ADDENDUM NO. 1

TO: PLANS AND SPECIFICATIONS FOR STATE OF MISSOURI

Renovate Sub (Acid) Lab Missouri Geological Survey (DNR) Rolla, Missouri

PROJECT NO.: W2001-01

New Bid Opening Date: 1:30 PM, Thursday, January 5, 2023 (CHANGED)

Bidders are hereby informed that the construction Plans and/or Specifications are modified as follows:

SPECIFICATION CHANGES:

- 1. Section 001116 Invitation For Bid
 - a. REVISE Paragraph 3.0, A as follows: Until: 1:30 PM, Thursday, January 5, 2023
- 2. Section 028213 Asbestos Abatement
 - a. REMOVE entire section and REPLACE with attached version.
- 3. Section 081113 Hollow Metal Doors and Frames
 - a. REVISE Paragraph 2.4, C as follows: Exterior Door Frames: Welded type.
- 4. Section 099000 Painting and Coating
 - a. REVISE Paragraph 1.1, C, 1, a as follows:

Interior:

- (1) New Masonry CMU: Concrete, scored, smooth, high density, low density, and fluted.
- (2) New Metal Doors and Frames: Aluminum and galvanized.
- b. ADD Paragraph 2.3, B, 3 as follows:
 - 3. Newly exposed metal deck/bar joists.

Finish system:

- (1) Sherwin Williams
- (2) First Coat: Pro Industrial Waterborne Acrylic Dryfall Eggshell
- 5. ADD attached Section 102800 Toilet, Bath, and Laundry Accessories

6. Section 115313 – Laboratory Fume Hoods

- a. REVISE Paragraph 1.7, A, 3, d as follows: Fiberglass reinforced polyester resin liner
- b. REVISE Paragraph 1.7, A, 4, a as follows: Fiberglass reinforced, molded polyester resin
- c. REVISE Paragraph 1.7, A, 9, e as follows: Hoods shall fit through existing door openings or shall be designed to be disassembled/reassembled in the field to facilitate installation where shown on the Drawings.
- d. REVISE Paragraph 1.7, C, 2 as follows: The fume hood shall demonstrate a minimization of the volumetric rate of air (CFM) requirement at any give face velocity. With the sash open 18", the hood design shall provide a minimum face velocity of 100 FPM for an 8' long hood and 60 FPM for a 5' hood at the design exhaust rates shown on Sheet M401.
- e. REVISE Paragraph 2.2, B, 1 as follows: Ventilation: (3) speed variable air volume control based on sash position
- f. REVISE Paragraph 2.2, B, 3 as follows: Nominal Exterior Height: 59.0"
- g. REVISE Paragraph 2.2, B, 4, d as follows: Vertical Sash Positioning System: Designed to automatically lower sash to the closed position when user presence is not detected for a programmable amount of time. Sash lowering system shall detect obstructions in path of sash including transparent materials and prevent physical contact between the sash and the obstruction.
- h. DELETE Paragraph 2.2, B, 4, d, (1)
- i. REVISE Paragraph 2.2, B, 4, e as follows: Vertical Sash Pull: Extruded aluminum with chemical resistant finish
- j. REVISE Paragraph 2.2, B, 7 as follows: Interior Lining: Fiberglass reinforced polyester resin panels
- k. REVISE Paragraph 2.2, C, 1 as follows: Ventilation: (3) speed variable air volume control based on sash position
- I. REVISE Paragraph 2.2, C, 3, c as follows: Vertical Sash Positioning System: Designed to automatically lower sash to the closed position when user presence is not detected for a programmable amount of time. Sash lowering system shall detect obstructions in path of sash including transparent materials and prevent physical contact between the sash and the obstruction.
- m. DELETE Paragraph 2.2, C, 3, c, (1)
- n. REVISE Paragraph 2.2, C, 3, d as follows: Vertical Sash Pull: Extruded aluminum with chemical resistant finish
- o. REVISE Paragraph 2.2, C, 6 as follows: Interior Lining: Fiberglass reinforced polyester resin. Liner must be one continuous molded component of monolithic construction.
- p. REVISE Paragraph 2.2, C, 8 as follows: Access Panels: Removable panels on both side of hood exterior.
- q. REVISE Paragraph 2.4, F, 1 as follows: Fabricated from 14 gauge, 0.0781 inch stainless steel with epoxy coat finish.
- r. DELETE Paragraph 2.5, A, 3

7. Section 123553.19 – Wood Laboratory Casework

- a. ADD Paragraph 2.1, A, 5 as follows: 5. CiF Lab Solutions
- b. ADD Paragraph 2.1, A, 6 as follows: 6. Diversified Casework

8. Section 441300 – Dust Collector

a. ADD Paragraph 2.2 as follows

2.2 MANUFACTURERS

- 1. Basis of Design Manufacturer:
 - a. Donaldson Torit, Downflo Workstation
- 2. Other Acceptable Manufacturers
 - a. A.C.T. Dust Collectors
 - b. Hastings Air Energy Control, Inc.
- b. DELETE Paragraph 3.1, B through H and Paragraphs 3.2 and 3.3

DRAWINGS CHANGES:

1. SHEET G002

- a. ADD General Demolition Note 12: Furniture, Fixtures, and Equipment (FF&E) and other miscellaneous unsecured materials will be removed by the Owner prior to the start of construction activities on-site.
- b. ADD General Demolition Note 13: Existing lab safety and instructional signage shall be removed and offered to the Owner for salvage. Procurement and installation of proposed lab safety and instructional signage will be completed by the Owner.

2. SHEET G101

- a. REVISE Room 104 name to Inert Storage and Room 107 to Conodont Lab
- b. REMOVE Hood and Cabinetry from Room 104
- c. ADD Hood and Cabinetry to Room 107
- d. Revised sheet is attached.

3. <u>SHEET AD101</u>

- a. ADD Keynote AD22 Remove existing Masonry Wall.
- b. REVISE Demolition Floor Plan to remove existing countertop
- c. Revised sheet is attached.

4. SHEET A100

- a. REVISE Room 104 name to Inert Storage and Room 107 to Conodont Lab
- b. REMOVE Hood and Cabinetry from Room 104
- c. ADD Hood and Cabinetry to Room 107
- d. ADD Detail 6/A100
- e. ADD Detail 7/A100
- f. REVISE Detail 2/A100
 - i. Show 4" x 4" x 5/16" angles
 - ii. Add Hollow Metal Frame Note: HM FRAME (USE FRAME W/ 3/8" FLAT HEAD EXPANSION BOLT ANCHORS)
 - iii. Add Note: DOOR OPENINGS: GROUT EXISTING CAVITIES FULL FOR HEIGHT OF TWO COURSES AND 10" BEYOND JAMB FOR 10" BEARING
- g. REVISE Detail 3/A100
 - i. Add note: HM FRAME (GROUT SOLID OR USE PUNCH & DIMPLE FRAME W/ 3/8" FLAT HEAD EXPANSION BOLT ANCHORS)
- h. REVISE Door and Frame Schedule Door 105B Head Detail to 6/A100

- i. REVISE Door and Frame Schedule Door 105B Jamb Detail to 7/A100
- i. Revised sheet is attached.

5. SHEET A101

- a. REVISE Roof Equipment Layout
- b. Revised sheet is attached.

6. SHEET A400

- a. REVISE Detail 2/A400
 - i. Add Paper Towel Dispenser and Soap Dispenser
- b. REVISE Detail 4/A400
 - i. Add Paper Towel Dispenser and Soap Dispenser
- c. Revised sheet is attached.

7. SHEET A700

- a. REVISE Detail 3/A700
 - i. Change Elevation Location to Room 107
- b. REVISE Room 104 name to Inert Storage and Room 107 to Conodont Lab
- c. REMOVE Hood and Cabinetry from Room 104
- d. ADD Hood and Cabinetry to Room 107
- e. ADD PNT-2 to Walls Schedule for all newly exposed metal deck and bar joists
- f. Revised sheet is attached.

8. SHEET A800

- a. REVISE 3D view location for Conodont Lab
- Revised sheet is attached.

9. SHEET S001

 REVISE heading for Special Structural Inspections and Testing section from "Special Structural Inspections and Testing (Contractor responsibility)" to be "Special Structural Inspections and Testing"

10. SHEET P101

- a. REVISE location of lab sink from room 104 to room 107 and revise corresponding room names.
- b. REVISE plumbing plans for clarity.
- c. REPLACE section view with 3D-view.
- d. REVISE keyed notes with additional notes provided for additional detail.
- e. Revised sheet is attached.

11. SHEET M101

- a. REVISE location of EF-06 to accommodate revised lab hood location in room 107 in lieu of room 104. Revise corresponding room names.
- b. REVISE airflows from room 103, 104, 105 and 107.
- c. ADD transfer grilles.
- d. ADD supply air duct to room 104.
- e. ADD supply air duct to room 108.

- f. DELETE transfer duct between rooms 108 and 107.
- g. ADD PVC Exhaust Duct Notes to Detail 3.
- h. REVISE duct note to read PVC exhaust duct in lieu of schedule 40
- i. Revised sheet is attached.

12. SHEET M401

- a. REVISE airflows to obtain desired pressure scheme with relocated lab hood.
- b. Revised sheet is attached.

13. SHEET M402

- a. REVISE airflows to obtain desired pressure scheme with relocated lab hood.
- Revised sheet is attached.

14. SHEET M601

- a. REVISE Remarks on Exhaust Fan Schedule to note all fans shall be associated with the base bid.
- b. REVISE Exhaust Fan Schedule Basis of Design model number for the Labconco model to 7183413 for EF-02, EF-03, EF-05 and EF-06.
- c. REVISE Remark 2 below Exhaust Fan Schedule as follows: 3-speed fan control provided by lab hood controller.
- d. Revised sheet is attached.

15. SHEET M701

- a. REVISE Make-up Air Unit Controls Diagram note A, 3, b to note the room 104 static pressure setpoint revision to be 0.00 in.w.c. adjustable between -0.00 and -0.10 in.w.c.
- b. Revised sheet is attached.

16. SHEET E100

- a. REVISE Label on parking lot from "New Parking Lot" to be "Parking Lot."
- b. Revised sheet is attached.

17. SHEET E101

- a. REVISE location of EF-06.
- b. REVISE location of water heater and circulation pump.
- c. REVISE room names for rooms 104 and 107.
- d. REVISE location of lab hood LH-03.
- e. Revised sheet is attached.

GENERAL COMMENTS:

- 1. The Pre-Bid Meeting was held December 12, 2022 followed by a walk-through of the project site. The Pre-Bid Meeting sign-in sheet is attached.
- 2. Bidders desiring to perform a site inspection should contact Jerry Prewett (573) 368-2105 to schedule a time to enter the facility.

- 3. Please contact Mandy Roberson, Contract Specialist, at (573) 522-0074, Mandy.Roberson@oa.mo.gov for questions about bidding procedures, MBE\WBE\SDVE Goals, and other submittal requirements.
- 4. The deadline for technical questions is noon on December 21, 2022.
- 5. Changes to, or clarification of, the bid documents are only made as issued in the addenda.
- 6. All correspondence with respect to this project must include the State of Missouri project number as indicated above.
- 7. Current Planholders list is available online at: W2001-01 Renovate Sub (ACID) Lab-Missouri Geological Survey (DNR) :: State of Missouri Office of Administration (oafmdcplanroom.com)
- 8. Prospective Bidders contact American Document Solutions, 1400 Forum Blvd Suite 7A, Columbia MO 65203, (573) 446-7768 to get plans and specifications.
- All bids shall be submitted on the bid form without additional terms and conditions, modifications, or stipulations. Each space on the bid form shall be properly filled including an amount for the alternate. Failure to do so will result in rejection of the bid.
- 10. MBE/WBE/SDVE participation requirements can be found in DIVISION 00. The MBE/WBE/SDVE participation goals are 10%/10%/3%, respectively. Only certified firms as of the bid opening date can be used to satisfy the MBE/WBE/SDVE participation goals for this project. If a bidder is unable to meet a participation goal, a Good Faith Effort Determination Form must be completed. Failure to complete this process will result in rejection of the bid.

ATTACHMENTS:

- 1. Section 028213
- 2. Section 102800
- 3. Sheet G101
- 4. Sheet AD101
- 5. Sheet A100
- 6. Sheet A101
- 7. Sheet A400
- 8. Sheet A700
- 9. Sheet A800
- 10. Sheet P101
- 11. Sheet M101
- 12. Sheet M401
- 13. Sheet M402
- 14. Sheet M601
- 15. Sheet M701
- 16. Sheet E100
- 17. Sheet E101
- 18. Pre-Bid Meeting Sign-In Sheet

December 21, 2022

END ADDENDUM NO. 1

SECTION 028213 - ASBESTOS ABATEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Perform all operations in connection with asbestos abatement and related work as shown on drawings and/or specified herein.

B. Description of Work:

- 1. Removal: All asbestos containing building materials identified to be removed on the drawings and/or specified herein. The EPA NESHAP and OSHA regulations as adopted by the Missouri Department of Natural Resources as well as Missouri Air Conservation Law Sections 643.225 643.250 and Missouri State Regulations 10 CSR 10-6.241 and 10-6.250 shall govern these asbestos abatement activities. The work includes all coordination efforts with the Missouri Geological Survey and other contractors to complete this portion of the project.
- 2. Asbestos removal work includes the following:
 - a. Base Bid

Proper removal and disposal of the identified asbestos containing drywall joint compound, cementitious board, and countertop in the Missouri Geological Survey Sub (Acid) lab. Identified asbestos containing building materials and approximate quantities are described below and are shown on Drawings.

ACBM Description	Location	Approximate Quantity
Drywall Joint Compound	Storage and Shop Area	150 Square Feet
Cementitious Board*	Acid Hood* in Acid Lab	10 Square Feet*
Countertop and Sink	Acid Lab	60 Square Feet

^{*} Note: Additional suspect asbestos containing materials may be associated with the acid hood in the Acid Lab. For the purpose of this project, the Asbestos Abatement Contractor shall assume the entire acid hood is asbestos containing and all associated material shall be properly removed and disposed as asbestos containing material.

C. Special Precautions:

- 1. Coordinate with the Owners Project Representative for the shutdown and isolation of all electrical circuits and air movement systems within the regulated area from that of the rest of the facility to prevent any inconvenience to building occupants and contamination outside of the regulated area.
- 2. Significant coordination efforts are expected between the Asbestos Abatement Contractor, Missouri Geological Survey, and other contractors. The lump sum cost shall include all costs associated with any coordination efforts necessary between contractors to complete the entire project.
- D. Restoration: Asbestos Abatement Contractor is responsible for restoring all existing finish surfaces to their original state, which were damaged as a result of removal activities. Replacement of removed building materials is not part of the asbestos abatement work.

1.2 REFERENCES

A. General Reference:

- 1. All work under this contract shall be done in strict accordance with all applicable Federal, State, and Local regulations, standards and codes governing asbestos abatement and any other trade work done in conjunction with the abatement.
- 2. The most recent edition of any relevant regulation in force at the time of bid opening shall be in effect. Where conflict among the laws, rules, and regulations or with these specifications exists, the most stringent requirements shall be utilized.
- 3. The Asbestos Abatement Contractor shall make available, in the clean change area of the worker decontamination system, copies of this specification and all standards, regulations, and codes listed hereinafter as necessary.

B. Specific Reference:

- 1. Occupational Safety and Health Administration (OSHA):
 - a. Title 29 Code of Federal Regulations (CFR), Section 1910
 - 1) .20 Access to Employee Exposure and Medical Records.
 - 2) .134 Respiratory Protection (see also ANSI Z88.2 (1980)).
 - 3) .1001 Occupational Exposure to Asbestos General Industry.
 - 4) .1200 Hazard Communication.
 - 5) Subpart D Walking Working Surfaces.
 - 6) Subpart S Electrical.
 - b. Title 29 Code of Federal Regulations (CFR), Section 1926.1101 Construction Industry, including the <u>mandatory</u> appendices:
 - 1) Appendix A OSHA Reference Method.
 - 2) Appendix C Qualitative and Quantitative Fit Testing Procedures.
 - 3) Appendix D Medical Questionnaires.
 - 4) Appendix E Interpretation and Classification of Chest Roentgenograms.
 - 5) Non-mandatory appendices:
 - 6) Appendix B Detailed Procedures for Asbestos, Tremolite, Anthrophyllite, and Actinolite Sampling and Analysis.
 - 7) Appendix F Work Practices and Engineering Controls for Major Asbestos Removal, Renovation, and Demolition Operations.
 - 8) Appendix G Work Practices and Engineering Controls for Small Scale, Short Duration Asbestos Renovation and Maintenance Activities.
 - 9) Appendix H Substance Technical Information for Asbestos.
 - 10) Appendix I Medical Surveillance Guidelines for Asbestos, Tremolite, Anthrophyllite, and Actinolite.
 - c. Title 29 Code of Federal Regulations (CFR), Section 1926.59 Hazard Communication Standard, requires employers to inform their workers of the hazards of any chemicals used on the project and to train their employees in proper safeguards.
 - 1) Subpart L Scaffolds.
 - 2) Subpart X Stairways and Ladders.
- 2. Environmental Protection Agency (EPA): Title 40 Code of Federal Regulations (CFR) Part 763 Subpart G Asbestos Abatement Projects; Worker Protection
- 3. Environmental Protection Agency (EPA) Title 40 Code of Federal Regulations (CFR) Part 61 National Emission Standards for Hazardous Air Pollutants; Asbestos NESHAP Revision.
 - a. Subpart A General Provisions.
 - b. Subpart B National Emission Standard for Asbestos
 - c. Subpart M National Emissions Standard for Asbestos, Asbestos Stripping Work Practices and Disposal of Asbestos Waste.

- 4. Missouri Department of Natural Resources (MDNR), State of Missouri, Missouri Air Conservation Law Sections 643.225 643.250
- 5. State of Missouri, Missouri State Regulations 10 CSR 10-6.241 and 10-6.250.

1.3 QUALIFICATIONS

- A. The prospective Asbestos Abatement Contractor who is proposed to actually perform the asbestos abatement work, shall submit, if requested, to the Owner the data hereinafter requested within ten (10) days after Bid Opening.
- B. The proposed Asbestos Abatement Contractor shall, if requested:
 - 1. Demonstrate prior experience on asbestos abatement projects of similar nature and scope of that being bid, through the submission of letters of reference from building owners including the name, address, and telephone numbers of the contact persons who are specifically familiar with the referenced projects. At least three (3) previous users of this service shall be submitted. Include descriptions of projects and records of all air monitoring data that was generated during the projects.
 - 2. Submit a list of names, work responsibilities and evidence of certification for all employees that will be assigned to the asbestos abatement portion of this project: At least one firm principal, the firm's "competent person" and any other personnel performing supervisory duties must be certified by the Missouri Department of Natural Resources (MDNR) as an Asbestos Supervisor.
- C. Contractor's employees who perform asbestos abatement activities must hold a valid Asbestos Worker License certified by the MDNR.

1.4 **DEFINITIONS**

A. See 29 CFR 1926.1101(b), 40 CFR 763 Subpart E Section 763.83 and 40 CFR 61 Subpart M Section 61.141.

1.5 SUBMITTALS AND NOTICES

- A. If necessary, prior to commencement of work, Asbestos Abatement Contractor shall:
 - 1. Submit the following items to the Missouri Department of Natural Resources (MDNR) postmarked or facsimile dated at least 10 working days (or less if waived) prior to the commencement of an asbestos abatement project.
 - a. The Asbestos NESHAP Notification of Demolition and Renovation provided by the MDNR shall be completed and submitted by the contractor for all abatement projects. The completed form shall contain only correct and accurate information. The Architect/Engineer shall be copied on all correspondence and notifications.
 - 2. The contractor shall notify the MDNR in writing on the form provided by the Department prior to any change in start date, completion date and scope of the project.
 - 3. Five (5) days prior to commencement of work, the contractor shall submit the following items to the project manager assigned by the Engineer/Architect. These items shall be up-to-date and shall be maintained by the project manager.
 - a. Documentation of arrangements for the transport and disposal of asbestoscontaining or contaminated materials and supplies and the name and location of the disposal site.

- b. Documentation that each asbestos worker and supervisor is licensed.
- c. Drawings for layout and construction of decontamination enclosure systems and barriers for isolation of the work area.
- d. When rental equipment is to be used in removal areas or to transport waste materials, a copy of the written notification to inform the rental company of the nature of use of the rented equipment.
- e. Copies of initial and current accreditation certificates of all licensed persons and the original license.
- f. Documentation that all employees or agents who may be exposed to airborne asbestos in excess of the OSHA action level have been medically determined to be physically capable of working while wearing the respirator required without suffering adverse health effects.
- 4. During abatement activities the contractor shall submit on a bi-weekly basis the following items to the Architect/Engineer:
 - a. Job progress reports detailing abatement activities, including a review of progress with respect to previously established schedules, problems and actions taken, injury reports, and equipment breakdowns.
 - b. Copies of all transport manifests, trip tickets and disposal receipts for all asbestos waste materials removed from the work area during the abatement process shall be submitted to the Architect/Engineer within 10 days after the completion of the project.
 - c. Copies of worksite entry log books with information on worker and visitor access.
 - d. Logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls.
 - e. Logs documenting that each asbestos worker present and in the abatement area was licensed as such by the MDNR.
 - f. Any revisions to the start date, completion date or scope of the project.
 - g. Results of bulk material analysis and air sampling data collected during the course of the abatement including OSHA compliance air monitoring results.

1.6 SITE SECURITY

- A. Asbestos Abatement Contractor shall be responsible for the security of the regulated area(s) during abatement operations in order to protect work efforts and equipment.
- B. The regulated area shall be restricted to only authorized, trained, and protected personnel. These may include the Contractor's employees, employees of subcontractors, state representatives, Owner's representative(s), and any other designated individuals.
- C. A log book shall be maintained in the clean room area of the decontamination system. Anyone who enters the regulated area must record name, affiliation, time in, and time out for each entry.
- D. Provide protection for personnel and building in accordance with 40 CFR 763 Subpart G Worker Protection, 29 CFR 1910.134, and 29 CFR 1926.1101 Appendix F & Appendix G.
- E. Access to the regulated areas under containment shall be through air locks. All other means of access (doors, windows, hallways, etc.) shall be blocked or locked so as to prevent entry to or exit from the regulated area. The only exceptions to this rule are the waste pass-out air lock which shall be sealed, except during the removal of containerized asbestos waste from the regulated area, and emergency exits in case of fire or accident. Emergency exits shall <u>not</u> be locked from the inside; however, they shall be sealed with polyethylene sheeting and tape until needed.

1.7 MULTI-EMPLOYER WORKSITES

- A. The project is being conducted at a multi-employer worksite.
- B. On multi-employer worksites, an Asbestos Abatement Contractor performing work requiring the establishment of a regulated area shall inform other employers on the site of the nature of the Asbestos Abatement Contractor's work with asbestos, of the existence of and requirements pertaining to regulated areas, and the measures taken to ensure that employees of such other employers are not exposed to asbestos.
- C. Asbestos hazards at a multi-employer work site shall be abated by the contractor who created or controls the source of asbestos contamination. For example, if there is a significant breach of an enclosure containing Class I work, the employer responsible for erecting the enclosure shall repair the breach immediately.
- D. In addition, all employers of employees exposed to asbestos hazards shall comply with applicable protective provisions to protect their employees. For example, if employees working immediately adjacent to a Class I asbestos job are exposed to asbestos due to the inadequate containment of such job, their employer shall either remove the employees from the area until the enclosure breach is repaired; or perform an initial exposure assessment.
- E. The Asbestos Abatement Contractor shall take steps on a daily basis to ascertain the integrity of the enclosure and/or the effectiveness of the control method relied on by the Asbestos Abatement Contractor to assure that asbestos fibers do not migrate from regulated areas to adjacent areas.
- F. All general contractors on a construction project which includes work covered by 29 CFR 1926.1101 shall be deemed to exercise general supervisory authority over the work covered by 29 CFR 1926.1101, even though the general contractor is not qualified to serve as the asbestos "competent person". As supervisor of the entire project, the general contractor shall ascertain whether the Asbestos Abatement Contractor is in compliance with 29 CFR 1926.1101, and shall require such contractor to come into compliance with the standard when necessary.

1.8 PRECONSTRUCTION MEETING

- A. The Contractor shall attend a pre-construction meeting to be conducted at a time and place designated by the Owners Project Representative. All parties (or designated person) having an active role in asbestos abatement shall be in attendance.
- B. The Contractor, Contractor's competent person and other supervisory personnel who will provide on-site direction of the abatement activities must attend.
- C. At this meeting the Contractor shall provide all pre-construction documentation as required by Article entitled: "Submittals and Notices," herein.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Polyethylene sheeting for containments shall be a minimum of six (6) mil thick. Sheeting shall be used in widths selected to minimize the frequency of joints.
- B. Polyethylene sheeting utilized for decontamination enclosure shall be opaque white or black in color.

- C. The contractor performing asbestos abatement shall furnish all labor, materials, and equipment necessary for completion of the project.
 - 1. All materials subject to damage shall be stored off the ground, away from wet or damp surfaces, and under protective cover to prevent damage or contamination. Replacement materials shall be stored outside of the work area until abatement is completed.
 - 2. Damaged and deteriorating materials shall not be used and shall be removed from the premises.
 - 3. Plastic (polyethylene) sheeting, in sizes to minimize the frequency of joints, shall be furnished.
 - 4. Duct tape shall be used for sealing joints of adjacent sheets of plastic and facilitating attachment of plastic sheets to finished or unfinished surfaces.
 - 5. Spray adhesive shall be capable of providing additional sealing of joints and facilitating attachment of plastic sheeting to finished or unfinished surfaces where needed.
 - 6. The surfactant used to produce amended water shall be a product that is nontoxic, noncarcinogenic, and is not an eye, nose, or skin irritant.
 - 7. Airtight and watertight containers shall be provided to receive and retain any asbestos-containing or contaminated materials for storage until disposal at a landfill. The containers shall be labeled in accordance with OSHA regulation 29 CFR 1926.1101(k)(8).
 - 8. Plastic asbestos disposal bags shall be a minimum of six (6) mil or equivalent in thickness and be marked with caution labels in accordance with OSHA regulation 29 CFR 1926.1101(k)(8).
 - 9. Enclosure materials shall be impact resistant and assembled to be airtight. Gypsum panels taped at the seams, tongue and groove boards, and boards with spline joints all meet this requirement. Joints between walls and ceilings shall be caulked.
 - 10. An encapsulant shall adhere to the fibrous substrate with sufficient penetration to prevent separation of the sealant from the asbestos-containing materials.
 - 11. Hardboard or plywood, minimum 1/4 inch thick shall be furnished to protect finished floor surfaces such as carpet or hardwood floors to prevent damage from scaffolds, lifts, or falling objects in the portion of the building to remain. Such protection shall also be provided for polyethylene sheeting under the scaffold area if the material being removed has sharp projections which could readily puncture the enclosure material.
 - 12. Disposal drums for transporting disposal bags shall be metal or fiberboard with locking ring tops.
 - 13. Bridging type encapsulant (for sealing masonry and concrete walls, barrier surfaces during cleanup phase and asbestos containing surfaces to remain in place) shall be capable of being applied with airless spray equipment, able to withstand light impact or abrasion without releasing fibers, and water insoluble when cured.
 - 14. Penetrating type encapsulant (for sealing scratch coat plaster, wood grounds and wood blocking which have been in contact with asbestos containing material and also exposed ends of pipe insulation) shall not be noxious or toxic to applicator or subsequent occupants, shall have high flame retardance and low toxic fume and smoke emission ratings, shall have some permeability to water vapor to prevent condensation accumulation.

2.2 EQUIPMENT

- A. Negative Pressure Ventilation Units:
 - 1. Negative air pressure equipment shall be in compliance with ANSI Z9.2 (1991), Local Exhaust Ventilation.
 - 2. Negative air pressure systems shall be operated in accordance with "Specifications and Operating Procedures for the Use of Negative Pressure Systems for Asbestos Abatement," Guidance for Controlling Friable Asbestos-Containing Materials in Buildings, EPA Report Number 560/5-85-024 (1985).

3.1 GENERAL CONDITIONS

A. Building protection, commencement of asbestos abatement work, preparation of regulated area(s), worker decontamination enclosure systems, remote decontamination enclosure systems, equipment decontamination enclosure systems, separation barriers, maintenance of decontamination enclosure systems and workplace barriers, workplace entry and exit procedures, removal procedures, cleanup procedures, disposal procedures, and reestablishment of the work area shall all be carried out in accordance with all applicable federal, state, and local regulations and as described herein.

3.2 ADDITIONAL CONDITIONS

A. Plans for construction, including materials and layout of the worker decontamination enclosure system, shall be submitted to the Architect/Engineer prior to work initiation. Plans must include floor plan with dimensions, materials, size, thickness, plumbing and electrical utilities.

B. REMOVAL OF ASBESTOS CONTAINING DRYWALL JOINT COMPOUND

- 1. Removal of the asbestos containing drywall joint compound located in the storage and shop area of the Missouri Geological Survey Sub (Acid) Lab shall be conducted in accordance with the methods of compliance for Class I Work set forth in 29 CFR 1926.1101(g). All drywall shall be removed along with the drywall joint compound and shall be properly disposed of as asbestos containing material. A full containment with negative pressure shall be erected around the materials to be abated. Such containment may require construction of temporary walls for installation of enclosure system.
- 2. HVAC systems shall be isolated in the regulated areas by sealing with a double layer of 6 mil plastic or the equivalent.
- 3. Removal shall be conducted within a Negative Pressure Enclosure (NPE) system consisting of at least one (1) layer of 6 mil plastic. The NPE shall maintain at least four (4) air changes per hour. A minimum of -0.02 column inches of water pressure differential, relative to outside pressure, shall be maintained within the NPE as evidenced by manometric measurements. The NPE shall be kept under negative pressure throughout the period of its use. Air movement shall be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or a collection device.
- 4. Electrical circuits in the enclosure shall be deactivated, unless equipped with ground-fault circuit interrupters.
- 5. Removal shall be conducted utilizing wet methods.
- 6. All asbestos containing material removed shall be placed into leak-tight containers for proper disposal.

C. REMOVAL OF ASBESTOS CONTAINING CEMENTITIOUS BOARD AND COUNTERTOP AND SINK

- 1. If the cementitious board and all other materials associated with the lab hood and countertop and sink can be removed by not rendering the material friable:
 - a. The Acid Lab room shall be isolated utilizing critical barriers.

- b. The area must be pre-cleaned.
- c. Wet asbestos containing material thoroughly.
- d. Remove the material generally intact utilizing methods not rendering the material friable.
- e. Place the components in leak-tight containers or wrap components in 2 layers of 6-mil polyethylene sheeting. The sheeting must be sealed with tape to provide an airtight seal around the component.
- f. A wrap and cut method may be used when an entire component will be removed. If the piping in which the asbestos containing thermal system insulation is located on is not scheduled to remain, the Asbestos Abatement Contractor may utilize a wrap and cut method where appropriate.
- g. The container or wrapped component must be labelled with the appropriate asbestos warning labels.
- h. The components must then be properly removed from the building and disposed as asbestos waste.
- i. Following removal, the room shall be cleaned using wet methods and HEPA vacuums.
- 2. If the cementitious board and countertop and sink are going to be rendered friable during removal:
 - a. Removal shall be conducted in accordance with the methods of compliance for Class I Work set forth in 29 CFR 1926.1101(g). A full containment with negative pressure shall be erected around the materials to be abated.
 - b. HVAC systems shall be isolated in the regulated areas by sealing with a double layer of 6 mil plastic or the equivalent.
 - c. Removal shall be conducted within a Negative Pressure Enclosure (NPE) system consisting of at least one (1) layer of 6 mil plastic. The NPE shall maintain at least four (4) air changes per hour. A minimum of -0.02 column inches of water pressure differential, relative to outside pressure, shall be maintained within the NPE as evidenced by manometric measurements. The NPE shall be kept under negative pressure throughout the period of its use. Air movement shall be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or a collection device.
 - d. Electrical circuits in the enclosure shall be deactivated, unless equipped with ground-fault circuit interrupters.
 - e. Removal shall be conducted utilizing wet methods.
 - f. All asbestos containing material removed shall be placed into leak-tight containers for proper disposal.

D. WATER COLLECTION AND DISPOSAL

- 1. All excess water resulting from work activities shall be collected and placed in sealed containers for disposal as contaminated material.
- 2. Water from the decontamination shower shall be collected in a holding tank and filtered to remove particles of 0.5 microns or larger size before draining water into sanitary sewer system. The drainage and filtering system shall consist of the following:
 - a. A centrifugal pump capable of pumping at least 25 gallons/minute.
 - b. Two (2) filter cartridge housings, one (1) serving as a pre-filter, utilizing at least 6 cylindrical 100 micron filters (reusable type) and the other serving as final filter with 6 cylindrical 0.5 micron filters.
 - c. Maintain two (2) sets (6 cylinders per set) of 100 micron filters, to allow one set to be cleaned while the other set is in use.
 - d. A common garden hose may be connected to final filter housing to drain water to sanitary sewer system.

E. AIR MONITORING

- 1. The Asbestos Abatement Contractor shall take steps on a daily basis to ascertain the integrity of the enclosure and/or the effectiveness of the control method relied on by the Asbestos Abatement Contractor to assure that asbestos fibers do not migrate from regulated areas to adjacent areas.
- 2. Air monitoring may or may not be performed by an independent air sampling professional (ASP) employed by the engineer/architect to verify work procedures are not causing elevated airborne concentrations of asbestos fibers in the interior of the structure adjacent to the work area. However, if air sampling is conducted by an independent ASP, such air sampling shall not take the place of the required air sampling to be conducted by the Asbestos Abatement Contractor.
- F. Daily Personal Air Monitoring (OSHA Compliance) (To be Conducted by Contractor):
 - a. Daily determination of employee exposure shall be made by collecting one or more breathing zone samples that are representative of the 8-hour TWA, full-shift exposure for each employee in each regulated area; and one or more breathing zone air samples that are representative of 30-minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each regulated area.
 - b. Daily personal air monitoring testing may be eliminated if employees are equipped with supplied-air respirators operated in a positive-pressure mode while performing abatement work.
- G. CLEARANCE TESTING PHASE CONTRAST MICROSCOPY (PCM) (To be Conducted by Owner's Representative)
 - 1. Clearance sampling and analysis will be performed on select containments only after the asbestos abatement work area has been completely cleaned and visually inspected.
 - 2. Air sampling for final clearance shall be conducted using collection procedures in accordance with NIOSH Standard Analytical Method 7400.
 - 3. The specific locations where samples shall be taken and the number of samples shall be established by the Owner's Air Sampling Professional.
 - 4. Aggressive sampling shall be performed with portable fans circulating air in the work area to simulate actual use conditions.
 - 5. Air samples shall be analyzed by Phase Contrast Microscopy.
 - 6. All samples analyzed shall indicate concentrations of airborne fibers less than 0.01 f/cc, or less than the average of the fiber count established by Baseline Test for outside containment air, whichever is greater. Areas exceeding this level shall require the area to be recleaned and retested until satisfactory levels are obtained. Only when tests meet the acceptable level, can the protective barriers of the regulated area be removed.
 - 7. Owner will pay for initial clearance testing. The cost of any retesting, necessitated as a result of failure to meet requirements for clearance, shall be borne by the Asbestos Abatement Contractor.

END OF SECTION 028213

SECTION 102800-TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A Grab bars.
- B Mirrors.
- C Paper towel dispensers.
- D Soap dispensers.
- E Toilet tissue dispensers.

1.2 REFERENCE STANDARDS

- A ADA Standards 2010 ADA Standards for Accessible Design 2010.
- B ASTM C1036 Standard Specification for Flat Glass 2021.
- C ASTM C1503 Standard Specification for Silvered Flat Glass Mirror 2018.

1.3 ADMINISTRATIVE REQUIREMENTS

A Coordinate work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.

1.4 SUBMITTALS

- A See Section 013000 Administrative Requirements for submittal procedures.
- B Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A Basis of Design Manufacturer: American Specialties, Inc: www.americanspecialties.com/#sle.
- B Other Acceptable Manufacturers:

C Substitutions: See Section 016000 - Product Requirements.

2.2 GRAB BARS

- A Grab Bars: Type 304 stainless steel.
 - Standard Duty Grab Bars:
 - a. Push/Pull Point Load: 250 lbf (1112 N), minimum.
 - b. Clearance: 1-1/2 inch (38 mm) clearance between wall and inside of grab bar.
 - c. Length and Configuration: As indicated on drawings.

2.3 MIRRORS

- A Mirrors: Stainless steel framed, 1/4 inch (6 mm) thick annealed float glass, ASTM C1036.
 - 1. Annealed Float Glass: Silvering, protective and physical characteristics in compliance with ASTM C1503.
 - 2. Size: [18] inches wide by [36] high.
 - 3. Products:
 - a. Model 0600 Series Stainless Steel Inter-Lok Angle Frame Plate Glass Mirror.
 - b. Substitutions: Section 016000 Product Requirements.

2.4 PAPER TOWEL DISPENSERS

- A Paper Towel Dispenser: Folded paper type, stainless steel, with viewing slots on sides as refill indicator, tumbler lock.
 - 1. Mounting: As indicated in product listing.
 - 2. Folded Towel Dispenser Capacity: 400 C-fold.
 - 3. Products:
 - a. Model 0210 Traditional Collection Paper Towel Dispenser Multi, C-Fold Surface-mounted.
 - b. Substitutions: Section 016000 Product Requirements.

2.5 SOAP DISPENSERS

- A Automated Soap Dispenser: Liquid soap dispenser, with stainless steel cover and window to gauge soap level, tumbler lock.
 - 1. Mounting: As indicated in product listing.
 - 2. Minimum Capacity: As indicated in product listing.
 - 3. Products:
 - a. Model 0360 Automatic Soap Dispenser Liquid Battery 35 oz (1.04 L) Surface-mounted.
 - b. Substitutions: Section 016000 Product Requirements.

2.6 TOILET TISSUE DISPENSERS

- A Toilet Tissue Dispenser: Surface-mounted bracket type, stainless steel, spindleless type for tension spring delivery designed to prevent theft of tissue roll.
 - 1. Capacity: As indicated in product listing.
 - 2. Attached Purse Shelf: 0.03 inch (0.8 mm) satin-finished stainless steel, with rolled or formed edge at front.
 - 3. Products:
 - Model 0263-1 Toilet Tissue Holder Single Standard Roll, Controlled Delivery -Surface-mounted.
 - b. Substitutions: Section 016000 Product Requirements.

2.7 MATERIALS

A Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.

2.8 FINISHES

A Stainless Steel: Satin finish, unless otherwise noted.

PART 3 EXECUTION

3.1 EXAMINATION

- A Verify existing conditions before starting work.
- B Verify exact location of accessories for installation.

3.2 INSTALLATION

- A Install accessories in accordance with manufacturers' instructions in locations indicated on drawings.
- B Install plumb and level, securely and rigidly anchored to substrate.
- C Mounting Heights: As required by accessibility regulations, unless otherwise indicated.

END OF SECTION 102800

		OCCUDANCY	TABLE 10	04.1.2		# OF	
ROOM#	ROOM NAME	OCCUPANCY CLASSIFICATION	FUNCTION OF SPACE	FLOOR AREA PER OCCUPANT	ROOM AREA	# OF OCCUPANTS	COMMENTS
101	ROCK CRUSHING	BUSINESS B	BUSINESS	100 SF	283 SF	2.8	
102	BALL MILL	BUSINESS B	BUSINESS	100 SF		0.5	
105	CUTTINGS ROOM	BUSINESS B	BUSINESS	100 SF	451 SF	4.5	
106	TOILET	BUSINESS B	BUSINESS	100 SF	65 SF	0.7	
107	CONODONT LAB	BUSINESS B	BUSINESS	300 SF	185 SF	0.6	
108	ACID LAB	BUSINESS B	BUSINESS	100 SF	284 SF	2.8	
USINESS	В				1318 SF	11.9	
103	INERT STORAGE	STORAGE - LOW HAZARD S-2	BUSINESS	300 SF	100 SF	0.3	
104	INERT STORAGE	STORAGE - LOW HAZARD S-2	BUSINESS	100 SF	152 SF	1.5	
109	ACID STORAGE	STORAGE - LOW HAZARD S-2	BUSINESS	300 SF	62 SF	0.2	
TORAGE	LOW HAZARD S-2		•		314 SF	2.1	
IAIN LEVE	L				1632 SF	14.0	
RAND TO	TAL				1632 SF	14.0	

BUILDING CODE REVIEW INFORMATION

STATE OF MISSOURI JURISDICTION:

APPLICABLE CODES: 2018 INTERNATIONAL EXISTING BUILDING CODE 2018 INTERNATIONAL PLUMBING CODE 2018 INTERNATIONAL MECHANICAL CODE

BUILDING INFORMATION - 2018 INTERNATIONAL EXISTING BUILDING CODE

CHAPTER 3 - PROVISIONS FOR ALL COMPLIANCE METHODS SECTION 305.4 CHANGE OF OCCUPANCY - OCCUPANCY HAS NOT CHANGED

ADA WITH 2010 ADDAG UPDATES

CHAPTER 5 - PRESCRIPTIVE COMPLIANCE METHOD

SECTION 503.1 ALTERATIONS - EXCEPT AS PROVIDED BY SECT. 302.4. AND 302.5, ALTERATIONS SHALL COMPLY W/ THE REQUIREMENTS OF THE I.B.C. -ALL ALTERATIONS WILL COMPLY W/ SECT'S. 302.4, 302.5 & THE 2018 I.B.C.

CHAPTER 6 - CLASSIFICATION OF WORK SECTION 603 ALTERATION - LEVEL 2 - LEVEL 2 ALTERATIONS INCLUDE THE RECONFIG. OF SPACE, ADDITION OR ELIMIN. OF DOORS/ WINDOWS, RECONFIG. OF ANY SYSTEM, OR THE INSTALLATION OF ANY ADDITIONAL EQUIP. -AS ALL ALTERATIONS ARE CONTAINED IN A WORK AREA THAT OCCUPIES

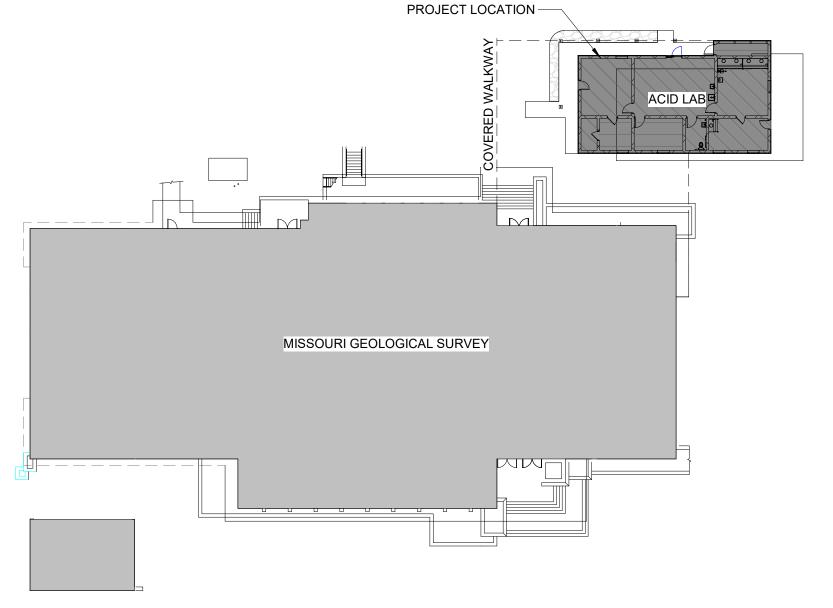
LESS THAN 50% OF BUILDING AREA, THIS PROJECT FALLS UNDER LEVEL 2 **ALTERATIONS**

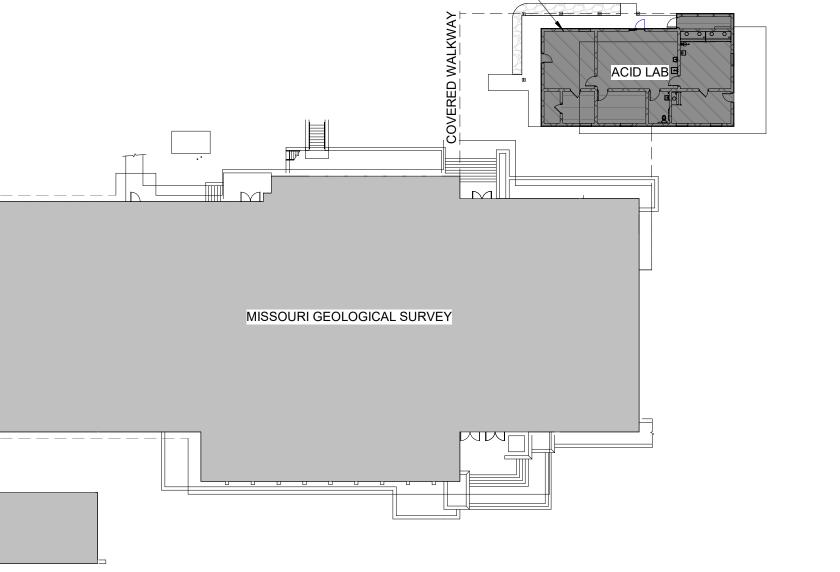
CHAPTER 8 - ALTERATIONS - LEVEL 2 SECTION 805.4.1 TWO EGRESS DOORS REQUIRED WHEN OCCUPANT LOAD GREATER THAN 50 OR IN WHICH THE TRAVEL DISTANCE TO AN EXIT EXCEEDS 75 FEET

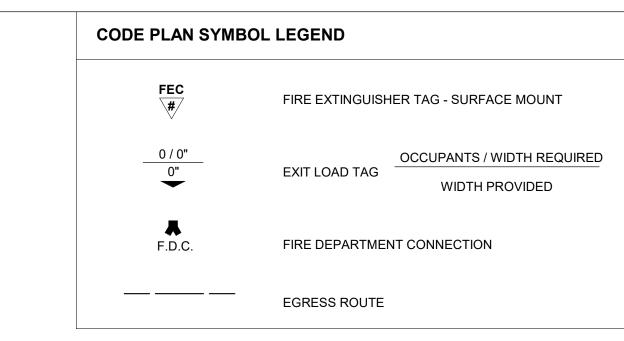
THREE EGRESS DOORS ARE PROVIDED. SECTION 806.2 EXISTING STRUCTURAL ELEMENTS CARRYING GRAVITY LOADS - WHEN DEAD OR LIVE LOADS ARE INCREASED BY 5%, EXISTING STRUCTURAL ELEMENTS SHALL BE ALTERED AS REQUIRED TO CARRY ADDITIONAL LOAD IN ACCORDANCE WITH

> EXISTING JOISTS ARE BEING STRENGTHENED TO CARRY ADDITIONAL LOAD CREATED BY NEW RTU'S.

	WATER CLOSETS	LAVATORIES	DRINKING		
OCCUPANCY			FOUNTAINS	OTHER	COMMENTS
Business (B)	1.0	1.0	0.0	1 service sink	
TOTAL	1.0	1.0	0.0	1 service sink	
Required Fixtures	1.0	1.0	0.0	1 service sink	
xtures to be Provided	1.0	1.0	0.0	1 service sink	







<u>DESCRIPTION:</u> This project consists of renovating the Missouri Geological Services Acid Lab located at 111 Fairgrounds Road in Rolla, Missouri. This site is zoned GI, Government and Institutional District. The construction is Type IIB, with a Mixed Occupancy of Business (B) and Storage (S). The building is connected by the roof to the main Geological Services Building.

BUILDING AREA SUMMARY:

The building gross square foot is approximately 1,938 SF

According to ibc 2018 Table 414.2.5(1), the maximim allowable quantity per control area of hazardous liquids that can be stored in order for the building to be a Storage Occupancy are:

1. Corrosives - 975 gallons

2. Highly Toxics - 2 gallons (when stored in approved storage cabinets quantities shall be 3. Toxics - 100 gallons

FLAMMABLE

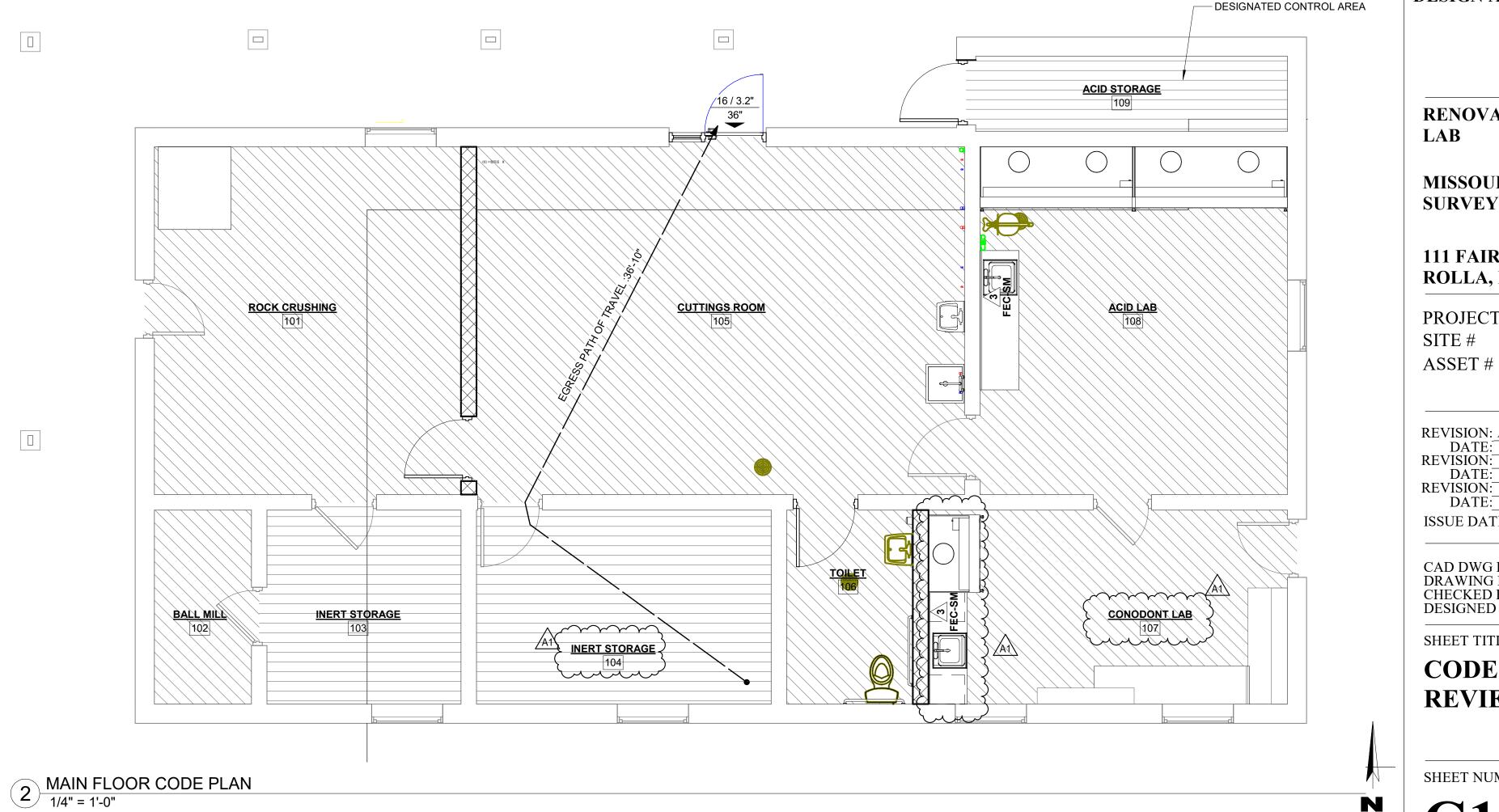
1. Class IA - 30 gallons 2. Class IB,IC, II and IIIA - 1,600 gallons 3. Class IIIB - 13,200 gallons

OCCUPANCY LEGEND

BUSINESS B

STORAGE - LOW HAZARD S-2

CODE REFERENCE PLAN



STATE OF MISSOURI MICHAEL L. PARSON, **GOVERNOR**



OFFICE OF ADMINISTRATION **DIVISION OF FACILITIES** MANAGEMENT, **DESIGN AND CONSTRUCTION**

RENOVATE SUB (ACID) LAB

MISSOURI GEOLOGICAL SURVEY (DNR)

111 FAIRGROUNDS ROAD **ROLLA, MISSOURI 65401**

7815001009

PROJECT # W2001-01 5001

REVISION: A1
DATE: 12/20/2022
REVISION: DATE:

REVISION: DATE: ISSUE DATE: 07/27/2022

CAD DWG FILE: G101
DRAWING BY: JRT
CHECKED BY: HMC
DESIGNED BY: JRT

SHEET TITLE:

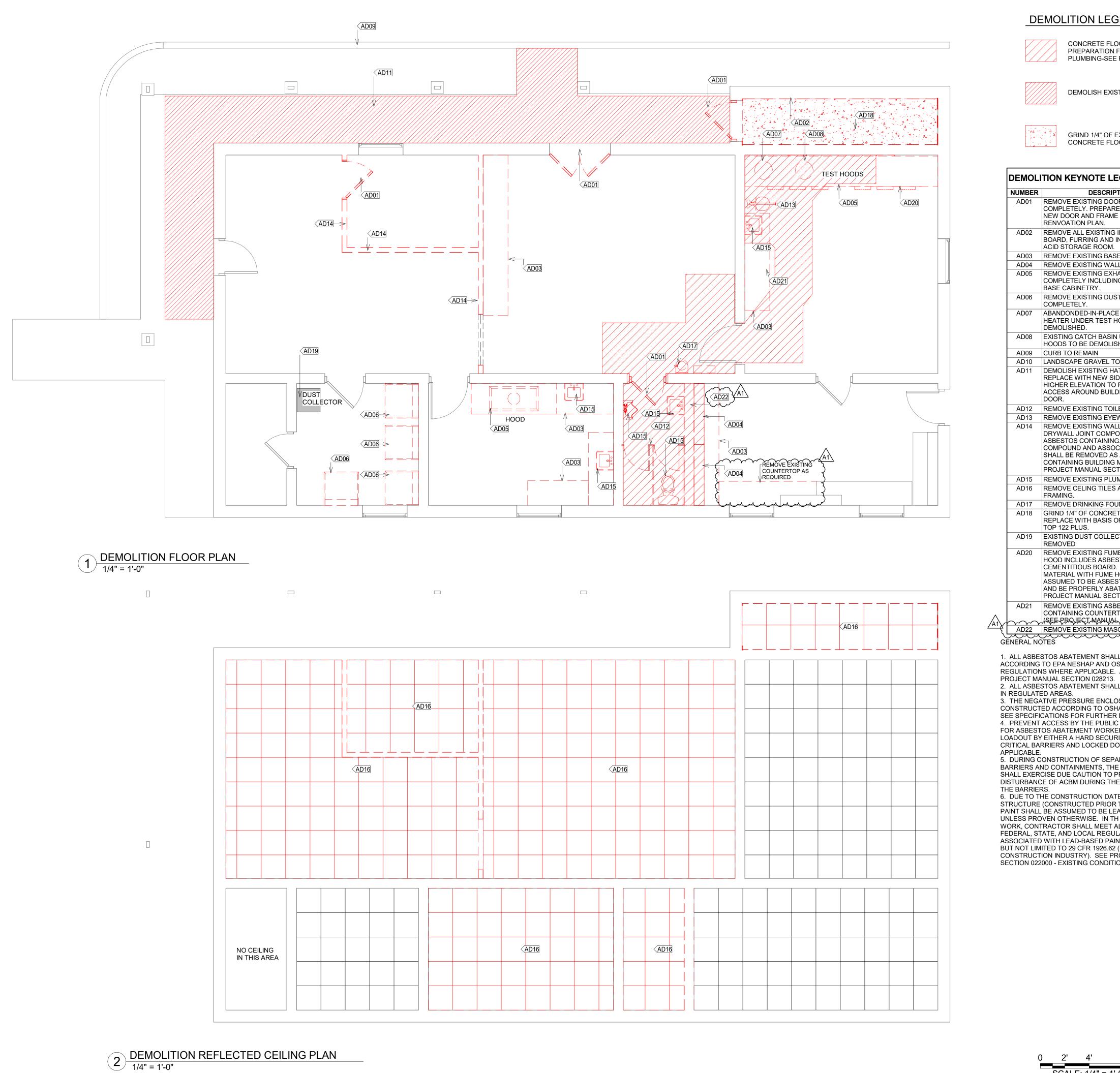
CODE PLAN AND REVIEW PLAN

SHEET NUMBER:



4 OF 30 SHEETS 07/27/2022

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



DEMOLITION LEGEND



CONCRETE FLOOR CUT OUT IN PREPARATION FOR NEW PLUMBING-SEE PLUMBING



DEMOLISH EXISTING SIDEWALK





GRIND 1/4" OF EXISTING CONCRETE FLOOR

NUMBER	DESCRIPTION
AD01	REMOVE EXISTING DOOR AND FRAME COMPLETELY. PREPARE OPENING FOR NEW DOOR AND FRAME AS NOTED ON RENVOATION PLAN.
AD02	REMOVE ALL EXISTING INTERIOR GYPS BOARD, FURRING AND INSULATION IN ACID STORAGE ROOM.
AD03	REMOVE EXISTING BASE CABINETRY.
AD04	REMOVE EXISTING WALL STORAGE.
AD05	REMOVE EXISTING EXHAUST HOODS COMPLETELY INCLUDING SURROUND A BASE CABINETRY.
AD06	REMOVE EXISTING DUST HOODS COMPLETELY.
AD07	ABANDONDED-IN-PLACE TANK WATER HEATER UNDER TEST HOODS TO BE DEMOLISHED.
AD08	EXISTING CATCH BASIN UNDER TEST HOODS TO BE DEMOLISHED.
AD09	CURB TO REMAIN
AD10	LANDSCAPE GRAVEL TO REMAIN
AD11	DEMOLISH EXISTING HATCHED SIDEWA REPLACE WITH NEW SIDEWALK AT HIGHER ELEVATION TO PROVIDE ADA ACCESS AROUND BUILDING AND AT EAC DOOR.
AD12	REMOVE EXISTING TOILET PARTITIONS.
AD13	REMOVE EXISTING EYEWASH.
AD14	REMOVE EXISTING WALLS AND DOORS. DRYWALL JOINT COMPOUND IS ASBESTOS CONTAINING. DRYWALL JOIN COMPOUND AND ASSOCIATED DRYWAL SHALL BE REMOVED AS ASBESTOS CONTAINING BUILDING MATERIAL (SEE PROJECT MANUAL SECTION 028213)
AD15	REMOVE EXISTING PLUMBING FIXTURES
AD16	REMOVE CELING TILES AND CEILING FRAMING.
AD17	REMOVE DRINKING FOUNTAIN
AD18	GRIND 1/4" OF CONCRETE FLOOR. REPLACE WITH BASIS OF DESIGN SIKA TOP 122 PLUS.
AD19	EXISTING DUST COLLECTOR TO BE REMOVED
AD20	REMOVE EXISTING FUME HOOD. FUME HOOD INCLUDES ASBESTOS CONTAININ CEMENTITIOUS BOARD. ALL ASSOCIATI MATERIAL WITH FUME HOOD SHALL BE ASSUMED TO BE ASBESTOS CONTAININ AND BE PROPERLY ABATED (SEE PROJECT MANUAL SECTION 028213)
AD21	REMOVE EXISTING ASBESTOS CONTAINING COUNTERTOP AND SINK
~~~	KSEE PROJECT MANUAL SECTION 02821

GENERAL NOTES 1. ALL ASBESTOS ABATEMENT SHALL BE CONDUCTED ACCORDING TO EPA NESHAP AND OSHA REGULATIONS WHERE APPLICABLE. ALSO SEE

2. ALL ASBESTOS ABATEMENT SHALL BE CONDUCTED IN REGULATED AREAS. 3. THE NEGATIVE PRESSURE ENCLOSURE SHALL BE CONSTRUCTED ACCORDING TO OSHA REGULATIONS. SEE SPECIFICATIONS FOR FURTHER DETAILS. 4. PREVENT ACCESS BY THE PUBLIC TO ALL PATHS FOR ASBESTOS ABATEMENT WORKERS AND WASTE

LOADOUT BY EITHER A HARD SECURITY BARRIER OR CRITICAL BARRIERS AND LOCKED DOORS AS APPLICABLE. 5. DURING CONSTRUCTION OF SEPARATION BARRIERS AND CONTAINMENTS, THE CONTRACTOR SHALL EXERCISE DUE CAUTION TO PREVENT

DISTURBANCE OF ACBM DURING THE PLACEMENT OF THE BARRIERS. 6. DUE TO THE CONSTRUCTION DATE OF THE STRUCTURE (CONSTRUCTED PRIOR TO 1978), THE PAINT SHALL BE ASSUMED TO BE LEAD-BASED PAINT, UNLESS PROVEN OTHERWISE. IN TH COURSE OF WORK, CONTRACTOR SHALL MEET ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS ASSOCIATED WITH LEAD-BASED PAINT, INCLUDINIG, BUT NOT LIMITED TO 29 CFR 1926.62 (LEAD IN CONSTRUCTION INDUSTRY). SEE PROJECT MANUAL SECTION 022000 - EXISTING CONDITIONS.

## STATE OF MISSOURI MICHAEL L. PARSON, **GOVERNOR**



OFFICE OF ADMINISTRATION **DIVISION OF FACILITIES** MANAGEMENT, **DESIGN AND CONSTRUCTION** 

RENOVATE SUB (ACID) LAB

MISSOURI GEOLOGICAL SURVEY (DNR)

## 111 FAIRGROUNDS ROAD **ROLLA, MISSOURI 65401**

PROJECT # W2001-01 5001 7815001009 ASSET#

**REVISION: A1** DATE: 12/20/2022 REVISION: DATE: REVISION: DATE:

ISSUE DATE: 07/27/2022

CAD DWG FILE: AD101 DRAWING BY: JRT CHECKED BY: HMC DESIGNED BY: JRT

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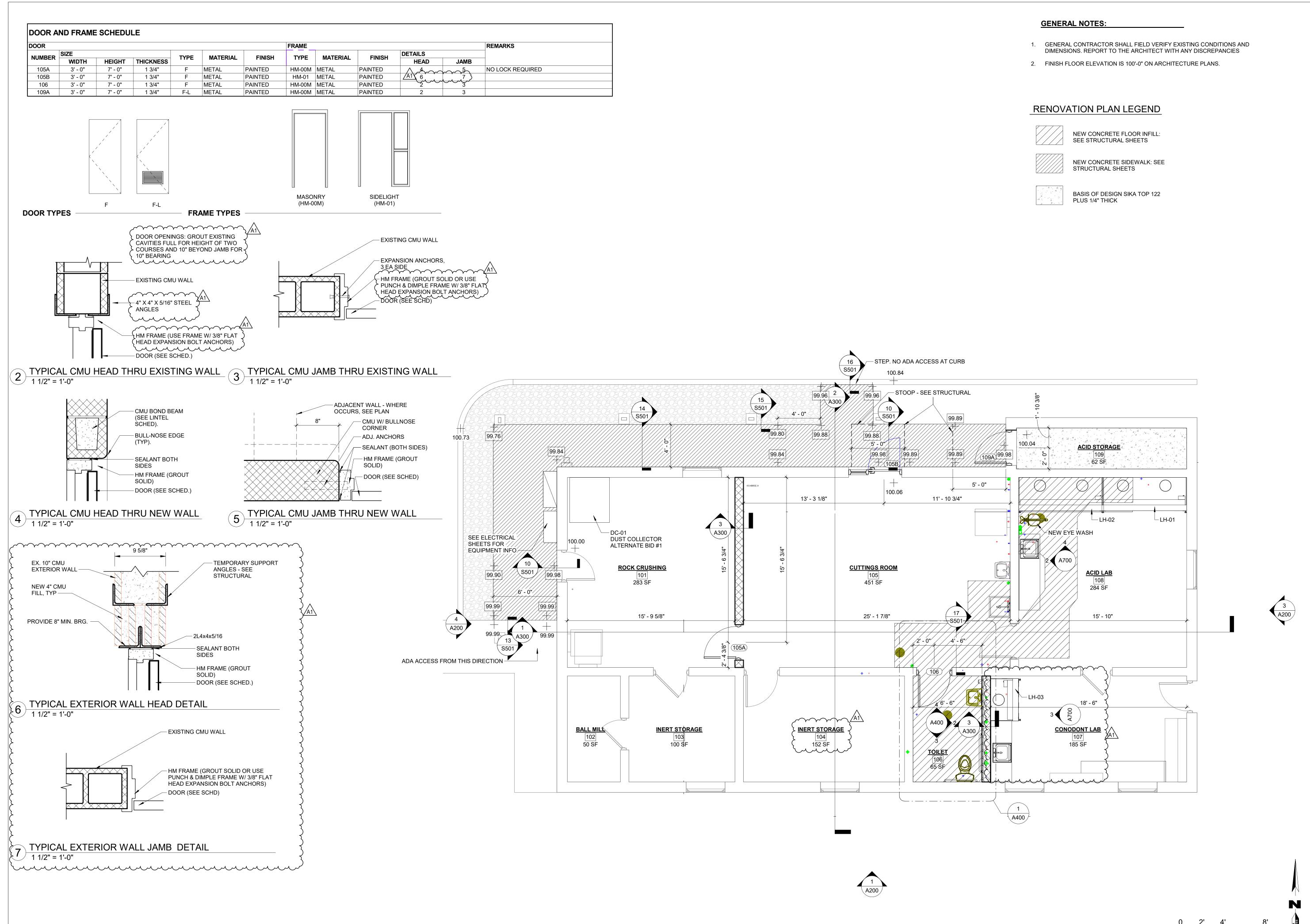
## **DEMOLITION FLOOR PLAN**

SHEET NUMBER:



07/27/2022

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



STATE OF MISSOURI MICHAEL L. PARSON, **GOVERNOR** 



OFFICE OF ADMINISTRATION **DIVISION OF FACILITIES** MANAGEMENT, **DESIGN AND CONSTRUCTION** 

RENOVATE SUB (ACID) LAB

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**REVISION: A1** DATE: 12/20/2022 REVISION: DATE: **REVISION:** DATE:

ISSUE DATE: 07/27/2022

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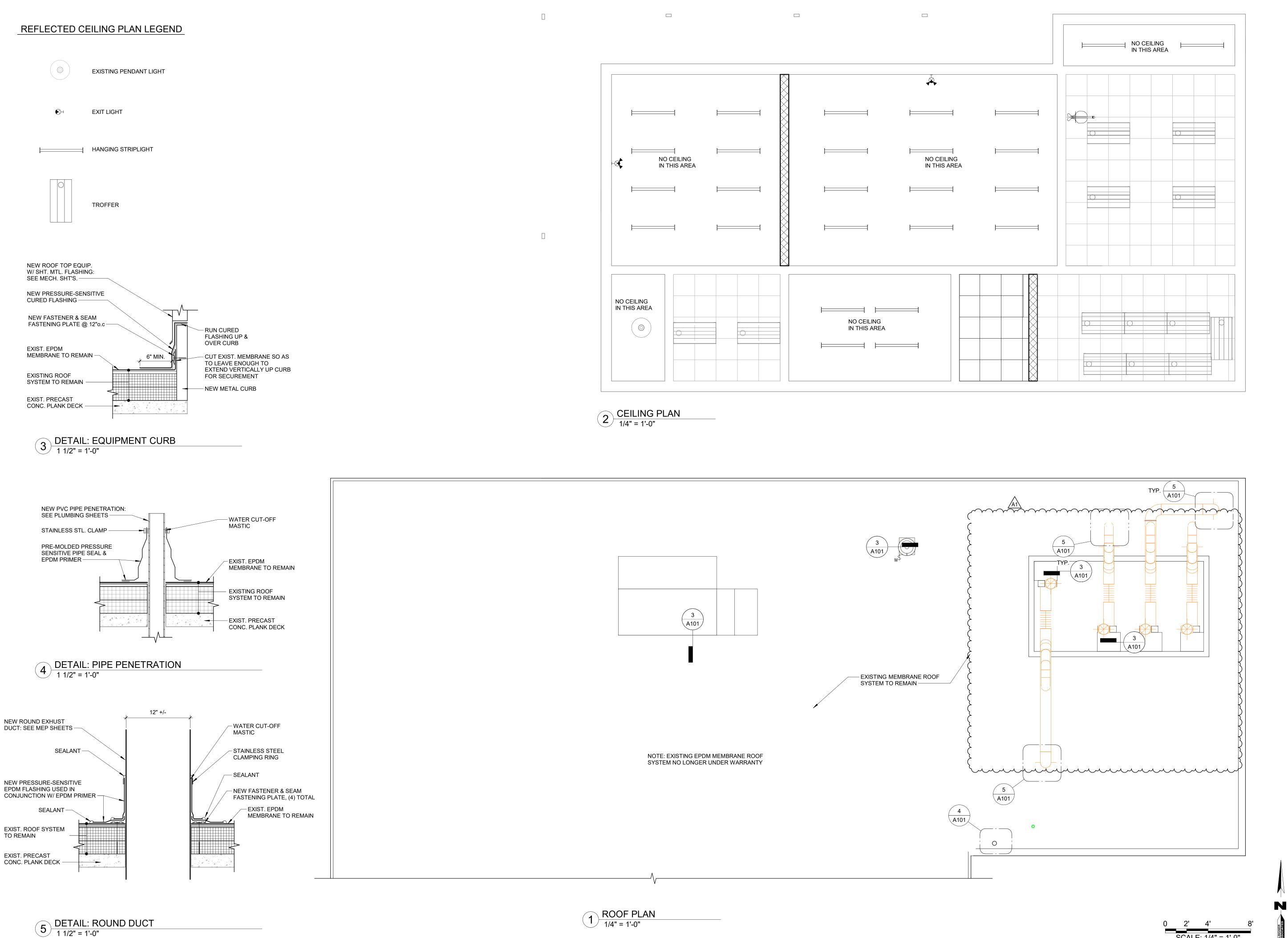
RENOVATION **FLOOR PLAN** 

SHEET NUMBER:

07/27/2022

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

RENOVATION PLAN 1 RENOVAT



STATE OF MISSOURI MICHAEL L. PARSON, **GOVERNOR** 



Engineer

OFFICE OF ADMINISTRATION **DIVISION OF FACILITIES** MANAGEMENT, **DESIGN AND CONSTRUCTION** 

RENOVATE SUB (ACID) LAB

MISSOURI GEOLOGICAL SURVEY (DNR)

111 FAIRGROUNDS ROAD **ROLLA, MISSOURI 65401** 

PROJECT # W2001-01 5001 ASSET# 7815001009

**REVISION: A1** DATE: 12/20/2022 REVISION: DATE:

DATE: ISSUE DATE: 07/27/2022

CAD DWG FILE: A101 DRAWING BY: <u>JRT</u> CHECKED BY: HMC DESIGNED BY: JRT

SHEET TITLE:

**REVISION:** 

**CEILING AND ROOF PLAN** 

SHEET NUMBER:

07/27/2022

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



OFFICE OF ADMINISTRATION **DIVISION OF FACILITIES** MANAGEMENT, **DESIGN AND CONSTRUCTION** 

RENOVATE SUB (ACID) LAB

MISSOURI GEOLOGICAL SURVEY (DNR)

## 111 FAIRGROUNDS ROAD **ROLLA, MISSOURI 65401**

PROJECT # W2001-01 5001 ASSET # 7815001009

REVISION: A1
DATE: 12/20/2022
REVISION:
DATE:
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DATE:
DATE:

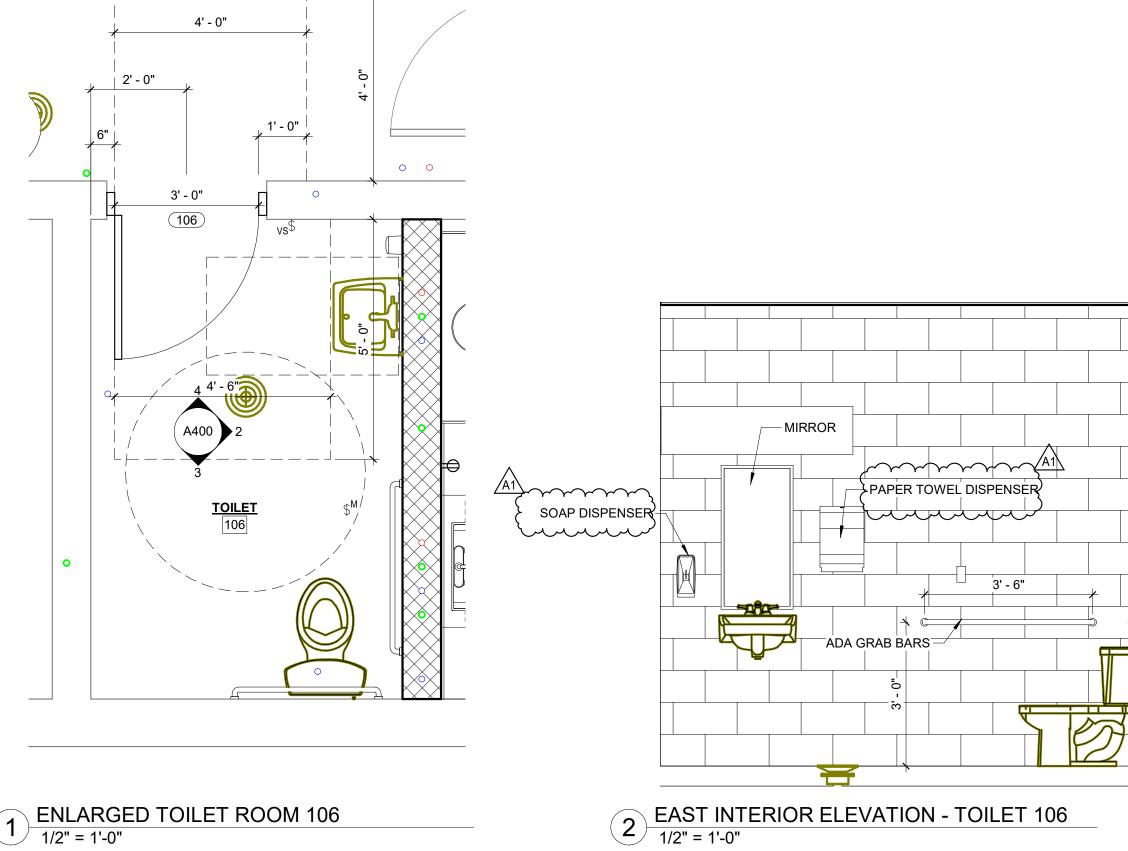
ISSUE DATE: 07/27/2022

CAD DWG FILE: A400 DRAWING BY: JRT CHECKED BY: HMC DESIGNED BY: JRT

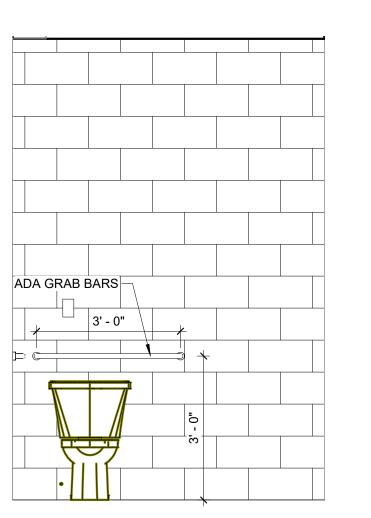
SHEET TITLE:

**ENLARGED** TOILET PLAN & **ELEVATIONS** 

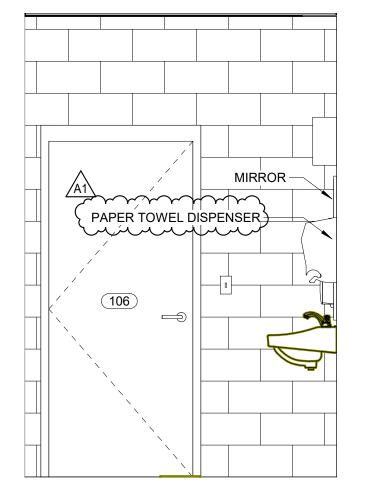
SHEET NUMBER:



1 ENLARGED TOILET ROOM 106 1/2" = 1'-0"

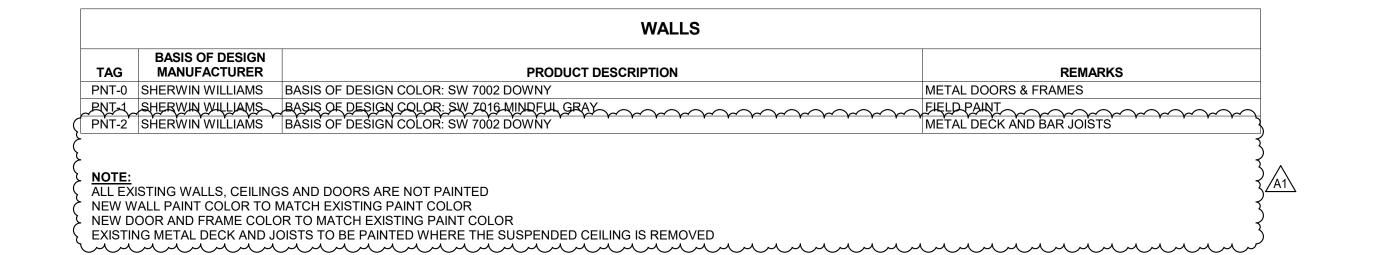


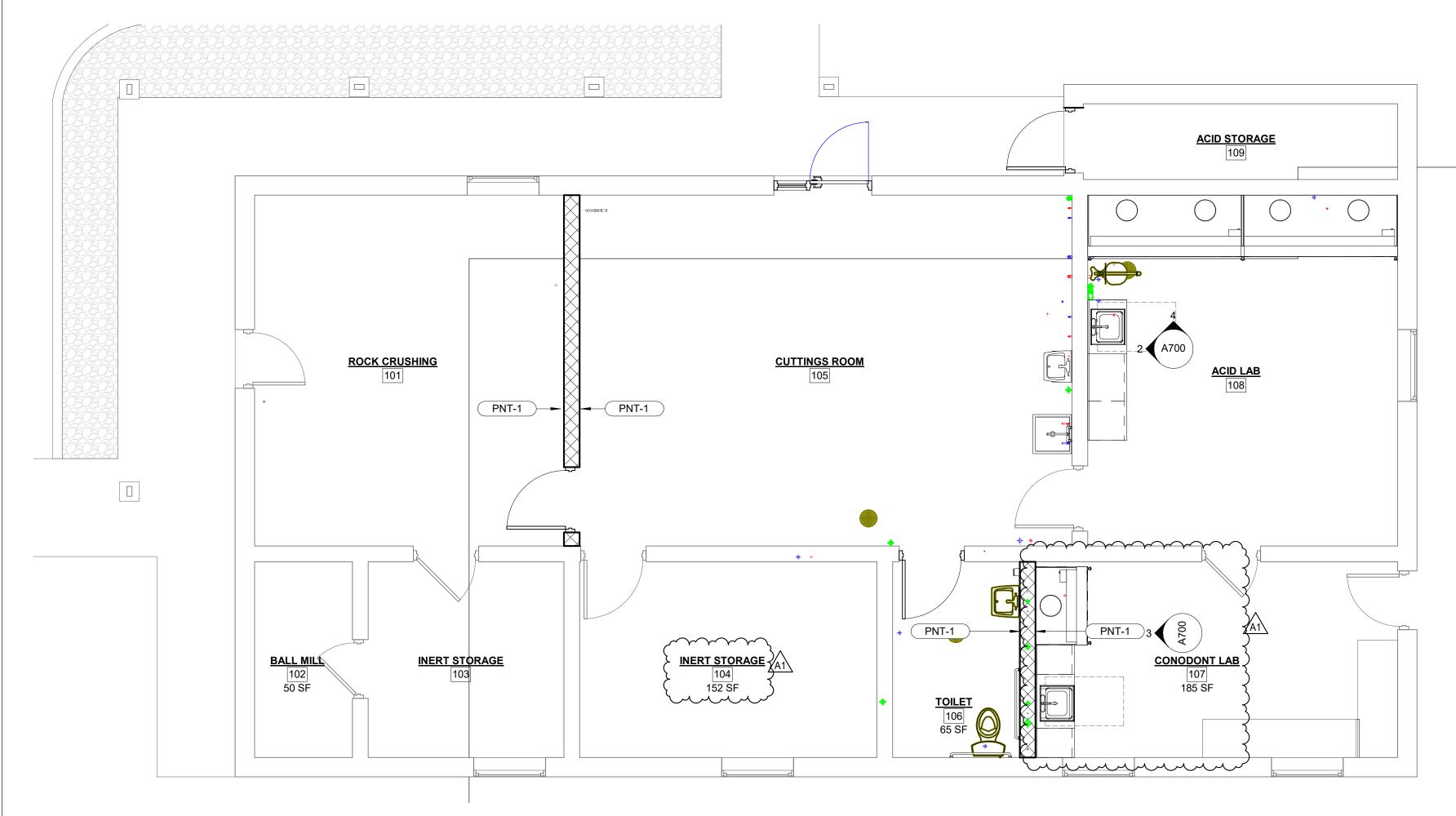
3 SOUTH INTERIOR ELEVATION - TOILET 106
1/2" = 1'-0"



NORTH INTERIOR ELEVATION - TOILET 106

1/2" = 1'-0"





# INTERIOR FINISH ABBREVATIONS

ALUMINUM WALL BASE ACOUSTIC CEILING PANEL AMERICANS WITH DISABILITIES ACT ARCHITECT / ENGINEER ABOVE FINISHED FLOOR

AFF ALUM ALUMINUM ACOUSTICAL WALL PANEL

ACP

ADA

LIN

WINDOW ROLLER BLIND

CORNER GUARD CJ CLR CMU CONSTRUCTION JOINT/CONTROL JOINT CONCRETE MASONRY UNIT CERAMIC TILE

EW END WALL PROTECTOR **EXIST EXISTING** 

FIBER REINFORCED PLASTIC (PANEL)

GLS GLT GWB GLASS TILE

GYPSUM WALL BOARD GYP GYPSUM

OWNER FURNISHED, CONTRACTOR INSTALLED

PLASTIC LAMINATE PNT PAINT

LINOLEUM

RESILIENT WALL BASE RPS RESIN PANEL SYSTEM RIGID SHEET

SUSPENDED ACOUSTICAL TILE SEALED CONCRETE SOLID SURFACE SSTL STC STAINLESS STEEL STAINED CONCRETE SHEET VINYL

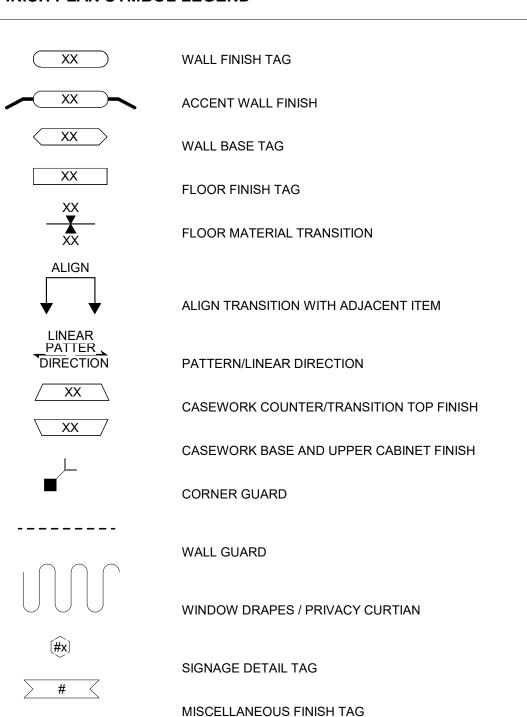
SOLID VINYL TILE

TRANSITION STRIP

## FINISH PLAN GENERAL NOTES

- ALL CONTRACTORS TO FIELD VERIFY ALL CONDITIONS AND DIMENSIONS.
- REMARKS COLUMN ON ROOM AND PRODUCT FINISH SCHEDULE INDICATES GENERAL COMMENTS ONLY. SEE INTERIOR FINISH PLANS AND SPECIFICATIONS FOR LOCATIONS AND DETAILS.
- ALL NEW WALLS SHALL BE PNT-1, UNLESS OTHERWISE NOTED OR SHOWN. ALL NEW METAL DOORS, DOOR FRAMES, AND WINDOW FRAMES SHALL BE PNT-0, UNLESS OTHERWISE NOTED OR SHOWN.

## FINISH PLAN SYMBOL LEGEND



STATE OF MISSOURI MICHAEL L. PARSON, **GOVERNOR** 



C

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OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT, **DESIGN AND CONSTRUCTION** 

RENOVATE SUB (ACID) LAB

MISSOURI GEOLOGICAL SURVEY (DNR)

111 FAIRGROUNDS ROAD **ROLLA, MISSOURI 65401** 

PROJECT # W2001-01 5001 ASSET # 7815001009

**REVISION: A1** DATE: 12/20/2022 REVISION: DATE: **REVISION:** DATE:

ISSUE DATE: 07/27/2022 CAD DWG FILE: A700 DRAWING BY: JRT CHECKED BY: HMC

DESIGNED BY: JRT

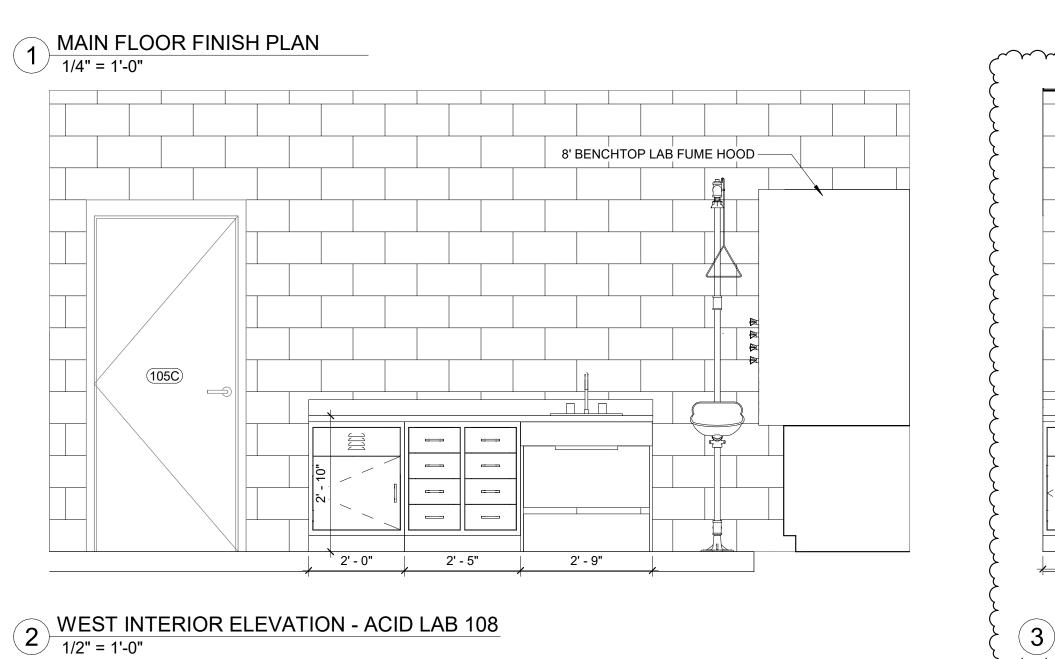
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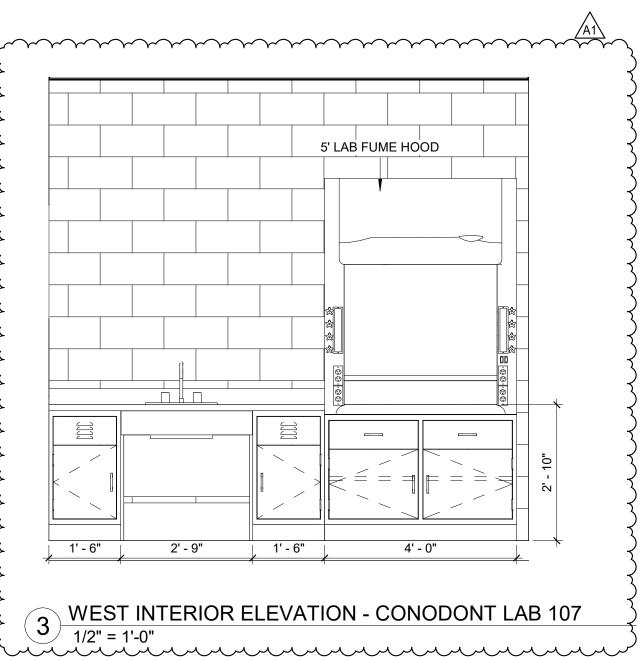
**FLOOR FINISH** PLAN & **SCHEDULES** 

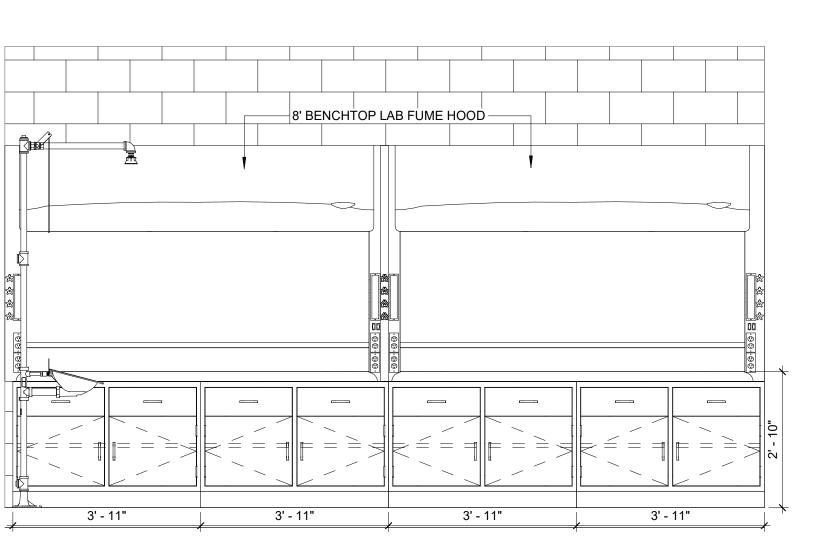
SHEET NUMBER:

07/27/2022

0 2' 4' SCALE: 1/4" = 1'-0"







NORTH INTERIOR ELEVATION - ACID LAB 108
1/2" = 1'-0"

STATE OF MISSOURI MICHAEL L. PARSON, GOVERNOR



TES, P. G. Surveyors

OFFICE OF ADMINISTRATION DIVISION OF FACILITIES MANAGEMENT,

RENOVATE SUB (ACID) LAB

**DESIGN AND CONSTRUCTION** 

MISSOURI GEOLOGICAL SURVEY (DNR)

111 FAIRGROUNDS ROAD ROLLA, MISSOURI 65401

PROJECT # W2001-01 SITE # 5001

ASSET # 7815001009

REVISION: A1
DATE: 12/20/2022
REVISION:
DATE:
REVISION:
DATE:
DATE:

ISSUE DATE: 07/27/2022

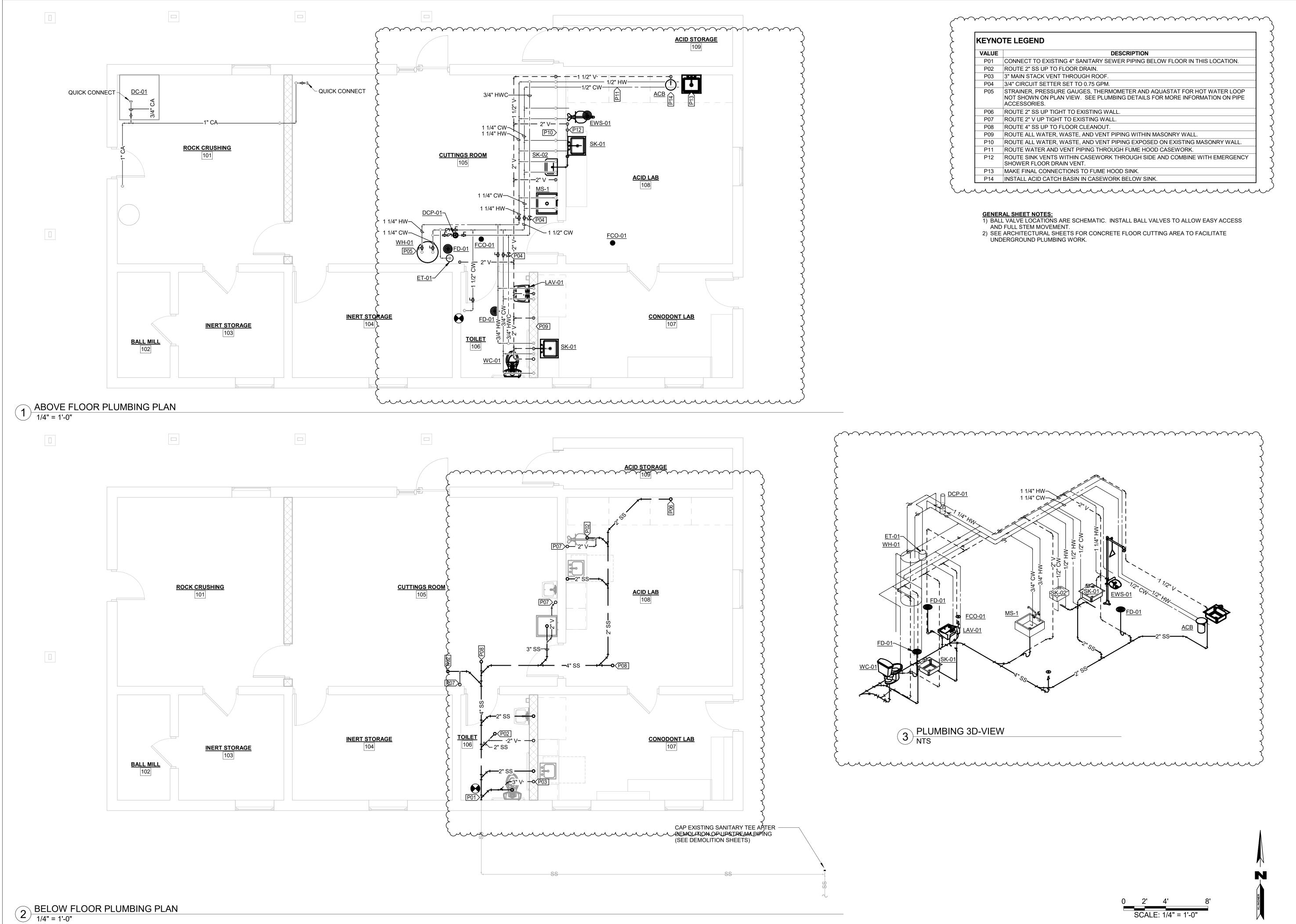
CAD DWG FILE: A800
DRAWING BY: JRT
CHECKED BY: HMC
DESIGNED BY: JRT

SHEET TITLE:

INTERIOR 3D VIEWS

SHEET NUMBER:

**A80** 



STATE OF MISSOURI MICHAEL L. PARSON, **GOVERNOR** 



OFFICE OF ADMINISTRATION **DIVISION OF FACILITIES** MANAGEMENT, **DESIGN AND CONSTRUCTION** 

RENOVATE SUB (ACID) LAB

MISSOURI GEOLOGICAL SURVEY (DNR)

111 FAIRGROUNDS ROAD **ROLLA, MISSOURI 65401** 

PROJECT # W2001-01 5001 7815001009 ASSET#

**REVISION:** DATE: **REVISION:** DATE: **REVISION:** DATE: ISSUE DATE: 07/27/2022

CAD DWG FILE: P101 DRAWING BY: MHB CHECKED BY: JJN DESIGNED BY: MHB

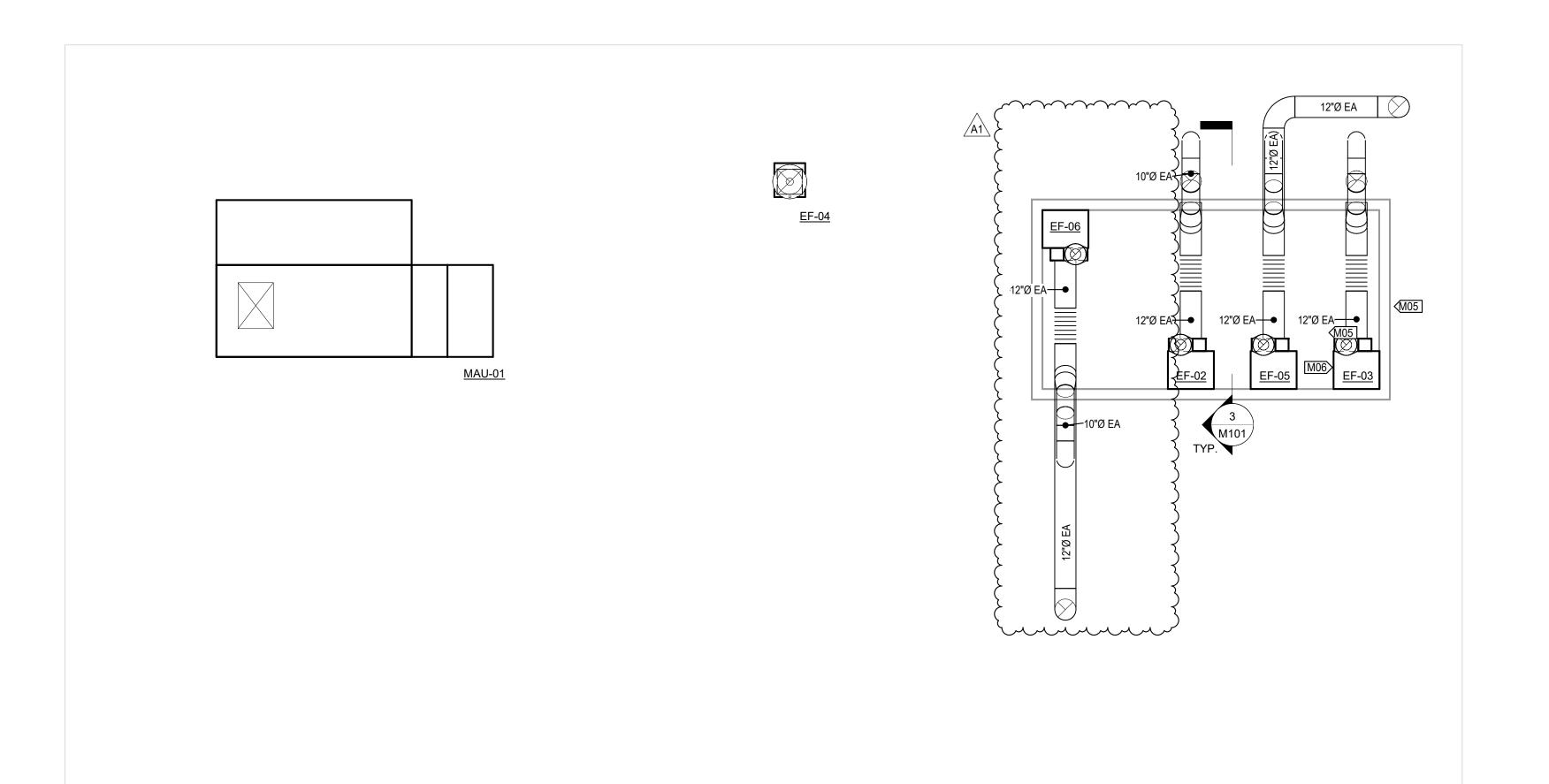
SHEET TITLE:

**PLUMBING PLAN** 

SHEET NUMBER:

07/27/2022

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



1 HVAC ROOF PLAN
1/4" = 1'-0"

VALUE

DESCRIPTION

M01 INSTALL EXTERIOR EXHAUST GRILLE WITH WEATHER CAP.

M02 CUT HOLE IN EXISTING BLOCK WALL TO FACILITATE DUCT INSTALLATION.

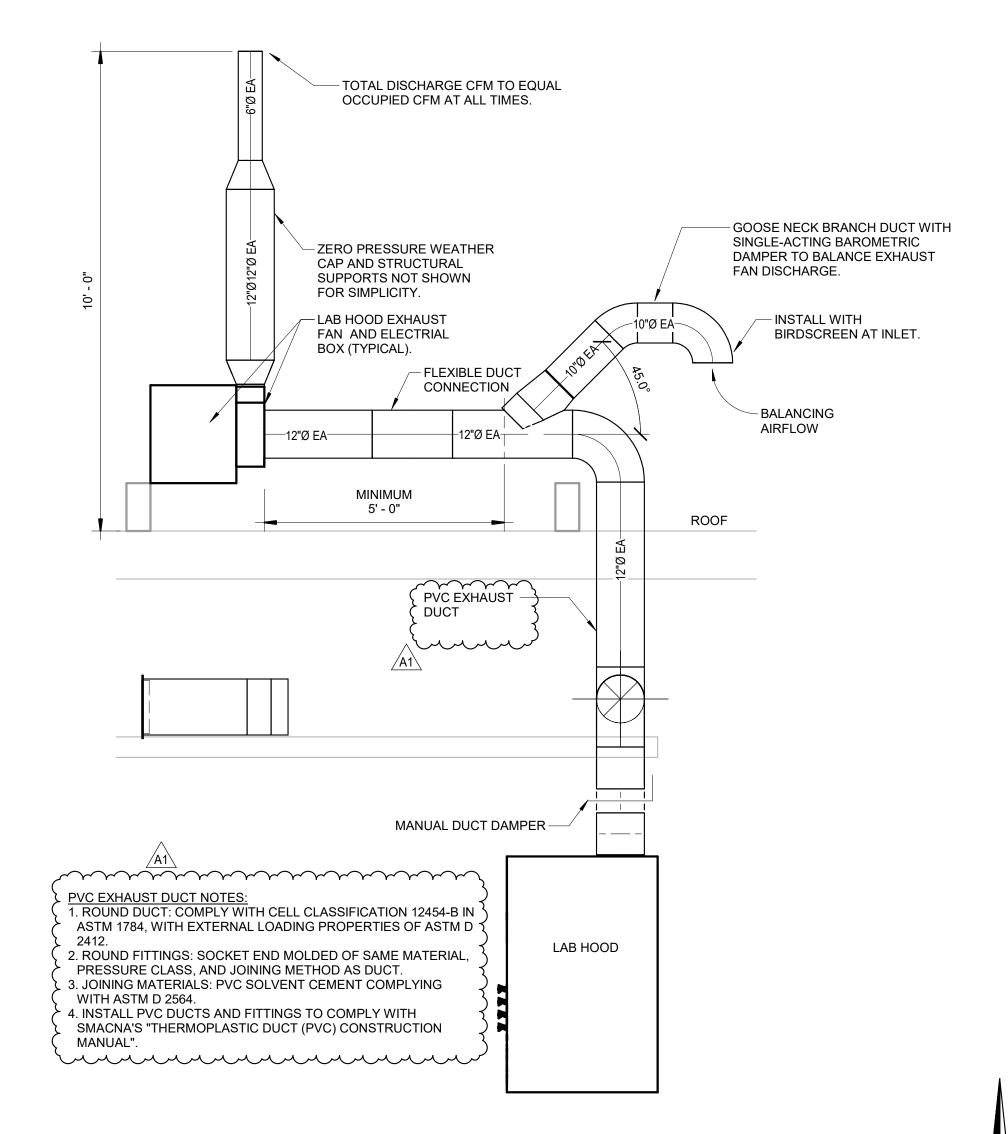
M03 MODIFY EXISTING OPENING IN EXISTING WALL AS REQUIRED TO FACILITATE DUCT INSTALLATION.

M05 APPROXIMATE LIMITS OF LAB HOOD EXHAUST FAN FRAMES.

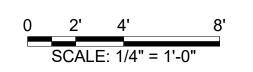
GENERAL SHEET NOTES:

1) ALL AIR TERMINAL CFM TAGS SHOW MAXIMUM AIRFLOW.

M06 DUST COLLECTOR IS ASSOCIATED WITH ALTERNATE BID 1.



3 EXHAUST FAN DISCHARGE DETAIL (TYPICAL EF-02, 03, 05, 06) NTS



JOHN J.
NEYENS
NUMBER
PE-2012-009233

STATE OF MISSOURI

MICHAEL L. PARSON,

**GOVERNOR** 

P. G. IrVeyorS
Ingner.com
L Galesburg, IL
A Hannibal, MO

Architects - Survelissouri

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et

OFFICE OF ADMINISTRATION
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RENOVATE SUB (ACID) LAB

**DESIGN AND CONSTRUCTION** 

MISSOURI GEOLOGICAL SURVEY (DNR)

111 FAIRGROUNDS ROAD ROLLA, MISSOURI 65401

PROJECT # W2001-01 SITE # 5001 ASSET # 7815001009

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ISSUE DATE: 07/27/2022

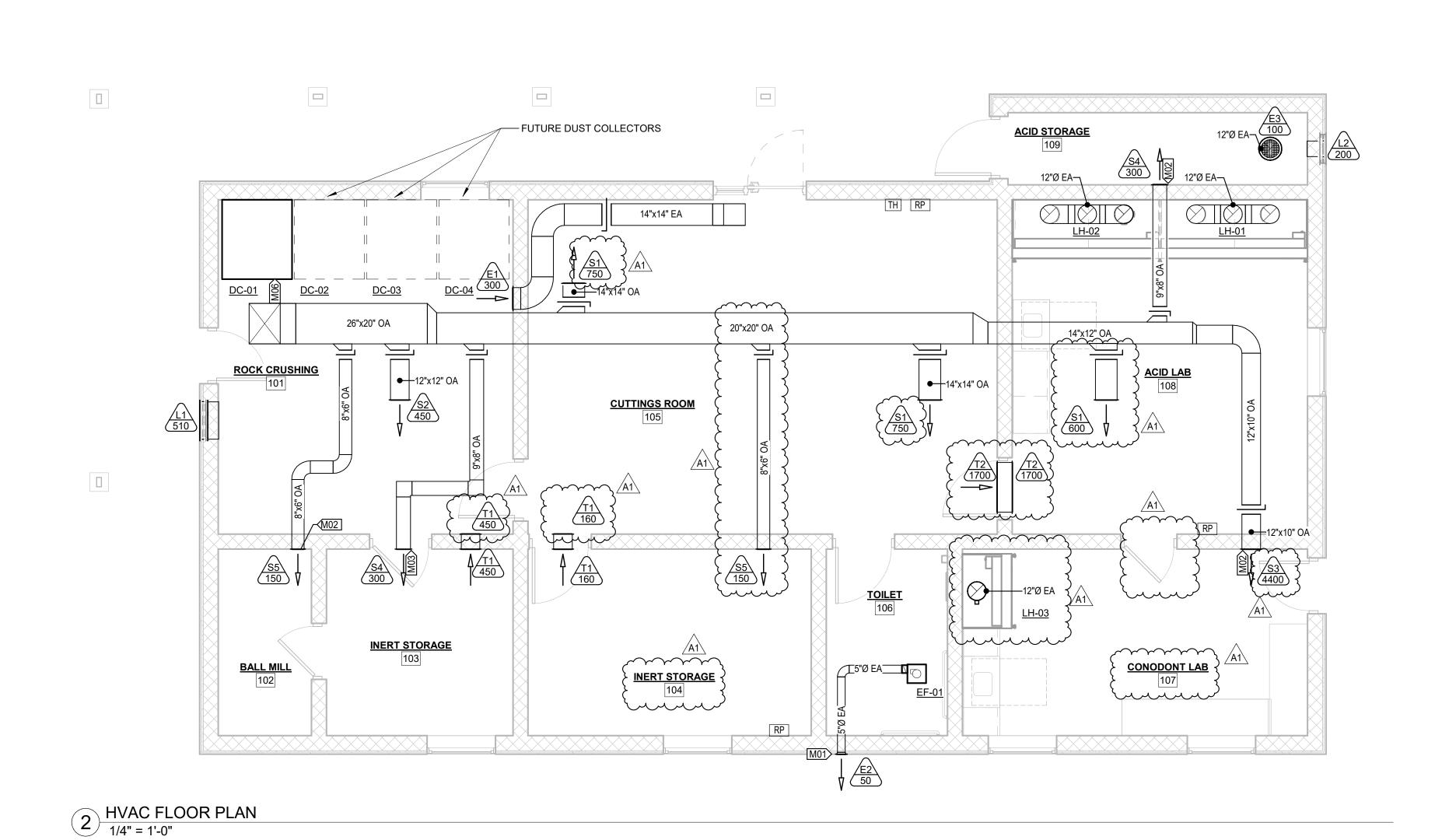
CAD DWG FILE: M101
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:

**HVAC PLAN** 

SHEET NUMBER:

M101



STATE OF MISSOURI MICHAEL L. PARSON, GOVERNOR



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RENOVATE SUB (ACID) LAB

MISSOURI GEOLOGICAL SURVEY (DNR)

111 FAIRGROUNDS ROAD ROLLA, MISSOURI 65401

PROJECT # W2001-01 SITE # 5001 ASSET # 7815001009

REVISION:
DATE:
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REVISION:
DATE:
ISSUE DATE: 07/27/2022

CAD DWG FILE: M401
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:

HVAC AIRFLOW SCHEMATIC -MAXIMUM

SHEET NUMBER:

**M401** 

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RENOVATE SUB (ACID) LAB

MISSOURI GEOLOGICAL SURVEY (DNR)

111 FAIRGROUNDS ROAD ROLLA, MISSOURI 65401

PROJECT # W2001-01 SITE # 5001 ASSET # 7815001009

REVISION:
DATE:
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REVISION:
DATE:
ISSUE DATE: 07/27/2022

CAD DWG FILE: M402
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:

HVAC AIRFLOW SCHEMATIC -MINIMUM

SHEET NUMBER:

**M402** 

#### MAKE-UP AIR UNIT SCHEDULE BASIS OF DESIGN ELECTRICAL PARAMETERS **ELECTRIC ELECTRIC** MOP CFM ESP (in wg) ENTERING UNIT LEAVING UNIT ENTERING UNIT LEAVING UNIT REFRIGERANT HEAT (KW) HEAT (KW) CFM REMARKS MAU-01 RN-30-8-0-E609-14A 299 312 350 1,2

REMARKS:

1) THE MANUFACTURER LISTED IS BASIS OF DESIGN. SEE SPECIFICATIONS FOR ADDITIONAL MAUFACTURERS.
2) PROVIDE WITH 14" FLAT ROOF CURB.

						EXHAUST F	AN SCHEDU	LE		
	BASIS OF DE	SIGN	AIRFLOW			ELEC	TRICAL PARAME			
TAG	MANUFACTURER	MODEL	(CFM)	ESP (in. wg)	VOLT	HZ	PHASE	FLA	MOCP	REMARKS
EF-01	GREENHECK BROAN PANASONIC	SP-AP0511 688 FV-0511VF1	50	0.4	120	60	1	0.2	20	1
EF-02	LABCONCO TEXEL-SEIKOW PLASTEC	7183413 CES MODEL 25	1150	1.9	120	60	1	10	20	1,2,3,4 A1
EF-03	LABCONCO TEXEL-SEIKOW PLASTEC	7183413 CES MODEL 25	1150	1.9	120	60	1	10	20	1,2,3,4
EF-04	GREENHECK LOREN COOK CAPTIVEAIRE	CUE-120 ACRU DU	300	0.25	120	60	1	5	20	1
EF-05	LABCONCO TEXEL-SEIKOW PLASTEC	7183413 CES MODEL 25	100	0.1	120	60	1	10	20	1,3,4
EF-06	LABCONCO TEXEL-SEIKOW PLASTEC	7183413 CES MODEL 25	440	0.5	120	60	1	10	20	1,2,3,4 A1

1) THE MANUFACTURER LISTED IS BASIS OF DESIGN. SEE SPECIFICATIONS FOR ADDITIONAL MAUFACTURERS.
2) 3-SPEED FAN CONTROL PROVIDED BY LAB HOOD CONTROLLER
3) NOT DESIGNED FOR USE WITH PERCHLORIC OR HYDROFLUORIC ACID.

							GRILL	•	•										
			FACE	SIZE		INECTION	SIZE			THROW							BASIS C	OF DESIGN	
TAG	TYPE	DISCRIPTION	LENGTH	WIDTH	RECTA	NGULAR	ROUND	TOTAL P.D.	150 FPM	100 FPM	50 FPM	MAX. NC	DAMPER	MATERIAL	FINISH	FRAME	MAKE	MODEL	REMARKS
IAG	ITPE	35 DEG. FIXED DEFLECTION	LENGIA	WIDIN	LENGIA	WIDIR	KOUND	TOTAL P.D.	FFIVI	FFIVI	FFIVI	NC	DAMPER	WATERIAL	LINIOU	FRAIVIE	WAKE	MODEL	REWARNS
		REGISTER WITH BLADES											OPPOSED						
		PARALLEL TO LONG											BLADE		WHITE				
E1	EXHAUST GRILLE	DIMENSION. 3/4" SPACING.	16"	16"	14"	14"		0.12 in-wg	0'	0'	0'	30	DAMPER	STEEL	ENAMEL	STEEL	TITUS	350RL	1
		35 DEG. FIXED DEFLECTION REGISTER WITH BLADES											OPPOSED						
		PARALLEL TO LONG											BLADE		WHITE				
E2	EXHAUST GRILLE	DIMENSION. 3/4" SPACING.	8"	8"	6"	6"		0.01 in-wg	0'	0'	0'	0	DAMPER	STEEL	ENAMEL	STEEL	TITUS	350RL	1
		SINGLE DEFLECTION					12"												
E3	EXHAUST GRILLE	CIRCULAR EXAHUST GRILLE.	12"					0.01 in-wg	0'	0'	0'		SINGLE BLADE			ALUMINUM	TITUS	R-301F	1
		DOUBLE DEFLECTION GRILLE WITH FRONT BLADES																	
		PARALLEL TO SHORT													WHITE				
S1	SUPPLY GRILLE	DIMENSION. 3/4" SPACING.	16"	16"	14"	14"		0.20 in-wg	28'	19'	16'	36		STEEL	ENAMEL	STEEL	TITUS	300RS	1
		DOUBLE DEFLECTION GRILLE																	
		WITH FRONT BLADES PARALLEL TO SHORT													\A/I II <del>T</del> E				
S2	SUPPLY GRILLE	DIMENSION. 3/4" SPACING.	14"	14"	12"	12"		0.18 in-wg	23'	16'	13'	32		STEEL	WHITE ENAMEL	STEEL	TITUS	300RS	1
02	OOI I ET ONIEEE	DOUBLE DEFLECTION GRILLE	17	17	12	12		0.10 III-Wg	20	10	10	52		OTELL	LIV WILL	OTELL	11100	300110	!
		WITH FRONT BLADES																	
		PARALLEL TO SHORT													WHITE				
S3	SUPPLY GRILLE	DIMENSION. 3/4" SPACING.	14"	12"	12"	10"		0.17 in-wg	20'	14'	11'	31		STEEL	ENAMEL	STEEL	TITUS	300RS	1
		DOUBLE DEFLECTION GRILLE WITH FRONT BLADES																	
		PARALLEL TO SHORT													WHITE				
S4	SUPPLY GRILLE	DIMENSION. 3/4" SPACING.	11"	10"	9"	8"		0.13 in-wg	14'	10'	8'	24		STEEL	ENAMEL	STEEL	TITUS	300RS	1
		DOUBLE DEFLECTION GRILLE						_											
		WITH FRONT BLADES													\A/I !! <del>*</del>				
S5	SUPPLY GRILLE	PARALLEL TO SHORT DIMENSION. 3/4" SPACING.	10"	8"	8"	6"		0.08 in-wg	10'	7'	4'	16		STEEL	WHITE ENAMEL	STEEL	TITUS	300RS	1
33	OOI I LI OIVILLE	SIGHT PROOF GRILLE WITH	10	U	0	0		0.00 III-wy	10	,	7	10		OILLL	LIVAIVILL	SILLL	11103	300110	ı
		INVERTED-V BLADES IN													WHITE				
T1	TRANSFER GRILLE	HORIZONTAL POSITION.	14"	10"	12"	8"						0		ALUMINUM	ENAMEL	ALUMINUM	TITUS	350RL	1
		SIGHT PROOF GRILLE WITH																	
то	TRANSFER GRILLE	INVERTED-V BLADES IN HORIZONTAL POSITION.	34"	10"	32"	8"						0		ALUMINUM	WHITE ENAMEL	ALUMINUM	TITUS	350RL	1
T2	INANOPER GRILLE	HOMEONIAL FOOTION.	J 34	10	ე∠	0			1	1	1	U		ALUMINUM	CINAIVIEL	ALUMINUM	11100	JOURL	I

REMARKS:

1) THE MANUFACTURER LISTED IS BASIS OF DESIGN. SEE SPECIFICATIONS FOR ADDITIONAL MAUFACTURERS.

	LOUVER SCHEDULE														
							MINIMUM		MAX				BASIS OF	DESIGN	
TAG	DESCRIPTION	FUNCTION	AIR FLOW	WIDTH	HEIGHT	FRMAE DEPTH	FREE AREA	MAX P.D.	VELOCITY	DAMPER	MATERIAL	FINISH	MAKE	MODEL	REMARKS
L1	STATIONARY	EXHAUST AIR OUTLET	510	24"	8"	4"	40%	0.1 in-wg	400 FPM	BACKDRAFT	ALUMINUM	BAKED ENAMEL	RUSKIN	ELBD813	INCLUDE EXTENDED SILL AND END DAMS, INSECT SCREEN. COORDINATE LOUVER COLOR WITH ARCHITECT. NOTE 1.
L2	STATIONARY	EXHAUST AIR OUTLET	200	NOTE 2	NOTE 2	4"	40%	0.1 in-wg	400 FPM	BACKDRAFT	ALUMINUM	BAKED ENAMEL	RUSKIN	ELBD813	INCLUDE EXTENDED SILL AND END DAMS, INSECT SCREEN. COORDINATE LOUVER COLOR WITH ARCHITECT. NOTE 1.

REMARKS:

1) THE MANUFACTURER LISTED IS BASIS OF DESIGN. SEE SPECIFICATIONS FOR ADDITIONAL MAUFACTURERS.
2) SIZE TO MATCH EXISTING LOUVER ROUGH-IN DIMENSIONS.

STATE OF MISSOURI MICHAEL L. PARSON, **GOVERNOR** 



OFFICE OF ADMINISTRATION **DIVISION OF FACILITIES** MANAGEMENT, **DESIGN AND CONSTRUCTION** 

RENOVATE SUB (ACID) LAB

MISSOURI GEOLOGICAL SURVEY (DNR)

111 FAIRGROUNDS ROAD **ROLLA, MISSOURI 65401** 

ASSET # 7815001009

PROJECT # W2001-01 SITE# 5001

REVISION: DATE:_ REVISION: DATE: REVISION: DATE:

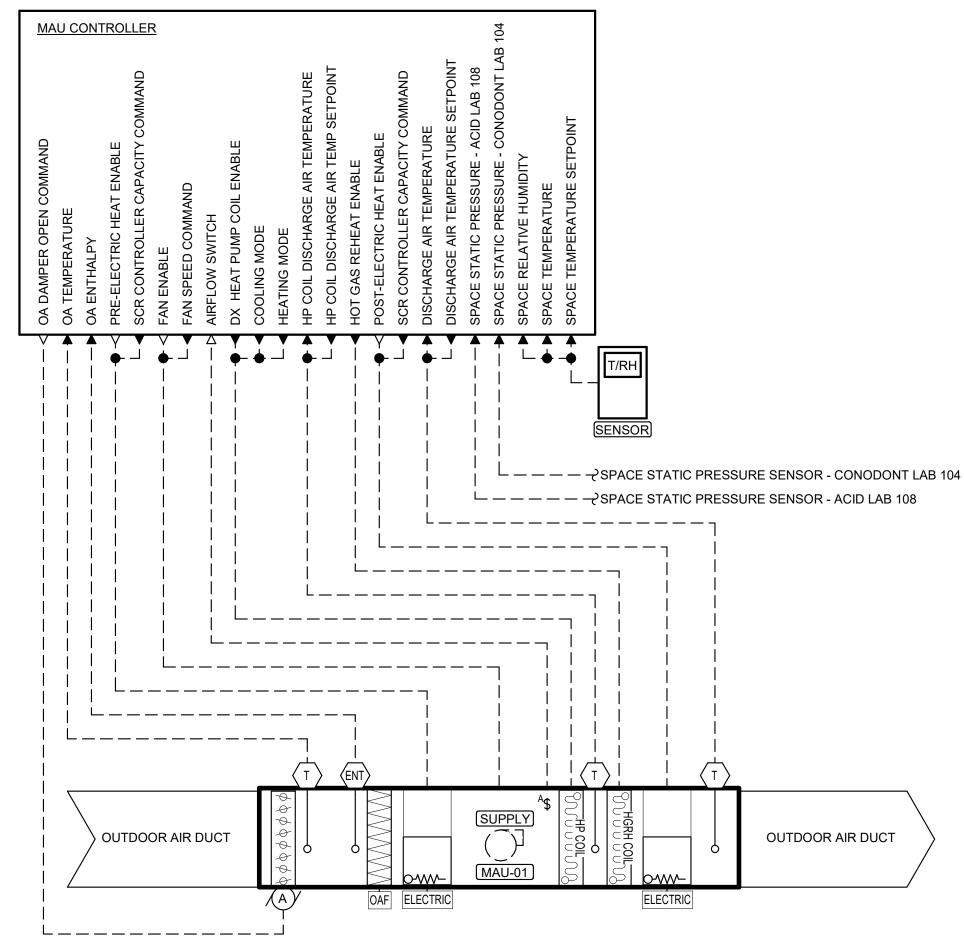
ISSUE DATE: 07/27/2022

CAD DWG FILE: M601 DRAWING BY: MHB CHECKED BY: JJN DESIGNED BY: MHB

SHEET TITLE:

**MECHANICAL SCHEDULES** 

SHEET NUMBER:



MA	KE-U	JP AI	R UI	NIT D	DC (	CONTROL SUMMARY
CONTROL POINT	LOCAL CONTROLLER DISPLAY	BAS DISPLAY	ADJUSTABLE	TREND	ALARM	COMMENTS
MAU ON/OFF	•					
OUTDOOR AIR TEMPERATURE	•					
OUTDOOR AIR ENTHALPY	•					
SUPPLY FAN ON/OFF	•					
SUPPLY FAN SPEED COMMAND	•					
SUPPLY DISCHARGE AIR TEMPERATURE	•					
COOLING MODE	•					
HOT GAS REHEAT ENABLE	•					
HEATING MODE	•					
PRE-ELECTRIC HEAT ON/OFF	•					
POST-ELECTRIC HEAT ON/OFF	•					

## MAKE-UP AIR UNIT (MAU-01) SEQUENCE OF OPERATION

## A. LOCAL DOAS CONTROLLER

- 1. THE MAU OPERATING MODE SHALL AUTOMATICALLY SWITCH BETWEEN HEATING AND COOLING BASED ON THE SPACE TEMPERATURE RELATIONSHIP TO SETPOINT. COOLING OR HEATING SHALL BE ENABLED WHENEVER THE SPACE TEMPERATURE IS +/. 5°F FROM SETPOINT (ADJUSTABLE BETWEEN 2°F AND 10°F).
- 2. IN HEATING MODE, THE HEAT PUMP HEATING CYCLE SHALL BE THE PRIMARY HEATING SOURCE. PRE-ELECTRIC HEAT SHALL BE ENABLED WHENEVER OUTDOOR AIR TEMPERATURES ARE BELOW 45°F. POST-ELECTRIC HEAT SHALL BE ENABLED ONLY WHEN THE HEAT PUMP CYCLE CANNOT MEET THE HEATING DEMAND.
- 3. SUPPLY FAN
- a. THE SUPPLY FAN SHALL PROVIDE SUFFICIENT AIR FLOW TO MAINTAIN THE SPACE STATIC PRESSURE SETPOINTS FOR THE CONODONT LAB 104 AND ACID LAB 108 TO WITHIN 0.02 IN W.C.
- b. CONODONT-CAB-104: SPACE STATIC PRESSURE SETPOINT SHALL BE NEGATIVE 0.00 IN W.C. (ADJUSTABLE BETWEEN -0.00 AND 0.10 IN. W.C.). c. ACID LAB 108: SPACE STATIC PRESSURE SETPOINT SHALL BE NEGATIVE 0.17 IN. W.C. (ADJUSTABLE
- BETWEEN -0.10 AND -0.20 IN. W.C.).
- 4. THE OUTDOOR AIR DAMPER SHALL BE OPEN WHENEVER THE MAU SUPPLY FAN IS ENABLED.
- 5. THE MAU CONTROLLER SHALL DETERMINE DISCHARGE AIR SETPOINTS ACCORDING TO THE FOLLOWING: a. IF THE OUTDOOR AIR DEWPOINT IS LESS THAN 55°F: • THE MAU COOING OR HEATING COIL SHALL OPERATE TO PROVIDE A SUPPLY AIR TEMPERATURE OF 55°F IN COOLING MODE (ADJUSTABLE BETWEEN 50°F AND 65°F) AND 70°F IN HEATING MODE (ADJUSTABLE BETWEEN
- b. IF THE OUTDOOR AIR DEWPOINT IS GREATER THAN 55°F: • THE MAU COOING COIL SHALL COOL THE INCOMING AIR TO 55°F. HOT GAS REHEAT SHALL REHEAT THE AIR TO 65°F (ADJUSTABLE BETWEEN 55°F AND 70°F). IF HOT GAS REHEAT IS NOT SUFFICIENT TO WARM THE SUPPLY AIR TO 65°F, THE POST-ELECTRIC HEAT SHALL BE ENABLED.

## MAKE-UP AIR UNIT CONTROLS DIAGRAM

# MICHAEL L. PARSON, **GOVERNOR**

STATE OF MISSOURI



## RESTROOM EXHAUST SYSTEM SEQUENCE OF OPERATION

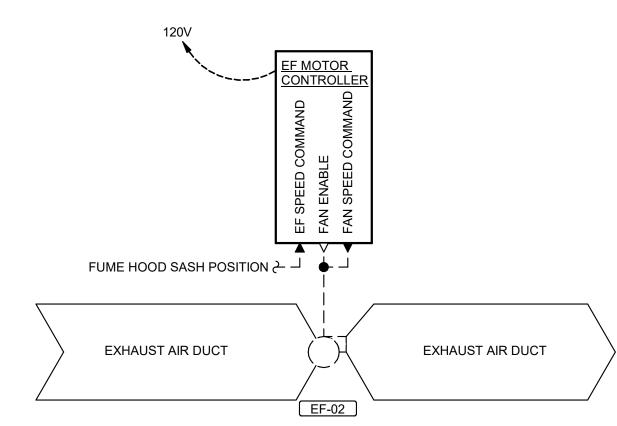
1— 120V, 1Ø O O----- M EF

A. EXHAUST SYSTEM CONTROL

**EXHAUST AIR DUCT** 

1. THE RESTROOM EXHAUST FAN SHALL RUN ON CONTINUOUSLY.

## RESTROOM EXHAUST FAN CONTROLS DIAGRAM

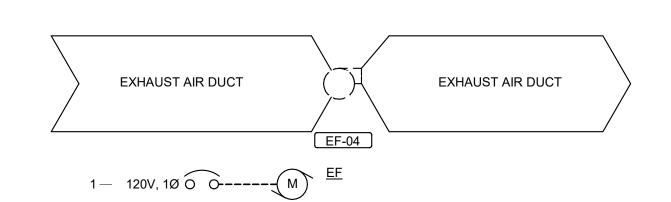


EXHAUST AIR DUCT

## FUME HOOD EXHAUST SYSTEM (EF-02, 03, 06)

- A. FUME HOOD EXHAUST SYSTEM CONTROL
- 1. THE EXHAUST SHALL RUN CONTINUOUSLY
- 2. FUME HOOD SASH POSITION SHALL CONTROL THE ASSOCIATED EXHAUST FAN SPEED COMMAND: A. EF-02 & 03
- a. SASH CLOSED: 350 CFM b. SASH OPEN UP TO 18": 1,000 CFM
- c. SASH OPEN ABOVE 18": 1,150 CFM
- a. SASH CLOSED: 150 CFM
- b. SASH OPEN UP TO 18": 440 CFM c. SASH OPEN ABOVE 18": 565 CFM

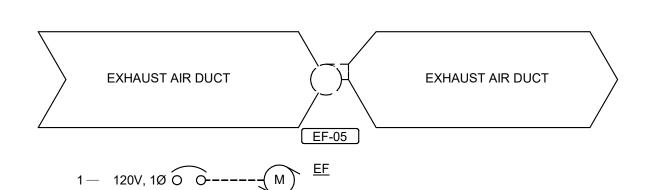
## FUME HOOD EXHAUST FAN CONTROLS DIAGRAM



## ROCK CRUSHING ROOM EXHAUST SYSTEM SEQUENCE OF OPERATION

- A. EXHAUST SYSTEM CONTROL
- 1. THE ROCK CRUSHING ROOM EXHAUST FAN SHALL RUN ON CONTINUOUSLY.

## ROCK CRUSHING EXHAUST FAN CONTROLS DIAGRAM



## ACID STORAGE EXHAUST SYSTEM SEQUENCE OF OPERATION

- A. EXHAUST SYSTEM CONTROL
- 1. THE ACID STORAGE ROOM EXHAUST FAN SHALL RUN ON CONTINUOUSLY.

ACID STORAGE EXHAUST FAN CONTROLS DIAGRAM

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RENOVATE SUB (ACID) LAB

MISSOURI GEOLOGICAL SURVEY (DNR)

111 FAIRGROUNDS ROAD **ROLLA, MISSOURI 65401** 

7815001009

PROJECT # W2001-01 5001

**REVISION:** DATE **REVISION:** DATE REVISION: DATE:

ASSET #

CAD DWG FILE: M701 DRAWING BY: MHB CHECKED BY: JJN DESIGNED BY: MHB

ISSUE DATE: 07/27/2022

SHEET TITLE:

**HVAC CONTROLS SCHEMATICS** 

SHEET NUMBER:

 KEYNOTE LEGEND

 VALUE
 DESCRIPTION

 E07
 EXTEND EXISTING CONDUITS TO CT CABINET.

STATE OF MISSOURI MICHAEL L. PARSON, GOVERNOR



& A S S O C I A T E S, P. C. Igineers · Architects · Surveyors

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RENOVATE SUB (ACID) LAB

MISSOURI GEOLOGICAL SURVEY (DNR)

111 FAIRGROUNDS ROAD ROLLA, MISSOURI 65401

PROJECT # W2001-01 SITE # 5001 ASSET # 7815001009

REVISION:
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ISSUE DATE: 07/27/2022

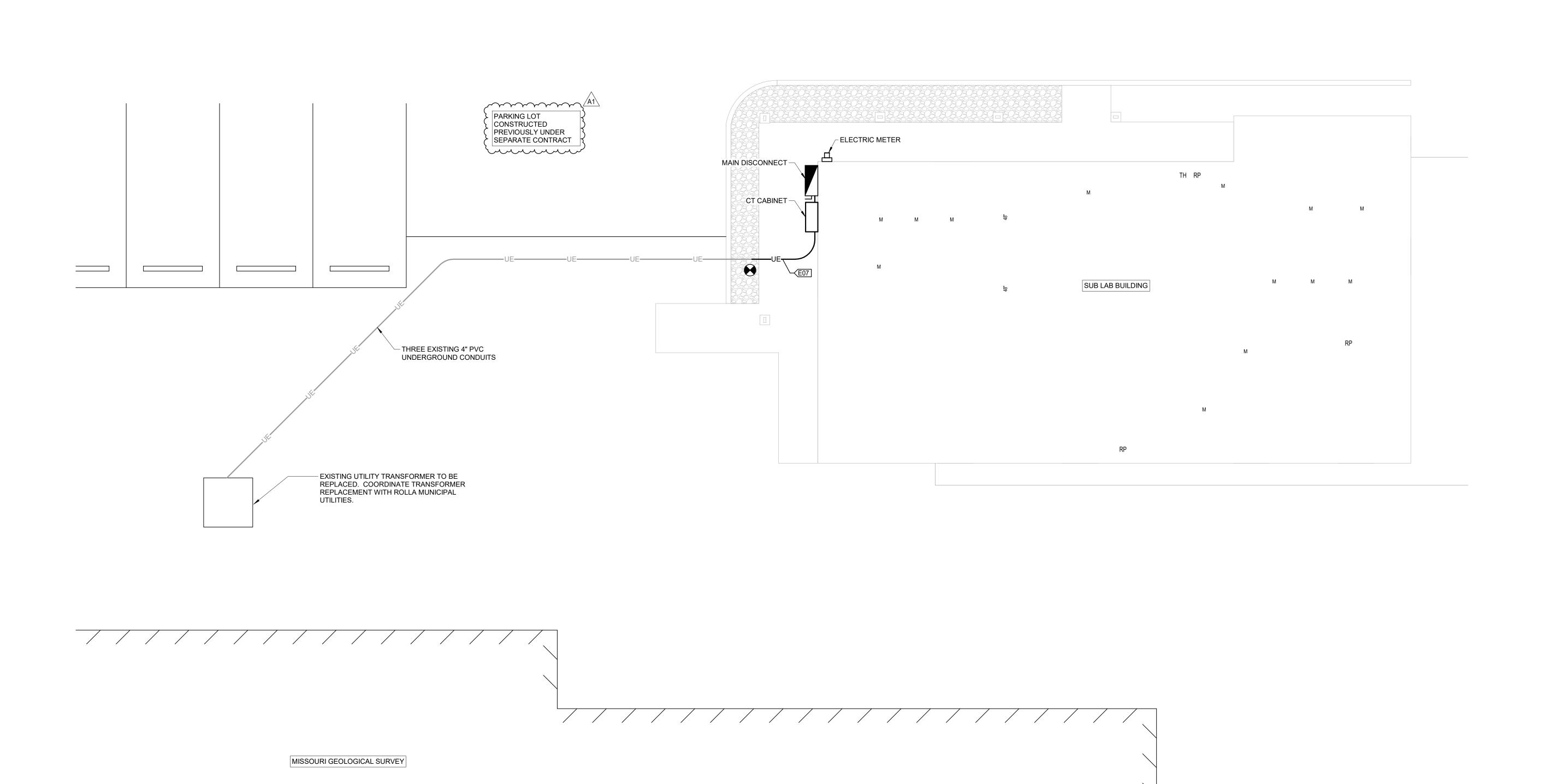
CAD DWG FILE: E100
DRAWING BY: MHB
CHECKED BY: JJN
DESIGNED BY: MHB

SHEET TITLE:

ELECTRICAL SITE PLAN

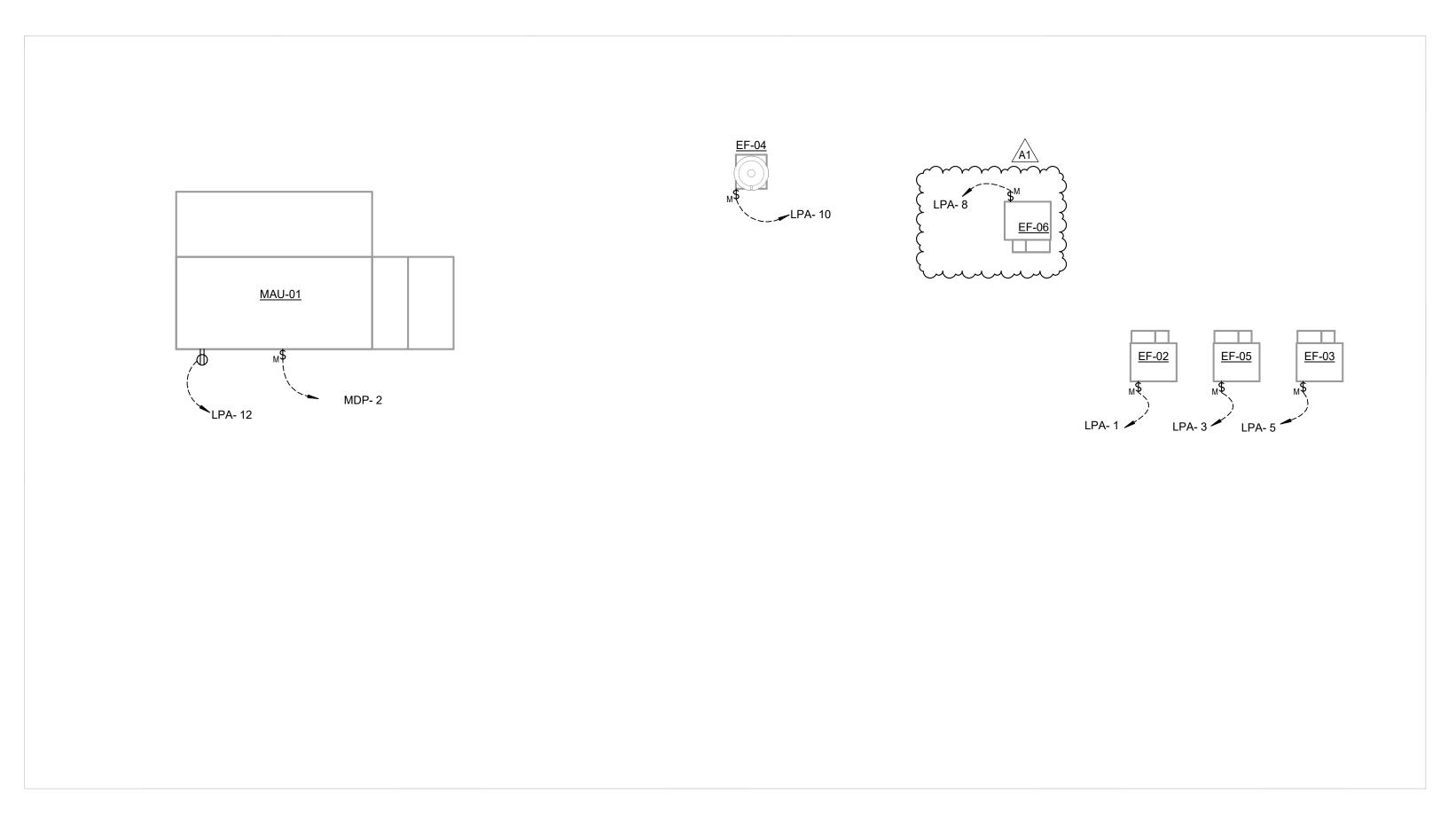
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E100

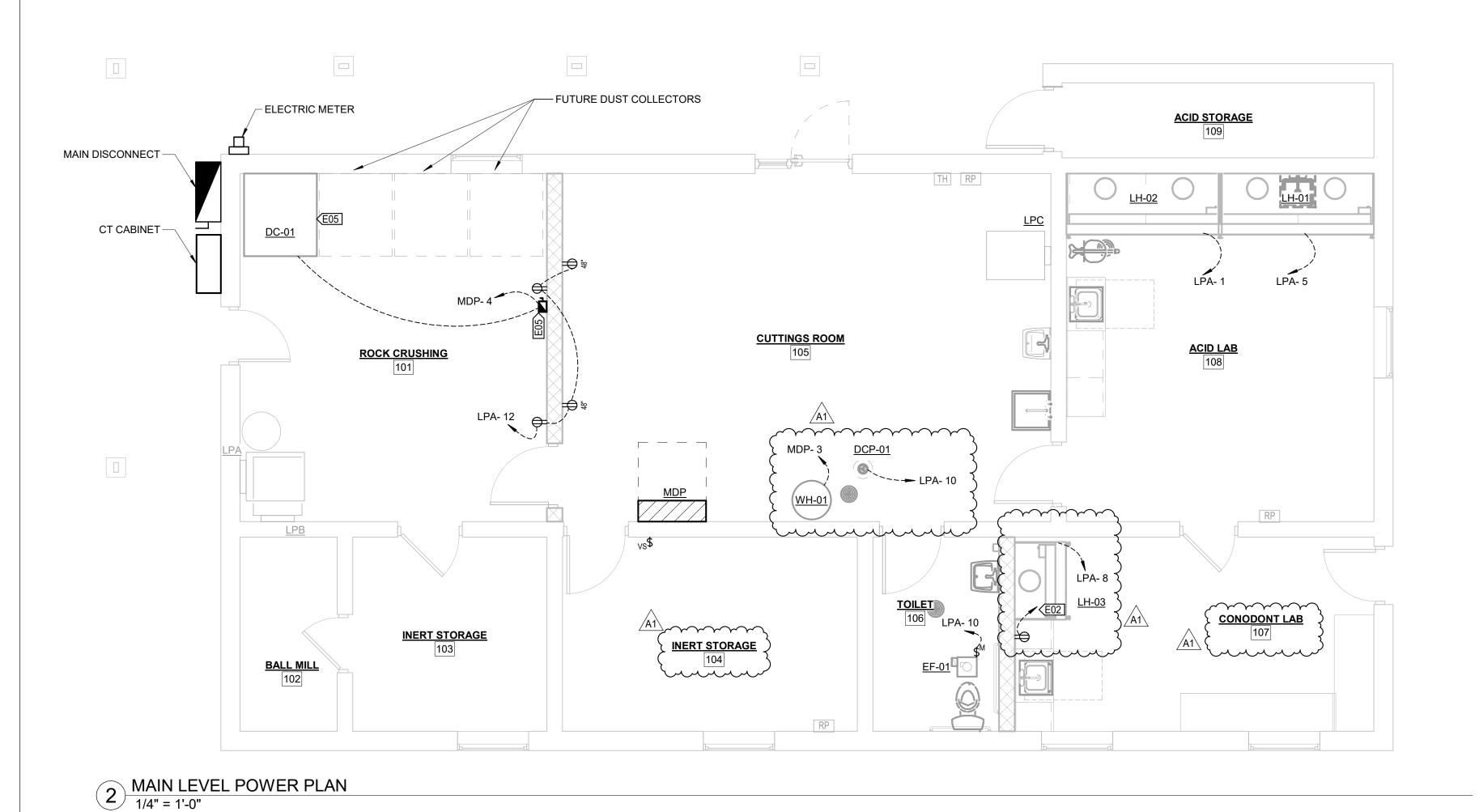


1 ELECTRICAL SITE PLAN
3/16" = 1'-0"

0 5' SCALE: 3/16" = 1'-0"



1 ROOF LEVEL POWER PLAN
1/4" = 1'-0"



KEYNOTE LEGEND

VALUE

DESCRIPTION

E02 CONNECT NEW RECEPTICAL TO EXISTING RECEPTICAL CIRCUIT WITHIN THE GENERAL VICINITY. E05 ASSOCIATED WITH ALTERNATE BID 1.

STATE OF MISSOURI MICHAEL L. PARSON, **GOVERNOR** 



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7815001009 ASSET#

REVISION: DATE: REVISION: DATE: REVISION: DATE: ISSUE DATE: 07/27/2022

CAD DWG FILE: E101 DRAWING BY: MHB CHECKED BY: JJN DESIGNED BY: MHB

SHEET TITLE:

**POWER PLAN** 

SHEET NUMBER:

07/27/2022

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

## Pre-Bid Meeting Attendance Sheet RENOVATE SUB (ACID) LAB Missouri Geological Survey (DNR) Roll, Missouri

## Project No. W2001-01 December 12, 2022 10:00 AM

Name & Title	Company Name & Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee & E-Mail Address of Individual filling out Bid Documents
Jerry Prewett	DNR Geological Survey 111 Fairgrounds Road Rolla, Missouri		573-368-2105	jerry.prewett@dnr.mo.gov
Nona Lancaster	DNR Geological Survey 111 Fairgrounds Road Rolla, Missouri		573-368-2123	nona.lancaster@dnr.mo.gov
John Neyens	Klingner & Associates Engineer		573-355-5988	jjn@klingner.com
Randy Duncan	OA/FMDC Construction Administrator		573-526-0582	randy.duncan@dnr.mo.gov
Sandra Walther	OA/FMDC Project Manager		573-751-2283	sandra.walther@oa.mo.gov

## Pre-Bid Meeting Attendance Sheet RENOVATE SUB (ACID) LAB Missouri Geological Survey (DNR) Roll, Missouri

## Project No. W2001-01 December 12, 2022 10:00 AM

Name & Title	Company Name Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee and E-Mail Address of Individual filling out Bid Documents
Philip Brown Estmator	Thornburgh Abytement 6280 Knox Industrial Dr. 57-Lovis MD 67139	WBE	656-428- 0057	PhilBOThombugh-AL.com
MIKE STELLIEL			314-327 1650	Mstillwell@alloy group.com
Mathen Cooks	Holet Heating HVAC		573	ncoots@huletheating.com
Estimator	400 Big Bear Blud Columbia MD 65202		449-3196	
Auron Zelle-	Midwest Service Group 576 Turner Blok. Sir Peters Ma 63776	WBE	636-762-4366	Azeller CMSG-STL.Con
Sean Schwendinger Cotineter	onsi Constructors spring field, no ac	SOUE	417 881 0903	estimatinga nsi constructors com
Cout	Menen Electric	·	573-261-0030	Brets@MiNewelectriciCon

## Pre-Bid Meeting Attendance Sheet RENOVATE SUB (ACID) LAB Missouri Geological Survey (DNR) Roll, Missouri

## Project No. W2001-01 December 12, 2022 10:00 AM

Company Name Type of Contracting	MBE/WBE/ SDVE Status	Phone	E-Mail Address of Attendee and E-Mail Address of Individual filling out Bid Documents
ARSI, Inc 1510 Copper RI Hdr. Summit, Mo	SDUE	573-896-	Mattroark @ grsi-no.com
Pro-Prost JV	SDVE	573 291 7022	Kale appositional des. co
OKE-THOMAS + ASSOC, INC.	MBE	417.863. 6262	JOHN @ OKE-THOMAS. COM
MORTIN GENTRAL CONTRACTORS		573-485 2107	MMARTINE MANTEN -GC. COM
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	Type of Contracting  ARSI, Inc  1513 Copper RI  Has Summit, Mo  Pro-Prost JU  OKETHOMAST ASSOC, INC.  MORTIN GENERAL	Type of Contracting SDVE Status  ARSI, Inc  1513 Copper R1  Halu Summit, Mo  Pro-Prost DV SDVE  OKETHMASTASSOC, NG. MEE  MORTIN GENERAL	Type of Contracting  ARSI, Inc  ISIN COPPER RI HALL SUMMIT , MD  PRO-PROST DV SAUE  ST3-896- 6222  PRO-PROST DV SAUE  417.803. 6262  MARTIN GENTLER 573-485