS NOTED
DRAWN: DRM	CHECKED: MJB	DATE: 02/18/19	SHEET NO: 8A OF 9

PANEL ID	PANEL LIGHT #	PANEL LIGHT & LABEL INDICATION	COLOR	CONTROL SOURCE
BP	PL1	PLANT BLOWER 1 - ACTIVATED	AMBER	DESOLVED OXYGEN CONTROLLED
BP	PL2	PLANT BLOWER 1 - RUNNING	GREEN	VFD-1
BP	PL3	PLANT BLOWER 1 - VFD FAULT	RED	VFD-1
BP	PL4	PLANT BLOWER 2 - ACTIVATED	AMBER	DESOLVED OXYGEN CONTROLLED
BP	PL5	PLANT BLOWER 2 - RUNNING	GREEN	VFD-2
BP	PL6	PLANT BLOWER 2 - VFD FAULT	RED	VFD-2
BP	PL7	PLANT BLOWER 3 - ACTIVATED	AMBER	PLANT OPERATOR CONTROLLED
BP	PL8	PLANT BLOWER 3 - RUNNING	GREEN	VFD-3
BP	PL9	PLANT BLOWER 3 - VFD FAULT	RED	VFD-3
BP	PL10			
BP	PL11			
BP	PL12			
BP	PL13			
BP	PL14			

PANEL LIGHT INDEX

NOTES:

1. PANEL BUILDER SHALL SUBMIT PROPOSED PANEL LAYOUTS TO THE ENGINEER FOR REVIEW.
2. PANEL BUILDER TO REFER TO SPECIFICATIONS FOR PANELS, SOME OF THE MAJOR COMPONENTS ARE FOR THE PROJECT ARE STANDARDIZED.
3. PANEL ARE TO MEET ANY/ALL NEC, LOCAL, STATE AND FEDERAL ELECTRICAL CODES.
4. NOT ALL PANEL SUB-COMPONENTS ARE SHOWN ON DRAWINGS BUT ARE LISTED IN THE SPECIFICATIONS.

DESCRIPTION OF AUTO OPERATIONS

1. POWER
   - THE BLOWER CONTROL PANEL IS POWERED FROM THE THICKENER CONTROL BUILDING PANEL LPB.

2. POST AERATION BLOWERS PRIMARY OPERATION
   - ONLY ONE POST AERATION BLOWER IS TO BE PLACED IN OPERATION AT ANY ONE TIME.
     - > POST AERATION BLOWERS #1 & #2 ARE VFD SPEED CONTROLLED BASED ON BASIN DESOLVED OXYGEN (mg/L).
     - > THE SPEED SHALL BE DETERMINED BY THE OPERATOR INPUT TO THE HMI DESIRED DISSOLVED OXYGEN.
       - * THE RESOLVED OXYGEN LEVEL SHALL BE MAINTAINED AT THE OPERATOR SETPOINT.
       - * IF THE IS BLOWER NOT NEEDED, IT SHALL SHUT DOWN UNTIL NEEDED. NO MORE THAN 4 RESTARTS PER HOUR.

3. FACILITY BLOWER #3 PRIMARY OPERATION
   - FACILITY BLOWER #3 IS TO BE PLACED IN OPERATION BY THE OPERATOR AND THE OPERATOR SHALL SET SPEED VIA THE VFD.
     - > THIS BLOWER IS MANUAL CONTROL ONLY.

4. HMI SCREENS AND FUNCTION. (PART OF ALTERNATE 1)
   - POST AERATION BLOWER SCREEN.
     - > DESOLVED OXYGEN (mg/L) SETPOINT CONTROL.
     - > CURRENT DESOLVED OXYGEN (mg/L) LEVEL.
   - SECONDARY BLOWER SCREEN.
     - > BLOWER 1 CURRENT SPEED (Htz).
     - > BLOWER 2 CURRENT SPEED (Htz).
     - > BLOWER 3 CURRENT SPEED (Htz).
     - > BLOWER 1 SPEED CONTROL (Hz OR %)
     - > BLOWER 2 SPEED CONTROL (Hz OR %) — HAND MODE
     - > BLOWER 3 SPEED CONTROL (Hz OR %)
   - BLOWER / VFD FAULT SCREEN.
     - > ALL BLOWER FAULTS (REFER TO MANUFACTURES DATA SHEETS)
     - > ALL VFD FAULTS (REFER TO MANUFACTURES DATA SHEETS)

(PART OF ALTERNATE 1)

DATA TO BE SENT TO THE WWTP SCADA SYSTEM

DIGITAL SIGNALS

- ■ DIGESTER BLOWER 1 - HAND MODE
- ■ DIGESTER BLOWER 1 - OFF MODE
- ■ DIGESTER BLOWER 1 - AUTO MODE
- ■ DIGESTER BLOWER 1 - RUNNING
- ★ DIGESTER BLOWER 1 - VFD FAULT
- ■ DIGESTER BLOWER 2 - HAND MODE
- ■ DIGESTER BLOWER 2 - OFF MODE
- ■ DIGESTER BLOWER 2 - AUTO MODE
- ■ DIGESTER BLOWER 2 - RUNNING
- ★ DIGESTER BLOWER 2 - VFD FAULT
- ■ DIGESTER BLOWER 3 - HAND MODE
- ■ DIGESTER BLOWER 3 - OFF MODE
- ■ DIGESTER BLOWER 3 - AUTO MODE
- ■ DIGESTER BLOWER 3 - RUNNING
- ★ DIGESTER BLOWER 3 - VFD FAULT

ANALOG SIGNALS

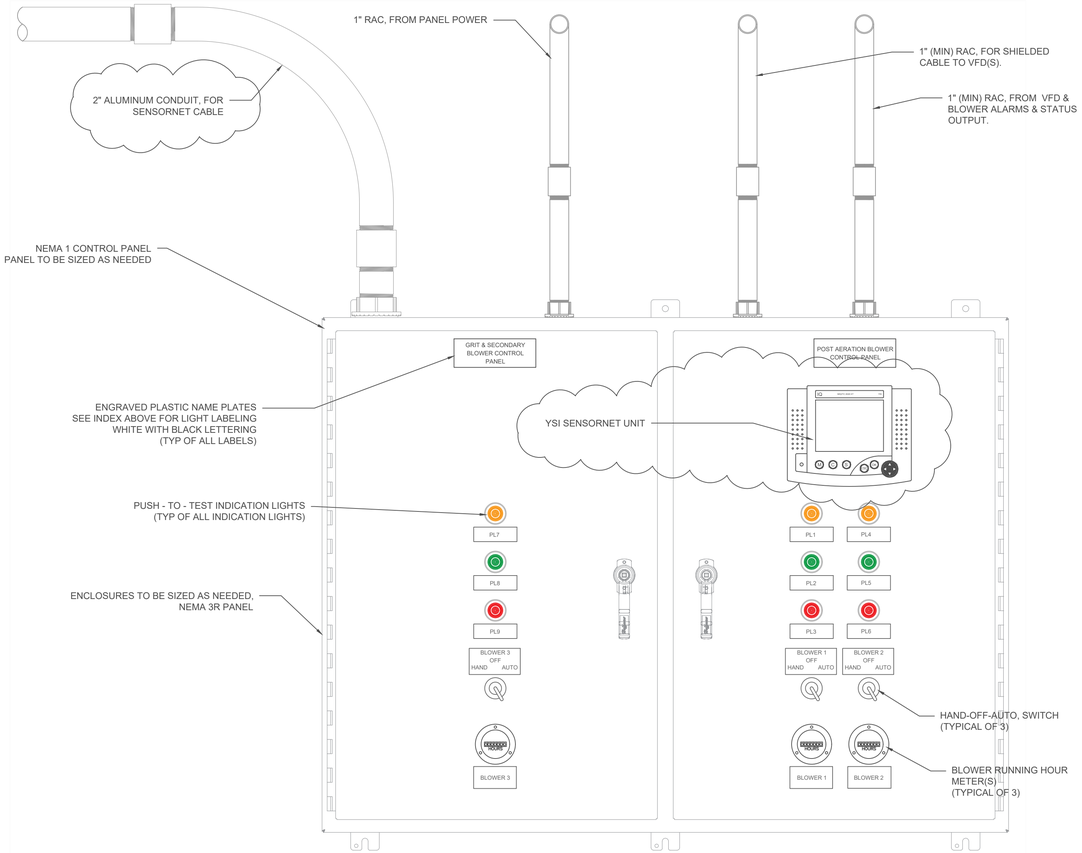
- ■ POST AERATION D.O. LEVEL (mg/L)
- ■ BLOWER 1 SPEED (Hz or %)
- ■ BLOWER 2 SPEED (Hz or %)
- ■ BLOWER 3 SPEED (Hz or %)

CONTROL FROM THE WWTP SCADA SYSTEM

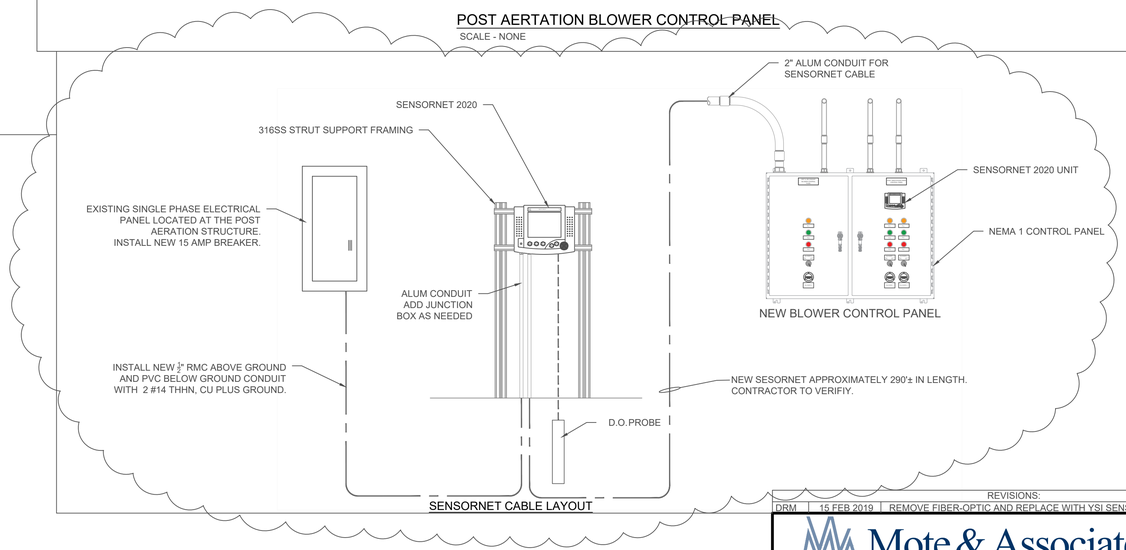
ANALOG SIGNALS

- ■ BLOWER 1 SPEED (Hz or %)
- ■ BLOWER 2 SPEED (Hz or %)
- ■ BLOWER 3 SPEED (Hz or %)

■ OPERATIONAL INFORMATION ONLY
★ ALARM CONDITION - OPERATOR TO BE NOTIFIED



POST AERATION BLOWER CONTROL PANEL
SCALE - NONE



SENSORNET CABLE LAYOUT

SOUTHWEST CORNER OF THE NEW BLOWER BUILDING

REVISIONS:		
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POST AERATION BLOWER PANEL
WWTP IMPROVEMENTS PHASE 2
VILLAGE OF COVINGTION

PROJ. NO: CV07112617	DWG. NO: 1D15075	SCALE: AS NOTED
DRAWN: DRM	CHECKED: MJB	DATE: 02/15/19	SHEET NO: 9A OF 9

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"Over 40 years of serving your engineering and surveying needs"

VILLAGE OF COVINGTON
Wastewater Treatment Plant Improvements Phase II – Blower Replacement

Pre-Bid Meeting
Sign-in Sheet

Date: February 14, 2019 Time: 10:00 A.M.

	ATTENDEES:	REPRESENTING:	PHONE NUMBER:
1.	Tom Cervik	Gibney Electric	937-658-4544
2.	David Yuck	Edwards Yuck	937-274-2892
3.	Aaron C Thompson	DOLL-LAYMAN LTD	937-671-3385
4.	Steve Doll	"	937-667-4544
5.	Doug Schwab	R.G. Zuchrich	419-782-7846
6.	Matt Renner	RCC	419-941-2233
7.	Marty Davidson	BL Anderson	513-609-1855
8.	Monte Kinzy	Duke Energy Corp	330-301-6904
9.	Butch Boehringer	Village of Covington	937 473-2104
10.	Mike Busse	Village of Covington	937-473-3420
11.	Ray Kimmel	Village of Covington	937-473-3420
12.	Dave Mathey	Mote Associates	937-548-7511

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