PROJECT MANUAL

DMVA PROJECT NO. 42220185
FEDERAL PROJECT NO. ZAWA 192006

For

DEMOLITION OF
BIDDLE AGB BUILDING #201
HORSHAM – MONTGOMERY COUNTY – PENNSYLVANIA

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF MILITARY AND VETERANS' AFFAIRS
HARRISBURG, PENNSYLVANIA

JOSH SHAPIRO, GOVERNOR
Major General MARK J. SHINDLER, THE ADJUTANT GENERAL

Date: 1 APRIL 2023

DEPARTMENT OF MILITARY AND VETERANS' AFFAIRS
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SUMMARY OF WORK

PART 1 – GENERAL

1.1. STIPULATIONS

A. The Specifications Sections, "General Conditions of the Construction Contract", Special Conditions", and "Division 1 – General Requirements" form a part of this Section by this reference thereto and shall have the same force and effect as if printed herewith in full.

1.2. LOCATION

A. Work is located at Building 201, Biddle Air National Guard Base, Montgomery County, PA.

1.3 PROJECT DESCRIPTION

A. Project includes complete demolition of Bldg. 201 and connecting buildings (+/-94,000 SF). This project is to include the demolition of surround concrete as noted on the "Site Plan"

1.4 PERFORMANCE PERIOD

A. One Hundred Eighty (180) calendar days from Government granted Notice to Proceed.

PART 2 – PRODUCTS (Not Used)

PART3 – EXECUTION (Not Used)

END OF SECTION 010100

SECTION 010400
COORDINATION AND CONTROL

PART 1 - GENERAL

1.1 STIPULATIONS

A. The Specification Sections 'General Conditions of the Construction Contract", "Special Conditions", and "Division 1 – General Requirements" form a part of this Section by this reference thereto and shall have the same force and effect as if printed herewith in full.

1.2 SECTION INCLUDES

A. This section includes the on-site provisions that govern the performance of the work to complete this project.

1.3 VISIT TO SITE

A. For access to the site during the bidding period contact the Using Agency site personnel with phone number listed below:

1. Using Agency Site Representative (1): LTC Lydia Stefanik
2. Telephone Number: 215-791-3059

3. Using Agency Site Representative (2): Ritu Kroh
4. Telephone Number: 215-323-8335

5. Using Agency Site Representative (3): Lee DePersia
6. Telephone Number: 215-791-3059

1.4 UNIDENTIFIED HAZARDOUS MATERIALS (ASBESTOS, CHEMICALS, ETC.)

A. There is a possibility that hazardous materials not identified in the contract documents may be discovered on this project. Should it be determined that some or all the hazardous materials must be removed, the Contractor shall obtain an estimate for said removal from a Subcontractor who is experienced in the field, has insurance and is knowledgeable of the regulations as they apply. The Contractor may provide the estimate itself if it is qualified in the applicable hazardous materials field. The Department shall consider authorizing a Change Order for the removal of the hazardous material to the extent necessary.

B. The Contractor or Subcontractor must comply with all requirements of the General Conditions, including the maintenance of insurance up to the limit required under the General Conditions.

C. Should a hazardous material be encountered within the project limits, the Contractor shall comply with all state and federal regulations as they apply during construction and demolition work and the disposal of hazardous material. Particular attention is drawn to Code of Federal Regulations, Title 40, Part 61, Section 112 of Clean Air Act and PA Department of Labor and Industry, Act 194 for asbestos.

D. The Contractor shall comply fully with the regulations of OSHA as they pertain to the protection of workers exposed to the emission of asbestos fibers, chemicals, etc. and shall take all steps necessary to protect its employees, as well as all other people engaged in the building.

E. Whenever a hazardous material is to be removed or disposed of, the Contractor is required to make proper notification to the Bureau of Air Quality Control in the Department of Environmental Protections' Regional Office, PA Department of Labor and Industry and EPA as applicable and is required to obtain and pay for any permits required. Disposal shall conform to all applicable regulations; and documentation shall be required, when applicable.

1.6 LEAD PAINT

A. The Contactor shall perform the work with the assumption that all painted surfaces are lead-containing. Each Prime Contractor is responsible for following all required OSHA 1926.62 'Lead In Construction' standards when disturbing or impacting these painted surfaces during the course of the renovations, including but not limited to activities such as: cutting and patching, core drilling, penetration, anchoring, fastening, etc. The area(s) shall be visually clean upon completion of any of these activities.

1. Action Plan: Contractor(s) shall submit an Action Plan (that conforms to Paragraphs 1.6 A, A.1., A.2., and A.3.) to the Department at the Initial Job Conference, which specifically outlines details of means and methods to be used for each dust-generating activity involving lead-painted surfaces. Include erection of critical barriers and plastic sheeting for dust control, subsequent exposure assessment, personal protective equipment, hygiene and clean-up for demolition, and selective demolition (large area disturbances).
2. Contractor(s) shall utilize means and methods that preclude uncontained dust generation to complete work that disturbs/impacts lead-containing paint (i.e., waxpaper cup filled with shaving cream, paint stripper, HEPA-assisted drills, etc.) for minor area disturbances.
3. Contractor(s) shall ensure areas beyond work area are not contaminated and shall immediately stop work and erect plastic sheeting to prevent the spread of dust, anytime means and methods inadvertently create dust.

1.7 MOLD

A. In the event mold is encountered, the Contactor shall implement corrective actions to protect workers, other building occupants, and to prevent the disturbance of mold in affected areas. Although not presently regulated by EPA and/or OSHA, the EPA does provide industry standards regarding worker safety and abatement procedures, which are the minimum procedures to be followed if mold is encountered.

B. Any mold that appears as a result of construction shall be abated immediately by the Contractor responsible for this condition. The affected surface shall be cleaned, removed, and replaced. Inspection and testing shall be done by a qualified testing agency to confirm the mold has been removed in its entirety.

1.8 INSTRUCTIONS AND TRAINING

A. As indicated in Specification Sections, this Contract.

1.9 GENERAL

A. All construction trailers, offices, equipment, and materials required to be on-site shall be located at the direction of the Department. It is the responsibility of the Contractor to provide, maintain, and remove all facilities and equipment necessary for construction operations. All restoration required due to contract operations, shall be the responsibility of and at the expense of the Contractor.

1.10 WORK IN OCCUPIED BUILDINGS

A. Protect all existing equipment and finishes remaining in or adjacent to the work area.

B. Where isolated work must be performed outside the partitioned work area, the Contractor performing shall provide temporary dust/dirt protection for its work. Those areas shall be cleaned by the Contractor before its employees leave the area each shift.

1.11 WORKING HOURS

A. The Contractor's available working hours shall be from 7:00 A.M. to 4:30 P.M., Monday through Friday, and non-holidays. The actual approved working hours will be established, by the Department, at the Initial Job Conference, in accordance with the Using Agency's standard operating schedule.

B. Work during different hours, or work on Saturdays, Sundays, State and National Holidays or overtime work, must have the Regional Director's or his designee's prior written approval.

C. This shall not apply in those unforeseen isolated and/or emergency instances when a particular operation must be performed in a continuous sequence that extends the working day beyond the approved working hours. Coordinate with the Department in these instances.

D. The Department's failure to approve different working hours, weekend or holiday working hours, or overtime hours is not cause for a claim against the Department for delay.

1.12 DELIVERY, STORAGE AND HANDLING

A. Prefinished materials shall arrive at job site in their original unopened cartons or other protective packaging necessary to protect finishes. Materials should be stored in such packages until time of application. Flat materials such as panels shall arrive and remain on adequate support to ensure flatness and prevent damage.

B. Store all materials, equipment and bulk items prior to installation in clean, dry, well-ventilated locations away from uncured concrete, masonry or from damage of any kind. Waterproof tarpaulin or polyethylene sheeting must allow for air circulation under covering.

C. Coordinate storage location with Department.

D. Refer to each section for specific delivery, handling and storage instructions of items specified.

1.13 PARKING

A. Limited parking space is available on the Commonwealth property. Any parking is subject to prior approval of the Department. Location of Contractor parking shall be coordinated at the pre- construction meeting by the Using Agency.

1.14 TRAFFIC

A. The Contractor shall establish with the Department at the Initial Job Conference a construction staging and traffic plan for the project which minimizes the construction interferences with the facility's operation. This plan is subject to the Department's approval.

1.15 ENVIRONMENTAL QUALITY CONTROL, if applicable

A. The Prime Contractor and its Subcontractors shall perform their work in a manner which shall minimize the possibility of air, water, land, and noise pollution, in accordance with General Conditions Section 6.37.

1.16 OFFICE FOR CONTRACTOR

A. The Contractor shall provide and maintain, at its own cost, a suitable office on the premises, if so desired by the Contractor. The Contractor shall locate the office at direction of the Department.

1.19 SMOKING POLICY

A. Smoking is prohibited in all buildings.

1.20 WORK IN OCCUPIED BUILDINGS

A. The Contractor shall install dust-tight temporary partitions isolating the work area(s) from the other portions of the building before any interior work begins. These portions must allow access to mean of egress in compliance with fire codes.

B. Protect all existing equipment and finishes remaining in the work area(s).

C. Where isolated work must be performed outside the partitioned work area(s), the Contractor shall provide temporary dust/dirt protection for its work. Those areas shall be cleaned by the Contractor before its employees leave the area.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 010400

SECTION 012200
UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for unit prices.

B. Related Section:

1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.2 DEFINITIONS

A. Unit price is a price per unit of measurement for materials, equipment, or services, or a portion of the Work, added to or deducted from the Contract Sum by appropriate modification, if the scope of Work or estimated quantities of Work required by the Contract Documents are increased or decreased.

1.3 PROCEDURES

A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, overhead, and profit.

B. Measurement and Payment: Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.

D. List of Unit Prices: A schedule of unit prices is included in Part 3. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF UNIT PRICES

A. Demolition of Building 201 **without** Hazardous Material Removal.

1. Description: All work within the Contract Documents, not including the Hazardous Material Removal/Disposal.
2. Unit of Measure: Lump Sum

B. Hazardous Material Removal/Disposal

1. Description: All work associated with the removal and disposal of all hazardous materials as described and recommended within the ***Horsham, Building 201 Hazardous Material Survey***, dated 24 Mar 2023.
2. Unit of Measurement: Lump Sum

END OF SECTION 012200

SECTION 013526

GOVERNMENTAL SAFETY REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

AMERICAN SOCIETY OF SAFETY PROFESSIONALS (ASSP)

ASSP A10.34	(2021) Protection of the Public on or Adjacent to Construction Sites
ASSP Z359.4	(2013) Safety Requirements for Assisted-Rescue and Self-Rescue Systems, Subsystems and Components
ASSP Z490.1	(2016) Criteria for Accepted Practices in Safety, Health, and Environmental Training

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

NFPA 10	(2022; ERTA 1 2021) Standard for Portable Fire Extinguishers
NFPA 51B	(2019; TIA 20-1) Standard for Fire Prevention During Welding, Cutting, and Other Hot Work

U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 385-1-1	(2014) Safety -- Safety and Health Requirements Manual

U.S. NATIONAL ARCHIVES AND RECORDS ADMINISTRATION (NARA)

29 CFR 1910.333	Selection and Use of Work Practices
29 CFR 1926	Safety and Health Regulations for Construction
29 CFR 1926.16	Rules of Construction

1.2 DEFINITIONS

1.2.1 Competent Person (CP)

The CP is a person designated in writing, who, through training, knowledge and experience, is capable of identifying, evaluating, and addressing existing and predictable hazards in the working environment or working conditions that are dangerous to personnel, and who has authorization to take prompt corrective measures with regards to such hazards.

1.2.2 High Visibility Accident

A High Visibility Accident is any mishap which may generate publicity or high visibility.

1.2.3 Medical Treatment

Medical Treatment is treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even when provided by a physician or registered personnel.

1.2.4 Near Miss

A Near Miss is a mishap resulting in no personal injury and zero property damage, but given a shift in time or position, damage or injury may have occurred (e.g., a worker falls off a scaffold and is not injured; a crane swings around to move the load and narrowly misses a parked vehicle).

1.2.5 Qualified Person (QP)

The QP is a person designated in writing, who, by possession of a recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience, has successfully demonstrated their ability to solve or resolve problems related to the subject matter, the work, or the project.

1.2.6 Recordable Injuries or Illnesses

Recordable Injuries or Illnesses are any work-related injury or illness that results in:

a. Death, regardless of the time between the injury and death, or the length of the illness;

b. Days away from work (any time lost after day of injury/illness onset);

c. Restricted work;

d. Transfer to another job;

e. Medical treatment beyond first aid;

f. Loss of consciousness; or

g. A significant injury or illness diagnosed by a physician or other licensed health care professional, even if it did not result in (a) through (f) above

1.3 SUBMITTALS

Government approval is required for ALL submittals. Submit the following:

SD-01 Preconstruction Submittals APP - Construction;

Accident Prevention Plan (APP); SD-06 Test Reports

Accident Reports; SD-07 Certificates

Hot Work Permit

1.4 MONTHLY EXPOSURE REPORTS

Provide a Monthly Exposure Report and attach to the monthly billing request. This report is a compilation of employee-hours worked each month for all site workers, both Prime and subcontractor. Failure to submit the report may result in retention of up to 10 percent of the voucher.

1.6 REGULATORY REQUIREMENTS

In addition to the detailed requirements included in the provisions of this Contract, comply with the most recent edition of USACE EM 385-1-1, and the following federal, state, and local laws, ordinances, criteria, rules and regulations. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work.

Where the requirements of this specification, applicable laws, criteria, ordinances, regulations, and referenced documents vary, the most stringent requirements govern.

1.7 SITE QUALIFICATIONS, DUTIES, AND MEETINGS

1.7.1 Personnel Qualifications

1.7.1.1 Competent Person Qualifications

Provide Competent Persons in accordance with EM 385-1-1, Appendix Q and herein. Competent Persons for high risk activities include confined space, cranes and rigging, excavation/trenching, fall protection, and electrical work. The CP for these activities must be designated in writing, and meet the requirements for the specific activity (i.e. competent person, fall protection).

The Competent Person identified in the Contractor's Safety and Health Program and accepted Accident Prevention Plan, must be on-site at all times when the work that presents the hazards associated with their professional expertise is being performed. Provide the credentials of the Competent Persons(s) to the Contracting Officer for information in consultation with the Safety Office.

1.7.2 Meetings

1.7.2.1 Preconstruction

a. Contractor representatives who have a responsibility or significant role in accident prevention on the project must attend the preconstruction meeting. This includes the project superintendent, Site Safety and Occupational Health Officer, quality control manager, or any other assigned safety and health professionals who participated in the development of the APP (including the Activity Hazard Analyses (AHAs) and special plans, program and procedures associated with it).

b. Discuss the details of the submitted APP to include incorporated plans, programs, procedures and a listing of anticipated AHAs that will be developed and implemented during the performance of the Contract. This list of proposed AHAs will be reviewed and an agreement will be reached between the Contractor and the Contracting Officer as to which phases will require an analysis. In addition, establish a schedule for the preparation, submittal, and Government review of AHAs to preclude project delays.

c. Deficiencies in the submitted APP, identified during the Contracting Officer's review, must be corrected, and the APP re-submitted for review prior to the start of construction. Work is not permitted to begin until an APP is established that is acceptable to the Contracting Officer.

1.7.2.2 Safety Meetings

Conduct safety meetings to review past activities, plan for new or changed operations, review pertinent aspects of appropriate AHA (by trade), establish safe working procedures for anticipated hazards, and provide pertinent Safety and Occupational Health (SOH) training and motivation.

Conduct meetings at least once a month for all supervisors at the project location. The foremen must conduct meetings at least once a week for the trade workers. Document meeting minutes to include the date, persons in attendance, subjects discussed, and names of individual(s) who conducted the meeting. Maintain documentation on-site and furnish copies to the Contracting Officer on request. Notify the Contracting Officer of all scheduled meetings 7 calendar days in advance.

1.8 ACCIDENT PREVENTION PLAN (APP)

1.8.1 APP - Construction

A qualified person must prepare the written site-specific APP. Prepare the APP in accordance with the format and requirements of EM 385-1-1, Appendix A, and as supplemented herein. Cover all paragraph and subparagraph elements in EM 385-1-1, Appendix A. The APP must be job-specific and address any unusual or unique aspects of the project or activity for which it is written. The APP must interface with the Contractor's overall safety and health program referenced in the APP in the applicable APP element, and made site-specific. Describe the methods to evaluate past safety performance of potential subcontractors in the selection process. Also, describe innovative methods

used to ensure and monitor safe work practices of subcontractors. The Government considers the Prime Contractor to be the "controlling authority" for all work site safety and health of the subcontractors. Contractors are responsible for informing their subcontractors of the safety provisions under the terms of the Contract and the penalties for noncompliance, coordinating the work to prevent one craft from interfering with or creating hazardous working conditions for other crafts, and inspecting subcontractor operations to ensure that accident prevention responsibilities are being carried out. The APP must be signed by an officer of the firm (Prime Contractor senior person), the individual preparing the APP, the on-site superintendent, the designated SSHO, the Contractor Quality Control Manager, and any designated Certified Safety Professional (CSP) or Certified Health Physicist (CIH). The SSHO must provide and maintain the APP and a log of signatures by each subcontractor foreman, attesting that they have read and understand the APP, and make the APP and log available on-site to the Contracting Officer. If English is not the foreman's primary language, the Prime Contractor must provide an interpreter.

Submit the APP to the Contracting Officer 15 calendar days prior to the date of the preconstruction for acceptance. Work cannot proceed without an accepted APP. Once reviewed and accepted by the Contracting Officer, the APP and attachments will be enforced as part of the Contract. Disregarding the provisions of this Contract or the accepted APP is cause for stopping of work, at the discretion of the Contracting Officer, until the matter has been rectified. Continuously review and amend the APP, as necessary, throughout the life of the Contract. Changes to the accepted APP must be made with the knowledge and concurrence of the Contracting Officer, project superintendent, SSHO and Quality Control Manager. Incorporate unusual or high-hazard activities not identified in the original APP as they are discovered. Should any severe hazard exposure (i.e. imminent danger) become evident, stop work in the area, secure the area, and develop a plan to remove the exposure and control the hazard. Notify the Contracting Officer within 24 hours of discovery. Eliminate and remove the hazard. In the interim, take all necessary action to restore and maintain safe working conditions in order to safeguard onsite personnel, visitors, the public (as defined by ASSP A10.34), and the environment.

1.8.2 Names and Qualifications

Provide plans in accordance with the requirements outlined in Appendix A of EM 385-1-1, including the following:

a. Names and qualifications (resumes including education, training, experience and certifications) of site safety and health personnel designated to perform work on this project to include the designated Site Safety and Health Officer and other competent and qualified personnel to be used. Specify the duties of each position.

b. Qualifications of competent and of qualified persons. As a minimum, designate and submit qualifications of competent persons for each of the following major areas: excavation; scaffolding; fall protection; hazardous energy; confined space; health hazard recognition, evaluation and control of chemical, physical and biological agents; and personal protective equipment and clothing to include selection, use and maintenance.

1.8.3 Plans

Provide plans in the APP in accordance with the requirements outlined in Appendix A of EM 385-1-1, including the following:

1.8.3.1 Rescue and Evacuation Plan

Provide a Rescue and Evacuation Plan in accordance with EM 385-1-1 Section 21.N and ASSP Z359.2, and include in the FP&P Plan and as part of the APP. Include a detailed discussion of the following: methods of rescue; methods of self-rescue; equipment used; training requirement; specialized training for the rescuers; procedures for requesting rescue and medical assistance; and transportation routes to a medical facility.

1.9 DISPLAY OF SAFETY INFORMATION

1.9.1 Safety Bulletin Board

Prior to commencement of work, erect a safety bulletin board at the job site. Where size, duration, or logistics of project do not facilitate a bulletin board, an alternative method, acceptable to the Contracting Officer, that is accessible and includes all mandatory information for employee and visitor review, may be deemed as meeting the requirement for a bulletin board. Include and maintain information on safety bulletin board as required by EM 385-1-1, Section 01.A.07. Additional items required to be posted include:

a. Hot work permit.

1.10 SITE SAFETY REFERENCE MATERIALS

Maintain safety-related references applicable to the project, including those listed in paragraph REFERENCES. Maintain applicable equipment manufacturer's manuals.

1.11 EMERGENCY MEDICAL TREATMENT

Contractors must arrange for their own emergency medical treatment in accordance with EM 385-1-1. Government has no responsibility to provide emergency medical treatment.

1.12 NOTIFICATIONS and REPORTS

1.12.1 Mishap Notification

Notify the Contracting Officer as soon as practical, but no more than twenty-four hours, after any mishaps, including recordable accidents, incidents, and near misses, as defined in EM 385-1-1 Appendix Q, any report of injury, illness, or any property damage. For LHE or rigging mishaps, notify the Contracting Officer as soon as practical but not more than four hours after mishap. The Contractor is responsible for obtaining appropriate medical and emergency assistance and for notifying fire, law enforcement, and regulatory agencies. Immediate reporting is required for electrical mishaps, to include Arc Flash; shock; uncontrolled release of hazardous energy (includes electrical and non-electrical); load handling equipment or rigging; fall from height (any level other than same surface); and underwater diving. These mishaps must be investigated in depth to identify all causes and to recommend hazard control measures.

Within notification include Contractor name; Contract title; type of Contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; extent of injury, if known, and brief description of accident (for example, type of construction equipment used and PPE used). Preserve the conditions and evidence on the accident site until the Government investigation team arrives on-site and Government investigation is conducted. Assist and cooperate fully with the Government's investigation(s) of any mishap.

1.12.2 Accident Reports

a. Conduct an accident investigation for recordable injuries and illnesses, property damage, and near misses as defined in EM 385-1-1, to establish the root cause(s) of the accident. The Contracting Officer will provide copies of any required or special forms.

b. Near Misses: Near miss reports are considered positive and proactive Contractor safety management actions.

1.13 HOT WORK

1.13.1 Permit and Personnel Requirements

Submit and obtain a written permit prior to performing "Hot Work" (i.e. welding or cutting) or

operating other flame-producing/spark producing devices, from the Government. CONTRACTORS ARE REQUIRED TO MEET ALL CRITERIA BEFORE A PERMIT IS ISSUED. Provide at least two 20 pound 4A:20 BC rated extinguishers for normal "Hot Work". The extinguishers must be current inspection tagged, and contain an approved safety pin and tamper resistant seal. It is also mandatory to have a designated FIRE WATCH for any "Hot Work" done at this activity. The Fire Watch must be trained in accordance with NFPA 51B and remain on-site for a minimum of one hour after completion of the task or as specified on the hot work permit.

When starting work in the facility, require personnel to familiarize themselves with the location of the nearest fire alarm boxes and place in memory the emergency phone number. REPORT ANY FIRE, NO MATTER HOW SMALL, TO THE RESPONSIBLE GOVERNMENT IMMEDIATELY.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 CONSTRUCTION AND OTHER WORK

Comply with EM 385-1-1, NFPA 70, NFPA 70E, NFPA 241, the APP, the AHA,

Federal and State OSHA regulations, and other related submittals and activity fire and safety regulations. The most stringent standard prevails.

PPE is governed in all areas by the nature of the work the employee is performing. Use personal hearing protection at all times in designated noise hazardous areas or when performing noise hazardous tasks. Safety glasses must be worn or carried/available on each person. Mandatory PPE includes:

a. Hard Hat

b. Long Pants

c. Appropriate Safety Shoes

d. Appropriate Class Reflective Vests

3.1.1 Worksite Communication

Employees working alone in a remote location or away from other workers must be provided an effective means of emergency communications (i.e., cellular phone, two-way radios, land-line telephones or other acceptable means). The selected communication must be readily available (easily within the immediate reach) of the employee and must be tested prior to the start of work to verify that it effectively operates in the area/environment. Develop an employee check-in/check-out communication procedure to ensure employee safety.

-- End of Section --

SECTION 016350
DEPARTMENT OF MILITARY & VETERANS AFFAIRS

PART 1 – GENERAL

1.1 STIPULATIONS

A. The specifications sections "General Conditions of the Construction Contract", "Special Conditions", and "Division 1 - General Requirements" form a part of this Section by this reference thereto and shall have the same force and effect as if printed herewith in full.

1.2 PERSONAL BEHAVIOR

A. Contractors are responsible for informing their employees of the special restrictions on personal behavior and the procedures/potential penalties for violations.

B. Identification tags or badges to be furnished by the Institution Manager must be worn at all times while on facility property.

C. Smoking is not permitted in any facility building.

1.3 WORKING HOURS

A. Refer to specification Section 010400 – Coordination and Control, for working hours. Any extension outside of these hours must be accomplished in accordance with the General Conditions and with the consent of both the Department and Institution Manager.

1.4 VEHICLES

A. Construction vehicles, as well as employees' vehicles, will be parked in an area designated by Institution and Department and locked at all times. If any vehicles are to be left overnight, the license number or numbers of vehicles must be reported to the Institution Manager on a daily basis.

1.5 TOOLS

A. Tools shall be kept in a secure (locked) area when not in use and inventoried on a daily basis to ensure complete and total accountability. While the tools are being used, they shall be kept in view or on person. Broken or non-usable tools are to be disposed of away from Institutional property.

1.6 FRATERNIZATION

A. There shall be no fraternization or private relationships of Contractors' employees with residents and Institution Staff. This includes, but is not limited to, trading, bartering or receiving gifts, money, favors from the residents, or the residents' friends, relatives or representatives.

1.7 ALCOHOL AND CONTROLLED SUBSTANCES

A. Alcoholic beverages and controlled substances shall not be carried, stored or consumed on Institutional property nor left in any vehicle.

1.8 ORIENTATION PROGRAM

A. The Institution agrees to provide an orientation program for covering security rules and regulations for the Contractors' personnel, with respect to residents' safety and elopements.

B. The contractor's personnel must attend a security orientation program prior to commencement of on-site work. No personnel of the contractor will be permitted to begin work on Institutional grounds without first attending the security orientation program. The contractor must schedule the orientation with the Institution, and budget his time accordingly. The Institution requires at least 10 days' notice for this activity and it will need to be a day that fits the Institution's schedule.

C. Any contractor and their personnel exhibiting signs of illness that could be contagious to the residents must notify the Medical Director and Director of Nursing at the facility and follow their clinical recommendations including, but not limited to wearing a mask, avoidance of entry, etc.

1.9 SECURITY CLEARANCE CHECK

A. The Prime Contractor must obtain a criminal record check for all of its employees as well as the employees of Subcontractors or suppliers who will be required to enter the building as part of this project.

B. The criminal record check must be requested from the Pennsylvania State Police by completing a 'REQUEST FOR CRIMINAL RECORD CHECK' FORM and submitting it to the Pennsylvania State Police.

C. All Prime Contractors are responsible for the costs incurred with the record check including the processing fee for all of their employees as well as the employees of Subcontractors or suppliers who will be required to enter the building as part of this project.

D. If a Contractor has not been a resident of the Commonwealth of Pennsylvania for the entire two-years (without interruption) immediately preceding the date of application for employment or currently lives out-of-state, in addition to the Pennsylvania State Police Criminal History Record Check, the Contractor will also need to obtain a Department of Aging FBI Criminal History Record Check. For more information, please visit www.pa.cogentid.com.

E. If the Criminal Record Check discloses a criminal record for a Contractor, Subcontractor or supplier employee, the Contractor shall not allow the employee access to the building, unless authorized by the Department.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION

SECTION 024119
DEMOLITION

PART 1 - GENERAL

1.1 STIPULATIONS

A. The General Conditions, drawings and all other attached documents form a part of this Section and all other Sections by reference thereto and have the same force and effect as if printed herewith in full.

1.2 SCOPE OF WORK OUTLINE

A. The work under this division shall consist of, but not necessarily be limited to, the furnishing of all labor, materials, tools, devices, and equipment required for removal of the entire building B201 and adjacent and connecting buildings to include surrounding concrete. All work under this section shall follow other trades and sections of this specification.

1.3 SITE CONDITIONS

A. **The Contractor shall know all drawings provided for this project are diagrammatic in nature and require field verification for actual site conditions that will affect project execution, exact quantities, and details**.

1. The Drawings are a general indication only of the work required and do not necessarily show the full extent and/or limit the Contractor's responsibility to perform any such work required to properly execute this Contract.

2. The intent is to have (under a separate contract) all hazardous materials removed prior to the start of demolition. Please refer to specification 10400 Coordination and Control – Part: 1, Para: 1.5 if any other hazardous material is found during demolition.

1.4 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in demolition operations and who are completely familiar with the specified requirements and methods needed for the proper performance of the work.

B. Use equipment adequate in size, capacity, and number to accomplish the work in a safe and timely manner.

C. All work shall be preformed in complete compliance with the rules and regulations of the Federal Department of Labor, Occupational Safety and Health Administration.

1.5 JOB CONDITIONS

A. Prior to the start of demolition, the General Contractor shall provide the following:

1. Provide safety barriers, taped isolation areas, warning lights and/or other protective devices, as required.

B. Do not close or obstruct egress from any building exit.

C. Perform work in a manner to prevent damage or injury to military personnel and/or property and the public.

D. Conduct demolition to minimize interference with adjacent and occupied building areas.

E. Do not disable or disrupt building fire or life safety systems without 3 days prior written notice to the Using Agency.

F. Protect walls, ceiling, floors, and other existing areas/items that are to remain and are exposed during demolition operations.

G. Use caution and wear appropriate clothing, including gloves and safety goggles.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 SCHEDULING/COORDINATION

A. Contractor shall schedule all demolition work with the Facility Administrative Officer for concurrence.

3.2 PREPARATION

A. Thoroughly review all Drawings and Specifications and coordinate demolition operations with all trades.

3.3 DEMOLITION

A. Absolutely no demolition operations shall be started until any / all shop drawings have been approved.

B. All demolition work shall be executed in such a manner as to prevent any damage to the adjacent existing work/conditions.

1. Prior to demolition of each item the Contractor shall inspect the adjacent conditions and report any pre-existing damaged areas to the Facility Representative for verification. Pre-existing damage SHALL NOT be the responsibility of the Contractor to repair if previously identified.

3.4 DISPOSAL AND CLEAN UP OF MATERIALS

A. The Department shall retain the right of first refusal of all demolished items. All items not retained by the Department shall be removed from the site unless stated otherwise within this specification and transported to its final disposal location in a manner that prevents spillage on streets, roadways, or adjacent areas. All cleanup and disposal shall be in accordance with local, state and federal laws and regulations. In cases of conflict among these laws and regulations, the most stringent law or regulation shall apply.

B. Contractor shall recycle demolished window frames and glass if there is a recognized Recycling Center within a 25-mile radius of the project site. If a Recycling Center is not available disposal shall be at a PA DEP approved landfill.

1. Provide name and address of the Recycling Center and/or landfill to be utilized for disposal of demolished material.
2. Provide original weight slips from the above facility to verify compliance with this requirement.
3. Assumed salvage value of recycled materials, if any, may be reflected in the Contract Proposal at the Contractors option.
4. Cost of transportation of demolished material shall be included with the Contract Price.

C. Demolition materials/items shall be gathered daily and neatly stored in a location designated by the Using Agency until off-site disposal.

D. Drives and walkways adjacent to the work area shall be always kept clear of obstructions; areas shall be clean and clear of materials and debris to their full length and width and shall be maintained in a manner to permit safe and normal use.

E. The Contractor shall be responsible for the safe and orderly transport of demolition from the work site.

3.5 RESTORATION

A. Repair or replace damaged adjacent areas, which were not identified during pre-demolition inspection required under paragraph 3.b., this PART, with like materials, to the Departments satisfaction.

END OF SECTION 024119

SECTION 312000

EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The specifications sections “General Conditions of the Construction Contract”, and “Special Conditions”, and “Division 1 - General Requirements” form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

1.2 SUMMARY

A. This Section includes the following:
   1. Preparing sub-grades for walks, pavements, lawns and grasses.

B. Related Sections include the following:
   1. Division 2 Section "Turf and Grasses" for finish grading, including preparing and placing topsoil and planting soil for lawns.

1.3 DEFINITIONS

A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
   1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
   2. Final Backfill: Backfill placed over initial backfill to fill a trench.

B. Base Course: Course placed between the sub-base course and hot-mix asphalt paving.

C. Bedding Course: Course placed over the excavated sub-grade in a trench before laying pipe.

D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

E. Drainage Course: Course supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

F. Excavation: Removal of material encountered above sub-grade elevations and to lines and dimensions indicated.
   1. Authorized Additional Excavation: Excavation below sub-grade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.
   2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.

3. Unauthorized Excavation: Excavation below sub-grade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.

G. Fill: Soil materials used to raise existing grades.

H. Rock: Rock material in beds, ledges, un-stratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:
1. Excavation of Footings, Trenches, and Pits: Late-model, track-mounted hydraulic excavator; equipped with a 42-inch- wide, maximum, short-tip-radius rock bucket; rated at not less than 138-hp flywheel power with bucket-curling force of not less than 28,090 lbf and stick-crowd force of not less than 18,650-lbf; measured according to SAE J-1179.
2. Bulk Excavation: Late-model, track-mounted loader; rated at not less than 210-hp flywheel power and developing a minimum of 48,510-lbf breakout force with a general-purpose bare bucket; measured according to SAE J-732.

I. Sub-base Course: Course placed between the sub-grade and base course for hot-mix asphalt pavement, or course placed between the sub-grade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.

J. Sub-grade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below sub-base, drainage fill, or topsoil materials.

1.4 SUBMITTALS

A. Make submissions in accordance with 'SCHEDULE OF MATERIAL SUBMITTALS', attached at end of the Specifications.

B. No deviations, substitutions or changes of materials, to be incorporated into this project, shall be made after approval by the Department, except for written direction by and the approval of the manufacturer of a specific item and re-approval by the Department.

C. The Department retains the right to require additional items not specifically denoted to be submitted for approval and/or additional clarification.

1.5 QUALITY ASSURANCE

A. Geotechnical Testing Agency Qualifications: The contractor will hire an independent testing agency qualified according to ASTM E 329 to conduct soil materials testing, compaction testing and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548. All materials under this Section shall be factory certified, first run material, seconds will not be permitted.

B. Non-Compliant Materials - Any material found not to be in compliance with the requirements of this Section, through testing and/or other means, whether installed individually and/or as a

part of a system or not, shall be immediately removed from the job site and replaced with compliant materials at no additional cost to the Contract.

C. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated:
   1. Classification according to ASTM D 2487 of each on-site and borrow soil material proposed for fill and backfill.
   2. Laboratory compaction curve according to ASTM D 698 for each on-site and borrow soil material proposed for fill and backfill.
   3. Compaction Density Test Reports according to ASTM D 2922 – Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

D. Aggregate Material Tests: Conduct aggregate material quality tests in accordance with the following:
   1. PDT Section 703.1, Fine Aggregate
   2. PDT Section 703.2, Coarse Aggregate
   3. PDT Section 703.3 Select Granular Material (2RC)

1.6 PROJECT CONDITIONS

A. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.
   1. Notify Department not less than three days in advance of proposed utility interruptions.
   2. Do not proceed with utility interruptions without Department's written permission.
   3. Contact utility-locator service for area where Project is located before excavating.

B. Demolish and completely remove from site existing underground utilities indicated to be removed. Coordinate with utility companies to shut off services if lines are active.

PART 2 - PRODUCTS
DISCLAIMER:

2.1 Items specified by specific name of a manufacturer is only to provide a guide to type, performance quality, characteristics, etc. Equal products by manufacturers not specified will be considered for inclusion into this project provided that they are submitted with sufficient supporting data/ information on which to base a decision for approval. In certain cases, which will be so noted, specific items **must** be used in order to be compatible with existing systems.

2.2 SOIL MATERIALS

A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

B. Satisfactory Soils: ASTM D 2487 Soil Classification Groups GW, GP, GM, SW, SP, and SM AASHTO M 145 Soil Classification Groups A-1, A-2-4, A-2-5, and A-3, or a combination of

these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.

C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487 A-2-6, A-2-7, A-4, A-5, A-6, and A-7 according to AASHTO M 145, or a combination of these groups.
   1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.

D. Sub-base Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.

H. Drainage Course: Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and 0 to 5 percent passing a No. 8 sieve.

I. Detectable Warning Tape: Acid- and alkali-resistant polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored as follows:
   1. Red: Electric.
   2. Yellow: Gas, oil, steam, and dangerous materials.
   3. Orange: Telephone and other communications.
   4. Blue: Water systems.
   5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earthwork operations.

B. Preparation of sub-grade for earthwork operations including removal of vegetation, topsoil, debris, obstructions, and deleterious materials from ground surface is specified in Division 2 Section "Site Clearing."

C. Protect and maintain erosion and sedimentation controls, which are specified in Division 2 Section "Site Clearing," during earthwork operations.

D. Provide protective insulating materials to protect sub-grades and foundation soils against freezing temperatures or frost.

3.2 DEWATERING

A. Prevent surface water and ground water from entering excavations, from ponding on prepared sub-grades, and from flooding Project site and surrounding area.

B. Protect sub-grades from softening, undermining, washout, and damage by rain or water accumulation.
   1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
   2. Install a dewatering system to keep sub-grades dry and convey ground water away from excavations. Maintain until dewatering is no longer required.
   3. Accumulation of run-off is assumed to be PFAS contaminated, the contractor will be required to properly collect and transport to a certified treatment/storage facility.

3.3 EXPLOSIVES

A. Explosives: Explosives may not be used for any part of this project.

3.4 EXCAVATION, GENERAL

A. Unclassified Excavation: Excavate to sub-grade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
   1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

B. Classified Excavation: Excavate to sub-grade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Department. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents. Changes in the Contract time may be authorized for rock excavation.
   1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; together with soil, boulders, and other materials not classified as rock or unauthorized excavation.
      a. Intermittent ram hammering; or ripping of material not classified as rock excavation is earth excavation.

b. Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated to permit installation of permanent construction.

3.5 EXCAVATION FOR STRUCTURES

A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch (25 mm). If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
   1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
   2. Excavation for Underground Tanks, Basins, and Mechanical or Electrical Utility Structures: Excavate to elevations and dimensions indicated within a tolerance of plus or minus 1 inch (25 mm). Do not disturb bottom of excavations intended as bearing surfaces.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and sub-grades.

3.7 EXCAVATION FOR UTILITY TRENCHES

A. Excavate trenches to indicated gradients, lines, depths, and elevations.
   1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches (300 mm) higher than top of pipe or conduit, unless otherwise indicated.
   1. Clearance: As indicated on contract drawings or as recommended by the manufacturer.

C. Trench Bottoms: Excavate trenches 6 inches deeper than bottom of pipe elevation to allow for bedding course. Hand excavate for bell of pipe.

3.8 SUBGRADE INSPECTION

A. Notify Department when excavations have reached required sub-grade.

B. If the contractor encounters unforeseen sub-grade conditions that are considered unsatisfactory for construction or that do not meet compaction requirements, they will notify the department prior to any further excavation or site construction. If the Department determines that unforeseen unsatisfactory sub-grade is present, they will determine the additional work to be completed and submit a change order request through the contracting officer.

C. Proof-roll sub-grade below the pavements with heavy pneumatic-tired equipment to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated sub-grades.

1. Completely proof-roll sub-grade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph .
2. Proof-roll with a loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons .
3. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.

E. Reconstruct sub-grades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Department, without additional compensation.

3.9 UNAUTHORIZED EXCAVATION

A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi , may be used when approved by Department.
1. Fill unauthorized excavations under other construction or utility pipe as directed by Department.

3.10 STORAGE OF SOIL MATERIALS

A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.11 UTILITY TRENCH BACKFILL

A. Place backfill on sub-grades free of mud, frost, snow, or ice.

B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.

C. Backfill voids with satisfactory soil while installing and removing shoring and bracing.

D. Place and compact final backfill of satisfactory soil to final sub-grade elevation.

E. Install warning tape directly above utilities, 12 inches (300 mm) above top of pipe, except 6 inches (150 mm) below sub-grade under pavements and slabs.

F. Utility Trenches that are located at or near finished pavement or structures will be tested for compaction, according to ASTM D 2922. Backfill will not exceed 6” lifts at these locations.

3.12 BACKFILL

A. Place and compact backfill in excavations promptly, but not before completing the following:
   1. Surveying locations of underground utilities for Record Documents.
   2. Removing trash and debris.
   3. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
   4. Testing and inspecting underground utilities.
   5. Removing concrete formwork.
   6. Removing temporary shoring and bracing, and sheeting.
   7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

B. Place backfill on sub-grades free of mud, frost, snow, or ice.

3.13 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:
   1. Under walks and pavements, use satisfactory soil material.

C. Place soil fill on sub-grades free of mud, frost, snow, or ice.

3.14 SOIL MOISTURE CONTROL

A. Uniformly moisten or aerate sub-grade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
   1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
   2. Remove and replace, or scarify and air dry otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF SOIL BACKFILLS AND FILLS

A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment, and not more than 4 inches in loose depth for material compacted by hand-operated tampers.

B. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 698:
   1. Under structures, building slabs, steps, and pavements, scarify and re-compact top 12 inches of existing sub-grade and each layer of backfill or fill soil material at 95 percent.
   2. Under walkways, scarify and re-compact top 6 inches below sub-grade and compact each layer of backfill or fill soil material at 92 percent.
   3. Under lawn or unpaved areas, scarify and re-compact top 6 inches below sub-grade and compact each layer of backfill or fill soil material at 85 percent.

4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent. Utility trenches within a pavement area shall be compacted according to #1 above.

3.16 GRADING

A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
   1. Provide a smooth transition between adjacent existing grades and new grades.
   2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

B. Grading inside Building Lines: Finish sub-grade to a tolerance of 1/2 inch (13 mm) when tested with a 10-foot (3-m) straightedge.

C. Site Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish sub-grades to required elevations within the following tolerances:
   1. Lawn or Unpaved Areas: Plus or minus 1/2 inch.
   2. Walks: Plus or minus 1/2 inch .
   3. Pavements: Plus or minus 1/4 inch.

3.17 SUBBASE AND BASE COURSES

A. Place sub-base and base course on sub-grades free of mud, frost, snow, or ice.

B. On prepared sub-grade, place sub-base and base course under pavements and walks as follows:
   1. Install separation geotextile on prepared sub-grade according to manufacturer's written instructions, overlapping sides and ends.
   2. Place base course material over sub-base course under hot-mix asphalt pavement.
   3. Shape sub-base and base course to required crown elevations and cross-slope grades.
   4. Place sub-base and base course 6 inches or less in compacted thickness in a single layer.
   5. Place sub-base and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
   6. Compact sub-base and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.18 FIELD QUALITY CONTROL

A. Testing Agency: Contractor will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing.

B. Allow testing agency to inspect and test sub-grades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.

C. Footing Sub-grade: At footing sub-grades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing sub-grades may be based on a visual comparison of sub-grade with tested sub-grade when approved by the Department.

D. Testing agency will test compaction of soils in place according to ASTM D 2922 as applicable. Tests will be performed at the following locations and frequencies:
   1. Paved and Building Slab Areas: At sub-grade and at each compacted fill and backfill layer, at least 1 test for every 2000 sq. ft. (186 sq. m) or less of paved area or building slab, but in no case fewer than 3 tests.
   2. Foundation Wall Backfill: At each compacted backfill layer, at least 1 test for each 100 feet (30 m) or less of wall length, but no fewer than 2 tests.
   3. Trench Backfill: At each compacted initial and final backfill layer, at least 1 test for each 150 feet (46 m) or less of trench length, but no fewer than 2 tests.

E. When testing agency reports that sub-grades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; re-compact and retest until specified compaction is obtained.

F. The contractor will provide the Department with copies of all test reports prior to final backfill and certification of calibration of nuclear density gauge.

3.19 PROTECTION

A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
   1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and re-compact.

C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
   1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.20 DISPOSAL OF SURPLUS AND WASTE MATERIALS

A. Disposal: Remove surplus waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Department's property.
   1. Remove waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Department's property.
   2. The Department will retain all satisfactory soils originated from Ft. Indiantown Gap.

END OF SECTION

SECTION 329200

TURFS and GRASSES

PART 1 - GENERAL

1.1 STIPULATIONS

A. The specifications sections “General Conditions of the Construction Contract”, “Special Conditions”, and “Division 1 – General Requirements” form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions.

1.3 SUMMARY

A. This Section includes the following:

1. Seeding.

B. Related Sections include the following:

1. Division 31 Section "Site Clearing" for topsoil stripping and stockpiling.
2. Division 31 Section "Earth Moving" for excavation, filling and backfilling, and rough grading.

1.4 DEFINITIONS

A. Finish Grade: Elevation of finished surface of planting soil.

B. Manufactured Soil: Soil produced off-site by homogeneously blending mineral soils or sand with stabilized organic soil amendments to produce topsoil or planting soil.

C. Planting Soil: Native or imported topsoil, manufactured topsoil, or surface soil modified to become topsoil; mixed with soil amendments.

D. Sub-grade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath planting soil.

1.5 SUBMITTALS

A. Make submissions in accordance with 'SCHEDULE OF MATERIAL SUBMITTALS' attached at end of the Specifications.

B. No deviations, substitutions or changes of materials, to be incorporated into this project, shall be made after approval by the Government, except for written direction by and the approval of the manufacturer of a specific item and re-approval by the Government.

C. The Government retains the right to require additional items not specifically denoted to be submitted for approval and/or additional clarification.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful lawn establishment.

1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when planting is in progress.

B. Soil-Testing Laboratory Qualifications: An independent laboratory, recognized by the State Government of Agriculture, with the experience and capability to conduct the testing indicated and that specializes in types of tests to be performed.

C. Topsoil Analysis: Furnish soil analysis by a qualified soil-testing laboratory stating percentages of organic matter; gradation of sand, silt, and clay content; cation exchange capacity; sodium absorption ratio; deleterious material; pH; and mineral and plant-nutrient content of topsoil.

1. Report suitability of topsoil for lawn growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and soil amendments to be added to produce a satisfactory topsoil.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.

1.8 SCHEDULING

A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.

1.9 LAWN MAINTENANCE

A. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:

1. Seeded Lawns: 60 days from date of Substantial Completion.

a. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established, continue maintenance during next planting season.

B. Maintain and establish lawn by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn.

1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch. Anchor as required to prevent displacement.

C. Watering: Provide and maintain temporary piping, hoses, and lawn-watering equipment to convey water from sources and to keep lawn uniformly moist to a depth of 4 inches (100 mm).

1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
2. Water lawn at a minimum rate of 1 inch (25 mm) per week.

D. Mow lawn as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 40 percent of grass height. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:

1. Mow grass 2 to 3 inches (38 to 50 mm) high.

E. Lawn Postfertilization: Apply fertilizer after initial mowing and when grass is dry.

1. Use fertilizer that will provide actual nitrogen of at least 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) to lawn area.

PART 2 - PRODUCTS

2.1 DISCLAIMER: Items specified by specific name of a manufacturer is to only provide a standard for characteristics, type, quality, performance, etc. Equal products by manufacturers not specified will be considered for inclusion into this project provided that they are submitted with sufficient supporting data/ information on which to base a decision for approval. In certain cases, which will be so noted, specific items **must** be used in order to be compatible with existing systems.

2.2 Manufacturer's

A. Seedway, Inc.

B. Or Approved Equal

2.3 SEED

A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Journal of Seed Technology; Rules for Testing Seeds" for purity and germination tolerances.

1. Seed Mix: PENNDOT 408, Section 804 – Formula L

2.4 TOPSOIL

A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, a minimum of 2 percent organic material content; free of stones 1 inch (25 mm) or larger in any dimension and other extraneous materials harmful to plant growth.

1. Topsoil Source: Off-site Topsoil will be required. Verify suitability of topsoil. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.

a. Supplement with imported or manufactured topsoil from off-site sources when quantities are insufficient. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches (100 mm) deep; do not obtain from agricultural land**,** bogs or marshes.

2.5 INORGANIC SOIL AMENDMENTS

A. Lime: ASTM C 602, agricultural limestone containing a minimum 80 percent calcium carbonate equivalent and as follows:

1. Class: Class T, with a minimum 99 percent passing through No. 8 (2.36-mm) sieve and a minimum 75 percent passing through No. 60 (0.25-mm) sieve.

2.6 FERTILIZER

A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

1. Composition: 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

2.7 MULCHES

A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas to receive lawns and grass for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 LAWN PREPARATION

A. Limit lawn subgrade preparation to areas to be planted.

B. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 6 inches (150 mm). Remove stones larger than 1 inch (25 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Government's property.

1. Apply fertilizer directly to subgrade before loosening.
2. Thoroughly blend planting soil mix off-site before spreading or spread topsoil, apply soil amendments and fertilizer on surface, and thoroughly blend planting soil mix.

    a. Delay mixing fertilizer with planting soil if planting will not proceed within a few days.
    b. Mix lime with dry soil before mixing fertilizer.

3. Spread planting soil mix to a depth of 6 inches (150 mm) but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen, muddy, or excessively wet.

    a. Spread approximately one-half the thickness of planting soil mix over loosened subgrade. Mix thoroughly into top 4 inches (100 mm) of subgrade. Spread remainder of planting soil mix.

C. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus or minus 1/2 inch (13 mm) of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future.

D. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

E. Restore areas if eroded or otherwise disturbed after finish grading and before planting.

3.4 SEEDING

A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph (8 km/h). Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.

1. Do not use wet seed or seed that is moldy or otherwise damaged.

B. Sow seed at the rate of 3 to 4 lb/1000 sq. ft. (1.4 to 1.8 kg/92.9 sq. m).

C. Rake seed lightly into top 1/8 inch (3 mm) of topsoil, roll lightly, and water with fine spray.

D. Protect seeded areas with slopes exceeding 4:1 with erosion-control blankets installed and stapled according to manufacturer's written instructions.

E. Protect seeded areas with slopes not exceeding 6:1 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tons/acre (42 kg/92.9 sq. m) to form a continuous blanket 1-1/2 inches (38 mm) in loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.

3.5 SATISFACTORY LAWNS

A. Satisfactory Seeded Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 5 by 5 inches (125 by 125 mm).

B. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

3.6 CLEANUP AND PROTECTION

A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.

B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after lawn is established.

C. Remove erosion-control measures after grass establishment period.

END OF SECTION

SCHEDULE OF MATERIAL SUBMITTALS

General (.1) - Civil Submittals

PROJECT NUMBER
DMVA 42220185
Federal Project No. ZAWA 192006

PROJECT TITLE
Bldg. 201 DEMO – Biddle AGS

TO BE COMPLETED BY PROJECT ENGINEER													TO BE COMPLETED BY CONTRACT ADMINISTRATOR								
LINE NUMBER	ITEM OR DESCRIPTION OF ITEM, CONTRACT REFERENCE, TYPE OF SUBMITTAL	NUMBER OF COPIES REQUIRED											REQUIRED SUBMISSION DATE	DATE RECEIVED IN CONTRACTING	DATE TO CIVIL ENGINEERING	RETURN SUSPENSE DATE	SUBMITTAL NUMBERS	DATE CONTRACTOR NOTIFIED		CONTRACTOR RESUBMITTAL	FINAL APPROVAL	REMARKS
		CERTIFICATE OF COMPLIANCE	SHOP DRAWINGS	SAMPLES	COLOR SELECTION	MANUFACTURER'S RECOMMENDATIONS	MANUFACTURER'S WARRANTY	CATALOG DATA	OPERATING INSTRUCTIONS	Reports	Batch Slips	Steel Certifications						APPROVED	DIS-APPROVED			
1	312000/321216 Filter Sock, Compaction Reports, sub-grade									**3**												
2	329200 Select soil fill, Topsoil, fertilizer, straw mulch and seed					**3**				**3**												
3	Landfill, Recycling & disposal invoices/reports									**3**												
1	Safety Information									**3**												
2																						
3																						
4																						
5																						
6																						
7																						
8																						

AF FORM 66, OCT 89 (COMPUTER GENERATED) PREVIOUS EDITION WILL BE USED

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Hazardous Materials Survey

Horsham B201 Hanger
Willow Grove, Pennsylvania

Provided By:

Department of Military and Veterans Affairs
Building 0-11
Fort Indiantown Gap
Annville, PA 17003

March 24, 2023

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TABLE OF CONTENTS

LIST OF APPENDICES:

Part I Facility Background

The following report is being provided to document the Hazardous Materials Survey performed at the Horsham B201 Hanger located at Horsham, Pennsylvania.

BACKGROUND:

In 1957, the Air Force purchased approximately 147.4 acres of land known as "NAS Willow Grove." During the late 1950's the station's original layout was planned, and the largest facilities were constructed, including Building 201. B201 is a C-130 aircraft maintenance hanger built in 1957. It is an 86,000+ sq ft two story aircraft hanger. The hanger is a stone, block & mortar structure with steel I-beam supports. The roof is a single-ply membrane, and the hanger doors have steel framing filled in with insulations and large glass windows. The hanger is on a concrete slab base.

Horsham B201	
Date of Construction:	1957
Floors:	2
Square Footage:	86,801
Roof Construction:	Single-Ply Membrane

The 111th Fighter Wing of the Pennsylvania Air National Guard (ANG) is stationed at Horsham Air Guard Station (AGS) in Horsham, Pennsylvania. The AGS is located approximately 18 miles north of the center of Philadelphia, in Horsham Township, Montgomery County.

Building 201 had a variety of maintenance activities being performed these include but are not limited to aircraft maintenance, engine repair work; avionics & communications maintenance; ground vehicle maintenance work; Non-Destructive Inspection (NDI); etc. These activities required the use of developers, ground fuels (unleaded gasoline, diesel) and formerly used jet propulsion fuels. Oils, lubricants, cleaners, paints, sealants, and solvents were also used. Past activities in Hanger 201 fell into four categories: aircraft maintenance, vehicle maintenance, facility maintenance, and POL operations. ANG was responsible for similar work on A-10 aircraft until 2010 when aircraft maintenance operations ceased in September 2010.

Building 201 has a pump room building located off the northeast corner of hanger. The room has an aqueous fire-fighting foam (AFFF) concentrate aboveground storage tank (AST), capacity 600 to 800 gallons with piping. The foam system was activated in the 90's (exact date is unknown). There is also a 50-gallon diesel day tank for the generator in the pump room. Both were identified as out of service at the time of the 2011 EBS Report. Additionally, two sanitary sewer tanks, each 250 gallons and an Oil Water Separator (OWS) were removed in 1998. No records were available regarding their respective closures. There are currently still two 5,000-gallon unregulated underground storage tanks (UST) located on the north side of Hanger 201. Hanger layout enclosed in Appendix A Maps.

ACTIVITIES:

The Department of Military and Veterans Affairs (DMVA) performed a Hazardous Materials Survey for the B201 Hanger at the Horsham installation. The survey was requested to identify and quantify hazardous materials throughout the facilities to facilitate removal prior to demolition of the building. Inspection activities were conducted on December 14, 2022, by Mr. Todd Eakin and Ms. Megon Riddell (DMVA) and coordinated with Horsham facility personnel. Specifically, DMVA-Bureau of Environmental Management (BEM) was to identify the following:

An asbestos containing materials (ACM) inspection was performed by Pennsylvania Department of Labor and Industry (PA DOLI) licensed asbestos building inspectors and included a visual/tactile review of all suspect materials, including friable and non-friable materials. The inspection included all readily accessible areas of the structure. Asbestos sample results are listed in Table III and IV of this report. The second story on the east side of the hanger was not totally accessible due to a structural roof collapse. PA DOLI Asbestos Building Inspector Licenses are found in Part II of this report.

Paint throughout the facility was analyzed for the presences of Lead by using a Viken Pb200i XRF Lead Paint Analyzer that is listed in Part III, Table V of this document. Potential demolition contractors will be notified through this document of our lead level findings.

A survey of the fire suppression system throughout the hanger and pump room was also performed on December 14, 2022. There appear to be two fire suppression systems in the hangar. They are readily identified in the structure and associated rooms as using the red storage tanks, piping, and foam generators. One system contains a AFFF concentrate storage tank, piping, mixing valves and foam generators. Another system uses clean water and sprinkler heads. It is not known what the activation mechanisms were for these systems. The hangar has been abandoned since maintenance operations ceased in 2010 with no maintenance. There are two 5000-gallon unregulated USTs outside of the hanger. These USTS were described as catchment systems for the hanger in case the fire suppression system was activated. Removal of these holding tanks will be required as part of the demolition of the hangar. Contractors will follow the underground storage tank removal guidance provided in Appendix F. However, soil and groundwater sampling, that is normally part of a regulated UST removal project, will not be required.

A comprehensive investigation was performed to identify any loose or smaller chemical containers were still present during our inspection on December 14, 2022. No chemicals were observed, however there are still items such as fluorescent bulbs and ballasts still present in the hanger. The fluorescent bulbs and ballasts are still located within the ceiling lighting fixtures.

Part II Asbestos Survey

Asbestos-Containing Material Inspections:

DMVA personnel performed a visual and tactile review of the building, quantified suspect asbestos-containing materials, and evaluated their current condition (friable or non-friable). These activities were conducted in accordance with the current U.S. Department of Labor, Occupational Safety and Health Administration (OSHA) Construction Industry requirements[1] and U.S. Environmental Protection Agency (US EPA) guidance documents[2,3].

An assessment of the suspected asbestos-containing building materials was conducted during the inspection, which included classification of material by the following criteria: Friability (friable or non-friable); US EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) Category; and US EPA Asbestos Hazard and Emergency Response Act (AHERA) condition.

Friability:

1. Friable: Friable material in a building means that the material, when dry, may be crumbled, pulverized, or reduced to powder by hand pressure, and includes previously non-friable material after such material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure.

2. Non-Friable: Non-Friable means material in a building which, when dry, may not be crumbled, pulverized, or reduced to powder by hand pressure.

US EPA NESHAP Categories:

1. Category I Non-Friable ACM (CAT I): Asbestos-containing packing, gaskets, floor covering and asphalt roofing products containing more than one percent (1%) asbestos.
2. Category II Non-Friable ACM (CAT II): Any material, excluding Category I non- friable asbestos-containing material, containing more than one percent (1%) asbestos. Material, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
3. Regulated Asbestos-Containing Material (RACM): Friable asbestos material, Category I non-friable asbestos-containing material that has become friable, Category I non-friable asbestos material that will be or has been subject to sanding, grinding, cutting, or abrading. Category II non-friable asbestos- containing material that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition.

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[1] U.S. Department of Labor: 29CFR1926.1101: Asbestos, Occupational Safety and Health Administration, Washington, DC, June 1994.

[2] U.S. Environmental Protection Agency: 40CFR61; National Emission Standards for Hazardous Air Pollutants.

[3] U.S. Environmental Protection Agency: Guidelines for Controlling Asbestos-Containing Materials in Buildings.

US EPA AHERA Damage Assessment:

Conditions under AHERA are classified as good (original condition or very limited damage), damaged (less than 10% widespread or 25% localized) or significantly damaged (over 10% widespread or 25% localized).

A summary of identified ACM for this facility is provided in the Conclusions section of this cover letter. A table depicting all sampling activities, including sample identification numbers, locations, and analytical results, is provided for this building in Table II & III of this document.

Hazardous Materials Survey:

All accessible potential regulated hazardous materials within the Horsham B201 Hanger were surveyed to identify location and quantities. Sampling of certain materials (e.g. hazardous waste characterizations for demolition) was not conducted under the scope of this project. Where applicable, these materials were assumed to be special handling at a minimum.

Horsham AGS is considered a PCB free facility with the last of the transformers being removed prior to the 2011 EBS. However, small amounts of PCB's may still be present in B201 in the ballast capacitors of older light fixtures.

CONCLUSIONS:

C-1: A summary of ACM (confirmed) as a part of the building inspection conducted at the Horsham B201 Hanger, Horsham, Pennsylvania is provided below. A more detailed listing for this facility is provided in table III and IV of this report. Laboratory analytical and chain of custody reports can be found in Appendix B. A building map is located in Appendix A, which also indicates sample numbers for reference to Table II and III. If awarded demolition contractor observes a material not previously analyzed, analysis must be completed prior to demolition and handled in accordance with appropriate state and federal regulations.

The below cost estimates (Table I) are to be used for planning purposes only. Actual pricing is dependent on numerous factors, including the time of year for the abatement, access to materials, contractor scheduling/project phasing, designated timeframes, select demolition or other bidding requirements that will affect the total cost of the project.

C-2: Summaries of the Hazardous Materials Surveys conducted at Horsham B201 Hanger as a part of this project are provided in Table II below. The below cost estimates are to be used for planning purposes only.

Table I Hazardous Materials Summary Pennsylvania Department of Military and Veterans Affairs: Horsham B201 December 14, 2022						
Material	**Mercury Thermostat**	**Mercury Containing Light Tubes**	**PCB Ballasts**	**Pesticides**	**Misc. Cleaning Chemical (gallon)**	**Pain/Flammable/ Combustible liquids**
Quantity	10	60	20	0 gallon	~10	0 gallons
Cost Range	$10.00/ unit	$0.75/ unit	$5.00/ unit	$10.00/ gallon	$5.00/ gallon	$5.00/ gallon
Total Cost	$100.00	$45.00	$100.00	$0	$50.00	$0.00

RECOMMENDATIONS:

R-1: Asbestos abatement of all materials identified in Table II will be abated prior to demolition activities, which would disturb the matrix of confirmed or Presumed Asbestos-Containing Materials. Abatement is underway and will be completed at B201 by 31 March 2023. Work will be performed in accordance with applicable US EPA, OSHA, PA DEP, PA DOLI regulatory requirements. In order to comply with these requirements, the following is recommended:

1. Written notification to PA DEP, US EPA, and PA DOLI of demolition/renovation 10 working days prior to asbestos related activities, as required by the NESHAP of the Clean Air Act.

2. A PA DOLI licensed asbestos contractor was selected for the performance of asbestos abatement activities.

R-2: The miscellaneous Hazardous Material Survey conducted at the facility identified various materials that will require special handling or disposal prior to demolition activities that may impact these materials. Recommendations regarding handling/disposal for individual materials are provided in the Conclusions section of this report. Additional requirements, as specified by the US EPA, OSHA and U.S. DOT, include the following:

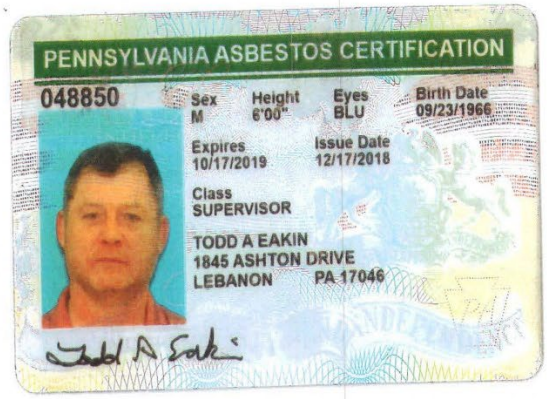
- Material Handling: For all material classified as hazardous/universal waste, ensure packaging (i.e. labeling, material segregation, manifest maintenance), transport (loading, vehicle placarding) and disposal occurs in compliance with the requirements of the US EPA and US DOT.

- Recordkeeping: Maintain all records (i.e. completed hazardous waste manifests, universal waste manifests, hazardous waste characterizations) of sample shipment and delivery for a minimum of three (3) years from specified

date. Manifests are to be signed by an authorized/trained representative.

- Administrative Personnel Training: Any representative that may influence the shipment of a hazardous waste, including but not limited to packaging, labeling, loading or manifest completion, must receive training compliant with the above-referenced regulations established by US DOT.

- Pennsylvania Department of Labor & Industry (PA DOLI) Asbestos Inspector Certification:



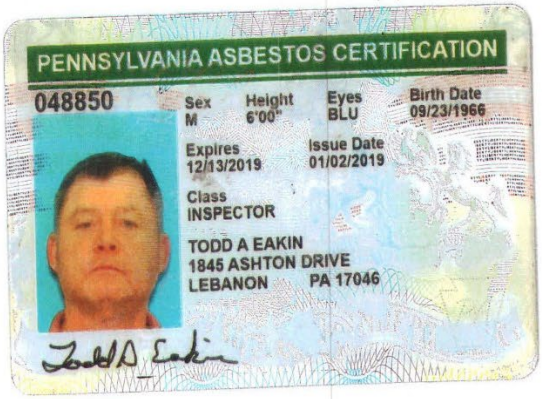


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Table II Asbestos Containing Materials Summary Pennsylvania Department of Military & Veterans Affairs: Horsham B201 December 14, 2022						
Homogeneous Material Description	Sample ID	Analytical Result	Location(s)	Quantity	NESHAP Category/ Condition	AHERA Category/ Condition
Black Wrap on FGIP	001	Non-Detect	Throughout		ND	Good
12x12" Brown/tan Tile & Mastic	003	Non-Detect	Hallway Room 26	300 SF	ND	Damaged
Elbows on FGIP	004	5% Chrysotile	Throughout Approx. 36		Cat II NF	Good
12x12" Gray/Green Tile	005A	4% Chrysotile	Office #17		Cat II NF	Damaged
12x12" Gray/Green Tile Mastic	005B	7% Chrysotile	Office #17		Cat II NF	Damaged
12x12" Beige Tile & Mastic	006	Non-Detect	Hallway Rm #27		ND	Damaged
12x12" Gray/Tan Tile	007A	ND	Tool Room 49/50	525 SF	ND	Damaged
12x 12" Gray/Tan Tile Mastic	007B	3% Chrysotile	Tool Room 49/50		Cat II NF	Damaged
12z12" White Tile & Mastic	008	Non-Detect	Stairwell 115, 2nd FL		ND	Damaged
9x9" Gray Tile	009A	5% Chrysotile	Throughout 2nd FL		Cat II NF	Damaged
9x9" Gray Tile Mastic	009B	Non-Detect	Throughout 2nd FL		ND	Damaged
Mud Elbows	010	Non-Detect	Valve Room 24B		ND	Good
9x9" Black Tile	011A	4% Chrysotile	Throughout 2nd FL		Cat II NF	Damaged
9x9" Black Tile Mastic	011B	6% Chrysotile	Throughout 2nd Fl		Cat II NF	Damaged
12x12" Green Tile	012A	6% Chrysotile	Comm Rm #5		Cat II NF	Damaged
12x12" Green Tile Mastic	012B	ND	Comm Rm #5		ND	Damaged

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Table III Asbestos Containing Materials Summary Pennsylvania Department of Military & Veterans Affairs: Horsham B201 February 27, 2023						
Homogeneous Material Description	Sample ID	Analytical Result	Location(s)	Quantity	NESHAP Category/ Condition	AHERA Category/ Condition
Beige Vinyl Tile	001A	Non-Detect	Room 1, 1st FL		ND	Damaged
Beige Viny Tile Mastic	001B	Non-Detect	Room 1		ND	Damaged
Beige vinyl Tile Yellow Mastic	002A	Non-Detect	Room 2		ND	Damaged
Beige Vinyl Tile	002A	Non-Detect	Room 2		ND	Damaged
Green Vinyl Tile	002B	3% Chrysotile	Room 2		Cat II NF	Damaged
Green Vinyl Tile Black Mastic	002B	Non-Detect	Room 2		ND	Damaged
Beige Vinyl Tile I	003A	Non-Detect	Room 5		ND	Damaged
Beige Vinyl Tile I Yellow Mastic I	003A	Non-Detect	Room 5		ND	Damaged
Green Vinyl Tile II	003B	3% Chrysotile	Room 5		Cat II NF	Damaged
Green Vinyl Tile II Black Mastic II	003B	Non-Detect	Room 5		ND	Damaged
Blue Vinyl Tile I & Yellow Mastic I	004A	No- Detect	Room 6A		ND	Damaged
Green Vinyl Tile I & Black Mastic I	004B	2% Chrysotile	Room 6A		Cat II NF ND	Damaged
Tan Vinyl Tile	005A	2% Chrysotile	Room 33, 1st FL		Cat II NF	Damaged
Tan Vinyl Tile Black Mastic	005B	3% Chrysotile	Room 33, 1st FL		Cat II NF	Damaged

Table II & III Notes:

Cat I – EPA Category I Asbestos Containing Material

Cat II – EPA Category II Asbestos Containing Material

CH – Chrysotile (type of asbestos)
F – Friable
MISC – Miscellaneous NA – Not Analyzed
NF – Non-friable
ND – No Asbestos Detected
RACM – Regulated Asbestos Containing Material
SF – Square Feet
LF – Linear Feet

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Part III Lead Survey

Limited Lead Paint Sampling:

Lead paint in building 201 was analyzed with Viken Pb200i XRF Lead Paint Analyzer with the following results:

Table IV
Lead paint Sampling Assessment
Horsham B201
December 14, 2022

Sample Color	Results (Total mg/m^2)	Comments
Painted Concrete block Door Frame Painted I-Beam	0.2 4.5 8.6	Aircraft Room #10
Painted Concrete Block White Door Brown Door	0.2 0.1 0.1	NDI Room #47
Yellow Floor White Wall Yellow Rail	3.8 0.3 19.0	Boiler Room Basement
Blue Painted Wall	0.4	Women's Room 2nd Floor

LEAD-BASED PAINT:

The hangar is composed of various structures but is broadly separated into a metal framed hangar with supporting adjacent structures/wings composed of concrete masonry blocks and brick. There is additional metal and wood framing for doors, windows, and skylights. Because of the age of the building and the likelihood of lead-based paint, limited XRF sampling was completed with results listed in Table IV (above). The concentrations or volume of lead on any of the above surfaces were not determined but rather the presence of lead has been confirmed.

DMVA anticipates a minimum of two waste streams from the demolition. One waste stream will primarily be metal to be processed by recyclers and the second waste stream will be masonry debris.

The successful demolition contractor must perform all sampling and/or testing required for the masonry building materials to be accepted at a disposal facility. The name, address, and type of disposal facility must be disclosed to Biddle AG Facilities & Environmental Office prior to using that facility. The demolition contractor will prepare all disposal documentation. A submittal package for all disposal items to include the masonry building materials and any metal recycling must be submitted to the Biddle AG Facilities & Environmental Office at the conclusion of the project. The submittal package must include the sample/testing analytical results and weigh tickets.

CONCLUSIONS:

C-1: Paint throughout the Hanger 201 was visually inspected and analyzed with the Viken Pb200i XRF to determine the presence of lead-based paint. Those sample results are detailed above in Table V.

C-2: Lead level readings are being disclosed to potential demolition contractors. Any precautions for employee exposure, is the responsibility of the contractor.

RECOMMENDATIONS:

R-1: Sampling to determine proper disposal method and route is the responsibility of the awarded contractor.

Part IV PFAS & Holding Tanks:

Fire Suppression System & PFAS:

There appear to be two fire suppression systems in the hangar. They are readily identified in the structure and associated rooms as using the red storage tanks, piping, and foam generators. One system contains a AFFF concentrate storage tank, piping, mixing valves and foam generators. Another system uses clean water and sprinkler heads. It is not known what the activation mechanisms were for these systems. The hangar has been abandoned since 2010 with no maintenance. Under separate contract the fire suppression system utilizing the Aqueous Fire Fighting Foam (AFFF) will be rinsed with clean water and drained prior to demolition.

Holding Tanks:

There are two 5,000-gallon unregulated underground storage tanks (UST) outside of the hanger. These USTS were described as catchment systems for the hanger in case the fire suppression system was activated. The two USTs will be emptied and rinsed with clean water prior to demolition. The drains between the hangar and the tanks should be plugged after the fire suppression system rinsate project. The contents of the tanks before rinsing contained AFFF compounds.

CONCLUSIONS:

C-1: The fire suppression system was sampled for PFAS in both the underground storage tanks and the fire suppression system inside the hanger. Sample results can be found in Appendix C of this report.

C-2: Aqueous Fire Fighting Foam (AFFF) compounds contain PFAS compounds which have been identified by the EPA and Department of Defense as causing environmental degradation.

RECOMMENDATIONS:

R-1: In the event the hanger AFFF fire suppression system does not get rinsed out prior to demolition, the successfully awarded contractor **MUST** clean out all the AFFF PFAS system components prior to taking to recycling and containerized liquid rinsate must be disposed of properly.

R-2: While performing demolition of the fire suppression systems, if the contractor encounters any pockets (>5 gallons) of residual liquid in the fire suppression piping, these liquids should be containerized and stored for disposal by the client. The client insists that the metal residuals from the demolition of the fire suppression system, associated piping, and tanks be submitted for recycling by melting or disposed in an approved disposal facility.

R-3: The name, address, and type of disposal facility must be disclosed to Biddle AG Facilities & Environmental Office prior to using that facility for the rinsing of the fire suppression system to include the concentrate AST and the catchment USTs. The contractor should prepare all disposal documentation. A submittal package for all disposal items to include all rinsates should submitted to the Biddle AG Facilities & Environmental Office at the conclusion of the project. The submittal package must include the sample/testing analytical results and weigh tickets.

R-4: **PFAS rinsate must not be incinerated. There is a current moratorium on incineration by the US EPA.**

R-5: The PA Air National Guard is the generator of the PFAS rinsate and therefore should sign any waste profiles and Bill of Ladings for shipping and disposal.

R-6: Photos must be taken during the underground storage tank (UST) removal to document the process.

CERTIFICATION:

The information contained in this report is believed to be accurate and true with a reasonable degree of professional certainty. Findings and recommendations for this investigation are based on the observations of the conditions, as they existed at that time.

Todd Eakin
Environmental Planning Manager
PA DMVA BEM

Megon Riddell
Environmental Supervisor
PA DMVA BEM

APPENDIX A

MAPS

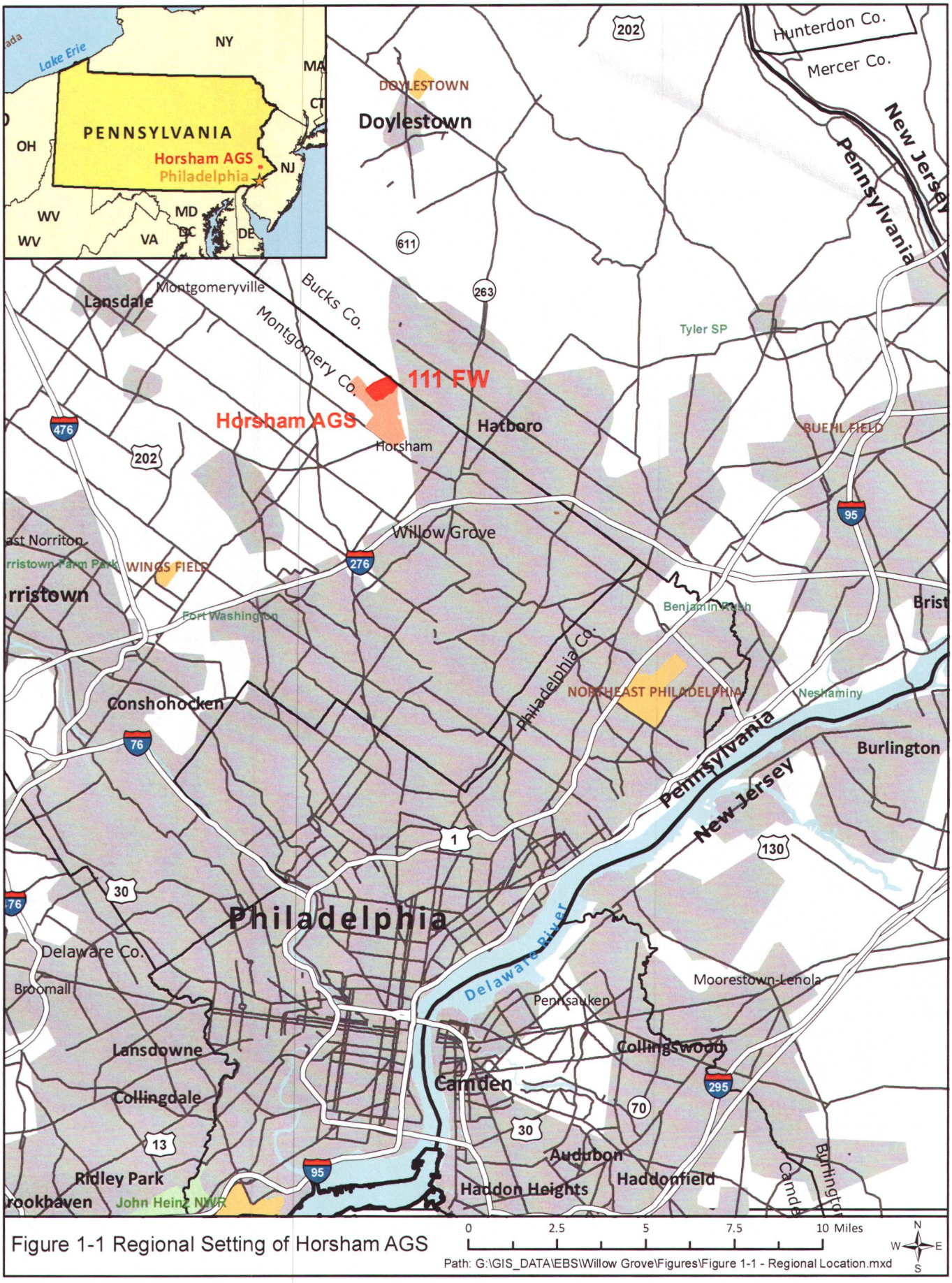


Figure 1-1 Regional Setting of Horsham AGS

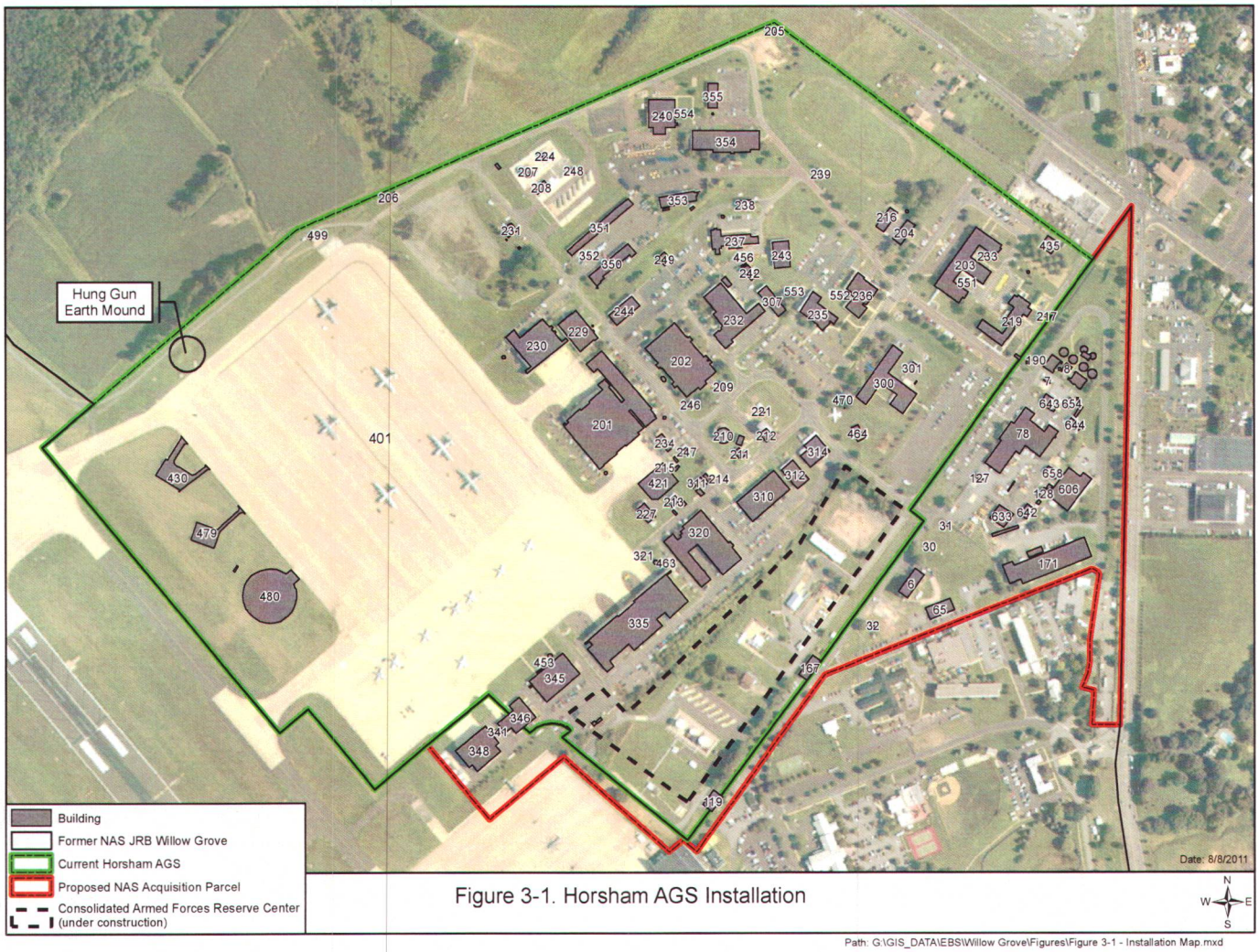
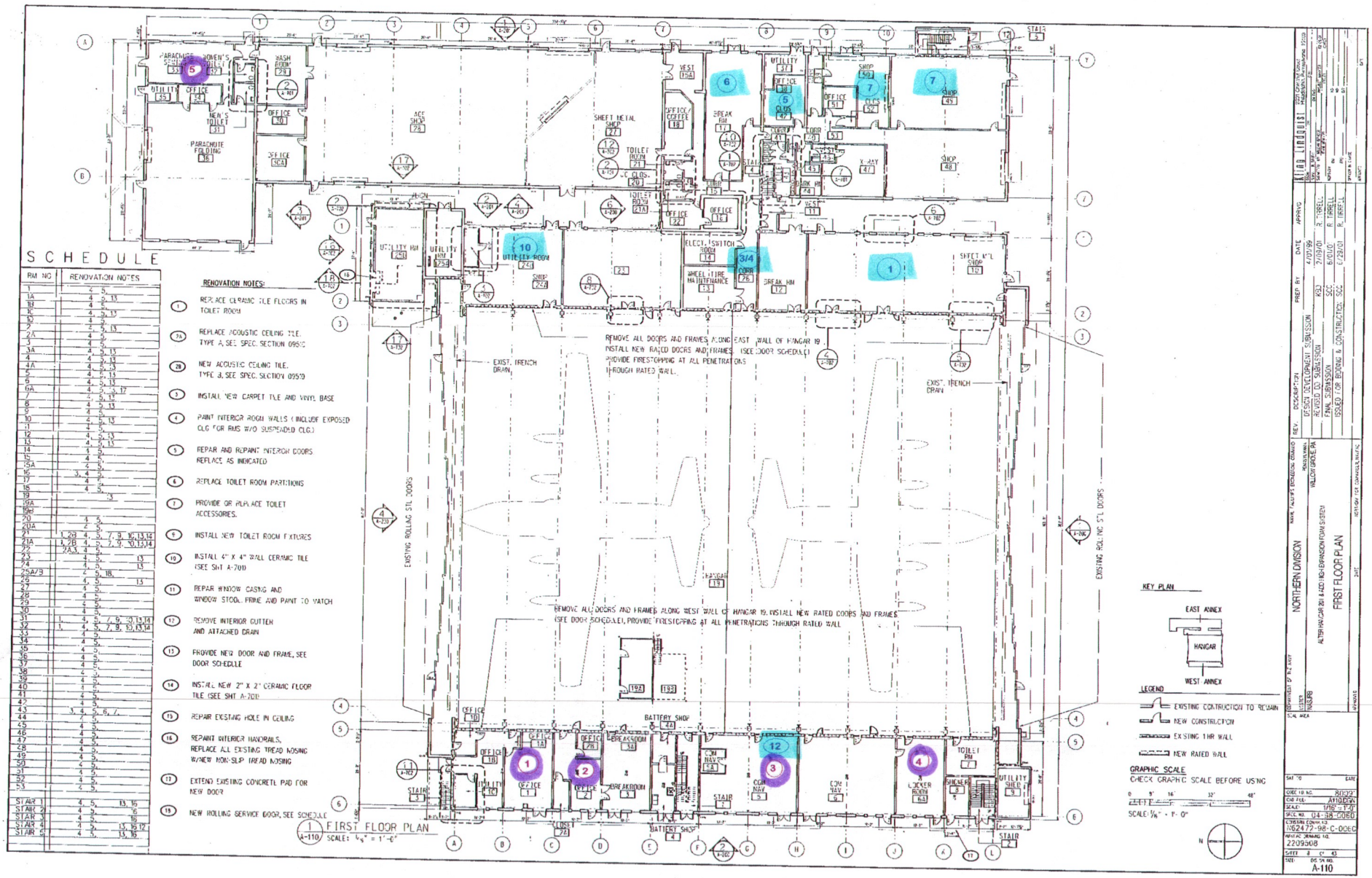


Figure 3-1. Horsham AGS Installation

Path: G:\GIS_DATA\EBS\Willow Grove\Figures\Figure 3-1 - Installation Map.mxd



RM NO	RENOVATION NOTES
1	4, 5,
1A	4, 5, 13
1B	4, 5,
1C	4, 5, 13
1D	4, 5,
2	4, 5, 13
2A	4, 5,
3	4, 5,
3A	4, 5, 13
4	4, 5, 13
4A	4, 5, 13
5	4, 5, 13
6	4, 5, 13
6A	4, 5, 13, 17
7	4, 5, 13
8	4, 5, 13
9	4, 5, 13
10	4, 5, 13
11	4, 5, 13
12	4, 5, 13
13	4, 5, 13
14	4, 5,
15	4, 5,
15A	4, 5,
16	3, 4, 5,
17	4, 5,
18	4, 5,
19	13
19A	
19B	
20	4, 5,
20A	4, 5,
21	1, 2B, 4, 5, 7, 9, 10, 13, 14
21A	1, 2B, 4, 5, 7, 9, 10, 13, 14
22	2A3, 4, 5,
23	4, 5, 13
24	4, 5, 13
25A/B	4, 5, 18,
26	4, 5, 13
27	4, 5,
28	4, 5,
29	4, 5,
30	4, 5,
31	4, 5, 7, 9, 10, 13, 14
32	1, 4, 5, 7, 9, 10, 13, 14
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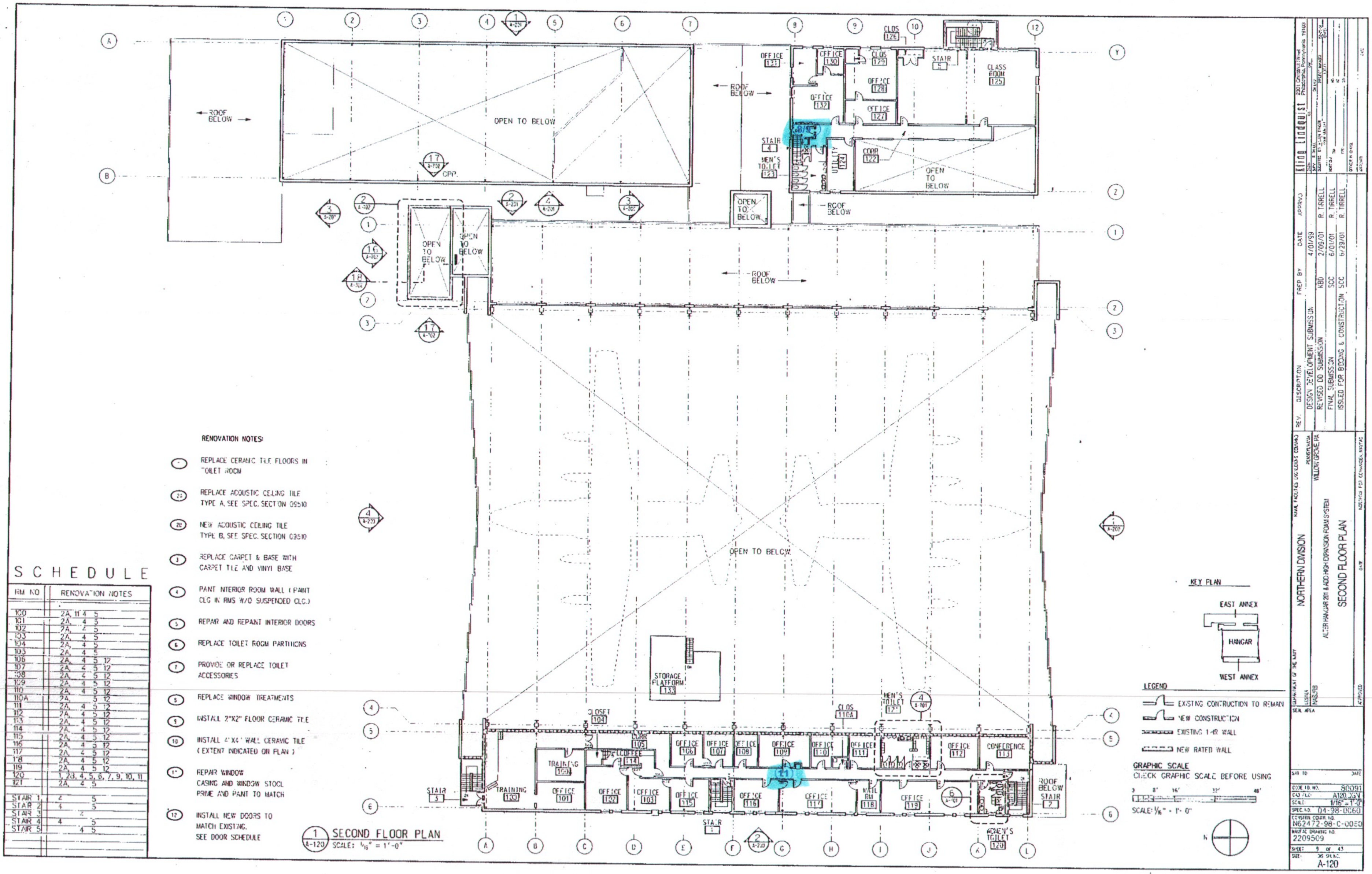
39	4, 5,
40	4, 5,
41	4, 5,
42	4, 5,
43	3, 4, 5, 6, 7,
44	4, 5,
45	4, 5,
46	4, 5,
47	4, 5,
48	4, 5,
49	4, 5,
50	4, 5,
51	4, 5,
52	4, 5,
53	4, 5,
STAIR 1	4, 5, 13, 16
STAIR 2	4, 5, 6
STAIR 3	4, 5, 16
STAIR 4	4, 5, 13, 16, 17
STAIR 5	4, 5, 13, 16

DESCRIPTION	DATE	PREP BY	APPRVD
DESIGN DEVELOPMENT SUBMISSION	4/07/99	KSJ	R. TIRRELL
REVISED DD SUBMISSION	7/09/01	SCC	R. TIRRELL
FINAL SUBMISSION	6/01/01	SCC	R. TIRRELL
ISSUED FOR BIDDING & CONSTRUCTION	6/29/01	SCC	R. TIRRELL

Allan Lindquist

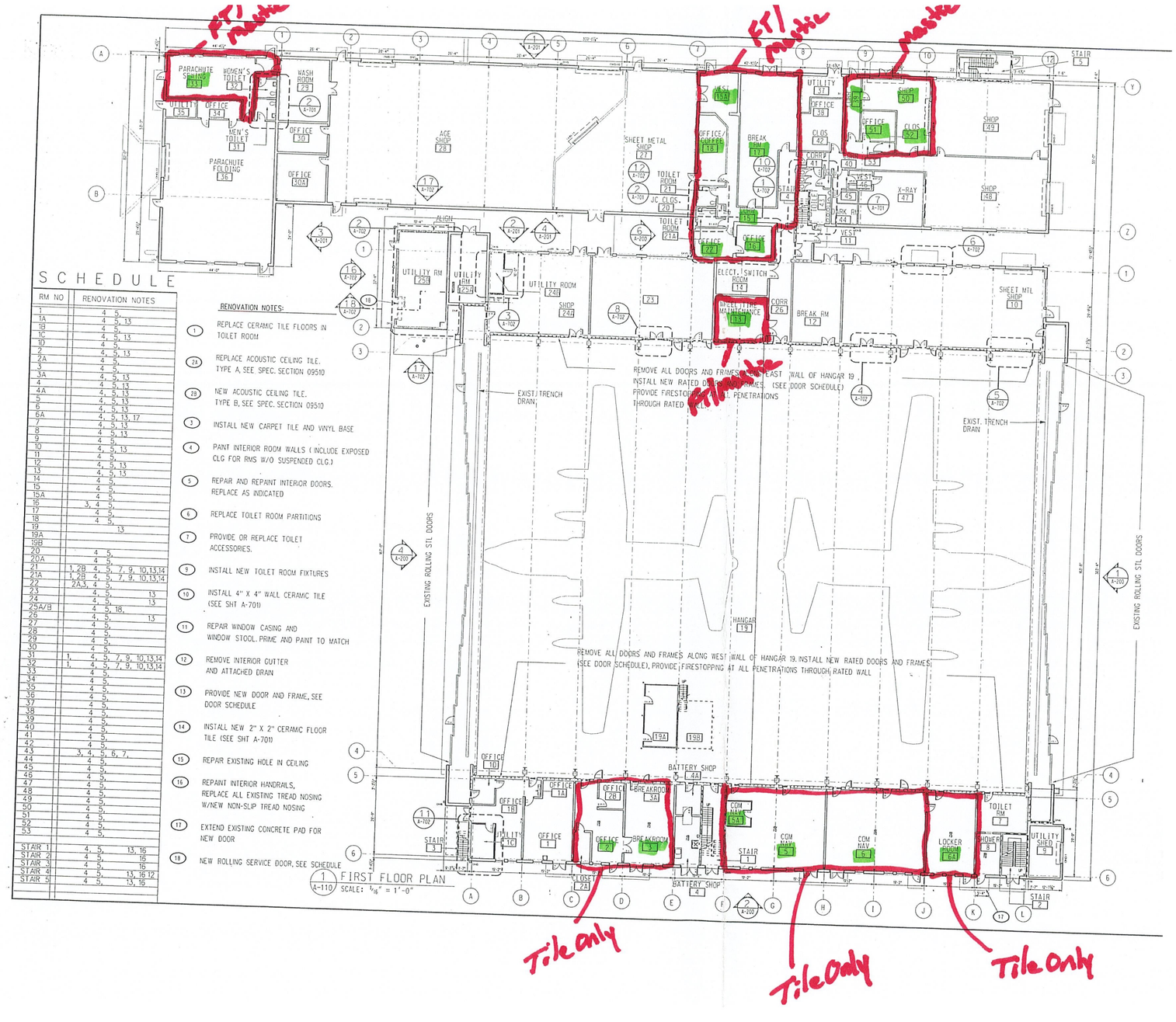
CONTRACT NO.	N62472-98-C-0060
CAD FILE	A110.DGN
SCALE	1/16" = 1'-0"
SPEC NO.	04-38-0060
CATALOG CARD NO.	N62472-98-C-0060
AMTAC DRAWING NO.	2209308
SHEET	8 OF 43
SIZE	D/E SYM NO. A-110



HORSHAM B201 HANGER
SECOND FLOOR WITH SAMPLE LOCATIONS

SAMPLE # — DECEMBER 14, 2022 ACM SAMPLES
SAMPLE # — FEBRUARY 23 2023 ACM SAMPLES

HORSHAM B201 HANGER
ASBESTOS ABATEMENT LOCATIONS
MARCH 2023



FIRST FLOOR

HORSHAM B201 HANGER
ASBESTOS ABATEMENT LOCATIONS
MARCH 2023

SECOND FLOOR

pennsylvania
DEPARTMENT OF MILITARY
AND VETERANS AFFAIRS

APPENDIX B

ASBESTOS LABORATORY ANALYTICAL REPORTS

OrderID: 042302520

EMSL ANALYTICAL, INC.
TESTING LABS • PRODUCTS • TRAINING

Asbestos Bulk Building Materials - Chain of Custody

EMSL Order Number / Lab Use Only: 042302520

RECEIVED EMSL CINNAMINSON, NJ 2023 JAN 31 P 12:21

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077
PHONE: (800) 220-3675
EMAIL: CinnAsblab@EMSL.com

Customer Information		Billing Information	
Customer ID:		Billing ID:	
Company Name:	Miller Consulting Enterprises, LLC	Company Name:	
Contact Name:	Mark Miller	Billing Contact:	
Street Address:	118 Rexmont Road	Street Address:	
City, State, Zip:	Lebanon, PA 17042	Country: USA	City, State, Zip:	Country:
Phone:	717-269-8961	Phone:	
Email(s) for Report:	millsafe11@verizon.net	Email(s) for Invoice:	

Project Information

Project Name/No:	Horsham B201 Survey	Purchase Order:	
EMSL LIMS Project ID: (If applicable, EMSL will provide)		US State where samples collected: PA	State of Connecticut (CT) must select project location: ☐ Commercial (Taxable) ☐ Residential (Non-Taxable)
Sampled By Name: Megon Riddell	Sampled By Signature:	Date Sampled: 12-14-2022	No. of Samples in Shipment: 24

Turn-Around-Time (TAT)

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 32 Hour ☐ 48 Hour ☑ 72 Hour ☐ 96 Hour ☐ 1 Week ☐ 2 Week

Please call ahead for large projects and/or turnaround times 6 Hours or Less. *32 Hour TAT available for select tests only; samples must be submitted by 11:30am.

Test Selection

PLM - Bulk (reporting limit)

- ☑ PLM EPA 600/R-93/116 (<1%)
- ☐ PLM EPA NOB (<1%)
- ☑ POINT COUNT
  - ☑ 400 (<0.25%) ☐ 1,000 (<0.1%)
- ☐ POINT COUNT w/ GRAVIMETRIC
  - ☐ 400 (<0.25%) ☐ 1,000 (<0.1%)
- ☐ NIOSH 9002 (<1%)
- ☐ NYS 198.1 (Friable - NY)
- ☐ NYS 198.6 NOB (Non-Friable - NY)
- ☐ NYS 198.8 (Vermiculite SM-V)

TEM - Bulk

- ☐ TEM EPA NOB
- ☐ NYS NOB 198.4 (Non-Friable - NY)
- ☐ TEM EPA 600/R-93/116 w Milling Prep (0.1%)

Other Tests (please specify)

- ☑ Positive Stop - Clearly Identified Homogeneous Areas (HA)

Sample Number	HA Number	Sample Location	Material Description
001A		Aircraft Rm #10 First Floor	Fiberglass black wrap
001B		Aircraft Rm #10 First Floor	Fiberglass black wrap
003A		Hallway Room 26, 1st Floor	12x12" brown/tan tile & mastic
003B		Hallway Room 26, 1st Floor	12x12" brown/tan tile & mastic
004A		Hallway Room 26, 1st Floor	Elbow Casting
004B		Hallway Room 26, 1st Floor	Elbow Casting
004C		Hallway Room 26, 1st Floor	Elbow Casting
005A		Office #17, 1st Floor	12x12" gray/green tile & mastic
005B		Office #17, 1st Floor	12x12" gray/green tile & mastic

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

If sample results are >1% ACM or <3%, a point count must be requested but not conducted. Positive stop.

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time: 1/20/23	Received by: David Stepp USPS	Date/Time: 1-31-23 11:30am
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - Asbestos Bulk R7 9/14/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

24 MS

OrderID: 042302520

042302520

EMSL ANALYTICAL, INC.
TESTING LABS • PRODUCTS • TRAINING

Asbestos Bulk Building Materials - Chain of Custody

EMSL Order Number / Lab Use Only

Horsham Bzi Survey

EMSL Analytical, Inc.
200 Route 130 North
Cinnaminson, NJ 08077

PHONE: (800) 220-3675
EMAIL: CinnAslab@EMSL.com

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)

Horsham B201 Samples 12/14/22

Sample Number	HA Number	Sample Location	Material Description
006A		Hallway Room #27, 1st Floor	12x12" beige tile & mastic
006B		Hallway Room #27, 1st Floor	12x12" beige tile & mastic
007A		Tool Room 49/50, 1st Floor	12x12" gray/tan tile & mastic
007B		Tool Room 49/50, 1st Floor	12x12" gray/tan tile & mastic
008A		Hall Room 123, 2nd Floor	12x12" white tile & mastic
008B		Hall Room 123, 2nd Floor	12x12" white tile & mastic
009A		Hall Room 123, 2nd Floor	9x9" gray tile & mastic
009B		Hall Room 123, 2nd Floor	9x9" gray tile & mastic
010A		Valve Room 24B, 1st Floor	mud elbows
010B		Valve Room 24B, 1st Floor	mud elbows
010C		Valve Room 24B, 1st Floor	mud elbows
011A		Hall Room 109, 2nd Floor	9x9" black tile & mastic
011B		Hall Room 109, 2nd Floor	9x9" black tile & mastic
012A		Comm Nav Room #5, 1st Floor	12x12" green tile & black mastic
012B		Comm Nav Room #5, 1st Floor	12x12" green tile & black mastic

RECEIVED
EMSL
CINNAMINSON, N.J.
2023 JAN 31 P 12: 21

Method of Shipment:		Sample Condition Upon Receipt:	
Relinquished by:	Date/Time:	Received by:	Date/Time
Relinquished by:	Date/Time:	Received by:	Date/Time

Controlled Document - Asbestos Bulk R7 09/14/2021

☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

EMSL Analytical, Inc.

200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	042302520
Customer ID:	MLER75
Customer PO:	
Project ID:	

Attention:	Mark Miller	**Phone:**	(717) 269-8961
	Miller Consulting Enterprises	**Fax:**	
	118 Rexmont Rd	**Received Date:**	01/31/2023 11:30 AM
	Lebanon, PA 17042	**Analysis Date:**	02/03/2023
		Collected Date:	12/14/2023
Project:	Horsham B201 Survey		

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
001A *042302520-0001*	Aircraft Rm. #10 - 1st Floor - Fiberglass Black Wrap	Black Fibrous Homogeneous	15% Cellulose 20% Min. Wool	65% Non-fibrous (Other)	None Detected
001B *042302520-0002* *Result includes a small amount of inseparable attached material*	Aircraft Rm. #10 - 1st Floor - Fiberglass Black Wrap	Various/Black Fibrous Heterogeneous	35% Cellulose	65% Non-fibrous (Other)	None Detected
003A-Tile *042302520-0003*	Hallway Rm. 26 - 1st Floor - 12"x12" Brown/Tan Tile	Brown/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
003A-Mastic *042302520-0003A*	Hallway Rm. 26 - 1st Floor - Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
003B-Tile *042302520-0004*	Hallway Rm. 26 - 1st Floor - 12"x12" Brown/Tan Tile	Brown/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
003B-Mastic *042302520-0004A*	Hallway Rm. 26 - 1st Floor - Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
004A *042302520-0005*	Hallway Rm. 26 - 1st Floor - Elbow Casting	Gray Fibrous Homogeneous	20% Min. Wool	75% Non-fibrous (Other)	5% Chrysotile
004B *042302520-0006*	Hallway Rm. 26 - 1st Floor - Elbow Casting				Positive Stop (Not Analyzed)
004C *042302520-0007*	Hallway Rm. 26 - 1st Floor - Elbow Casting				Positive Stop (Not Analyzed)
005A-Tile *042302520-0008*	Office #17 - 1st Floor - 12"x12" Gray/Green Tile	Gray/Green Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
005A-Mastic *042302520-0008A*	Office #17 - 1st Floor - Mastic	Black Non-Fibrous Homogeneous		93% Non-fibrous (Other)	7% Chrysotile
005B-Tile *042302520-0009*	Office #17 - 1st Floor - 12"x12" Gray/Green Tile				Positive Stop (Not Analyzed)
005B-Mastic *042302520-0009A*	Office #17 - 1st Floor - Mastic				Positive Stop (Not Analyzed)
006A-Tile *042302520-0010*	Hallway Rm. #27 - 1st Floor - 12"x12" Beige Tile	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
006A-Mastic *042302520-0010A* *Result includes a small amount of inseparable attached material*	Hallway Rm. #27 - 1st Floor - Mastic	White/Yellow Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 02/03/2023 15:51:56

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order: 042302520
Customer ID: MLER75
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
006B-Tile *042302520-0011*	Hallway Rm. #27 - 1st Floor - 12"x12" Beige Tile	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
006B-Mastic *042302520-0011A* *Result includes a small amount of inseparable attached material*	Hallway Rm. #27 - 1st Floor - Mastic	White/Yellow Non-Fibrous Heterogeneous		100% Non-fibrous (Other)	None Detected
007A-Tile *042302520-0012*	Tool Room 49/50 - 1st Floor - 12"x12" Gray/Tan Tile	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
007A-Mastic *042302520-0012A* *Result includes a small amount of inseparable attached material*	Tool Room 49/50 - 1st Floor - Mastic	Black/Yellow Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
007B-Tile *042302520-0013*	Tool Room 49/50 - 1st Floor - 12"x12" Gray/Tan Tile	Gray/Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
007B-Mastic *042302520-0013A*	Tool Room 49/50 - 1st Floor - Mastic				Positive Stop (Not Analyzed)
008A-Tile *042302520-0014*	Hall Room 123 - 2nd Floor - 12"x12" White Tile	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
008A-Mastic *042302520-0014A*	Hall Room 123 - 2nd Floor - Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
008B-Tile *042302520-0015*	Hall Room 123 - 2nd Floor - 12"x12" White Tile	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
008B-Mastic *042302520-0015A*	Hall Room 123 - 2nd Floor - Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
009A-Tile *042302520-0016*	Hall Room 123 - 2nd Floor - 9"x9" Gray Tile	Gray Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
009A-Mastic *042302520-0016A*	Hall Room 123 - 2nd Floor - Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
009A-Mastic 2 *042302520-0016B*	Hall Room 123 - 2nd Floor - Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
009B-Tile *042302520-0017*	Hall Room 123 - 2nd Floor - 9"x9" Gray Tile				Positive Stop (Not Analyzed)
009B-Mastic *042302520-0017A*	Hall Room 123 - 2nd Floor - Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
009B-Mastic 2 *042302520-0017B*	Hall Room 123 - 2nd Floor - Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
010A *042302520-0018*	Valve Room 24B - 1st Floor - Mud Elbows	Gray Fibrous Homogeneous	30% Min. Wool	70% Non-fibrous (Other)	None Detected
010B *042302520-0019*	Valve Room 24B - 1st Floor - Mud Elbows	Gray/White Fibrous Homogeneous	10% Cellulose 30% Min. Wool	60% Non-fibrous (Other)	None Detected

Initial report from: 02/03/2023 15:51:56

EMSL Analytical, Inc.
200 Route 130 North Cinnaminson, NJ 08077
Tel/Fax: (800) 220-3675 / (856) 786-5974
http://www.EMSL.com / cinnasblab@EMSL.com

EMSL Order:	042302520
Customer ID:	MLER75
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via AHERA Method 40CFR 763 Subpart E Appendix E supplemented with EPA 600/R-93/116 using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
010C *042302520-0020*	Valve Room 24B - 1st Floor - Mud Elbows	Gray Fibrous Homogeneous	10% Cellulose 35% Min. Wool	55% Non-fibrous (Other)	None Detected
011A-Tile *042302520-0021*	Hall Room 109 - 2nd Floor - 9"x9" Black Tile	Black Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
011A-Mastic *042302520-0021A*	Hall Room 109 - 2nd Floor - Mastic	Black Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
011B-Tile *042302520-0022*	Hall Room 109 - 2nd Floor - 9"x9" Black Tile				Positive Stop (Not Analyzed)
011B-Mastic *042302520-0022A*	Hall Room 109 - 2nd Floor - Mastic				Positive Stop (Not Analyzed)
012A-Tile *042302520-0023*	Comm. Nav. Room #5 - 1st Floor - 12"x12" Green Tile	Green Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
012A-Mastic *042302520-0023A*	Comm. Nav. Room #5 - 1st Floor - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
012A-Mastic 2 *042302520-0023B*	Comm. Nav. Room #5 - 1st Floor - Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
012B-Tile *042302520-0024*	Comm. Nav. Room #5 - 1st Floor - 12"x12" Green Tile				Positive Stop (Not Analyzed)
012B-Mastic *042302520-0024A*	Comm. Nav. Room #5 - 1st Floor - Black Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
012B-Mastic 2 *042302520-0024B*	Comm. Nav. Room #5 - 1st Floor - Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)

Amy Schulze (13)
Gregory Barry (22)

Samantha Rundstrom, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations . The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 “Interim Method”) but augmented with procedures outlined in the 1993 (”final”) version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis . Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA LAP, LLC-IHLAP Lab 100194, NJ DEP 03036, PA ID# 68-00367, LA #04127

Initial report from: 02/03/2023 15:51:56

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237
Telephone: 800.347.4010

Asbestos Bulk Analysis Report

Report Number: 23-02-04395

Client: First Capital Insulation Inc.
300 Hudson Street
York, PA 17403

Received Date: 02/27/2023
Analyzed Date: 03/01/2023
Reported Date: 03/02/2023

Project/Test Address: Biddle AB Hangar B201; Horsham, PA

Client Number: 39-3417

Fax Number: 717-854-6622

Laboratory Results

Lab Sample Number	Client Sample Number	Layer Type	Lab Gross Description	Asbestos	Other Materials
23-02-04395-001A	1	Tile	Beige Vinyl; Homogeneous	NAD	100% Non-Fibrous
23-02-04395-001B	1	Mastic	Black Adhesive; Homogeneous	NAD	2% Cellulose 2% Fibrous Glass 96% Non-Fibrous
23-02-04395-002A	2A	Tile	Beige Vinyl; Homogeneous	NAD	100% Non-Fibrous
23-02-04395-002B	2A	Mastic	Yellow Adhesive; Homogeneous	NAD	100% Non-Fibrous
23-02-04395-003A	2B	Tile	Green Vinyl; Homogeneous	3% Chrysotile	97% Non-Fibrous

Total Asbestos: 3%

Environmental Hazards Services, L.L.C

Client Number: 39-3417 Report Number: 23-02-04395

Project/Test Address: Biddle AB Hangar B201; Horsham, PA

Lab Sample Number	Client Sample Number	Layer Type	Lab Gross Description	Asbestos	Other Materials
23-02-04395-003B	2B	Mastic	Black Adhesive; Homogeneous	NAD	2% Cellulose 98% Non-Fibrous
23-02-04395-004A	3	Tile I	Beige Vinyl; Homogeneous	NAD	100% Non-Fibrous
23-02-04395-004B	3	Mastic I	Yellow Adhesive; Homogeneous	NAD	100% Non-Fibrous
23-02-04395-004C	3	Tile II	Green Vinyl; Homogeneous	3% Chrysotile	97% Non-Fibrous
			Total Asbestos:	3%	
23-02-04395-004D	3	Mastic II	Black Adhesive; Homogeneous	NAD	2% Cellulose 98% Non-Fibrous
23-02-04395-005A	4	Tile I	Blue Vinyl; Homogeneous	NAD	100% Non-Fibrous
23-02-04395-005B	4	Mastic I	Yellow Adhesive; Homogeneous	NAD	100% Non-Fibrous
23-02-04395-005C	4	Tile II	Green Vinyl; Homogeneous	2% Chrysotile	98% Non-Fibrous
			Total Asbestos:	2%	

Environmental Hazards Services, L.L.C

Client Number: 39-3417 Report Number: 23-02-04395

Project/Test Address: Biddle AB Hangar B201; Horsham, PA

Lab Sample Number	Client Sample Number	Layer Type	Lab Gross Description	Asbestos	Other Materials
23-02-04395-005D	4	Mastic II	Black Adhesive; Homogeneous	NAD	100% Non-Fibrous
23-02-04395-006A	5	Tile	Tan Vinyl; Homogeneous	2% Chrysotile	98% Non-Fibrous
			Total Asbestos:	2%	
23-02-04395-006B	5	Mastic	Black Adhesive; Homogeneous	3% Chrysotile	97% Non-Fibrous
			Total Asbestos:	3%	

QC Sample: 57-M22009-1

QC Blank: SRM 1866 Fiberglass

Reporting Limit: 1% Asbestos

Method: EPA Method 600/R-93/116, EPA Method 600/M4-82-020

Analyst: Kathy Fletcher

Reviewed By Authorized Signatory: Tasha Eaddy

Tasha Eaddy
QA/QC Clerk

These results are based on a comparative visual estimate. The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Each distinct component in an inhomogeneous sample was analyzed separately and reported as a composite. Results represent the analysis of samples submitted by the client. Sample location, description, area, volume, etc., was provided by the client. This report cannot be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without the written consent of the Environmental Hazards Service, L.L.C. California Certification #2319 NY ELAP #11714 NVLAP #101882-0 VELAP 460172. All information concerning sampling location, date, and time can be found on Chain-of-Custody. Environmental Hazards Services, L.L.C. does not perform any sample collection.

Environmental Hazards Services, L.L.C. recommends reanalysis by point count (for more accurate quantification) or Transmission Electron Microscopy (TEM), (for enhanced detection capabilities) for materials regulated by EPA NESHAP (National Emission Standards for Hazardous Air Pollutants) and found to contain less than ten percent (<10%) asbestos by polarized light microscopy (PLM). Both services are available for an additional fee.

400 Point Count Analysis, where noted, performed per EPA Method 600/R-93/116 with a Reporting Limit of 0.25%.

* All California samples analyzed by Polarized Light Microscopy, EPA Method 600/M4-82-020, Dec. 1982.

LEGEND: NAD = no asbestos detected

ENVIRONMENTAL HAZARDS SERVICES, LLC

Asbestos Chain of Custody Form

Company Name	First Capital Insulation, Inc.	Account #	39-3417
Company Address	300 Hudson Street	City/State/Zip	York, PA 17403
Phone	717-843-1753	Email	ryingling@firstcapitalinsulation.com
Project Name/Test Address	Biddle AB Hanger B201, Horsham, PA		
PO Number	23-2013	Collected By	Rich Yingling
Turn-Around Time	☒ 3 DAY ☐ 2 DAY ☐ 1 DAY ☐ SAME DAY OR WEEKEND - Must Call Ahead		

☐ PLM New York Protocol ☐ PLM New Jersey Protocol ☐ PLM South Carolina Protocol

LAB NUMBER	Client Sample ID	Homogeneous Area	Positive Stop	Collection Date & Time	BULK				AIR						COMMENTS
					PLM	Point Count 400	Point Count 1000	TEM Bulk	PCM	TEM AHERA	NIOSH 7402	Time In Total Minutes	Flow Rate In L/Min	Volume In Total Liters	
1	1			2/22/23	X										Floor Tile - Rm 1
2	2A			↓	↓										Floor Tile - Rm 2
3	2B														Floor Tile - Rm 2
4	3														Floor Tile - Rm 5
5	4														Floor Tile - Rm 6A
6	5														Floor Tile - Rm 33
7															
8															
9															
10															
11															
12															
13															
14															
15															

Released By:	Rich Yingling	Date:	2/23/23	Time:	
Signature:	Rich Yingling				

LAB USE ONLY – BELOW THIS LINE

Received By: JM

Signature:

Date: 2/27/23 Time: 16:_____ ☐ AM ☐ PM

☐ Portal Contact Added

23-02-04395

Due Date: 03/02/2023 (Thursday) W

6 PM

7469 WHITEPINE RD, RICHMOND, VA 23237 (800)-347-4010

RESULTS VIA CLIENT PORTAL AVAILABLE @ www.leadlab.com

pennsylvania
DEPARTMENT OF MILITARY
AND VETERANS AFFAIRS

APPENDIX C

PFAS LABORATORY ANALYTICAL REPORTS

eurofins | Environment Testing

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

ANALYTICAL REPORT

PREPARED FOR

Attn: Mark Miller
Miller Consulting Enterprises, LLC
118 Rexmont Road
Lebanon, Pennsylvania 17042

Generated 3/14/2023 3:42:28 PM

JOB DESCRIPTION

Biddle AB B201

JOB NUMBER

410-114237-1

Eurofins Lancaster Laboratories Environment Testing, LLC
2425 New Holland Pike
Lancaster PA 17601

See page two for job notes and contact information.

myEOL

Job Notes

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

Authorization

Generated
3/14/2023 3:42:28 PM

Authorized for release by
Amek Carter, Project Manager
Loran.Carter@et.eurofinsus.com
(717)556-7252

Compliance Statement

Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments.
· QC results that exceed the upper limits and are associated with non-detect samples are qualified but further narration is not required since the bias is high and does not change a non-detect result. Further narration is also not required with QC blank detection when the associated sample concentration is non-detect or more than ten times the level in the blank.
· Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD is performed, unless otherwise specified in the method.
· Surrogate and/or isotope dilution analyte recoveries (if applicable) which are outside of the QC window are confirmed unless attributed to a dilution or otherwise noted in the narrative.
Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Measurement uncertainty values, as applicable, are available upon request.

Test results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. Times are local to the area of activity. Parameters listed in the 40 CFR Part 136 Table II as "analyze immediately" and tested in the laboratory are not performed within 15 minutes of collection.

WARRANTY AND LIMITS OF LIABILITY - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied, except as otherwise agreed. We disclaim any other warranties, expressed or implied, including a warranty of fitness for particular purpose and warranty of merchantability. In no event shall Eurofins Lancaster Laboratories Environmental, LLC be liable for indirect, special, consequential, or incidental damages including, but not limited to, damages for loss of profit or goodwill regardless of (A) the negligence (either sole or concurrent) of Eurofins Lancaster Laboratories Environmental and (B) whether Eurofins Lancaster Laboratories Environmental has been informed of the possibility of such damages. We accept no legal responsibility for the purposes for which the client uses the test results. Except as otherwise agreed, no purchase order or other order for work shall be accepted by Eurofins Lancaster Laboratories Environmental which includes any conditions that vary from the Standard Terms and Conditions, and Eurofins Lancaster Laboratories Environmental hereby objects to any conflicting terms contained in any acceptance or order submitted by client.

Table of Contents

Definitions/Glossary

Client: Miller Consulting Enterprises, LLC
Job ID: 410-114237-1
Project/Site: Biddle AB B201

Qualifiers

LCMS

Qualifier	Qualifier Description
*5-	Isotope dilution analyte is outside acceptance limits, low biased.
*5+	Isotope dilution analyte is outside acceptance limits, high biased.
cn	Refer to Case Narrative for further detail
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Job ID: 410-114237-1

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

Narrative

Job Narrative
410-114237-1

Receipt
The samples were received on 2/3/2023 12:20 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 8.4°C

PFAS
Method PFC_IDA: The recovery for the labeled isotope(s) 13C3 PFBS in the following sample: 05-2023 NW UST (410-114237-5) and 06-2023 NW UST (410-114237-6) is outside the QC acceptance limits. Sufficient sample was not available to re-extract this sample.

Method PFC_IDA: Reporting limits were raised for the following sample: 03-2023 SE UST (410-114237-3) due to limited sample volume.

Method PFC_IDA: Reporting limits were raised for the following sample: 09-2023 Pump House Tank (410-114237-9) due to interference from the sample matrix.

Method PFC_IDA: The sample injection standard peak areas in the following sample: 09-2023 Pump House Tank (410-114237-9) are outside of the QC limits for both the initial injection and the re-extracted. The values here are from the initial injection of the sample.

Method PFC_IDA: The sample injection standard peak areas in the following sample: 08-2023 Pump House Tank (410-114237-8) are outside of the QC limits for both the initial injection and the re-injection. The values here are from the initial injection of the sample.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Detection Summary

Client: Miller Consulting Enterprises, LLC
Project/Site: Biddle AB B201

Job ID: 410-114237-1

Client Sample ID: 01-2023 SE UST Blank — Lab Sample ID: 410-114237-1

No Detections.

Client Sample ID: 02-2023 SE UST — Lab Sample ID: 410-114237-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	63		1.9	0.19	ng/L	1		537 IDA	Total/NA
Perfluoroheptanoic acid	26		1.9	0.28	ng/L	1		537 IDA	Total/NA
Perfluorooctanoic acid	100		1.9	0.28	ng/L	1		537 IDA	Total/NA
Perfluorononanoic acid	15		1.9	0.19	ng/L	1		537 IDA	Total/NA
Perfluorodecanoic acid	17		1.9	0.28	ng/L	1		537 IDA	Total/NA
Perfluorobutanesulfonic acid	18		1.9	0.28	ng/L	1		537 IDA	Total/NA
Perfluorohexanesulfonic acid	90		1.9	0.19	ng/L	1		537 IDA	Total/NA
NEtFOSAA	37		1.9	0.46	ng/L	1		537 IDA	Total/NA
NMeFOSAA	2.2		1.9	0.37	ng/L	1		537 IDA	Total/NA
Perfluorododecanoic acid	2.2		1.9	0.37	ng/L	1		537 IDA	Total/NA
HFPODA	1.1	J	1.9	0.37	ng/L	1		537 IDA	Total/NA
Perfluoroundecanoic acid	3.6		1.9	0.28	ng/L	1		537 IDA	Total/NA
Perfluorooctanesulfonic acid - DL	530		19	4.6	ng/L	10		537 IDA	Total/NA

Client Sample ID: 03-2023 SE UST — Lab Sample ID: 410-114237-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	65	cn	2.0	0.20	ng/L	1		537 IDA	Total/NA
Perfluoroheptanoic acid	27	cn	2.0	0.31	ng/L	1		537 IDA	Total/NA
Perfluorooctanoic acid	100	cn	2.0	0.31	ng/L	1		537 IDA	Total/NA
Perfluorononanoic acid	16	cn	2.0	0.20	ng/L	1		537 IDA	Total/NA
Perfluorodecanoic acid	17	cn	2.0	0.31	ng/L	1		537 IDA	Total/NA
Perfluorobutanesulfonic acid	18	cn	2.0	0.31	ng/L	1		537 IDA	Total/NA
Perfluorohexanesulfonic acid	87	cn	2.0	0.20	ng/L	1		537 IDA	Total/NA
NEtFOSAA	35	cn	2.0	0.51	ng/L	1		537 IDA	Total/NA
NMeFOSAA	2.5	cn	2.0	0.41	ng/L	1		537 IDA	Total/NA
Perfluorododecanoic acid	2.7	cn	2.0	0.41	ng/L	1		537 IDA	Total/NA
HFPODA	1.2	J cn	2.0	0.41	ng/L	1		537 IDA	Total/NA
Perfluoroundecanoic acid	4.0	cn	2.0	0.31	ng/L	1		537 IDA	Total/NA
Perfluorooctanesulfonic acid - DL	540	cn	20	5.1	ng/L	10		537 IDA	Total/NA

Client Sample ID: 04-2023 NW UST Blank — Lab Sample ID: 410-114237-4

No Detections.

Client Sample ID: 05-2023 NW UST — Lab Sample ID: 410-114237-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	86		2.0	0.20	ng/L	1		537 IDA	Total/NA
Perfluoroheptanoic acid	39		2.0	0.29	ng/L	1		537 IDA	Total/NA
Perfluorooctanoic acid	140		2.0	0.29	ng/L	1		537 IDA	Total/NA
Perfluorononanoic acid	21		2.0	0.20	ng/L	1		537 IDA	Total/NA
Perfluorodecanoic acid	22		2.0	0.29	ng/L	1		537 IDA	Total/NA
Perfluorobutanesulfonic acid	18	*5+	2.0	0.29	ng/L	1		537 IDA	Total/NA
Perfluorohexanesulfonic acid	110		2.0	0.20	ng/L	1		537 IDA	Total/NA
NEtFOSAA	26		2.0	0.49	ng/L	1		537 IDA	Total/NA
NMeFOSAA	4.0		2.0	0.39	ng/L	1		537 IDA	Total/NA
Perfluorododecanoic acid	3.5		2.0	0.39	ng/L	1		537 IDA	Total/NA
HFPODA	2.6		2.0	0.39	ng/L	1		537 IDA	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: 05-2023 NW UST (Continued) — Lab Sample ID: 410-114237-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroundecanoic acid	6.4		2.0	0.29	ng/L	1		537 IDA	Total/NA
Perfluorooctanesulfonic acid - DL	490		20	4.9	ng/L	10		537 IDA	Total/NA

Client Sample ID: 06-2023 NW UST — Lab Sample ID: 410-114237-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid	84		1.9	0.19	ng/L	1		537 IDA	Total/NA
Perfluoroheptanoic acid	40		1.9	0.29	ng/L	1		537 IDA	Total/NA
Perfluorooctanoic acid	130		1.9	0.29	ng/L	1		537 IDA	Total/NA
Perfluorononanoic acid	21		1.9	0.19	ng/L	1		537 IDA	Total/NA
Perfluorodecanoic acid	19		1.9	0.29	ng/L	1		537 IDA	Total/NA
Perfluorobutanesulfonic acid	18	*5+	1.9	0.29	ng/L	1		537 IDA	Total/NA
Perfluorohexanesulfonic acid	110		1.9	0.19	ng/L	1		537 IDA	Total/NA
NEtFOSAA	23		1.9	0.49	ng/L	1		537 IDA	Total/NA
NMeFOSAA	0.78	J	1.9	0.39	ng/L	1		537 IDA	Total/NA
Perfluorododecanoic acid	3.0		1.9	0.39	ng/L	1		537 IDA	Total/NA
HFPODA	2.5		1.9	0.39	ng/L	1		537 IDA	Total/NA
Perfluoroundecanoic acid	5.5		1.9	0.29	ng/L	1		537 IDA	Total/NA
Perfluorooctanesulfonic acid - DL	410		19	4.9	ng/L	10		537 IDA	Total/NA

Client Sample ID: 07-2023 Pump House Blank — Lab Sample ID: 410-114237-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanesulfonic acid	0.30	J	2.0	0.20	ng/L	1		537 IDA	Total/NA
Perfluorooctanesulfonic acid	0.76	J I	2.0	0.50	ng/L	1		537 IDA	Total/NA

Client Sample ID: 08-2023 Pump House Tank — Lab Sample ID: 410-114237-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid	930	*5- cn	20	3.0	ng/L	1		537 IDA	Total/NA
Perfluorooctanoic acid	2400	*5- cn	20	3.0	ng/L	1		537 IDA	Total/NA
Perfluorotetradecanoic acid	7.3	J *5+ cn	20	4.0	ng/L	1		537 IDA	Total/NA
Perfluorobutanesulfonic acid	1900	I *5- cn	20	3.0	ng/L	1		537 IDA	Total/NA
Perfluorohexanesulfonic acid	2300	*5- cn	20	2.0	ng/L	1		537 IDA	Total/NA
Perfluorohexanoic acid - DL	13000	*5-	200	20	ng/L	10		537 IDA	Total/NA
Perfluorooctanesulfonic acid - DL	8200		200	50	ng/L	10		537 IDA	Total/NA

Client Sample ID: 09-2023 Pump House Tank — Lab Sample ID: 410-114237-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluoroheptanoic acid	1500	I *5- cn	20	3.0	ng/L	1		537 IDA	Total/NA
Perfluorononanoic acid	270	*5- cn	20	2.0	ng/L	1		537 IDA	Total/NA
Perfluorotetradecanoic acid	24	*5+ cn	20	4.0	ng/L	1		537 IDA	Total/NA
Perfluorobutanesulfonic acid	190	I *5- cn	20	3.0	ng/L	1		537 IDA	Total/NA
Perfluoroundecanoic acid	47	*5+ cn	20	3.0	ng/L	1		537 IDA	Total/NA
Perfluorohexanoic acid - DL	11000	*5-	200	20	ng/L	10		537 IDA	Total/NA
Perfluorooctanoic acid - DL	6700	*5-	200	30	ng/L	10		537 IDA	Total/NA
Perfluorohexanesulfonic acid - DL	17000	*5-	200	20	ng/L	10		537 IDA	Total/NA
Perfluorooctanesulfonic acid - DL2	160000		2000	500	ng/L	100		537 IDA	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: 01-2023 SE UST Blank

Lab Sample ID: 410-114237-1

Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Matrix: Water

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	ND		1.9	0.19	ng/L		02/17/23 08:41	02/22/23 04:24	1
Perfluoroheptanoic acid	ND		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 04:24	1
Perfluorooctanoic acid	ND		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 04:24	1
Perfluorononanoic acid	ND		1.9	0.19	ng/L		02/17/23 08:41	02/22/23 04:24	1
Perfluorodecanoic acid	ND		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 04:24	1
Perfluorotridecanoic acid	ND		1.9	0.38	ng/L		02/17/23 08:41	02/22/23 04:24	1
Perfluorotetradecanoic acid	ND		1.9	0.38	ng/L		02/17/23 08:41	02/22/23 04:24	1
Perfluorobutanesulfonic acid	ND		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 04:24	1
Perfluorohexanesulfonic acid	ND		1.9	0.19	ng/L		02/17/23 08:41	02/22/23 04:24	1
Perfluorooctanesulfonic acid	ND		1.9	0.48	ng/L		02/17/23 08:41	02/22/23 04:24	1
NEtFOSAA	ND		1.9	0.48	ng/L		02/17/23 08:41	02/22/23 04:24	1
NMeFOSAA	ND		1.9	0.38	ng/L		02/17/23 08:41	02/22/23 04:24	1
Perfluorododecanoic acid	ND		1.9	0.38	ng/L		02/17/23 08:41	02/22/23 04:24	1
HFPODA	ND		1.9	0.38	ng/L		02/17/23 08:41	02/22/23 04:24	1
9Cl-PF3ONS	ND		1.9	0.48	ng/L		02/17/23 08:41	02/22/23 04:24	1
11Cl-PF3OUdS	ND		1.9	0.48	ng/L		02/17/23 08:41	02/22/23 04:24	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.48	ng/L		02/17/23 08:41	02/22/23 04:24	1
Perfluoroundecanoic acid	ND		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 04:24	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFHxA	*116*		*24 - 179*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
13C4 PFHpA	*117*		*31 - 182*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
13C8 PFOA	*124*		*48 - 162*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
13C9 PFNA	*132*		*51 - 167*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
13C6 PFDA	*126*		*49 - 163*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
13C2-PFDoDA	*125*		*17 - 176*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
13C2 PFTeDA	*126*		*10 - 179*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
13C3 PFBS	*140*		*16 - 200*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
13C3 PFHxS	*124*		*28 - 188*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
13C8 PFOS	*137*		*51 - 159*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
d3-NMeFOSAA	*157*		*31 - 174*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
d5-NEtFOSAA	*153*		*29 - 195*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
13C3 HFPO-DA	*89*		*17 - 185*	*02/17/23 08:41*	*02/22/23 04:24*	*1*
13C7 PFUnA	*127*		*34 - 174*	*02/17/23 08:41*	*02/22/23 04:24*	*1*

Client Sample ID: 02-2023 SE UST

Lab Sample ID: 410-114237-2

Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Matrix: Water

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	**63**		1.9	0.19	ng/L		02/17/23 08:41	02/22/23 04:35	1
Perfluoroheptanoic acid	**26**		1.9	0.28	ng/L		02/17/23 08:41	02/22/23 04:35	1
Perfluorooctanoic acid	**100**		1.9	0.28	ng/L		02/17/23 08:41	02/22/23 04:35	1
Perfluorononanoic acid	**15**		1.9	0.19	ng/L		02/17/23 08:41	02/22/23 04:35	1
Perfluorodecanoic acid	**17**		1.9	0.28	ng/L		02/17/23 08:41	02/22/23 04:35	1
Perfluorotridecanoic acid	ND		1.9	0.37	ng/L		02/17/23 08:41	02/22/23 04:35	1
Perfluorotetradecanoic acid	ND		1.9	0.37	ng/L		02/17/23 08:41	02/22/23 04:35	1
Perfluorobutanesulfonic acid	**18**		1.9	0.28	ng/L		02/17/23 08:41	02/22/23 04:35	1
Perfluorohexanesulfonic acid	**90**		1.9	0.19	ng/L		02/17/23 08:41	02/22/23 04:35	1

Client Sample ID: 02-2023 SE UST

Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Lab Sample ID: 410-114237-2

Matrix: Water

Method: EPA 537 IDA - EPA 537 Isotope Dilution (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NEtFOSAA	37		1.9	0.46	ng/L		02/17/23 08:41	02/22/23 04:35	1
NMeFOSAA	2.2		1.9	0.37	ng/L		02/17/23 08:41	02/22/23 04:35	1
Perfluorododecanoic acid	2.2		1.9	0.37	ng/L		02/17/23 08:41	02/22/23 04:35	1
HFPODA	1.1	J	1.9	0.37	ng/L		02/17/23 08:41	02/22/23 04:35	1
9Cl-PF3ONS	ND		1.9	0.46	ng/L		02/17/23 08:41	02/22/23 04:35	1
11Cl-PF3OUdS	ND		1.9	0.46	ng/L		02/17/23 08:41	02/22/23 04:35	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.46	ng/L		02/17/23 08:41	02/22/23 04:35	1
Perfluoroundecanoic acid	3.6		1.9	0.28	ng/L		02/17/23 08:41	02/22/23 04:35	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFHxA	*105*		*24 - 179*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
13C4 PFHpA	*113*		*31 - 182*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
13C8 PFOA	*111*		*48 - 162*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
13C9 PFNA	*137*		*51 - 167*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
13C6 PFDA	*120*		*49 - 163*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
13C2-PFDoDA	*136*		*17 - 176*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
13C2 PFTeDA	*124*		*10 - 179*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
13C3 PFBS	*163*		*16 - 200*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
13C3 PFHxS	*119*		*28 - 188*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
13C8 PFOS	*129*		*51 - 159*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
d3-NMeFOSAA	*107*		*31 - 174*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
d5-NEtFOSAA	*132*		*29 - 195*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
13C3 HFPO-DA	*77*		*17 - 185*	*02/17/23 08:41*	*02/22/23 04:35*	*1*
13C7 PFUnA	*124*		*34 - 174*	*02/17/23 08:41*	*02/22/23 04:35*	*1*

Method: EPA 537 IDA - EPA 537 Isotope Dilution - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	530		19	4.6	ng/L		02/17/23 08:41	02/23/23 14:30	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOS	*100*		*51 - 159*	*02/17/23 08:41*	*02/23/23 14:30*	*10*

Client Sample ID: 03-2023 SE UST

Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Lab Sample ID: 410-114237-3

Matrix: Water

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	65	cn	2.0	0.20	ng/L		02/17/23 08:41	02/22/23 04:47	1
Perfluoroheptanoic acid	27	cn	2.0	0.31	ng/L		02/17/23 08:41	02/22/23 04:47	1
Perfluorooctanoic acid	100	cn	2.0	0.31	ng/L		02/17/23 08:41	02/22/23 04:47	1
Perfluorononanoic acid	16	cn	2.0	0.20	ng/L		02/17/23 08:41	02/22/23 04:47	1
Perfluorodecanoic acid	17	cn	2.0	0.31	ng/L		02/17/23 08:41	02/22/23 04:47	1
Perfluorotridecanoic acid	ND	cn	2.0	0.41	ng/L		02/17/23 08:41	02/22/23 04:47	1
Perfluorotetradecanoic acid	ND	cn	2.0	0.41	ng/L		02/17/23 08:41	02/22/23 04:47	1
Perfluorobutanesulfonic acid	18	cn	2.0	0.31	ng/L		02/17/23 08:41	02/22/23 04:47	1
Perfluorohexanesulfonic acid	87	cn	2.0	0.20	ng/L		02/17/23 08:41	02/22/23 04:47	1
NEtFOSAA	35	cn	2.0	0.51	ng/L		02/17/23 08:41	02/22/23 04:47	1
NMeFOSAA	2.5	cn	2.0	0.41	ng/L		02/17/23 08:41	02/22/23 04:47	1
Perfluorododecanoic acid	2.7	cn	2.0	0.41	ng/L		02/17/23 08:41	02/22/23 04:47	1
HFPODA	1.2	J cn	2.0	0.41	ng/L		02/17/23 08:41	02/22/23 04:47	1

Client Sample ID: 03-2023 SE UST

Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Lab Sample ID: 410-114237-3

Matrix: Water

Method: EPA 537 IDA - EPA 537 Isotope Dilution (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
9Cl-PF3ONS	ND	cn	2.0	0.51	ng/L		02/17/23 08:41	02/22/23 04:47	1
11Cl-PF3OUdS	ND	cn	2.0	0.51	ng/L		02/17/23 08:41	02/22/23 04:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	cn	2.0	0.51	ng/L		02/17/23 08:41	02/22/23 04:47	1
Perfluoroundecanoic acid	**4.0**	**cn**	2.0	0.31	ng/L		02/17/23 08:41	02/22/23 04:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFHxA	*111*	*cn*	*24 - 179*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
13C4 PFHpA	*112*	*cn*	*31 - 182*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
13C8 PFOA	*115*	*cn*	*48 - 162*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
13C9 PFNA	*147*	*cn*	*51 - 167*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
13C6 PFDA	*127*	*cn*	*49 - 163*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
13C2-PFDoDA	*140*	*cn*	*17 - 176*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
13C2 PFTeDA	*140*	*cn*	*10 - 179*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
13C3 PFBS	*160*	*cn*	*16 - 200*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
13C3 PFHxS	*121*	*cn*	*28 - 188*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
13C8 PFOS	*137*	*cn*	*51 - 159*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
d3-NMeFOSAA	*128*	*cn*	*31 - 174*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
d5-NEtFOSAA	*167*	*cn*	*29 - 195*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
13C3 HFPO-DA	*61*	*cn*	*17 - 185*	*02/17/23 08:41*	*02/22/23 04:47*	*1*
13C7 PFUnA	*148*	*cn*	*34 - 174*	*02/17/23 08:41*	*02/22/23 04:47*	*1*

Method: EPA 537 IDA - EPA 537 Isotope Dilution - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	**540**	**cn**	20	5.1	ng/L		02/17/23 08:41	02/23/23 14:41	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOS	*126*	*cn*	*51 - 159*	*02/17/23 08:41*	*02/23/23 14:41*	*10*

Client Sample ID: 04-2023 NW UST Blank

Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Lab Sample ID: 410-114237-4

Matrix: Water

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	ND		1.9	0.19	ng/L		02/17/23 08:41	02/22/23 04:58	1
Perfluoroheptanoic acid	ND		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 04:58	1
Perfluorooctanoic acid	ND		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 04:58	1
Perfluorononanoic acid	ND		1.9	0.19	ng/L		02/17/23 08:41	02/22/23 04:58	1
Perfluorodecanoic acid	ND		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 04:58	1
Perfluorotridecanoic acid	ND		1.9	0.39	ng/L		02/17/23 08:41	02/22/23 04:58	1
Perfluorotetradecanoic acid	ND		1.9	0.39	ng/L		02/17/23 08:41	02/22/23 04:58	1
Perfluorobutanesulfonic acid	ND		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 04:58	1
Perfluorohexanesulfonic acid	ND		1.9	0.19	ng/L		02/17/23 08:41	02/22/23 04:58	1
Perfluorooctanesulfonic acid	ND		1.9	0.48	ng/L		02/17/23 08:41	02/22/23 04:58	1
NEtFOSAA	ND		1.9	0.48	ng/L		02/17/23 08:41	02/22/23 04:58	1
NMeFOSAA	ND		1.9	0.39	ng/L		02/17/23 08:41	02/22/23 04:58	1
Perfluorododecanoic acid	ND		1.9	0.39	ng/L		02/17/23 08:41	02/22/23 04:58	1
HFPODA	ND		1.9	0.39	ng/L		02/17/23 08:41	02/22/23 04:58	1
9Cl-PF3ONS	ND		1.9	0.48	ng/L		02/17/23 08:41	02/22/23 04:58	1
11Cl-PF3OUdS	ND		1.9	0.48	ng/L		02/17/23 08:41	02/22/23 04:58	1

Client Sample ID: 04-2023 NW UST Blank

Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Lab Sample ID: 410-114237-4

Matrix: Water

Method: EPA 537 IDA - EPA 537 Isotope Dilution (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.48	ng/L		02/17/23 08:41	02/22/23 04:58	1
Perfluoroundecanoic acid	ND		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 04:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFHxA	*113*		*24 - 179*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
13C4 PFHpA	*112*		*31 - 182*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
13C8 PFOA	*111*		*48 - 162*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
13C9 PFNA	*116*		*51 - 167*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
13C6 PFDA	*113*		*49 - 163*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
13C2-PFDoDA	*105*		*17 - 176*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
13C2 PFTeDA	*109*		*10 - 179*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
13C3 PFBS	*126*		*16 - 200*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
13C3 PFHxS	*119*		*28 - 188*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
13C8 PFOS	*123*		*51 - 159*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
d3-NMeFOSAA	*112*		*31 - 174*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
d5-NEtFOSAA	*119*		*29 - 195*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
13C3 HFPO-DA	*90*		*17 - 185*	*02/17/23 08:41*	*02/22/23 04:58*	*1*
13C7 PFUnA	*111*		*34 - 174*	*02/17/23 08:41*	*02/22/23 04:58*	*1*

Client Sample ID: 05-2023 NW UST

Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Lab Sample ID: 410-114237-5

Matrix: Water

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	**86**		2.0	0.20	ng/L		02/17/23 08:41	02/22/23 05:09	1
Perfluoroheptanoic acid	**39**		2.0	0.29	ng/L		02/17/23 08:41	02/22/23 05:09	1
Perfluorooctanoic acid	**140**		2.0	0.29	ng/L		02/17/23 08:41	02/22/23 05:09	1
Perfluorononanoic acid	**21**		2.0	0.20	ng/L		02/17/23 08:41	02/22/23 05:09	1
Perfluorodecanoic acid	**22**		2.0	0.29	ng/L		02/17/23 08:41	02/22/23 05:09	1
Perfluorotridecanoic acid	ND		2.0	0.39	ng/L		02/17/23 08:41	02/22/23 05:09	1
Perfluorotetradecanoic acid	ND		2.0	0.39	ng/L		02/17/23 08:41	02/22/23 05:09	1
Perfluorobutanesulfonic acid	**18**	***5+**	2.0	0.29	ng/L		02/17/23 08:41	02/22/23 05:09	1
Perfluorohexanesulfonic acid	**110**		2.0	0.20	ng/L		02/17/23 08:41	02/22/23 05:09	1
NEtFOSAA	**26**		2.0	0.49	ng/L		02/17/23 08:41	02/22/23 05:09	1
NMeFOSAA	**4.0**		2.0	0.39	ng/L		02/17/23 08:41	02/22/23 05:09	1
Perfluorododecanoic acid	**3.5**		2.0	0.39	ng/L		02/17/23 08:41	02/22/23 05:09	1
HFPODA	**2.6**		2.0	0.39	ng/L		02/17/23 08:41	02/22/23 05:09	1
9Cl-PF3ONS	ND		2.0	0.49	ng/L		02/17/23 08:41	02/22/23 05:09	1
11Cl-PF3OUdS	ND		2.0	0.49	ng/L		02/17/23 08:41	02/22/23 05:09	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.49	ng/L		02/17/23 08:41	02/22/23 05:09	1
Perfluoroundecanoic acid	**6.4**		2.0	0.29	ng/L		02/17/23 08:41	02/22/23 05:09	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFHxA	*92*		*24 - 179*	*02/17/23 08:41*	*02/22/23 05:09*	*1*
13C4 PFHpA	*109*		*31 - 182*	*02/17/23 08:41*	*02/22/23 05:09*	*1*
13C8 PFOA	*110*		*48 - 162*	*02/17/23 08:41*	*02/22/23 05:09*	*1*
13C9 PFNA	*125*		*51 - 167*	*02/17/23 08:41*	*02/22/23 05:09*	*1*
13C6 PFDA	*114*		*49 - 163*	*02/17/23 08:41*	*02/22/23 05:09*	*1*
13C2-PFDoDA	*109*		*17 - 176*	*02/17/23 08:41*	*02/22/23 05:09*	*1*

Client Sample ID: 05-2023 NW UST

Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Lab Sample ID: 410-114237-5

Matrix: Water

Method: EPA 537 IDA - EPA 537 Isotope Dilution (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFTeDA	105		10 - 179	02/17/23 08:41	02/22/23 05:09	1
13C3 PFBS	202	*5+ cn	16 - 200	02/17/23 08:41	02/22/23 05:09	1
13C3 PFHxS	123		28 - 188	02/17/23 08:41	02/22/23 05:09	1
13C8 PFOS	122		51 - 159	02/17/23 08:41	02/22/23 05:09	1
d3-NMeFOSAA	102		31 - 174	02/17/23 08:41	02/22/23 05:09	1
d5-NEtFOSAA	127		29 - 195	02/17/23 08:41	02/22/23 05:09	1
13C3 HFPO-DA	70		17 - 185	02/17/23 08:41	02/22/23 05:09	1
13C7 PFUnA	119		34 - 174	02/17/23 08:41	02/22/23 05:09	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	490		20	4.9	ng/L		02/17/23 08:41	02/23/23 14:52	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	107		51 - 159	02/17/23 08:41	02/23/23 14:52	10

Client Sample ID: 06-2023 NW UST

Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Lab Sample ID: 410-114237-6

Matrix: Water

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	84		1.9	0.19	ng/L		02/17/23 08:41	02/22/23 05:20	1
Perfluoroheptanoic acid	40		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 05:20	1
Perfluorooctanoic acid	130		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 05:20	1
Perfluorononanoic acid	21		1.9	0.19	ng/L		02/17/23 08:41	02/22/23 05:20	1
Perfluorodecanoic acid	19		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 05:20	1
Perfluorotridecanoic acid	ND		1.9	0.39	ng/L		02/17/23 08:41	02/22/23 05:20	1
Perfluorotetradecanoic acid	ND		1.9	0.39	ng/L		02/17/23 08:41	02/22/23 05:20	1
Perfluorobutanesulfonic acid	18	*5+	1.9	0.29	ng/L		02/17/23 08:41	02/22/23 05:20	1
Perfluorohexanesulfonic acid	110		1.9	0.19	ng/L		02/17/23 08:41	02/22/23 05:20	1
NEtFOSAA	23		1.9	0.49	ng/L		02/17/23 08:41	02/22/23 05:20	1
NMeFOSAA	0.78	J	1.9	0.39	ng/L		02/17/23 08:41	02/22/23 05:20	1
Perfluorododecanoic acid	3.0		1.9	0.39	ng/L		02/17/23 08:41	02/22/23 05:20	1
HFPODA	2.5		1.9	0.39	ng/L		02/17/23 08:41	02/22/23 05:20	1
9Cl-PF3ONS	ND		1.9	0.49	ng/L		02/17/23 08:41	02/22/23 05:20	1
11Cl-PF3OUdS	ND		1.9	0.49	ng/L		02/17/23 08:41	02/22/23 05:20	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		1.9	0.49	ng/L		02/17/23 08:41	02/22/23 05:20	1
Perfluoroundecanoic acid	5.5		1.9	0.29	ng/L		02/17/23 08:41	02/22/23 05:20	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFHxA	97		24 - 179	02/17/23 08:41	02/22/23 05:20	1
13C4 PFHpA	110		31 - 182	02/17/23 08:41	02/22/23 05:20	1
13C8 PFOA	114		48 - 162	02/17/23 08:41	02/22/23 05:20	1
13C9 PFNA	130		51 - 167	02/17/23 08:41	02/22/23 05:20	1
13C6 PFDA	119		49 - 163	02/17/23 08:41	02/22/23 05:20	1
13C2-PFDoDA	114		17 - 176	02/17/23 08:41	02/22/23 05:20	1
13C2 PFTeDA	110		10 - 179	02/17/23 08:41	02/22/23 05:20	1
13C3 PFBS	209	*5+ cn	16 - 200	02/17/23 08:41	02/22/23 05:20	1
13C3 PFHxS	128		28 - 188	02/17/23 08:41	02/22/23 05:20	1
13C8 PFOS	124		51 - 159	02/17/23 08:41	02/22/23 05:20	1

Client Sample ID: 06-2023 NW UST

Lab Sample ID: 410-114237-6
Matrix: Water
Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Method: EPA 537 IDA - EPA 537 Isotope Dilution (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
d3-NMeFOSAA	111		31 - 174	02/17/23 08:41	02/22/23 05:20	1
d5-NEtFOSAA	130		29 - 195	02/17/23 08:41	02/22/23 05:20	1
13C3 HFPO-DA	75		17 - 185	02/17/23 08:41	02/22/23 05:20	1
13C7 PFUnA	119		34 - 174	02/17/23 08:41	02/22/23 05:20	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	**410**		19	4.9	ng/L		02/17/23 08:41	02/23/23 15:03	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C8 PFOS	106		51 - 159	02/17/23 08:41	02/23/23 15:03	10

Client Sample ID: 07-2023 Pump House Blank

Lab Sample ID: 410-114237-7
Matrix: Water
Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	ND		2.0	0.20	ng/L		02/17/23 08:41	02/22/23 05:31	1
Perfluoroheptanoic acid	ND		2.0	0.30	ng/L		02/17/23 08:41	02/22/23 05:31	1
Perfluorooctanoic acid	ND		2.0	0.30	ng/L		02/17/23 08:41	02/22/23 05:31	1
Perfluorononanoic acid	ND		2.0	0.20	ng/L		02/17/23 08:41	02/22/23 05:31	1
Perfluorodecanoic acid	ND		2.0	0.30	ng/L		02/17/23 08:41	02/22/23 05:31	1
Perfluorotridecanoic acid	ND		2.0	0.40	ng/L		02/17/23 08:41	02/22/23 05:31	1
Perfluorotetradecanoic acid	ND		2.0	0.40	ng/L		02/17/23 08:41	02/22/23 05:31	1
Perfluorobutanesulfonic acid	ND		2.0	0.30	ng/L		02/17/23 08:41	02/22/23 05:31	1
Perfluorohexanesulfonic acid	**0.30**	**J**	2.0	0.20	ng/L		02/17/23 08:41	02/22/23 05:31	1
Perfluorooctanesulfonic acid	**0.76**	**J I**	2.0	0.50	ng/L		02/17/23 08:41	02/22/23 05:31	1
NEtFOSAA	ND		2.0	0.50	ng/L		02/17/23 08:41	02/22/23 05:31	1
NMeFOSAA	ND		2.0	0.40	ng/L		02/17/23 08:41	02/22/23 05:31	1
Perfluorododecanoic acid	ND		2.0	0.40	ng/L		02/17/23 08:41	02/22/23 05:31	1
HFPODA	ND		2.0	0.40	ng/L		02/17/23 08:41	02/22/23 05:31	1
9Cl-PF3ONS	ND		2.0	0.50	ng/L		02/17/23 08:41	02/22/23 05:31	1
11Cl-PF3OUdS	ND		2.0	0.50	ng/L		02/17/23 08:41	02/22/23 05:31	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.50	ng/L		02/17/23 08:41	02/22/23 05:31	1
Perfluoroundecanoic acid	ND		2.0	0.30	ng/L		02/17/23 08:41	02/22/23 05:31	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFHxA	108		24 - 179	02/17/23 08:41	02/22/23 05:31	1
13C4 PFHpA	100		31 - 182	02/17/23 08:41	02/22/23 05:31	1
13C8 PFOA	113		48 - 162	02/17/23 08:41	02/22/23 05:31	1
13C9 PFNA	132		51 - 167	02/17/23 08:41	02/22/23 05:31	1
13C6 PFDA	120		49 - 163	02/17/23 08:41	02/22/23 05:31	1
13C2-PFDoDA	122		17 - 176	02/17/23 08:41	02/22/23 05:31	1
13C2 PFTeDA	111		10 - 179	02/17/23 08:41	02/22/23 05:31	1
13C3 PFBS	130		16 - 200	02/17/23 08:41	02/22/23 05:31	1
13C3 PFHxS	107		28 - 188	02/17/23 08:41	02/22/23 05:31	1
13C8 PFOS	125		51 - 159	02/17/23 08:41	02/22/23 05:31	1
d3-NMeFOSAA	143		31 - 174	02/17/23 08:41	02/22/23 05:31	1
d5-NEtFOSAA	173		29 - 195	02/17/23 08:41	02/22/23 05:31	1
13C3 HFPO-DA	58		17 - 185	02/17/23 08:41	02/22/23 05:31	1

Client Sample ID: 07-2023 Pump House Blank

Lab Sample ID: 410-114237-7
Matrix: Water
Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Method: EPA 537 IDA - EPA 537 Isotope Dilution (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C7 PFUnA	135		34 - 174	02/17/23 08:41	02/22/23 05:31	1

Client Sample ID: 08-2023 Pump House Tank

Lab Sample ID: 410-114237-8
Matrix: Water
Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid	**930**	***5- cn**	20	3.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
Perfluorooctanoic acid	**2400**	***5- cn**	20	3.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
Perfluorononanoic acid	ND	*5+ cn	20	2.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
Perfluorodecanoic acid	ND	cn	20	3.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
Perfluorotridecanoic acid	ND	cn	20	4.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
Perfluorotetradecanoic acid	**7.3**	**J *5+ cn**	20	4.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
Perfluorobutanesulfonic acid	**1900**	**I *5- cn**	20	3.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
Perfluorohexanesulfonic acid	**2300**	***5- cn**	20	2.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
NEtFOSAA	ND	*5+ cn	20	5.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
NMeFOSAA	ND	*5+ cn	20	4.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
Perfluorododecanoic acid	ND	*5+ cn	20	4.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
HFPODA	ND	*5- cn	20	4.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
9Cl-PF3ONS	ND	cn	20	5.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
11Cl-PF3OUdS	ND	cn	20	5.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	cn	20	5.0	ng/L		02/17/23 08:41	02/23/23 15:14	1
Perfluoroundecanoic acid	ND	*5+ cn	20	3.0	ng/L		02/17/23 08:41	02/23/23 15:14	1

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFHxA	0.8	*5- cn	24 - 179	02/17/23 08:41	02/23/23 15:14	1
13C4 PFHpA	3	*5- cn	31 - 182	02/17/23 08:41	02/23/23 15:14	1
13C8 PFOA	13	*5- cn	48 - 162	02/17/23 08:41	02/23/23 15:14	1
13C9 PFNA	308	*5+ cn	51 - 167	02/17/23 08:41	02/23/23 15:14	1
13C6 PFDA	109	cn	49 - 163	02/17/23 08:41	02/23/23 15:14	1
13C2-PFDoDA	1213	*5+ cn	17 - 176	02/17/23 08:41	02/23/23 15:14	1
13C2 PFTeDA	6224	*5+ cn	10 - 179	02/17/23 08:41	02/23/23 15:14	1
13C3 PFBS	0.3	*5- cn	16 - 200	02/17/23 08:41	02/23/23 15:14	1
13C3 PFHxS	27	*5- cn	28 - 188	02/17/23 08:41	02/23/23 15:14	1
13C8 PFOS	1745	*5+ cn	51 - 159	02/17/23 08:41	02/23/23 15:14	1
d3-NMeFOSAA	379	*5+ cn	31 - 174	02/17/23 08:41	02/23/23 15:14	1
d5-NEtFOSAA	1891	*5+ cn	29 - 195	02/17/23 08:41	02/23/23 15:14	1
13C3 HFPO-DA	0.3	*5- cn	17 - 185	02/17/23 08:41	02/23/23 15:14	1
13C7 PFUnA	1640	*5+ cn	34 - 174	02/17/23 08:41	02/23/23 15:14	1

Method: EPA 537 IDA - EPA 537 Isotope Dilution - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	**13000**	***5-**	200	20	ng/L		02/17/23 08:41	02/23/23 15:25	10
Perfluorooctanesulfonic acid	**8200**		200	50	ng/L		02/17/23 08:41	02/23/23 15:25	10

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C5 PFHxA	0.8	*5-	24 - 179	02/17/23 08:41	02/23/23 15:25	10
13C8 PFOS	113		51 - 159	02/17/23 08:41	02/23/23 15:25	10

Client Sample ID: 09-2023 Pump House Tank

Date Collected: 02/03/23 10:00
Date Received: 02/03/23 12:20

Lab Sample ID: 410-114237-9

Matrix: Water

Method: EPA 537 IDA - EPA 537 Isotope Dilution

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluoroheptanoic acid	**1500**	**I *5- cn**	20	3.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
Perfluorononanoic acid	**270**	***5- cn**	20	2.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
Perfluorodecanoic acid	ND	cn	20	3.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
Perfluorotridecanoic acid	ND	cn	20	4.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
Perfluorotetradecanoic acid	**24**	***5+ cn**	20	4.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
Perfluorobutanesulfonic acid	**190**	**I *5- cn**	20	3.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
NEtFOSAA	ND	*5+ cn	20	5.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
NMeFOSAA	ND	cn	20	4.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
Perfluorododecanoic acid	ND	cn	20	4.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
HFPODA	ND	*5- cn	20	4.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
9Cl-PF3ONS	ND	cn	20	5.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
11Cl-PF3OUdS	ND	cn	20	5.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	cn	20	5.0	ng/L		02/17/23 08:41	02/23/23 15:47	1
Perfluoroundecanoic acid	**47**	***5+ cn**	20	3.0	ng/L		02/17/23 08:41	02/23/23 15:47	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFHxA	*0.5*	**5- cn*	*24 - 179*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
13C4 PFHpA	*2*	**5- cn*	*31 - 182*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
13C8 PFOA	*5*	**5- cn*	*48 - 162*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
13C9 PFNA	*0.1*	**5- cn*	*51 - 167*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
13C6 PFDA	*106*	*cn*	*49 - 163*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
13C2-PFDoDA	*100*	*cn*	*17 - 176*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
13C2 PFTeDA	*7615*	**5+ cn*	*10 - 179*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
13C3 PFBS	*0.3*	**5- cn*	*16 - 200*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
13C3 PFHxS	*11*	**5- cn*	*28 - 188*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
13C8 PFOS	*0.7*	**5- cn*	*51 - 159*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
d3-NMeFOSAA	*148*	*cn*	*31 - 174*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
d5-NEtFOSAA	*783*	**5+ cn*	*29 - 195*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
13C3 HFPO-DA	*0.2*	**5- cn*	*17 - 185*	*02/17/23 08:41*	*02/23/23 15:47*	*1*
13C7 PFUnA	*2006*	**5+ cn*	*34 - 174*	*02/17/23 08:41*	*02/23/23 15:47*	*1*

Method: EPA 537 IDA - EPA 537 Isotope Dilution - DL

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	**11000**	***5-**	200	20	ng/L		02/17/23 08:41	02/23/23 15:58	10
Perfluorooctanoic acid	**6700**	***5-**	200	30	ng/L		02/17/23 08:41	02/23/23 15:58	10
Perfluorohexanesulfonic acid	**17000**	***5-**	200	20	ng/L		02/17/23 08:41	02/23/23 15:58	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFHxA	*0.2*	**5-*	*24 - 179*	*02/17/23 08:41*	*02/23/23 15:58*	*10*
13C8 PFOA	*4*	**5-*	*48 - 162*	*02/17/23 08:41*	*02/23/23 15:58*	*10*
13C3 PFHxS	*0.7*	**5-*	*28 - 188*	*02/17/23 08:41*	*02/23/23 15:58*	*10*

Method: EPA 537 IDA - EPA 537 Isotope Dilution - DL2

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid	**160000**		2000	500	ng/L		02/17/23 08:41	02/23/23 16:10	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 PFOS	*86*		*51 - 159*	*02/17/23 08:41*	*02/23/23 16:10*	*100*

Isotope Dilution Summary

Client: Miller Consulting Enterprises, LLC
Project/Site: Biddle AB B201

Job ID: 410-114237-1

Method: 537 IDA - EPA 537 Isotope Dilution

Matrix: Water

Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	13C5PHA (24-179)	C4PFHA (31-182)	C8PFOA (48-162)	C9PFNA (51-167)	C6PFDA (49-163)	PFDoDA (17-176)	PFTDA (10-179)	C3PFBS (16-200)
410-114237-1	01-2023 SE UST Blank	116	117	124	132	126	125	126	140
410-114237-2	02-2023 SE UST	105	113	111	137	120	136	124	163
410-114237-2 - DL	02-2023 SE UST								
410-114237-3	03-2023 SE UST	111 cn	112 cn	115 cn	147 cn	127 cn	140 cn	140 cn	160 cn
410-114237-3 - DL	03-2023 SE UST								
410-114237-4	04-2023 NW UST Blank	113	112	111	116	113	105	109	126
410-114237-5	05-2023 NW UST	92	109	110	125	114	109	105	202 *5+ cn
410-114237-5 - DL	05-2023 NW UST								
410-114237-6	06-2023 NW UST	97	110	114	130	119	114	110	209 *5+ cn
410-114237-6 - DL	06-2023 NW UST								
410-114237-7	07-2023 Pump House Blank	108	100	113	132	120	122	111	130
410-114237-8	08-2023 Pump House Tank	0.8 *5- cn	3 *5- cn	13 *5- cn	308 *5+ cn	109 cn	1213 *5+ cn	6224 *5+ cn	0.3 *5- cn
410-114237-8 - DL	08-2023 Pump House Tank	0.8 *5-							
410-114237-9	09-2023 Pump House Tank	0.5 *5- cn	2 *5- cn	5 *5- cn	0.1 *5- cn	106 cn	100 cn	7615 *5+ cn	0.3 *5- cn
410-114237-9 - DL	09-2023 Pump House Tank	0.2 *5-		4 *5-					
410-114237-9 - DL2	09-2023 Pump House Tank								
LCS 410-345615/3-A	Lab Control Sample	129	123	126	129	131	132	128	132
LCSD 410-345615/4-A	Lab Control Sample Dup	128	129	118	127	123	116	118	134
MB 410-345615/1-A	Method Blank	111	120	111	121	109	110	120	126

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	C3PFHS (28-188)	C8PFOS (51-159)	d3NMFOS (31-174)	d5NEFOS (29-195)	HFPODA (17-185)	13C7PUA (34-174)		
410-114237-1	01-2023 SE UST Blank	124	137	157	153	89	127		
410-114237-2	02-2023 SE UST	119	129	107	132	77	124		
410-114237-2 - DL	02-2023 SE UST		100						
410-114237-3	03-2023 SE UST	121 cn	137 cn	128 cn	167 cn	61 cn	148 cn		
410-114237-3 - DL	03-2023 SE UST		126 cn						
410-114237-4	04-2023 NW UST Blank	119	123	112	119	90	111		
410-114237-5	05-2023 NW UST	123	122	102	127	70	119		
410-114237-5 - DL	05-2023 NW UST		107						
410-114237-6	06-2023 NW UST	128	124	111	130	75	119		
410-114237-6 - DL	06-2023 NW UST		106						
410-114237-7	07-2023 Pump House Blank	107	125	143	173	58	135		
410-114237-8	08-2023 Pump House Tank	27 *5- cn	1745 *5+ cn	379 *5+ cn	1891 *5+ cn	0.3 *5- cn	1640 *5+ cn		
410-114237-8 - DL	08-2023 Pump House Tank		113						
410-114237-9	09-2023 Pump House Tank	11 *5- cn	0.7 *5- cn	148 cn	783 *5+ cn	0.2 *5- cn	2006 *5+ cn		
410-114237-9 - DL	09-2023 Pump House Tank	0.7 *5-							
410-114237-9 - DL2	09-2023 Pump House Tank		86						
LCS 410-345615/3-A	Lab Control Sample	131	136	131	129	107	129		
LCSD 410-345615/4-A	Lab Control Sample Dup	134	134	133	127	109	125		
MB 410-345615/1-A	Method Blank	121	123	119	131	88	117		

Surrogate Legend

13C5PHA = 13C5 PFHxA
C4PFHA = 13C4 PFHpA

Isotope Dilution Summary

Client: Miller Consulting Enterprises, LLC
Job ID: 410-114237-1
Project/Site: Biddle AB B201

C8PFOA = 13C8 PFOA
C9PFNA = 13C9 PFNA
C6PFDA = 13C6 PFDA
PFDoDA = 13C2-PFDoDA
PFTDA = 13C2 PFTeDA
C3PFBS = 13C3 PFBS
C3PFHS = 13C3 PFHxS
C8PFOS = 13C8 PFOS
d3NMFOS = d3-NMeFOSAA
d5NEFOS = d5-NEtFOSAA
HFPODA = 13C3 HFPO-DA
13C7PUA = 13C7 PFUnA

Method: 537 IDA - EPA 537 Isotope Dilution

Lab Sample ID: MB 410-345615/1-A
Matrix: Water
Analysis Batch: 346591

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 345615

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid	ND		2.0	0.20	ng/L		02/17/23 08:41	02/22/23 03:40	1
Perfluoroheptanoic acid	ND		2.0	0.30	ng/L		02/17/23 08:41	02/22/23 03:40	1
Perfluorooctanoic acid	ND		2.0	0.30	ng/L		02/17/23 08:41	02/22/23 03:40	1
Perfluorononanoic acid	ND		2.0	0.20	ng/L		02/17/23 08:41	02/22/23 03:40	1
Perfluorodecanoic acid	ND		2.0	0.30	ng/L		02/17/23 08:41	02/22/23 03:40	1
Perfluorotridecanoic acid	ND		2.0	0.40	ng/L		02/17/23 08:41	02/22/23 03:40	1
Perfluorotetradecanoic acid	ND		2.0	0.40	ng/L		02/17/23 08:41	02/22/23 03:40	1
Perfluorobutanesulfonic acid	ND		2.0	0.30	ng/L		02/17/23 08:41	02/22/23 03:40	1
Perfluorohexanesulfonic acid	ND		2.0	0.20	ng/L		02/17/23 08:41	02/22/23 03:40	1
Perfluorooctanesulfonic acid	ND		2.0	0.50	ng/L		02/17/23 08:41	02/22/23 03:40	1
NEtFOSAA	ND		2.0	0.50	ng/L		02/17/23 08:41	02/22/23 03:40	1
NMeFOSAA	ND		2.0	0.40	ng/L		02/17/23 08:41	02/22/23 03:40	1
Perfluorododecanoic acid	ND		2.0	0.40	ng/L		02/17/23 08:41	02/22/23 03:40	1
HFPODA	ND		2.0	0.40	ng/L		02/17/23 08:41	02/22/23 03:40	1
9Cl-PF3ONS	ND		2.0	0.50	ng/L		02/17/23 08:41	02/22/23 03:40	1
11Cl-PF3OUdS	ND		2.0	0.50	ng/L		02/17/23 08:41	02/22/23 03:40	1
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND		2.0	0.50	ng/L		02/17/23 08:41	02/22/23 03:40	1
Perfluoroundecanoic acid	ND		2.0	0.30	ng/L		02/17/23 08:41	02/22/23 03:40	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C5 PFHxA	*111*		*24 - 179*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
13C4 PFHpA	*120*		*31 - 182*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
13C8 PFOA	*111*		*48 - 162*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
13C9 PFNA	*121*		*51 - 167*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
13C6 PFDA	*109*		*49 - 163*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
13C2-PFDoDA	*110*		*17 - 176*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
13C2 PFTeDA	*120*		*10 - 179*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
13C3 PFBS	*126*		*16 - 200*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
13C3 PFHxS	*121*		*28 - 188*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
13C8 PFOS	*123*		*51 - 159*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
d3-NMeFOSAA	*119*		*31 - 174*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
d5-NEtFOSAA	*131*		*29 - 195*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
13C3 HFPO-DA	*88*		*17 - 185*	*02/17/23 08:41*	*02/22/23 03:40*	*1*
13C7 PFUnA	*117*		*34 - 174*	*02/17/23 08:41*	*02/22/23 03:40*	*1*

Lab Sample ID: LCS 410-345615/3-A
Matrix: Water
Analysis Batch: 346591

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345615

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Perfluorohexanoic acid	25.6	18.2		ng/L		71	58 - 139
Perfluoroheptanoic acid	25.6	19.2		ng/L		75	59 - 145
Perfluorooctanoic acid	25.6	19.0		ng/L		74	51 - 145
Perfluorononanoic acid	25.6	19.5		ng/L		76	61 - 139
Perfluorodecanoic acid	25.6	16.8		ng/L		65	56 - 138
Perfluorotridecanoic acid	25.6	17.6		ng/L		69	58 - 146
Perfluorotetradecanoic acid	25.6	18.1		ng/L		71	62 - 139
Perfluorobutanesulfonic acid	22.7	16.4		ng/L		72	53 - 138

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCS 410-345615/3-A
Matrix: Water
Analysis Batch: 346591

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 345615

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Perfluorohexanesulfonic acid			23.3	17.0		ng/L		73	58 - 134		
Perfluorooctanesulfonic acid			23.7	16.2		ng/L		68	45 - 150		
NEtFOSAA			25.6	19.1		ng/L		75	55 - 134		
NMeFOSAA			25.6	18.9		ng/L		74	59 - 140		
Perfluorododecanoic acid			25.6	18.4		ng/L		72	59 - 143		
HFPODA			25.6	20.7		ng/L		81	50 - 135		
9Cl-PF3ONS			23.8	17.3		ng/L		73	59 - 135		
11Cl-PF3OUdS			23.8	17.0		ng/L		71	53 - 139		
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			24.2	17.4		ng/L		72	55 - 143		
Perfluoroundecanoic acid			25.6	18.9		ng/L		74	60 - 141		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C5 PFHxA	*129*		*24 - 179*
13C4 PFHpA	*123*		*31 - 182*
13C8 PFOA	*126*		*48 - 162*
13C9 PFNA	*129*		*51 - 167*
13C6 PFDA	*131*		*49 - 163*
13C2-PFDoDA	*132*		*17 - 176*
13C2 PFTeDA	*128*		*10 - 179*
13C3 PFBS	*132*		*16 - 200*
13C3 PFHxS	*131*		*28 - 188*
13C8 PFOS	*136*		*51 - 159*
d3-NMeFOSAA	*131*		*31 - 174*
d5-NEtFOSAA	*129*		*29 - 195*
13C3 HFPO-DA	*107*		*17 - 185*
13C7 PFUnA	*129*		*34 - 174*

Lab Sample ID: LCSD 410-345615/4-A
Matrix: Water
Analysis Batch: 346591

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 345615

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Perfluorohexanoic acid			25.6	19.6		ng/L		76	58 - 139	7	30
Perfluoroheptanoic acid			25.6	20.2		ng/L		79	59 - 145	5	30
Perfluorooctanoic acid			25.6	21.2		ng/L		83	51 - 145	11	30
Perfluorononanoic acid			25.6	20.8		ng/L		81	61 - 139	6	30
Perfluorodecanoic acid			25.6	18.5		ng/L		72	56 - 138	10	30
Perfluorotridecanoic acid			25.6	19.8		ng/L		77	58 - 146	12	30
Perfluorotetradecanoic acid			25.6	19.9		ng/L		78	62 - 139	10	30
Perfluorobutanesulfonic acid			22.7	17.7		ng/L		78	53 - 138	8	30
Perfluorohexanesulfonic acid			23.3	18.1		ng/L		78	58 - 134	6	30
Perfluorooctanesulfonic acid			23.7	17.2		ng/L		73	45 - 150	6	30
NEtFOSAA			25.6	19.6		ng/L		76	55 - 134	2	30
NMeFOSAA			25.6	20.4		ng/L		80	59 - 140	8	30
Perfluorododecanoic acid			25.6	21.5		ng/L		84	59 - 143	15	30
HFPODA			25.6	20.4		ng/L		80	50 - 135	2	30
9Cl-PF3ONS			23.8	18.4		ng/L		77	59 - 135	6	30
11Cl-PF3OUdS			23.8	17.9		ng/L		75	53 - 139	5	30

Method: 537 IDA - EPA 537 Isotope Dilution (Continued)

Lab Sample ID: LCSD 410-345615/4-A
Matrix: Water
Analysis Batch: 346591

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 345615

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)			24.2	18.5		ng/L		77	55 - 143	6	30
Perfluoroundecanoic acid			25.6	20.1		ng/L		79	60 - 141	6	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C5 PFHxA	*128*		*24 - 179*
13C4 PFHpA	*129*		*31 - 182*
13C8 PFOA	*118*		*48 - 162*
13C9 PFNA	*127*		*51 - 167*
13C6 PFDA	*123*		*49 - 163*
13C2-PFDoDA	*116*		*17 - 176*
13C2 PFTeDA	*118*		*10 - 179*
13C3 PFBS	*134*		*16 - 200*
13C3 PFHxS	*134*		*28 - 188*
13C8 PFOS	*134*		*51 - 159*
d3-NMeFOSAA	*133*		*31 - 174*
d5-NEtFOSAA	*127*		*29 - 195*
13C3 HFPO-DA	*109*		*17 - 185*
13C7 PFUnA	*125*		*34 - 174*

LCMS

Prep Batch: 345615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-114237-1	01-2023 SE UST Blank	Total/NA	Water	SPE	
410-114237-2	02-2023 SE UST	Total/NA	Water	SPE	
410-114237-2 - DL	02-2023 SE UST	Total/NA	Water	SPE	
410-114237-3	03-2023 SE UST	Total/NA	Water	SPE	
410-114237-3 - DL	03-2023 SE UST	Total/NA	Water	SPE	
410-114237-4	04-2023 NW UST Blank	Total/NA	Water	SPE	
410-114237-5	05-2023 NW UST	Total/NA	Water	SPE	
410-114237-5 - DL	05-2023 NW UST	Total/NA	Water	SPE	
410-114237-6	06-2023 NW UST	Total/NA	Water	SPE	
410-114237-6 - DL	06-2023 NW UST	Total/NA	Water	SPE	
410-114237-7	07-2023 Pump House Blank	Total/NA	Water	SPE	
410-114237-8 - DL	08-2023 Pump House Tank	Total/NA	Water	SPE	
410-114237-8	08-2023 Pump House Tank	Total/NA	Water	SPE	
410-114237-9 - DL	09-2023 Pump House Tank	Total/NA	Water	SPE	
410-114237-9 - DL2	09-2023 Pump House Tank	Total/NA	Water	SPE	
410-114237-9	09-2023 Pump House Tank	Total/NA	Water	SPE	
MB 410-345615/1-A	Method Blank	Total/NA	Water	SPE	
LCS 410-345615/3-A	Lab Control Sample	Total/NA	Water	SPE	
LCSD 410-345615/4-A	Lab Control Sample Dup	Total/NA	Water	SPE	

Analysis Batch: 346591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-114237-1	01-2023 SE UST Blank	Total/NA	Water	537 IDA	345615
410-114237-2	02-2023 SE UST	Total/NA	Water	537 IDA	345615
410-114237-3	03-2023 SE UST	Total/NA	Water	537 IDA	345615
410-114237-4	04-2023 NW UST Blank	Total/NA	Water	537 IDA	345615
410-114237-5	05-2023 NW UST	Total/NA	Water	537 IDA	345615
410-114237-6	06-2023 NW UST	Total/NA	Water	537 IDA	345615
410-114237-7	07-2023 Pump House Blank	Total/NA	Water	537 IDA	345615
MB 410-345615/1-A	Method Blank	Total/NA	Water	537 IDA	345615
LCS 410-345615/3-A	Lab Control Sample	Total/NA	Water	537 IDA	345615
LCSD 410-345615/4-A	Lab Control Sample Dup	Total/NA	Water	537 IDA	345615

Analysis Batch: 347299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-114237-2 - DL	02-2023 SE UST	Total/NA	Water	537 IDA	345615
410-114237-3 - DL	03-2023 SE UST	Total/NA	Water	537 IDA	345615
410-114237-5 - DL	05-2023 NW UST	Total/NA	Water	537 IDA	345615
410-114237-6 - DL	06-2023 NW UST	Total/NA	Water	537 IDA	345615
410-114237-8	08-2023 Pump House Tank	Total/NA	Water	537 IDA	345615
410-114237-8 - DL	08-2023 Pump House Tank	Total/NA	Water	537 IDA	345615
410-114237-9	09-2023 Pump House Tank	Total/NA	Water	537 IDA	345615
410-114237-9 - DL	09-2023 Pump House Tank	Total/NA	Water	537 IDA	345615
410-114237-9 - DL2	09-2023 Pump House Tank	Total/NA	Water	537 IDA	345615

Prep Batch: 348792

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-114237-8 - RE	08-2023 Pump House Tank	Total/NA	Water	SPE	
410-114237-9 - RE	09-2023 Pump House Tank	Total/NA	Water	SPE	
MB 410-348792/1-A	Method Blank	Total/NA	Water	SPE	
LCS 410-348792/2-A	Lab Control Sample	Total/NA	Water	SPE	

QC Association Summary

Client: Miller Consulting Enterprises, LLC
Project/Site: Biddle AB B201

Job ID: 410-114237-1

LCMS

Analysis Batch: 349425

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 410-348792/1-A	Method Blank	Total/NA	Water	537 IDA	348792
LCS 410-348792/2-A	Lab Control Sample	Total/NA	Water	537 IDA	348792

Analysis Batch: 349980

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-114237-9 - RE	09-2023 Pump House Tank	Total/NA	Water	537 IDA	348792

Analysis Batch: 351001

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
410-114237-8 - RE	08-2023 Pump House Tank	Total/NA	Water	537 IDA	348792

Lab Chronicle

Client: Miller Consulting Enterprises, LLC
Project/Site: Biddle AB B201

Job ID: 410-114237-1

Client Sample ID: 01-2023 SE UST Blank
Lab Sample ID: 410-114237-1
Date Collected: 02/03/23 10:00
Matrix: Water
Date Received: 02/03/23 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SPE			345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA		1	346591	VK3G	ELLE	02/22/23 04:24

Client Sample ID: 02-2023 SE UST
Lab Sample ID: 410-114237-2
Date Collected: 02/03/23 10:00
Matrix: Water
Date Received: 02/03/23 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SPE			345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA		1	346591	VK3G	ELLE	02/22/23 04:35
Total/NA	Prep	SPE	DL		345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA	DL	10	347299	I5JH	ELLE	02/23/23 14:30

Client Sample ID: 03-2023 SE UST
Lab Sample ID: 410-114237-3
Date Collected: 02/03/23 10:00
Matrix: Water
Date Received: 02/03/23 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SPE			345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA		1	346591	VK3G	ELLE	02/22/23 04:47
Total/NA	Prep	SPE	DL		345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA	DL	10	347299	I5JH	ELLE	02/23/23 14:41

Client Sample ID: 04-2023 NW UST Blank
Lab Sample ID: 410-114237-4
Date Collected: 02/03/23 10:00
Matrix: Water
Date Received: 02/03/23 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SPE			345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA		1	346591	VK3G	ELLE	02/22/23 04:58

Client Sample ID: 05-2023 NW UST
Lab Sample ID: 410-114237-5
Date Collected: 02/03/23 10:00
Matrix: Water
Date Received: 02/03/23 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SPE			345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA		1	346591	VK3G	ELLE	02/22/23 05:09
Total/NA	Prep	SPE	DL		345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA	DL	10	347299	I5JH	ELLE	02/23/23 14:52

Lab Chronicle

Client: Miller Consulting Enterprises, LLC
Project/Site: Biddle AB B201

Job ID: 410-114237-1

Client Sample ID: 06-2023 NW UST
Lab Sample ID: 410-114237-6
Date Collected: 02/03/23 10:00
Matrix: Water
Date Received: 02/03/23 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SPE			345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA		1	346591	VK3G	ELLE	02/22/23 05:20
Total/NA	Prep	SPE	DL		345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA	DL	10	347299	I5JH	ELLE	02/23/23 15:03

Client Sample ID: 07-2023 Pump House Blank
Lab Sample ID: 410-114237-7
Date Collected: 02/03/23 10:00
Matrix: Water
Date Received: 02/03/23 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SPE			345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA		1	346591	VK3G	ELLE	02/22/23 05:31

Client Sample ID: 08-2023 Pump House Tank
Lab Sample ID: 410-114237-8
Date Collected: 02/03/23 10:00
Matrix: Water
Date Received: 02/03/23 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SPE	RE		348792	JU9U	ELLE	02/28/23 15:11
Total/NA	Analysis	537 IDA	RE	1	351001	QD9Y	ELLE	03/07/23 22:44
Total/NA	Prep	SPE			345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA		1	347299	I5JH	ELLE	02/23/23 15:14
Total/NA	Prep	SPE	DL		345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA	DL	10	347299	I5JH	ELLE	02/23/23 15:25

Client Sample ID: 09-2023 Pump House Tank
Lab Sample ID: 410-114237-9
Date Collected: 02/03/23 10:00
Matrix: Water
Date Received: 02/03/23 12:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	SPE	RE		348792	JU9U	ELLE	02/28/23 15:11
Total/NA	Analysis	537 IDA	RE	1	349980	UUV6	ELLE	03/04/23 06:55
Total/NA	Prep	SPE			345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA		1	347299	I5JH	ELLE	02/23/23 15:47
Total/NA	Prep	SPE	DL		345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA	DL	10	347299	I5JH	ELLE	02/23/23 15:58
Total/NA	Prep	SPE	DL2		345615	M4QQ	ELLE	02/17/23 08:41
Total/NA	Analysis	537 IDA	DL2	100	347299	I5JH	ELLE	02/23/23 16:10

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Accreditation/Certification Summary

Client: Miller Consulting Enterprises, LLC
Job ID: 410-114237-1
Project/Site: Biddle AB B201

Laboratory: Eurofins Lancaster Laboratories Environment Testing, LLC

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Pennsylvania	NELAP	36-00037	01-31-24

Method Summary

Client: Miller Consulting Enterprises, LLC
Project/Site: Biddle AB B201

Job ID: 410-114237-1

Method	Method Description	Protocol	Laboratory
537 IDA	EPA 537 Isotope Dilution	EPA	ELLE
SPE	PFAS by SPE	Lab SOP	ELLE

Protocol References:

EPA = US Environmental Protection Agency

Lab SOP = Laboratory Standard Operating Procedure

Laboratory References:

ELLE = Eurofins Lancaster Laboratories Environment Testing, LLC, 2425 New Holland Pike, Lancaster, PA 17601, TEL (717)656-2300

Sample Summary

Client: Miller Consulting Enterprises, LLC
Project/Site: Biddle AB B201

Job ID: 410-114237-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
410-114237-1	01-2023 SE UST Blank	Water	02/03/23 10:00	02/03/23 12:20
410-114237-2	02-2023 SE UST	Water	02/03/23 10:00	02/03/23 12:20
410-114237-3	03-2023 SE UST	Water	02/03/23 10:00	02/03/23 12:20
410-114237-4	04-2023 NW UST Blank	Water	02/03/23 10:00	02/03/23 12:20
410-114237-5	05-2023 NW UST	Water	02/03/23 10:00	02/03/23 12:20
410-114237-6	06-2023 NW UST	Water	02/03/23 10:00	02/03/23 12:20
410-114237-7	07-2023 Pump House Blank	Water	02/03/23 10:00	02/03/23 12:20
410-114237-8	08-2023 Pump House Tank	Water	02/03/23 10:00	02/03/23 12:20
410-114237-9	09-2023 Pump House Tank	Water	02/03/23 10:00	02/03/23 12:20

410-114237 Chain of Custody

Eurofins Lancaster Laboratories Env, LLC
2425 New Holland Pike
Lancaster, PA 17601
Phone (717) 656-2300

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: TODD EAKIN	Lab PM:	Carrier Tracking No(s):	COC No:
Client Contact: Miller Consulting	Phone: 717-644-7541	E-Mail:	State of Origin:	Page:
Company: Miller Consulting Inc	PWSID:	Analysis Requested		Job #:
Address: 18 Rexmont Rd	Due Date Requested:			Preservation Codes:
City: Lebanon	TAT Requested (days):			A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:
State, Zip: PA 17042	Compliance Project: Δ Yes Δ No			
Phone: 717-269-5941	PO #:			
Email: millerc12@verizon.net	WO #:			
Project Name: BIDDLE AB B201	Project #:			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC TOA - PFAS by Compendium	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
01-2023 SE UST Blank	2/3/23	1000	G	Water			X		
02-2023 SE UST	2/3/23	1000	G	Water			X		
03-2023 SE UST	2/3/23	1000	G	Water			X		
04-2023 NW UST Blank	2/3/23	1000	G	Water			X		
05-2023 NW UST	2/3/23	1000	G	Water			X		
06-2023 NW UST	2/3/23	1000	G	Water			X		
07-2023 Pump House Blank	2/3/23	1000	G	Water			X		
08-2023 Pump House Tank	2/3/23	1000	G	Water			X		
09-2023 Pump House Tank	2/3/23	1000	G	Water			X		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Sal - TODD EAKIN	2/3/23 1230	NC, Inc			
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
				2/3/23 1220	LCE

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:
		8.4

Ver: 01/16/2019

Login Sample Receipt Checklist

Client: Miller Consulting Enterprises, LLC

Job Number: 410-114237-1

Login Number: 114237
List Number: 1
Creator: McCaskey, Jonathan

List Source: Eurofins Lancaster Laboratories Environment Testing, LLC

Question	Answer	Comment
The cooler's custody seal is intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable (</=6C, not frozen).	False	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
WV: Container Temperature is acceptable (</=6C, not frozen).	N/A	
WV: Container Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses.	True	
Is the Field Sampler's name present on COC?	True	
Sample custody seals are intact.	N/A	
VOA sample vials do not have headspace >6mm in diameter (none, if from WV)?	N/A	

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APPENDIX D

PROPOSAL FOR FIRE SUPPRESSION SYSTEM CLEANING

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APPENDIX E

SCOPE OF WORK FOR UST REMOVAL

STATEMENT OF WORK/REQUIREMENTS
REMOVAL OF UNDERGROUND STORAGE TANKS
PENNSYLVANIA DEPARTMENT OF MILITARY AND VETERANS AFFAIRS

PROJECT OVERVIEW: This project for the Biddle Air National Guard (ANG) Air Base (AB) will involve removing two (2) 5,000-gallon single wall steel holding tanks. The tanks are believed to be installed in the late 70's or early 80's. The USTs are located off the northeast and southwest corners of hanger B201at Biddle Air National Guard Air Base, Horsham, PA. The area covering and surrounding the USTs is asphalt, a concrete pad is covering the USTs. The USTs should be empty. No product of any kind should be present. If product is present in UST's, it MUST be sampled for PFAS 18 Compounds prior to evacuation.

SCOPE OF WORK: The project consists of, but is not necessarily limited to the following tasks:

A. Mobilization

1. The Contractor shall furnish all materials, labor, equipment, tools, transportation, supervision, notifications, licenses, certifications, permits, and miscellaneous items that are required to perform all tasks necessary to Excavate, remove, clean, transport, recycle, and dispose of all materials associated with the underground storage tank in accordance with this Statement of Work (SOW), all local, state, federal, Department of Defense (DOD), Installation, and Air requirements, and to the approval of the PA DMVA.

B. Excavate, Remove, Clean, and Dispose of USTs and Associated Piping and Equipment.

1. The Contractor shall clearly mark the area(s) to be excavated and is responsible for the protection of all service and utility lines in the excavation areas.

2. The Contractor shall excavate, remove, and clean the USTs and associated piping on site. The tank dimensions and configuration are unknown. They are covered by a 4" thick 10ft x 19ft concrete pad. There are also 12 bollards surrounding each slab. Each bollard is made of concrete and the dimensions are 4.5-feet tall with a 6.5-inch diameter. The Contractor is responsible for transporting the USTs and piping to an approved recycling/disposal facility and for providing cleaning and disposal receipts for the tank and all piping materials removed off site.

3. If either UST #1 or #2 contains any product during UST removal recon. The product must be sampled for PFAS 18 compounds prior to removal. Once analytical results are known, and disposal method and location identified. The Contractor must evacuate any product, water, sludge, etc. present in the USTs. The removal must be conducted in a manner that prevents spillage on adjacent surfaces and areas and legally dispose of any remaining residue/sludge from the tanks in accordance with all applicable federal, state, local, Department of Defense (DOD), and Army requirements. The Contractor shall provide a copy of any waste analysis and manifest/shipping paper to the DMVA within 10 days of disposal.

4. The Contractor shall provide adequate and continuous erosion and sedimentation control for all earth-disturbing activities in compliance with all regulations and good practice; prevent surface water from entering the excavation. Provide needed dewatering of the excavation due to surface water or precipitation. If surface water enters the excavation, removal, sampling, analysis, and disposal costs, as appropriate, shall be borne by the Contractor.

5. It is anticipated that groundwater will be encountered during the excavation. Groundwater in the vicinity of the tanks is expected to be at a depth of 5 ft or so based on the latest groundwater round conducted in Nov 2022. Once cleaned, any fluid in the tanks is likely to be groundwater. Shallow groundwater in this area is expected to have 5,000 - 10,000 ppt PFOA+PFOS. If ground water is encountered and evidence of contamination exists, provide for the proper handling, and disposal. Contaminated groundwater shall not be removed from the excavation.

C. Collect and Analyze Soil and Water Samples

1. The Contractor is responsible for collecting, transporting, and obtaining analysis of the appropriate number of soil and groundwater samples to comply with PADEP tank closure requirements. These USTs are not currently regulated by PADEP. However, I am treating these tanks as if they were regulated so sampling protocols must be followed. Analysis shall be performed by a PADEP certified laboratory.

D. Excavate and Stockpile Contaminated Soil

1. The Contractor shall identify, segregate and provide protective storage of contaminated soils from the UST excavation if necessary. Impervious materials are to be segregated from soils and properly disposed of offsite. Clean soil and impervious material shall be stockpiled separately from contaminated soil. Saturated soil shall be placed in a separate pile and location, on plastic, and covered.

E. Backfill Excavation and Surface Restoration

1. The Contractor shall backfill and compact all excavated areas to grade with PADOT No. 2A-modified stone (PADOT No. 2B stone backfill shall be used in standing water) and restore the surface to grass. So, topsoil and finally reseeding of the area will be necessary.

F. Other Contractor Responsibilities

1. The Contractor shall develop a Health and Safety Plan in accordance with applicable requirements of Occupational Safety and Health Standards (29 CFR 1910). The Contractor shall be responsible for implementing this plan. The DMVA and their representatives will assume no responsibility for the health and safety procedures implemented on the Site by the Contractor, nor will they be responsible for enforcing the established Contractor's procedures. The Contractor shall take all reasonable precautions in the

performance of the work under this contract to protect the safety and health of employees, members of the public and to protect the environment. This includes compliance with all the applicable environmental, safety, and health regulations.

2. The Contractor shall initiate cleanup action of any spill immediately upon discovery, and shall immediately report any spills or releases of any hazardous material or hazardous substance on the installation that cannot be safely or effectively stopped and cleaned by the Contractor to the Emergency Service call center by phoning 911. The Contractor shall be solely responsible for any spills or releases which occur as the result of the actions of its agents and/or personnel during the performance of this contract. Contractor shall clean any spill or release to the satisfaction of the DMVA in a manner that complies with applicable federal, state, and local regulations. Clean up shall be at no cost to the government.

3. If contaminated soil is encountered during the UST removal, the Contractor shall not remove contaminated soil beyond 3 feet of the limits of the original excavation in any direction. Contaminated soil shall be stockpiled on and covered with construction grade plastic sheeting maintained by the contractor to prevent migration of contamination, precipitation runoff, and hazards to the public. The Contractor shall provide unit pricing for excavation, stockpiling, and disposal of contaminated soil as per the Bid Documents.

4. The Contractor shall provide a copy of the following items:
    i. Copies of laboratory chain of custody and waste manifests for all soil, UST residuals and water wastes;
    ii. Copies of all tank and piping cleaning methodology and salvage receipts;
    iii. Photos of UST, excavated sites, and segregated soil piles. Photos shall be digital, and an adequate number to describe and demonstrate actual Site conditions.

CONTRACTOR OBLIGATIONS: The Contractor shall furnish all materials, labor, equipment, tools, transportation, supervision, notifications, licenses, certifications, permits, and miscellaneous items that are required to perform all tasks necessary to excavate, remove, clean, transport, recycle, and dispose of all materials associated with the underground storage tank in accordance with this Statement of Work (SOW), all local, state, federal, Department of Defense (DOD), Installation, and Army requirements, and to the approval of the DMVA..

All site work should be coordinated with the Environmental Engineer, Mr. Lee dePersia, PE for Biddle Air National Guard (ANG) Base, Horsham PA lee.depersia.3@us.af.mil 484-678-7235.

STRAIGHT TIME/OVERTIME: All work performed during normal working hours 7:00 am to 4:00pm will be paid at straight time rates. Approval from an authorized PA ANG Biddle AB Staff Member FCMM or Certified Contracting Officer (CO) Contracting Officer

Representative (COR) must be obtained prior to performing work beyond normal working hours.

TERM OF CONTRACT: The term of the Contract shall commence on the Effective Date (as defined) and shall end on the Expiration Date identified in the Contract, subject to the other provisions of the Contract. The Effective Date shall be: a) the Effective Date printed on the Contract after the Contract has been fully executed by the Commonwealth (signed and approved as required by Commonwealth contracting procedures) or b) the "Valid from" date printed on the Contract, whichever is later.

PRICING AND BILLING REQUIREMENTS: Awarded Contractor shall invoice in accordance with the Purchase Order. Services must be performed prior to invoicing for payment. Any/all parts and Labor pricing for inspection must be included and be in accordance with the DGS Statewide contract for Security & Surveillance. For these specific services, pricing should be based on a cost per inspection/testing. Upon completion of services, the Vendor will invoice and be paid in a one lump increment.

Parts will be billed against an established line item in the awarded contract and the awarded Contractor may be required to provide verification of costs. The awarded Contractor can only bill for parts necessary to make requested repairs. Need of these parts must be verified and authorized by the Facility Maintenance Manager or designee unless the part is deemed as an emergency requirement. Parts can only be billed at manufacturer's catalog pricing with no more than a 3% upcharge.

ESTIMATED QUANTITIES/LIKE SERVICES: Quantities will be estimated. DMVA reserves the right to increase or decrease quantities based on actual need. The Contractor will be paid for services and supplies satisfactorily delivered. Any quantity increases or decreases must be preapproved by the POC, reference, *Awarded Contractor Document Provision* clause paragraph prior to delivery of the goods or services. DMVA reserves the right to include additional like services to the contract if a future need arises.

MANDATORY PRE-BID SITE VISIT: No site visit is required. If you have any questions, please email Mr. Lee dePersia at lee.depersia.3@us.af.mil . All questions must be in email form and submitted by _____.

FACILITY ACCESS: All individuals working on-site for the awarded Contractor or Subcontractors will be required to coordinate with Mr. Lee dePersia to obtain access to the base. Contractor shall provide notice to Mr. dePersia at least 72 hrs (working hours) prior to needing access. Mr. dePersia will provide instructions and forms to be completed to gain access.

SUB-CONTRACTING: For this particular Contract for services, there will be partial sub-contracting allowed. Sub-contracted services used by the Awarded Contractor will be at the expense of the Awarded Contractor and will not be the obligation of DMVA for payment.

QUALIFICATION/SCOPE OF WORK CHANGES: DMVA reserves the right to change qualifications and or scope to enhance the success of the service.

DOCUMENT PROVISION: The awarded Contractor is responsible for providing all required documentation, *Ref. paragraph #,* to the PA ANG POC:

Lee dePersia, PE, Environmental Engineer
111th ATKW/CES/CEV
164 McGuire St., Horsham, PA 19044
Telephone: 215-323-8387; Cell: 484-678-7235
Email Address: lee.dePersia.3@us.af.mil

WORK LOCATION SECURITY: The Contractor shall follow all required security procedures at the worksite for signing in and out, obtaining and displaying contractor badges or other necessary identification or other requirements as deemed necessary by DMVA. Particularly sensitive areas may require Commonwealth staff to accompany Contractor representatives. These procedures may vary from work location to work location and must be adhered to.

COMPLIANCE: All services provided must be compliant with the most current applicable Federal, State, and Local Standards, Laws and Regulations. In any event where the awarded Contractor creates a scenario where the Contracting Agency is found to be out of compliance with any Federal, State, and Local Standards, Laws and Regulations (Department of Health, Labor & Industry, etc.), the awarded Contractor will be liable and responsible for any damages (Administrative, Operational, Monetary) suffered by DMVA. All non-compliance issues must be addressed and resolved by the awarded Contractor within (48) forty eight hours of notification by DMVA.

SERVICE DEFICIENCIES: DMVA will notify awarded Contractor verbally and in writing of any unsatisfactory services rendered. The Contractor shall correct the deficiency within (10) ten days after such notification.

OPTION TO EXTEND: DMVA reserves the right, upon notice to the Contractor, to extend the Contract or any part of the Contract for up to 90 days under the same Terms and Conditions. This will be utilized to prevent a lapse in Contract coverage and only for the time necessary, up to 90 days, to enter into a new Contract.