Addendum 01

DOCUMENT 00 91 00

DATE: March 10, 2026

PROJECT: Clermont County Facilities Phase 2 Management Building
State Route 222
Batavia, OH 45103

PROJECT #: 22001.00

OWNER: Clermont County Commissioners
Contact: Ralph Linne
101 E. Main Street, Suite 329
Batavia, OH 45103

ARCHITECT: Garmann Miller
38 South Lincoln Drive
P.O. Box 71
Minster, Ohio 45865

TO: Prospective Bidders

This addendum form is a part of the Contract Documents and modifies the Construction Documents dated February 19, 2026, with amendments and additions noted below.

Acknowledge receipt of this Addendum on the Bid Form. Failure to do so may disqualify the Bidder.

This addendum consists of 3 pages, 7 specification sections, and 13 re-issued drawing sheets.

FOR INFORMATION ONLY

1. Pre-bid meeting minutes and the pre-bid meeting sign-in sheet are attached.

CHANGES TO THE PROJECT MANUAL

1. Section 00 11 00 Request for Bid Packet – Instructions to Bidders – Replace pages to denote bid opening date has been moved back (2) weeks to April 9, 2026. Replace pages to denote inquiry date has been moved back (2) weeks to March 25, 2026.
2. Section 00 31 19 – Existing Conditions Information – Add soil borings report to end of spec section.

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3. Section 01 23 00 Alternates – Provide an alternate for controls by manufacturer "Carrier i-Vu".
4. Section 01 58 13 – Temporary Project Signage – Add 2.02 C to spec section
5. Section 07 21 13 – Board Insulation – Atlas EnergyShield XR Polyiso Insulation has been added as an approved manufacturer and product.
6. Section 07 61 00 – Snow Guards – SnowMax Alpine Snow Guards has been added as an approved manufacturer and product.
7. Section 08 11 13 – Hollow Metal Doors and Frames – Article 2.01B: ArmorShield Door and Frame System by Ceco Doors has been added as an approved manufacturer and product. Article 2.01C: StormPro Tornado Resistant Assemblies by Ceco Doors have been added as an approved manufacturer and product.
8. Section 10 14 19 - Dimensional Letter Signage – Update material and mounting method for dimensional letters.
9. Section 10 22 39 Folding Panel Partitions – Material change on folding panels and removal of mentions of markerboards.
10. Section 23 09 13 Instrumentation and Control Elements – Alternate for Carrier i-Vu.

CHANGES TO THE DRAWINGS

1. Drawing Sheet C1.3 Dimension and Pavement Plan - Note added that the CTC pavement for the Phase 3 project is not in this contract.
2. Drawing Sheet C2.1 Utility Plan –
   a. Sanitary lateral slope changed to 2.0% min.
   b. Elevations for critical storm and 100 yr storm added to detention pond text.
3. Drawing Sheet C3.2 Pavement Elevations Plan - More elevation call outs added to the Filager Road driveway.
4. Drawing Sheet A1.1 First Floor Plan – Add knox box location, added elevation tags and building section callouts around building that reference other Architectural sheets. Removed duplicate A120 door, door should have been labeled B117.
5. Drawing Sheet A1.2 Enlarged Floor and Mezzanine Plans – Add metal guardrail extension for alternating tread stair to close off gap in Mezzanine opening at both locations. Removed duplicate TA2.2 mirror designation in Toilet Accessory Schedule.
6. Drawing Sheet A2.1 Building Elevations – Overall Exterior – Add building address signage.
7. Drawing Sheet A3.2 Building Sections – Added ceiling in Tech Room A105.
8. Drawing Sheet A4.2 Section Details – Under slab clarification added to Detail 3. Removed continuous air barrier system from Detail 1. Board insulation to provide continuous air and vapor barrier.
9. Drawing Sheet A5.1 Roof Plan – Coordinated correct spec section on drawings to align with snowguard spec section.
10. Drawing Sheet A6.1 Door Schedule, Door and Window Details – Switched door B120 to B117 to eliminate duplicate. Updated Doors A106a and B101 to be FG2 Door Type.
11. Drawing Sheet A7.1 First Floor Reflected Ceiling Plan – Add elevation tag at building soffit, Added ceiling in Tech Room A105.
12. Drawing Sheet M5.3 Mechanical Schedules and Details – Add remark in schedule for isolation pads.
13. Drawing Sheet E4.1 Lighting Plan – Add (2) exit signs 'X1' in room A103.

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ATTACHMENTS

The following attachments are included and are part of this addendum:

Pre-Bid Meeting Minutes and Sign-in Sheet

Specification Sections 00 11 00, 00 31 19, 01 23 00, 01 58 13, 10 14 19, 10 22 39, 23 09 13

Drawing Sheets C1.3, C2.1, C3.2, A1.1, A1.2, A2.1, A3.2, A4.2, A5.1, A6.1, A7.1, M5.3, E4.1

END OF ADDENDUM

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Pre-Bid meeting

Project name	Filager Campus Improvement Phase 2	GM project no.	22001.00
Meeting date	03/05/2026	Meeting location	Highway Operations Building

Minutes

1. Attendees: Reference attached sign-in sheet

2. Introductions and Project Overview

3. Bidding
   a. Date: Thursday, April 9, 2026
   b. Location: Bids will be opened in person at the Office of the Board of Clermont County Commissioners
      Attn. BID – Filager Campus Improvement Phase 2
      Address: 101 East Main Street, Suite 329
      Batavia, Ohio 45103
   a. Use the RFB (Request for Bid) Packet provided
      Bids will be opened at 2:00pm
   b. Plans have been submitted to Clermont County Permit Central for review and permits, costs to be paid by owner.

4. Bid categories
   a. General construction

5. Alternates
   a. There are no alternates

6. Contingency amounts to be included in bid
   a. General construction: $540,500

7. Contracts will be administered by Garmann/Miller & Associates, Inc.
   a. All questions and correspondence to go through Garmann Miller
   b. All Construction RFIs to go through Garmann Miller
   c. Pay applications to go to Garmann Miller
   d. Garmann Miller will schedule a preconstruction meeting with the contractor after the notice of award

8. Schedule
   a. Tentative date for Notice to Proceed: 2 months after Bid Opening
   b. Completion date: 425 calendar days after Notice to Proceed

i. Liquidated Damages – $4,000 per day
ii. Claims for weather days must follow table 108.06-1 in the RFB

9. General conditions
   a. Waste Removal: General Contractor
   b. General Contractor
      i. Responsible for construction schedule and general supervision
      ii. Submit preliminary schedule 10 days after notice to proceed
      iii. Responsible for scheduling and administering job meetings; prepare agenda, responsible for meeting minutes and distributing copies
   c. Responsible for field office
   d. Responsible for internet connection for field office
   e. Responsible for sanitary facilities, barriers, fencing, exterior and interior enclosures
   f. Project sign

10. Temporary electricity
    a. Electrical contractor to provide service, temporary power, temporary lighting, temporary service to general contractor job trailer.
       i. Temporary service to other job trailer is the responsibility of individual requiring
    b. Cost of electricity: by owner

11. Temporary heat
    a. Prior to building enclosure: Contractor requiring
    b. After building enclosure:
       i. Method by HVAC contractor
       ii. Cost by owner

12. Temporary water
    a. The general contractor shall connect to water utility supply and pay for installation of temporary metered service including tap fees and extend temporary water service to location required.
    b. Cost by owner

13. Substitution Requests and Bid RFI's
    a. All Bid RFIs to go through Garmann Miller and Ralph Linne
       i. mniekamp@creategm.com and rlinne@clermontcountyohio.gov
       ii. Requests must be received by 12:00pm Wednesday, March 11, 2026
       iii. Answers will be sent via email by 4:30pm Friday, March 13, 2026

14. Additional Information
    a. Pinnacle Environmental Consultants is completing an environmental assessment of the buildings to be demolished
       i. Lab results did not identify any ACMs that require removal prior to demolition

15. Contractor Questions
    a. The owner confirmed that the USB drive is a requirement to be included in the bid packet

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Sign-in Sheet

Project Name: Filager Campus Improvement Phase 2 | GM Project No.: 22001.00
Meeting Location: Highway Operations Building | Meeting Date: 03/05/2026

Purpose: Pre-Bid Meeting

Attendees

☐	Name	RALPH LINNE	Phone 513-732-7986
	Business/Title	ASST. COUNTY ADMINISTATOR	
	Email	RLINNE@CLERMONTOHIOCOUNTY.GOV	
☐	Name	NICK HARTER	Phone 513-351-6900
	Business/Title	MONARCH CONSTRUCTION	
	Email	NHARTER@MONARCHCONSTRUCTION.CC	
☐	Name	JAKE RAYMOND	Phone 513-335-9776
	Business/Title	MONARCH CONSTRUCTION	
	Email	jraymond@monarchconstruction.cc	
☐	Name	DOUG SMITH	Phone 513-341-3334
	Business/Title	Applications Engineer	
	Email	dmsmith@teamfishel.com	
☐	Name	Deanne Whalen	Phone 513-248-4800
	Business/Title	Perkins/Carmack Construction	
	Email	Zachevans@perkinscarmack.com	
☐	Name	Logan Pulskamp	Phone 513-448-2409
	Business/Title	Monarch Construction	
	Email	lpulskamp@monarchConstruction.CC	
☐	Name	NATHAN WILLIAMS	Phone 513 252 7953
	Business/Title	GRAYBACH	
	Email	NATHAN.WILLIAMS@GRAYBACH.COM	
☐	Name	Ryan Harrison	Phone (513) 580-0686
	Business/Title	Est. / PM Seco Electric	
	Email	ryanh@secoelectric.net	

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☐	Name: Ray Payne	Phone: 513.594-4950
	Business/Title: Colliers Engineering, GDL	Land Surveyor
	Email: ray.payne@collierseng.com	
☐	Name: Nage Samuel	Phone: 859 600 9922
	Business/Title: Manning Contracting	
	Email: nsamuel@manningcontracting.com	
☐	Name:	Phone:
	Business/Title:	
	Email:	
☐	Name:	Phone:
	Business/Title:	
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☐	Name	Marc Graf — Phone 614-271-5033
	Business/Title	SETTERLIN BUILDING COMPANY
	Email	M.graf@setterlin.com
☐	Name	Dustin Stewart — Phone 513-926-0243
	Business/Title	DeBra Kuempel Hunt/Mech
	Email	Dustin.stewart@dkenter.com
☐	Name	STEVE COOLEY — Phone 513-259-1773
	Business/Title	BANTA ELECTRIC
	Email	SCOOLEY@BANTAELECTRIC.COM
☐	Name	James Milby — Phone 513-687-3429
	Business/Title	Triton Services
	Email	JMilby@TritonServicesInc.com
☐	Name	RYAN TATMAN — Phone 513-746-5775
	Business/Title	NELSON STARK - SITEWORK
	Email	RTATMAN@NELSONSTARK.COM
☐	Name	Steve Logan — Phone 513-918-1321
	Business/Title	Loyalty 1st cleaning
	Email	steve@loyaltyfirstcleaning.com
☐	Name	JUSTICE TUSSING — Phone 567-259-8220
	Business/Title	CONSTRUCTION MANAGER OF OHIO / PM
	Email	justice@cmofohio.com
☐	Name	Danny Dickson — Phone 513 460 0318
	Business/Title	DJ DRew Company / chief operations officer
	Email	Dannyd@DJDRewcompany.com
☐	Name	Matt Neike — Phone 937 474 9149
	Business/Title	FOXX Construction / Estimator
	Email	mneike@foxxconstruction.com
☐	Name	Jordan Bezold — Phone (859) 640-0540
	Business/Title	LPM Electric
	Email	jordan.bezold@lpmelectric.com

GARMANN MILLER

☐	Name	Steve Cole Manning Contracting	Phone 513 612 8814
	Business/Title	Director / Manning Contracting	
	Email	Steve@manningcontracting.com	
☐	Name		Phone
	Business/Title		
	Email		
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The Clermont Sun

Date: February 19th, 2026

The Board of County Commissioners, Clermont County, Ohio, will be accepting sealed bids for the Filager Campus Improvement Phase 2, located at 4011 Filager Road Batavia, Ohio 45103. All bids shall be submitted in a sealed envelope marked: BID – Filager Campus Improvement Phase 2. All bids must be received in the Office of the Board of Clermont County Commissioners, 101 E. Main Street, Suite 329, Batavia, Ohio 45103, no later than **2:00 P.M. local time on Thursday, April 9th, 2026**, at which time all bids shall be opened and read publicly.

Bid Documents (instructions to contractors, drawings, specifications, and bid form outlining the terms and conditions) may be purchased in hard copy or electronic PDF form at DC Reprographics, 1254 Courtland Ave, Columbus, Ohio 43201; www.DCplanroom.com; Phone 614-297-1200. Partial sets may only be purchased in addition to a minimum of one full set. Cost for the documents is non-refundable. Bid documents may also be viewed by interested parties at Garmann Miller ; 38 South Lincoln Drive, P.O. Box 71, Minster, OH 45865, Phone (419) 628-4240 or at the offices of the Clermont County Facilities Management Department; 4001 Filager Road, Batavia, Ohio, 45103, Phone: (513) 732-8850, rlinne@clermontcountyohio.gov Office hours are from 8:00 A.M. to 4:30 P.M., local time, Monday thru Friday.
There will be a pre-bid conference at the newly constructed Highway Operations Building, 4475 OH-222, Batavia, Ohio 45103 at 10 A.M. local time, Thursday, March 5th, 2026. Deadline for questions Wednesday, March 25th, 2026, by 12:00 P.M. local time.

NOTE: ALL PROSPECTIVE BIDDERS/RESPONDENTS ARE HEREBY CAUTIONED NOT TO CONTACT ANY MEMBERS OF THE CLERMONT COUNTY STAFF OR OFFICIALS OTHER THAN THE SPECIFIED CONTACT PERSONS.

The Architect's Estimate for the work of this project is $11,352,000.00

Each Bidder MUST submit their bid in DUPLICATE, one (1) original paper copy, along with one (1) searchable PDF copy on a USB. All copies must be in a sealed envelope marked: BID**-** Filager Campus Improvement Phase 2. Each bidder must deposit with his bid, security in the amount of 100% of the bid if in the form of a Bid Bond or in the amount of not less than ten (10%) percent of the bid if in the form of a certified check, cashier's check or letter of credit, for and subject to the conditions provided in the Information for Bidders and pursuant with Ohio Revised Code Section 153.54. Bid security furnished in Bond form shall be issued by a surety company or corporation licensed in the State of Ohio to provide said surety. Letters of credit and bid bonds must be filed with original signatures. Facsimile and electronic copies of the letter of credit, bid bond and Power of Attorney of the Surety will be deemed non-responsive.

The Board of Clermont County Commissioners reserves the right to waive any informalities, reject any or all bids and to hold such bids for a period of sixty (60) days before taking any action and to award a contract to the lowest and best bidder.

This notice is also posted on Clermont County's web site at the following URL link: www.clermontcountyohio.gov. In order to view the legal notice click on the link Legal Notices located on the Clermont County Home Page.

BOARD OF COUNTY COMMISSIONERS
CLERMONT COUNTY, OHIO

Bonnie J. Batchler, President
David L. Painter, Vice President
Claire B. Corcoran, Member

ATTEST:

_____
Gael Fawley, Clerk of the Board

Bill to:
Board of Clermont County Commissioners
ATTN: Angie Livesay
101 E. Main Street
Batavia, Ohio 45103

ARTICLE 3: GENERAL INSTRUCTIONS TO BIDDERS

1. *Bid Submittal:*

Reply to:

Board of County Commissioners
Clermont County
101 E. Main Street
Batavia, Ohio 45103-2960

All bids submitted for consideration by the Board of Clermont County Commissioners (referred to herein as “County” or “Owner”) must comply with these instructions in order to be considered. These instructions set forth minimum requirements as to the terms and conditions of the contract. Therefore, if any time frames, bid bond or other surety requirements set forth herein are in conflict with stated requirements in the specifications, the more stringent requirements shall prevail.

2. *Schedule of Activities:*

Bids Due and Opened:
Time: 2:00 P.M. local time
Date: Thursday, April 9th, 2026
Location: Board of Clermont County Commissioners
Clermont County
101 E. Main Street, 3rd Floor
Batavia, Ohio 45103-2960

Pre-Bid Conference and Site Visit
Time: 10:00 A.M. local time
Date: Thursday, March 5, 2026
Location: County Engineer Highway Operations Building
Batavia, Ohio 45103

3. *Contractor Requirements:* It is required that the bidder have prior experience/expertise in the area pertaining to the bid items listed in Article 5 Project Specifications as attached.

4. *Foreign Corporations:* If the Bidder to be awarded the Contract is a foreign corporation, the Secretary of State has certified that such corporation is authorized to do business in this state; and until if the Bidder so awarded the Contract, is a person or partnership has filed with the Secretary of State as its

agent for the purpose of accepting service of summons in any action brought under Section 153.05 of the Revised Code or under Sections 4123.01 to 4123.94, inclusive of the Revised Code.

5. *Implied Requirements:* All products and services not specifically mentioned in the bid, but which are necessary to provide the functional capabilities described by the vendor, shall be included in the vendor's base bid.

6. *Base and/or Alternate Bids:* Bids may contain descriptions of options or alternatives that may be available to the County. The Base Bid will contain all material and labor to execute the base project as indicated in the bid request and all other bidding documents. All bidders must also include Alternate Bids for listed alternates.

The County reserves the right to award a contract that includes the base bid alone or the base bid and any combination of alternate bids.

7. By responding to this RFB, the bidder hereby agrees that if it is awarded the bid it shall indemnify and hold the County harmless from any claims, demands or losses of any type or nature to any person, bidder or corporation arising in any manner from the bidder's performance or failure to perform the work required under this RFB and shall pay any judgment or liability obtained or growing out of said claims, liabilities, or judgments, including reasonable attorney's fees and costs.

8. *Contractor-supplied Materials:* Any material submitted by a vendor shall become the property of the County.

9. *Rejection of Bids:* The County reserves the right to reject any and all bids, to waive any informalities in the bidding procedure, to accept any bid which it deems to be for the best interest of the County and to hold such bids for a period of sixty (60) days before taking action to award a contract. The bid will be awarded to the "lowest and best" bidder.

10. *Bid Identification and Submittal:* Bids shall be clearly marked on the envelope: "**BID – Filager Campus Improvement Phase 2***"* and include the bidders name and address. Bids must be in a sealed envelope submitted with one (1) original copy and (1) searchable PDF copy on a USB. Replies must be received in the Office of the Board of County Commissioners no later than 2:00 P.M. local time on April 9th, 2026. Late bids will not be considered. Bidders will not be permitted to alter their bids after bid closing. Should the bidder wish to mail in the bid, they should send them to the County at the address indicated and must be received by the County prior to the above date and time.

11. *Bid Opening:* Bid opening will occur at 2:00 P.M. local time on Thursday, April 9th, 2026 at the Office of the Board of Clermont County Commissioners, 101 E. Main Street, 3rd Floor, Batavia, Ohio 45103.

12. Each person bidding for a contract for the construction, demolition, alteration, repair, or reconstruction of any public improvement is required to file with his bid a bid guaranty in the form of either (1) a bond for the full amount of the bid or (2) a certified check, cashier's check, or letter of credit pursuant to Chapter 1305 of the Revised Code in an amount equal to ten (10) percent of the total amount of the bid (including add alternates) pursuant to Section 153.54 of the Ohio Revised Code. The successful bidder at the time he enters into the contract shall be required to file a performance bond in the full amount of the contract pursuant to Section 153.54 (C) of the Ohio Revised Code. Letters of credit and bid bonds must be filed with original signatures. Facsimile and electronic copies of the letter of credit, bid bond and Power of Attorney of the Surety will be deemed non-responsive.

13. Bids may be rejected if all required papers are not returned with the bid. The bid bond shall be returned:

A: If said bid shall be rejected.

B: If said bid shall be accepted and the principal shall execute and deliver contract properly completed in accordance with said bid, and the successful bidder enters into a performance bond, guaranteeing performance of all required under the contract.

14. *Bid Duration:* All prices quoted by the bidder in their bid must remain unchanged for a period of sixty (60) days after the date of bid opening.

15. *Bid Suitability:* When analyzing the bids submitted, when applicable, superior design, technology, workmanship, materials, size of component parts, operating cost, warranty, service facility etc. will be considered in addition to price. It is Clermont County's intent to accept the bid for which a thorough analysis of the bids submitted, proves to be the most suitable for the intended use.

16. *Discounts:* Bidders may offer cash discounts for prompt payment of invoices, but their discounts will not be used in determining the final net prices bid. The County will endeavor to take advantage of such discounts if offered.

failure of any bidder to examine any bid requirement shall in no way relieve the bidder of any obligation or condition of these contract documents.

28. *Bidder Qualifications:* The County reserves the right to conduct any investigations that it deems necessary to establish the responsibility, qualifications and financial ability of the bidders, proposed subcontractors and other persons and organizations to do the work in accordance with the Contract documents to the County's satisfaction within the prescribed time limits. The bidder shall furnish the County any and all such information, documents and data for this purpose that the County may request.

29. *Statements of Conditionality:* Bids which contain statements of conditionality will not be accepted. The County also reserves the right to reject any bid should the information submitted by or the investigation of such bidder fails to satisfy the County that such bidder is sufficiently qualified to carry out any and all obligations of the contract.

30. All materials and exhibits submitted in the bid response shall become the property of Clermont County and will not be returned to the bidder. All bids received constitute public information as a matter of statutory law and will be made available for public inspection and copying upon request by members of the public pursuant to the requirements of Section 149.43 of the Ohio Revised Code. Any portion of the bid that the bidder requires to be treated as confidential in nature must be marked to that effect and provided that the information falls within an appropriate exemption enumerated under Section 149.43 of the Ohio Revised Code, that portion will not be considered public record. **A blanket indication of confidentiality or privilege will not be accepted and unless specific materials that fall within the appropriate statutory exemption are identified, the entire bid response will be treated as a public record.**

31. *Inquiries:* Respondents must address any questions or requests for interpretation regarding the RFB via e-mail to the County's point of contact, Ralph Linne, rlinne@clermontcountyohio.gov, no later than 12:00PM (noon) local time, Wednesday, March 25, 2026. The person submitting the question or request shall be responsible for its prompt delivery. Answers to all questions or requests for interpretation will be sent via e-mail by 4:30 PM local time on Friday, March 27, 2026, to all Respondents that have submitted a written request for the proposal or have registered an email address.

Soil Study for Proposed Facilities/Engineering Management Building, Filager Road, Batavia, Ohio

Submitted To:

Clermont County Board of Commissioners

Attn: Mr. Ralph Linne

101 East Main Street

Batavia, Ohio 45103

Report No. 20003009-0625-119

June 10, 2025

BOWSER MORNER®

4518 Taylorsville Road—Dayton, Ohio 45424—937.236.8805
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DAYTON ENGINEERING SERVICES
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P. 937.236.8805 **F.** 937.233.2016
www.bowser-morner.com

June 10, 2025

Clermont County Board of Commissioners
Attention: Mr. Ralph Linne, Assistant County Administrator
101 East Main Street
Batavia, Ohio 45103

Re: Report No. 20003009-0625-119; Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

Dear Mr. Linne:

Bowser-Morner, Inc. is pleased to submit our report of the soil study for the above-referenced project. The purpose of this study is to determine the physical characteristics of the soil strata and allowable bearing capacity for the proposed building. Also noted are other conditions that could affect the design and/or construction of the structure.

The samples collected that were not used to perform the laboratory tests will be kept in our laboratory for 30 days unless you advise us otherwise. If you have any questions or if we can help you in any way on this project or future work, please call us.

Respectfully submitted,
BOWSER-MORNER, INC.

"This document was originally issued by Chris R. Ryan, M.S.C.E., P.E. and Daniel Otieno on June 10, 2025. This document is not considered a sealed document."

Daniel M. Otieno
Geotechnical Engineer

Chris R. Ryan, M.S.C.E., P.E.
Sr. Geotechnical Engineer

DMO/CRR/an
3-Client
2-File

TABLE OF CONTENTS

Section I

Text

1.0 INTRODUCTION

A Facilities/Engineering Management Building will be constructed at 4003 Filager Road in Batavia, Ohio. A vicinity map (Figure 1) is included in Section III of this report. Our findings on the soil conditions and groundwater levels with respect to the potential construction problems, and recommendations for the allowable bearing capacity for the construction of the building are given in this report.

Authorization to proceed with this soil study was given by Clermont County Board of Commissioners in a signed Purchase Order No. 25002718 dated April 1, 2025. The work was to proceed in accordance with our proposal and agreement, Quotation No. 25-2771-011 dated February 11, 2025.

The draft soil boring logs and preliminary foundation recommendations were emailed to Clermont County Board of Commissioners on May 6, 2025.

2.0 WORK PERFORMED

2.1 Field Work

Sixteen (16) soil borings were made at the locations shown on the boring location plan, Figure 2 in Section III. Borings 1, 2, 4, 6, 7, 9, 10, 12 and 13 were performed in the proposed building area, Borings 3, 5, 8, 11, 15 and 16 were performed in the proposed parking lot area, and Boring 14 was performed in the proposed detention pond area. The boring logs and boring location plan are included in Section III. The borings were made with a boring rig using hollow-stem augers and standard penetration resistance methods. The standard penetration tests were performed in accordance with ASTM D1586, which includes a 140-pound hammer, 30-inch drops, and two-inch-O.D. split-spoon samplers driven at maximum depth intervals of five feet or at major changes in stratum, whichever occurred first. The disturbed split-spoon samples were visually classified, logged, sealed in moisture-proof jars, and taken to the Bowser-Morner, Inc. laboratory for study. The depths where these "SS"-type split-spoon samples were collected are noted on the corresponding boring logs.

2.2 Laboratory Work

Plasticity Testing: Three (3) Atterberg limits tests were performed in accordance with ASTM D4318 to determine the liquid and plastic limits on the most visibly plastic cohesive soil or as needed for soil classification. Plasticity testing is commonly performed to assess seasonal volume change potential of subsurface cohesive materials for use as structural fill and foundation support materials.

Moisture Contents: 51 moisture content determinations were made in accordance with ASTM D2216. The results of the laboratory tests are summarized in Table 2-1 and included in Section III of this report.

Table 2-1. Summary of Laboratory Test Results

Boring No.	Depth (ft.)	Moisture Content (%)	Atterberg Limits LL	PL	PI
1	1.0 – 2.5	7.9			
	6.0 – 7.5	9.3			
	8.5 – 10.0	10.1	28	17	11
2	1.0 – 2.5	7.8			
	3.5 – 5.0	9.3			
	8.5 – 10.0	5.9			
3	1.0 – 2.5	8.2			
	3.5 – 5.0	8.7			
	6.0 – 7.5	9.0			
4	1.0 – 2.5	8.2			
	3.5 – 5.0	9.3			
	8.5 – 10.0	13.0			
5	1.0 – 2.5	3.2			
	6.0 – 7.5	9.9			
	8.5 – 10.0	10.8			
6	3.5 – 5.0	10.2			
	6.0 – 7.5	10.0			
7	1.0 – 2.5	7.3			
	6.0 – 7.5	9.8	50	24	26
	8.5 – 10.0	10.0			
8	1.0 – 2.5	8.6			
	3.5 – 5.0	9.6			
	6.0 – 7.5	10.0			
	8.5 – 10.0	10.4			
9	1.0 – 2.5	8.9			
	3.5 – 5.0	9.1			
	6.0 – 7.5	10.8			
10	1.0 – 2.5	9.7			
	3.5 – 5.0	9.0			
	6.0 – 7.5	10.3			
	8.5 – 10.0	10.4			
11	1.0 – 2.5	8.8			
	3.5 – 5.0	9.2			
	6.0 – 7.5	9.9			
12	1.0 – 2.5	4.2			
	3.5 – 5.0	8.8			
	6.0 – 7.5	9.4			
	8.5 – 10.0	10.4			

Table 2-1. Summary of Laboratory Test Results

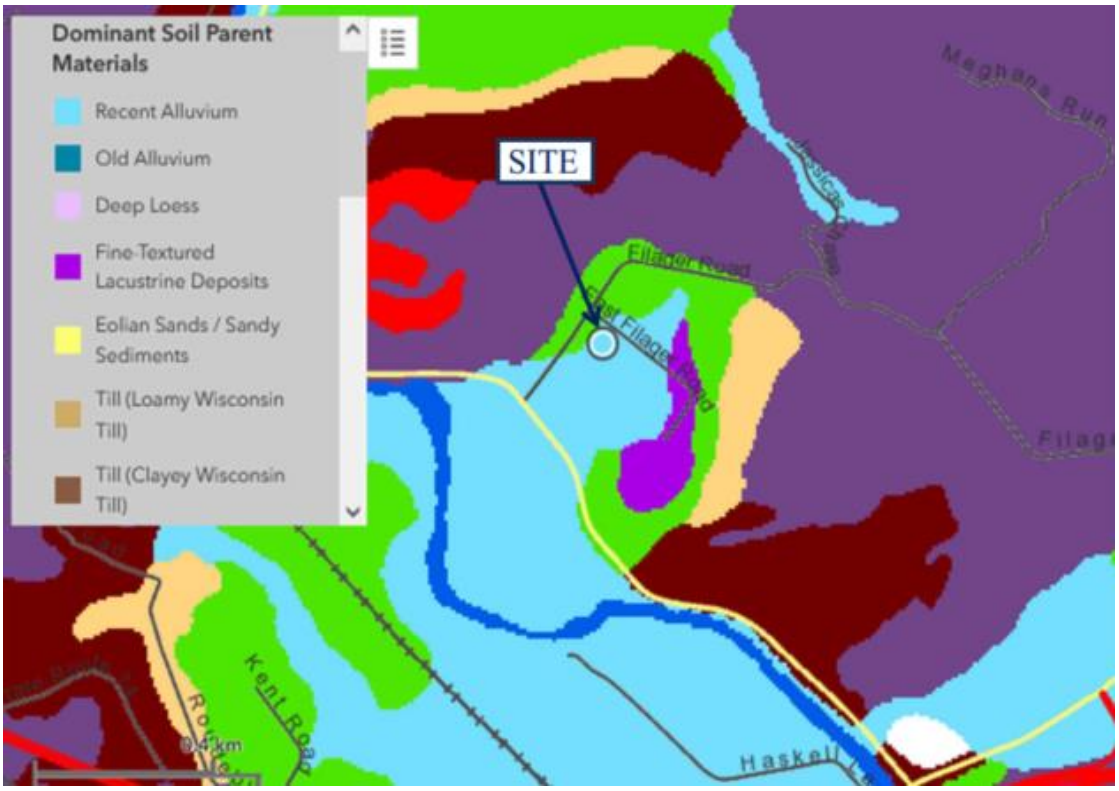
Boring No.	Depth (ft.)	Moisture Content (%)	Atterberg Limits LL	PL	PI
13	1.0 – 2.5	7.1			
	3.5 – 5.0	8.2			
	8.5 – 10.0	9.7			
14	1.0 – 2.5	8.8			
	3.5 – 5.0	8.9			
	6.0 – 7.5	9.7			
15	1.0 – 2.5	10.0			
	3.5 – 5.0	6.2	46	25	21
	6.0 – 7.5	9.7			
	8.5 – 10.0	8.5			
16	1.0 – 2.5	2.7			
	3.5 – 5.0	8.6			
	6.0 – 7.5	10.1			

3.0 SOIL AND GROUNDWATER CONDITIONS

3.1 Geologic Soil Profile

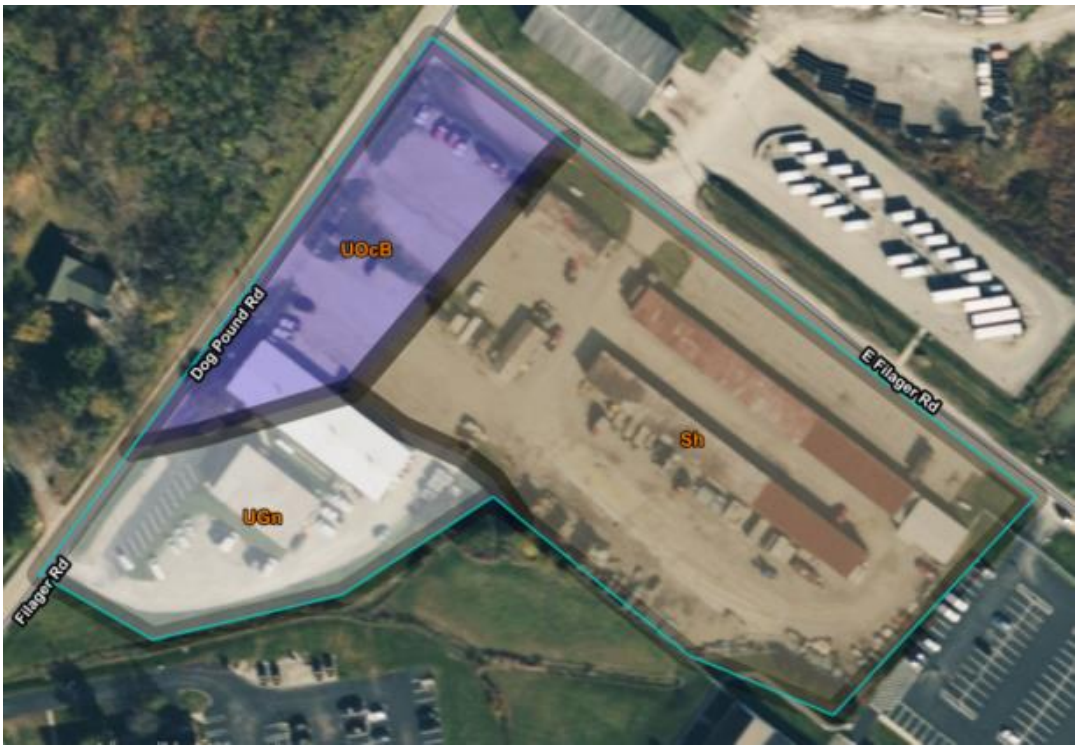
Geologically, the site is situated in Clermont County which lies on the unglaciated edge of the Illinoian glacial advance and just west of the Wisconsinan glacial limit. During the Illinoian glaciation, which occurred around 300,000 to 130,000 years ago, ice sheets advanced into the county, reshaping the landscape and depositing layers of till and outwash. The more recent Wisconsinan glaciers did not reach Clermont County. However, glacial meltwater and outwash from the retreating ice sheets, and loess (windblown silt from outwash plains) were still deposited in the county during the Wisconsinan period. The bedrock in Clermont County includes limestone, dolomite and shale from the Ordovician period.

The soils in the vicinity of the site are recent alluvium - loose, unconsolidated sediment that has been transported and deposited by running water. It typically consists of mixtures of sand, silt, clay, and gravel. The alluvium is underlain by Wisconsin age outwash. These recent alluvium deposits are shaded light blue in the diagram below, whereas the Wisconsin age outwash are shaded green.



(References: Soil Explorer. Online at http://SoilExplorer.net. Accessed 05/28/2025.)

The U.S. Department of Agriculture Soil Survey mapping of this site indicates that there are three main units of surface deposits on the property: Sh (Shoals Silt loam, 0 to 2 percent slopes), UGn (Urban land-Genesee complex, 0-2 percent slopes), and UocB (Urban land-Ockley, Southern Ohio Till Plain, complex, 2-6 percent slopes). According to the USDA mapping, the UOcB surface deposits at the site tend to be mostly clayey, whereas the Sh deposits tend to be mostly silty.



3.2 Subsurface Conditions

Based on the information from the sixteen borings made for this study, the subgrade soil conditions are described in descending order below:

STRATUM 1: UNDOCUMENTED FILL LAYERS: Encountered from Surface to depths of ±12 to ±36.0 inches.

Twelve to 36 inches of undocumented and uncontrolled fill consisting of asphalt, gravel, and loose brown sand with gravel.

STRATUM 2: GLACIAL DRIFT and OUTWASH: Encountered below stratum 1 to the bottom of borings at 15, 20, 25, 30 or 34.6 feet.

Soft-to-very stiff brown or gray silty lean clay with sand, loose-to-dense gray sand with gravel, and very loose-to-dense gray fine sand. These materials do not present in any given order. The stratum extends to the bottom of the boring at depths, below the existing grade, of 15 feet in Borings 3, 5, 8, 11, 15, and 16, at 20 feet in Borings 10 and 14, at 25 feet in Borings 2, 12, 306 and 13, and at 30 feet in Borings 1, 4, 6, and 9.

Note: In Boring 4, the stratum is underlain by a layer of gray clayey shale that extends from a depth of approximately 29.5 feet to the bottom of the boring at a depth of 30 feet below the existing grade.

Free groundwater was encountered during the advancement of the borings at the depths and elevations summarized in Table 3-1.

Table 3-1. Summary of Groundwater Observations

Boring No.	Depth Groundwater First Observed (ft) Depth	Elevation*	Groundwater Observations at Completion of Boring Depth	Elevation*
1	28.0	542.0	7.0	567.0
2	23.0	545.2	6.0	562.2
3	No Water		5.5	565.8
4	No Water		7.0	560.9
5	3.0	563.7	3.0	563.7
6	8.5	560.4	7.0	561.9
7	5.5	563.9	3.0	566.4
8	13.0	555.0	12.0	556.0
9	1.0	566.0	8.5	558.5
10	18.0	547.2	4.0	561.2
11	13.0	550.9	No Water	
12	No Water		4.0	563.0
13	18.0	548.2	8.0	558.2
14	8.0	556.0	4.0	560.0
15	No Water		No Water	
16	No Water		No Water	

* In reference to surface elevation based on Ohio South State Plane Coordinate System.

Free groundwater is defined as water that seeps into an open borehole before it is backfilled. Groundwater observations were made during the boring operations by noting the depth of water on the boring tools and in the open boreholes following withdrawal of the boring augers. However, it should be noted that short-term water level readings are not necessarily a reliable indication of the groundwater level and that significant fluctuations may occur due to variations in rainfall and other factors. For specific questions on the soil conditions, please refer to the individual boring logs in Section III.

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 Project Description

A Facilities/Engineering Management Building will be constructed at 4003 Filager Road in Batavia, Ohio. As part of this project, an office building and parking lot will be constructed. The proposed building will be 101 feet wide and 130 feet long. We understand that the site has existing buildings and structures on it that will be removed prior to the construction of this project. No design loading information was provided for this report.

A car parking area will be constructed on all sides of the proposed building. Additionally, a detention pond will be constructed on the southeast side of the site

The following recommendations are based on this information. If the above statements are incorrect or changes are made, Bowser-Morner, Inc. should be notified so that the new data can

be reviewed and additional recommendations and services can be given if required to meet the needs of your project.

4.2 Foundation Recommendations

Based on the subgrade soil conditions indicated in the borings made for this study, the site is covered with undocumented and uncontrolled fill and/or weak soil that extends to the approximate depths and elevations outlined in Table 4-1. Based on the results of the standard penetration tests (SPT) in the borings within the proposed building foot print, the recommended net allowable bearing capacities and the depths to bearing strata at each boring are also tabulated in Table 4-1.

Table 4-1. Depths to Bearing Strata

Boring No.	Depth to Bearing Strata (ft)	Elevation at Bottom of Unreliable Soil (ft)	Fill, and/or Weak Soil	Recommended Net Allowable Bearing Capacity (psf)
1	1.0	569.0	Fill	1,000
	18.5	551.5	Fill and Weak Soil	2,000
	28.5	541.5	Fill and Weak Soil	4,000
2	1.0	567.2	Fill	500
	13.5	554.7	Fill and Weak Soil	1,000
	23.5	544.7	Fill and Weak Soil	2,500
4	1.0	566.9	Fill	500
	28.5	539.4	Fill and Weak Soil	4,000
6	2.0	566.9	Fill	1,000
	28.5	540.4	Fill and Weak Soil	4,000
7	0.8	568.6	Fill	500
	18.5	550.9	Fill and Weak Soil	1,000
	33.0	536.4	Fill and Weak Soil	4,000
9	0.3	566.7	Fill	500
	13.5	553.5	Fill and Weak Soil	1,000
	23.5	543.5	Fill and Weak Soil	2,000
	28.5	538.5	Fill and Weak Soil	4,000
10	1.1	564.1	Fill	500
	13.5	551.7	Fill and Weak Soil	1,500
	18.5	546.7	Fill and Weak Soil	4,000
12	1.0	566.0	Fill	500
	23.5	543.5	Fill and Weak Soil	4,000
13	0.6	565.6	Fill	500
	6.0	560.6	Fill and Weak Soil	1,000
	18.5	547.7	Fill and Weak Soil	3,000
	23.5	542.7	Fill and Weak Soil	4,000

* In reference to surface elevation based on Ohio South State Plane Coordinate System.

The fill is unreliable to support the building foundations and floor slabs on-grade and should be removed. Based on the subgrade soil conditions, two foundation methods can be considered for the support of the proposed building foundations. These methods are:

1. Removal of the existing weak soil and replacement of compacted backfill'
2. Modification of existing weak soil with GeoPiers®

The discussions of these methods follow:

4.2.1 Removal of Unreliable Soil and Replacement with Compacted Backfill

We understand that the site has existing buildings and structures on it that will be removed prior to the construction of the proposed project. The existing buildings and structures, including all foundations and slabs, should be removed from within the proposed construction limits. The fill and the weaker soil can be removed to the suitable depths with the desired allowable bearing capacities as outlined in Table 4-1 and replaced with compacted backfill.

The bottoms of the foundation excavations should extend to the suitable depths with the desired allowable bearing capacities as outlined in Table 4-1. After the foundation excavations extend to the suitable depths, the over-excavation can be filled with compacted backfill. The bottoms of exterior footing foundations should be placed at least 32 inches below the final adjacent grades to protect against frost penetration and heaving. Interior footings not subject to frost action may bear at a minimum depth of 18 inches below the floor slab if they are supported on original materials or compacted fill placed in accordance with our recommendations.

The base of each excavation should extend one lateral foot for every foot of excavation below the bottom of the footing foundation as shown in Figure 3 in Section III. If an excavation will extend more than five feet below the existing grade, a maximum allowable side slope of 1 (horizontal) to 1 (vertical) should be maintained in any excavation for stability and for the safety of the workers.

After the foundation excavations extend to the desired grade, the top foot at the bottom of each excavation should be compacted to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557) before any new fill or foundation is placed. Any soft soil pockets should be undercut and replaced with newly compacted fill. Any lean clay soils to be imported as backfill or removed from the project site probably will have significantly different Proctor values. Consequently, samples to be tested by the Proctor method should be obtained from a representative area and from the same elevation as the design subgrade.

After the bottoms of the excavations have been compacted, structural fill can be placed to bring the bottoms of the excavations to reach the desired final grade. The fill placed below the bottom of the footing foundations should be placed in eight-inch-thick lifts and compacted to at least 95% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557). Fill placed above the bottom of the footing foundations to serve as the subgrade for the floor slab should be compacted to at least

90% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557). Structural fill should be placed in accordance with the recommendations given in Section 4.4.

Alternatively, the over excavations for the construction of the foundations can be backfilled with lean concrete. The lean concrete should have a 28-day compressive strength of at least 2,000 psi. We recommend that the foundation excavations should be at least one foot wider on all sides of the footing foundations. Since the foundation excavation will be relatively narrow, no worker should enter the excavations that are five feet or deeper for the existing grade. After the over-excavations for footing foundations are filled with lean concrete fill, the footing foundations can be constructed over the cured lean concrete.

The footing foundations for the office building can be supported on the original subgrade soil, newly compacted backfill, or lean concrete fill extending to the depths outlined in Table 4-1. The foundations can be designed with the corresponding net allowable bearing capacities outlined in Table 4-1. For these recommended allowable bearing capacities outlined in Table 4-1 for the original soil layer or for the newly compacted backfill, the total estimated amount of settlement of the foundations will be about one inch with differential settlement of about 3/4 inch over a distance of 40 feet.

The soil removed from this site that is free of organic or objectionable materials as defined by a field technician who is qualified in soil material identification and compaction procedures can be reused as fill. Objectionable or undesirable soils are defined as those materials that cannot meet design placement specifications or materials that will deteriorate with time.

When determining the geometric size (the "footprint") of the footing foundation, the total system loads applied to the tops of the foundations should be considered in the bearing pressure calculations.

The bearing capacities recommended in Table 4-1 for foundations supported on structural fill applies to well-graded granular soils, low-to-medium plastic clays, clayey sands, and some silty sands that are placed and compacted in accordance with the recommendations given in this report. However, uniformly graded or gap-graded granular soils (GP or SP), silts (ML), silty fine sands (SM), and high plasticity clays (CH) will be difficult to place and compact, and may result in a reduced bearing capacity. If these soils will be used as backfill, Bowser-Morner should be notified before the soils are placed so that the proposed placement methods and bearing capacity recommendations can be reviewed.

The bearing capacity of a soil is not a unique physical property of the soil. Instead, it depends explicitly on several factors including the footing type, size, and shape; the depth of embedment; the eccentricity and inclination of the applied load; the footing base inclination; the stiffness of the footing; the proximity of the footing to open cuts or slopes; the relative distance between the bottom of the footing and the water table; and the allowable amounts of settlement. The recommended allowable bearing capacity is based on the foundation design parameters given above and the assumptions that the applied load is vertical with no eccentricity, the base is horizontal and level, the footing is rigid,

the footing is not close to an open cut or slope, and the water table is below the bottom of footing. If the actual conditions vary from the parameters and assumptions stated above, Bowser-Morner should be notified so that the new information can be reviewed and additional recommendations and services can be given to meet the needs of your project.

Foundations supported on soil settle as the result of externally applied loads. While the foundations should be expected to settle, the amount of settlement should be within the tolerable limits for the structure.

4.2.2 Modification of the Site with GeoPiers®

Alternatively, the weak soil can remain in-place. The weak subgrade soil can be modified by installing Geopiers® for the construction of the building. The Geopier® method is a patented method that includes the placement and the compaction of sand and gravel in pre-augered holes. With this method, the sand and gravel fill will be compacted in lifts using a drop hammer. The Geopiers® will be constructed in a pre-set pattern.

The building can simply be supported on spread-footing foundations over the Geopier®-improved subgrade soil. The floor slabs on-grade also can be supported over the Geopier®-improved subgrade soil. The spacing for the Geopiers® to be installed beneath the floor slabs on-grade will be much wider than the support for the foundations. If the Geopier® method is selected, the Geopier® Foundation Company, Inc. will perform the design of the Geopier® system including the spacing of the piers and the allowable bearing capacity on top of the Geopiers®.

The footing foundations supported on the Geopier®-improved subgrade can be designed with the allowable bearing capacity specified by the Geopier® Foundation Company, Inc. Based on our experiences with other projects, the allowable bearing capacities are about 3,000 to 5,000 pounds per square foot (psf) with Geopier® modified subgrade soil for these type of projects.

In general, for the selection or the installation of any type of aggregate piers, the compaction performed with a hammer should provide vertical impact to the granular fill. Each lift of aggregate should be 12 to 36 inches thick and should be placed starting from the bottom of the hole.

If stone-column methods other than the Geopier® method are selected, the compaction of the stone columns should be verified with a dynamic cone-penetration test through the aggregate piers. The “N” values can be obtained continuously through the full length of the aggregate piers. After the tests are completed and the aggregate is still loose, the piers should be recompacted using the installer’s equipment. Based on our experience with other projects, a top-feed method of placing the granular material with a vibration device in the open hole cannot achieve the required compaction. The top-feed method with a vibration device is not acceptable and cannot be considered as equal to the Geopiers®.

The Geopier® Foundation Company, Inc. will design the Geopiers® including the length, diameter, and spacing of the piers and the allowable bearing capacities of the improved subgrade soil or with foundations supported directly on top of the piers. If the Geopier® subgrade-improvement method with a displacement mandrel will be used, temporary steel casings will not be needed to extend through the existing fill and weak soil to keep the shafts from caving in. If the Geopier® subgrade-improvement method will be considered, we can contact and provide our study to Geopier® Foundation Company, Inc. on behalf of the client to obtain a preliminary cost estimate for this project.

4.2.3 General Recommendation for Subgrade Preparation

The soil removed from this site that is free of organic or objectionable materials as defined by a field technician who is qualified in soil material identification and compaction procedures can be reused as fill. Objectionable or undesirable soils and removed asphalt pavement are defined as those materials that cannot meet design placement specifications or materials that will deteriorate with time.

After the excavation extends to the desired grade, the top foot at the bottom of the excavation should be compacted to at least 90% of the maximum dry-unit weight as defined by the modified Proctor test (ASTM D1557) before any new fill or foundation is placed. Any soft soil pockets should be undercut and replaced with compacted fill. After the bottoms of the excavations have been compacted, structural fill, if needed, can be placed to bring the bottom of the excavations to the desired grade. The fill placed below the bottoms of the foundations should be placed in eight-inch-thick horizontal lifts and compacted to at least 95% of the maximum dry-unit weight with moisture contents within 2% of the optimum moisture content as determined by the modified Proctor test (ASTM D1557). Fill placed above the bottoms of the foundations as the subgrade for floor slabs on-grade or for the support of the pavement should be compacted to at least 90% of the maximum dry-unit weight with moisture contents within 2% of the optimum moisture content as determined by the modified Proctor test (ASTM D1557).

Again, the bottoms of exterior footing foundations should be placed at least 32 inches below the final adjacent grades to protect against frost penetration and heaving. Interior footings not subject to frost action may bear at a minimum depth of 18 inches below the floor slab if they are supported on original materials or compacted fill placed in accordance with our recommendations.

4.2.4 Site Classification For Seismic Design

Based on the results of the standard penetration tests (SPT) in the borings made for this study, the average "N" values range from 5 to 11 blows per foot for the soil layer within 15 to 34.6 feet of the existing grade. Based on the results of the average "N" value, it is our opinion that the site will be classified as an "E" type in accordance with the *Ohio Building Code.* However, if the weak soil is removed and replaced with compacted backfill or is modified with the Geopier®-method, it is our opinion that the site will be classified as a "D" type in accordance with the *Ohio Building Code*.

4.3 Floor Slabs On-Grade

Based on information from the borings performed, the proposed site is covered by a layer of undocumented and uncontrolled fill and/or weaker soil that extends to the depths outlined in Table 4-1.

For the two foundation methods mentioned above, the fill is also not reliable to support the floor slab due to the potential for settlement. The bottoms of the floor slab on-grade excavations should extend to the suitable depths with the desired allowable bearing capacities as outlined in Table 4-1. The building floor slab on-grade either can be constructed over the newly compacted backfill or over the Geopier®-improved subgrade soil. The upper one foot of compacted fill should be a well-graded, granular material such as crushed sand and gravel or crushed stone. To help distribute concentrated loads and equalize moisture conditions under the slab, this granular material should contain less than 5% of fines or particles that can pass through a No. 200 sieve.

We also recommend that slabs on-grade "float" by being fully supported on the ground and not structurally connected to the walls or foundations. Floating will minimize the possibility of cracking and displacement of the slabs on-grade as a result of differential movements between the slabs and the foundations. Although the movements should be within the tolerable limits for structural safety, such movements could be detrimental to the slabs if they were rigidly connected to the foundations.

4.4 Compaction Requirements

Structural fill placed below the foundation bearing elevation should be compacted to at least 95% of the maximum dry unit weight with moisture contents within 2% of the optimum moisture content as determined by the modified Proctor test (ASTM D1557). Fill placed above the bottoms of the foundations or under pavement areas should be compacted to at least 90% of the maximum dry unit weight with moisture contents within 2% of the optimum moisture content as determined by the modified Proctor test (ASTM D1557). The compaction should be accomplished by placing the fill in successive, horizontal, approximately six- to eight-inch-thick loose lifts and mechanically compacting each lift to at least the specified minimum dry density. Field density tests should be performed at a minimum rate of one per 2,500 square feet of fill area and for each lift to verify that adequate compaction is achieved. Backfill for utility trenches, foundation excavations, etc., within structures or paved areas, is considered structural fill and should be placed in accordance with these recommendations.

It must be emphasized that the excavation and compaction of soil fill are highly influenced by weather conditions. Performing the earthwork under wet and frozen conditions is generally very difficult. As a result, compaction of wet silty and clayey soil should be avoided during wet and frozen conditions because the wet soil cannot be compacted to the required unit weight without drying or other soil stabilization methods. Alternatively, granular soil can be used as backfill to facilitate the backfill and compaction work during winter and wet weather conditions. The construction cost during the winter and wet weather conditions will be higher by the purchase of granular soil from the sand and gravel pits.

Puddling or jetting of the backfill material, including the utility trenches, should not be allowed as a compaction method. Silty or clayey soils encountered above foundation depth will often soften, and the bearing capacity may be reduced if water ponds in the excavation.

Lean concrete that is placed below the bottom of foundation should have a minimum 28-day compressive strength of 2,000 pounds per square inch (psi).

4.5 Foundation Excavations

During the foundation excavations, the subsurface conditions should be verified. Changes in subsurface conditions other than what are shown on the boring logs warrant additional subsurface investigation before the building foundations are constructed.

The foundation excavations should be observed to ensure that the loose, soft, or otherwise undesirable materials are removed and that the foundations will be supported directly on an acceptable surface. At the time of this observation, it may be necessary to use a hand penetration device in the base of the foundation excavation to ensure that the soils immediately below the foundation base are satisfactorily prepared to support the foundations. Please note that such shallow observations do not replace an adequate deep-boring program and structural fill compaction QA/QC records. The overall performance of the foundations is governed by the soils below the bottom of the footing foundation.

If pockets of soft, loose, or otherwise unsuitable materials are encountered in the footing excavations and it is inconvenient to lower the footings, the proposed footing elevations may be reestablished by backfilling after the undesirable materials have been removed. The excavation under each footing should extend to suitable soils, and the base of the excavation should extend one lateral foot for every foot of excavation below the bottom of the footing foundation as shown in Figure 3 in Section III. The entire excavation should then be refilled with well-compacted, engineered fill. Special care should be taken to remove the sloughed, loose, or soft materials near the base of the excavation slopes. Extra care should also be taken to tie-in the compacted fill with the excavation slopes, with benches as necessary, to ensure that no pockets of loose or soft materials are left along the excavation slopes below the foundation bearing level. The contractor should maintain temporary cut slopes in accordance with the current OSHA regulations governing trenching and slope stability.

Soils exposed at the bases of satisfactory foundation excavations should be protected against any detrimental change in condition such as from construction disturbances, rain, and freezing. Surface runoff should be drained away from the excavation and not allowed to pond. If possible, foundation concrete should be placed the same day the excavation is made. If this is not practical, the foundation excavations should be adequately protected. Also, for this reason, proper drainage should be maintained after construction. It must be emphasized that all excavations must conform to all state, federal, and local regulations relative to slope geometry.

4.6 Construction Dewatering

At the time of our study, free groundwater was encountered at depths of 1.0 to 28.0 feet in all but Borings 15 and 16 during the boring operations as outlined in Table 3-1. Any groundwater or surface water that accumulates in the excavations should be lowered by sumps and pumps during the excavations for the construction of the proposed structures. The groundwater will have to be lowered to the bottoms of the excavations and to the top of the clay layer, and to three feet below the bottom of the excavation in the granular soil layer. However, care must be exercised when pumping from sumps that extend into silts or other granular soils since general deterioration of the bearing soils and a localized "quick" condition could result. If significant groundwater influxes are noted within the excavations, other dewatering techniques should be determined at the time of construction.

For the installation of GeoPiers®, any groundwater seepage can be intercepted by lowering a submersible pump into the cased open holes. The water can be pumped from the bottoms of the Geopier® excavations. Casings would then be required to keep the shafts from caving in.

The amount and type of dewatering required during construction will depend on the weather and groundwater levels at the time of construction, and the effectiveness of the contractor's techniques in preventing surface runoff from entering open excavations. Typically, groundwater levels are highest during winter and spring, and lower in summer and early fall.

4.7 Drainage

Adequate drainage should be provided at the site to minimize any increase in moisture content of the foundation soils during and after construction. The exterior grade including all pavements or parking areas should be sloped away from the new building foundations to keep water from ponding. All permanent foundation, wall, and below-grade floor drains should provide positive discharge away from the structures.

4.8 Consideration of Subgrade for Detention Pond

We understand that a detention pond will be constructed on the southeast side of the site, in the vicinity of Boring 14. Based on the soil conditions indicated in this boring and our assumption that the detention basin will be about ten feet deep, the bottom of the pond will be in the silty sand with gravel layer. A layer of silty clay was encountered above and below the silty sand with gravel layer.

Based on our experience, the clay type of soil will have a relatively low permeability and will detain the water. However, the silty sand with gravel will have a higher permeability, and the bottom of the pond in the sand with gravel layer will leak. We recommend that the excavation of the pond in the sand with gravel layer extend at least two feet below the proposed grade and be covered with at least two feet of compacted clay liner over the sand with gravel layer. The lean clay removed from the pond excavations can be reused as the material for the construction of the liner. If any sand seams or pockets are encountered at the bottom of the pond excavation, the sand layer should be over-excavated two feet below the bottom of the pond elevation and replaced with compacted silty and clayey soil to reduce the amount of water infiltration.

4.9 Pavement Recommendations

4.9.1 Pavement Subgrade Preparation Recommendations

A car parking area will be constructed on all sides of the proposed building. Based on information from Borings 3, 5, 8, 11, 15 and 16 made at this site, the car parking areas is covered by undocumented and uncontrolled fill that extends to the depths outlined in Table 4-2.

Table 4-2. Depths to Bottoms of Unreliable Soils

Boring No.	Depth to Bearing Strata (ft)	Elevation* of Bearing Strata (ft)	Topsoil or Fill, and/or Original Soil
3	1.0	570.3	Fill
5	3.0	563.7	Fill
8	1.0	567.0	Fill
11	1.0	562.9	Fill
15	1.0	565.6	Fill
16	1.5	564.4	Fill

* In reference to surface elevation based on Ohio South State Plane Coordinate System.

The fill in the proposed parking area should be removed. After the fill has been removed and any ground surface in the proposed pavement areas that is higher than the proposed subgrade has been re-graded, the top foot of the subgrade soil layer at the bottom of the excavation should be compacted to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557) before any new fill or subgrade is placed. Any soft soil pockets should be undercut and replaced with newly compacted fill. Verification of the subgrade will have to be performed during the re-compaction of the top of the stripped ground surface. A soil technician under the supervision of the geotechnical engineer should be on-site to observe the compaction. Any additional backfill to be placed over the recompacted ground surface to support the granular base should be placed in eight-inch-thick lifts and compacted to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test (ASTM D1557).

Any weak or loose soil layer encountered during the re-compaction of the subgrade soil layer should be undercut and replaced with newly compacted backfill. Any thin layer of soft clay can be scarified and recompacted to achieve the density to at least 90% of the maximum dry-unit weight as determined by the modified Proctor test. The recompacted subgrade should be firm with the deflection less than 1/2 inches under the compaction equipment.

Any additional subgrade fill, which is needed to reach the final proposed subgrade, can be placed and compacted to bring the ground to the desired grade, if needed. The newly placed fill should be placed in horizontal eight-inch-thick lifts and compacted to at least 90% of the maximum dry-unit weight with moisture contents within 2% of the optimum moisture content by the modified Proctor method (ASTM D1557). The granular base can be supported on the newly compacted soil or on the recompacted subgrade.

Silty or clayey soil at subgrade depth will tend to degrade quickly under construction traffic when wet. Degradation of the wet subgrade soils will result in a reduced support value. For this reason, all of the exposed subgrade should be graded to drain and should be protected against any detrimental change in condition such as from disturbances, rain, and freezing. The ground surface near the pavement area should slope away from the car parking and driveways so that surface runoff is not allowed to pond next to the pavement areas. Adequate drainage should be provided at the site to avoid an increase in moisture content of the subgrade soils during and after construction.

4.9.2 Pavement Design Recommendations

Based on the results of the laboratory tests, the subgrade soils on the sites can be classified as A-6, A-2-6, and A-7-6 types in accordance with the AASHTO Soil Classification System. Our experience has been that the long-term performance records of these types of soils are less than what are predicted by standard design charts. For this reason, after this type of subgrade soil is compacted to 90% of the maximum dry unit weight as determined by the modified Proctor test, a California Bearing Ratio (CBR) value of 3 can be assigned for the pavement design. An equivalent soil support value (SSV) of 2.4 can be used for the asphalt pavement design, and a modulus of subgrade reaction (k) of 100 pci can be used for the concrete pavement design.

The pavement sections outlined in Table 4-3 are recommended only for car parking areas that will accommodate traffic with a gross vehicle weight of less than 4,000 pounds. The projected traffic counts and vehicular loading data were not provided. As a result, the pavement recommendations are only intended for low-impact areas, such as parking areas and driving lanes, where only lightweight passenger cars are anticipated.

Table 4-3. Recommended Car Parking Pavement Sections

	Alternative Pavement Sections (inches)		
Pavement Component	**#1**	**#2**	**#3**
448 Asphalt Concrete Surface Course, Type	3	2	--
301 Asphalt Concrete	--	3	--
304 Granular Base	8	6	6
Portland Cement Concrete	--	--	5

One additional inch of asphalt concrete or Portland cement concrete should be placed in the driving lanes in the car parking areas and in the proposed driveways to handle the channelized traffic conditions. We recommend that a Portland cement concrete pavement be used in front of trash bins and within any truck loading dock area to handle the large start-and-stop loads imposed by the heavy truck traffic.

Several items should be carefully considered during the selection of a final design cross section. These factors are:

A. A tack coat should be applied between layers of bituminous concrete.

B. The paved area should have a slope of at least 1.5% for adequate drainage. The base material and/or surface of the subgrade should be allowed to drain through holes in the catch basins or through the shoulders. No undrained granular fill area, including the utility trenches and base course, should be allowed.

C. Before paving, the entire area should be thoroughly compacted or recompacted to a dry unit weight of 90% of the maximum modified Proctor value at no more than 2% over the optimum moisture content.

5.0 CLOSURE

5.1 Basis of Recommendations

The evaluations, conclusions, and recommendations in this report are based on our interpretation of the field and laboratory data obtained during the exploration, our understanding of the project and our experience with similar sites and subsurface conditions. Data used during this exploration included, but were not necessarily limited to:

- Sixteen exploratory borings performed during this study.
- Observations of the project site by our staff.
- The results of the laboratory soil tests.
- The site plan provided by Clermont County Board of Commissioners.
- Published soil or geologic data of this area.

In the event that changes in the project characteristics are planned, or if additional information or differences from the conditions anticipated in this report become apparent, Bowser-Morner, Inc. should be notified so that the conclusions and recommendations contained in this report can be reviewed and, if necessary, modified or verified in writing.

5.2 Limitations and Additional Services

The subsurface conditions discussed in this report and those shown on the boring logs represent an estimate of the subsurface conditions based on interpretation of the boring data using normally accepted geotechnical engineering judgments. Although individual test borings are representative of the subsurface conditions at the boring locations on the dates shown, they are not necessarily indicative of subsurface conditions at other locations or at other times.

Regardless of the thoroughness of a subsurface exploration, there is the possibility that conditions between borings will differ from those at the boring locations, that conditions are not as anticipated by designers, or that the construction process has altered the soil conditions. As variations in the soil profile are encountered, additional subsurface sampling and testing may be necessary to provide data required to reevaluate the recommendations of this report. Consequently, after submission of this report, it is recommended that Bowser-Morner, Inc. be authorized to perform additional services to work with the designer(s) to minimize errors and omissions regarding the interpretation and implementation of this report.

Before construction begins, we recommend that Bowser-Morner, Inc.:

- Work with the designers to implement the recommended geotechnical design parameters into plans and specifications.
- Consult with the design team regarding interpretation of this report.
- Establish criteria for the construction observation and testing for the soil conditions encountered at this site.
- Review final plans and specifications pertaining to geotechnical aspects of design.

During construction, we recommend that Bowser-Morner, Inc.:

- Observe the construction, particularly the site preparation, fill placement, and foundation excavation or installation.
- Perform in-place density testing of all compacted fill.
- Perform materials testing of soil and other materials as required.
- Consult with the design team to make design changes in the event that differing subsurface conditions are encountered.

If Bowser-Morner, Inc. is not retained for these services, we shall assume no responsibility for construction compliance with the design concepts, specifications or recommendations.

5.3 Warranty

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. No other warranty, express or implied, is made.

The scope of this soil study did not include an environmental assessment for the presence or absence of hazardous or toxic materials in the soil, surface water, groundwater or air, on, within or beyond the site studied. Any statements in the report or on the boring logs regarding odors, staining of soils or other unusual items or conditions observed are strictly for the information of our client.

The environmental assessment for this site is presently in progress and will be issued upon the completion of that environmental study report.

This report has been prepared for the exclusive use of Clermont County Board of Commissioners for specific application to the building on Filager Road in Batavia, Ohio (see Figure 1 in Section III of this report). Specific design and construction recommendations have been provided in the various sections of the report. The report shall therefore, be used in its entirety. This report is not a bidding document and shall not be used for that purpose. Anyone reviewing this report must interpret and draw their own conclusions regarding specific construction techniques and methods chosen. Bowser-Morner, Inc. is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report.

Section II

Specifications

CLEARING AND GRADING SPECIFICATIONS

I. GENERAL CONDITIONS

The contractor shall furnish all labor, materials, and equipment, and perform all work and services necessary to complete in a satisfactory manner the site preparation, excavation, filling, compaction and grading as shown on the plans and as described therein.

This work shall consist of all clearing and grading, removal of existing structures unless otherwise stated, preparation of the land to be filled, filling of the land, spreading and compaction of the fill, and all subsidiary work necessary to complete the grading of the cut and fill areas to conform with the lines, grades, slopes, and specifications.

This work is to be accomplished under the constant and continuous supervision of the Owner or his designated representative.

In these specifications the terms "approved" and "as directed" shall refer to directions to the Contractor from the Owner or his designated representative.

II. SUBSURFACE CONDITIONS

Prior to bidding the work, the Contractor shall examine, investigate and inspect the construction site as to the nature and location of the work, and the general and local conditions at the construction site, including, without limitation, the character of surface or subsurface conditions and obstacles to be encountered on and around the construction site; and shall make such additional investigation as he may deem necessary for the planning and proper execution of the work. Borings and/or soil investigations shall have been made. Results of these borings and studies will be made available by the Owner to the Contractor upon his request, but the Owner is not responsible for any interpretations or conclusions with respect thereto made by the Contractor on the basis of such information, and the Owner further has no responsibility for the accuracy of the borings and the soil investigations.

If conditions other than those indicated are discovered by the Contractor, the Owner should be notified immediately. The material which the Contractor believes to be a changed condition should not be disturbed so that the Owner can investigate the condition.

III. SITE PREPARATION

Within the specified areas, all trees, brush, stumps, logs, tree roots, and structures scheduled for demolition shall be removed and disposed of.

All cut and fill areas shall be properly stripped. Topsoil will be removed to its full depth and stockpiled for use in finish grading. Any rubbish, organic and other objectionable soils, and other deleterious material, shall be disposed of off the site, or as directed by the Owner or his designated representative if on site disposal is provided. In no case shall such objectionable material be allowed in or under the fill unless specifically authorized in writing.

Prior to the addition of fill, the original ground shall be compacted to job specifications as outlined below. Special notice shall be given to the proposed fill area at this time. If wet spots, spongy conditions, or ground water seepage is found, corrective measures must be taken before the placement of fill.

IV. FORMATION OF FILL AREAS

Fills shall be formed of satisfactory materials placed in successive horizontal layers of not more than eight (8) inches in loose depth for the full width of the cross section. The depth of lift may be increased if the Contractor can demonstrate the ability to compact a larger lift. If compaction is accomplished using hand-tamping equipment, lifts will be limited to 4-inch lose lifts.

All material entering the fill shall be free of organic matter such as leaves, grass, roots, and other objectionable material.

The operations on earth work shall be suspended at any time when satisfactory results cannot be obtained because of rain, freezing weather, or other unsatisfactory conditions. The Contractor shall keep the work areas graded to provide the drainage at all times.

The fill material shall be of the proper moisture content before compaction efforts are started. Wetting or drying of the material and manipulation to secure a uniform moisture content throughout the layer shall be required. Should the material be too wet to permit proper compaction or rolling, all work on all portions of the embankment thus affected shall be delayed until the material has dried to the required moisture content. The moisture content of the fill material should be no more than two (2) percentage points higher or lower than optimum unless otherwise authorized. Sprinkling shall be done with equipment that will satisfactorily distribute the water over the disced area.

Compaction operations shall be continued until the fill is compacted to not less than 90% above foundation elevation and 95% below foundation elevation, of the maximum density as determined in accordance with the latest ASTM D-1557 (Modified). Any areas inaccessible to a roller shall be consolidated and compacted by mechanical tampers. The equipment shall be operated in such a manner that hardpan, cemented gravel, clay or other chunky soil material will be broken up into small particles and become incorporated with the other material in the layer.

In the construction of filled areas, starting layers shall be placed in the deepest portion of the fill, and as placement progresses, additional layers shall be constructed in horizontal planes. If directed, original slopes shall be continuously, vertically benched to provide horizontal fill planes. The size of the benches shall be formed so that the base of the bench is horizontal and the back of the bench is vertical. As many benches as are necessary to bring the site to final grade shall be constructed. Filling operations shall begin on the lowest bench, with the fill being placed in horizontal eight (8) inch loose lifts unless otherwise authorized. The filling shall progress in this manner until the entire first bench has been filled, before any fill is placed on the succeeding benches. Proper

drainage shall be maintained at all times during benching and filling of the benches, to insure that all water is drained away from the fill area.

When rock and other embankment material are excavated at approximately the same time, the rock shall be incorporated into the outer portion of the areas. Stones or fragmentary rock larger than four (4) inches in their greatest dimensions will not be allowed in the fill unless specifically authorized in writing. Rock fill shall be brought up in layers as specified or as directed, and every effort shall be exerted to fill the voids with the finer material to form a dense, compact mass. Rock or boulders shall be disposed of as deleterious material per Item III.

Frozen material shall not be placed in the fill nor shall the fill be placed upon frozen material.

The Contractor shall be responsible for the stability of all fills made under the contract, and shall replace any portion, which in the opinion of the Owner or his designated representative, has become displaced due to carelessness or negligence on the part of the Contractor. Fill damaged by inclement weather shall be repaired at the Contractor's expense.

V. SLOPE RATIO AND STORM WATER RUN-OFF

Slopes shall not be greater than 2 (horizontal) to 1 (vertical) in both cut and fill, and storm water shall not be drained over the slopes.

VI. GRADING

The Contractor shall furnish, operate, and maintain such equipment as is necessary to construct uniform layers, and control smoothness of grade for maximum compaction and drainage.

VII. COMPACTING

The compaction equipment shall be approved equipment of such design, weight, and quantity to obtain the required density in accordance with these specifications.

VIII. TESTING AND INSPECTION SERVICES

Testing and inspection services will be provided by the Owner.

IX. SPECIAL CONDITIONS

Section III

Boring Log Terminology, Boring Logs, Laboratory Data, And Prints

BORING LOG TERMINOLOGY

Stratum Depth:

Distance in feet and/or inches below ground surface.

Stratum Elevation:

Elevation in feet below ground surface elevation.

Description of Materials:

Major types of soil material existing at boring location. Soil classification based on one of the following systems: Unified Soil Classification System., Ohio State Highway Classification System, Highway Research Board Classification System, Federal Aviation Authority Classification System, Visual Classification.

Sample No.:

Sample numbers are designated consecutively, increasing with depth for each boring.

Sample Type:

"A" Split spoon, 2" O.D., 1-3/8" I.D., 18" in length.

"B" Rock Core

"C" Shelby Tube 3" O.D. except where noted

"D" Soil Probe

"E" Auger Cuttings

"F" Sonic

Sample Depth:

Depth below top of ground at which appropriate sample was taken.

Blows per 6" on Sampler:

The number of blows required to drive a 2" O.D., 1-3/8" I.D., split spoon sampler, using a 140 pound hammer with a 30-inch free fall, is recorded for 6" drive increments. (Example: 3/8/9).

"N" Blows/Ft.:

Standard penetration resistance. This value is based on the total number of blows required for the last 12" of penetration. (Example: 3/8/9: N = 8 + 9 = 17)

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Water Observations:

Depth of water recorded in test boring is measured from top of ground to top of water level. Initial depth indicates water level during boring, completion depth indicates water level immediately after boring, and depth after "X" number hours indicates water level after letting water rise or fall over a time period. Water observations in pervious soil are considered reliable ground water levels for that date. Water observations in impervious soils can not be considered accurate ground water measurements for that date unless records are made over several days' time. Factors such as weather, soil porosity, etc., will cause the ground water level to fluctuate for both pervious and impervious soils.

SOIL DESCRIPTION

Color:

When the color of the soil is uniform throughout, the color recorded will be such as brown, gray, or black and may be modified by adjectives such as light and dark. If the soil's predominant color is shaded by a secondary color, the secondary color precedes the primary color, such as: gray-brown, yellow-brown. If two major and distinct colors are swirled throughout the soil, the colors will be modified by the term mottled, such as: mottled brown and gray.

Particle Size		Visual
Boulders		Larger than 8"
Cobbles		8" to 3"
Gravel	– Coarse	3" to 3/4"
	– Fine	2 mm. To 3/4"
Sand	– Coarse	2 mm. – 0.6 mm. (Pencil lead size)
	– Medium	0.6 mm. – 0.2mm. Table sugar and salt size)
	– Fine	0.2 mm. – 0.06 mm. (Powdered sugar and human hair size)
Silt		0.06 mm. – 0.002 mm.
Clay		0.002 and smaller (Particle size of both Silt and Clay not visible To naked eye

Soil Components

Major Component:	Minor Component Term
Gravel	Trace 1-10%
Sand	Some 11-35%
Silt	And 36-50%
Clay	

Moisture Content

Term	Relative Moisture
Dry	Powdery
Damp	Moisture content below plastic limit
Moist	Moisture content above plastic limit but below liquid limit
Wet	Moisture content Above liquid limit

Condition of Soil Relative to Compactness Granular Material

Very Loose	5 blows/ft. or less
Loose	6 to 10 blows/ft.
Medium Dense	11 to 30 blows/ft.
Dense	30 to 50 blows/ft.
Very Dense	51 blows/ft. or more

Condition of Soil Relative to Consistency Cohesive Material

Very Soft	3 blows/ft. or less
Soft	4 to 5 blows/ft.
Medium Stiff	6 to 10 blows/ft.
Stiff	11 to 15 blows/ft.
Very stiff	16 to 30 blows/ft.
Hard	31 blows/ft. or more

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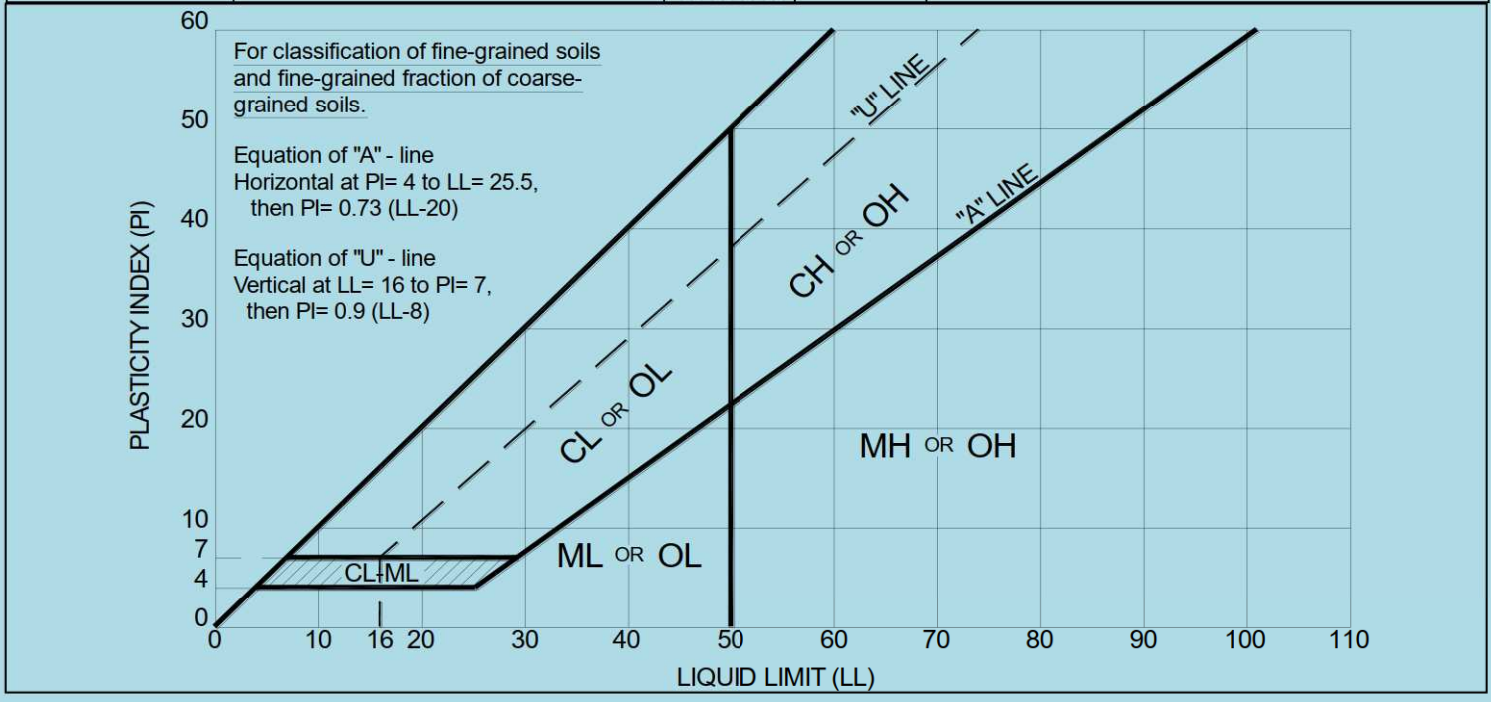
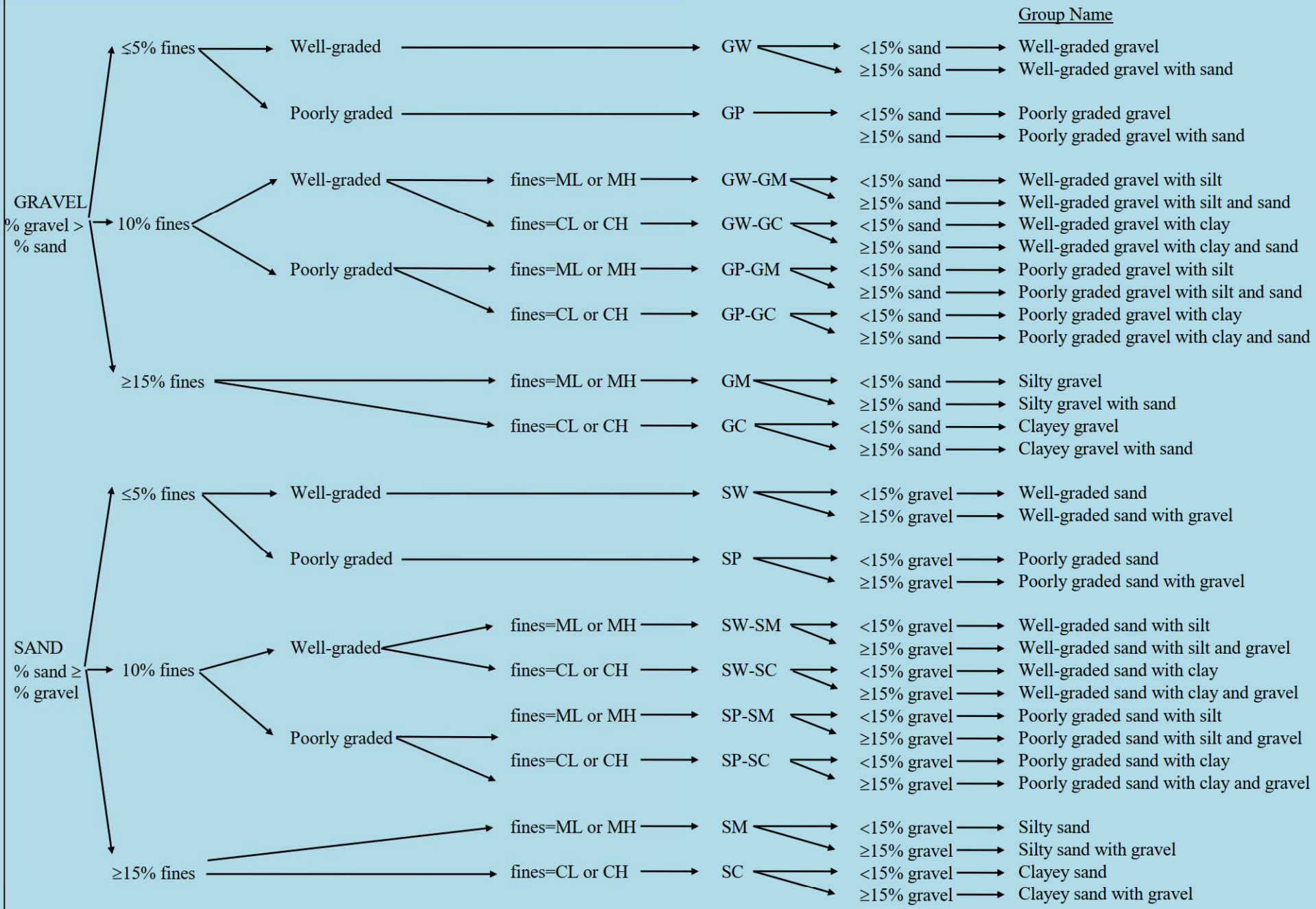
UNIFIED CLASSIFICATION SYSTEM

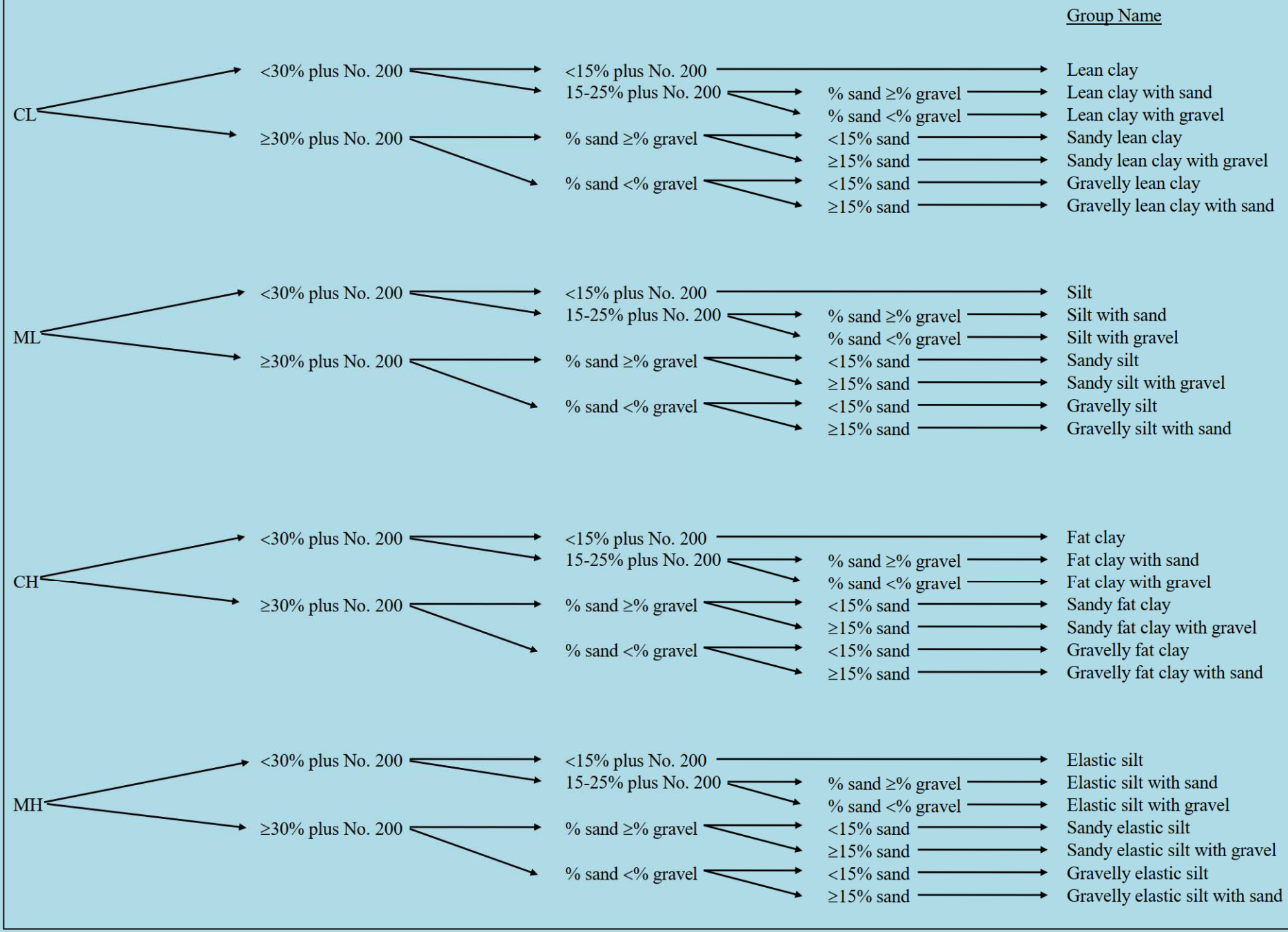
MAJOR DIVISIONS			GRAPH SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVEL WELL-GRADED GRAVEL WITH SAND
				GP	POORLY GRADED GRAVEL POORLY GRADED GRAVEL WITH SAND
	MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	GRAVELS WITH FINES APPRECIABLE AMT. OF FINES)		GM	SILTY GRAVEL SILTY GRAVEL WITH SAND
				GC	CLAYEY GRAVEL CLAYEY GRAVEL WITH SAND
	SAND AND SANDY SOILS	CLEAN SAND (LITTLE OR NO FINES)		SW	WELL-GRADED SAND WELL-GRADED SAND WITH GRAVEL
				SP	POORLY GRADED SAND POORLY GRADED SAND WITH GRAVEL
	MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	SANDS WITH FINES (APPRECIABLE AMT. OF FINES)		SM	SILTY SAND SILTY SAND WITH GRAVEL
				SC	CLAYEY SAND CLAYEY SAND WITH GRAVEL
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILT AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	SILT, SILT WITH SAND, SANDY SILT GRAVELLY SILT, GRAVELLY SILT WITH SAND
				CL	LEAN CLAY WITH SAND, SANDY LEAN CLAY GRAVELLY LEAN CLAY WITH SAND
				OL	ORGANIC CLAY, SANDY ORGANIC CLAY ORGANIC SILT, SANDY ORGANIC SILT WITH GRAVEL
	SILT AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	ELASTIC SILT WITH SAND, SANDY ELASTIC SILT GRAVELLY ELASTIC SILT WITH SAND
				CH	FAT CLAY WITH SAND, SANDY FAT CLAY GRAVELLY FAT CLAY WITH SAND
				OH	ORGANIC CLAY WITH SAND, SANDY ORGANIC CLAY, ORGANIC SILT, SANDY ORGANIC SILT
	HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS



Flow Chart for Visually Identifying Soils Based on ASTM D-2488



Flow Chart for Visually Identifying Soils Based on ASTM D-2488



STANDARD PENETRATION RESISTANCE (ASTM D1586)

The purpose of this test is to determine the relative consistency of the soils in a boring, or from boring over the site. This method consists of making a hole in the ground and driving a 2-inch O.D. split spoon sampler into the soil with a 140-pound hammer dropped from a height of 30 inches. The sampler is driven 18 inches and the number of blows recorded for each 6 inches of penetration. Values of standard penetration (N) are determined in blows per foot, summarizing the flows required for the last two 6-inche increments of penetration.

Example : 2-6-8; N = 14

THIN-WALLED SAMPLER (ASTM D1587)

The purpose of the thin-walled sampler is to recover a relatively undisturbed soil sample for laboratory tests. The sampler is a thin-walled seamless tube with a 3-inch outside diameter, which is hydraulically pressed into the ground, at a constant rate. The ends are then sealed to prevent soil moisture loss, and the tube is returned to the laboratory for tests.

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UNCONFINED COMPRESSION OR TRIAXIAL TESTS (ASTM D 2166)

The unconfined compression test and the triaxial tests are performed to determine the shearing strength of the soil, to use in establishing its safe bearing capacity. In order to perform the unconfined compression test, it is necessary that the soil exhibit sufficient cohesion to stand in an unsupported cylinder. These tests are normally performed on samples which are 6.0 inches in height and 2.85 inches in diameter. In the triaxial test, various lateral stresses can be applied to more closely simulate the actual field conditions. There are several different types of triaxial tests. These are, however, normally performed on constant strain apparatus with a deformation rate of 0.05 inches per minute.

CONSOLIDATION TEST (ASTM D 2435)

The purpose of this test is to determine the compressibility of the soil. This test is performed on a sample of soil which is 2.5 inches in diameter and 1.0 inch in height, and has been trimmed from relatively "undisturbed" samples. The test is performed with a lever system or an air activated piston for applying load. The loads are applied in increments and allowed to remain on the sample for a period of 24 hours. The consolidation of the sample under each individual load is measured and a curve of void ratio vs. Pressure is obtained. From the information obtained in this manner and the column loads of the structure, it is possible to calculate the settlement of each individual building column. This information, together with the shearing strength of the soil, is used to determine the safe bearing capacity for a particular structure.

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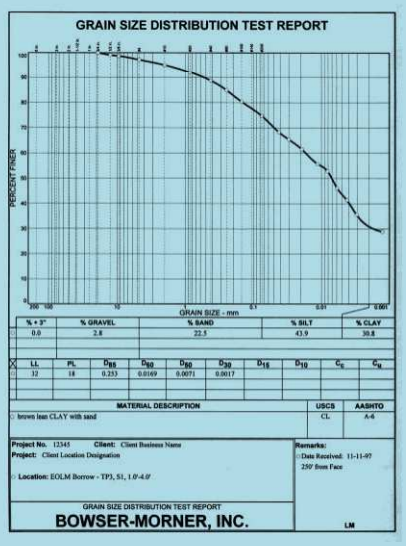
REVISED TO ASTM D4318

ATTERBERG LIMITS (ASTM D423 AND D424)

These tests determine the liquid and plastic limits of soils having a predominant percentage of fine particle (silt and clay) sizes. The liquid limit of a soil is the moisture content expressed as a percent at which the soil changes from a liquid to a plastic state, and the plastic limit is the moisture content at which the soil changes from a plastic to a semi-solid state. Their difference is defined as the plasticity index (P.I. = L.L. - P.L.), which is the change in moisture content required to change the soil from a "semi-solid" to a liquid. These tests furnish information about the soil properties which is important in determining their relative swelling potential and their classifications.

MECHANICAL ANALYSIS (ASTM D422)

This test determines the percent of each particle size of a soil. A sieve analysis is conducted on particle sizes greater than a No. 200 sieve (0.074 mm), and a hydrometer test on particles smaller than the No.200 sieve. The gradation curve is drawn through the points of cumulative percent of particle size, and plotted on semi-logarithmic paper for the combined sieve and hydrometer analysis. This test, together with the Atterberg Limits tests, is used to classify a soil.



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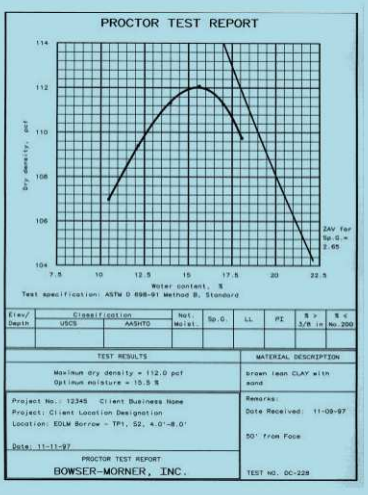
NATURAL MOISTURE CONTENT (ASTM D2216)

The purpose of this test is to indicate the range of moisture contents present in the soil. A wet sample is weighed, placed in the constant temperature oven at 105° for 24 hours, and re-weighed. The moisture content is the change in weight divided by the dry weight.

PROCTOR TESTS

The purpose of these tests is to determine the maximum density and optimum moisture content of a soil. The Modified Proctor test is performed in accordance with ASTM D1557. The test is performed by dropping a 10-pound hammer 25 times from an 18-inch height on each of 5 equal layers of soil in a 1/30 cubic foot mold, which represents a compaction effort of 56,250 foot pounds per cubic foot. The moisture content is then raised, and this procedure is repeated. A moisture density curve is then plotted, with the density on the ordinate axis and the moisture on the abscissa axis. The moisture content at which the maximum density requirement can be achieved with a minimum compactive effort is designated as the optimum moisture content (O.M.C.). The Standard Proctor test is performed in accordance with ASTM D698. This test is similar to the Modified Proctor test and is performed by dropping a 5.5 pound hammer 25 times from a height of 12 inches on 3 equal layers of soil in a 1/30 cubic foot mold, which represents a compaction effort of 12,375 foot pounds per cubic foot. This test gives proportionately lower results than the Modified Proctor test.


PROCTOR TEST REPORT

Dry density, pcf

Water content, %

ZAV for Sp.G.= 2.65

Test specification: ASTM D 698-91 Method B, Standard

Elev/ Depth	Classification USCS	Classification AASHTO	Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in	% < No.200

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 112.0 pcf Optimum moisture = 15.5 %	brown lean CLAY with sand
Project No.: 12345 Client Business Name Project: Client Location Designation Location: EDLM Borrow - TP1, S2, 4.0'-8.0' Date: 11-11-97	Remarks: Date Received: 11-09-97 50' from Face
PROCTOR TEST REPORT BOWSER-MORNER, INC.	TEST NO. DC-228

BOWSER MORNER

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO.
20003009

BORING STARTED	BORING COMPLETED
4/25/25	**4/25/25**
DRILLER **Central Star**	METHOD **2 1/4" HSA**
TYPED BY **dmo**	

1 Boring No.

Sheet 1 of 2

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**
SURFACE ELEVATION **570.0***
BORING LOCATION
As shown on Boring Location Plan.
It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.
VISUAL CLASSIFICATION OF THE MATERIAL

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
				(FILL) GRAVEL (12")			
1.0	SS1			(ORIGINAL) Stiff, brown and gray, silty lean CLAY with sand (trace gravel) - moist	5 6 5	11	
3.0				(Becomes gray at 3.0') (Medium stiff at 3.5')			
4.0	SS2				3 3 5	8	
6.0				(Trace gray. Becomes brown at 5.5') (Stiff at 6.0')			
7.0	SS3				4 5 7	12	▼
9.0	SS4			(Medium stiff at 8.5')	3 3 4	7	
13.0				(Becomes dark gray at 13.0') (Soft at 13.5')			
14.0	SS5				2 2 3	5	
19.0	SS6			(Medium stiff at 18.5')	3 3 5	8	
22.0							

Continued Next Page

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	28.0	4/25/2025
AT COMPLETION	7.0	4/25/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO.
20003009

BORING STARTED **4/25/25** | BORING COMPLETED **4/25/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

1 Boring No.

Sheet 2 of 2

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **570.0***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

VISUAL CLASSIFICATION OF THE MATERIAL

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE / RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
23.0				(ORIGINAL) Stiff, brown and gray, silty lean CLAY with sand (trace gravel) - moist (Becomes light gray at 23.0')			
24.0	SS7				3 4 5	◇ 9	
25.0							
26.0							
27.0							
28.0				Medium dense gray SAND with gravel - wet			▽
29.0	SS8				5 7 8	◇ 15	
30.0				Bottom of boring at 30.0 feet			
31.0							
32.0							
33.0							
34.0							
35.0							
36.0							
37.0							
38.0							
39.0							
40.0							
41.0							
42.0							
43.0							
44.0							
45.0							
46.0							
47.0							
48.0							

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/25/25** | BORING COMPLETED **4/25/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

2 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **568.2***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE / RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
0.0				(FILL) GRAVEL (12")			
1.0	SS1			(ORIGINAL) Stiff, gray, silty lean CLAY with sand (trace gravel, trace brown) - moist	12 9 4	13	
3.0							
4.0	SS2			(Medium stiff at 3.5')	3 3 4	7	
5.0							
6.0	SS3			(Silt seam, trace gray. Becomes brown at 5.5')	2 3 5	8	▼
8.0							
9.0	SS4			(Very soft at 8.5')	2 1 1	2	
10.0							
12.0							
13.0	SS5			(Trace organics. Becomes dark gray at 13.0') (Medium stiff at 13.5')	3 4 4	8	
15.0							
18.0							
19.0	SS6			(Soft at 18.5')	2 2 3	5	
22.0							
23.0				Loose gray SAND with gravel - wet			▽
24.0	SS7				2 4 6	10	
25.0				Bottom of boring at 25.0 feet			
27.0							

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	23.0 ▽	4/25/2025
AT COMPLETION	6.0 ▼	4/25/2025
OTHER	N/A ▼	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/25/25** | BORING COMPLETED **4/25/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

3 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **571.3***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

VISUAL CLASSIFICATION OF THE MATERIAL

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

N VALUE, blows/ft.

DEPTH (ft. BGL)	SAMPLE NO.	BLOW COUNTS	N VALUE
0.0			(FILL) GRAVEL (12")
1.0	SS1	4 5 3	8
2.0			
3.0			
4.0	SS2	4 3 5	8
5.0			
6.0			(Becomes brown at 5.5')
7.0	SS3	4 4 6	10
8.0			
9.0	SS4	2 2 3	5 (Soft at 8.5')
10.0			
11.0			
12.0			
13.0			(Becomes gray at 13.0')
14.0	SS5	2 2 3	5
15.0			Bottom of boring at 15.0 feet
16.0			
17.0			
18.0			
19.0			
20.0			
21.0			
22.0			

REMARKS

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	NONE	4/25/2025
AT COMPLETION	5.5	4/25/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/24/25** | BORING COMPLETED **4/24/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

4 Boring No.

Sheet 1 of 2

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **567.9***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE / RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
				(FILL) SAND with gravel (12")			
1.0	SS1			(ORIGINAL) Soft, gray, silty lean CLAY (some gravel) - moist	3 2 2	◇4	
3.0				(Medium stiff at 3.5')			
4.0	SS2				3 3 4	◇7	
6.0							
7.0	SS3				3 5 4	◇9	▼
8.0							
9.0	SS4			(Becomes black and gray. Very soft at 8.5')	1 1 7	◇8	
12.0							
13.0							
14.0	SS5			(Becomes gray. Soft at 13.5')	2 2 2	◇4	
16.0							
17.0							
18.0							
19.0	SS6			(Trace organic material, trace shells at approx 18.5')	2 2 3	◇5	
20.0							
21.0							
22.0							

Continued Next Page

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	NONE	4/24/2025
AT COMPLETION	7.0	4/24/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/24/25** | BORING COMPLETED **4/24/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

4 Boring No.

Sheet 2 of 2

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **567.9***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

VISUAL CLASSIFICATION OF THE MATERIAL

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

N VALUE, blows/ft.

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
23.0				(ORIGINAL) Soft, gray, silty lean CLAY (some gravel) - moist			
24.0	SS7			(Very soft at 23.5')	WOH		
25.0							
26.0							
27.0							
28.0							
29.0	SS8			Medium dense gray fine SAND - moist	11 11		
30.0				Gray clayey SHALE- moist	12	◇ 23	
				Bottom of boring at 30.0 feet			
31.0							
32.0							
33.0							
34.0							
35.0							
36.0							
37.0							
38.0							
39.0							
40.0							
41.0							
42.0							
43.0							
44.0							
45.0							
46.0							
47.0							
48.0							

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/25/25** | BORING COMPLETED **4/25/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

5 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **566.7***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

VISUAL CLASSIFICATION OF THE MATERIAL

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)

DEPTH (ft. BGL)	SAMPLE NO.	BLOW COUNTS	N VALUE	VISUAL CLASSIFICATION OF THE MATERIAL
1.0				(FILL) GRAVEL (13")
2.0	SS1	11 7 3	10	(FILL) Loose brown SAND with gravel (26") - moist
3.0				
4.0	SS2	2 2 3	5	(ORIGINAL) Soft, brown, silty lean CLAY with sand (trace gray, trace gravel) - wet
5.0				
6.0				(Medium stiff at 6.0')
7.0	SS3	3 3 3	6	
8.0				
9.0	SS4	1 2 2	4	(Soft at 8.5')
10.0				
11.0				
12.0				
13.0				(Silty sand seam encountered. Trace gray. Becomes dark brown at 13.0')
14.0	SS5	3 5 6	11	(Stiff at 13.5') (Becomes gray at 13.9')
15.0				Bottom of boring at 15.0 feet
16.0				
17.0				
18.0				
19.0				
20.0				
21.0				
22.0				

REMARKS

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	3.0	4/25/2025
AT COMPLETION	3.0	4/25/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/24/25** | BORING COMPLETED **4/24/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

6 Boring No.

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**
SURFACE ELEVATION **568.9***
BORING LOCATION
As shown on Boring Location Plan.
It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.
VISUAL CLASSIFICATION OF THE MATERIAL

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)

DEPTH (ft. BGL)	SAMPLE NO.	BLOW COUNTS	N VALUE	VISUAL CLASSIFICATION OF THE MATERIAL	REMARKS
1.0	SS1	3 3	6	(FILL) Loose brown SAND with gravel (24")	
2.0		3		(ORIGINAL) Medium stiff, black and brown, silty lean CLAY - moist	
3.0					
4.0	SS2	2 3 2	5	(Soft at 3.5')	
5.0					
6.0	SS3	5 7 9	16	(Becomes brown and gray. Some sand. Very stiff at 6.0')	▼
7.0					
8.0					▽
9.0	SS4	2 2 2	4	Very loose, gray fine SAND - wet	
10.0					
11.0					
12.0					
13.0					
14.0	SS5	2 2 2	4	Soft, black, silty lean CLAY with sand (trace organic material) - moist	
15.0					
16.0					
17.0					
18.0					
19.0	SS6	2 3 5	8	(Trace shells encountered. Medium stiff at 18.5')	
20.0					
21.0					
22.0					

Continued Next Page

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	8.5 ▽	4/24/2025
AT COMPLETION	7.0 ▼	4/24/2025
OTHER	N/A ▼	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/24/25** | BORING COMPLETED **4/24/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

6 Boring No.

Sheet 2 of 2

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **568.9***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

VISUAL CLASSIFICATION OF THE MATERIAL

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE / RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
23.0				Soft, black, silty lean CLAY with sand (trace organic material) - moist			
24.0	SS7			Very loose, gray, silty fine SAND (trace clay) - wet	1 2 3	◇5	
25.0							
26.0							
27.0							
28.0							
29.0	SS8			Medium dense gray SAND with gravel - wet	10 10 14	◇24	
30.0				Bottom of boring at 30.0 feet			
31.0							
32.0							
33.0							
34.0							
35.0							
36.0							
37.0							
38.0							
39.0							
40.0							
41.0							
42.0							
43.0							
44.0							
45.0							
46.0							
47.0							
48.0							

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/23/25** | BORING COMPLETED **4/23/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

7 Boring No.

Sheet 1 of 2

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **569.4***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
				(FILL) GRAVEL (9")			
1.0				(ORIGINAL) Medium stiff, brown, silty lean CLAY (trace gravel) - moist	4		
2.0	SS1			Loose brown SAND with gravel (trace cobbles) - moist	4 4	◇ 8	
3.0							▼
4.0	SS2			(Very loose at 3.5')	2 2	◇ 3	
5.0					1		▽
6.0				Stiff, brown, silty lean CLAY (trace gravel, trace gray) - wet	2		
7.0	SS3				3 5	◇ 8	
8.0				(Trace brown. Becomes gray at 8.0')			
9.0	SS4			(Soft at 8.5')	2 2		
10.0					3	◇ 5	
11.0							
12.0							
13.0							
14.0	SS5			(Very soft at 13.5')	2 2		
15.0					1	◇ 3	
16.0							
17.0							
18.0							
19.0	SS6			(Soft at 18.5')	2 1		
20.0					3	◇ 4	
21.0							
22.0							

Continued Next Page

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	5.5	▽ 4/23/2025
AT COMPLETION	3.0	▼ 4/23/2025
OTHER	N/A	▼ N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO.
20003009

BORING STARTED **4/23/25** | BORING COMPLETED **4/23/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

7 Boring No.

Sheet 2 of 2

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **569.4***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

VISUAL CLASSIFICATION OF THE MATERIAL

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE / RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
23.0				Stiff, brown, silty lean CLAY (trace gravel, trace gray) - wet			
24.0	SS7			(Medium stiff at 23.5')	2 3 4	◇ 7	
25.0							
26.0							
27.0							
28.0							
29.0	SS8			Loose brown SAND with gravel - wet	4 3 4	◇ 7	
30.0							
31.0							
32.0							
33.0							
34.0	SS9			Hard, gray, silty lean CLAY (trace limestone) - moist	5 7	◇ 57	
35.0				(Auger refusal at 34.6') Bottom of boring at 34.6 feet	50/1"		
36.0							
37.0							
38.0							
39.0							
40.0							
41.0							
42.0							
43.0							
44.0							
45.0							
46.0							
47.0							
48.0							

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/23/25** | BORING COMPLETED **4/23/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

8 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **568.0***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
		(FILL) ASPHALT (4")			
		(FILL) GRAVEL Base (8")			
1.0 – 2.0	SS1	(ORIGINAL) Medium stiff, dark brown, silty lean CLAY with sand (trace gravel) - moist	7 5 5	10	
3.0 – 4.0	SS2	(Becomes brown at 3.0')	3 4 5	9	
5.0 – 7.0	SS3	(Stiff at 6.0')	3 5 6	11	
8.0 – 10.0	SS4	(Soft at 8.5')	2 2 2	4	▼
11.0 – 14.0	SS5	(Becomes gray and very soft. Water encountered at 13.0'.)	2 2 1	3	▽
15.0		Bottom of boring at 15.0 feet			

WATER LEVEL MEASUREMENTS

	DEPTH		DATE
INITIAL	13.0	▽	4/23/2025
AT COMPLETION	12.0	▼	4/23/2025
OTHER	N/A	▼	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/23/25** | BORING COMPLETED **4/23/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

9 Boring No.

Sheet 1 of 2

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **567.0***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE / RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
0.0				(FILL) GRAVEL (3")			
1.0	SS1			(ORIGINAL) Soft, gray, silty lean CLAY with sand (trace gravel) - wet	4 3 2	◇5	▽
4.0	SS2				2 2 3	◇5	
6.0				(Some cobbles, trace gray. Becomes brown at 5.5') (Medium stiff at 6.0')	3		
7.0	SS3				3 5	◇8	
9.0	SS4			(Very soft at 8.5')	2 1 1	◇2	▼
13.0				(Becomes gray at 13.0') (Soft at 13.5')	1		
14.0	SS5				2 2	◇4	
19.0	SS6				2 2 2	◇4	
22.0							

Continued Next Page

WATER LEVEL MEASUREMENTS

	DEPTH		DATE
INITIAL	1.0	▽	4/23/2025
AT COMPLETION	8.5	▼	4/23/2025
OTHER	N/A	▼	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC— SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/23/25** | BORING COMPLETED **4/23/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

9 Boring No.

Sheet 2 of 2

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **567.0***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

VISUAL CLASSIFICATION OF THE MATERIAL

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE / RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
23.0							
24.0	SS7			Medium dense gray SAND with gravel - wet	2 1 8	◇9	
25.0							
26.0							
27.0							
28.0							
29.0	SS8				10 9 12	◇21	
30.0				Bottom of boring at 30.0 feet			
31.0							
32.0							
33.0							
34.0							
35.0							
36.0							
37.0							
38.0							
39.0							
40.0							
41.0							
42.0							
43.0							
44.0							
45.0							
46.0							
47.0							
48.0							

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO.
20003009

BORING STARTED **4/23/25** | BORING COMPLETED **4/23/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

10 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **565.2***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

N VALUE, blows/ft.

DEPTH (ft. BGL)	SAMPLE NO.	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE	REMARKS
0.0		(FILL) ASPHALT (5.5")			
0.5		(FILL) GRAVEL Base (7.5")			
1.0	SS1	(ORIGINAL) Soft, gray, silty lean CLAY with sand (trace gravel) - moist	4 3 2	5	
3.0		(Becomes brown at 3.0')			
3.5		(Medium stiff at 3.5')			
4.0	SS2		3 3 4	7	▼
6.0	SS3		3 3 3	6	
8.0		(Very soft at 8.5')			
9.0	SS4		1 1 1	2	
13.0		(Becomes gray at 13.0')			
13.5		(Medium stiff at 13.5')			
14.0	SS5		2 2 4	6	
18.0		Medium dense gray SAND with gravel (trace cobbles) - wet			▽
19.0	SS6		3 8 12	20	
20.0		Bottom of boring at 20.0 feet			

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	18.0 ▽	4/23/2025
AT COMPLETION	4.0 ▽	4/23/2025
OTHER	N/A ▼	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/25/25** | BORING COMPLETED **4/25/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

11 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **563.9***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

VISUAL CLASSIFICATION OF THE MATERIAL

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

N VALUE, blows/ft.

DEPTH (ft. BGL)	SAMPLE NO.	BLOW COUNTS	VISUAL CLASSIFICATION OF THE MATERIAL
0.0			(FILL) ASPHALT (12")
1.0	SS1	4 3 3 (6)	(ORIGINAL) Medium stiff, gray, silty lean CLAY with sand - moist
3.0			(Becomes brown at 3.0'. Some cobbles, trace gray)
4.0	SS2	3 4 5 (9)	
6.0	SS3	3 3 3 (6)	
8.0			(Soft at 8.5')
9.0	SS4	2 2 2 (4)	
13.0			Very loose, gray silty SAND with gravel - wet
14.0	SS5	4 1 2 (3)	
15.0			Bottom of boring at 15.0 feet

REMARKS

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	13.0	4/25/2025
AT COMPLETION	NONE	4/25/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC— SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/23/25** | BORING COMPLETED **4/23/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

12 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **567.0***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
0.0		(FILL) ASPHALT (3.5")			
0.5		(FILL) GRAVEL Base (8.5")			
1.0	SS1	(ORIGINAL) Stiff, gray, silty lean CLAY with sand (trace gravel) - moist	10 8 4	12	
3.0	SS2	(Becomes brown, trace gray. Medium stiff at 3.5')	2 3 5	8	▼
6.0	SS3		3 4 5	9	
8.0	SS4	(Very soft at 8.5')	2 1 2	3	
13.0	SS5	(Becomes gray at 13.0') (Soft at 13.5')	2 2 3	5	
18.5	SS6	(Very soft at 18.5')	2 1 2	3	
23.5	SS7	(Very stiff at 23.5')	8 10 11	21	
25.0		Bottom of boring at 25.0 feet			

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	NONE	4/23/2025
AT COMPLETION	4.0	4/23/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/23/25** | BORING COMPLETED **4/23/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

13 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **566.2***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
				(FILL) ASPHALT (4")			
				(FILL) GRAVEL Base (3")			
1.0 – 2.0	SS1			(ORIGINAL) Soft, gray, silty lean CLAY with sand (trace gravel) - moist	3 2 2	◇4	
3.0 – 4.0	SS2			(Very soft at 3.5')	1 1 1	◇2	
5.0 – 6.0				(Becomes brown at 5.5')			
7.0 – 8.0	SS3			(Medium stiff at 6.0')	2 3 5	◇8	▼
9.0 – 10.0	SS4				2 3 3	◇6	
11.0 – 12.0							
13.0 – 14.0	SS5			(Trace organic material. Becomes dark gray at 13.0') (Soft at 13.5')	2 2 3	◇5	
15.0 – 16.0							
17.0 – 18.0				Medium dense gray SAND with gravel - wet			▽
19.0 – 20.0	SS6				3 4 8	◇12	
21.0 – 22.0							
23.0 – 24.0	SS7			(Dense at 23.5')	20 16 18	◇34	
25.0 – 27.0				Bottom of boring at 25.0 feet			

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	18.0 ▽	4/23/2025
AT COMPLETION	8.0 ▽	4/23/2025
OTHER	N/A ▼	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/25/25** | BORING COMPLETED **4/25/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

14 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **564.0***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE / RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
0.0				(FILL) ASPHALT (12")			
1.0	SS1			(ORIGINAL) Medium stiff, brown, silty lean CLAY with sand (trace gravel, trace gray) - moist	5 3 3	◇ 6	
2.0							
3.0							
4.0	SS2				2 4 4	◇ 8	▼
5.0							
6.0							
7.0	SS3				2 3 3	◇ 6	
8.0				Very loose, gray silty SAND with gravel (trace clay) - wet			▽
9.0	SS4				1 1 3	◇ 4	
10.0							
11.0							
12.0							
13.0				Stiff, gray, silty lean CLAY with sand (some gravel) - wet			
14.0	SS5				2 3 11	◇ 14	
15.0							
16.0							
17.0							
18.0							
19.0	SS6			Loose gray SAND with gravel - wet	3 4 6	◇ 10	
20.0				Bottom of boring at 20.0 feet			
21.0							
22.0							

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	8.0	4/25/2025
AT COMPLETION	4.0	4/25/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/25/25** | BORING COMPLETED **4/25/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

15 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **566.6***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

VISUAL CLASSIFICATION OF THE MATERIAL

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

N VALUE, blows/ft.

DEPTH (ft. BGL)	SAMPLE NO.	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE
0.0		(FILL) GRAVEL (12")		
1.0	SS1	(ORIGINAL) Medium stiff, brown, silty lean CLAY with sand (trace gravel) - moist	2 3 3	6
3.0		(Becomes bgray at 3.0') (Very soft at 3.5')		
4.0	SS2		1 1 2	3
6.0		(Medium stiff at 6.0')		
7.0	SS3		3 5 5	10
8.0		(Becomes brown and gray at 8.0')		
9.0	SS4		3 4 4	8
13.0		(Becomes dark brown and gray at 13.0')		
14.0	SS5		2 2 5	7
15.0		Bottom of boring at 15.0 feet		

REMARKS

WATER LEVEL MEASUREMENTS

	DEPTH	DATE
INITIAL	NONE	4/25/2025
AT COMPLETION	NONE	4/25/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

CLIENT
Clermont County Board of Commissioners

PROJECT
Soil Study for Proposed Facilities/ Engineering Management Building, Filager Road, Batavia, Ohio

JOB NO. **20003009**

BORING STARTED **4/24/25** | BORING COMPLETED **4/24/25**

DRILLER **Central Star** | METHOD **2 1/4" HSA**

TYPED BY **dmo**

16 Boring No.

Sheet 1 of 1

PROJECT LOCATION
LAT. **39°05'41"N** LONG. **84°11'13"W**

SURFACE ELEVATION **565.9***

BORING LOCATION
As shown on Boring Location Plan.

It has been necessary to interpolate between samples. Therefore, the contacts between the various soil strata should not be taken as absolute.

COMMENTS
***Surface elevation based on Ohio South State Plane Coordinate System.**

DEPTH (ft. BGL)	SAMPLE NO.	SAMPLER TYPE / RECOVERY	GRAPHIC LOG	VISUAL CLASSIFICATION OF THE MATERIAL	BLOW COUNTS	N VALUE, blows/ft. (10 20 30 40 50 60 70 80 90)	REMARKS
0.0				(FILL) ASPHALT (5")			
1.0				(FILL) GRAVEL Base (13")	21		
2.0	SS1			(ORIGINAL) Medium stiff, brown, silty lean CLAY (trace clay, trace gray) - moist	7 3	◇ 10	
3.0							
4.0	SS2				3 3 5	◇ 8	
5.0							
6.0							
7.0	SS3				3 3 5	◇ 8	
8.0							
9.0	SS4				3 3 4	◇ 7	
10.0							
11.0							
12.0							
13.0							
14.0	SS5			Very soft, gray sandy SILT - moist	2 2 2	◇ 4	
15.0				Bottom of boring at 15.0 feet			
16.0							
17.0							
18.0							
19.0							
20.0							
21.0							
22.0							

WATER LEVEL MEASUREMENTS

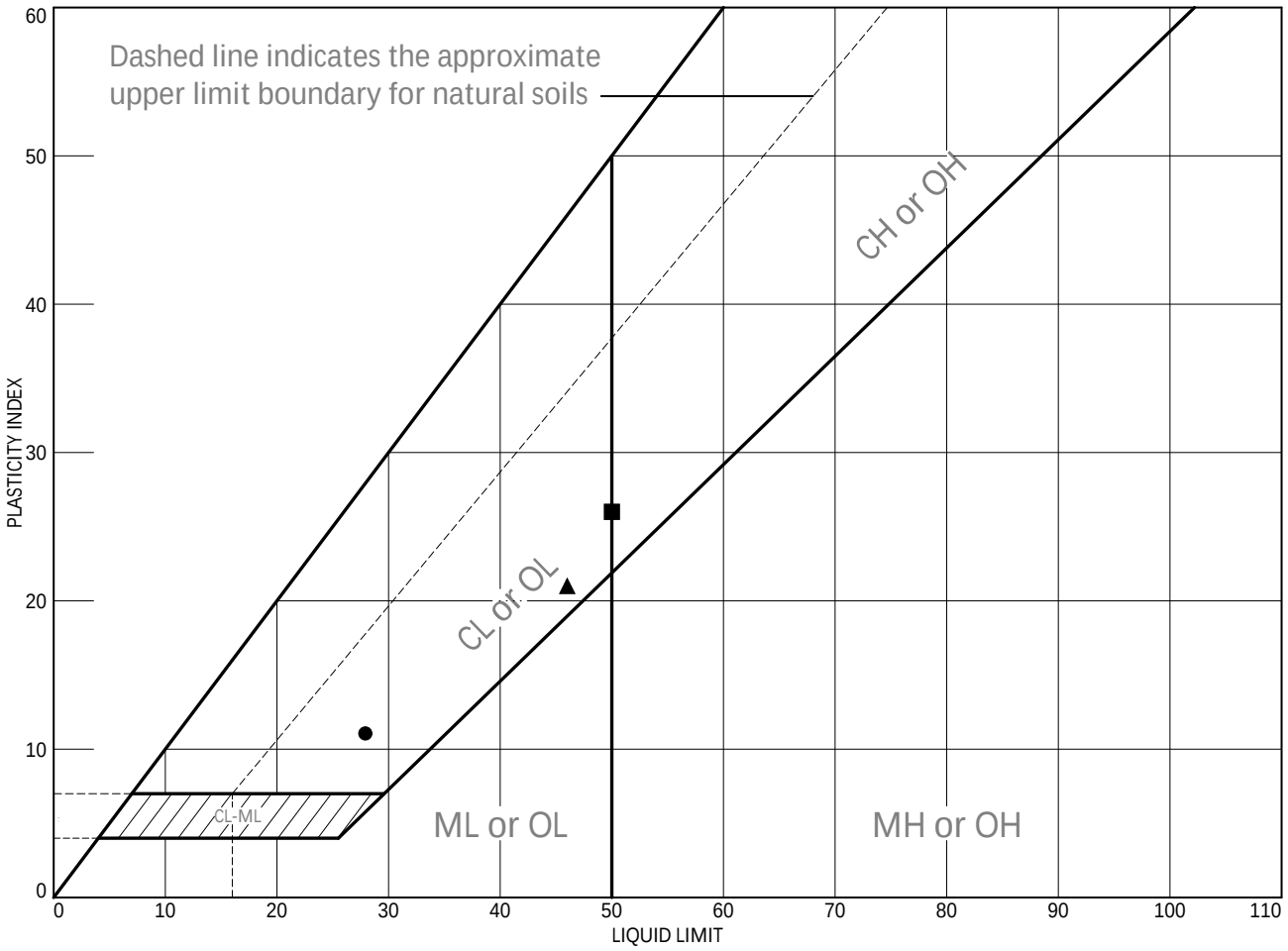
	DEPTH	DATE
INITIAL	NONE	4/24/2025
AT COMPLETION	NONE	4/24/2025
OTHER	N/A	N/A

SS — SPLIT SPOON
SL — SPLIT SPOON W/SOIL LINER
NQ— ROCK CORE
ST — SHELBY TUBE
AS — AUGER CUTTINGS
SC — SONIC

BOWSER MORNER

GINT Report Used: NEWLOGIN Report No.: 20003009.GPJ GINT Template Used: OH DOT.GDT Date Printed: 6/3/25

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	brown clay w/ some silt (visual)	28	17	11			
■	brown clay w/ trace silt (visual)	50	24	26			
▲	gray clay (visual)	46	25	21			

Project No. 20003009 Client: Clermont County Board of Commissioners

Project: Proposed Facilities/Engineering Mtg Building

●Location: B-2 Depth: 8.5' - 10.0' Sample Number: SS-4

■Location: B-7 Depth: 6.0' - 7.5' Sample Number: SS-3

▲Location: B-15 Depth: 3.5'-5.0' Sample Number: SS-2

Remarks:

BOWSER-MORNER, INC.

Dayton, Ohio

Tested By: ○KA □CC △CC Checked By: MR

Moisture Content of Soil

ASTM (D-2216)

BOWSER MORNER

Client: Clermont County Board of Commissioners
Project: Proposed Facilities/Engineering Mtg Building

Work Order No.: 20003009
Date: 06/02/25

Boring Number	Sample Number	Depth, (ft)	Depth, (m)	Moisture Content, (%)
B-1	SS 1	1.0 - 2.5	0.3 - 0.8	7.9
	SS 2	3.5 - 5.0	1.1 - 1.5	
	SS 3	6.0 - 7.5	1.8 - 2.3	9.3
	SS 4	8.5 - 10.0	2.6 - 3.0	10.1
	SS 5	13.5 - 15.0	4.1 - 4.6	
	SS 6	18.5 - 20.0	5.6 - 6.1	
	SS 7	23.5 - 25.0	7.2 - 7.6	
	SS 8	28.5 - 30.0	8.7 - 9.1	
B-2	SS 1	1.0 - 2.5	0.3 - 0.8	7.8
	SS 2	3.5 - 5.0	1.1 - 1.5	9.3
	SS 3	6.0 - 7.5	1.8 - 2.3	
	SS 4	8.5 - 10.0	2.6 - 3.0	5.9
	SS 5	13.5 - 15.0	4.1 - 4.6	
	SS 6	18.5 - 20.0	5.6 - 6.1	
	SS 7	23.5 - 25.0	7.2 - 7.6	
B-3	SS 1	1.0 - 2.5	0.3 - 0.8	8.2
	SS 2	3.5 - 5.0	1.1 - 1.5	8.7
	SS 3	6.0 - 7.5	1.8 - 2.3	9.0
	SS 4	8.5 - 10.0	2.6 - 3.0	
	SS 5	13.5 - 15.0	4.1 - 4.6	
B-4	SS 1	1.0 - 2.5	0.3 - 0.8	8.2
	SS 2	3.5 - 5.0	1.1 - 1.5	9.3
	SS 3	6.0 - 7.5	1.8 - 2.3	
	SS 4	8.5 - 10.0	2.6 - 3.0	13.0
	SS 5	13.5 - 15.0	4.1 - 4.6	
	SS 6	18.5 - 20.0	5.6 - 6.1	
	SS 7	23.5 - 25.0	7.2 - 7.6	
	SS 8	28.5 - 30.0	8.7 - 9.1	
B-5	SS 1	1.0 - 2.5	0.3 - 0.8	3.2
	SS 2	3.5 - 5.0	1.1 - 1.5	
	SS 3	6.0 - 7.5	1.8 - 2.3	9.9
	SS 4	8.5 - 10.0	2.6 - 3.0	10.8
	SS 5	13.5 - 15.0	4.1 - 4.6	

Moisture Content of Soil

ASTM (D-2216)

BOWSER MORNER

Client: Clermont County Board of Commissioners
Project: Proposed Facilities/Engineering Mtg Building

Work Order No.: 20003009
Date: 06/02/25

Boring Number	Sample Number	Depth, (ft)	Depth, (m)	Moisture Content, (%)
B-6	SS 1	1.0 - 2.5	0.3 - 0.8	
	SS 2	3.5 - 5.0	1.1 - 1.5	10.2
	SS 3	6.0 - 7.5	1.8 - 2.3	10.0
	SS 4	8.5 - 10.0	2.6 - 3.0	
	SS 5	13.5 - 15.0	4.1 - 4.6	
	SS 6	18.5 - 20.0	5.6 - 6.1	
	SS 7	23.5 - 25.0	7.2 - 7.6	
	SS 8	28.5 - 30.0	8.7 - 9.1	
B-7	SS 1	1.0 - 2.5	0.3 - 0.8	7.3
	SS 2	3.5 - 5.0	1.1 - 1.5	
	SS 3	6.0 - 7.5	1.8 - 2.3	9.8
	SS 4	8.5 - 10.0	2.6 - 3.0	10.0
	SS 5	13.5 - 15.0	4.1 - 4.6	
	SS 6	18.5 - 20.0	5.6 - 6.1	
	SS 7	23.5 - 25.0	7.2 - 7.6	
	SS 8	28.5 - 30.0	8.7 - 9.1	
	SS 9	33.5 - 35.0	10.2 - 10.7	
B-8	SS 1	1.0 - 2.5	0.3 - 0.8	8.6
	SS 2	3.5 - 5.0	1.1 - 1.5	9.6
	SS 3	6.0 - 7.5	1.8 - 2.3	10.0
	SS 4	8.5 - 10.0	2.6 - 3.0	10.4
	SS 5	13.5 - 15.0	4.1 - 4.6	
B-9	SS 1	1.0 - 2.5	0.3 - 0.8	8.9
	SS 2	3.5 - 5.0	1.1 - 1.5	9.1
	SS 3	6.0 - 7.5	1.8 - 2.3	10.8
	SS 4	8.5 - 10.0	2.6 - 3.0	
	SS 5	13.5 - 15.0	4.1 - 4.6	
	SS 6	18.5 - 20.0	5.6 - 6.1	
	SS 7	23.5 - 25.0	7.2 - 7.6	
	SS 8	28.5 - 30.0	8.7 - 9.1	
B-10	SS 1	1.0 - 2.5	0.3 - 0.8	9.7
	SS 2	3.5 - 5.0	1.1 - 1.5	9.0
	SS 3	6.0 - 7.5	1.8 - 2.3	10.3
	SS 4	8.5 - 10.0	2.6 - 3.0	10.4
	SS 5	13.5 - 15.0	4.1 - 4.6	
	SS 6	18.5 - 20.0	5.6 - 6.1	

Moisture Content of Soil

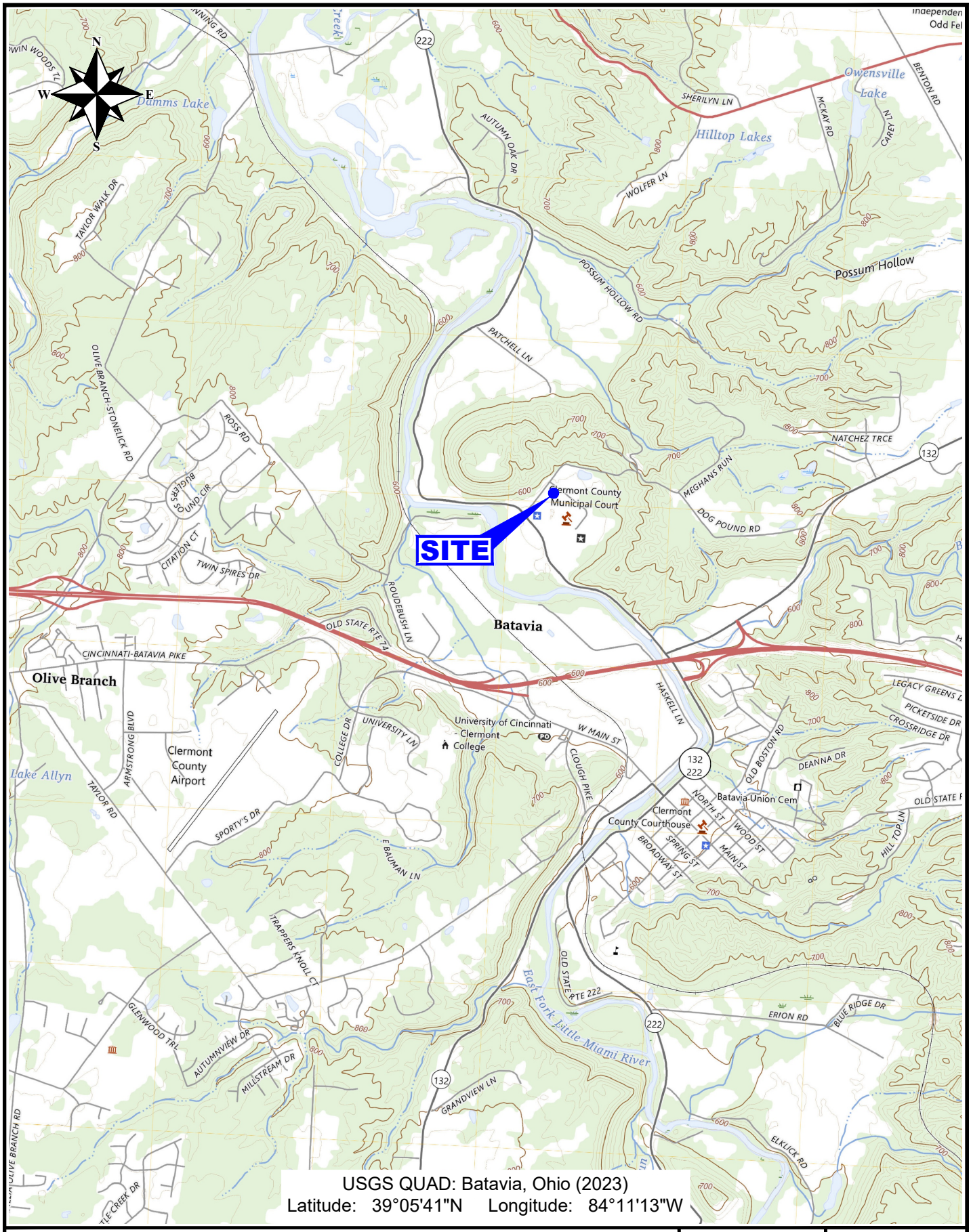
ASTM (D-2216)

BOWSER MORNER

Client: Clermont County Board of Commissioners
Project: Proposed Facilities/Engineering Mtg Building

Work Order No.: 20003009
Date: 06/02/25

Boring Number	Sample Number	Depth, (ft)	Depth, (m)	Moisture Content, (%)
B-11	SS 1	1.0 - 2.5	0.3 - 0.8	8.8
	SS 2	3.5 - 5.0	1.1 - 1.5	9.2
	SS 3	6.0 - 7.5	1.8 - 2.3	9.9
	SS 4	8.5 - 10.0	2.6 - 3.0	
	SS 5	13.5 - 15.0	4.1 - 4.6	
B-12	SS 1	1.0 - 2.5	0.3 - 0.8	4.2
	SS 2	3.5 - 5.0	1.1 - 1.5	8.8
	SS 3	6.0 - 7.5	1.8 - 2.3	9.4
	SS 4	8.5 - 10.0	2.6 - 3.0	10.4
	SS 5	13.5 - 15.0	4.1 - 4.6	
	SS 6	18.5 - 20.0	5.6 - 6.1	
	SS 7	23.5 - 25.0	7.2 - 7.6	
B-13	SS 1	1.0 - 2.5	0.3 - 0.8	7.1
	SS 2	3.5 - 5.0	1.1 - 1.5	8.2
	SS 3	6.0 - 7.5	1.8 - 2.3	
	SS 4	8.5 - 10.0	2.6 - 3.0	9.7
	SS 5	13.5 - 15.0	4.1 - 4.6	
	SS 6	18.5 - 20.0	5.6 - 6.1	
	SS 7	23.5 - 25.0	7.2 - 7.6	
B-14	SS 1	1.0 - 2.5	0.3 - 0.8	8.8
	SS 2	3.5 - 5.0	1.1 - 1.5	8.9
	SS 3	6.0 - 7.5	1.8 - 2.3	9.7
	SS 4	8.5 - 10.0	2.6 - 3.0	
	SS 5	13.5 - 15.0	4.1 - 4.6	
	SS 6	18.5 - 20.0	5.6 - 6.1	
B-15	SS 1	1.0 - 2.5	0.3 - 0.8	10.0
	SS 2	3.5 - 5.0	1.1 - 1.5	6.2
	SS 3	6.0 - 7.5	1.8 - 2.3	9.7
	SS 4	8.5 - 10.0	2.6 - 3.0	8.5
	SS 5	13.5 - 15.0	4.1 - 4.6	
B-16	SS 1	1.0 - 2.5	0.3 - 0.8	2.7
	SS 2	3.5 - 5.0	1.1 - 1.5	8.6
	SS 3	6.0 - 7.5	1.8 - 2.3	10.1
	SS 4	8.5 - 10.0	2.6 - 3.0	
	SS 5	13.5 - 15.0	4.1 - 4.6	



USGS QUAD: Batavia, Ohio (2023)
Latitude: 39°05'41"N Longitude: 84°11'13"W

VICINITY MAP

Soil Study for Proposed Facilities/Engineering Management Building
Batavia, Clermont County, Ohio
For: Clermont County Board of Commissioners

06-2025 EM

PROJECT NO.	20003009
SCALE	1" = 1/2 Mile
FIGURE	1

BOWSER MORNER

BOWSER MORNER

PROJECT NO.	SCALE	FIGURE
20003009	1" = 60'	2

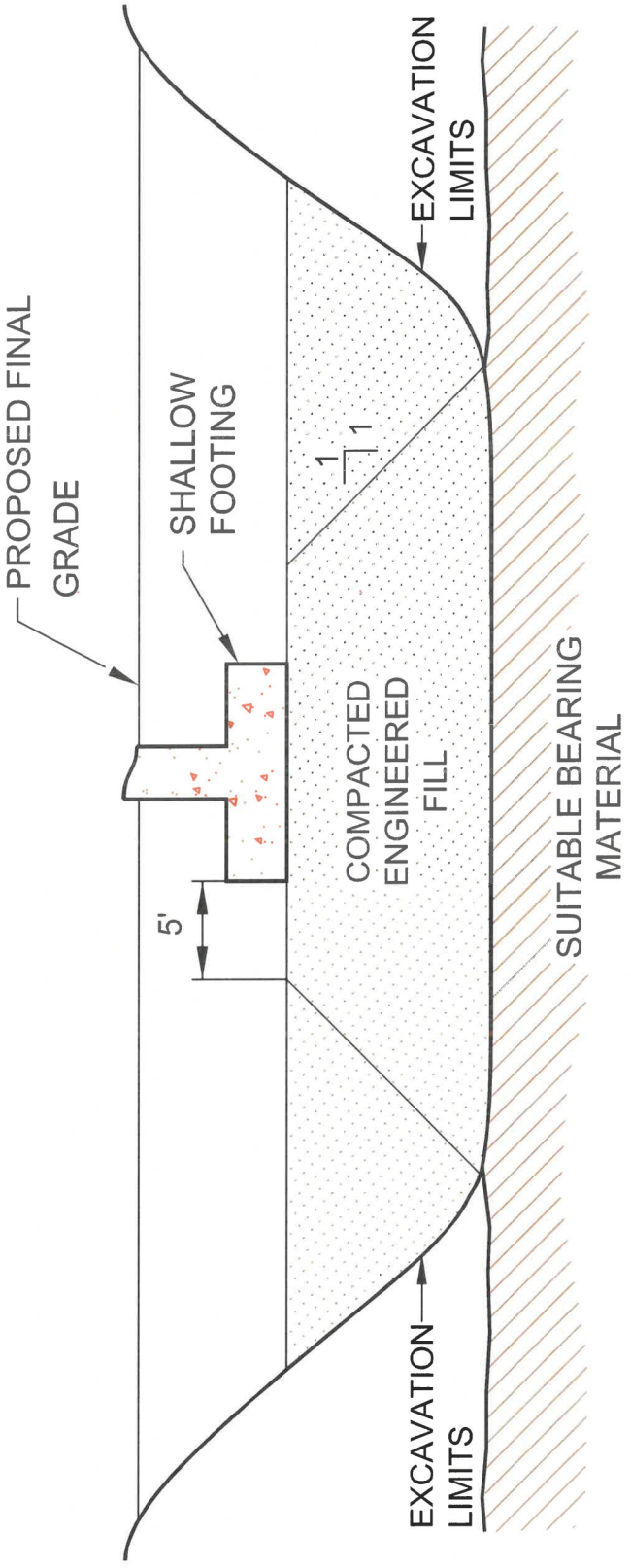
06-2025 EM

BORING LOCATION PLAN

Soil Study for Proposed Facilities/Engineering Management Building

Batavia, Clermont County, Ohio

For: Clermont County Board of Commissioners



DESIGN ILLUSTRATION SHALLOW FOOTINGS IN AN UNDERCUT AREA

SCALE
NONE

FIGURE NO.
3

BOWSER MORNER

ENGINEERING & ENVIRONMENTAL SERVICES:

- Geotechnical Engineering
- Subsurface Exploration
- Civil Engineering
- Environmental Services
- Due Diligence
- Permitting

LABORATORY SERVICES:

- Geotechnical Laboratories
- Construction Materials Laboratories
- Mineral Aggregates
- Concrete
- Stone & Masonry
- Asphalt
- Analytical Services Laboratories
- Industrial Minerals
- Product Testing
- Mechanical/Metallurgical Testing
- Calibration Services
- Chemistry Laboratory
- Consulting Geology
- Radon Reference Laboratory

CONSTRUCTION SUPPORT SERVICES:

- General Construction
- Construction Quality Assurance
- Building Code Special Inspections
- Transportation Projects:
  - Contractor QA/QC
  - Material Supplier QA/QC
  - Owner Quality Assurance
- Materials Consulting:
  - Construction Engineering

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SECTION 01 23 00
ALTERNATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Description of Alternates.

B. Procedures for pricing Alternates.

C. Documentation of changes to Contract Sum and Contract Time.

1.02 RELATED REQUIREMENTS

A. Article 8 Bid Detail Cost Sheet - Bid Cost Sheet

1.03 GENERAL

A. Required alternatives are worded briefly. Refer to Specification Sections and Drawings for additional requirements. Claims for additional compensation will not be granted because of omissions or discrepancies due to the brevity.

B. Bidders shall indicate the addition or deduction amount from the base bid for each alternative requested in the space provided on the bid form.

C. The cost indicated on the bid form shall include material and labor as may be necessary for the identified alternative.

1.04 ACCEPTANCE OF ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.05 SCHEDULE OF ALTERNATES

A. Provide an alternate for controls by manufacturer "Carrier i-Vu".

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 58 13
TEMPORARY PROJECT SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project identification sign.

1.02 RELATED REQUIREMENTS

A. Section 01 50 00 - Temporary Facilities and Controls

1.03 REFERENCE STANDARDS

A. FHWA (SHS) - Standard Highway Signs; Federal Highway Administration; 2004.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Architect to furnish contractor final rendering to be used for fabrication of signage.

PART 2 PRODUCTS

2.01 SIGN MATERIALS

A. Structure and Framing: New, wood, structurally adequate.

B. Sign Surface: Exterior grade vinyl

C. Rough Hardware: Galvanized.

D. Printed Vinyl signage.

1. Single color printed graphics (R:21, G:71, B:51) over white vinyl.

2.02 PROJECT IDENTIFICATION SIGN

A. One sign of construction

B. One sign, 8 foot x 4 foot 32 sq ft area, bottom 6 feet above ground.

C. Design to include Garmann Miller's Logo, Clermont County's Logo, and Contractor's Logo, and project name and address.

PART 3 EXECUTION

3.01 INSTALLATION

A. Erect at location of high public visibility adjacent to main entrance to site, or as directy by the Architect.

B. Erect supports and framing on secure foundation, rigidly braced and framed to resist wind loadings.

C. Install sign surface plumb and level, with butt joints. Anchor securely.

3.02 MAINTENANCE

A. Maintain signs and supports clean, repair deterioration and damage.

3.03 REMOVAL

A. Remove signs, framing, supports, and foundations at completion of Project and restore the area.

END OF SECTION

SECTION 10 14 19
DIMENSIONAL LETTER SIGNAGE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Dedication Plaque

B. Room and Occupancy Signs

C. Restroom Signs

D. Building Letters.

1.02 RELATED SECTIONS

A. Section 01 6000 - Products Requirements

B. Section 07 2400 - Exterior Insulation and Finish System

C. Section 04 2000 - Unit Masonry.

1.03 REFERENCES

A. ANSI A117.1 - Specifications for Making Buildings and Facilities Accessible To and Usable By Physically Handicapped People.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. See Section 01 6116 VOC Content Restrictions, for VOC submittal procedures

C. Product Data: Manufacturer's printed product literature for each type of sign, indicating sign styles, font, foreground and background colors, locations, overall dimensions of each sign.

D. Signage Schedule: Provide information sufficient to completely define each sign for fabrication, including room number, room name, other text to be applied, sign and letter sizes, fonts, and colors.
   1. When room numbers to appear on signs differ from those on the drawings, include the drawing room number on schedule.
   2. When content of signs is indicated to be determined later, request such information from Owner through Architect at least 2 months prior to start of fabrication; upon request, submit preliminary schedule.
   3. Submit for approval by Owner through Architect prior to fabrication.

E. Samples:
   1. Submit one (1) sample building letter, room/occupancy sign shown construction, text style, etc.
   2. Submit one sample other signs required, of size not less than 10 inches by 12 inches similar to that required for project, illustrating sign style, font, and method of attachment.
   3. Sample will be returned to contractor.

F. Selection Samples: Where colors are not specified, submit two sets of color selection charts or chips.

G. Verification Samples: Submit samples showing colors specified not less than 10 inches by 12 inches.

H. Manufacturer's Installation Instructions: Include installation templates and attachment devices.

I. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.

1.05 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.06 REGULATORY REQUIREMENTS

A. Conform to OBBC code and ANSI A117.1 for requirements for the physically handicapped.

B. Signage shall conform to with the Americans with Disabilities Act Accessibility Guidelines (ADAAG). These requirements supersede Technical Specifications in this Section.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions of Section 01 6000 - Product Requirements.

B. Store adhesive attachment tape at ambient room temperatures.

1.08 ENVIRONMENTAL REQUIREMENTS

A. Do not install signs when ambient temperature is lower than recommended by manufacturer.

B. Maintain this minimum temperature during and after installation of signs.

PART 2 PRODUCTS

2.01 REFER TO A12 SERIES DRAWINGS FOR SIGNAGE MATERIALS, LAYOUT AND LOCATIONS

2.02 DEDICATION PLAQUE

A. Manufacturer:
   1. ASI Sign Systems, Indianapolis, Indiana: Cleveland, Ohio: Cincinnati, Ohio
   2. Columbus Graphics Inc.
   3. Ellet Sign Company: www.elletneon.com
   4. Trademark Designs, Minster, Ohio
   5. Vivid Manufacturing, Ft Loramie, Ohio: www.vividmfg.com
   6. Substitutions: See Section 01 6000 - Products Requirements
      a. Provide data showing product and hardware of proposed substitution are equivalent to better than specified product.
      b. Provide sample of items to be considered for review by the Architect. Samples will be returned.

2.03 ROOM AND OCCUPANCY SIGNS

A. Manufacturer:
   1. Ace Sign Systems Inc., Ft Wayne Indiana
   2. ASI Sign Systems, Indianapolis, Indiana: Cleveland, Ohio: Cincinnati, Ohio
   3. Columbus Graphics Inc.
   4. Ellet Sign Company: www.elletneon.com
   5. Matthews, Pittsburgh, Pennsylvania
   6. Substitutions: See Section 01 6000 - Products Requirements
      a. Provide data showing product and hardware of proposed substitution are equivalent to better than specified product.
      b. Provide sample of items to be considered for review by the Architect. Samples will be returned.

B. Product: Acrylic w/ subsurface Graphic Sign.
   1. Graphic Process: Tactile letters and braille achieved through Raster process. Digital print shall be mounted to subsurface of 1/8" acrylic. Back plate shall be adhesively mounted to 1/8" acrylic. Graphics for the metal accent logo shall be achieved through shallow etch process.
   2. Letters: Letters and numbers shall be raised 1/32inch from sign face. All text shall be accompanied by Grade 2 Braille.

3. Colors: The architect will select from manufacturers standard colors for background and text. Characters, symbols and text shall contract with background and and have a non-glare finish .
4. Mounting: Silicone Adhesive with vinyl double faced tape 1/32 inch thick all edges.

2.04 RESTROOM SIGNS

A. Manufacturer/Supplier:
1. Compliance Signs.com
2. Substitutions: See Section 01 6000 - Products Requirements

2.05 BUILDING LETTERS

A. Manufacturer:
1. Ace Sign Systems Inc., Ft Wayne Indiana
2. Americraft Co. Inc
3. ASI Sign Systems, Indianapolis, Indiana: Cleveland, Ohio: Cincinnati, Ohio
4. Columbus Graphics Inc.
5. Ellet Sign Company: www.elletneon.com
6. Forty Nine Degrees, Coldwater, Ohio
7. Matthews, Pittsburgh, Pennsylvania
8. Substitutions: See Section 01 6000 - Products Requirements
   a. Provide data showing product and hardware of proposed substitution are equivalent to better than specified product.
   b. Provide sample of items to be considered for review by the Architect. Samples will be returned.

B. Product: Dimensional Letters - Fabricated Metal Letters, non-illuminated.
1. Letter Style: Arial or as noted on A12 series drawings
2. Text: As indicated on the drawings
3. Letter Height: As indicated on the drawings
4. Thickness:
5. Material: Aluminum
6. Mounting Method: Refer to A12 series drawings for mounting information.
7. Color: Painted, selected from manufacturer's standard colors
8. Fabrication
   a. Design, fabricate, and install sign assemblies to prevent buckling, opening up of joints, and over-stressing of welds and fasteners.
   b. Mill joints to a tight, hairline fit. Form joints exposed to the weather to exclude water penetration.
   c. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.
   d. Create signage to required sizes and layout. Comply with requirements indicated for design, dimensions, finish, color, and details of construction.

C. Dimensional Letters - Cut Metal Letters
1. Letter Style: Arial or as noted on A12 series drawings
2. Text: As indicated on the drawings
3. Letter Height: As indicated on the drawings
4. Material: 1/2 inch aluminum
5. Mounting Method: Flat mounted with direct adhesive to interior wall
6. Color: Natural Aluminum finish
7. Fabrication
   a. Design, fabricate, and install sign assemblies to prevent buckling, opening up of joints, and over-stressing of welds and fasteners.
   b. Mill joints to a tight, hairline fit. Form joints exposed to the weather to exclude water penetration.

c. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.
d. Create signage to required sizes and layout. Comply with requirements indicated for design, dimensions, finish, color, and details of construction.

D. Dimensional Letters - Cut Vinyl Dimensional Letters 2 mil thick, non-illuminated, colored acrylic
1. Letter Style: Arial
2. Text: As indicated on the drawings
3. Letter Height: As indicated on the drawings
4. Material: 2 mil vinyl film
5. Mounting Method: Adhesive
6. Color: Integrally-Colored - selected from manufacturer's standard colors
7. Fabrication
a. Design, fabricate, and install sign assemblies to prevent buckling, opening up of joints, and over-stressing of welds and fasteners.
b. Mill joints to a tight, hairline fit. Form joints exposed to the weather to exclude water penetration.
c. Conceal fasteners if possible; otherwise, locate fasteners where they will be inconspicuous.
d. Create signage to required sizes and layout. Comply with requirements indicated for design, dimensions, finish, color, and details of construction.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrate surfaces are ready to receive work.

3.02 GENERAL INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install signs and letters level and plumb.

C. Install product in locations indicated using mounting methods recommended by sign manufacturer and free from distortion, warp, or defect adversely affecting appearance

D. Install product at heights to conform to Americans with Disabilities Act Accessibility Guidelines (ADAAG) and applicable local amendments and regulations.

3.03 DIMENSIONAL LETTERS

A. Locate lettering where indicated on drawings.

B. Install neatly, with horizontal edges level.

C. Confirm attachement to surface during submittal process.

3.04 CLEANING AND PROTECTION

A. Clean exposed surfaces. Remove construction and installation marks.

B. Remove temporary coverings.

C. Protect installed signs from subsequent construction operations.

END OF SECTION

SECTION 10 22 39
FOLDING PANEL PARTITIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Acoustic paired panel partition system

1.02 RELATED REQUIREMENTS

A. Section 05 1200 - Structural Steel Framing

B. Section 06 10 00 - Rough Carpentry: Wood blocking and track support shimming.

C. Section 06 20 00 - Finish Carpentry: Product requirements for plastic laminate finish for installation by this section.

D. Section 09 2116 - Gypsum Board Assemblies

E. Section 09 5100 - Acoustical Ceilings

1.03 RELATED WORK BY OTHERS

A. Preparation of opening will be by others. Any deviation of site conditions contrary to approved shop drawings must be called to the attention of the Architect.

B. All header, blocking, support structures, jambs, track enclosures, surrounding insulation and sound baffles as required.

C. Prepunching of support structure in accordance with approved shop drawings.

D. Paint or otherwise finishing all trim and other materials adjoining head and jamb of operable partitions.

1.04 REFERENCE STANDARDS

A. ANSI A208.1 - American National Standard for Particleboard; 2016.

B. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2010, with 2013 Supplements and Errata.

C. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

D. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing; 2012.

E. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2022.

F. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.

G. ASTM E413 - Classification for Rating Sound Insulation; 2010.

H. ASTM E 336 - Standard Test Method for Measurement of Airborne Sound Attenuation between Rooms in Buildings.

I. ASTM E 423 - Noise reduction coefficient (NRC) ratings shall be per this standard.

J. ASTM E557 - Standard Guide for Architectural Design and Installation Practices for Sound Isolation Between Spaces Separated by Operable Partitions; 2012 (Reapproved 2020).

K. ASTM E596 - Standard Test Method for Laboratory Measurement of Noise Reduction of Sound-Isolating Enclosures; 1996 (Reapproved 2009).

L. UL (FRD) - Fire Resistance Directory; current edition.

M. Rack testing for 10 years (tensional strength test).

N. The manufacturer shall have a quality system that is registered to the ISO 9001 standards.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene at project site seven calendar days prior to scheduled beginning of construction activities of this section to review section requirements.

1.06 SUBMITTALS

A. Design Data: Design calculations, bearing seal and signature of structural engineer licensed to practice in Ohio, showing loads at points of attachment to the building structure.

B. Shop Drawings: Indicate opening sizes, track layout, details of track and required supports, static and dynamic loads, location and details of pass door and frame, adjacent construction and finish trim, and stacking depth.

C. Samples for Selection: Submit three samples of full manufacturer's color range for selection of colors.

D. Samples for Review: Submit two samples of surface finish, 12 by 12 inches size, illustrating quality, colors selected, texture, and weight.

E. Certificates: Certify that partition system meets or exceeds specified acoustic requirements.

F. Manufacturer's Instructions: Indicate special procedures.

G. Maintenance Data: Include recommended cleaning methods, cleaning materials, and stain removal methods. Describe cleaning materials detrimental to finish surfaces and hardware finish.

1.07 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified this section with minimum three years of documented experience.

B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.08 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until installation.

1.09 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Provide three year manufacturer warranty against defects in material and workmanship, excluding abuse.

1.10 PROJECT CONDITIONS

A. Coordinate the work with other sections providing panel finish materials to this section.

1.11 WARRANTY

A. Correct defective Work within five year period after Date of Substantial Completion.

B. Provide five year manufacturer warranty against defects in material and workmanship, excluding abuse.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design:
   1. Modernfold: https://www.modernfold.com

B. Other acceptable manufacturers:
   1. Hufcor, Inc: www.hufcor.com
   2. Kwik-Wall Company: www.kwik-wall.com
   3. Moderco, Inc: www.moderco.com
   4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 FOLDING PANEL PARTITIONS - HORIZONTAL OPENING

A. Folding Panel Partitions: Side opening; paired panels; side and centered stacking (reference drawings); manually operated.

B. Panel Construction:
   1. Frame: 16 gage, 0.0598 inch thick formed sheet steel frame top, bottom, jambs, and intermediates; welded construction, with acoustical insulation fill.

C. Panel Finishes:
   1. Material Finish to be Vinyl. Color to be selected by Architect from manufacturers standard line.

D. Panel Seals:
   1. Panel to Panel Seals: Grooved and gasketed astragals, with continuous flexible ribbed vinyl seal fitted to panel edge construction; color to match panel finish.
   2. Acoustic Seals: Flexible acoustic seals at jambs, meeting mullions, ceilings, retractable floor and ceiling seals, and above track to structure acoustic seal.

E. Suspension System:
   1. Track: Formed steel; 1-1/4 by 1-1/4 inch size; thickness and profile designed to support loads, steel sub-channel and track connectors, and track switches.
   2. Carriers: Nylon wheels on trolley carrier at top of every second panel, sized to carry imposed loads, with threaded pendant bolt for vertical adjustment.

F. Performance:
   1. Installed partition system track capable of supporting imposed loads, with maximum deflection of 1/360 of span.

G. Accessories:

2.03 PANEL OPERATION AND COMPONENTS

A. Operation:
   1. Acousti-Seal #932: Series of paired flat panels hinged together in pairs, manually operated, top supported with operable floor seals.
   2. Final Closure:
      a. Horizontally expanding panel edge with removable crank
   3. Panel Stacking:
      a. Side Stacking and Centered Stacking (Reference drawings)

B. Panel Construction:
   1. Nominal 3-inch (76mm) thick panels in manufacturer’s standard 48-inch (1220mm) widths. All panel horizontal and vertical framing members fabricated from minimum 18-gauge or 16-gauge formed steel with overlapped and welded corners for rigidity. Top channel is reinforced to support suspension system components. Frame is designed so that full vertical edges of panels are of formed steel and provide concealed protection of the edges of the panel skin.
   2. Panel Skin Options:
      a. 1/2-inch (13mm) tackable 100% recycled gypsum board, class "A" rated single material or composite layers continuously bonded to panel frame. Acoustical ratings of panels with this construction:
         1) 50 STC
   3. Hinges for Closure Panels, Pass Doors, and Pocket Doors shall be:
      a. Full leaf butt hinges, attached directly to panel frame with welded hinge anchor plates within panel to further support hinge mounting to frame. Lifetime warranty on hinges. Hinges mounted into panel edge or vertical astragal are not acceptable.
   4. Panel Trim: No vertical trim required or allowed on edges of panels; minimal groove appearance at panel joints.
   5. Panel Weights:

a. Non-Steel Skin
1) 50 STC - 8 lbs./square foot

C. Panel Finishes:
1. Panel face finish:
a. Material Finish to be Vinyl. Color to be selected by Architect from manufacturers standard line.
2. Panel trim: Exposed panel trim of one consistent color from manufacturer's standard offering selected by Architect.

D. Sound Seals:
1. Vertical Interlocking Sound Seals between panels: Roll-formed steel astragals, with reversible tongue and groove configuration in each panel edge for universal panel operation. Rigid plastic or aluminum astragals or astragals in only one panel edge are not acceptable.
2. Horizontal Top Seals: Continuous contact extruded vinyl bulb shape with pairs of non-contacting vinyl fingers to prevent distortion without the need for mechanically operated parts.
3. Horizontal Bottom Seals:
a. Modernfold IA2 bottom seal: Automatic operable seals providing nominal 2-inch (51mm) operating clearance with an operating range of +1/2-inch (13mm) to 1-1/2-inch (38mm) which automatically drop as panels are positioned, without the need for tools or cranks.

E. Suspension System
1. #17 Suspension System
a. Suspension Tracks: Minimum 11-gauge, 0.12-inch (3.04 mm) roll-formed steel track, supported by adjustable steel hanger brackets, supporting the load-bearing surface of the track, connected to structural support by pairs of 3/8-inch (9.5 mm) diameter threaded rods.
1) Exposed track soffit: Steel, integral to track, and pre-painted off-white.
b. Carriers: One all-steel trolley with steel-tired ball bearing wheels per panel (except hinged panels). Non-steel tires are not acceptable.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field measurements are as indicated.

B. Verify track supports are laterally braced and will permit track to be level within 1/4 inch of required position and parallel to the floor surface.

3.02 INSTALLATION

A. Install partition in accordance with manufacturer's instructions and ASTM E557, drawings and approved shop drawings.

B. Match operable partitions by installing panels from marked packages in numbered sequence indicated on shop drawings.

C. Install acoustic sealant to achieve required acoustic performance.

3.03 ADJUSTING

A. The operable wall panels and track system shall be adjusted and cleaned in accordance to manufacturer's instructions.

B. Adjust partition assembly to provide smooth operation from stacked to full open position. Do not over-compress acoustic seals.

C. Visually inspect partition in full extended position for light leaks to identify a potential acoustical leak.

D. Adjust partition assembly to achieve lightproof seal.

3.04 CLEANING

A. Clean finish surfaces and partition accessories.

3.05 CLOSEOUT ACTIVITIES

A. Demonstrate operation of partition and explain proper and necessary maintenance requirements of the operable wall system.

B. Operating handle and owners manuals shall be provided to owner's representative.

END OF SECTION

SECTION 23 09 13
INSTRUMENTS AND CONTROL ELEMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Control panels.

B. Control Valves:
   1. Butterfly pattern.

C. Dampers.

D. Damper Operators:

E. Transmitters:
   1. Building static pressure transmitters.

F. Pressure Independent Control Valves (PICCV)

G. Pressure Independent Control Valves (ePIV)

H. Pressure Independent Control and Balance Valves (PICBV)

I. Control valves.

J. Control valve operators

K. Control dampers.

L. Damper operators.

M. VAV power Supply Boxes.

N. Transmitters

O. Meters

P. Building Automation System

Q. Building Automation Equipment

R. Energy Reporting Tool

S. Energy Efficiency Education Dashboard

T. Temperature Control Wiring

U. Miscellaneous accessories.

1.02 RELATED REQUIREMENTS

A. Section 01 9000 - Commissioning. Contractor shall make themselves familiar with the commissioning specification and include appropriate time to work with the commissioning agent.

B. Section 23 0548 - Vibration and Seismic Controls.

C. Section 23 0519 - Meters and Gages: Thermometer sockets, gage taps.

D. Section 23 05 19 - Meters and Gages: Thermometer sockets and gauge taps.

E. Section 23 0553 - HVAC Identification

F. Section 23 21 13 - Hydronic Piping: Installation of control valves, flow switches, temperature sensor sockets, and gauge taps.

G. Section 23 33 00 - Air Duct Accessories: Installation of automatic dampers.

1.03 REFERENCE STANDARDS

A. AMCA 500-D - Laboratory Methods of Testing Dampers for Rating; 2018.

B. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilating Systems; 2015.

C. ASHRAE Standard 135-2008 BACnet Protocol.

D. ASHRAE Standard 90.1 - Energy Standard for Buildings Except Low-Rise Residential Buildings.

1.04 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.

B. Control Diagrams
   1. Submit to the Architect/Engineer a complete system diagram, showing control connections and devices and their connection to other equipment, together with a clearly written description of the system and an outline of its function under conditions of operation.
   2. Product Data: Provide description and engineering data for each control system component. Include sizing as requested. Provide data for each system component and software module.
   3. Submittals shall be prepared on, or folded to, 8-1/2 inch by 11 inch size and bound in brochure form. Electronic form, pdf format, shall also be included.
   4. DDC logic and control diagrams shall be included for all equipment and sequences of control. Include at a minimum all points shown on DDC control drawings. If any additional points are required to complete the sequence of operation, the control equipment needed to provide this information shall be provided.
   5. Upon completion of the Work, provide the complete, accurate, and approved diagrammatic blueprinted layouts on the automatic control system specified herein and as installed. Layouts shall show all control equipment including job installation changes, and the function of each system shall be indicated. Layouts and descriptions shall be included in the project record set and in the operating and maintenance manuals.

C. Begin no work until submittals have been approved for conformity with design intent. Provide drawings as flash memory. When manufacturer's cutsheets apply to a product series rather than a specific product, clearly indicate applicable data by highlighting or by other means. Clearly reference covered specification and drawing on each submittal. General catalogs shall not be accepted as cut sheets to fulfill submittal requirements. Select and show submittal quantities appropriate to scope of work. Provide submittals within 12 weeks after contract award.

D. 100% completed points lists and sequences shall be submitted no later than the point at which system installation is 50% completed.

E. Product Data: Provide description and engineering data for each control system component. Include sizing as requested. Provide data for each system component and software module including, but not limited to the following equipment and components indicating arrangements, capabilities, range, voltage, horsepower, and construction.
   1. Valves
   2. Thermostats
   3. Relays
   4. Panels
   5. Gauges
   6. Sensors
   7. Dampers
   8. Switches
   9. Pressure Controllers
   10. DDC microprocessor
   11. Unitary DDC controllers
   12. Actuators
   13. Blade Server (Supervisory Controller)
   14. Laptop Workstation

15. Wiring

F. Wiring diagrams and layouts for each control panel.

G. Floor plan schematic diagrams indicating field sensor, controller and power supply locations.

H. Shop Drawings: Indicate complete operating data, system drawings, wiring diagrams, and written detailed operational description of sequences. Submit schedule of valves indicating size, flow, and pressure drop for each valve. For automatic dampers indicate arrangement, velocities, and static pressure drops for each system.

I. Contractor shall make themselves familiar with the commissioning specification and include appropriate time to work with the commissioning agent.

J. Provide information noting items utilizing BACnet technology are BTL certified and listed.

K. Project Record Documents: Record actual locations of control components, including panels, thermostats, and sensors. Accurately record actual location of control components, including panels, thermostats, and sensors.
   1. Revise shop drawings to reflect actual installation and operating sequences.
   2. After drawings are finalized, provide drawings in pdf format. Include a list of all unit default safety and control settings, whether fixed or adjustable, as shipped from the factory. Where field modifications are required to meet the specification, provide all modification labor and materials, and submit a complete, detailed, step-by-step procedure for modifications.
   3. Drawings shall also be installed in workstation as web pages.

L. Operation and Maintenance Data: Include inspection period, cleaning methods, recommended cleaning materials, and calibration tolerances.
   1. As-built versions of the submittal product data.
   2. Names, addresses, and 24-hour telephone numbers of installing contractors and service representatives for equipment and control systems.
   3. Operator's manual with procedures for operating control systems: logging on and off, handling alarms, producing point/object reports, trending data, overriding computer control, and changing setpoints and variables.
   4. Programming manual or set of manuals with description of the programming language and syntax of statements for algorithms and calculations used of point/object database creation and modification, of program creation and modification, and editor use.
   5. Engineering, installation, and maintenance manual or set of manuals that explains how to design and install new points/objects, panels, and other hardware; how to perform preventive maintenance and calibration; how to debug hardware problems; and how to repair or replace hardware.
   6. Documentation of all programs created using custom programming language including setpoints, tuning parameters, and object database.
   7. Graphic files, programs and database on magnetic or optical media.
   8. List of recommended spare parts with part numbers and suppliers.
   9. Complete original-issue documentation, installation, and maintenance information for furnished third-party hardware, including computer equipment and sensors.
   10. Complete original-issue copies of furnished software, including operating systems, custom programming language, operator workstation software, and graphics software.
   11. Licenses, guarantee, and warranty documents for equipment and systems.
   12. Recommended preventive maintenance procedures for system components, including schedule of tasks such as inspection, cleaning, and calibration; time between tasks; and task descriptions.
   13. Operation & Maintenance manuals shall also be installed in workstation as web pages.

M. Warranty: Submit manufacturers warranty and ensure forms have been filled out in Owner's name and registered with manufacturer.

N. After the control submittal has been reviewed and marked "No Exceptions Taken" by the design engineer, the controls contractor shall submit all graphics required for the temperature control system. The graphics shall be reviewed by the owner, commissioning agent, and the design engineer. The temperature control contractor shall not install any graphics until they have been reviewed and approved by the owner, commissioning agent and design engineer.

1.05 SUMMARY

A. General: The control system shall be as indicated on the drawings and described in the specifications.

B. The intent of this specification and related sections is to provide a fully integrated, open, interoperable, peer-to-peer networked, distributed Direct Digital Control System. The following communication protocols are acceptable:
   1. ANSI/ASHRAE Standard 135 BACnet - A Data Communication Protocol for Building Automation and Control Networks
   2. ANSI/TIA/EIA-568-B Commercial Building Telecommunications Cabling Standard

C. The Direct Digital Control System (DDC) shall be based on Carrier's i-Vu Building Automation System or a system that is compatable with this system. Provide an open automation infrastructure that integrates diverse systems and devices (regardless of manufacturer, communication standard or software) into a unified platform that can be easily managed in real time over the internet using a standard web browser.

D. It is the Owner's express goal to implement an open system that will allow products from various suppliers to be integrated into to a unified system in order to provide flexibility for expansion, maintenance, and service of the system. The Owner shall be the named license holder of all software associated with any and all incremental work on the project(s). In addition, the Owner shall receive ownership of all job specific configuration documentation, data files, and application-level software developed for the project. This shall include all custom, job specific software code and documentation for all configuration and programming that is generated for a given project and/or configured for use with the JACE, N4 Supervisor, and any related LAN / WAN / Intranet and Internet connected routers and devices. Any and all required IDs and passwords for access to any component or software program shall be provided to the Owner. The Owner shall determine which organizations to be named in the SI organization ID ("orgid") of all software licenses. Owner shall be free to direct the modification of the "orgid" in any software license, regardless of supplier, by Tridium Inc.

E. The Network Controller (NWC) shall connect to the Owner's local or wide area network, depending on configuration. Access to the system, either locally in each building, or remotely shall be accomplished through standard Web browsers and/or the N4 Supervisor, via the Internet and/or local area network.

F. Each NWC shall communicate to BACnet (B-AAC, B-ASC), devices and/or other open protocol systems/devices as described on the contract drawings and/or in the specifications.

G. Direct Digital Control (DDC) technology shall be used to provide the functions necessary for control of mechanical systems for Owner.

H. The control system shall accommodate a minimum 8 simultaneous multiple user operation utilizing standard web-browser clients. Access to the control system data should be limited only by user ID and operator password. Multiple users shall have access to all valid system data. An operator shall be able to log onto any work-station on the school's network and have access to all appropriate data. All users shall have an unique ID and password. Owner shall provide user information and permission levels ninty days prior to scheduled completion.

I. The control system shall be designed such that each mechanical system will be able to operate under stand-alone control. As such, in the event of a network communication failure, the loss of any other controller, or the school district network, the control system shall continue to independently operate under control.

J. Communication between the control panels and all work-stations shall be over a high speed 100 Mpbs (at minimum) Ethernet network. All nodes on this network shall be peers. The operator shall not have to know the panel identifier or location to view or control an object. Application Specific Controllers shall be constantly scanned by the network controllers to update point information and alarm information.
   1. The communication network wiring between control panels, and equipment controls with BACnet communication cards (chiller control panel, boiler control panels, domestic water heaters, and VFD's) shall be provided and installed by the temperature control contractor. The use of the owner's network for communication between devices shall be prohibited. Provide a single point of communication between the owner's network and the DDC control system network.

K. Temperature control contractor shall be responsible for the following:
   1. The DDC System shall communicate to the owner's communication network thru a single point of data connection. All wiring and communication downstream of that single point of data connection shall be provided with the DDC control system.
   2. Providing of a complete DDC electronic automatic temperature control system.
   3. Control of heating water system, chilled water system, variable speed pumps, air handling units, VAV terminals, cabinet heaters, and exhaust fans along with other miscellaneous equipment as denoted on drawings in accordance with requirements herein specified.
   4. Providing of control devices, valves, instruments, and the like, as herein specified and as required to comply with required sequences of automatic control.
   5. Providing of wiring for secondary control devices, relay switches, safety low limit controls, etc., and such interlock wiring required.
   6. Provide all control wiring between all primary network controllers and equipment furnished with Bacnet control panels. Provide a single point connection to owner's LAN.
   7. Wire controls for the water pumps including the Variable Frequency Drives.
   8. Coordinate communication requirements for the air handling units controls that are provided by the air handling unit manufacturer.
   9. Tag all automatic controls, instruments, safeties, panels, actuators and relays. Key to control schematic. Refer to specification 23 0553 - HVAC Identification
   10. Furnish adequate supervision on Work performed for him by others to insure proper operation and the neatest and best possible arrangement.
   11. Testing and maintenance of system as herein specified.

L. The documentation is schematic in nature. The Contractor shall provide hardware and software necessary to implement the functions and sequences shown.

M. The Temperature control contractor shall provide the following control valves:
   1. Air Handling Unit Heating and Cooling Coils: Pressure Independent Characterized Control and balance valves with P/T ports or Pressure independent characterized control valves with seperate P/T ports on both side of valve.
   2. VAR Boxes: Pressure Independent Characterized Control and balance valve with P/T ports or Pressure Independent characterized control valves with seperate P/T ports on both sides of valve.
   3. Cabinet Heaters: Provide 3-way on/off control valve.
   4. Unit Heaters: Provide a 2-way on/off control valve.

1.06 QUALITY ASSURANCE

A. The temperature control contractor shall furnish and install a fully integrated building automation system, incorporating direct digital control (DDC) for energy management, equipment monitoring and control, and subsystems as herein specified. The installation of the control system shall be performed by an authorized dealer of the controls manufacturer with the shop drawings, flow diagrams, bill of materials, component designation or identification number, and sequence of operation all bearing the name of the manufacturer.

B. All materials and equipment used shall be standard components, regularly manufactured for the specified system. All systems and components shall have been thoroughly tested and proven in actual use of at least 2 years.

C. The temperature control contractor shall read all other Drawings and Specifications, become familiar with requirements and scope of the Project, and include such coordination work as may be required.

D. Designer Qualifications: Design system under direct supervision of a Control Engineer experienced in design of this work and is certified by control system manufacturer.

E. Installer Qualifications
   1. Installing contractor shall have an established working relationship with control system manufacturer of not less than 5 years.
   2. Installing contractor and his sub-contractors shall have successfully completed manufacturer's control system training. Provide certification of completed training, including hours of instruction and course outlines, with bid.
   3. Installing contractor shall have an office within 75 miles of the project site and provide 24 hours response in the event of a customer call, 7 days per week, 365 days per year.

F. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., UL-916 Energy Managment Systems, UL-864UUKL Smoke Systems as suitable for the purpose specified and indicated and shall comply with NFPA 70.

G. Systems utilizing BACnet technology shall be BTL certified and comply with ASNI/ASHRAE Standard 135, BACnet - A Data Communication Protocol for building Automation and control networks.

H. Systems utilizing Lonworks shall not be permitted.

I. Damper components shall meet the requirements of AMCA 500.

J. Control systems shall meet the requirements of ASHRAE Standard 90.1.

K. Performance Standards. System shall conform to the following minimum standards over network connections:
   1. Graphic Display. A graphic with 20 dynamic points/objects shall display with current data within 10 seconds.
   2. Graphic Refresh. A graphic with 20 dynamic points/objects shall update with current data within 8 seconds.
   3. Object Command. Devices shall react to command of a binary object within 2 seconds. Devices shall begin reacting to command of an analog object within 2 seconds.
   4. Object Scan. Data used or displayed at a controller or workstation shall have been current within the previous 6 seconds.
   5. Alarm Response Time. An object that goes into alarm shall be annunciated at the workstation within 45 seconds
   6. Program Execution Frequency. Custom and standard applications shall be capable of running as often as once every 5 second. Select execution times consistent with the mechanical process under control.
   7. Performance. Programmable controllers shall be able to completely execute DDC PID control loops at a frequency adjustable down to once per second. Select execution times consistent with the mechanical process under control.
   8. Multiple Alarm Annunciation. Each workstation on the network shall receive alarms within 5 seconds of other workstations.

1.07 CONTRACTOR RESPONSIBILITIES

A. The temperature control contractor shall be responsible for final design drawings, installation of all control wiring and control devices in accordance with National Electric Code. The temperature control contractor shall also be responsible for startup and complete checkout, and commissioning of the systems.

B. This Contractor shall furnish complete drawings, component lists, specification sheets and sequences of operation to the Architect/Engineer for approval before start of installation.

C. All DDC logic diagrams shall be updated as built and included in the Operation and Maintenance Manuals for the Owner.

D. The temperature control contractor is responsible to use all room numbers developed and approved by the owner in the development of the temperature control system for this building.

E. The Temperature Control Contractor shall work hand-in-hand with the commissioning agent during their work on the project. The laptop provided shall be setup for access to the temperature control system for use by the commissioning agent.

F. The temperature control contractor shall demonstrate system to commissioning agent. As part of commissioning agent check-out, TCC shall create logs for any points as requested by CxA.

G. The temperature Control Contractor shall provide labeling for all control system sensors, panels, actuators, etc. The label names shall match the point names given on the computer and as shown on the temperature control drawings.

H. The temperature control contractor shall contact the boiler manufacturer to integrate the cotnrol and monitoring points specified in the sequence of operations. The connection to the boiler controller shall be thru BACnet/IP, BACnet over ARCNET, BACnet MS/TP.

I. The temperature control contractor shall contact the chiller manufacturer to integrate the cotnrol and monitoring points specified in the sequence of operations. The connection to the chiller controller shall be thru BACnet/IP, BACnet over ARCNET, BACnet MS/TP.

J. The temperature control contractor shall provide all control valves, balance and control valves, differential pressure controllers balance valves, as indicated on drawings.

K. Sizing of Valves: Valves shall be furnished to the Division 23- Mechanical Contractor who will mount them as piping is installed. Valves sizes shall be as recommended by the Temperature Control Contractor who shall be responsible for their proper sizing, regardless of indicated valve or line size on the drawings. Water valves shall not exceed 5 psi pressure drop, unless otherwise stipulated.

L. The temperature control contractor shall be responsible to provide AC Power Supplies as noted on the temperature control drawings. Temperature Control contractor shall be responsible to provide low voltage wiring from power supplies to VAR reheat box controllers. Submit wiring diagram as part of temperature control submittal.

1.08 SOFTWARE LICENSE AGREEMENT

A. The owner shall sign a copy of the manufacturer's standard software and firmware licensing agreement as a condition of this contract. Such license shall grant use of all programs and application software to the owner as defined by the manufacturer's license agreement, but shall protect manufacturer's rights to disclosure of trade secrets contained within such software. The owner shall receive a copy or multiple copies licensed to them of any local programming tool required to replace or program local controller.

B. It is the owner's goal to implement an open system that will allow products from various suppliers to be integrated into an unified system in order to provide flexibility for expansion, maintenance, and service of the system.

C. OPEN NIC STATEMENT: All Niagra 4 software licenses shall have the following NiCS: "accept.station.in=*"; "accept.station.out=*"; "accept.wb.in=*"; "accept.wb.out=*". All open NIC statments shall follow Niagra Open NIC specifications.

D. The owner shall be named license holder of all software associated with any and all incremental work on the project(s). The owner shall receive a copy or multiple copies licensed to them of any local programming tool required to replace or program local controller.

E. In addition, the owner shall receive ownership of all job-specific configuration documentation, data files, and application-level software developed for the project. This shall include all

custom, job-specific software code and documentation for all configuration and programming that is generated for a given project.

F. The owner shall be provided with all usernames and passwords required from complete and unlimited access to the system.

1.09 PRE-SUBMITTAL MEETING

A. The temperature control contractor shall review the sequence of operation and note any exceptions or planned deviations from the specified sequence. Prior to creating the control submittal the control contractor shall contact the design engineer and setup a meeting to discuss the exceptions and planned deviations. The design engineer will not review any submittals until after this meeting has taken place.

1.10 WARRANTY

A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.

B. Correct defective Work within a one year period following owner acceptance of entire building.

C. Warranty shall also include any software upgrades available during the one (1) year period.

D. Temperature control contractor shall provide support for operation of the system and improvements to energy usage to the owner throughout the first two years of operation after the date of substantial completion.

1.11 MAINTENANCE SERVICE

A. Provide service and maintenance of control system for one year from Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. The design intent is to provide a peer-to-peer networked, stand-alone, distributed control system with the capability to integrate both the ANSI/ASHRAE Standard 135-2008 BACnet protocol in one open, interoperable system. System shall be capable for future extension by other manufacturer's and shall not be write-protected.

B. Control Manufacturers (Certified by BACnet testing laboratory):
   1. Carrier i-Vu
   2. Tridium Niagara 4 Vykon - JACE 8000
   3. Schneider Electric - TAC I/A Series Micronet / MNB Bacnet Controllers
   4. Automated Logic - ME series / ZN Series Bacnet Controllers
   5. Alerton Controls - VAV and VLC Series Bacnet Controllers
   6. Honeywell - Spyder PUB / PVB Series Bacnet Controllers, WEB-8000 Supervisory.
   7. Johnson Controls - METASYS FEC / IOM / Series Bacnet Controllers. FX-70 Supervisory
   8. Delta Controls, Inc. - DAC / DVC / DFC / DNT Bacnet Controllers
   9. Trane Controls - UC210 / UC400 / UC600 Bacnet Controllers.
   10. Siemens Building Technologies, Inc. - TC / TEC Bacnet Controllers

C. Alternate:
   1. Provide an alternate for controls by manufacturer "Carrier i-Vu".

D. The following Installing Contractors are prequalified:
   1. Waibel Energy Systems, Building Logix
   2. Control Systems of Ohio
   3. Smith Boughan, Inc
   4. Wadsworth Solutions, Inc
   5. Johnson Controls
   6. Point to Point Systems
   7. EMCOR Services
   8. Building Control Integrators

9. ASA Controls, Inc.
10. Enervise, Inc

E. Substitutions: See Section 01 60 00 - Product Requirements.

F. All temperature control systems shall be installed by the factory authorized installer or representative serving the Ohio, OH Area.

2.02 EQUIPMENT - GENERAL

A. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc., as suitable for the purpose specified and indicated.

2.03 CONTROL PANELS

A. Control cabinet/enclosure shall be extruded aluminum, galvanized steel or factory-hardened plastic with key locks and hinged doors. Electric panels shall be of code gauge steel construction with UL label. Panels shall be labeled with nameplates and legends as required.
   1. The control cabinet/enclosure shall be required to house devices not enclosed as a part of the DDC building automation system panels. Prewire with internal wiring terminated at labeled terminal strips. Thermometers and switches shall be mounted on the cover of the panel. Relays, transformers, and components shall be mounted inside the panel. Devices, whether interior or exterior, shall be provided with legend plates of engraved formica or equal. Cabinets shall be located as approved by the Architect/Engineer or as indicated on the Drawings.
   2. Local type panels need not contain graphic representations or symbols, unless specified below, but must contain approved nameplates, legends, etc., for each device.
   3. Where panels contain any wiring, panels shall be UL approved cubicles.

B. Provide common keying for all panels.

2.04 CONTROL VALVES

A. Pressure Dependent Control Valves
   1. Butterfly Pattern:
      a. Iron body, bronze disc, resilient replaceable seat for service to 250 degrees F lug ends, extended neck.
      b. Hydronic Systems:
         1) Rate for service pressure of 125 psig at 250 degrees F.
         2) Size for 1 psig maximum pressure drop at design flow rate.
   2. Ball Pattern:
      a. Up to 2 inches: Industrial quality with bronze bodies and female NPT threads. All valves shall have blowout proof stem design, glass-reinforced Teflon thrust seal washer and stuffing box ring with a minimum of 400 psi rating.
      b. Valves shall have equal percentage characteristics.
      c. 2-way and 3-way valves for unit heaters and cabinet heaters shall be two-position.

2.05 PRESSURE INDEPENDENT CHARACTERIZED CONTROL VALVES (PICCV)

A. Acceptable Manufacturers:
   1. Belimo
   2. Bell & Gossett
   3. Danfoss
   4. IMI Hydronics / TA
   5. Substitutions: See Section 01 6000 -

B. NPS 2 and Smaller: Forged brass body rated at no less than 400 PSI, chrome plated brass ball and stem, female NPT union ends, dual EPDM lubricated O-rings and a brass or TEFZEL characterizing disc.

C. NPS 2-1/2 through 6: GG25 cast iron body according to ANSI Class 125, standard class B, stainless steel ball and blowout proof stem, flange to match ANSI 125 with a dual EPDM O-ring packing design, PTFE seats, and a stainless steel flow characterizing disc.

D. Accuracy: The control valves shall accurately control the flow from 0 to 100% full rated flow with an operating pressure differential range of 5 to 50 PSI differential across the valve with a valve body accuracy of +/- 5% variance due to differential pressure fluctuation or +/- 10% total assembly error incorporating differential pressure fluctuation, manufacturing tolerances, and valve hysteresis

E. Flow Characteristics: Equal percentage characteristics.

F. All actuators shall be capable of being electronically programmed in the field by use of external computer software or a dedicated handheld tool for the adjustment of flow.

G. The manufacturer shall provide a published commissioning procedure following the guidelines of the National Environmental Balancing Bureau (NEBB) and the Testing Adjusting Balancing Bureau (TABB).

H. Provide P/T ports on both sides of PICCV valve if not included within valve.

I. The manufacturer shall provide a published commissioning procedure following the guidelines of the National Environmental Balancing Bureau (NEBB) and the Testing Adjusting Balancing Bureau (TABB).

J. A wet calibrated electronic flow meter shall provide dynamic feedback to measure flow and verify performance.

K. The control valve shall require no maintenance and shall not include replaceable cartridges.

2.06 ELECTRONIC PRESSURE INDEPENDENT CHARACTERIZED CONTROL VALVES (EPIV)

A. Acceptable Manufacturers:
   1. Belimo
   2. Bell & Gossett
   3. Danfoss
   4. IMI Hydronics / TA
   5. Substitutions: See Section 01 6000 -

B. NPS 2 and Smaller: Forged brass body rated at no less than 400 PSI, chrome plated brass ball and stem, female NPT union ends, dual EPDM lubricated O-rings and a brass or TEFZEL characterizing disc.

C. NPS 2-1/2 through 6: GG25 cast iron body according to ANSI Class 125, standard class B, stainless steel ball and blowout proof stem, flange to match ANSI 125 with a dual EPDM O-ring packing design, PTFE seats, and a stainless steel flow characterizing disc.

D. Accuracy: The control valves shall accurately control the flow from 0 to 100% full rated flow with an operating pressure differential range of 5 to 50 PSI differential across the valve with a valve body accuracy of +/- 5% variance due to differential pressure fluctuation or +/- 10% total assembly error incorporating differential pressure fluctuation, manufacturing tolerances, and valve hysteresis

E. Flow Characteristics: Equal percentage characteristics.

F. All actuators shall be capable of being electronically programmed in the field by use of external computer software or a dedicated handheld tool for the adjustment of flow.

G. Water coil optimization shall be accomplished by utilizing a pressure independent control valve assembly; two temperature sensors providing feedback of coil inlet and outlet water temperatures; and an electronic flow meter to provide analog flow feedback. Software shall control the valve to avoid the coil differential temperature from falling below a programmed set point, The valve assembly shall be capable of accepting an analog signal representing the coil power required. Real-time data and configuration of valve operating parameters shall be available by means of BACnet MS/TP, BACnet/IP or HTTP. Monitored points shall include, but not be limited to inlet and outlet coil water temperatures, absolute flow, absolute valve position, absolute coil power and total heating/cooling energy in BTU/hr. Configuration points shall include but not be limited to valve, flow, and power settings. Historical trend data shall be stored for up to 13 months and be retrievable in a standard time-stamped format.

H. The manufacturer shall provide a published commissioning procedure following the guidelines of the National Environmental Balancing Bureau (NEBB) and the Testing Adjusting Balancing Bureau (TABB).

I. Provide P/T ports on both sides of PICCV valve if not included within valve.

J. The manufacturer shall provide a published commissioning procedure following the guidelines of the National Environmental Balancing Bureau (NEBB) and the Testing Adjusting Balancing Bureau (TABB).

K. A wet calibrated electronic flow meter shall provide dynamic feedback to measure flow and verify performance.

L. The control valve shall require no maintenance and shall not include replaceable cartridges.

2.07 PRESSURE INDEPENDENT CONTROL AND BALANCE VALVE (PICBV)

A. Acceptable Manufacturers:
   1. IMI Hydronics / TA (TA-Fusion P / TA-Modulator)
   2. Delta T
   3. Danfoss
   4. Substitutions: See Section 01 6000 - Product Requirements

B. The control valve shall be provided with an adjustable stepless, pre-settable balancing and built-in dp-controller. It shall be supplied and installed as shown on the drawings to ensure proper balancing and performs the control function for water flows.

C. The valve shall be pressure independent with integral spring and diaphragm arrangement for integral differential pressure control over built in control section.

D. The flow for fully open control part shall be adjustable down to 20% of maximum flow.

E. The valve shall have retained EQM characteristic for all recommended settings.

F. Test points shall be provided for measuring differential pressure and be integral with the body and incorporate means for positive leak tight shutoff when not in use.

G. True flow measurement verification must be possilbe with balancing instrument. Flow deviation max +/- 10% at full open.

H. The valve shall have a rangeability of minimum 50 for all recommended pre-settings.

I. The valve shall have the capacity for manual, leak tight shutoff without the actuator attached for maintenance purposes and to allow measurement of available differential pressure for diagnostics.

J. It should be possible to perform a high speed flush with the valve installed in the system without causing damage to the product and without removing / replacing any parts.

K. The valve shall have a pressure balanced cone to provide low force actuating and easy maneuvering.

L. The valve shall have a minimum valve authority rating of 0.3.

M. Material: Valve body with connection in sizes 1 1/2" to 2" shall be made in dezincification resistant alloy brass with a pressure rating of 235 psi. Sizes 2 1/2" - 6" shall consit of ductile iron housings and stainless steel valve plugs with a pressure rating of 365 psi. The minimum differential pressure shall be 5 psi.

N. Material: Valve body and insert with connection sizes 3/8" to 1 1/4" shall be of dezincification resistant alloy brass with stainless steel valve plug, spindle, and spring. EPDM membrane and o-rings with a pressure rating of 230 psi. The minimum differential pressure shall be 5 psi.

O. Threaded connections shall be NPT in accordance with ANSI/ASME B1.20.1-1983.

P. All valves shall be manufactured in accordance with ISO 9001 and ISO 14001.

Q. Valve actuators shall be full modulating, low voltage (24VAC) and compatible with control valve.

R. For valve sizes 2" and smaller, the controls contractor shall provide coil hookup packages as provided by the control valve manufacturer. The supply side of the coil shall contain a strainer/drain and an integrated isolation ball valve/manual air vent with a P/T port. The return side of the coil shall contain a union fitting with a P/T port and manual air vent, pressure-independent balancing control valve, and shutoff valve.

2.08 COMBINED TWO-WAY MODULATING CONTROL AND BALANCE VALVE

A. Manufacturers:
   1. IMI Hydronics / TA (TBV-CM)
   2. Delta T
   3. Danfoss
   4. Substitutions: See Section 01 6000 - Product Requirements

B. Valve shall contain manual balancing, shutoff, and modulating control capability with EQM characteristics. P/T ports shall be included in the valve body for flow verfiication and measurement of available head pressure.

C. The valve shall have a minimum valve authority rating of 0.3.

D. Balancing portion shall have manual readout and valve shall be provided with removable handle.

E. Material: Valve body and insert with connections 1/2" to 1" shall be of dezincification resistant alloy brass with stainless steel spring, valve Insert. EPDM valve seat.

F. Threaded connections shall be NPT in accordance with ANSI/ASME B1.20.1-1983.

G. Valve actuators shall be full modulating, low voltage (24VAC) and compatible with control valve.

H. For valve sizes 2" and smaller, the controls contractor shall provide coil hookup packages as provided by the control valve manufacturer. The supply side of the coil shall contain a strainer/drain and an integrated isolation ball valve/manual air vent with a P/T port. The return side of the coil shall contain a union fitting with a P/T port and manual air vent, balancing control valve, and shutoff valve.

2.09 DAMPERS - ALL RELIEF AIR APPLICATIONS

A. Extruded aluminum (6063-T5) damper frame shall not be less than 0.080” (2.03 mm) in thickness. Damper frame shall be 4” (101.6 mm) deep x 1" (25.4 mm), with duct mounting flanges on both sides of frame. Frame to be assembled using zinc-plated steel mounting fasteners. Welded frames shall not be acceptable.

B. Entire frame shall be thermally broken by means of polyurethane resin pockets complete with thermal cuts.

C. Blades shall be maximum 6" (152.4 mm) deep extruded aluminum (6063-T5) air-foil profiles with a minimum wall thickness of 0.06” (1.52mm). Blades shall be internally insulated with expanded polyurethane foam and shall be thermally broken. Complete blade shall have an insulating factor of R-2.29. All blades shall be symmetrically pivoted.

D. Blade seals shall be extruded silicone, secured in an integral slot within the aluminum blade extrusions and shall be mechanically fastened to prevent shrinkage and movement over the life of the damper.

E. Frame seals shall be extruded silicone, secured in an integral slot within the aluminum frame extrusions and shall be mechanically fastened to prevent shrinkage and movement over the life of the damper. Metallic compression type jamb seals will not be approved.

F. Bearings shall be a dual bearing system composed of a Celcon inner bearing (fixed around a 7/16" (11.11 mm) aluminum hexagon blade pivot pin), rotating within a polycarbonate outer bearing inserted in the frame. Single axle bearing, rotating in an extruded or punched hole shall not be acceptable.

G. Hexagonal control shaft shall be 7/16" (11.11 mm). It shall have an adjustable length and shall be an integral part of the blade axle. A field-applied control shaft shall not be acceptable. All parts shall be zinc-plated steel.

H. Linkage hardware shall be aluminum and corrosion-resistant zinc-plated steel, installed in the frame side, out of the airstream, and accessible after installation. Linkage hardware shall be complete with cup-point trunnion screws to prevent linkage slippage and a Celcon bearing between moving parts to reduce wear and increase longevity. Linkage that consists of metal rubbing metal will not be approved.

I. Dampers shall be designed for operation in temperatures ranging from -40°F (-40°C) to 212°F (100°C).

J. Dampers shall be AMCA rated for Leakage Class 1A at 1 in w.g. static pressure differential. Standard air leakage data to be certified under the AMCA Certified Ratings Program.

K. Dampers shall be opposed blade action or parallel blade action, as indicated on the plans.

L. Dampers shall be Flanged to Duct install type only.

M. Design based on TAMCO Series 9000 BF Thermally Insulated Damper with Thermally Broken Frame.

2.10 DAMPERS - ALL EXCEPT RELIEF AIR APPLICATIONS

A. Dampers shall be low leakage type, as required to meet the requirements of ASHRAE Standard 90.1, not less than 22 gauge galvanized steel frames.

B. Performance: Test in accordance with AMCA 500-D.

C. Frames: Galvanized steel, welded or riveted with corner reinforcement, minimum 12 gage, 0.1046 inch.

D. Blades: Galvanized steel, maximum blade size 8 inches wide, 48 inches long, minimum 22 gage, 0.0299 inch, attached to minimum 1/2 inch shafts with set screws.

E. Blade Seals: Synthetic elastomeric or neoprene mechanically attached, field replaceable.

F. Jamb Seals: Spring stainless steel.

G. Shaft Bearings: Oil impregnated sintered bronze or nylon bushings.

H. Linkage Bearings: Graphite impregnated nylon or oil impregnated sintered iron.

I. Leakage: Dampers shall be low leakage dampers and shall be designed for tight shut-off such that for a 1500 FPM damper leakage does not exceed 1 percent at 6 inches w.g.

J. Maximum Pressure Differential: 6 inches wg.

K. Temperature Limits: Minus 40 to 200 degrees F.

L. Modulating dampers shall be opposed blade type.

M. Whenever possible, damper size shall match ductwork size. The Temperature Control Contractor shall verify air velocity and notify the engineer of sizing concerns prior to installation of dampers

N. Automatic dampers installed in equipment furnished by the manufacturer shall be checked for proper size and design by the Temperature Control Contractor. Should any features of these dampers appear to be unsatisfactory, full details shall be given to the Engineer in writing and suggestions made for any necessary corrections.

2.11 DAMPER OPERATORS

A. General: Provide smooth proportional control with "continuous control action" and sufficient power for air velocities 20 percent greater than maximum design velocity and to provide tight seal against maximum system pressures. Actuator response shall be linear in response to sensed load and damper stroke shall be smooth and efficient throughout it's entire range. Damper operators shall be electronic, direct coupled type designed for 100,000 full stroke

cycles at rated torque, low voltage type. Provide spring return for two position control and for fail safe operation. Damper operators on outside air intakes shall spring return closed.

1. Provide sufficient number of operators to achieve unrestricted movement throughout damper range.
2. Provide one operator for maximum 25 sq ft damper section.
3. Damper operators on outside air intakes and exhaust outlets where required shall be spring return closed.

B. Size for torque required for damper seal at load conditions with one actuator per damper section. Mechanically paralleled or 'piggybacked' actuators are not permitted.

C. Coupling: V-bolt dual nut clamp with a V-shaped toothed cradle. Aluminum clamps or set screws are not acceptable.

D. Overload Protection: Microprocessor or an electronic based motor controller providing burnout protection if stalled before full rotation is reached. The actuator shall be electronically cut off at full open to eliminate noise generation with the holding noise level to be inaudible.

E. Power Requirements: 0.23A (running) and 0.09A (holding) at 24V-ac or 27 VA (running) and 10 VA (holding) at 120V-ac.

F. Actuator timing shall be 15 sec.

G. Temperature Rating: Actuator shall have a UL555S listing by the damper manufacturer for 350ºF [250ºF].

H. Proportional Smoke Damper Actuators shall meet all requirements specified above and shall modulate 0-100% open in response to a 2-10vdc or 4-20mA control signal. A 2-10vdc feedback output shall provide a 2-10vdc signal for position indication.

1. Power Requirements (Proportional): Maximum (running) 12 VA at 24-V ac or 8 W at 24-V dc. Maximum (holding) 5VA at 24-V ac or 3 W at 24-V dc.
2. A manual override winder and locking mechanism shall be provided for override operation of the actuator on a loss of power.

2.12 RELAYS

A. Where required, provide relays for energizing or re-energizing the various branch circuits in response to master control panels. Relays shall be UL labeled and sized for not less than 140 percent of the connected amperage load. Relays shall be rated for the system voltage and have proper throw and poles.

2.13 POWER SUPPLY - VAV

A. Class 2 UL Listed

B. Input Power: 115V, single phase, 500 VA

C. Output Power: Qty 5, 100 VA, 24VAC. Each circuit shall be isolated via on/off switch and breaker.

D. Over current protection: Circuit breaker

E. NEMA 1 Metal Enclosure

F. Unit shall be equal to RIB, model PSH500A.

2.14 TRANSMITTERS

A. Electronic Temperature Sensors

1. Provide temperature sensors and other temperature indicating sensors of commercial grade quality located at the point of measurement and installed according to the manufacturer's recommendations. Sensors to be vibration and corrosion resistant.
2. Thermistor temperature accuracy shall be +/-0.36 F between the range of 32.0 - 158.0 F.
3. Provide temperature sensors such that the BAS shall be able to convert the resistive input signal available from the element into a digital signal for use by the BAS.

4. Provide outside air temperature sensors with a watertight fitting and adequate protection from the effects of solar radiation.
5. Provide water temperature sensors of the bulb type, mounted within stainless steel wells filled with a heat conductive compound and in direct contact with the water within the pipe.
6. All field mounted sensors shall be labeled as to their function and name used in the control program.

B. Electronic Room Temperature Sensors
1. Room Temperature Sensors shall be used in classrooms, office spaces, kitchen spaces, student dining, and gymnasiums.
2. Temperature sensors shall be equal to PreCon type-IV thermistors utilizing a 20K ohm thermistor or platinum RTD's of 2000 ohm resistance.
3. Housing: Sensors shall be manufactured in a durable epoxy housing and shall be enclosed for protection from elements when installed in the sensors operating environment. The sensor cover shall be provided with tamperproof screws. Sensors shall not include a display or keypad.
4. Temperature sensors shall be provided with an override button that will switch the mechanical system into occupied mode of control. Other than the override button the thermostat face shall be blank, with no temperature adjustment, readout panels, etc.
5. Sensor cover shall be color "Pure White".

C. Electronic Wall Plate Temperature Sensors
1. Wall Plate Temperature Sensors shall be used in corridors, vestibules.
2. Temperature sensors shall be equal to PreCon type-IV thermistors utilizing a 20K ohm thermistor or platinum RTD's of 2000 ohm resistance.
3. Housing: Concealed in wall with stainless steel louvered cover plate. 1/4" closed cell foam insulation backin.

D. Electronic Duct Temperature Sensors
1. All duct sensors shall be true averaging type sensors with capillary lengths not less than 20 feet long. The only exceptions will be return air, and outdoor air sensors, which may be single point temperature sensors.
2. All duct sensors shall be installed within enclosures that are suitable for the application.

E. Electric Thermostats
1. Electric thermostats shall be line voltage type of single pole single throw design.
2. The sensing element shall be liquid-filled.
3. Covers and base plates shall be of standard design and finish.
4. Electric thermostats shall be denoted on the Drawings with a sub "E".
5. Electric thermostats (where noted) for operation of propeller unit heaters and cabinet unit heaters shall be provided and installed by the temperature control contractor.
6. Sensor cover shall be color "Pure White".

F. Electric Reverse Acting Thermostats
1. Electric thermostats shall be line voltage type of single pole single throw design.
2. The sensing element shall be liquid filled.
3. Covers and base plates shall be of standard design and finish.
4. Adjustable temperature dial.
5. Reverse acting thermostats shall be denoted on the drawings with sub "R".
6. Sensor cover shall be color "Pure White".

G. Sensor Guards
1. Provide guard of clear color, mounted with back frame to wall and tamperproof screws on all wall mounted sensors located in gymnasiums, student dining, locker rooms, and corridors where wall plate sensor not utilitzed. Also, where denoted on the Drawings with a sub "G".

H. Safety Low Limit Thermostats

1. Automatic reset safety low limit thermostats with flexible sensing elements shall serpentine full length of duct or coil. Instrument to be sensitive to lowest temperature at any 12 inch increment on its 20 foot length. Thermostat shall have a range of 34 degrees F. to 60 degrees F. with a fixed 5 degrees F. differential. Provide one for every 20 square feet of coil.
    a. Safety low limit thermostats shall be capable of being reset through software at the building energy management computer.

I. Electronic Pressure Sensors
1. Provide pressure sensors and other pressure indicating sensors of commercial grade quality located at the point of measurement and installed according to the manufacturer's recommendations.
2. Provide pressure sensors of the direct acting or reverse acting, unidirectional or bidirectional type such that the BAS shall be able to convert input signal into a digital signal for use by the BAS.
3. Provide pressure sensors utilizing the smallest possible operating range which will sufficiently cover the range required for normal operating conditions.
4. Provide pressure sensors of the ultra precision type with a tolerance at 70 degrees F of no greater than plus/minus .8 percent of full scale and an end-to-end accuracy of plus/minus 2 percent of full scale.

J. Duct Differential Pressure/Air Velocity Transmitters
1. Differential Pressure/Air Velocity Transmitters shall be provided by the Temperature Control Contractor to monitor the difference between two pressures, duct air veloctiy and generate a linear output proportional to the difference in pressures.
2. Design range shall be -5 inches water column to 4 inches water column.
3. Minimum accuracy shall be +/-1.0 percent of calibrated span. Includes combined effects of linearity, hysteresis and repeatability.
4. Unit shall be provided with a LCD display.

K. Humidity Sensors
1. Shall be a "Current Type" humidity transducer. Sensor shall produce a linear 4-20mA current representing the span of the sensor. This signal shall be produced by the sensor itself through a current converter supplied with the sensor.
2. Space humidity sensor shall be enclosed in a durable enclosure for mounting in interior zones. Sensor shall have a range of 0 to 100 percent relative humidity and shall be accurate with + 2 percent of span.
3. Duct humidity sensor shall be a probe type with all wiring enclosed in an electrical box. Sensor shall have a range of 0 to 100 percent with an accuracy of + 3 percent of span.
4. Outdoor humidity sensor shall be enclosed in a weather proof enclosure for mounting outdoors. Sensor shall have a range of 0 to 100 percent with an accuracy of +/- 3 percent of span.

L. Carbon Dioxide Sensors
1. Sensor type shall be Non-dispersive infrared (NDIR), diffusion sampling with a measurement range from 0-2000 PPM.
2. Minimum Accuracy: +/- 75 PPM of calibrated span.
3. Input Voltage: 20 to 30 VAC/DC; 100 mA max.
4. Analog Output: 0-5 VDC, 0-10 VAC or 4-20 mA user selectable.
5. Sensor shall have self-calibrating capabilities.
6. Sensor shall have capability of sensing an alarm to the BAS in the event of a calibration problem or malfunction.
7. At the time of Project Completion, the TCC shall verify the calibration of all CO2 sensors.
8. TCC to verify with sensor manufacturer the best signal wiring to be used to prevent signal irregulatities and errors.

M. Current Status Switch

1. Shall be capable of detecting changes in flow of current to motors in determining accurate and reliable equipment status.
2. Ampere rating for 2.5 - 135 amps continuous.
3. Sensor supply voltage shall be included from monitor conductor.
4. Minimum current required is 1 amp.
5. Trip setpoint shall be adjustable to +/- 1 percent of range.

N. Air Flow Monitoring Station - Indoor Units
1. Manufacturers:
   a. Tek-Air
   b. Paragon Controls (OA-FE-1500, FE-1000, FE-1050, FIT-1003D)
   c. Ebtron (GTx116-P+)
   d. Air Monitor (VOLU-flo/OAM, VOLU-probe/VS Pitot, Veltron DPT 2500)
   e. Kele (KOAMS, KMS)
2. Air flow measuring system including microprocessor panel, signal processor with CFM output and air flow measuring sensor struts as required to measure outside air intake, Return air, and exhaust air flow as denoted on the drawings.
3. Air flow measuring system shall have velocity range from 200 to 2000 ft./min. with duct measurement accuracy (including repeatability, zero offset, and temperature compensation) of plus or minus 3 percent.
4. The location, type and quantity of flow sensing elements shall be per ASHRAE Standard 111 and subject to actual field measurements.
5. Outside Air Measurement: Provide where indicated air flow stations similar to above specifications except where three straight runs of duct are not present, provide large area impact sensing probes between outdoor louver and damper (one probe per 16 square feet of louver) with NEMA-4 transducer located in the outside air stream with temperature sensor and microprocessor based monitor to generate a 4-20 ma signal linear to cfm that has been corrected for air density. Provide access for cleaning of impact probes.
6. TCC shall verify all air velocities are above the minimum (fpm) allowed by the selected AFMS. The minimum air flow must be used for the verification. If a minimum airflow determined by the balancer yields a velocity below the minimum allowable by the AFMS, the TCC shall have the min airflow adjusted such that it does not fall outside of the limits of the AFMS. The TCC shall coordinate this with the balancer and it shall be noted in the balance report.

O. Remote Water Differential Pressure Transmitter (DPT)
1. The Basis of design varible speed pumps have integral sensorless control and do not require DPTs. If another pump manufacturer is used these may be required.
2. Differential Pressure Transmitters shall be provided by the temperature control contractor and installed by the Division 23-mechanical contractor. Transmitters to be completely self-contained, variable capacitance type. Wiring terminals and electronics shall be in separate compartments, so the electronics remain sealed during installation. Reverse polarity protection shall be included to keep wiring mishaps from damaging the transmitter. The 4-20mA DC signal shall be transmitted over a pair of No. 22 gauge or larger wire directly to the control enclosure.
3. Design range shall be as required by system. External zero and span adjustments, over pressure to 2,000 PSI and no humidity effects.
4. Minimum accuracy shall be +/-0.25 percent of calibrated span. Includes combined effects of linearity, hysteresis and repeatability. Stability shall be +/-0.25 percent of upper range limit for 6 months. No internal mechanical linkages shall be used in the transmitter.

P. Flow Meter (FT)
1. Flow sensosr shall be supplied and wired by the temperature control contractor and installed by the mechanical contractor where indicated on the drawings or as required by the sensor manufacturer.

2. The flow sensor shall utilize a nonmagnetic sensing mechanism with a forward-swept rotating impeller to produce a frequency signal proportional to flow. The flow sensor shall have an achievable accuracy of +/-1 percent of flow rate with flow velocities of 1 to 30 fps.
3. The flow sensor shall be constructed of brass with a glass reinforced impeller, tungsten carbide shaft and glass reinforced polyphenylene sulfide housing.
4. Provide minimum of 10 straight pipe diameters upstream and 5 diameters downstream for each field installed flow transducer.

Q. Building Static Pressure Transmitters:
1. One pipe, direct acting, double bell, scale range 0.01 to 6.0 inch wg positive or negative, and sensitivity of 0.0005 inch wg. Transmit electronic signal to receiver with matching scale range.

2.15 METERS

A. Positive Displacement Meters (Liquid)
1. AWWA C700, positive displacement disc type suitable for fluid with bronze case and cast iron frost-proof, breakaway bottom cap, hermetically sealed register, remote reading to AWWA C706.
2. Meter: Brass body turbine meter with magnetic drive register.
a. Accuracy: 1-1/2 percent.
b. Maximum Counter Reading: 10 million gallons.

B. Heat Consumption Meters
1. Meter: Brass body turbine meter with magnetic drive register, platinum temperature sensors.
a. Maximum Service Temperature: 200 degrees F.
b. Accuracy: 1-1/2 percent.
c. Maximum Counter Reading: 1 million btuh.
d. Size: 1/2 inch.
e. Power: 24 Volt convertor.

C. Liquid Flow Meters
1. ASME MFC-3M Calibrated venturi orifice plate and flanges with valved taps, chart for conversion of differential pressure readings to flow rate, with pressure gage in case.
2. Annular element flow stations with meter set.
a. Measuring Station: Type 316 stainless steel pitot type flow element inserted through welded threaded couplet, with safety shut-off valves and quick coupling connections, and permanent metal tag indicating design flow rate, reading for design flow rate, metered fluid, line size, station or location number.
1) Pressure rating: 275 psi.
2) Maximum temperature: 400 degrees F.
3) Accuracy: Plus 0.55 percent to minus 2.30 percent.

D. Gas Thermal Mass Flow Meter
1. The flow meter shall be hand-insertable up to 250 psi. Materials of construction for wetted metal components shall be 316 SS. The flow meter shall provide SFPM flow readings from a pair of encapsulated platinum sensors and shall not require additional temperature or pressure compensation. In addition, the meter shall continuously display information that can be used to validate the calibration of the meter. Each flow meter shall be individually wet-calibrated against a standard that is directly traceable to National Institute of Standards and Technology. A certificate of calibration shall be provided with each flow meter. Provide all hardware necessary to enable insertion and removal of the meter without system shutdown.
a. Accuracy shall be within ± 1% of rate from 500-7000 SFPM and ± 2% of rate from 100-500 SFPM.
b. Overall turndown shall exceed 1000:1.

c. Output signals shall consist of the following: (1) analog 4-20mA output and (1) scalable pulse output for totalization. The meter shall be equipped with an integrally mounted graphical display that may be optionally remote mounted up to 1000 ft from the sensor.
    1) Provide a display module for local or remote indication of flow rate and total. Output signals shall be either serial network (protocol conforming to BACnet MS/TP, BACnet/IP, or via individual analog and pulse outputs.
d. Each flow meter shall be covered by the manufacturer's two-year warranty.
e. Installation of flow meter must comply to all manufacturer guidelines. Install meter with required straight length distances upstream and downstream of meter. Provide shutoff valve to allow removal of meter without the requirement to shut down gas service.

2.16 BUILDING AUTOMATION SYSTEM

A. Furnish a complete Direct Digital Control system.
    1. The entire system shall be totally DDC with electric/electronic actuation. No pneumatics shall be utilized except where noted on the associated drawings.
    2. The DDC System shall support the ASHRAE Standard 135-1995 BACnet protocol.
    3. The DDC System shall communicate to the owner's communication network thru a single point of data connection. All wiring and communication downstream of that single point of data connection shall be provided with the DDC control system.
    4. The Local Area Network shall be a 100 Mpbs Ethernet network.
    5. The system shall be backward compatible. Whenever a system upgrade is provided, the system shall be capable of communicating to existing device level controllers without the requirement to provide any new equipment and controllers.
    6. The system shall be capable of operating on the latest version of IE explorer, Firefox, or Google Chrome. System shall be capable of operating without JAVA.

B. The following HVAC equipment shall be controlled by the Building Automation System including sequences. A graphic shall be provided for each piece of equipment listed below:
    1. Air Handling Units.
    2. Air Handling Units with built in Energy Recovery.
    3. Heating Water System.
    4. Chilled Water System.
    5. Variable Air Volume Reheat Terminals.
    6. Exhaust Fans
    7. Cabinet Heaters
    8. Unit Heaters

C. Operator Workstation
    1. Data Network Equipment Contractor to furnish a dedicated virtualized server to host web services and storage for temperature control use at minimum (1 TB) partition. Temperature Control Contractor shall be responsible to coordinate with Data Network Equipment Contractor and the owner's representative on requirements for server. Temperature Control Contractor to coordinate with Data Network Equipment Contractor for server resource requirements. Data Network Equipment Contractor to provide Microsoft Operating System only. Temperature Control Contractor to provide all necessary programming, additional licensing, and software required for a fully functional system.
    2. A laptop computer shall be provided as part of this project. This contractor shall install network server software on the laptop as part of this project to allow interface with this project. Provide any additional cables necessary to connect to any of the controllers on the system. The laptop shall be made available to the commissioning agent for their use as well.

a. Critical alarms shall be reported to the laptop, cell phones, and email accounts of the maintenance department employees. All critical alarms shall be wired so that unit fans, pumps, etc. cannot be turned on in hand mode when safety device is tripped.
b. Thelaptop computer shall include the ability to access the temperature control system via the owners network. User interface shall be seamless and the user shall be capable of performing all functions that can be performed locally.

3. The computer designated shall be used for command entry, information management, network alarm management, and data base management functions. All real-time control functions shall be resident in the standalone DDC panels to facilitate greater fault tolerance and reliability.
   a. The laptop computer shall have a minimum Intel Core i5 processor with a 500.0 GB hard drive, 8 GB Ram, 24x CD-RW/DVD drive, parallel port, serial port, USB port, wireless 802.11 A/G/N network card, an RJ45 10/100/1000 internal network card, and high capacity Lithium Ion battery. The laptop shall include a minimum 15.4" WXGA LCD panel. Furnish Nylon laptop carrying case. Acceptable manufacturers shall be IBM/Lennovo, HP, Dell, and Toshiba. Computer platform shall be certified by DDC system manufacturer. Furnish Microsoft Windows 7 operating system as a minimum.

D. Laptop computer Hardware - Communications
   1. The new personal computers shall provide a minimum of two communication ports, one EIA-232C for local direct connect communications and one for remote dial-up communications. All communication ports shall be bidirectional data communicators.
   2. Storage of software programs and communication logic shall be maintained without battery backed assistance.

E. Server Software
   1. Server software shall take advantage of daily energy management report generation capability of the Global Control Panel (GCP) and all remote DDC controllers. The host computer shall automatically poll direct or remotely connected sites, gather the data, archive it and generate daily, weekly, monthly and yearly summaries as needed.
   2. The host software shall permit acquisition and long term storage of unlimited independent trend logs. Trends shall be operated by the host directly or automatically uploaded from the GCP or remote DDC controllers at user specified intervals. Trend data shall be graphically represented using a dynamic process graphics report generator in a bar chart or line format including HTML, XML, PlainText, or HTTP formats.
   3. Host software will contain alarm and exception processing systems. Events including point alarm, point faults, device diagnostics, maintenance time reminders, actual control programs and log on/off shall be recorded in the system status log. The System Status log shall define automatically generated exception reports based on user selectable criteria such as point type, operator, time and date of occurrence, etc. The program shall prioritize alarms for display with the most critical alarm first. An operator shall also be able to user define individual alarms to interrupt a user and display the system status log.
   4. Provide icon selection of users programs such as database programming and monitoring. Provide menus with highlighted active commands, context commands descriptions and help files. A standard mouse interface and normal keyboard operation shall access all programs. Provide continuous display of system status, and text monitoring screens with highlighted alarm conditions and report generation.
   5. Any action taken by an operator shall be logged to the systems status log to render an audit trail of operator actions. User access definitions shall be completely definable and modifiable by the system's manager.
   6. The Graphical User Interface (GUI) shall run on Microsoft Windows 7 or most recent.
   7. The GUI shall employ standard browsers including Windows Explorer and Firefox. It shall include a tree view (similar to Windows Explorer) for quick viewing of, and access to, the hierarchical structure of the database. In addition, menu-pull downs, and toolbars shall employ buttons, commands and navigation to permit the operator to perform tasks with a minimum knowledge of the HVAC Control System and basic computing skills. These shall

include, but are not limited to, forward/backward buttons, home button, and a context sensitive locator line (similar to a URL line), that displays the location and the selected object identification.

8. Real-Time Displays. The GUI, shall at a minimum, support the following graphical features and functions:
   a. Minimum Required Graphics:
      1) All setpoints shall be shown on the respected graphic page for each piece of equipment. All setpoints shall be adjustable and acceptable range of adjustment shall be noted in as-built sequence of operation.
      2) Home Screen with background image of school building or school logo and include following:
         (a) Information on current weather conditions
         (b) Link to building floor plan
         (c) Link to each individual air handling unit screen.
         (d) Link to chilled water plant screen.
         (e) Link to heating water plant screen.
         (f) Link to energy dashboard.
         (g) Link to alarms page
         (h) Link to schedules page
         (i) Snow Day Schedule Button.
      3) Floor Plan: Overall floor plan shall be provided with units broke out in different colors. Link to each individual enlarged unit plan. Enlarged Unit plans shall contain:Unit shall Color graphic floor plan and zone floorplans showing all space temperatures, space CO2 levels and humidity levels where indicated on tempeature control drawings.
         (a) Floor plan showing all spaces with room numbers matching owner's final room number designations.
         (b) Temperature of each space. Either space or text shall change color based on deviation away from setpoint. Space or text shall change to blue if room below setpoint by 2 F (adj) and change to red if above 2 F (adj) setpoint. Text to be green for space setpoint met.
         (c) Show space humidity at locations of space humidity sensors.
         (d) Link back to overall floor plan.
         (e) Link to equipment page serving the room by clicking on the individual space.
         (f) Link to alarm page.
      4) Space Equipment Screen: Screen showing the individual equipment serving the space. Information on screen shall include:
         (a) Graphic of equipment including heating / cooling coils, valves, fans, and dampers. Graphics shall be dynamic.
         (b) Heating and Cooling Valve Position. If valve is a three-way valve, graphic to represent three way valve.
         (c) Fan operation including fan speed if variable speed.
         (d) Damper Positions.
         (e) Primary airflow value. Also minimum and maximum airflow settings.
         (f) Discharge air temperature.
         (g) Current space temperature, space setpoint, and setback temperature setpoints
         (h) Override button with override temperature
         (i) Current CO2 level (if specified), high and low level CO2 setpoints
         (j) Link to associated air handling unit.
         (k) Link back to overall floor plan screen.
         (l) Link to alarm screen.

5) Air Handling Unit Screen:
   (a) Graphic of equipment including heating / cooling coils, valves, dampers, fans, filters, airflow stations and other sensors. Graphic shall be dynamic
   (b) Heating and Cooling Valve Position. If valve is a three-way valve, graphic to represent three way valve.
   (c) Fan operation including fan speed if variable speed.
   (d) Provide a link to VFD screen. On VFD screen provide in a table format all information from VFD.
   (e) Damper Positions.
   (f) Energy Recovery wheel status
   (g) Airflow values and temperature values as shown on temperature control drawing schematics.
   (h) If air handling unit is set up as a VAV air handling unit, include the following information:
      (1) Supply air temperature
      (2) Supply air temperature setpoint
      (3) Supply air static pressure
      (4) Supply air fan static pressure setpoint.
   (i) If air handling unit serves a single zone, include the following information on the equipment screen:
      (1) Space Temperature
      (2) Space Temperature setpoint.
      (3) Unoccupied space temperature and humdity setpoints.
      (4) Space Humidity level.
      (5) Space Humidity setpoint.
      (6) Space CO2 level.
      (7) Space CO2 setpoint.
   (j) Filter differential pressure. Include alarm if DP hits high limit.
   (k) Link to associated chilled water plant.
   (l) Link to associated heating water plant.
   (m) Link to sequence of operation page.
   (n) Link to alarm page.
   (o) Link back to overall floor plan.
6) Heating Water Plant Screen:
   (a) Graphic of plant including boilers, pumps, and piping between pumps and boilers. All graphics shall be dynamic.
   (b) Boiler firing rate, status. Include a link to a seperate page for each boiler. This seperate page shall include all information received from the boiler. Refer to boiler specification section for list of minimum data.
   (c) Pump operation including speed.
   (d) Provide a link to VFD screen. On VFD screen provide in a table format all information from VFD.
   (e) Heating water supply static pressure.
   (f) Heating water supply static pressure setpoint.
   (g) Heating water supply static pressure override.
   (h) Heating water supply and return water temperatures as shown on the temperature control schematics.
   (i) Flowrates (GPM) as shown on the temperature control schematic.
   (j) Boiler alarms. Provide a link to the alarm page.
   (k) Link to sequence of operation page.
   (l) Link back to overall floor plan.
7) Chilled Water Plant Screen:

(a) Graphic of plant including chiller(s), pumps, glycol feed system, heat exchanger, and air /dirt separator. All graphics shall be dynamic.
(b) Chiller information as stated in the chiller specification.
(c) Primary and secondary pump operation including pump speed.
(d) Provide a link to VFD screen. On VFD screen provide in a table format all information from VFD.
(e) Secondary chilled water supply static pressure.
(f) Secondary chilled water supply static pressure setpoint.
(g) Secondary chilled water supply static pressure override.
(h) Chilled water supply and return water temperatures as shown on the temperature control schematic.
(i) Chiller Alarms. Provide link to alarm page.
(j) Link to sequence of operation page.
(k) Link back to overall floor plan.

8) Miscellaneous Equipment
   (a) Include status, on/off button where noted in the sequence of operation, space temperature, space temperature setpoint for:
      (1) Exhaust fans
      (2) cabinet heaters
      (3) unit heaters
      (4) Technology space cooling equipment.
9) Alarms Page
   (a) The system will be provided with a dedicated alarm screen. This screen will notify the operator of an alarm condition, and allow the operator to view details of the alarm and acknowledge the alarm.
   (b) All critical alarms shall be wired so that unit fans, pumps, etc. cannot be turned on in hand mode when safety device is tripped.
   (c) All critical alarms as determined by the owner shall be sent ot email accounts, cell phones, and pagers via text messaging capabilities.
10) Schedules Page
   (a) Provide calendars for all air handling equipment.

b. The sequence of operations shall be located as a pull down feature at each piece of equipment or provide a link to a pdf document of the sequence of operations.
c. Provide As-Built wiring diagrams complete with material part numbers.
d. The operator interface shall allow users to access the various system schematics and floor plans via a graphical penetration scheme, menu selection or text-based commands. Dynamic temperature values, flow values and status indication shall be shown in their actual respective locations and shall automatically update to represent current conditions without operator intervention.
e. Graphic screens shall be developed using any drawing package capable of generating a GIF, BMP, or JPG file format. Use of proprietary graphic file formats shall not be acceptable. In addition to, or in lieu of a graphic background, the GUI shall support the use of scanned pictures.
f. Graphic screens shall contain objects for text, real-time values, animation, color spectrum objects or “thermo-graphics”, logs, graphs, HTML or XML document links, schedule objects, hyperlinks to other URL's, and links to other graphic screens.
g. Graphics shall support layering and each graphic object shall be configurable for assignment to a layer. A minimum of six layers shall be supported.
h. Modifying common application objects, such as schedules, calendars, and set points shall be accomplished in a graphical manner.
   1) Schedule times will be adjusted using a graphical slider, without requiring any keyboard entry from the operator.
   2) Holidays shall be set by using a graphical calendar, without requiring any keyboard entry from the operator.

3) Snow Day Operation shall be set by clicking on a "Snow Day" button located on screen of graphics.

i. Commands to start and stop binary objects shall be done by right-clicking the selected object and selecting the appropriate command from the pop-up menu. No entry of text shall be required.

j. Adjustments to analog objects, such as set points, shall be done by right-clicking the selected object and using a graphical slider to adjust the value. No entry of text shall be required.

9. System Configuration: At a minimum, the GUI shall permit the operator to perform the following tasks, with proper password access:
   a. Create, delete or modify control strategies.
   b. Add/delete objects to the system.
   c. Tune control loops through the adjustment of control loop parameters.
   d. Enable or disable control strategies.
   e. Generate hard copy records or control strategies on a printer.
   f. Select points to be alarmable and define the alarm state.
   g. Select points to be trended over a period of time and initiate the recording of values automatically.
10. On-Line Help: Provide a context sensitive, on-line help system to assist the operator in operation and editing of the system. On-line help shall be available for all applications and shall provide the relevant data for that particular screen. Additional help information shall be available through the use of hypertext. All system documentation and help files shall be in HTML format.
11. Security: Each operator shall be required to log on to that system with a user name and password in order to view, edit, add, or delete data. System security shall be selectable for each operator. The system administrator shall have the ability to set passwords and security levels for all other operators. Each operator password shall be able to restrict the operators' access for viewing and/or changing each system application, full screen editor, and object. Each operator shall automatically be logged off of the system if no keyboard or mouse activity is detected. This auto log-off time shall be set per operator password. All system security data shall be stored in an encrypted format.
12. System Diagnostics. The system shall automatically monitor the operation of all workstations, network connections, building management panels, and controllers. The failure of any device shall be annunciated to the operator.

2.17 ENERGY REPORTING TOOL

A. System shall include an easily configurable reporting tool that can provide at a minimum the following capabilities:
   1. The energy reporting tool shall be accessible through the same user interface (Web browser or operator workstation software) as is used to manage the BAS.
   2. The energy reporting tool shall be preconfigured by the Contractor to gather and store energy demand and consumption data from each energy source that provides metered data to the BAS. Meter data shall be stored at 5 minute intervals unless otherwise specified in the Sequence of Operation provided in section 23 0993. This data shall be maintained in an industry standard SQL database for a period of not less than five years.
   3. The energy reporting tool shall allow the operator to select an energy source and a time period of interest (day, week, month, year, or date range) and shall provide options to view the data in a table, line graph, bar graph, or pie chart. The tool shall also allow the operator to select two or more data sources and display a comparison of the energy used over this period in any of the listed graph formats, or to total the energy used by the selected sources and display that data in the supported formats.
   4. The energy reporting tool shall allow the operator to select an energy source and two time periods of interest (day, week, month, year, or date range) and display a graph that compares the energy use over the two time periods in any of the graph formats listed in the previous paragraph. The tool shall also allow the operator to select multiple energy

sources and display a graph that compares the total energy used by these sources over the two time periods.

5. The energy reporting tool shall allow the operator to easily generate the previously described graphs "on the fly," and shall provide an option to store the report format so the operator can select that format to regenerate the graph at a future date. The tool shall also allow the user to schedule these reports to run on a recurring basis using relative time periods, such as automatically generating a consumption report on the first Monday of each month showing consumption over the previous month. Automatically generated reports shall be archived on the server in a common industry format such as Adobe PDF or Microsoft Excel with copies e-mailed to a user editable list of recipients.
6. The energy reporting tool shall be capable of collecting and displaying data from the following types of meters:
    a. Electricity
    b. Chilled Water
    c. Heating Water
    d. Potable Water
    e. Heating and Cooling degree days. (May be calculated from sensor data rather than metered.
7. The user shall have the option of using Kw (Kwh) or Btu/hr (Btu) as the units for demand and consumption reports. Multiples of these units (MWH, kBtu, etc.) shall be used as appropriate. All selected sources shall be automatically converted to the selected units. The user shall similarly have the option of entering facility area and occupancy hours and creating reports that are normalized on an area basis, an annual use basis, or an occupied hour basis.
8. The user shall have the option of entering benchmark data for an individual facility or a group of facilities.
9. The user shall have the option of displaying any or all of the following data on any chart, line, or bar graph generated by the energy reporting tool:
    a. Low/High/Average value of the metered value being displayed.
    b. Heating and/or Cooling Degree Days for the time period(s) being displayed.

2.18 BUILDING AUTOMATION EQUIPMENT

A. System Network Controller (SNC)
    1. These controllers are designed to manage communications between the programmable equipment controllers (PEC), application specific controllers (ASC) and advanced unitary controllers (AUC) which are connected to its communications trunks, manage communications between itself and other system network controllers (SNC) and with any operator workstations (OWS) that are part of the BAS, and perform control and operating strategies for the system based on information from any controller connected to the BAS.
    2. The controllers shall be fully programmable to meet the unique requirements of the facility it shall control.
    3. All devices shall meet the requirements of clause 22.1.5 of ASHRAE 135-2012. Use Analog inputs and outputs. If Analog Output objects are used, these must be writeable.
    4. The controllers shall be capable of peer-to-peer communications with other SNC's and with any OWS connected to the BAS, whether the OWS is directly connected, connected via cellular modem or connected via the Internet.
    5. The communication protocols utilized for peer-to-peer communications between SNC's will be Niagara 4 Fox, BACnet TCP/IP and SNMP. Use of a proprietary communication protocol for peer-to-peer communications between SNC's is not allowed.
    6. The SNC shall employ a device count capacity license model that supports expansion capabilities.
    7. The SNC shall be enabled to support and shall be licensed with the following Open protocol drivers (client and server) by default:
        a. BACnet

b. SNMP

8. The SNC shall be capable of executing application control programs to provide:
   a. Calendar functions.
   b. Scheduling.
   c. Trending.
   d. Alarm monitoring and routing.
   e. Time synchronization.
   f. Integration of BACnet controller data.
   g. Network management functions for all SNC, PEC and ASC based devices.
9. The SNC shall provide the following hardware features as a minimum:
   a. Two 10/100 Mbps Ethernet ports.
   b. Two Isolated RS-485 ports with biasing switches.
   c. 1 GB RAM
   d. 4 GB Flash Total Storage / 2 GB User Storage
   e. Wi-Fi (Client or WAP)
   f. USB Flash Drive
   g. High Speed Field Bus Expansion
   h. -20-60°C Ambient Operating Temperature
   i. Integrated 24 VAC/DC Global Power Supply
   j. MicroSD Memory Card Employing Encrypted Safe Boot Technology
10. The SNC shall support standard Web browser access via the Intranet/Internet. It shall support a minimum of 16 simultaneous users.
11. The SNC shall provide alarm recognition, storage, routing, management and analysis to supplement distributed capabilities of equipment or application specific controllers
12. The SNC shall be able to route any alarm condition to any defined user location whether connected to a local network or remote via cellular modem, or wide-area network.
    a. Alarm generation shall be selectable for annunciation type and acknowledgement requirements including but not limited to:
       1) Alarm.
       2) Return to normal.
       3) To default.
    b. Alarms shall be annunciated in any of the following manners as defined by the user:
       1) Screen message text.
       2) Email of complete alarm message to multiple recipients.
    c. The following shall be recorded by the SNC for each alarm (at a minimum):
       1) Time and date.
       2) Equipment (air handler #, access way, etc.).
       3) Acknowledge time, date, and user who issued acknowledgement
13. Programming software and all controller "Setup Wizards" shall be embedded into the SNC.
14. The SNC shall support the following security functions.
    a. Module code signing to verify the author of programming tool and confirm that the code has not been altered or corrupted.
    b. Role-Based Access Control (RBAC) for managing user roles and permissions.
    c. Require users to use strong credentials.
    d. Data in Motion and Sensitive Data at Rest be encrypted.
    e. LDAP and Kerberos integration of access management
15. The SNC shall support the following data modeling structures to utilize Search; Hierarchy; Template; and Permission functionality:
    a. Metadata: Descriptive tags to define the structure of properties.
    b. Tagging: Process to apply metadata to components
    c. Tag Dictionary

16. The SNC shall employ template functionality. Templates are a containerized set of configured data tags, graphics, histories, alarms... that are set to be deployed as a unit based upon manufacturer's controller and relationships. All lower level communicating controllers (PEC, AUC, AVAV, VFD…) shall have an associated template file for reuse on future project additions.
17. The SNC shall be provided with a 5 Year Software Maintenance license. Labor to implement not included.

B. Primary Controllers (Air Handling Units, Chilled Water Plant, and Heating Water Plant)
1. Each primary controller shall be a dedicated, stand-alone, microprocessor-based DDC controller that is BACnet certified (B-BC / B-AAC) with sufficient capacity to handle all points and programming associated with the control sequences as specified. In addition, each controller shall have a minimum 15% spare point capacity. Primary controllers shall be capable of being mounted within the equipment housing and shall have the capability to be programmed on-line and/or off-line (simulation capability) as required to meet unique HVAC application needs as well as the various ASHRAE control cycles. Primary controllers shall be capable of communicating global and critical variables to other primary controllers residing on the same network without the intervention of a higher level controller (Peer to Peer communication).
2. All devices shall meet the requirements of clause 22.1.5 of ASHRAE 135-2012. Use Analog inputs and outputs. If Analog Output objects are used, these must be writeable.
3. All primary controllers shall be application programmable and shall at all times maintain their certification. All control sequences within or programmed into the primary controller shall be stored in non-volatile memory, which is not dependent upon the presence of a battery to be retained.
4. Software incorporated into the controller shall include the following:
    a. Real time operating system software
    b. Real time clock/calendar and network time synchronization
    c. Primary control unit diagnostic software
    d. LAN/WAN communication software
    e. Alarm processing and buffer software
    f. Energy management software
    g. Data trending, reporting, and buffering software
    h. Input/output database (physical and virtual points)
5. Primary controller shall have expansion capability to support additional I/O requirements thru remote expansion input/output modules.
6. The controller shall have a mix of digital inputs (DI), digital Triac outputs (DO), analog outputs (AO), and universal inputs (UI).
    a. Analog outputs (AO) shall be capable of being configured as digital outputs (DO).
    b. Input and Output wiring terminal strips shall be removable from the controller without disconnecting wiring.
    c. Input and Output wiring terminals shall be designated with color coded labels.
    d. Universal inputs shall be capable of being configured as binary inputs, resistive inputs, voltage inputs (0-10 VDC), or current inputs (4-20 mA).
7. The controller shall provide "continuous" automated loop tuning with an Adaptive Integral Algorithm Control Loop.
8. An RJ-11 type connection serial port shall allow a local portable operator terminal to access all program blocks and attributes for complete programmability. The port shall also support complete up/downloading capability.
9. All input/output and control parameters may be utilized or shared throughout the network. All primary controllers shall be accessible throughout the network.

C. Secondary Controllers (VAV units, cabinet heaters, and miscellaneous equipment)
1. Each secondary controller shall be a stand-alone, microprocessor-based DDC controller that is BACnet certified (B-AAC / B-ASC) with sufficient capacity to handle all points

associated with the control sequences as specified. Secondary controllers shall be capable of being programmed on-line and/or off-line (simulation capability) as required to meet the specific HVAC application needs as well as the various ASHRAE control cycles. Secondary controllers shall be capable of communicating with other secondary controllers through an interface or higher level controller.

2. All devices shall meet the requirements of clause 22.1.5 of ASHRAE 135-2012. Use Analog inputs and outputs. If Analog Output objects are used, these must be writeable.
3. Secondary controllers shall be microprocessor-based, programmable DDC controllers with all operating parameters, setpoints and schedules stored in memory which resides on the controller.
4. Software incorporated into the controller shall include the following:
   a. Real time operating system software
   b. Secondary control unit diagnostic software
   c. LAN/WAN communication software
   d. Control software applicable to the unit it serves that will support one mode of operation
   e. Input/output database (physical and virtual points) to support one mode of operation
5. The controller shall have digital inputs (DI), digital Triac outputs (DO), three analog outputs (AO), and universal inputs (UI).
   a. Analog outputs (AO) shall be capable of being configured as digital outputs (DO).
   b. Input and Output wiring terminal strips shall be removable from the controller without disconnecting wiring.
   c. Input and Output wiring terminals shall be designated with color coded labels.
6. The controller shall provide "continuous" automated loop tuning with an Adaptive Integral Algorithm Control Loop.
7. The controller platform shall have a standard HVAC application program(s) that are modifiable to support both the traditional and specialized "sequence of operations" as outlined in the specification. The controller shall have the capability to communication thru read/write the following:
   a. Reset room setpoint
   b. Read/log/trend room temperature
   c. Override day or night operation
   d. Change maximum heating and cooling CFM flow rates (VAV terminal units)
   e. Change minimum heating and cooling CFM flow rates (VAV terminal units)
   f. Read CFM flow rate at each terminal (VAV terminal units)
   g. Read the discharge air temperature at each terminal unit
   h. Room CO2 control.
   i. Assign daily occupied/unoccupied times
   j. Read terminal type i.e. fan powered, reheat, etc.
8. Should communications to the secondary controller fail in any manner, the controller will have its configuration in non volatile memory and shall maintain room setpoint.

2.19 TEMPERATURE CONTROL WIRING

A. The DDC System shall communicate to the owner's communication network thru a single point of data connection. All wiring and communication downstream of that single point of data connection shall be provided with the DDC control system.

B. Control wiring shall meet the requirements of Article 725, Class 1, Class 2, Class 3 Remote-Control, signaling, and power-limited circuits of the NEC.

C. Control wiring shall be UL listed plenum rated cable or installed in conduit. Wiring shall be routed in conduit where exposed to occupied spaces and in mechanical rooms. Conduit shall be 1/2 inch minimum size and shall be furnished and installed under this section. Exposed wiring in occupied spaces and mechanical rooms will not be accepted.

D. Concealed wiring and wiring in non-plenum ceiling cavities, which is operating under 100 volts, may be open wired if in compliance with Article 725, NFPA-70 (NEC). Open wiring shall be secured with plastic tie wraps to the permanent building structure as approved by the Architect/Engineer.

E. Terminations shall be performed by the Temperature Control Contractor.

F. Wire and conduit not indicated on the Drawings or in the Specifications, but required by the controls supplier, shall be paid for by the Temperature Control Contractor. This includes power supply wiring which is not indicated in the Division 26 drawings but which is necessary for system operation.

G. Temperature control cable is to be properly supported per industry standards and practices. Cable tray shall not be used for installation of temperature control wiring.
   1. Bridle rings shall be used to support wiring in all return air plenums.

H. Temperature control wiring Color Identification Guide:
   1. Wiring between AHU equipment, pumps, chillers, and miscellaneous equipment shall be white.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that systems are ready to receive work.

B. Beginning of installation means installer accepts existing conditions.

C. Sequence work to ensure installation of components is complementary to installation of similar components in other systems.

D. Coordinate installation of system components with installation of mechanical systems equipment such as air handling units and air terminal units.

E. Ensure installation of components is complementary to installation of similar components.

F. Coordinate installation of system components with installation of mechanical systems equipment such as air handling units and air terminal units.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Airflow measurement sensing elements location and sizing of airflow measurement elements shall be confirmed in the field by local factory representative. Velocity calculation and corresponding differential pressure calculations will be calculated accordingly.

C. Installing contractor shall remote mount the transducer in an acceptable location and provide all pneumatic tubing & wiring required between the transducer and airflow sensors.

D. Wiring for differential pressure sensors that control heating and chilled water pump operation shall be wired back directly to the chilled water or heating water plant controller. Wiring to nearest controller will not be permitted.

E. Check and verify location of thermostats with plans and room details before installation. Locate bottom at 44 inches above floor. Align with lighting switches.

F. Mount freeze protection thermostats using flanges and element holders.

G. Mount outdoor reset thermostats and outdoor sensors indoors, with sensing elements outdoors with sun shield.

H. Provide separable sockets for liquids and flanges for air bulb elements.

I. Provide guards on thermostats where indicated.

J. Provide valves with position indicators and with pilot positioners where sequenced with other controls.

K. Provide mixing dampers of opposed blade construction arranged to mix streams. Provide pilot positioners on mixed air damper motors. _____ .

L. Install damper motors on outside of duct in conditioned spaces. Do not install motors in locations at outdoor temperatures.

M. Mount control panels adjacent to associated equipment on vibration free walls or free standing angle iron supports. One cabinet may accommodate more than one system in same equipment room. Provide engraved plastic nameplates for instruments and controls inside cabinet and engraved plastic nameplates on cabinet face.

N. Install "hand/off/auto" selector switches to override automatic interlock controls when switch is in "hand" position.

O. Temperature control contractor shall make themselves familiar with the commissioning specification and provide all items for the commissioning agents use as noted.

3.03 SEQUENCE OF OPERATION

A. Refer to Specification Section 23 0993 for all equipment sequences of operation.

3.04 OCCUPIED / UNOCCUPIED ZONES

A. Manual Overrides:
   1. Provide manual, push button overrides as a part of each room temperature sensor. Pressing of override button will place zone on which sensor is located into a programmed override that is adjustable through the software.
   2. All zones shall include computer controlled overrides.

B. Refer to specification section 23 0993 for specified zones.

3.05 GUARANTEE

A. It is intended that the Temperature Control Contractor include as part of his bid two (2) year full service warranty. All labor and material shall be guaranteed against defects in workmanship for two (2) year period from the date of Substantial Completion and acceptance by the Owner. Any material proving defective shall be repaired or replaced during that period. This shall not, however, apply to material that has been damaged due to willful negligence.

B. The Contractor will provide hardware and software support during the two year guarantee after the date of acceptance. Hardware support includes replacing of any major or minor components, relays, sensors, etc., that fail to operate properly. Software support includes upgrading of software during warranty period such that system is loaded with latest available revision at end of warranty period.

C. Software support during the two year warranty shall include any programming changes to correct control operation resulting in alarms. All changes shall be cooresponded with the design engineer and owner.

D. Support is also defined to include Owner personnel training needed to operate the system effectively as outlined in this Specification. Explicitly included is the training needed to analyze a building's operation with a view to minimizing energy costs.

3.06 TRAINING

A. The Temperature Control Contractor shall, during the one-year guarantee period, provide no less than (8) 4-hour training sessions to be held at the building site after system is in full operation. A total of two 4 hour training sessions shall be given quarterly during the first 12 months of operation to familiarize maintenance personnel on the operation of the mechanical and control systems through the host computer.

B. Training shall include a hands on process to get owner involved with making changes, setting schedules, monitoring and acknowleding alarms, setting up trends, and monitoring trends.

C. All training shall be video-taped by the control Contractor. Two copies shall be turned over to the owner's maintenance staff.

3.07 SERVICE CHECKS

A. Prior to final inspection, this Contractor shall perform the following service work, including, but not limited to, the following items:
   1. Check and oil electric motors furnished under control system.
   2. Lubricate damper bearings as required.
   3. Check damper travel, adjust and tighten set screws.
   4. Lubricate valve stems, as required, check packing; repair as required.
   5. Calibration of instruments.
   6. Check and verify circuitry.
   7. Calibrate and checkout controllers, fusing, etc.
   8. Test and debug microprocessor and software.
   9. Startup and test operation of variable frequency drive with factory authorized personnel.

3.08 FINAL COMPLETION

A. When the work is completed, and at a time directed by the Owner or the Architect/Engineer, the Contractor shall carefully adjust all parts of the equipment and systems. This includes adjustment of automatic controls and safety devices, proper setting of adjustable devices, dampers and valves, and other necessary operations so the systems are fully operable and automatic in operation. Upon completion of the Work, notify the Owner, and/or Architect/Engineer that system is ready for final tests and inspection.

B. At the time of final inspection, this Contractor shall be represented by a person with the proper authority, who shall demonstrate, as directed by the Architect/Engineer, that his Work fully complies with the purpose and intent of the Specifications and Drawings. Labor, services, instruments, and tools necessary for demonstrations and tests shall be provided by the Contractor.

C. The Contractor shall test and adjust each instrument specialty and equipment furnished by him, prior to final acceptance. The Contractor shall demonstrate, for approval by the Architect/Engineer, that subsystems operate as a coordinated and properly functioning, integrated system.

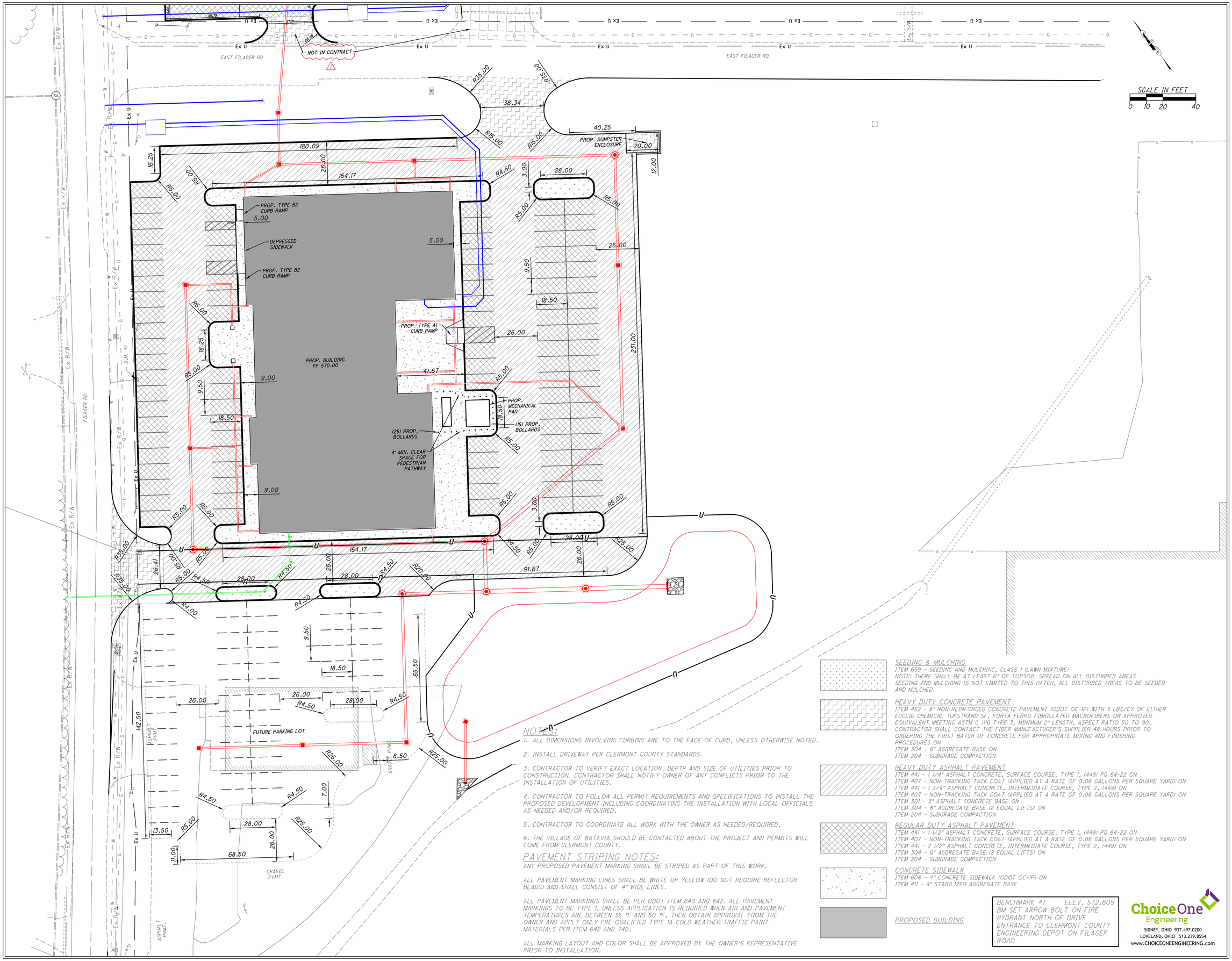
D. The Contractor shall furnish labor, provide adjustments and incidentals necessary to obtain the desired and intended results.

E. The Contractor shall turn over a printed copy and electronic copy of the completed and debugged operating software to the Owner at the conclusion of the first year warranty.

F. The contractor shall provide a list of all devices and their addresses to the owner. This shall be included in the O&M manual.

G. The Contractor shall corrdinate with the Commissioning Agent to run requested trends for demonstration of the functions.

END OF SECTION



NOTES:

1. ALL DIMENSIONS INVOLVING CURBING ARE TO THE FACE OF CURB, UNLESS OTHERWISE NOTED.
2. INSTALL DRIVEWAY PER CLERMONT COUNTY STANDARDS.
3. CONTRACTOR TO VERIFY EXACT LOCATION, DEPTH AND SIZE OF UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER OF ANY CONFLICTS PRIOR TO THE INSTALLATION OF UTILITIES.
4. CONTRACTOR TO FOLLOW ALL PERMIT REQUIREMENTS AND SPECIFICATIONS TO INSTALL THE PROPOSED DEVELOPMENT INCLUDING COORDINATING THE INSTALLATION WITH LOCAL OFFICIALS AS NEEDED AND/OR REQUIRED.
5. CONTRACTOR TO COORDINATE ALL WORK WITH THE OWNER AS NEEDED/REQUIRED.
6. THE VILLAGE OF BATAVIA SHOULD BE CONTACTED ABOUT THE PROJECT AND PERMITS WILL COME FROM CLERMONT COUNTY.

PAVEMENT STRIPING NOTES:

ANY PROPOSED PAVEMENT MARKING SHALL BE STRIPED AS PART OF THIS WORK.

ALL PAVEMENT MARKING LINES SHALL BE WHITE OR YELLOW (DO NOT REQUIRE REFLECTOR BEADS) AND SHALL CONSIST OF 4" WIDE LINES.

ALL PAVEMENT MARKINGS SHALL BE PER ODOT ITEM 640 AND 642. ALL PAVEMENT MARKINGS TO BE TYPE 1, UNLESS APPLICATION IS REQUIRED WHEN AIR AND PAVEMENT TEMPERATURES ARE BETWEEN 35 °F AND 50 °F, THEN OBTAIN APPROVAL FROM THE OWNER AND APPLY ONLY PRE-QUALIFIED TYPE IA COLD WEATHER TRAFFIC PAINT MATERIALS PER ITEM 642 AND 740.

ALL MARKING LAYOUT AND COLOR SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.

SEEDING & MULCHING
ITEM 659 - SEEDING AND MULCHING, CLASS 1 (LAWN MIXTURE)
NOTE: THERE SHALL BE AT LEAST 6" OF TOPSOIL SPREAD ON ALL DISTURBED AREAS
SEEDING AND MULCHING IS NOT LIMITED TO THIS HATCH, ALL DISTURBED AREAS TO BE SEEDED AND MULCHED.

HEAVY DUTY CONCRETE PAVEMENT
ITEM 452 - 8" NON-REINFORCED CONCRETE PAVEMENT (ODOT QC-IP) WITH 3 LBS/CY OF EITHER EUCLID CHEMICAL TUFSTRAND SF, FORTA FERRO FIBRILLATED MACROFIBERS OR APPROVED EQUIVALENT MEETING ASTM C 1116 TYPE 3, MINIMUM 2" LENGTH, ASPECT RATIO 50 TO 90. CONTRACTOR SHALL CONTACT THE FIBER MANUFACTURER'S SUPPLIER 48 HOURS PRIOR TO ORDERING THE FIRST BATCH OF CONCRETE FOR APPROPRIATE MIXING AND FINISHING PROCEDURES ON
ITEM 304 - 6" AGGREGATE BASE ON
ITEM 204 - SUBGRADE COMPACTION

HEAVY DUTY ASPHALT PAVEMENT
ITEM 441 - 1 1/4" ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, (449) PG 64-22 ON
ITEM 407 - NON-TRACKING TACK COAT (APPLIED AT A RATE OF 0.06 GALLONS PER SQUARE YARD) ON
ITEM 441 - 1 3/4" ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 2, (449) ON
ITEM 407 - NON-TRACKING TACK COAT (APPLIED AT A RATE OF 0.06 GALLONS PER SQUARE YARD) ON
ITEM 301 - 3" ASPHALT CONCRETE BASE ON
ITEM 304 - 8" AGGREGATE BASE (2 EQUAL LIFTS) ON
ITEM 204 - SUBGRADE COMPACTION

REGULAR DUTY ASPHALT PAVEMENT
ITEM 441 - 1 1/2" ASPHALT CONCRETE, SURFACE COURSE, TYPE 1, (449) PG 64-22 ON
ITEM 407 - NON-TRACKING TACK COAT (APPLIED AT A RATE OF 0.06 GALLONS PER SQUARE YARD) ON
ITEM 441 - 2 1/2" ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 2, (449) ON
ITEM 304 - 6" AGGREGATE BASE (2 EQUAL LIFTS) ON
ITEM 204 - SUBGRADE COMPACTION

CONCRETE SIDEWALK
ITEM 608 - 4" CONCRETE SIDEWALK (ODOT QC-IP) ON
ITEM 411 - 4" STABILIZED AGGREGATE BASE

PROPOSED BUILDING

BENCHMARK #1 ELEV. 572.605
BM SET ARROW BOLT ON FIRE HYDRANT NORTH OF DRIVE ENTRANCE TO CLERMONT COUNTY ENGINEERING DEPOT ON FILAGER ROAD

ChoiceOne Engineering
SIDNEY, OHIO 937.497.0200
LOVELAND, OHIO 513.239.8554
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NEW BUILDING FOR

CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING

4011 FILAGER ROAD, BATAVIA, OH 45103

ISSUANCES/REVISIONS		
	CONSTRUCTION DOCUMENTS	01/14/2026
1	ADDENDUM 1	03/10/2026

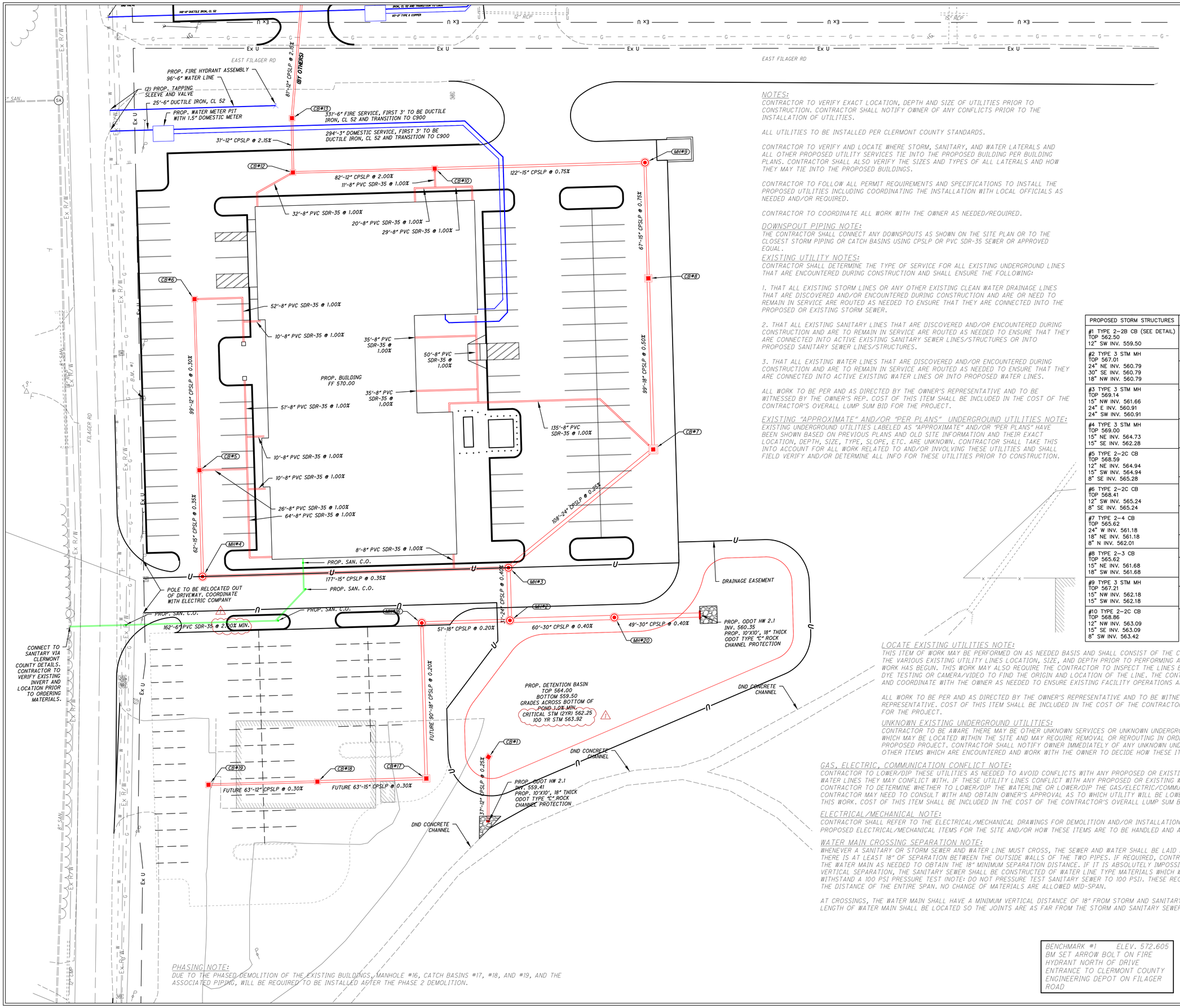
PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
23078.01	JAC	NJS

SHEET TITLE:

DIMENSIONING AND PAVEMENT PLAN

SHEET NUMBER:

C1.3



SCALE IN FEET
0 10 20 40

NOTES:
CONTRACTOR TO VERIFY EXACT LOCATION, DEPTH AND SIZE OF UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY OWNER OF ANY CONFLICTS PRIOR TO THE INSTALLATION OF UTILITIES.

ALL UTILITIES TO BE INSTALLED PER CLERMONT COUNTY STANDARDS.

CONTRACTOR TO VERIFY AND LOCATE WHERE STORM, SANITARY, AND WATER LATERALS AND ALL OTHER PROPOSED UTILITY SERVICES TIE INTO THE PROPOSED BUILDING PER BUILDING PLANS. CONTRACTOR SHALL ALSO VERIFY THE SIZES AND TYPES OF ALL LATERALS AND HOW THEY MAY TIE INTO THE PROPOSED BUILDINGS.

CONTRACTOR TO FOLLOW ALL PERMIT REQUIREMENTS AND SPECIFICATIONS TO INSTALL THE PROPOSED UTILITIES INCLUDING COORDINATING THE INSTALLATION WITH LOCAL OFFICIALS AS NEEDED AND/OR REQUIRED.

CONTRACTOR TO COORDINATE ALL WORK WITH THE OWNER AS NEEDED/REQUIRED.

DOWNSPOUT PIPING NOTE:
THE CONTRACTOR SHALL CONNECT ANY DOWNSPOUTS AS SHOWN ON THE SITE PLAN OR TO THE CLOSEST STORM PIPING OR CATCH BASINS USING CPSLP OR PVC SDR-35 SEWER OR APPROVED EQUAL.

EXISTING UTILITY NOTES:
CONTRACTOR SHALL DETERMINE THE TYPE OF SERVICE FOR ALL EXISTING UNDERGROUND LINES THAT ARE ENCOUNTERED DURING CONSTRUCTION AND SHALL ENSURE THE FOLLOWING:

1. THAT ALL EXISTING STORM LINES OR ANY OTHER EXISTING CLEAN WATER DRAINAGE LINES THAT ARE DISCOVERED AND/OR ENCOUNTERED DURING CONSTRUCTION AND ARE OR NEED TO REMAIN IN SERVICE ARE ROUTED AS NEEDED TO ENSURE THAT THEY ARE CONNECTED INTO THE PROPOSED OR EXISTING STORM SEWER.

2. THAT ALL EXISTING SANITARY LINES THAT ARE DISCOVERED AND/OR ENCOUNTERED DURING CONSTRUCTION AND ARE TO REMAIN IN SERVICE ARE ROUTED AS NEEDED TO ENSURE THAT THEY ARE CONNECTED INTO ACTIVE EXISTING SANITARY SEWER LINES/STRUCTURES OR INTO PROPOSED SANITARY SEWER LINES/STRUCTURES.

3. THAT ALL EXISTING WATER LINES THAT ARE DISCOVERED AND/OR ENCOUNTERED DURING CONSTRUCTION AND ARE TO REMAIN IN SERVICE ARE ROUTED AS NEEDED TO ENSURE THAT THEY ARE CONNECTED INTO ACTIVE EXISTING WATER LINES OR INTO PROPOSED WATER LINES.

ALL WORK TO BE PER AND AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND TO BE WITNESSED BY THE OWNER'S REP. COST OF THIS ITEM SHALL BE INCLUDED IN THE COST OF THE CONTRACTOR'S OVERALL LUMP SUM BID FOR THE PROJECT.

EXISTING "APPROXIMATE" AND/OR "PER PLANS" UNDERGROUND UTILITIES NOTE:
EXISTING UNDERGROUND UTILITIES LABELED AS "APPROXIMATE" AND/OR "PER PLANS" HAVE BEEN SHOWN BASED ON PREVIOUS PLANS AND OLD SITE INFORMATION AND THEIR EXACT LOCATION, DEPTH, SIZE, TYPE, SLOPE, ETC. ARE UNKNOWN. CONTRACTOR SHALL TAKE THIS INTO ACCOUNT FOR ALL WORK RELATED TO AND/OR INVOLVING THESE UTILITIES AND SHALL FIELD VERIFY AND/OR DETERMINE ALL INFO FOR THESE UTILITIES PRIOR TO CONSTRUCTION.

PROPOSED STORM STRUCTURES	PROPOSED STORM STRUCTURES
#1 TYPE 2-2B CB (SEE DETAIL) TOP 562.50 12" SW INV. 559.50	#12 TYPE 2-2C CB TOP 568.86 12" NE INV. 564.73 12" SE INV. 564.73 8" W INV. 565.06
#2 TYPE 3 STM MH TOP 567.01 24" NE INV. 560.79 30" SE INV. 560.79 18" NW INV. 560.79	#13 TYPE 2-2B CB TOP 568.62 12" NE INV. 565.41 12" SW INV. 565.41
#3 TYPE 3 STM MH TOP 569.14 15" NW INV. 561.66 24" E INV. 560.91 24" SW INV. 560.91	#14 TYPE 2-2C CB TOP 571.16 12" NE INV. 567.14 12" SW INV. 567.14
#4 TYPE 3 STM MH TOP 569.00 15" NE INV. 564.73 15" SE INV. 562.28	#15 TYPE 2-2C CB TOP 571.19 12" SW INV. 567.38 12" SE INV. 567.38
#5 TYPE 2-2C CB TOP 568.59 12" NE INV. 564.94 15" SW INV. 564.94 8" SE INV. 565.28	#16 TYPE 3 STM MH TOP 568.34 18" SE INV. 560.89 18" SW INV. 560.89
#6 TYPE 2-2C CB TOP 568.41 12" SW INV. 565.24 8" SE INV. 565.24	#17 FUTURE TYPE 2-3 CB TOP 564.82 15" NW INV. 561.07 18" NE INV. 561.07
#7 TYPE 2-4 CB TOP 565.62 24" W INV. 561.18 18" NE INV. 561.18 8" N INV. 562.01	#18 FUTURE TYPE 2-2C CB TOP 564.82 12" NW INV. 561.26 15" SE INV. 561.26
#8 TYPE 2-3 CB TOP 565.62 15" NE INV. 561.68 18" SW INV. 561.68	#19 FUTURE TYPE 2-2C CB TOP 564.82 12" SE INV. 561.45
#9 TYPE 3 STM MH TOP 567.21 15" NW INV. 562.18 15" SW INV. 562.18	#20 TYPE 3 STM MH TOP 568.34 30" NW INV. 560.55 30" SE INV. 560.55
#10 TYPE 2-2C CB TOP 568.86 12" NW INV. 563.09 15" SE INV. 563.09 8" SW INV. 563.42	#21 TYPE 2-2B CB TOP 571.34 12" NW INV. 567.44

LOCATE EXISTING UTILITIES NOTE:
THIS ITEM OF WORK MAY BE PERFORMED ON AS NEEDED BASIS AND SHALL CONSIST OF THE CONTRACTOR FIELD LOCATING THE VARIOUS EXISTING UTILITY LINES LOCATION, SIZE, AND DEPTH PRIOR TO PERFORMING ANY PROPOSED WORK OR ONCE WORK HAS BEGUN. THIS WORK MAY ALSO REQUIRE THE CONTRACTOR TO INSPECT THE LINES BY OTHER METHODS SUCH AS DYE TESTING OR CAMERA/VIDEO TO FIND THE ORIGIN AND LOCATION OF THE LINE. THE CONTRACTOR SHALL COOPERATE AND COORDINATE WITH THE OWNER AS NEEDED TO ENSURE EXISTING FACILITY OPERATIONS ARE MAINTAINED.

ALL WORK TO BE PER AND AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND TO BE WITNESSED BY THE OWNER'S REPRESENTATIVE. COST OF THIS ITEM SHALL BE INCLUDED IN THE COST OF THE CONTRACTOR'S OVERALL LUMP SUM BID FOR THE PROJECT.

UNKNOWN EXISTING UNDERGROUND UTILITIES:
CONTRACTOR TO BE AWARE THERE MAY BE OTHER UNKNOWN SERVICES OR UNKNOWN UNDERGROUND UTILITIES OR ITEMS WHICH MAY BE LOCATED WITHIN THE SITE AND MAY REQUIRE REMOVAL OR REROUTING IN ORDER TO PERFORM THE PROPOSED PROJECT. CONTRACTOR SHALL NOTIFY OWNER IMMEDIATELY OF ANY UNKNOWN UNDERGROUND UTILITIES OR OTHER ITEMS WHICH ARE ENCOUNTERED AND WORK WITH THE OWNER TO DECIDE HOW THESE ITEMS SHOULD BE HANDLED.

GAS, ELECTRIC, COMMUNICATION CONFLICT NOTE:
CONTRACTOR TO LOWER/DIP THESE UTILITIES AS NEEDED TO AVOID CONFLICTS WITH ANY PROPOSED OR EXISTING SANITARY OR STORM OR WATER LINES THEY MAY CONFLICT WITH. IF THESE UTILITY LINES CONFLICT WITH ANY PROPOSED OR EXISTING WATERLINES THEN CONTRACTOR TO DETERMINE WHETHER TO LOWER/DIP THE WATERLINE OR LOWER/DIP THE GAS/ELECTRIC/COMMUNICATION LINE(S). CONTRACTOR MAY NEED TO CONSULT WITH AND OBTAIN OWNER'S APPROVAL AS TO WHICH UTILITY WILL BE LOWERED PRIOR TO PERFORMING THIS WORK. COST OF THIS ITEM SHALL BE INCLUDED IN THE COST OF THE CONTRACTOR'S OVERALL LUMP SUM BID FOR THE PROJECT.

ELECTRICAL/MECHANICAL NOTE:
CONTRACTOR SHALL REFER TO THE ELECTRICAL/MECHANICAL DRAWINGS FOR DEMOLITION AND/OR INSTALLATION INFO. OF ALL EXISTING AND PROPOSED ELECTRICAL/MECHANICAL ITEMS FOR THE SITE AND/OR HOW THESE ITEMS ARE TO BE HANDLED AND ADDRESSED.

WATER MAIN CROSSING SEPARATION NOTE:
WHENEVER A SANITARY OR STORM SEWER AND WATER LINE MUST CROSS, THE SEWER AND WATER SHALL BE LAID AT SUCH AN ELEVATION THAT THERE IS AT LEAST 18" OF SEPARATION BETWEEN THE OUTSIDE WALLS OF THE TWO PIPES. IF REQUIRED, CONTRACTOR SHALL LOWER/DIP THE WATER MAIN AS NEEDED TO OBTAIN THE 18" MINIMUM SEPARATION DISTANCE. IF IT IS ABSOLUTELY IMPOSSIBLE TO MAINTAIN THE 18" VERTICAL SEPARATION, THE SANITARY SEWER SHALL BE CONSTRUCTED OF WATER LINE TYPE MATERIALS WHICH WOULD BE ABLE TO WITHSTAND A 100 PSI PRESSURE TEST (NOTE: DO NOT PRESSURE TEST SANITARY SEWER TO 100 PSI). THESE REQUIREMENTS WILL EXTEND FOR THE DISTANCE OF THE ENTIRE SPAN. NO CHANGE OF MATERIALS ARE ALLOWED MID-SPAN.

AT CROSSINGS, THE WATER MAIN SHALL HAVE A MINIMUM VERTICAL DISTANCE OF 18" FROM STORM AND SANITARY SEWERS. ALSO ONE FULL LENGTH OF WATER MAIN SHALL BE LOCATED SO THE JOINTS ARE AS FAR FROM THE STORM AND SANITARY SEWERS AS POSSIBLE.

PHASING NOTE:
DUE TO THE PHASED DEMOLITION OF THE EXISTING BUILDINGS, MANHOLE #16, CATCH BASINS #17, #18, AND #19, AND THE ASSOCIATED PIPING, WILL BE REQUIRED TO BE INSTALLED AFTER THE PHASE 2 DEMOLITION.

BENCHMARK #1 ELEV. 572.605
BM SET ARROW BOLT ON FIRE HYDRANT NORTH OF DRIVE ENTRANCE TO CLERMONT COUNTY ENGINEERING DEPOT ON FILAGER ROAD

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NEW BUILDING FOR

CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING

4011 FILAGER ROAD, BATAVIA, OH 45103

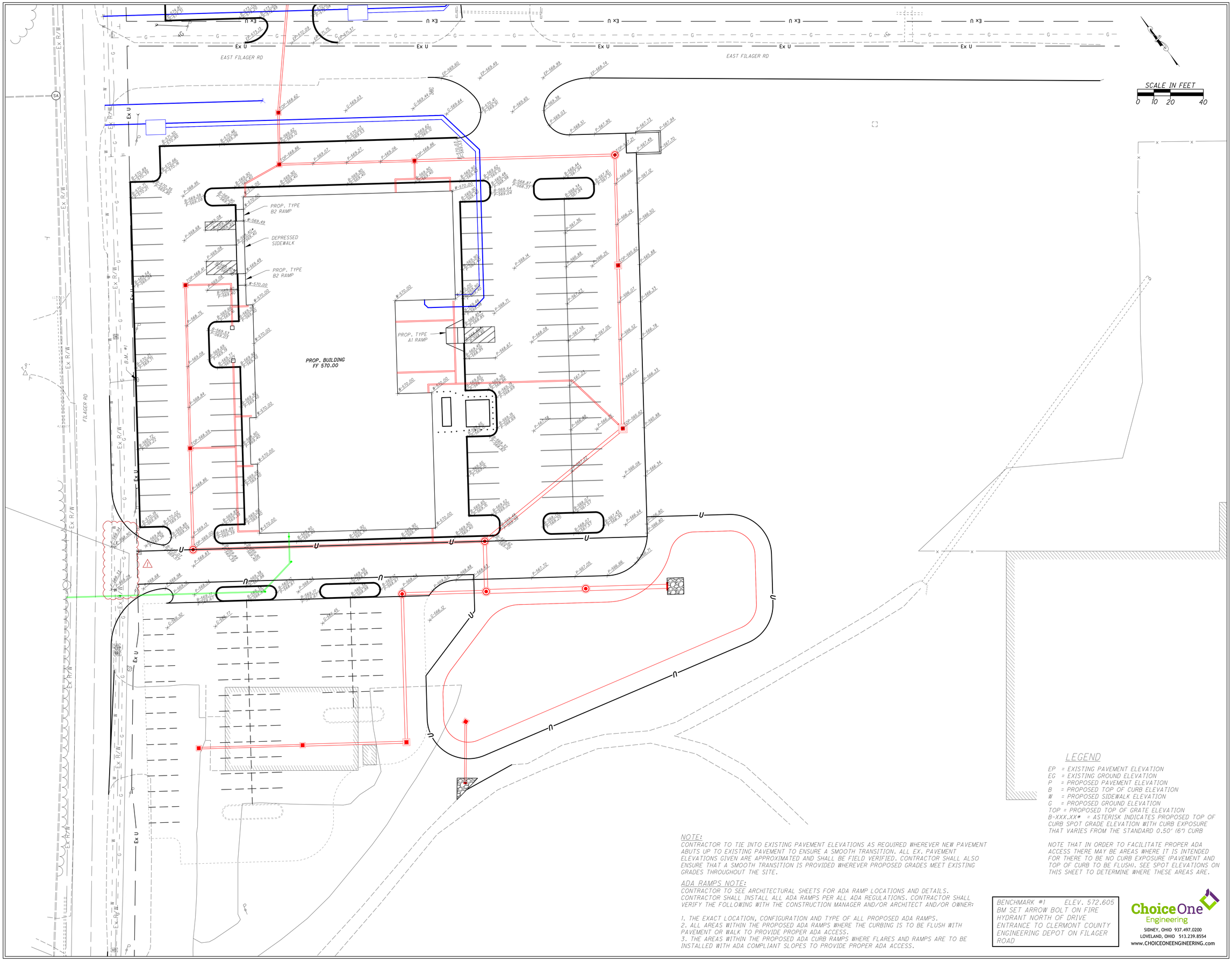
ISSUANCES/REVISIONS

	CONSTRUCTION DOCUMENTS	01/14/2026
1	ADDENDUM 1	03/10/2026

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
23078.01	JAC	NJS

SHEET TITLE:
UTILITY PLAN

SHEET NUMBER:
C2.1



LEGEND

EP = EXISTING PAVEMENT ELEVATION
EG = EXISTING GROUND ELEVATION
P = PROPOSED PAVEMENT ELEVATION
B = PROPOSED TOP OF CURB ELEVATION
W = PROPOSED SIDEWALK ELEVATION
G = PROPOSED GROUND ELEVATION
TOP = PROPOSED TOP OF GRATE ELEVATION
B-XXX.XX* = ASTERISK INDICATES PROPOSED TOP OF CURB SPOT GRADE ELEVATION WITH CURB EXPOSURE THAT VARIES FROM THE STANDARD 0.50' (6") CURB

NOTE THAT IN ORDER TO FACILITATE PROPER ADA ACCESS THERE MAY BE AREAS WHERE IT IS INTENDED FOR THERE TO BE NO CURB EXPOSURE (PAVEMENT AND TOP OF CURB TO BE FLUSH). SEE SPOT ELEVATIONS ON THIS SHEET TO DETERMINE WHERE THESE AREAS ARE.

NOTE:
CONTRACTOR TO TIE INTO EXISTING PAVEMENT ELEVATIONS AS REQUIRED WHEREVER NEW PAVEMENT ABUTS UP TO EXISTING PAVEMENT TO ENSURE A SMOOTH TRANSITION. ALL EX. PAVEMENT ELEVATIONS GIVEN ARE APPROXIMATED AND SHALL BE FIELD VERIFIED. CONTRACTOR SHALL ALSO ENSURE THAT A SMOOTH TRANSITION IS PROVIDED WHEREVER PROPOSED GRADES MEET EXISTING GRADES THROUGHOUT THE SITE.

ADA RAMPS NOTE:
CONTRACTOR TO SEE ARCHITECTURAL SHEETS FOR ADA RAMP LOCATIONS AND DETAILS. CONTRACTOR SHALL INSTALL ALL ADA RAMPS PER ALL ADA REGULATIONS. CONTRACTOR SHALL VERIFY THE FOLLOWING WITH THE CONSTRUCTION MANAGER AND/OR ARCHITECT AND/OR OWNER:

1. THE EXACT LOCATION, CONFIGURATION AND TYPE OF ALL PROPOSED ADA RAMPS.
2. ALL AREAS WITHIN THE PROPOSED ADA RAMPS WHERE THE CURBING IS TO BE FLUSH WITH PAVEMENT OR WALK TO PROVIDE PROPER ADA ACCESS.
3. THE AREAS WITHIN THE PROPOSED ADA CURB RAMPS WHERE FLARES AND RAMPS ARE TO BE INSTALLED WITH ADA COMPLIANT SLOPES TO PROVIDE PROPER ADA ACCESS.

BENCHMARK #1 ELEV. 572.605
BM SET ARROW BOLT ON FIRE HYDRANT NORTH OF DRIVE ENTRANCE TO CLERMONT COUNTY ENGINEERING DEPOT ON FILAGER ROAD

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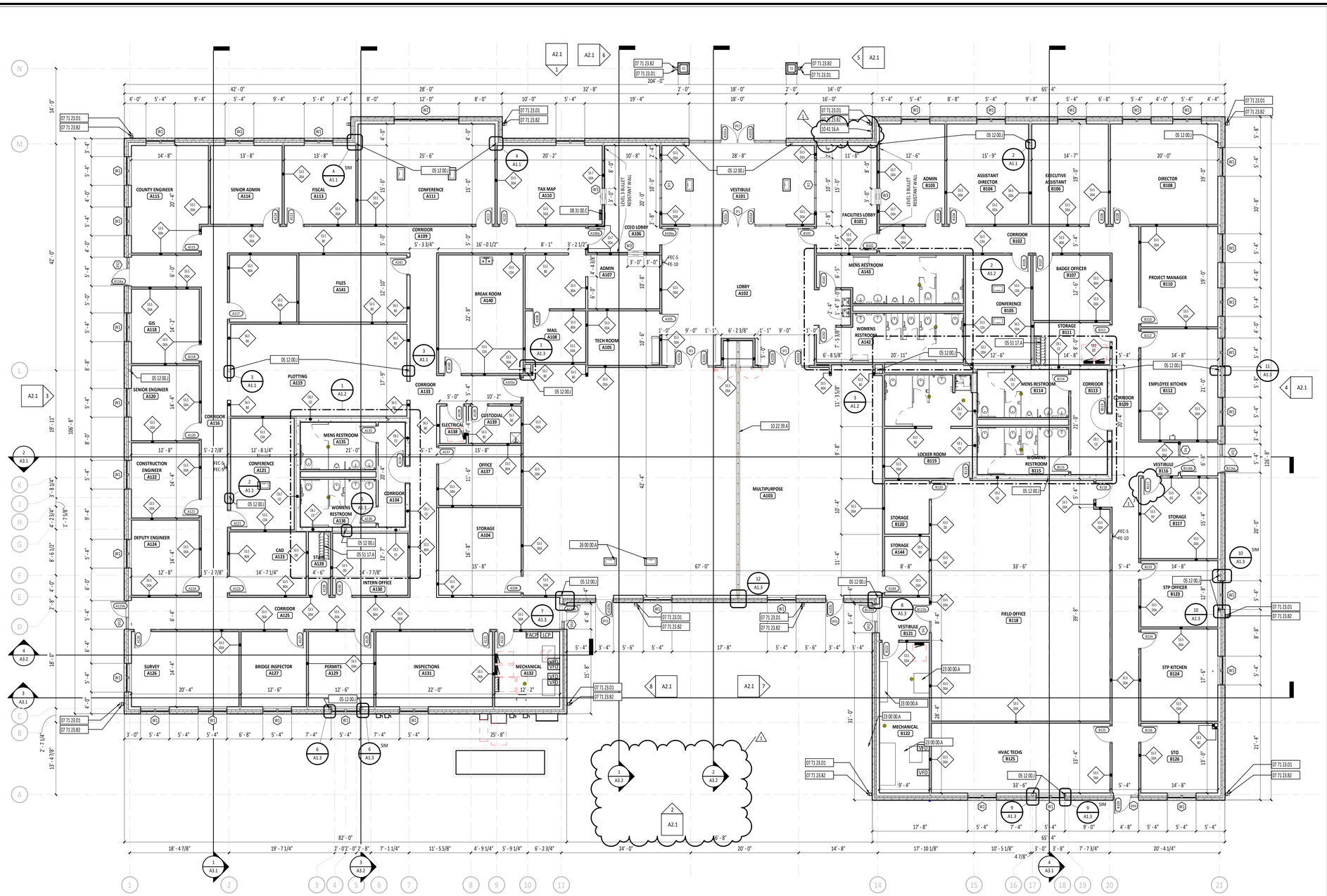
NEW BUILDING FOR:
CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING
4013 FILAGER ROAD, BATAVIA, OH 45103

ISSUANCES/REVISIONS		
	CONSTRUCTION DOCUMENTS	01/14/2026
1	ADDENDUM 1	03/10/2026

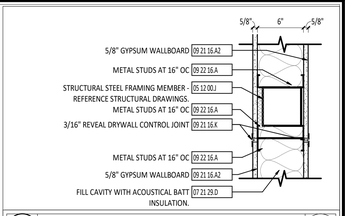
PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
23078.01	JAC	NJS

SHEET TITLE:
PAVEMENT ELEVATIONS PLAN

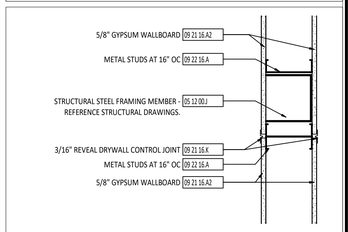
SHEET NUMBER:
C3.2



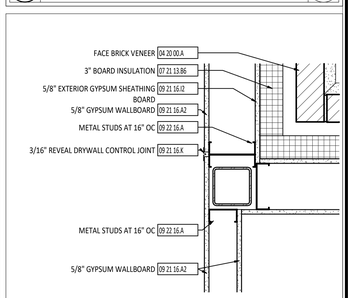
1 A1.1 FIRST FLOOR PLAN
1/8" = 1'-0"



2 A1.1 TYPICAL INTERIOR COLUMN DETAIL
1 1/2" = 1'-0"



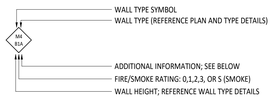
3 A1.1 TYPICAL INTERIOR COLUMN DETAIL
1 1/2" = 1'-0"



4 A1.1 TYPICAL EXTERIOR COLUMN DETAIL
1 1/2" = 1'-0"

#	KEYNOTE DESCRIPTION
04 20 00.A	FACE BRICK VENEER
05 12 00.J	STRUCTURAL STEEL FRAMING MEMBER - REFERENCE STRUCTURAL DRAWINGS.
05 51 17.A	ALTERNATING TREAD METAL STAIR
07 21 13.B6	3" BOARD INSULATION
07 21 29.D	FILL CAVITY WITH ACOUSTICAL BATT INSULATION.
07 71 23.B2	4" x 6" PREFINISHED METAL DOWNSPOUT - COLOR 1
07 71 23.D1	PVC DOWNSPOUT BOOT - COORDINATE WITH SITE CONTRACTOR
08 31 00.C	PARCEL VAULT
09 21 16.A2	5/8" GYPSUM WALLBOARD
09 21 16.I2	5/8" EXTERIOR GYPSUM SHEATHING BOARD
09 21 16.K	3/16" REVEAL DRYWALL CONTROL JOINT
09 22 16.A	METAL STUDS AT 16" OC
10 22 39.A	FOLDING PANEL PARTITION
10 41 16.A	KNOX BOX - TOP TO BE MOUNTED AT 52" AFF
23 00 00.A	MECHANICAL EQUIPMENT - REFERENCE MECHANICAL DRAWINGS.
26 00 00.A	ELECTRICAL EQUIPMENT - REFERENCE ELECTRICAL DRAWINGS

WALL TYPE INFORMATION



ADDITIONAL INFORMATION

A = ACOUSTICAL BATT INSULATION

FIRST FLOOR PLAN ROOM INDEX

ROOM NUMBER	ROOM NAME	AREA
A101	VESTIBULE	412 SF
A102	LOBBY	741 SF
A103	MULTIPURPOSE	2,843 SF
A104	STORAGE	248 SF
A105	TECH ROOM	134 SF
A106	CCEO LOBBY	216 SF
A107	ADMIN	246 SF
A108	MAIL	107 SF
A109	CORRIDOR	349 SF
A110	TAX MAP	284 SF
A111	CONFERENCE	472 SF
A113	FISCAL	194 SF
A114	SENIOR ADMIN	194 SF
A115	COUNTY ENGINEER	275 SF
A116	CORRIDOR	385 SF
A117	OFFICE	155 SF
A118	GIS	173 SF
A119	PLOTTING	560 SF
A120	SENIOR ENGINEER	175 SF
A121	CONFERENCE	244 SF
A122	CONSTRUCTION ENGINEER	175 SF
A123	CAD	167 SF
A124	DEPUTY ENGINEER	175 SF

FIRST FLOOR PLAN ROOM INDEX

ROOM NUMBER	ROOM NAME	AREA
A125	CORRIDOR	471 SF
A126	SURVEY	278 SF
A127	BRIDGE INSPECTOR	168 SF
A128	STAIR	48 SF
A129	PERMITS	168 SF
A130	INTERN OFFICE	161 SF
A131	INSPECTIONS	301 SF
A132	MECHANICAL	168 SF
A133	CORRIDOR	396 SF
A134	CORRIDOR	97 SF
A135	MENS RESTROOM	123 SF
A136	WOMENS RESTROOM	124 SF
A137	OFFICE	169 SF
A138	ELECTRICAL	34 SF
A139	CUSTODIAL	68 SF
A140	BREAK ROOM	343 SF
A141	FILES	249 SF
A142	WOMENS RESTROOM	231 SF
A143	MENS RESTROOM	225 SF
A144	STORAGE	90 SF
B101	FACILITIES LOBBY	223 SF
B102	CORRIDOR	236 SF
B103	ADMIN	225 SF

FIRST FLOOR PLAN ROOM INDEX

ROOM NUMBER	ROOM NAME	AREA
B104	ASSISTANT DIRECTOR	282 SF
B105	CONFERENCE	243 SF
B106	EXECUTIVE ASSISTANT	264 SF
B107	BADGE OFFICER	172 SF
B108	DIRECTOR	370 SF
B109	CORRIDOR	554 SF
B110	PROJECT MANAGER	265 SF
B111	STORAGE	110 SF
B112	EMPLOYEE KITCHEN	294 SF
B113	CORRIDOR	131 SF
B114	MENS RESTROOM	150 SF
B115	WOMENS RESTROOM	148 SF
B116	VESTIBULE	43 SF
B117	STORAGE	213 SF
B118	FIELD OFFICE	1,460 SF
B119	LOCKER ROOM	305 SF
B120	STORAGE	82 SF
B121	VESTIBULE	73 SF
B122	MECHANICAL	258 SF
B123	STP OFFICER	175 SF
B124	STP KITCHEN	244 SF
B125	HVAC TECHS	428 SF
B126	STO	183 SF

MEZZANINE FLOOR PLAN ROOM INDEX

ROOM NUMBER	ROOM NAME	AREA
B201	MECHANICAL MEZZANINE	509 SF
B202	MECHANICAL MEZZANINE	412 SF

FLOOR PLAN GENERAL NOTES

A ALL DIMENSIONS ARE MEASURED TO THE FACE OF MASONRY OR THE FACE OF METAL STUD UNLESS NOTED OTHERWISE.
C INSTALL TREATED WOOD BLOCKING IN WALLS AS REQUIRED TO SECURE ALL EQUIPMENT, ACCESSORIES, HANDRAILS, CASEWORK, ETC. COORDINATE THIS WORK WITH ALL APPROPRIATE CONTRACTORS, SUPPLIERS AND MANUFACTURERS RECOMMENDATIONS.
E REFERENCE A0.2 FOR WALL TO DECK TERMINATION DETAILS.
F HINGE SIDE OF DOOR JAMB AT INTERSECTING WALLS TO BE LOCATED 4" FROM ADJACENT WALL UNLESS NOTED OTHERWISE - REFERENCE FLOOR PLANS.
G IF WALL TYPE IS NOT IDENTIFIED, WALL IS TO RUN FULL HEIGHT TO DECK.
H DRYWALL CONTROL JOINTS TO BE 30' APART MAXIMUM UNLESS WALL IS BROKEN UP BY ABUTTING WALL. CONTROL JOINTS TO BE LOCATED ON EITHER SIDE OF THE WALL AT ALL COLUMN LOCATIONS.

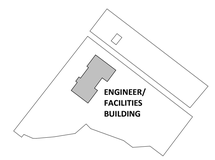
FIRE EXTINGUISHER / CABINET SCHEDULE

Type Mark	DESCRIPTION	NOTES
FE-10	FIRE EXTINGUISHER - 10.0LB - CLASS A:B:C	FURNISHED AND INSTALLED BY GC.REFERENCE DETAIL 11/A0.4
FEC-S	SEMI-RECESSED FIRE EXTINGUISHER CABINET	FURNISHED AND INSTALLED BY GC

FLOOR PLAN SYMBOLS LEGEND

AED — AUTOMATED EXTERNAL DEFIBRILLATOR DESIGNATION
XXX — DOOR DESIGNATION - REFERENCE DOOR/OPENING SCHEDULE.
FE-_ — FIRE EXTINGUISHER DESIGNATION - REFERENCE SPECIFICATIONS
FEC-_ — FIRE EXTINGUISHER CABINET DESIGNATION - REFERENCE SPECIFICATIONS
A101 — ROOM DESIGNATION - REFERENCE ROOM INDEX.
W — CURTAIN WALL/STOREFRONT/WINDOW TYPE DESIGNATION
W1 — WALL TYPE DESIGNATION - REFERENCE WALL TYPES.
X — STRUCTURAL GRID - REFERENCE STRUCTURAL DRAWINGS.
XX XX XX.XX.XX — DIVISIONAL KEYNOTE DESIGNATION - REFERENCE KEYNOTE SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
KEYNOTE DESIGNATION
SPECIFICATION SECTION

AREA OF DETAIL — SIM — CALLOUT — DETAIL NUMBER / SHEET NUMBER
EXTERIOR ELEVATION — DETAIL NUMBER / SHEET NUMBER
INTERIOR ELEVATION — DETAIL NUMBER / SHEET NUMBER
SECTION — DETAIL NUMBER / SHEET NUMBER



KEY PLAN

STATE OF OHIO — CHRISTOPHER MONNIN E-67075 — PROFESSIONAL ENGINEER — REGISTERED

CHRISTOPHER MONNIN
LICENSE #E-67075
EXPIRATION DATE: 12/31/2027

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A NEW BUILDING FOR

CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING

401 S FLAGER ROAD BATAVIA, OH 45103

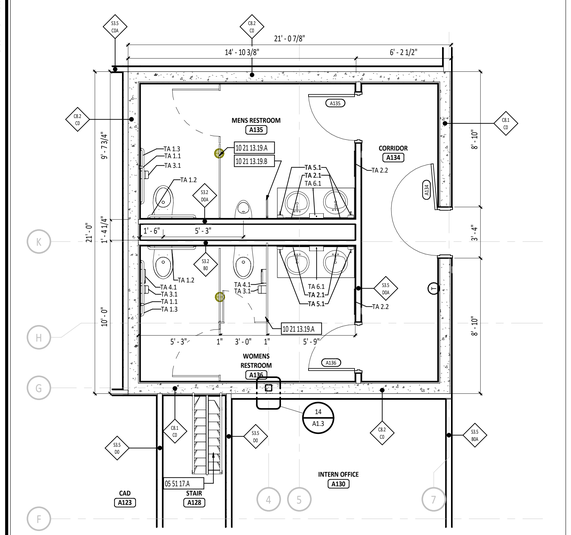
ISSUANCES/REVISIONS		
	CONSTRUCTION DOCUMENTS	02/19/2026
1	ADDENDUM #01	03/10/2026

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
22001.00	JCR	EJS

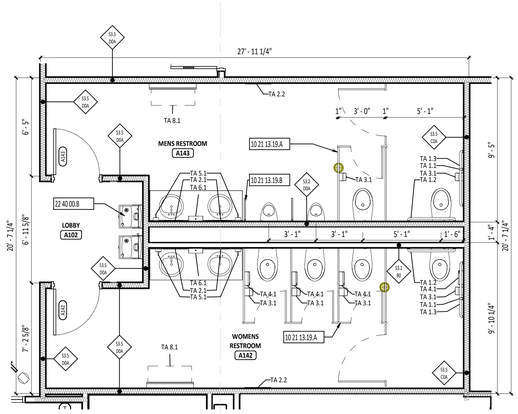
SHEET TITLE:
FIRST FLOOR PLAN

SHEET NUMBER:
A1.1

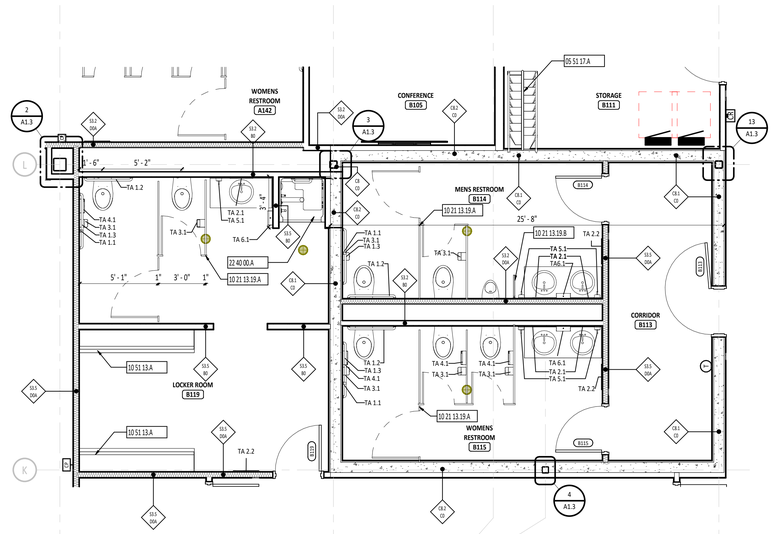
PRINTED ON: 3/10/2026 3:55:30 PM



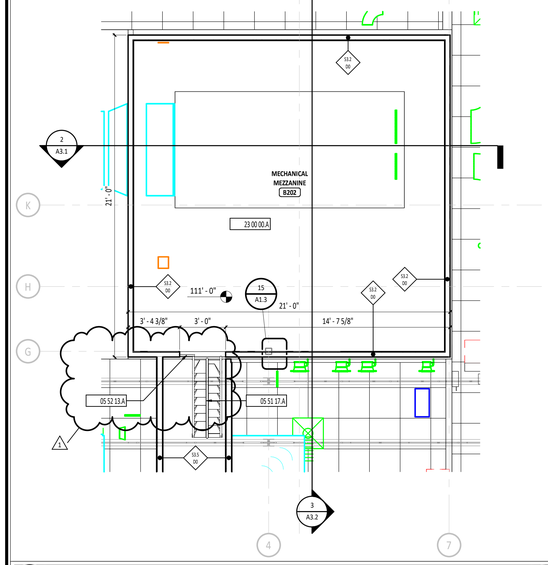
1 A1.2 **ENLARGED RESTROOM PLAN - A135 & A136**
1/4" = 1'-0"



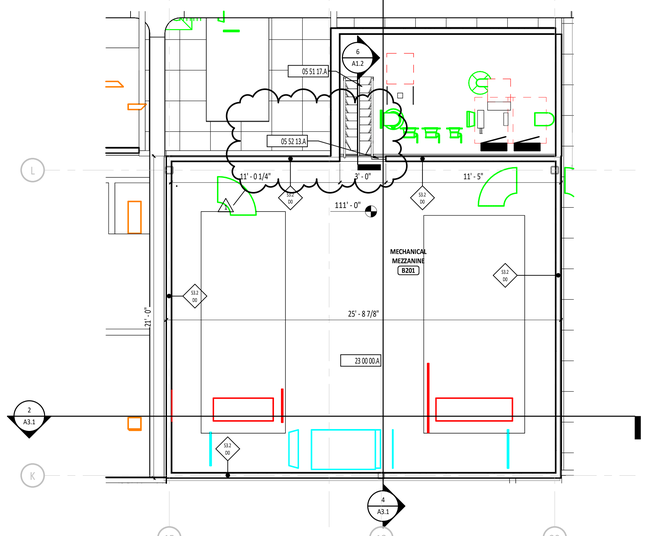
2 A1.2 **ENLARGED RESTROOM PLAN - A142 & A143**
1/4" = 1'-0"



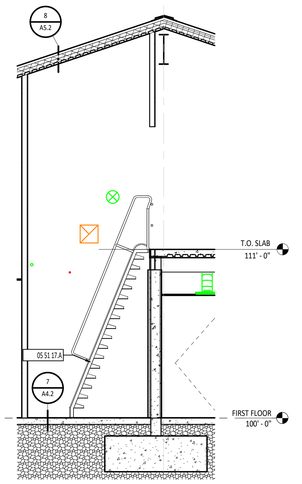
3 A1.2 **ENLARGED RESTROOM PLAN - A114 & A115**
1/4" = 1'-0"



4 A1.2 **ENLARGED MECHANICAL MEZZANINE PLAN**
1/4" = 1'-0"



5 A1.2 **ENLARGED MECHANICAL MEZZANINE PLAN**
1/4" = 1'-0"



6 A1.2 **TYPICAL ALTERNATING TREAD STAIR DETAIL**
1/4" = 1'-0"

FIRST FLOOR PLAN ROOM INDEX

ROOM NUMBER	ROOM NAME	AREA
A101	VESTIBULE	412 SF
A102	LOBBY	741 SF
A103	MULTIPURPOSE	2,843 SF
A104	STORAGE	248 SF
A105	TECH ROOM	134 SF
A106	CCEO LOBBY	216 SF
A107	ADMIN	246 SF
A108	MAIL	107 SF
A109	CORRIDOR	349 SF
A110	TAX MAP	284 SF
A111	CONFERENCE	472 SF
A113	FISCAL	194 SF
A114	SENIOR ADMIN	194 SF
A115	COUNTY ENGINEER	275 SF
A116	CORRIDOR	385 SF
A117	OFFICE	155 SF
A118	GIS	173 SF
A119	PLOTTING	560 SF
A120	SENIOR ENGINEER	175 SF
A121	CONFERENCE	244 SF
A122	CONSTRUCTION ENGINEER	175 SF
A123	CAD	167 SF
A124	DEPUTY ENGINEER	175 SF

FIRST FLOOR PLAN ROOM INDEX

ROOM NUMBER	ROOM NAME	AREA
A125	CORRIDOR	471 SF
A126	SURVEY	278 SF
A127	BRIDGE INSPECTOR	168 SF
A128	STAIR	48 SF
A129	PERMITS	168 SF
A130	INTERN OFFICE	161 SF
A131	INSPECTIONS	301 SF
A132	MECHANICAL	168 SF
A133	CORRIDOR	396 SF
A134	CORRIDOR	97 SF
A135	MENS RESTROOM	123 SF
A136	WOMENS RESTROOM	124 SF
A137	OFFICE	169 SF
A138	ELECTRICAL	34 SF
A139	CUSTODIAL	68 SF
A140	BREAK ROOM	343 SF
A141	FILES	249 SF
A142	WOMENS RESTROOM	231 SF
A143	MENS RESTROOM	225 SF
A144	STORAGE	90 SF
B101	FACILITIES LOBBY	223 SF
B102	CORRIDOR	236 SF
B103	ADMIN	225 SF

FIRST FLOOR PLAN ROOM INDEX

ROOM NUMBER	ROOM NAME	AREA
B104	ASSISTANT DIRECTOR	282 SF
B105	CONFERENCE	243 SF
B106	EXECUTIVE ASSISTANT	264 SF
B107	BADGE OFFICER	172 SF
B108	DIRECTOR	370 SF
B109	CORRIDOR	554 SF
B110	PROJECT MANAGER	265 SF
B111	STORAGE	110 SF
B112	EMPLOYEE KITCHEN	294 SF
B113	CORRIDOR	131 SF
B114	MENS RESTROOM	150 SF
B115	WOMENS RESTROOM	148 SF
B116	VESTIBULE	43 SF
B117	STORAGE	213 SF
B118	FIELD OFFICE	1,460 SF
B119	LOCKER ROOM	305 SF
B120	STORAGE	82 SF
B121	VESTIBULE	73 SF
B122	MECHANICAL	258 SF
B123	STP OFFICER	175 SF
B124	STP KITCHEN	244 SF
B125	HVAC TECHS	428 SF
B126	STO	183 SF

MEZZANINE FLOOR PLAN ROOM INDEX

ROOM NUMBER	ROOM NAME	AREA
B201	MECHANICAL MEZZANINE	509 SF
B202	MECHANICAL MEZZANINE	412 SF

FLOOR PLAN GENERAL NOTES

A ALL DIMENSIONS ARE MEASURED TO THE FACE OF MASONRY OR THE FACE OF METAL STUD UNLESS NOTED OTHERWISE.

C INSTALL TREATED WOOD BLOCKING IN WALLS AS REQUIRED TO SECURE ALL EQUIPMENT, ACCESSORIES, HANDRAILS, CASEWORK, ETC. COORDINATE THIS WORK WITH ALL APPROPRIATE CONTRACTORS, SUPPLIERS AND MANUFACTURERS RECOMMENDATIONS.

E REFERENCE A0.2 FOR WALL TO DECK TERMINATION DETAILS.

F HINGE SIDE OF DOOR JAMB AT INTERSECTING WALLS TO BE LOCATED 4" FROM ADJACENT WALL UNLESS NOTED OTHERWISE - REFERENCE FLOOR PLANS.

G IF WALL TYPE IS NOT IDENTIFIED, WALL IS TO RUN FULL HEIGHT TO DECK.

H DRYWALL CONTROL JOINTS TO BE 30' APART MAXIMUM UNLESS WALL IS BROKEN UP BY ABUTTING WALL. CONTROL JOINTS TO BE LOCATED ON EITHER SIDE OF THE WALL AT ALL COLUMN LOCATIONS.

FLOOR PLAN SYMBOLS LEGEND

AED — AUTOMATED EXTERNAL DEFIBRILLATOR DESIGNATION

XXXX — DOOR DESIGNATION - REFERENCE DOOR/OPENING SCHEDULE.

FE-_ — FIRE EXTINGUISHER DESIGNATION - REFERENCE SPECIFICATIONS

FEC-_ — FIRE EXTINGUISHER CABINET DESIGNATION - REFERENCE SPECIFICATIONS

A101 — ROOM DESIGNATION - REFERENCE ROOM INDEX.

W1 — CURTAIN WALL/STOREFRONT/WINDOW TYPE DESIGNATION

01 / 101 — WALL TYPE DESIGNATION - REFERENCE WALL TYPES.

X — STRUCTURAL GRID - REFERENCE STRUCTURAL DRAWINGS.

XX XX XX.XX.XX — DIVISIONAL KEYNOTE DESIGNATION - REFERENCE KEYNOTE SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
KEYNOTE DESIGNATION
SPECIFICATION SECTION

AREA OF DETAIL — X SIM — CALLOUT
DETAIL NUMBER
SHEET NUMBER

EXTERIOR ELEVATION
DETAIL NUMBER
SHEET NUMBER

INTERIOR ELEVATION
DETAIL NUMBER
SHEET NUMBER

SECTION
DETAIL NUMBER
SHEET NUMBER

FIRE EXTINGUISHER / CABINET SCHEDULE

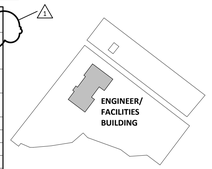
Type Mark	DESCRIPTION	NOTES
FE-10	FIRE EXTINGUISHER - 10.0LB - CLASS A:B:C	FURNISHED AND INSTALLED BY GC.REFERENCE DETAIL 11/A0.4
FEC-S	SEMI-RECESSED FIRE EXTINGUISHER CABINET	FURNISHED AND INSTALLED BY GC

KEYNOTE DESCRIPTION

#	
05 51 17.A	ALTERNATING TREAD METAL STAIR
05 52 13.A	METAL GUARDRAIL SYSTEM AT MEZZANINE OPENING - PAINT
10 21 13.19.A	PLASTIC TOILET COMPARTMENT
10 21 13.19.B	PLASTIC URINAL SCREEN
10 51 13.A	METAL LOCKER
22 40 00.A	PLUMBING FIXTURE - REFERENCE PLUMBING DRAWINGS.
22 40 00.B	DRINKING WATER COOLER - REFERENCE PLUMBING DRAWINGS - REFERENCE A0.2 FOR MOUNTING HEIGHTS.
23 00 00.A	MECHANICAL EQUIPMENT - REFERENCE MECHANICAL DRAWINGS.

TOILET ACCESSORY SCHEDULE

MARK	DESCRIPTION
TA 1.1	GRAB BAR - SURFACE MOUNT - VERTICAL - 18" LENGTH - 39" AFF TO BOTTOM OF THE BAR
TA 1.2	GRAB BAR - SURFACE MOUNT - HORIZONTAL - 36" LENGTH - 36" AFF TO TOP OF THE GRIPPING SURFACE
TA 1.3	GRAB BAR - SURFACE MOUNT - HORIZONTAL - 42" LENGTH - 36" AFF TO TOP OF THE GRIPPING SURFACE
TA 2.1	MIRROR - SURFACE MOUNT - 18" X 36" - 40" AFF TO BOTTOM EDGE
TA 2.2	MIRROR - SURFACE MOUNT - 20" X 60" - 16" AFF TO BOTTOM EDGE
TA 3.1	TOILET PAPER DISPENSER - SURFACE MOUNT - 18" AFF TO BOTTOM EDGE
TA 4.1	SANITARY NAPKIN DISPOSAL - SURFACE MOUNT 34" AFF TO TOP
TA 5.1	SOAP DISPERNSER - SURFACE MOUNT - 40" AFF TO OPERATION
TA 6.1	ROLL PAPER TOWEL DISPENSER - SURFACE MOUNT - 48" AFF TO OPERATION
TA 8.1	BABY CHANGING STATION - SURFACE MOUNT - 34" AFF TO CHANGING BED



KEY PLAN N

PRINTED ON: 3/10/2026 11:42:07 PM

STATE OF OHIO
CHRISTOPHER MONNIN
E-67075
REGISTERED
PROFESSIONAL ENGINEER
CHRISTOPHER MONNIN
LICENSE #E-67075
EXPIRATION DATE: 12/31/2027

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A NEW BUILDING FOR
CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING
4011 ELIGER ROAD BATAVIA, OH 45103

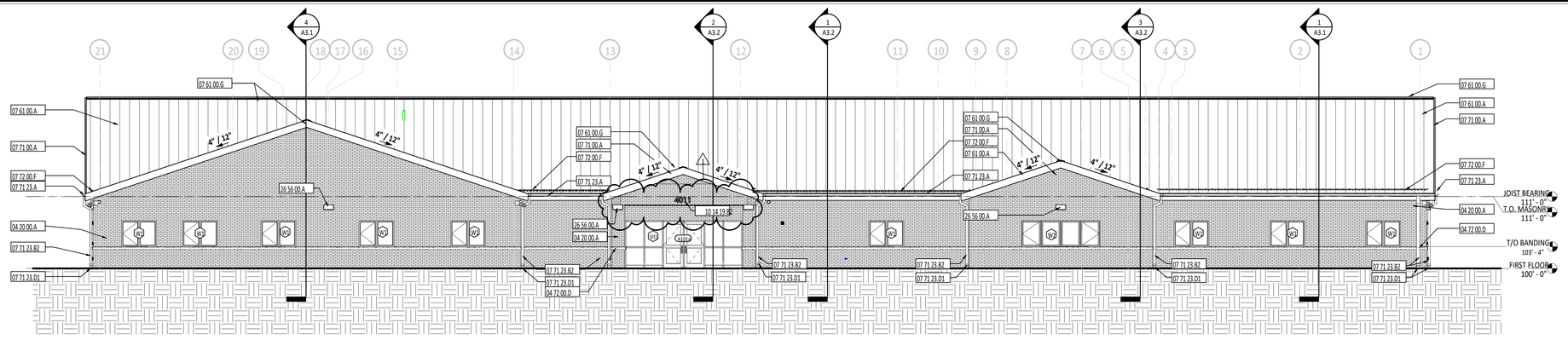
ISSUANCES/REVISIONS

	CONSTRUCTION DOCUMENTS	02/19/2026
1	ADDENDUM #01	03/10/2026

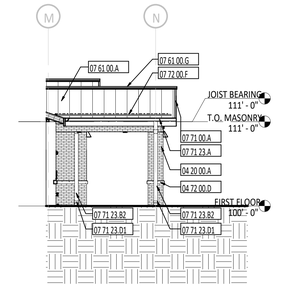
PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
22001.00	JCR	EJS

SHEET TITLE:
ENLARGED FLOOR AND MEZZANINE PLANS

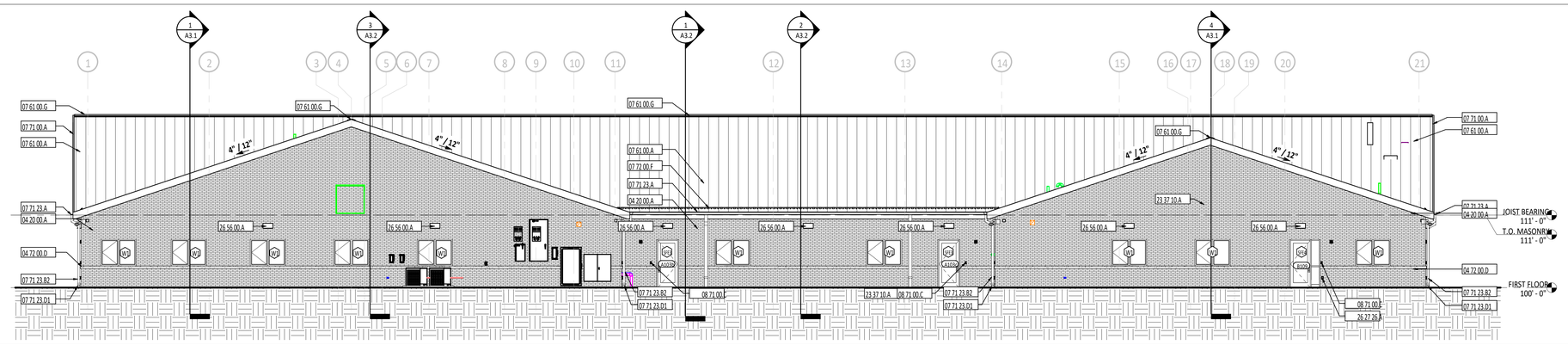
SHEET NUMBER:
A1.2



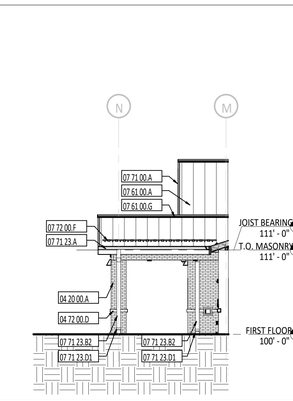
1 A2.1 **BUILDING ELEVATION - NORTHWEST**
1/8" = 1'-0"



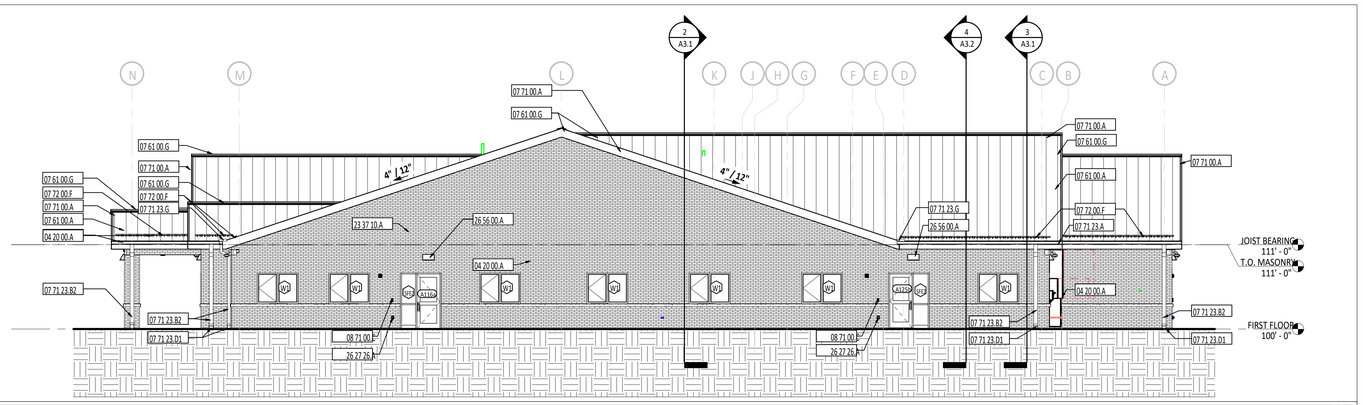
5 A2.1 **BUILDING ELEVATION - NORTHEAST**
1/8" = 1'-0"



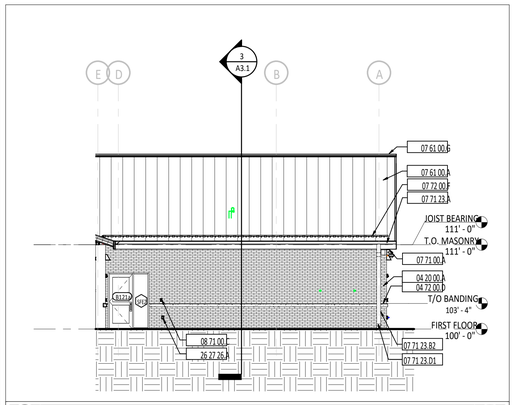
2 A2.1 **BUILDING ELEVATION - SOUTHEAST**
1/8" = 1'-0"



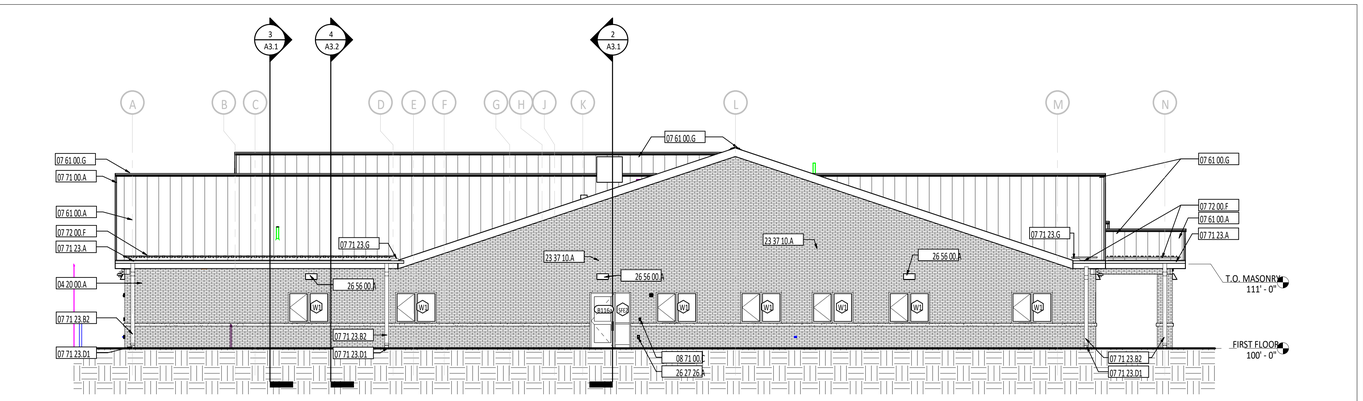
6 A2.1 **BUILDING ELEVATION - SOUTHWEST**
1/8" = 1'-0"



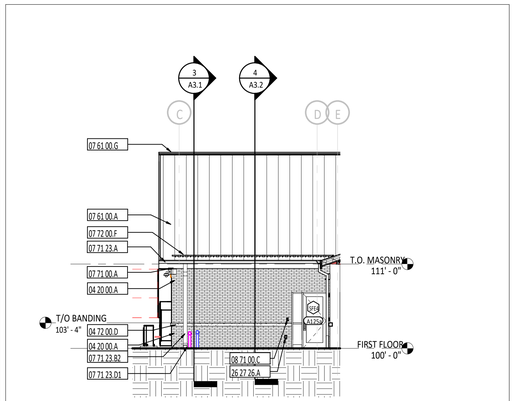
3 A2.1 **BUILDING ELEVATION - SOUTHWEST**
1/8" = 1'-0"



7 A2.1 **BUILDING ELEVATION - SOUTHWEST**
1/8" = 1'-0"



4 A2.1 **BUILDING ELEVATION - NORTHEAST**
1/8" = 1'-0"



8 A2.1 **BUILDING ELEVATION - NORTHEAST**
1/8" = 1'-0"

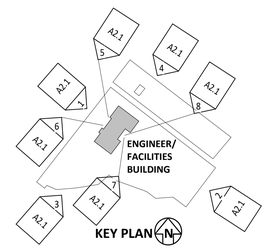
#	KEYNOTE DESCRIPTION
04 20 00.A	FACE BRICK VENEER
04 72 00.D	CAST STONE BANDING WITH CONTINUOUS DRIP
07 61 00.A	STANDING SEAM METAL ROOFING SYSTEM WITH CODE COMPLIANT ANCHORAGES, TRIM AND FLASHING AS REQUIRED
07 61 00.G	RIDGE CAP
07 71 00.A	TWO-PIECE PREFINISHED FASCIA WITH DRIP EDGE
07 71 23.A	PREFINISHED METAL GUTTER WITH STRAP AND ANCHORAGES
07 71 23.B2	4" x 6" PREFINISHED METAL DOWNSPOUT - COLOR 1
07 71 23.D1	PVC DOWNSPOUT BOOT - COORDINATE WITH SITE CONTRACTOR
07 71 23.G	GUTTER SPLASH GUARD
07 72 00.F	SNOW GUARD - CONTINUOUS ACROSS TOP OF VERTICAL LEGS - REFERENCE ROOF PLAN FOR LOCATIONS.
08 71 00.C	CARD READER - REFERENCE ELECTRICAL DRAWINGS.
10 14 19.B2	10" HIGH EXTERIOR BUILDING LETTERING
23 37 10.A	MECHANICAL LOUVER WITH INSECT SCREEN - REFERENCE MECHANICAL DRAWINGS.
26 27 26.A	ELECTRICAL RECEPTACLE - REFERENCE ELECTRICAL DRAWINGS.
26 56 00.A	EXTERIOR LIGHT - REFERENCE ELECTRICAL DRAWINGS.

EXTERIOR ELEVATION SYMBOLS LEGEND

- XXXX / XX — DOOR DESIGNATION - REFERENCE DOOR/OPENING SCHEDULE.
- XX — SIGNAGE DESIGNATION - REFERENCE SIGNAGE DETAILS.
- XX — CURTAIN WALL/STOREFRONT/WINDOW TYPE DESIGNATION
- LEVEL ELEVATION — LEVEL LINE
- X — STRUCTURAL GRID - REFERENCE STRUCTURAL DRAWINGS.
- XX XX XX.XX — DIVISIONAL KEYNOTE DESIGNATION - REFERENCE KEYNOTE SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
  - KEYNOTE DESIGNATION
  - SPECIFICATION SECTION
- AREA OF DETAIL — X / XX.X — SIM — CALLOUT
  - DETAIL NUMBER
  - SHEET NUMBER
- X / XX.X — SIM — SECTION
  - DETAIL NUMBER
  - SHEET NUMBER

EXTERIOR ELEVATION GENERAL NOTES

A PROVIDE CONTROL JOINTS AND EXPANSION JOINTS AT BUILDING INSIDE CORNERS AND AT CONCRETE MASONRY UNIT VENEER AND BRICK VENEER MATERIAL CHANGES.



STATE OF OHIO — CHRISTOPHER MONNIN E-67075 REGISTERED PROFESSIONAL ENGINEER

CHRISTOPHER MONNIN
LICENSE #E-67075
EXPIRATION DATE: 12/31/2027

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CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING

A NEW BUILDING FOR

4011 FLAGER ROAD BATAVIA, OH 45103

ISSUANCES/REVISIONS		
	CONSTRUCTION DOCUMENTS	02/19/2026
1	ADDENDUM #01	03/10/2026

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
22001.00	JCR	MCN

SHEET TITLE:

BUILDING ELEVATIONS - OVERALL EXTERIOR

SHEET NUMBER:

A2.1

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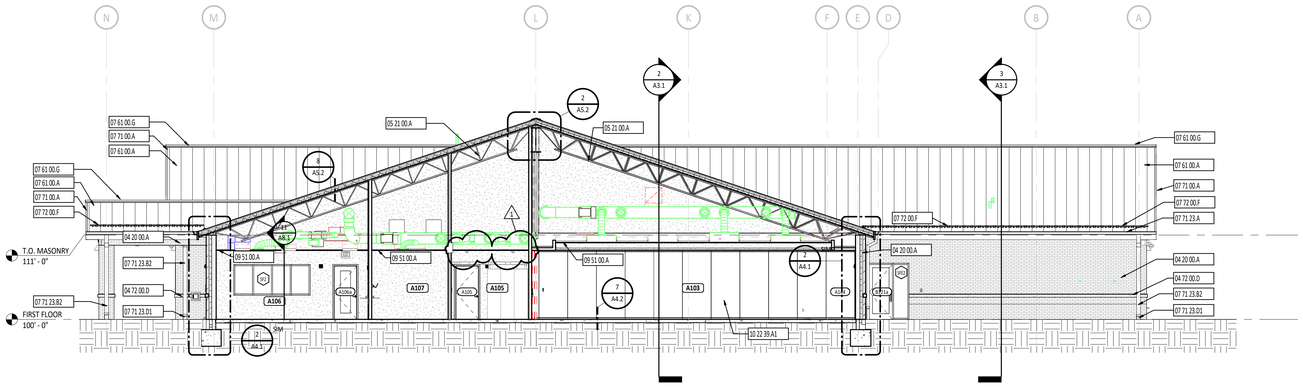
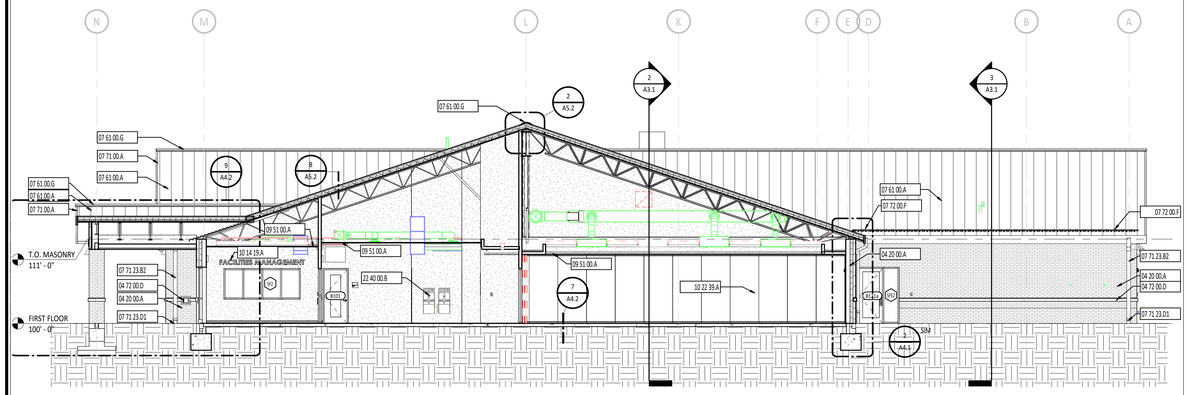
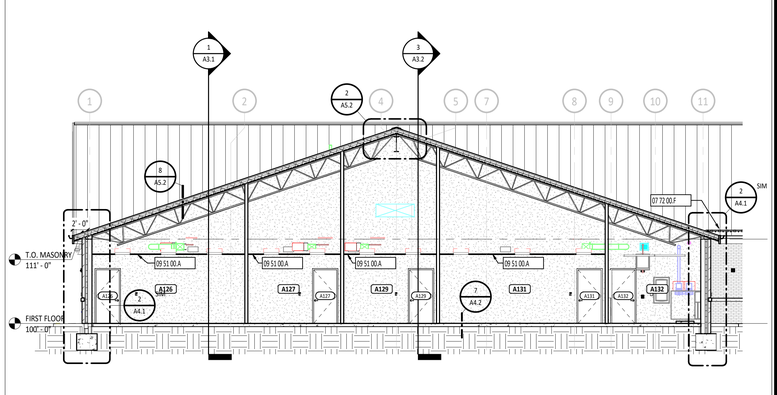


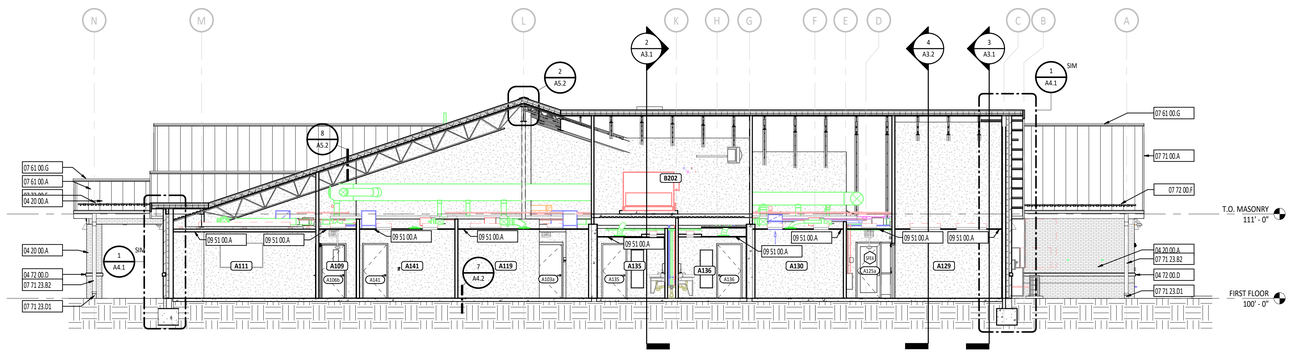
1 A3.2 BUILDING SECTION
1/8" = 1'-0"



2 A3.2 BUILDING SECTION
1/8" = 1'-0"



4 A3.2 BUILDING SECTION
1/8" = 1'-0"



3 A3.2 BUILDING SECTION
1/8" = 1'-0"

BUILDING SECTION SYMBOLS LEGEND

- (XXXX) — DOOR DESIGNATION - REFERENCE DOOR/OPENING SCHEDULE.
- A101 — ROOM DESIGNATION - REFERENCE ROOM INDEX.
- (W) — CURTAIN WALL/STOREFRONT/WINDOW TYPE DESIGNATION
- LEVEL ELEVATION — LEVEL LINE
- (X) — STRUCTURAL GRID - REFERENCE STRUCTURAL DRAWINGS.
- XX XX XX.XX.XX — DIVISIONAL KEYNOTE DESIGNATION - REFERENCE KEYNOTE SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
  - KEYNOTE DESIGNATION
  - SPECIFICATION SECTION
- AREA OF DETAIL — X / XX.X — SIM — CALLOUT
  - DETAIL NUMBER
  - SHEET NUMBER
- X / XX.X — SIM — SECTION
  - DETAIL NUMBER
  - SHEET NUMBER

#	KEYNOTE DESCRIPTION
04 20 00.A	FACE BRICK VENEER
04 72 00.D	CAST STONE BANDING WITH CONTINUOUS DRIP
05 21 00.A	STRUCTURAL STEEL JOIST - REFERENCE STRUCTURAL DRAWINGS.
07 61 00.A	STANDING SEAM METAL ROOFING SYSTEM WITH CODE COMPLIANT ANCHORAGES, TRIM AND FLASHING AS REQUIRED
07 61 00.G	RIDGE CAP
07 71 00.A	TWO-PIECE PREFINISHED FASCIA WITH DRIP EDGE
07 71 23.A	PREFINISHED METAL GUTTER WITH STRAP AND ANCHORAGES
07 71 23.B2	4" x 6" PREFINISHED METAL DOWNSPOUT - COLOR 1
07 71 23.D1	PVC DOWNSPOUT BOOT - COORDINATE WITH SITE CONTRACTOR
07 72 00.F	SNOW GUARD - CONTINUOUS ACROSS TOP OF VERTICAL LEGS - REFERENCE ROOF PLAN FOR LOCATIONS.
09 51 00.A	ACOUSTICAL CEILING TILE AND SUSPENSION SYSTEM - REFERENCE REFLECTED CEILING PLANS FOR SPECIFIC CEILING TYPE.
10 14 19.A	DIMENSIONAL LETTER SIGNAGE
10 22 39.A	FOLDING PANEL PARTITION
10 22 39.A1	FOLDING PANEL PARTITION - REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
22 40 00.B	DRINKING WATER COOLER - REFERENCE PLUMBING DRAWINGS - REFERENCE A0.2 FOR MOUNTING HEIGHTS.

STATE OF OHIO
CHRISTOPHER MONNIN
E-67075
REGISTERED
PROFESSIONAL ENGINEER

CHRISTOPHER MONNIN
LICENSE #E-67075
EXPIRATION DATE: 12/31/2027

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A NEW BUILDING FOR
CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING
4011 FELAGER ROAD BATAVIA, OH 45103

ISSUANCES/REVISIONS

	CONSTRUCTION DOCUMENTS	02/19/2026
1	ADDENDUM #01	03/10/2026

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
22001.00	JCR	EJS

SHEET TITLE:
BUILDING SECTIONS

SHEET NUMBER:
A3.2

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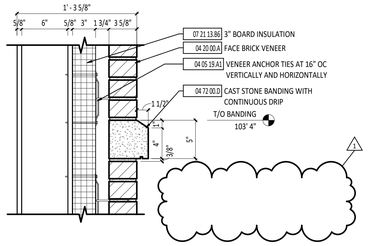
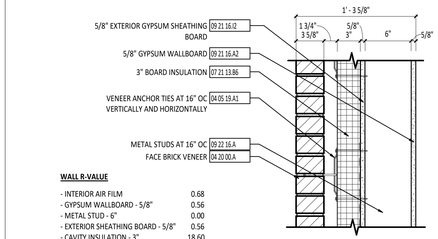


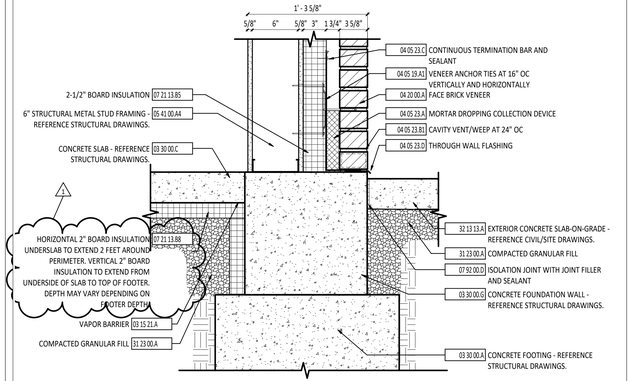
6 / A4.2 CAST STONE BANDING DETAIL
1 1/2" = 1'-0"



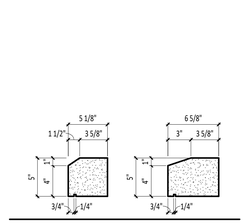
WALL R-VALUE

- INTERIOR AIR FILM	0.68
- GYPSUM WALLBOARD - 5/8"	0.56
- METAL STUD - 6"	0.00
- EXTERIOR SHEATHING BOARD - 5/8"	0.56
- CAVITY INSULATION - 3"	18.60
- AIR CAVITY - 1 3/4"	1.00
- BRICK MASONRY - 3 5/8"	0.80
- EXTERIOR AIR FILM	0.17
TOTAL R-VALUE	**22.01**

4 / A4.2 EXTERIOR WALL ASSEMBLY
1 1/2" = 1'-0"



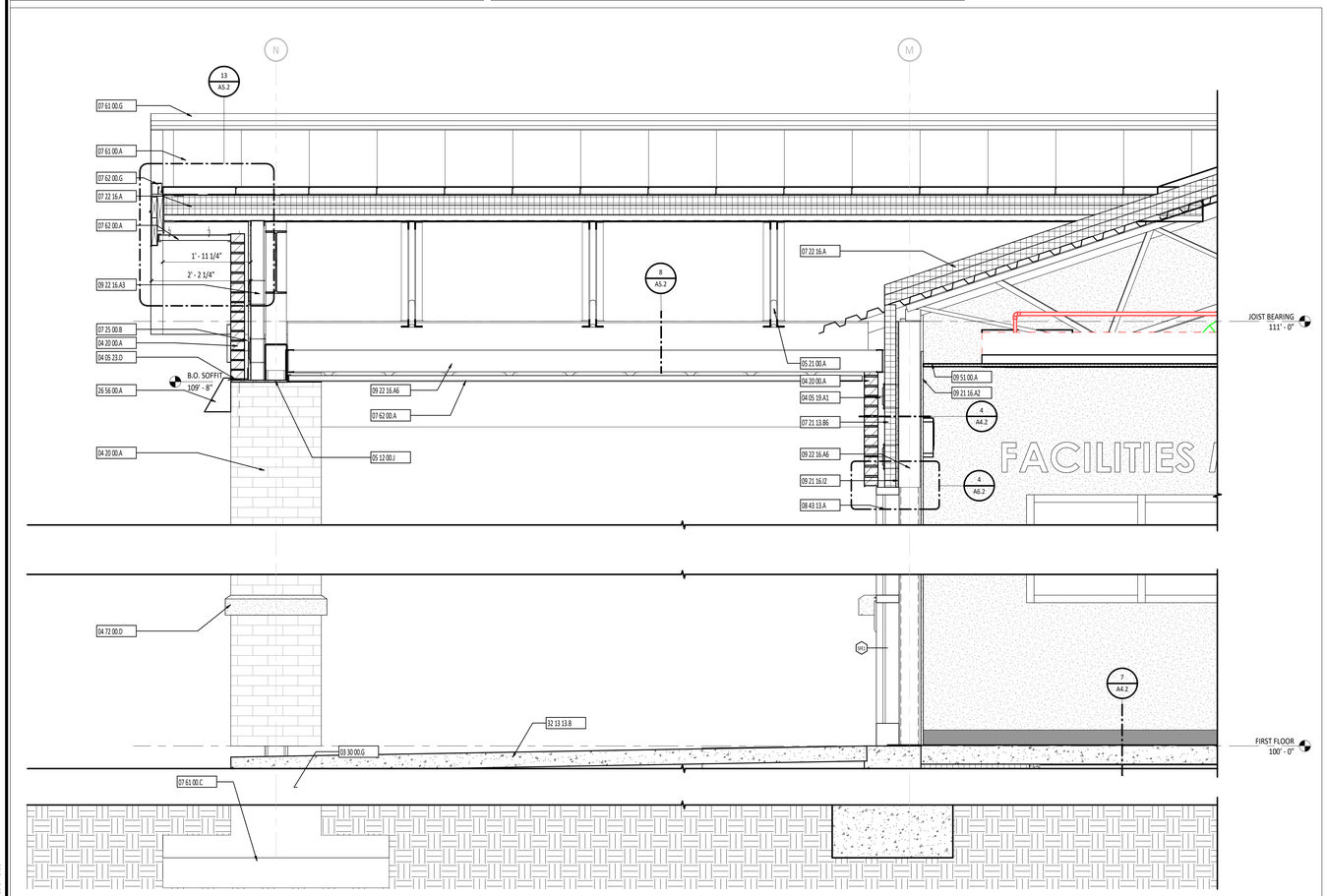
3 / A4.2 TYPICAL FOUNDATION DETAIL
1 1/2" = 1'-0"



2 / A4.2 CAST STONE BANDING PROFILES
1 1/2" = 1'-0"

7 / A4.2 CONCRETE SLAB ASSEMBLY
1 1/2" = 1'-0"

8 / A4.2 ACOUSTICAL CAP CEILING DETAIL
1 1/2" = 1'-0"



9 / A4.2 WALL SECTION
3/4" = 1'-0"

WALL SECTION SYMBOLS LEGEND

- XXXX — DOOR DESIGNATION - REFERENCE DOOR/OPENING SCHEDULE.
- A101 — ROOM DESIGNATION - REFERENCE ROOM INDEX.
- (X) — CURTAIN WALL/STOREFRONT/WINDOW TYPE DESIGNATION
- LEVEL ELEVATION — LEVEL LINE
- X — STRUCTURAL GRID - REFERENCE STRUCTURAL DRAWINGS.
- XX XX XX.XX.XX — DIVISIONAL KEYNOTE DESIGNATION - REFERENCE KEYNOTE SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
  - KEYNOTE DESIGNATION
  - SPECIFICATION SECTION
- AREA OF DETAIL — X / XX.X — SIM — CALLOUT
  - DETAIL NUMBER
  - SHEET NUMBER
- X / XX.X — SIM — SECTION
  - DETAIL NUMBER
  - SHEET NUMBER

#	KEYNOTE DESCRIPTION
03 15 21.A	VAPOR BARRIER
03 30 00.A	CONCRETE FOOTING - REFERENCE STRUCTURAL DRAWINGS.
03 30 00.C	CONCRETE SLAB - REFERENCE STRUCTURAL DRAWINGS.
03 30 00.G	CONCRETE FOUNDATION WALL - REFERENCE STRUCTURAL DRAWINGS.
04 05 19.A1	VENEER ANCHOR TIES AT 16" OC VERTICALLY AND HORIZONTALLY
04 05 23.A	MORTAR DROPPING COLLECTION DEVICE
04 05 23.B1	CAVITY VENT/WEEP AT 24" OC
04 05 23.C	CONTINUOUS TERMINATION BAR AND SEALANT
04 05 23.D	THROUGH WALL FLASHING
04 20 00.A	FACE BRICK VENEER
04 72 00.D	CAST STONE BANDING WITH CONTINUOUS DRIP
05 12 00.J	STRUCTURAL STEEL FRAMING MEMBER - REFERENCE STRUCTURAL DRAWINGS.
05 21 00.A	STRUCTURAL STEEL JOIST - REFERENCE STRUCTURAL DRAWINGS.
05 41 00.A4	6" STRUCTURAL METAL STUD FRAMING - REFERENCE STRUCTURAL DRAWINGS.
06 10 00.H5	3/4" FIRE-RETARDANT PLYWOOD
07 21 13.B5	2-1/2" BOARD INSULATION
07 21 13.B6	3" BOARD INSULATION
07 21 13.B8	HORIZONTAL 2" BOARD INSULATION UNDERSLAB TO EXTEND 2 FEET AROUND PERIMETER. VERTICAL 2" BOARD INSULATION TO EXTEND FROM UNDERSIDE OF SLAB TO TOP OF FOOTER. DEPTH MAY VARY DEPENDING ON FOOTER DEPTH.
07 21 29.D	FILL CAVITY WITH ACOUSTICAL BATT INSULATION.
07 22 16.A	(2) LAYERS OF 2.6" ROOF BOARD INSULATION - STAGGER JOINTS.
07 25 00.B	CONTINUOUS AIR BARRIER SYSTEM
07 61 00.A	STANDING SEAM METAL ROOFING SYSTEM WITH CODE COMPLIANT ANCHORAGES, TRIM AND FLASHING AS REQUIRED
07 61 00.C	ROOF UNDERLAYMENT
07 61 00.G	RIDGE CAP
07 62 00.A	PREFINISHED METAL SOFFIT SYSTEM WITH SUPPORT STRUCTURE AS REQUIRED
07 62 00.G	RAKE FLASHING - PROVIDED BY ROOFING MANUFACTURER
07 92 00.D	ISOLATION JOINT WITH JOINT FILLER AND SEALANT
08 43 13.A	ALUMINUM STOREFRONT WINDOW SYSTEM
09 21 16.A2	5/8" GYPSUM WALLBOARD
09 21 16.I2	5/8" EXTERIOR GYPSUM SHEATHING BOARD
09 22 16.A	METAL STUDS AT 16" OC
09 22 16.A3	3 5/8" METAL STUDS AT 16" OC
09 22 16.A6	6" METAL STUDS AT 16" OC
09 51 00.A	ACOUSTICAL CEILING TILE AND SUSPENSION SYSTEM - REFERENCE REFLECTED CEILING PLANS FOR SPECIFIC CEILING TYPE.
26 56 00.A	EXTERIOR LIGHT - REFERENCE ELECTRICAL DRAWINGS.
31 23 00.A	COMPACTED GRANULAR FILL
32 13 13.A	EXTERIOR CONCRETE SLAB-ON-GRADE - REFERENCE CIVIL/SITE DRAWINGS.
32 13 13.B	EXTERIOR CONCRETE - REFERENCE CIVIL/SITE DRAWINGS.

STATE OF OHIO
CHRISTOPHER MONNIN
E-67075
REGISTERED
PROFESSIONAL ENGINEER
CHRISTOPHER MONNIN
LICENSE #E-67075
EXPIRATION DATE: 12/31/2027

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A NEW BUILDING FOR
CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING
4011 EAGER ROAD BATAVIA, OH 45103

ISSUANCES/REVISIONS

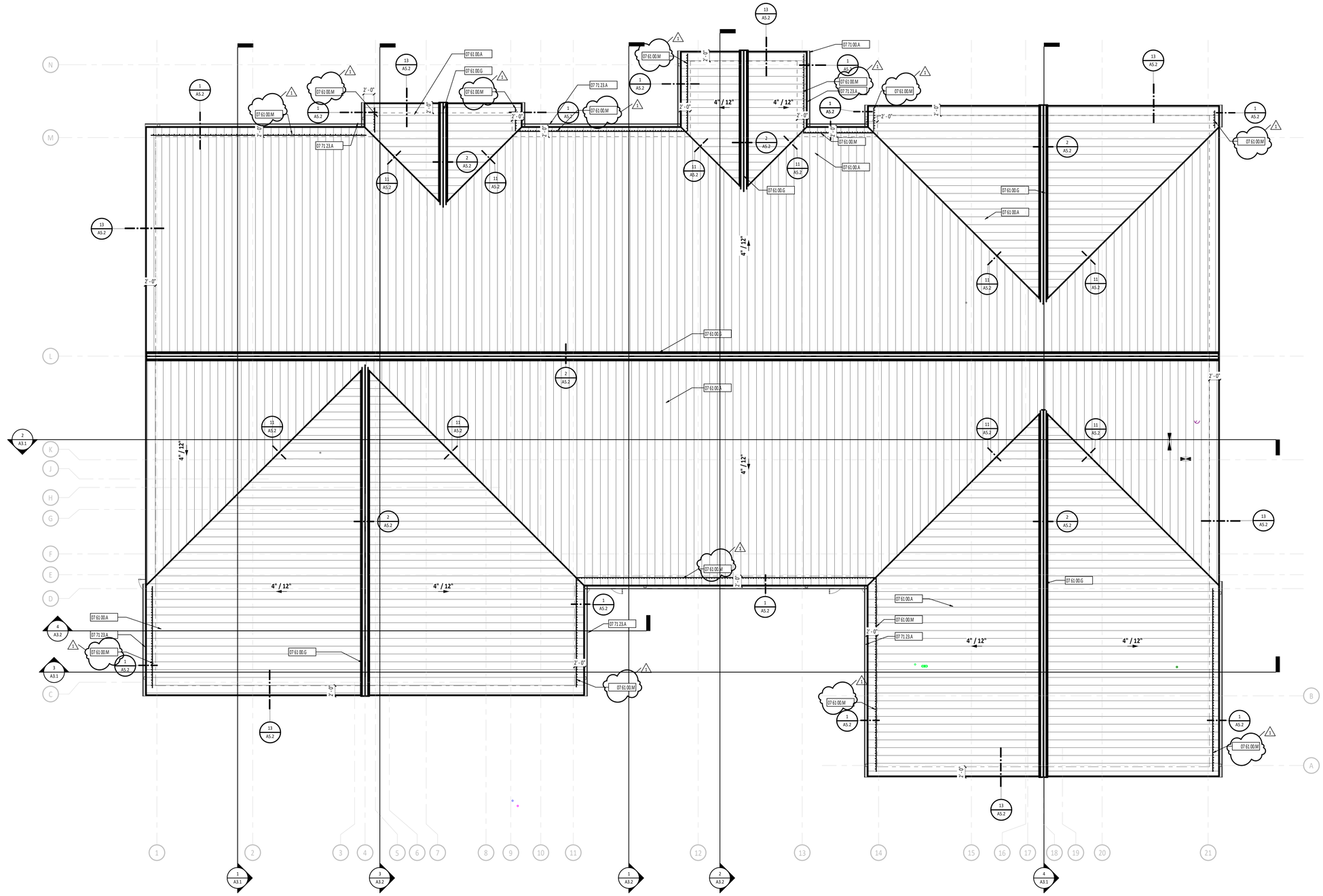
	CONSTRUCTION DOCUMENTS	02/19/2026
1	ADDENDUM #01	03/10/2026

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
22001.00	JCR	MCN

SHEET TITLE:
SECTION DETAILS

SHEET NUMBER:
A4.2

PRINTED ON: 3/10/2026 9:45:59 PM



1 / A5.1 ROOF PLAN
1/8" = 1'-0"

ROOF PLAN PLAN GENERAL NOTES

- A PROVIDE FLASHING IN ACCORDANCE WITH THE SMACNA ARCHITECTURAL SHEET METAL MANUAL LATEST EDITION.
- B REFER TO MANUFACTURER FOR ROOF INSTALLATION DETAILS.
- C ALL WOOD BLOCKING AT ROOF PENETRATIONS SHALL BE PRESERVATIVE TREATED.
- E PROVIDE CRICKETS WITH TAPERED FLASHING AT MECHANICAL OPENINGS.

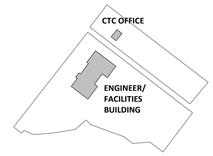
ROOF PLAN SYMBOLS LEGEND

- F FLUE DESIGNATION
- V VENT DESIGNATION
- DIVISIONAL KEYNOTE DESIGNATION - REFERENCE KEYNOTE SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
  - XX XX XX.XX.XX — KEYNOTE DESIGNATION; SPECIFICATION SECTION
- CALLOUT — AREA OF DETAIL; X DETAIL NUMBER; XX.X SHEET NUMBER; SIM
- SECTION — X DETAIL NUMBER; XX.X SHEET NUMBER; SIM

ROOF PLAN MATERIAL PATTERNS LEGEND

- TAPERED INSULATION

#	KEYNOTE DESCRIPTION
07 61 00.A	STANDING SEAM METAL ROOFING SYSTEM WITH CODE COMPLIANT ANCHORAGES, TRIM AND FLASHING AS REQUIRED
07 61 00.G	RIDGE CAP
07 61 00.M	SNOW GUARD - CONTINUOUS ACROSS TOP OF VERTICAL LEGS - REFERENCE ROOF PLAN FOR LOCATIONS.
07 71 00.A	TWO-PIECE PREFINISHED FASCIA WITH DRIP EDGE
07 71 23.A	PREFINISHED METAL GUTTER WITH STRAP AND ANCHORAGES



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STATE OF OHIO
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A NEW BUILDING FOR

CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING

4011 ELIGER ROAD BATAVIA, OH 45103

ISSUANCES/REVISIONS

	CONSTRUCTION DOCUMENTS	02/19/2026
1	ADDENDUM #01	03/10/2026

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
22001.00	JCR	MCN

SHEET TITLE:

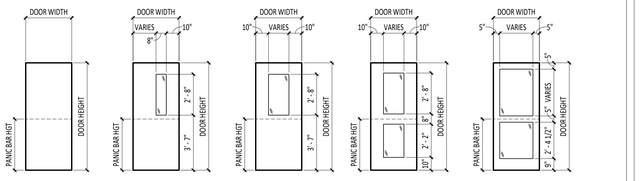
ROOF PLAN

SHEET NUMBER:

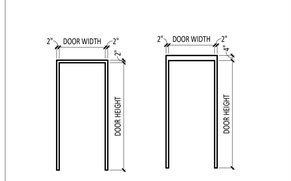
A5.1

DOOR/OPENING SCHEDULE

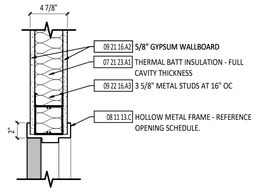
NUMBER	DOOR SIZE	DOOR THK	DOOR MATL	DOOR TYPE	DOOR GLASS	FRAME DEPTH	FRAME TYPE	FRAME GLASS	FRAME DETAIL NUMBER HEAD	FRAME DETAIL NUMBER JAMB	FRAME DETAIL NUMBER SILL	HARDWARE SET	ROOM KEY SIDE	FUNCTION	LABEL (MIN)	NOTES
A101a	3'-0" x 7'-2"	1 3/4"	AL	FG2.1	EG-2	6"	SFE1	EG-2	4/A6.2	7/A6.2	12/A6.2	AC-01	-	Exterior	-	
A101b	3'-0" x 7'-2"	1 3/4"	AL	FG2.1	EG-2	6"	SFE1	EG-2	4/A6.2	7/A6.2	12/A6.2	AC-01.1	-	Exterior	-	
A101c	3'-0" x 7'-0"	1 3/4"	AL	FG2.1	G-1	4 1/2"	SF1	G-1	5/A6.2	8/A6.2	-	13	-	Interior	-	
A101d	3'-0" x 7'-0"	1 3/4"	AL	FG2.1	G-1	4 1/2"	SF1	G-1	5/A6.2	8/A6.2	-	13.1	-	Interior	-	
A102a	3'-0" x 7'-0"	1 3/4"	AL	FG2.1	G-3	4 1/2"	SF3	G-3	5/A6.2	8/A6.2	-	AC-05	-	Interior	-	
A102b	3'-0" x 7'-0"	1 3/4"	AL	FG2.1	G-3	4 1/2"	SF3	G-3	5/A6.2	8/A6.2	-	AC-05	-	Interior	-	
A102c	3'-0" x 7'-0"	1 3/4"	AL	FG2.1	G-3	4 1/2"	SF3	G-3	5/A6.2	8/A6.2	-	AC-05.1	-	Interior	-	
A102d	3'-0" x 7'-0"	1 3/4"	AL	FG2.1	G-3	4 1/2"	SF3	G-3	5/A6.2	8/A6.2	-	AC-05.1	-	Interior	-	
A103a	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		AC-03		Interior	-	
A103b	3'-0" x 7'-2"	1 3/4"	AL	FG2.1	EG-2	6"	SFE3	EG-2	4/A6.2	7/A6.2	12/A6.2	AC-04	-	Exterior	-	
A103c	3'-0" x 7'-2"	1 3/4"	AL	FG2.1	EG-2	6"	SFE3	EG-2	4/A6.2	7/A6.2	12/A6.2	AC-04	-	Exterior	-	
A104	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A105	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		AC-03		Interior	-	
A106a	3'-0" x 7'-0"	1 3/4"	WD	FG-2	G-1	5 7/8"	1	-	3/A6.1	4/A6.1		02		Interior	-	
A106b	3'-0" x 7'-0"	1 3/4"	BA-WD	NL	G-2	6 7/8"	1	-	7/A6.1	8/A6.1		AC-03		Interior	-	
A108	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		01		Interior	-	
A110	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A111	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A113	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A114	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A115	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		12		Interior	-	
A116a	3'-0" x 7'-2"	1 3/4"	AL	FG2.1	EG-2	6"	SFE2	EG-2	4/A6.2	7/A6.2	12/A6.2	AC-04	-	Exterior	-	
A117	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A118	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A120	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A121	3'-0" x 7'-0"	1 3/4"	WD	F	-	8 1/4"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A122	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A123	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A124	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A125a	3'-0" x 7'-2"	1 3/4"	AL	FG2.1	EG-2	6"	SFE4	EG-2	4/A6.2	7/A6.2	12/A6.2	AC-04	-	Exterior	-	
A125b	3'-0" x 7'-2"	1 3/4"	AL	FG2.1	EG-2	6"	SFE2	EG-2	4/A6.2	7/A6.2	12/A6.2		-	Exterior	-	
A126	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A127	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A128	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		AC-06		Interior	-	
A129	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A130	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A131	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A132	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		AC-07		Interior	-	
A134	3'-0" x 7'-0"	1 3/4"	HM	F	-	12"	1	-	5/A6.1	6/A6.1		06		Interior	-	
A135	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"		-	3/A6.1	4/A6.1		10		Interior	-	
A136	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"		-	3/A6.1	4/A6.1		10		Interior	-	
A137	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A138	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		07		Interior	-	
A139	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		07		Interior	-	
A140	3'-0" x 7'-0"	1 3/4"	WD	NL	G-1	5 7/8"	1	-	3/A6.1	4/A6.1		02		Interior	-	
A141	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
A142	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		10		Interior	-	
A143	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		10		Interior	-	
A144	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
B101	3'-0" x 7'-0"	1 3/4"	WD	FG-2	G-1	5 7/8"	1	-	3/A6.1	4/A6.1		02		Interior	-	
B102	3'-0" x 7'-0"	1 3/4"	BA-WD	NL	G-2	6 7/8"	1	-	7/A6.1	8/A6.1		AC-03		Interior	-	
B103	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
B104	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
B105	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
B106	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
B107	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
B108	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
B109	3'-0" x 7'-2"	1 3/4"	AL	FG2.1	EG-2	6"	SFE4	EG-2	4/A6.2	7/A6.2	12/A6.2	AC-04	-	Exterior	-	
B110	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
B111	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		AC-06		Interior	-	
B112	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		02		Interior	-	
B113	3'-0" x 7'-0"	1 3/4"	HM	F	-	12"	1	-	5/A6.1	6/A6.1		06		Interior	-	
B114	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"		-	3/A6.1	4/A6.1		10		Interior	-	
B115	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"		-	3/A6.1	4/A6.1		10		Interior	-	
B116a	3'-0" x 7'-2"	1 3/4"	AL	FG2.1	EG-2	6"	SFE2	EG-2	4/A6.2	7/A6.2	12/A6.1	AC-04	-	Exterior	-	
B116b	3'-0" x 7'-2"	1 3/4"	AL	FG2.1	EG-2	6"	SFE2	EG-2	4/A6.2	7/A6.2	12/A6.1	AC-04	-	Exterior	-	
B117	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		07		Interior	-	
B118	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		10		Interior	-	
B119	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		10		Interior	-	
B120	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		08		Interior	-	
B121a	3'-0" x 7'-2"	1 3/4"	AL	FG2.1	EG-2	6"	SFE2	EG-2	4/A6.2	7/A6.2	12/A6.1	AC-04	-	Exterior	-	
B121b	3'-0" x 7'-0"	1 3/4"	AL	FG2.1	G-1	6"	SF4	G-1	5/A6.2	8/A6.2	-	AC-03	-	Interior	-	
B122	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		AC-07		Interior	-	
B123	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
B124	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
B125	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	
B126	3'-0" x 7'-0"	1 3/4"	WD	F	-	5 7/8"	1	-	3/A6.1	4/A6.1		04		Interior	-	



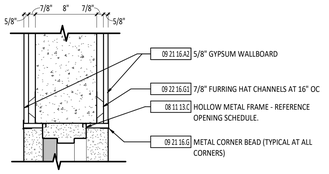
1 A6.1 **DOOR TYPES**
1/4" = 1'-0"



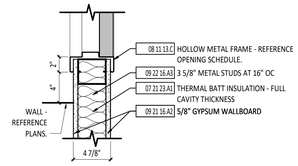
2 A6.1 **HOLLOW METAL DOOR FRAME TYPES**
1/4" = 1'-0"



3 A6.1 **HEAD DETAIL - INTERIOR**
1 1/2" = 1'-0"



5 A6.1 **HEAD DETAIL - INTERIOR**
1 1/2" = 1'-0"



4 A6.1 **JAMB DETAIL - INTERIOR**
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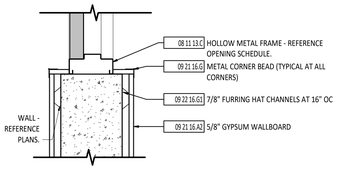
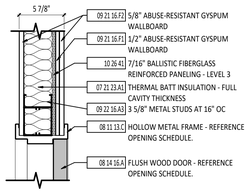
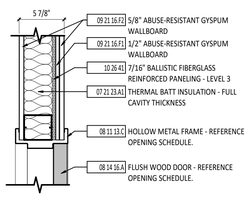


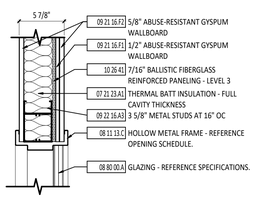
6 A6.1 **JAMB DETAIL - INTERIOR**
1 1/2" = 1'-0"



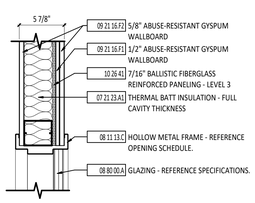
7 A6.1 **HEAD DETAIL - INTERIOR BALLISTIC**
1 1/2" = 1'-0"



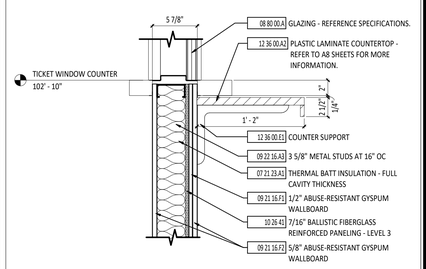
8 A6.1 **JAMB DETAIL - INTERIOR BALLISTIC**
1 1/2" = 1'-0"



9 A6.1 **HEAD DETAIL - INTERIOR BALLISTIC**
1 1/2" = 1'-0"



10 A6.1 **JAMB DETAIL - INTERIOR BALLISTIC**
1 1/2" = 1'-0"



11 A6.1 **SILL DETAIL - INTERIOR BALLISTIC**
1 1/2" = 1'-0"

DOOR GENERAL NOTES

A REFERENCE A6 SHEETS FOR DOOR AND STOREFRONT DETAILS.
B REFERENCE SPECIFICATION SECTION 08 71 00 FOR HARDWARE SETS.

DOOR/OPENING SCHEDULE ABBREVIATIONS

SYMBOL DESCRIPTION

AL	ALUMINUM
F	FLUSH
HG	HALF GLASS
HM	HOLLOW METAL
IG	INSULATED GLASS
LG	LAMINATED GLASS
N	NARROW LITE
SG	SAFETY GLASS
TG	TEMPERED GLASS
FR	FROSTED GLASS
BA	BALLISTIC LEVEL 3 RATING
W	WOOD

STATE OF OHIO
CHRISTOPHER MONNIN
E-67075
REGISTERED
PROFESSIONAL ENGINEER
CHRISTOPHER MONNIN
LICENSE #E-67075
EXPIRATION DATE: 12/31/2027

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CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING

A NEW BUILDING FOR
401 S FLAGER ROAD BATAVIA, OH 45103

ISSUANCES/REVISIONS

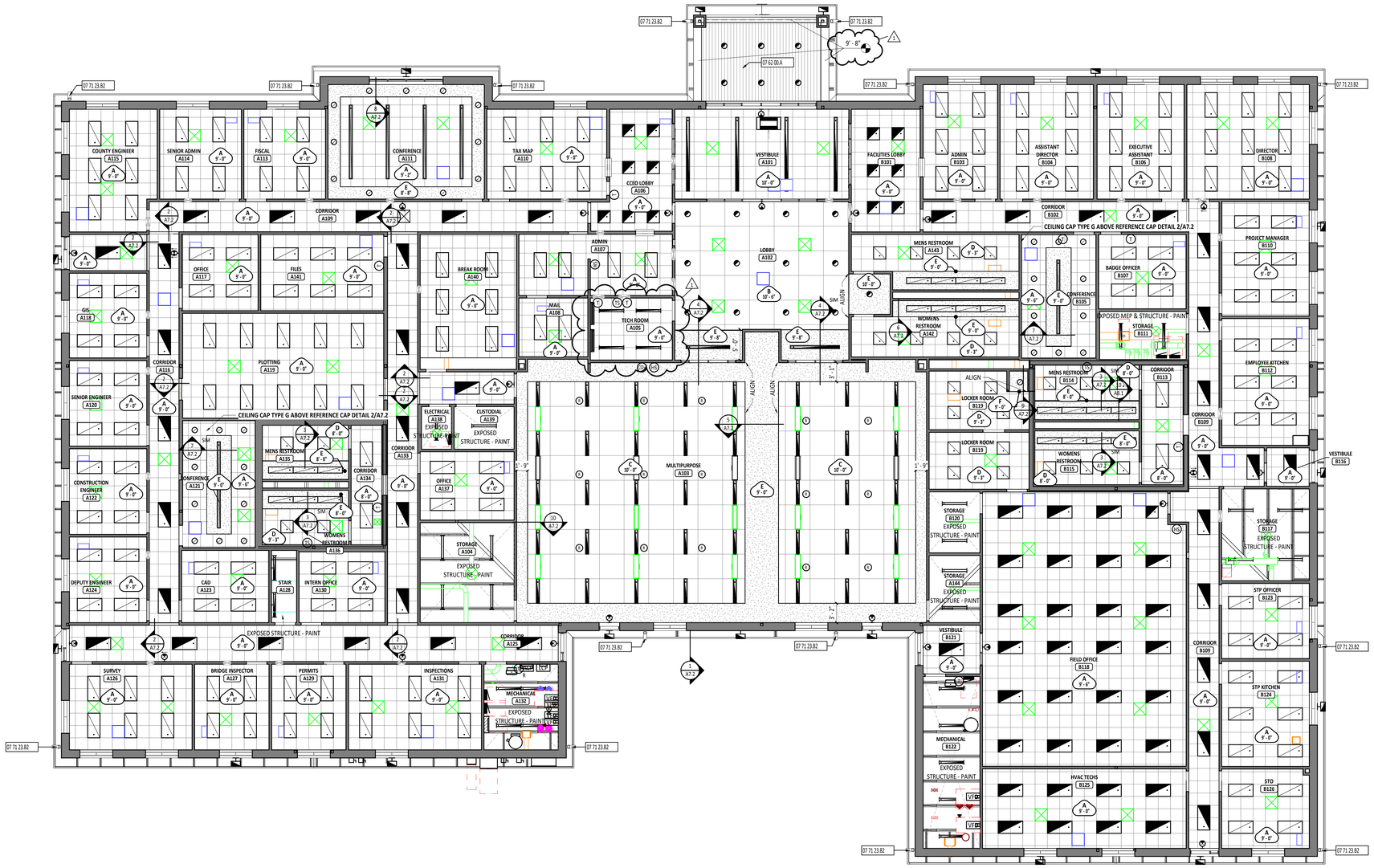
	CONSTRUCTION DOCUMENTS	02/19/2026
1	ADDENDUM #01	03/10/2026

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
22001.00	EJS	MCN

SHEET TITLE:
DOOR SCHEDULE, DOOR AND WINDOW DETAILS

SHEET NUMBER:
A6.1

PRINTED ON: 3/10/2026 3:54:47 PM



1 A7.1 FIRST FLOOR REFLECTED CEILING PLAN

1/8" = 1'-0"

FIRST FLOOR PLAN ROOM INDEX

ROOM NUMBER	ROOM NAME	AREA
A101	VESTIBULE	412 SF
A102	LOBBY	741 SF
A103	MULTIPURPOSE	2,843 SF
A104	STORAGE	248 SF
A105	TECH ROOM	134 SF
A106	CCEO LOBBY	216 SF
A107	ADMIN	246 SF
A108	MAIL	107 SF
A109	CORRIDOR	349 SF
A110	TAX MAP	284 SF
A111	CONFERENCE	472 SF
A113	FISCAL	194 SF
A114	SENIOR ADMIN	194 SF
A115	COUNTY ENGINEER	275 SF
A116	CORRIDOR	385 SF
A117	OFFICE	155 SF
A118	GIS	173 SF
A119	PLOTTING	560 SF
A120	SENIOR ENGINEER	175 SF
A121	CONFERENCE	244 SF
A122	CONSTRUCTION ENGINEER	175 SF
A123	CAD	167 SF
A124	DEPUTY ENGINEER	175 SF

FIRST FLOOR PLAN ROOM INDEX

ROOM NUMBER	ROOM NAME	AREA
A125	CORRIDOR	471 SF
A126	SURVEY	278 SF
A127	BRIDGE INSPECTOR	168 SF
A128	STAIR	48 SF
A129	PERMITS	168 SF
A130	INTERN OFFICE	161 SF
A131	INSPECTIONS	301 SF
A132	MECHANICAL	168 SF
A133	CORRIDOR	396 SF
A134	CORRIDOR	97 SF
A135	MENS RESTROOM	123 SF
A136	WOMENS RESTROOM	124 SF
A137	OFFICE	169 SF
A138	ELECTRICAL	34 SF
A139	CUSTODIAL	68 SF
A140	BREAK ROOM	343 SF
A141	FILES	249 SF
A142	WOMENS RESTROOM	231 SF
A143	MENS RESTROOM	225 SF
A144	STORAGE	90 SF
B101	FACILITIES LOBBY	223 SF
B102	CORRIDOR	236 SF
B103	ADMIN	225 SF

FIRST FLOOR PLAN ROOM INDEX

ROOM NUMBER	ROOM NAME	AREA
B104	ASSISTANT DIRECTOR	282 SF
B105	CONFERENCE	243 SF
B106	EXECUTIVE ASSISTANT	264 SF
B107	BADGE OFFICER	172 SF
B108	DIRECTOR	370 SF
B109	CORRIDOR	554 SF
B110	PROJECT MANAGER	265 SF
B111	STORAGE	110 SF
B112	EMPLOYEE KITCHEN	294 SF
B113	CORRIDOR	131 SF
B114	MENS RESTROOM	150 SF
B115	WOMENS RESTROOM	148 SF
B116	VESTIBULE	43 SF
B117	STORAGE	213 SF
B118	FIELD OFFICE	1,460 SF
B119	LOCKER ROOM	305 SF
B120	STORAGE	82 SF
B121	VESTIBULE	73 SF
B122	MECHANICAL	258 SF
B123	STP OFFICER	175 SF
B124	STP KITCHEN	244 SF
B125	HVAC TECHS	428 SF
B126	STO	183 SF

REFLECTED CEILING PLAN GENERAL NOTES

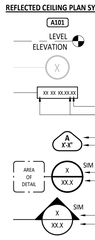
A. REFERENCE ELECTRICAL, MECHANICAL AND TECHNOLOGY DRAWINGS FOR MORE INFORMATION ON ALL CEILING MOUNTED DEVICES.

B. EXPOSED CEILING / STRUCTURE TO BE REMAIN UNPAINTED, UNLESS NOTED OTHERWISE.

C. ALL FACES OF GYP CEILINGS AND BULKHEADS TO BE PAINTED PT1 - REFERENCE FINISH MATERIAL SCHEDULE.

D. REFER TO FINISH MATERIAL SCHEDULE ON SHEET A9.0 FOR MANUFACTURER INFORMATION AND MATERIAL SELECTION.

REFLECTED CEILING PLAN SYMBOLS LEGEND



ROOM DESIGNATION - REFERENCE ROOM INDEX.

LEVEL LINE

STRUCTURAL GRID - REFERENCE STRUCTURAL DRAWINGS.

DIVISIONAL KEYNOTE DESIGNATION - REFERENCE KEYNOTE SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- KEYNOTE DESIGNATION
- SPECIFICATION SECTION

CEILING TYPE AND HEIGHT DESIGNATION
- TYPE
- HEIGHT

CALLOUT
- DETAIL NUMBER
- SHEET NUMBER

SECTION
- DETAIL NUMBER
- SHEET NUMBER

REFERENCE ELECTRICAL/MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION

SOUND SYSTEM CEILING SPEAKER

FIRE ALARM SMOKE OR HEAT DETECTOR

CEILING MOUNTED EXIT SIGN

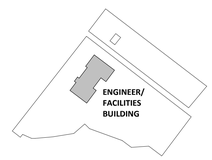
OCCUPANCY SENSOR

AIR TERMINAL

CEILING SCHEDULE

MARK	DESCRIPTION	NOTES
A	2' x 2' SUSPENDED ACOUSTICAL PANEL CEILING	REFER TO SPEC SECTION 09 5100 & FINISH MATERIAL SCHEDULE
B	4'x4' SUSPENDED ACOUSTICAL PANEL CEILING	REFER TO SPEC SECTION 09 5100 & FINISH MATERIAL SCHEDULE
C	4'x4' SUSPENDED ACOUSTICAL PANEL CEILING	REFER TO SPEC SECTION 09 5100 & FINISH MATERIAL SCHEDULE
D	2' x 2' SUSPENDED ACOUSTICAL PANEL CEILING - WASHABLE / SCRUBBABLE	REFER TO SPEC SECTION 09 5100 & FINISH MATERIAL SCHEDULE
E	5/8" GYPSUM CEILING BOARD ON SUSPENDED CEILING SYSTEM	REFER TO SPEC SECTION 09 2216
F	PLASTER CEILING	REFER TO SPEC SECTION 09 2400 & FINISH MATERIAL SCHEDULE.
G	(2) LAYERS 5/8" GYPSUM CEILING BOARD OVER 8" METAL STUDS	REFER TO SPEC SECTION 09 2116

#	KEYNOTE DESCRIPTION
07 62 00.A	PREFINISHED METAL SOFFIT SYSTEM WITH SUPPORT STRUCTURE AS REQUIRED
07 71 23.82	4" x 6" PREFINISHED METAL DOWNSPOUT - COLOR 1



KEY PLAN

PRINTED ON: 3/10/2026 10:49:07 AM

STATE OF OHIO
CHRISTOPHER MONNIN
E-67075
REGISTERED
PROFESSIONAL ENGINEER

CHRISTOPHER MONNIN
LICENSE #E-67075
EXPIRATION DATE: 12/31/2027

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A NEW BUILDING FOR

CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING

4011 FLAGER ROAD BATAVIA, OH 45103

ISSUANCES/REVISIONS

	CONSTRUCTION DOCUMENTS	02/19/2026
1	ADDENDUM #01	03/10/2026

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
22001.00	KMP	HEF

SHEET TITLE:

FIRST FLOOR REFLECTED CEILING PLAN

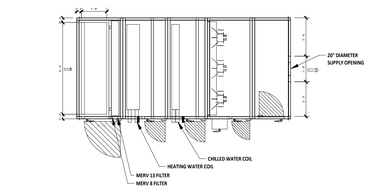
SHEET NUMBER:

A7.1

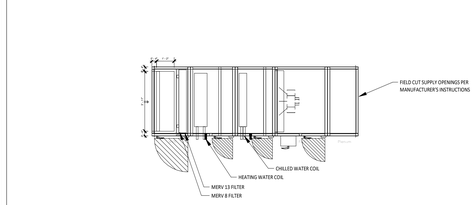
MULTI-ZONE (NON-ERU) AIR HANDLING UNIT SCHEDULE

ID	SERVES	MANUFACTURER	MODEL NO.	TYPE	SUPPLY AIRFLOW	OUTSIDE AIR			SUPPLY FAN ARRAY															COOLING COIL																COOLING PLANT	HEATING COIL										PRE-FILTER		FILTER		UNIT WEIGHT	REMARKS
									AIRFLOW	PRESS			INDIVIDUAL MOTOR									CAPACITY		AIRSIDE							WATERSIDE					GLYCOL		AIRSIDE					WATERSIDE														
						FLOW	DCV	MIN	DESIGN	ESP	TP	TOTAL BRAKE POWER	QTY	POWER	ECM	VOLT	PH	FLA	SUPPLY FAN ARRAY MCA	SUPPLY FAN ARRAY MOCP	TOTAL	SENSIBLE	EAT(db)	EAT(wb)	LAT(db)	LAT(wb)	FV	PD	FLOW	EWT	LWT	PD	TYPE	CAP	EAT(db)	LAT(db)	FV	PD	FLOW	EWT	LWT	PD	TYPE	THICKNESS	TYPE	THICKNESS		
AHU-A101	UNIT A	CARRIER	39MN	MULTIZONE VAV	9100 CFM	1300 CFM	No	0 CFM	9100 CFM	1.35 in-wg	3.00 in-wg	6.40 hp	5	1.30 hp	Yes	208 V	3	28.50 A	29.9 A	35 A	342860 Btu/h	233430 Btu/h	77.1 °F	66.0 °F	53.0 °F	53.0 °F	424 FPM	1.01 in-wg	49.9 GPM	44 °F	59 °F	6.2 ftH2O	30% EG	153890 Btu/h	60.6 °F	75.7 °F	424 FPM	0.15 in-wg	10.3 GPM	140 °F	110 °F	0.3 ftH2O	MERV 8	2"	MERV 13	4"	3542 lb	PROVIDE LIGHT AND RECEPTACLE INSIDE. COORDINATE POWER WITH DIVISION 26 CONTRACTOR. PROVIDE ISOLATION PADS PER SPECIFICATIONS.
AHU-A102	MULTIPURPOSE	CARRIER	39MN	MULTIZONE VAV	3375 CFM	1375 CFM	Yes	0 CFM	3375 CFM	1.35 in-wg	3.24 in-wg	2.50 hp	1	2.50 hp	Yes	208 V	3	10.80 A	13.5 A	20 A	166960 Btu/h	109130 Btu/h	81.0 °F	67.7 °F	50.4 °F	50.4 °F	442 FPM	1.27 in-wg	24.3 GPM	44 °F	59 °F	20.2 ftH2O	30% EG	134200 Btu/h	40.3 °F	75.0 °F	442 FPM	0.20 in-wg	9.1 GPM	140 °F	110 °F	0.3 ftH2O	MERV 8	2"	MERV 13	4"	2019 lb	DEMAND CONTROL VENTILATION. PROVIDE ISOLATION PADS PER SPECIFICATIONS.
AHU-B101	UNIT B	CARRIER	39MN	MULTIZONE VAV	6000 CFM	850 CFM	No	0 CFM	6000 CFM	1.40 in-wg	3.32 in-wg	2.50 hp	2	5.00 hp	Yes	208 V	3	19.20 A	21.6 A	30 A	184500 Btu/h	149130 Btu/h	77.1 °F	64.4 °F	53.8 °F	53.7 °F	475 FPM	1.20 in-wg	26.8 GPM	44 °F	59 °F	2.8 ftH2O	30% EG	94230 Btu/h	58.4 °F	72.5 °F	475 FPM	0.18 in-wg	6.4 GPM	140 °F	110 °F	0.3 ftH2O	MERV 8	2"	MERV 13	4"	2595 lb	PROVIDE LIGHT AND RECEPTACLE INSIDE. COORDINATE POWER WITH DIVISION 26 CONTRACTOR. PROVIDE ISOLATION PADS PER SPECIFICATIONS.

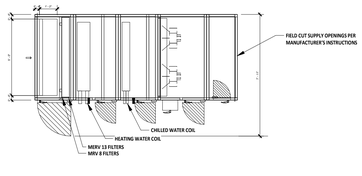
1



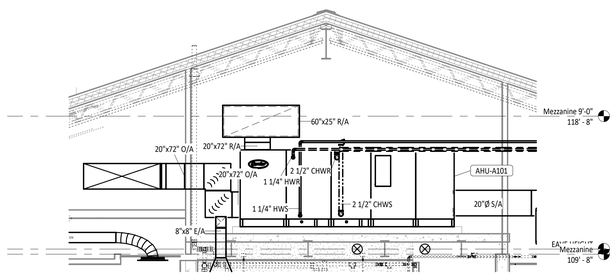
1 M5.3 AHU-A101 DETAIL
NTS



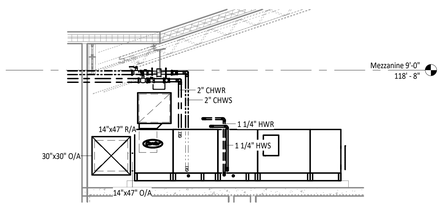
2 M5.3 AHU-A102 DETAIL
NTS



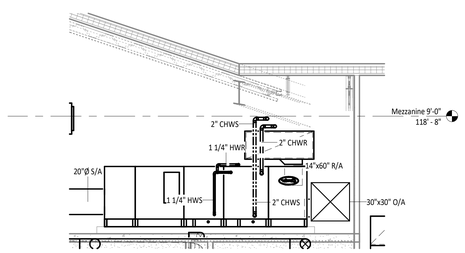
3 M5.3 AHU-B101 DETAIL
NTS



4 M5.3 AHU-A101 MECHANICAL SECTION
1/4" = 1'-0"



5 M5.3 AHU-A102 MECHANICAL SECTION
1/4" = 1'-0"



6 M5.3 AHU-B101 MECHANICAL SECTION
1/4" = 1'-0"

CHRISTOPHER MONNIN
LICENSE #E-67075
EXPIRATION DATE: 12/31/2027

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NEW BUILDING FOR

CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING

401 S FLAGER ROAD BATAVIA, OH 45103

ISSUANCES/REVISIONS

	CONSTRUCTION DOCUMENTS	02/19/2026
1	ADDENDUM #01	03/10/2026

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
22001.00	RAG	APH

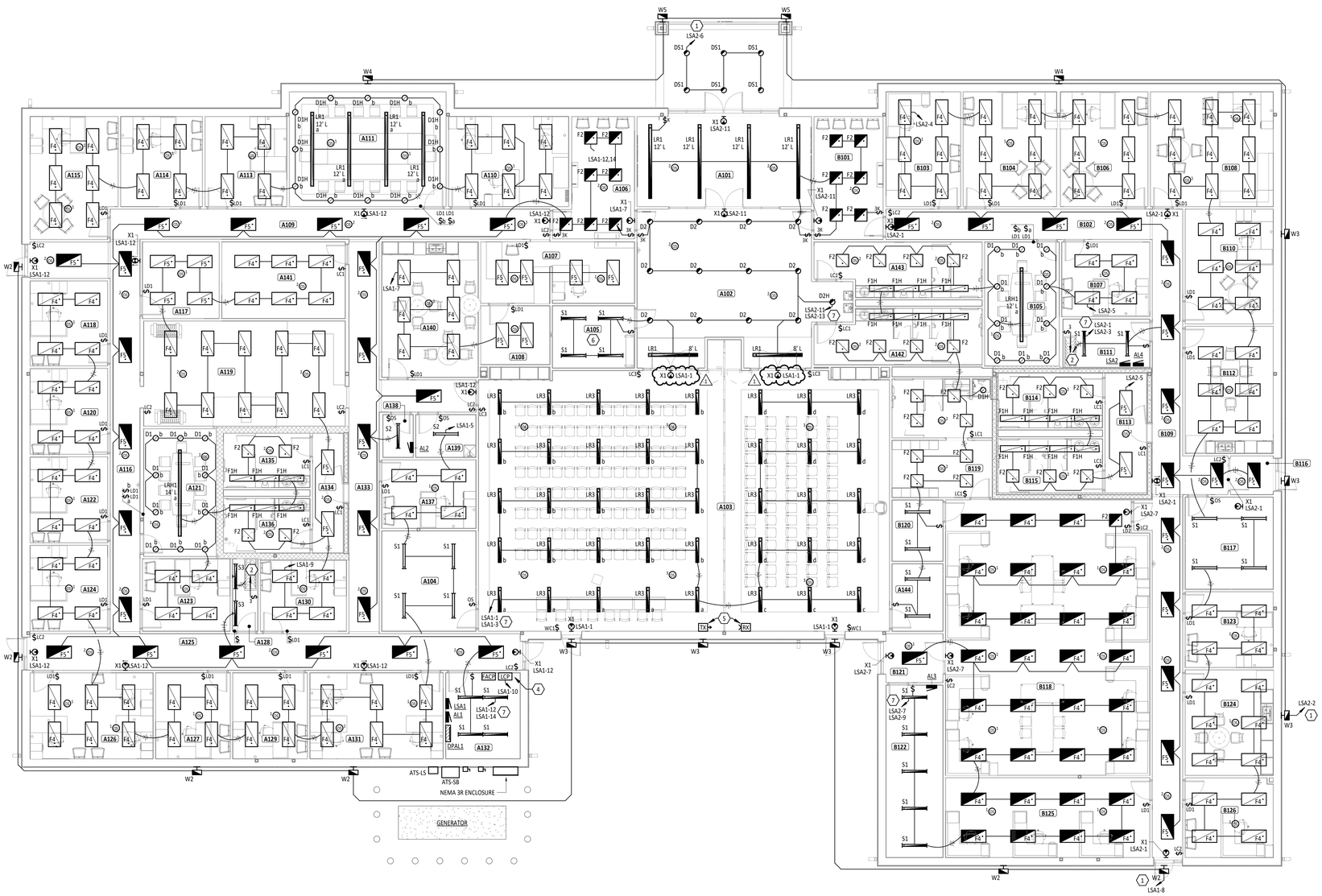
SHEET TITLE:

MECHANICAL SCHEDULES AND DETAILS

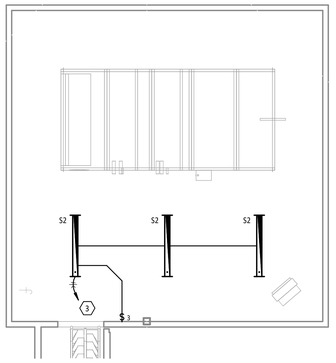
SHEET NUMBER:

M5.3

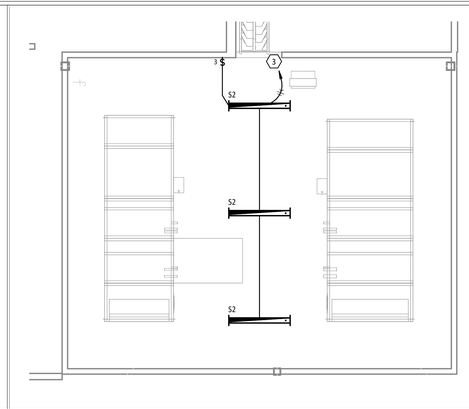
PRINTED ON: 3/10/2026 11:21:52 AM



1 / E4.1 LIGHTING PLAN
1/8" = 1'-0"



2 / E4.1 ENLARGED MECHANICAL MEZZANINE UNIT A LIGHTING PLAN
1/4" = 1'-0"



3 / E4.1 ENLARGED MECHANICAL MEZZANINE UNIT B LIGHTING PLAN
1/4" = 1'-0"

FIRST FLOOR PLAN ROOM INDEX

ROOM NUMBER	ROOM NAME	AREA
A101	VESTIBULE	412 SF
A102	LOBBY	741 SF
A103	MULTIPURPOSE	2,843 SF
A104	STORAGE	248 SF
A105	TECH ROOM	134 SF
A106	CCEO LOBBY	216 SF
A107	ADMIN	246 SF
A108	MAIL	107 SF
A109	CORRIDOR	349 SF
A110	TAX MAP	284 SF
A111	CONFERENCE	472 SF
A113	FISCAL	194 SF
A114	SENIOR ADMIN	194 SF
A115	COUNTY ENGINEER	275 SF
A116	CORRIDOR	385 SF
A117	OFFICE	155 SF
A118	GIS	173 SF
A119	PLOTTING	560 SF
A120	SENIOR ENGINEER	175 SF
A121	CONFERENCE	244 SF
A122	CONSTRUCTION ENGINEER	175 SF
A123	CAD	167 SF
A124	DEPUTY ENGINEER	175 SF
A125	CORRIDOR	471 SF
A126	SURVEY	278 SF
A127	BRIDGE INSPECTOR	168 SF
A128	STAIR	48 SF
A129	PERMITS	168 SF
A130	INTERN OFFICE	161 SF
A131	INSPECTIONS	301 SF
A132	MECHANICAL	168 SF
A133	CORRIDOR	396 SF
A134	CORRIDOR	97 SF
A135	MENS RESTROOM	123 SF
A136	WOMENS RESTROOM	124 SF
A137	OFFICE	169 SF
A138	ELECTRICAL	34 SF
A139	CUSTODIAL	68 SF
A140	BREAK ROOM	343 SF
A141	FILES	249 SF
A142	WOMENS RESTROOM	231 SF
A143	MENS RESTROOM	225 SF
A144	STORAGE	90 SF
B101	FACILITIES LOBBY	223 SF
B102	CORRIDOR	236 SF
B103	ADMIN	225 SF
B104	ASSISTANT DIRECTOR	282 SF
B105	CONFERENCE	243 SF
B106	EXECUTIVE ASSISTANT	264 SF
B107	BADGE OFFICER	172 SF
B108	DIRECTOR	370 SF
B109	CORRIDOR	554 SF
B110	PROJECT MANAGER	265 SF
B111	STORAGE	110 SF
B112	EMPLOYEE KITCHEN	294 SF
B113	CORRIDOR	131 SF
B114	MENS RESTROOM	150 SF
B115	WOMENS RESTROOM	148 SF
B116	VESTIBULE	43 SF
B117	STORAGE	213 SF
B118	FIELD OFFICE	1,460 SF
B119	LOCKER ROOM	305 SF
B120	STORAGE	82 SF
B121	VESTIBULE	73 SF
B122	MECHANICAL	258 SF
B123	STP OFFICER	175 SF
B124	STP KITCHEN	244 SF
B125	HVAC TECHS	428 SF
B126	STO	183 SF
B201	MECHANICAL MEZZANINE	509 SF
B202	MECHANICAL MEZZANINE	412 SF

LIGHTING GENERAL NOTES

A. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS ON THE A7 SERIES DRAWINGS FOR ADDITIONAL INFORMATION AND EXACT LOCATION OF LUMINAIRES.

B. VERIFY EXACT LOCATION OF ALL LIGHT SWITCHES AND CONTROLS DEVICES WITH ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN.

C. WHERE MULTIPLE SWITCHES ARE GROUPED TOGETHER AT A SINGLE LOCATION, ALL SWITCHES SHALL BE INSTALLED UNDER A COMMON FACEPLATE.

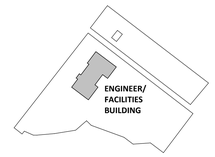
D. CIRCUIT ALL EMERGENCY LIGHTS, NIGHT LIGHTS (IF APPLICABLE) AND EXIT LIGHTS TO AN UNSWITCHED HOT CONDUCTOR, UPSTREAM OF ALL CONTROLS.

E. REFER TO SHEET E6.1 FOR LUMINAIRE SCHEDULE AND ADDITIONAL INFORMATION.

F. ALL LIGHTING CONTROL DEVICES, RELAYS, ETC. ABOVE LAY-IN CEILINGS SHALL BE MARKED WITH A BLACK 3/4" DIAMETER, PRESSURE-SENSITIVE ADHESIVE PAPER CIRCLE.

G. ALL MOUNTING HEIGHTS REFER TO BOTTOM OF LIGHT FIXTURE, UNO.

#	KEYNOTE DESCRIPTION
1	CIRCUIT CONTROLLED VIA LIGHTING CONTACTOR/TIME CLOCK. REFER TO DETAIL 10 ON SHEET E1.2.
2	CIRCUIT/CONTROLS CONTINUES TO MEZZANINE ABOVE.
3	CIRCUIT/CONTROLS CONTINUES TO LIGHTING BELOW.
4	PROVIDE LIGHTING CONTROL PANEL. REFER TO DETAIL 10/E1.2 FOR ADDITIONAL INFORMATION.
5	PROVIDE PARTITION TRANSMITTER AND RECEIVER FOR INDEPENDENT AND COMBINED LIGHTING CONTROL OF MULTIPURPOSE ROOM LIGHTING BASED ON PARTITION USE. PROVIDE NECESSARY MOUNTING FOR COMPLETE AND OPERATIONAL SYSTEM.
6	PROVIDE SET OF DRY CONTACTS FOR SOUND SYSTEM INTEGRATION INTO MULTIPURPOSE ROOM PARTITION KIT. SOUND SYSTEM SHALL FUNCTION AS SEPARATE SYSTEMS WHEN PARTITION IS CLOSED AND FUNCTION AS ONE SYSTEM WHEN PARTITION IS OPEN. COORDINATE WORK WITH SOUND SYSTEM INSTALLER.
7	CONTRACTOR SHALL PROVIDE EMERGENCY EGRESS CIRCUIT INDICATED TO FIXTURE, UL924 EMERGENCY TRANSFER DEVICE AND ALL ASSOCIATED COMPONENTS NECESSARY TO AUTOMATICALLY OVERRIDE LIGHTING CONTROLS AND TURN ON EGRESS FIXTURES UPON LOSS OF UTILITY POWER. REFER IN DETAIL 4/E1.3.



KEY PLAN

STATE OF OHIO
CHRISTOPHER MONNIN
E-67075
REGISTERED
PROFESSIONAL ENGINEER
CHRISTOPHER MONNIN
LICENSE #E-67075
EXPIRATION DATE: 12/31/2027

GARMANN MILLER
MARION, OHIO | COLUMBUS, OHIO | INDIANAPOLIS, INDIANA | FORT WAYNE, INDIANA
cmmgmt.com

CLERMONT COUNTY FACILITIES PHASE 2 MANAGEMENT BUILDING

NEW BUILDING FOR
4011 FLAGER ROAD BATAVIA, OH 45103

ISSUANCES/REVISIONS

	CONSTRUCTION DOCUMENTS	02/19/2026
1	ADDENDUM #01	03/10/2026

PROJECT NUMBER:	DRAWN BY:	CHECKED BY:
22001.00	CDH	AEM

SHEET TITLE:
LIGHTING PLAN

SHEET NUMBER:
E4.1

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