ADDENDUM NO. 1

FOR

CAESARS LANE WWTP EXPANSION PHASE 1
CDBG-DR
FEDERAL CONTRACT NUMBER B-12-UT-36-0001

TOWN OF NEW WINDSOR
ORANGE COUNTY, NEW YORK

CLIENT:
Town of New Windsor
555 Union Avenue
New Windsor, NY 12553

PREPARED BY:
MHE Engineering, D.P.C.
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New Windsor, NY 12553

Addition to this Document is a
Violation of Section 7209(2)
of the New York State Education Law.

DATE: 20 December 2024
JOB #: 18-732.1

THIS ADDENDUM CONSISTS OF TWO HUNDRED TWENTY-NINE (229) PAGES

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CAESARS LANE WWTP EXPANSION PHASE 1
ADDENDUM NO. 1

Prospective Bidders are advised of the following revisions, additions and/or deletions to the contract documents.

1. **SPECIFICATIONS:**

    1. Replace Specification Table of Contents with revised Specifications Table of Contents – R1
    2. Replace 015000 – Temporary Facilities and Controls with revised 015000 – Temporary Facilities and Controls – R1
    3. Replace 040110 – Masonry Cleaning with revised 040110 – Masonry Cleaning – R1
    4. Replace 042613 – Masonry Veneer with revised 042613 – Masonry Veneer – R1
    5. Replace 061600 – Sheathing with revised 061600 – Sheathing – R1
    6. Add 102123 – Cubicle Curtains and Track
    7. Add 114100 – Laboratory Equipment
    8. Add 115313 – Laboratory Fume Hoods
    9. Replace 123553.13 – Metal Laboratory Casework with revised 123553.13 – Metal Laboratory Casework – R1

2. **EXHIBITS:**

    1. Replace Exhibit A-1 Specifications – QuES&T with revised Exhibit A-1-R Specifications – QuES&T
    2. Add Exhibit A-3 – Pre-Demolition/Pre-Renovation Inspection For Asbestos-Containing Materials (ACM) by QuES&T dated 18 May 2019.

3. **SUPPLEMENTARY CONDITIONS:**

    1. Replace Supplementary Conditions – C-800 with revised Supplementary Conditions – R1 – C-800 – R1

4. **PLAN SET:**

    1. Replace Plan Sheet T-102 dated 21 November 2024 with Sheet T-102 dated 20 December 2024
    2. Replace Plan Sheet C-105 dated 21 November 2024 with Sheet C-105 dated 20 December 2024
    3. Add Plan Sheet C-108 dated 20 December 2024

ATTACHMENTS:

1. Specifications Table of Contents – R1
2. Specification 015000 – Temporary Facilities and Controls – R1
3. Specification 040110 – Masonry Cleaning – R1
4. Specification 042613 – Masonry Veneer – R1
5. Specification 061600 – Sheathing – R1
6. Specification 102123 – Cubicle Curtains and Track
7. Specification 114100 – Laboratory Equipment
8. Specification 115313 – Laboratory Fume Hoods
9. Specification 123553.13 – Metal Laboratory Casework – R1
10. Exhibit A-1-R Specifications – prepared by QuES&T
11. Exhibit A-3 - Pre-Demolition/Pre-Renovation Inspection For Asbestos-Containing Materials (ACM) prepared by QuES&T dated 18 May 2019.

12. Supplementary Conditions – R1 – C-800 - R1
13. Plan Sheet T-102 dated 20 December 2024
14. Plan Sheet C-105 dated 20 December 2024
15. Plan Sheet C-108 dated 20 December 2024

ALL BIDDERS MUST SUBMIT ACKNOWLEDGEMENT OF RECEIPT OF ALL ADDENDUMS WITH BID (PAGE 4 – A1 ATTACHED HEREIN)

CAESARS LANE WWTP EXPANSION PHASE 1
ADDENDUM NO. 1

ACKNOWLEDGEMENT OF RECEIPT OF ALL ADDENDUMS LISTED BELOW:

ADDENDUM NO. 1 – 20 December 2024 _____

SUBMIT THIS SHEET WITH YOUR BID

(End of Addendum No. 1)

MHE Engineering, D.P.C.
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SPECIFICATIONS TABLE OF CONTENTS - R1

052100	Steel Joist Framing
053100	Steel Decking
054000	Cold-Formed Metal Framing
054400	Cold-Formed Metal Trusses
055000	Metal Fabrications
055213	Pipe and Tube Railings

DIVISION 06 - WOOD, PLASTICS, AND COMPOSITES

061000	Rough Carpentry
061600	Sheathing
062023	Interior Finish Carpentry
064113	Wood Veneer Faced Architectural Cabinets

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

072100	Thermal Insulation
072119	Foamed-In-Place Insulation
072500	Weather Barriers
072600	Vapor Retarders
074113.16	Standing-Seam Metal Roof Panels
074213.13	Formed Metal Wall Panels
074293	Soffit Panels
074646	Fiber-Cement Siding
075323	Ethylene-Propylene-Diene Monomer Roofing
076200	Sheet Metal Flashing and Trim
077253	Snow Guards
079200	Joint Sealants

DIVISION 08 - OPENINGS

081113	Hollow Metal doors and Frames
081416	Flush Wood Doors
083113	Access Doors and Frames
083613	Sectional Doors
084113	Aluminum-Framed Entrances and Storefronts
085113	Aluminum Windows
087100	Door Hardware
087113	Automatic Door Operators
088000	Glazing
089119	Fixed Louvers

DIVISION 09 - FINISHES

092900	Gypsum Board
093013	Ceramic Tiling
095123	Acoustical Tile Ceilings
096512	Resilient Base and Accessories
096519	Resilient Tile Flooring
096813	Tile Carpeting
098116	Acoustic Blanket Insulation
099113	Exterior Painting
099123	Interior Painting

DIVISION 10 - SPECIALTIES

101423.16	Room-Identification Panel Signage
102113.19	Plastic Toilet Compartments
102123	Cubicle Curtains and Track
102800	Toilet, Bath and Laundry Accessories
104413	Fire Protection Cabinets
104416	Fire Extinguishers
105113	Metal Lockers

DIVISION 11 - EQUIPMENT

114000	Kitchen Equipment
114100	Laboratory Equipment
115313	Laboratory Fume Hoods

DIVISION 12 - FURNISHINGS

123553.13	Metal Laboratory Casework
123640	Stone Countertops
124813	Entrance Floor Mates and Frames

DIVISION 22 - PLUMBING

220510	Basic Plumbing Requirements
220515	Plumbing Firestopping
220516	Expansion Fitting and Loops for Plumbing Piping
220553	Plumbing Identification
220719	Plumbing Piping Insulation
221005	Plumbing Piping
221006	Plumbing Piping Specialties
223000	Plumbing Equipment

224000	Plumbing Fixtures

Division 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

230510	Basic Mechanical Requirements
230515	Mechanical Firestopping
230553	Identification for HVAC Piping and Equipment
230593	Testing, Adjusting, and Balancing for HVAC
230713	Duct Insulation
230719	Piping and Equipment Insulation
232300	Refrigerant Piping
233100	HVAC Ducts and Casings
233300	Air Duct Accessories
233416	Centrifugal HVAC Fans
233700	Air Outlets and Inlets
235400	Furnaces
235533	Unit Heaters
236313	Air Cooled Refrigerant Condensers

DIVISION 26 - ELECTRICAL

260501	Minor Electrical Demolition
260510	Basic Electrical Requirements
260515	Electrical Firestopping
260519	Low-Voltage Electrical Power Conductor and Cables
260526	Grounding and Bonding For Electrical Systems
260529	Hangers and Supports For Electrical Systems
260534	Conduit
260537	Boxes
260543	Underground Electrical Work
260553	Identification For Electrical Systems
260915	Fiber Optic Cabling
260922	Lighting Control Devices
262200	Low-Voltage Transformers
262416	Panelboards
262717	Equipment Wiring
262726	Wiring Devices
262813	Fuses
262818	Enclosed Switches
262913	Enclosed Controllers
264113	Lighting Protection
264300	Surge Protective Devices
265100	Interior Lighting

END OF TABLE OF CONTENTS

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS – R1

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.2 USE CHARGES

A. Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without payment of use charges so long as it does not interrupt plant operations. Provide connections and extensions of services as required for construction operations. Contractor to coordinate with plant operator.

C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges so long as it does not interrupt plant operations. Provide connections and extensions of services as required for construction operations. Contractor to coordinate with plant operator.

1.3 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

B. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content. See Supplementary Conditions, Article 18.

C. Erosion- and Sedimentation-Control Plan: Show compliance with requirements of SWPPP, attached hereto.

D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

E. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and requirements for replacing water-damaged Work.
2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
3. Indicate methods to be used to avoid trapping water in finished work.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in the United States Access Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.5 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

A. Field Offices: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.

B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Engineer, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:

1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot-square tack and marker boards.
3. Drinking water and private toilet.
4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.

5. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

C. Temporary Office Trailer for Plant Operator: Of sufficient size to accommodate temporary workstation for Plant Operator administrative staff if displaced during construction operations. Furnish and equip offices as follows:

1. For bidding purposes, assume an 8'x40' mobile office trailer will be required for duration of work within the existing plant control building or until new plant control building is operational, whichever time period is longer.

2. Furniture required for daily administrative operations including computers, desk space, chairs, file cabinets, plan tables, plan racks, and bookcases.
3. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle every 15' of wall.
4. Provide connection or access to plant's fiber internet service.
5. Drinking water and private toilet.
6. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
7. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
8. Temporary office trailer will be located generally adjacent to the existing plant control building. Exact location will be determined during construction.

2.2 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating, Cooling, and Dehumidifying Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in Section 017700 "Closeout Procedures."

C. Air-Filtration Units: Primary and secondary HEPA-filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers to municipal system or private system indicated as directed by authorities having jurisdiction.

C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

D. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

E. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

1. Provide temporary dehumidification systems when required to reduce ambient and substrate moisture levels to level required to allow installation or application of finishes and their proper curing or drying.

F. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.

G. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

1. Install electric power service overhead unless otherwise indicated.

H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

I. Electronic Communication Service: Provide secure WiFi wireless connection to internet with provisions for access by Architect and Owner.

J. Project IT: Provide IT equipment in primary field office and temporary operator office as follows:

1. Printer: "All-in-one" unit equipped with printer server, combining color printing, photocopying, scanning, and faxing, or separate units for each of these three functions.
2. Internet Service: Broadband modem, router, and ISP, equipped with hardware firewall, providing minimum 20.0 -Mbps upload and 100.0 -Mbps download speeds at each computer.

3.4 SUPPORT FACILITIES INSTALLATION

A. Comply with the following:

1. Provide construction for temporary field offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E136. Comply with NFPA 241.
2. Utilize designated area within existing building for temporary field offices.
3. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as indicated on Drawings.

1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.

C. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

D. Parking: Provide temporary offsite or use designated areas as shown on the site plans.

E. Storage and Staging: Provide temporary offsite area or use designated areas of Project site for storage and staging needs.

F. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.

1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
2. Remove snow and ice as required to minimize accumulations.

G. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.

1. Identification Signs: Provide Project identification signs as indicated on Drawings or specifications.
2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.

    a. Provide temporary, directional signs for construction personnel and visitors.

3. Maintain and touch up signs so they are legible at all times.

H. Waste Disposal Facilities: Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."

I. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."

J. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

K. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.

L. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

M. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Temporary Erosion and Sedimentation Control: Comply with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 311000 "Site Clearing."

D. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings, requirements of the SWPPP or authorities having jurisdiction, whichever is more stringent.

1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

E. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

F. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

G. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.

H. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.

1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations or as indicated on Drawings.

2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.

I. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

J. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

K. Temporary Egress: Provide temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction. Provide signage directing occupants to temporary egress.

L. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

M. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner and tenants from fumes and noise.

1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant-treated plywood on construction operations side.
2. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
3. Provide walk-off mats at each entrance through temporary partition.

N. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 MOISTURE AND MOLD CONTROL

A. Moisture and Mold Protection: Protect stored materials and installed Work in accordance with Moisture and Mold Protection Plan.

B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

1. Protect porous materials from water damage.
2. Protect stored and installed material from flowing or standing water.
3. Keep porous and organic materials from coming into prolonged contact with concrete.
4. Remove standing water from decks.
5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
2. Keep interior spaces reasonably clean and protected from water damage.
3. Periodically collect and remove waste containing cellulose or other organic matter.
4. Discard or replace water-damaged material.
5. Do not install material that is wet.
6. Discard and replace stored or installed material that begins to grow mold.
7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.

D. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.

3.7 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been

delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 040110 - MASONRY CLEANING – R1

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cleaning the following:

1. Unit masonry surfaces.
2. Stone surfaces.

1.2 DEFINITIONS

A. Low-Pressure Spray: 100 to 400 psi; 4 to 6 gpm

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at a location to be determined.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.5 QUALITY ASSURANCE

A. Mockups: Prepare mockups of cleaning on existing surfaces to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Cleaning: Clean an area approximately 25 sq. ft. for each type of masonry and surface condition.

a. Test cleaners and methods on samples of adjacent materials for possible adverse reactions. Do not test cleaners and methods known to have deleterious effect.
b. Allow a waiting period of not less than seven days after completion of sample cleaning to permit a study of sample panels for negative reactions.

PART 2 - PRODUCTS

2.1 CLEANING MATERIALS

A. Water: Potable.

B. Hot Water: Water heated to a temperature of 140 to 160 deg F.

C. Detergent Solution, Job Mixed: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate (TSPP), 1/2 cup of laundry detergent, and 20 quarts of hot water for every 5 gal. of solution required.

D. Mold, Mildew, and Algae Remover, Job Mixed: Solution prepared by mixing 2 cups of tetrasodium pyrophosphate (TSPP), 5 quarts of 5 percent sodium hypochlorite (bleach), and 15 quarts of hot water for every 5 gal. of solution required.

E. Mild-Acid Cleaner: Manufacturer's standard mild-acid cleaner containing no muriatic (hydrochloric), hydrofluoric, or sulfuric acid; or ammonium bifluoride or chlorine bleaches.

1. Prosoco,Inc., Sure Klean 600 or approved equal

2.2 CHEMICAL CLEANING SOLUTIONS

A. Dilute chemical cleaners with water to produce solutions not exceeding concentration recommended in writing by chemical-cleaner manufacturer.

B. Acidic Cleaner Solution for Nonglazed Masonry and Unpolished Stone: Dilute acidic cleaner with water to produce hydrofluoric acid content of 3 percent or less, but not greater than that recommended in writing by chemical-cleaner manufacturer.

1. Stones: Use only on unpolished granite, unpolished dolomite marble, and siliceous sandstone.

C. Acidic Cleaner for Glazed Masonry and Polished Stone: Dilute acidic cleaner with water to concentration demonstrated by testing that does not etch or otherwise damage glazed or polished surface, but not greater than that recommended in writing by chemical-cleaner manufacturer.

1. Stones: Use only on polished granite and polished dolomite marble.

PART 3 - EXECUTION

3.1 PROTECTION

A. Comply with each manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent paint removers and chemical cleaning solutions from coming into contact with people, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

1. Cover adjacent surfaces with materials that are proven to resist paint removers and chemical cleaners used unless products being used will not damage adjacent surfaces. Use protective materials that are waterproof and UV resistant. Apply masking agents according to manufacturer's written instructions. Do not apply liquid strippable masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.

3.2 CLEANING MASONRY, GENERAL

A. Cleaning Appearance Standard: Cleaned surfaces are to have a uniform appearance as viewed from 20 feet away by Architect.

B. Proceed with cleaning in an orderly manner; work from top to bottom of each scaffold width and from one end of each elevation to the other. Ensure that dirty residues and rinse water do not wash over dry, cleaned surfaces.

C. Use only those cleaning methods indicated for each masonry material and location.

1. Brushes: Do not use wire brushes or brushes that are not resistant to chemical cleaner being used.
2. Spray Equipment: Use spray equipment that provides controlled application at volume and pressure indicated, measured at nozzle. Adjust pressure and volume to ensure that cleaning methods do not damage surfaces, including joints.

    a. Equip units with pressure gages.
    b. For chemical-cleaner spray application, use low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with nozzle having a cone-shaped spray.
    c. For water-spray application, use fan-shaped spray that disperses water at an angle of 25 to 50 degrees.
    d. For heated water-spray application, use equipment capable of maintaining temperature between 140 and 160 deg F at flow rates indicated.

D. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces. Keep wall wet below area being cleaned to prevent streaking from runoff.

E. Perform additional general cleaning, paint and stain removal, and spot cleaning of small areas that are noticeably different when viewed according to the "Cleaning Appearance Standard" Paragraph, so that cleaned surfaces blend smoothly into surrounding areas.

F. Water-Spray Application Method: Unless otherwise indicated, hold spray nozzle at least 6 inches from masonry surface and apply water in horizontal back-and-forth sweeping motion, overlapping previous strokes to produce uniform coverage.

G. Chemical-Cleaner Application Methods: Apply chemical cleaners to masonry surfaces according to chemical-cleaner manufacturer's written instructions; use brush or spray application. Do not spray apply at pressures exceeding 50 psi. Do not allow chemicals to remain on surface for periods longer than those indicated or recommended in writing by manufacturer.

H. Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaffold setting. Periodically during each rinse, test pH of rinse water running off of cleaned area to determine that chemical cleaner is completely removed.

1. Apply neutralizing agent and repeat rinse if necessary to produce tested pH of between 6.7 and 7.5.

3.3 PRELIMINARY CLEANING

A. Removing Plant Growth: Completely remove visible plant, moss, and shrub growth from masonry surfaces. Carefully remove plants, creepers, and vegetation by cutting at roots and allowing remaining growth to dry as long as possible before removal. Remove loose soil and plant debris from open joints to whatever depth they occur.

B. Preliminary Cleaning: Before beginning general cleaning, remove extraneous substances that are resistant to planned cleaning methods. Extraneous substances include paint, calking, asphalt, and tar.

1. Carefully remove heavy accumulations of rigid materials from masonry surface with sharp chisel. Do not scratch or chip masonry surface.
2. Remove paint and calking with alkaline paint remover.
    a. Comply with requirements in "Paint Removal" Article.
    b. Repeat application up to two times if needed.
3. Remove asphalt and tar with solvent-type paste paint remover.
    a. Comply with requirements in "Paint Removal" Article.
    b. Apply paint remover only to asphalt and tar by brush without prewetting.
    c. Allow paint remover to remain on surface for 10 to 30 minutes.
    d. Repeat application if needed.

3.4 CLEANING MASONRY

A. Detergent Cleaning:

1. Wet surface with hot water applied by low-pressure spray.
2. Scrub surface with detergent solution using medium-soft brushes until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from mortar joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that surface remains wet.
3. Rinse with hot water applied by low-pressure spray to remove detergent solution and soil.
4. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.

B. Mold, Mildew, and Algae Removal:

1. Wet surface with hot water applied by low-pressure spray.
2. Apply mold, mildew, and algae remover by brush or low-pressure spray.
3. Scrub surface with medium-soft brushes until mold, mildew, and algae are thoroughly dislodged and can be removed by rinsing. Use small brushes for mortar joints and crevices. Dip brush in mold, mildew, and algae remover often to ensure that adequate fresh cleaner is used and that surface remains wet.
4. Rinse with hot water applied by low-pressure spray to remove mold, mildew, and algae remover and soil.
5. Repeat cleaning procedure above where required to produce cleaning effect established by mockup.

C. Mild-Acid Chemical Cleaning:

1. Wet surface with cold water applied by low-pressure spray.
2. Apply cleaner to surface in two applications by brush or low-pressure spray.
3. Let cleaner remain on surface for period recommended in writing by chemical-cleaner manufacturer.
4. Rinse with cold water applied by low-pressure spray to remove chemicals and soil.
5. Repeat cleaning procedure above where required to produce cleaning effect established by mockup. Do not repeat more than once. If additional cleaning is required, use steam cleaning.

END OF SECTION 040110

SECTION 042613 - MASONRY VENEER – R1

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Brick.
2. Concrete face brick.
3. Mortar materials.
4. Ties and anchors.
5. Embedded flashing.
6. Accessories.
7. Mortar mixes.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each type and color of brick mortar.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each type and size of product.

1.4 MOCKUPS

A. Sample Panels: Build sample panels to verify selections made under Sample submittals and to demonstrate aesthetic effects. Comply with requirements in Section 014000 "Quality Requirements" for mockups.

1. Build sample panels for typical exterior and interior walls in sizes approximately 48 inches long by 36 inches high by full thickness.

1.5 FIELD CONDITIONS

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602.

B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects will be exposed in the completed Work and will be within 20 ft. vertically and horizontally of a walking surface.

2.2 BRICK

A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units.

1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
2. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.

Basis of Design:

B. Clay Face Brick: Facing brick complying with ASTM C216 or hollow brick complying with ASTM C652, Class H40V (void areas between 25 and 40 percent of gross cross-sectional area).

1. Manufacturer: Bowerston
2. Series: #1525 Buff Flash Sand Face Modular
3. Color: Buff
4. Grade: SW
5. Type: HBS Facebrick
6. Style – Extruded
7. Initial Rate of Absorption: Less than 30 g/30 sq. in. per minute when tested according to ASTM C67.
8. Efflorescence: Provide brick that has been tested according to ASTM C67 and is rated "not effloresced."
9. Surface Coating: Brick with colors or textures produced by application of coatings shall withstand 50 cycles of freezing and thawing according to ASTM C67 with no observable difference in the applied finish when viewed from 10 feet or shall have a history of successful use in Project's area.
10. Size (Actual Dimensions): 3-5/8 inches wide by 2-1/4 inches high by 7-5/8 inches long.

2.3 MORTAR MATERIALS

A. Masonry Cement: ASTM C91/C91M.
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
      a. Lehigh Northeast Cement Co.
      b. Lafarge Building Materials, Inc
      c. Quikrete, a Custom Building Products Co.

B. Preblended Dry Mortar Mix: Packaged blend made from masonry cement, sand, and admixtures and complying with ASTM C1714/C1714M.

   1. Preblended Dry Masonry Cement Mortar Mix:
      a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
         1) Lehigh Northeast Cement Co.
         2) Lafarge Building Materials, Inc
         3) Quikrete, a Custom Building Products Co.

C. Aggregate for Mortar: ASTM C144.

   1. White-Mortar Aggregates: Natural white sand or crushed white stone.
   2. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

D. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C494/C494M, Type C and recommended by manufacturer for use in masonry mortar of composition indicated.
      a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
         1) Lehigh Northeast Cement Co.
         2) Lafarge Building Materials, Inc
         3) Quikrete, a Custom Building Products Co.

E. Water: Potable.

2.4 TIES AND ANCHORS

A. General: Ties and anchors extend at least 1-1/2 inches into veneer but with at least a 5/8-inch cover on outside face.

B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:

   1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A1064/A1064M, with ASTM A153/A153M, Class B-2 coating.

2. Steel Sheet, Galvanized after Fabrication: ASTM A1008/A1008M, Commercial Steel, with ASTM A153/A153M, Class B coating.

C. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch diameter, hot-dip galvanized steel wire.
2. Tie Section: Triangular-shaped wire tie made from 0.25-inch diameter, hot-dip galvanized steel wire.

D. Adjustable Anchors for Connecting to Concrete: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.

1. Connector Section: Dovetail tabs for inserting into dovetail slots in concrete and attached to tie section; formed from 0.060-inch thick, steel sheet, galvanized after fabrication 0.109-inch thick, stainless steel sheet.
2. Tie Section: Triangular-shaped wire tie made from 0.187-inch- diameter, hot-dip galvanized steel wire. Mill-galvanized wire may be used at interior walls unless otherwise indicated.

E. Adjustable Masonry-Veneer Anchors:

1. General: Provide anchors that allow vertical adjustment but resist a 100 lbf load in both tension and compression perpendicular to plane of wall without deforming or developing play in excess of 1/16 inch.

2. Masonry-Veneer Anchors; Double-Pintle Type: Hot dipped galvanized with 6” standard hook section to be tied into eyewire attached to welded wire truss reinforcing in CMU back up wall , projecting horizontal leg with slots for vertical legs of double pintle wire tie.
   a. Hohmann & Barnard, Inc.

   b. Wire Bond Company

2.5 EMBEDDED FLASHING

A. Metal Flashing: Provide metal flashing complying with SMACNA's "Architectural Sheet Metal Manual" and as follows:

1. Fabricate metal drip edges from stainless steel. Extend at least 3 inches into wall and 1/2 inch out from wall, with outer edge bent down 30 degrees and hemmed.
2. Fabricate metal sealant stops from stainless steel. Extend at least 3 inches into wall and out to exterior face of wall. At exterior face of wall, bend metal back on itself for 3/4 inch and down into joint 1/4 inch to form a stop for retaining sealant backer rod.

B. Flexible Flashing: Where concealed flashing is required, use the following unless otherwise indicated:

1. EPDM Flashing: Sheet flashing product made from ethylene-propylene-diene terpolymer, complying with ASTM D4637/D4637M, 40 mil thick.

C. Solder and Sealants for Sheet Metal Flashings: As specified in Section 076200 "Sheet Metal Flashing and Trim."

D. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

E. Termination Bars for Flexible Flashing, Flanged: Stainless steel sheet 0.019 inch by 1-1/2 inches with a 3/8-inch flange at top and bottom.

2.6 ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene

B. Weep/Vent Products: Use the following unless otherwise indicated:

1. Mesh Weep/Vent: Free-draining mesh; made from polyethylene strands, full height and width of head joint and depth 1/8 inch less than depth of outer wythe; in color selected from manufacturer's standard.

a. Hohmann & Barnard, Inc.

b. Wire Bond Company

C. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.

1. Mortar Deflector: Strips, full depth of cavity 1-1/2 inches thick 2 inches and 10 inches high, with dovetail-shaped notches that prevent clogging with mortar droppings.

a. Mortar Net Solutions

b. Mason Pro, Inc.

2.7 MORTAR MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Use masonry cement mortar unless otherwise indicated.
3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.

C. Mortar for Unit Masonry: Comply with ASTM C270, Proportion Specification. Use Type N unless another type is indicated.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

C. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in per minute when tested in accordance with ASTM C67/C67M. Allow units to absorb water so they are damp but not wet at time of laying.

3.2 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/4 inch.
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch.
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 ft., or 1/2-inch maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 ft., 1/4 inch in 20 ft., or 1/2-inch maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 ft. maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 ft., or 1/2-inch maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 ft, or 1/2-inch maximum.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
2. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.

3.3 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in Flemish bond at every 6th course; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.

C. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

3.4 MORTAR BEDDING AND JOINTING

A. Lay masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

3.5 ANCHORED MASONRY VENEERS

A. Anchor masonry veneers to concrete and masonry backup with seismic masonry-veneer anchors to comply with the following requirements:

1. Fasten screw-attached anchors through sheathing to wall framing and to concrete and masonry backup with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.
2. Embed tie sections, connector sections and continuous wire in masonry joints.
3. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
4. Space anchors as indicated, but not more than 18 inches o.c. vertically and horizontally. Install additional anchors within 12 inches of openings and at intervals, not exceeding 24 inches, around perimeter.

B. Provide not less than 2 inches of airspace between back of masonry veneer and face of insulation.

3.6 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

A. Anchor masonry to structural steel and concrete, where masonry abuts or faces structural steel or concrete to comply with the following:

1. Provide an open space not less than 1/2 inch wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

3.7 FLASHING, WEEP HOLES, AND VENTS

A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.

B. Install flashing as follows unless otherwise indicated:

1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
2. Extend flashing through veneer, across airspace behind veneer, and up face of sheathing at least 8 inches; with upper edge tucked under water-resistive barrier, lapping at least 4 inches.
3. At lintels and shelf angles, extend flashing 6 inches minimum, to edge of next full unit at each end. At heads and sills, extend flashing 6 inches minimum, to edge of next full unit and turn ends up not less than 2 inches to form end dams.
4. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall, and adhere flexible flashing to top of metal drip edge.

C. Install weep holes in veneers in head joints of first course of masonry immediately above embedded flashing.

1. Use specified weep/cavity vent products to form weep holes.
2. Space weep holes 24 inches o.c. unless otherwise indicated.

D. Place cavity drainage material in airspace behind veneers to comply with configuration requirements for cavity drainage material in "Accessories" Article.

E. Install vents in head joints in exterior wythes at spacing indicated. Use specified weep/cavity vent products to form vents.

1. Close cavities off vertically and horizontally with blocking in manner indicated. Install through-wall flashing and weep holes above horizontal blocking.

3.8 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements will be at Contractor's expense.

B. Inspections: Special inspections in accordance with Level 2 in TMS 402.

1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.

C. Testing Prior to Construction: One set of tests.

D. Clay Masonry Unit Test: For each type of unit provided, in accordance with ASTM C67/C67M for compressive strength.

E. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, in accordance with ASTM C780.

3.9 CLEANING

A. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

B. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
2. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

3.10 MASONRY WASTE DISPOSAL

A. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042613

SECTION 061600 – SHEATHING – R1

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wall sheathing.
2. Roof sheathing.
3. Parapet sheathing.
4. Composite nail base insulated wall sheathing.
5. Subflooring.
6. Underlayment.
7. Sheathing joint and penetration treatment.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1.3 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated plywood.
2. Fire-retardant-treated plywood.
3. Foam-plastic sheathing.

1.4 QUALITY ASSURANCE

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance Ratings: As tested according to ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Fire-Resistance Ratings: Indicated by design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

2.2 PRESERVATIVE-TREATED PLYWOOD

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.

B. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.

C. Application: Treat items indicated on Drawings and plywood in contact with masonry or concrete or used with roofing, flashing, vapor barriers, and waterproofing.

2.3 FIRE-RETARDANT-TREATED PLYWOOD

A. General: Where fire-retardant-treated materials are indicated, use materials complying with requirements in this article that are acceptable to authorities having jurisdiction and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated plywood by pressure process after being subjected to accelerated weathering according to ASTM D2898. Use for exterior locations and where indicated.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D3201/D3201M at 92 percent relative humidity. Use where exterior type is not indicated.
3. Design Value Adjustment Factors: Treated lumber plywood shall be tested according to ASTM D5516 and design value adjustment factors shall be calculated according to ASTM D6305. Span ratings after treatment shall be not less than span ratings specified. For roof sheathing and where high-temperature fire-retardant treatment is indicated, span ratings for temperatures up to 170 deg F shall be not less than span ratings specified.

C. Kiln-dry material after treatment to a maximum moisture content of 15 percent.

D. Identify fire-retardant-treated plywood with appropriate classification marking of qualified testing agency.

2.4 WALL SHEATHING

A. Plywood Sheathing: DOC PS 1, Exposure 1, or Structural I sheathing.

B. Paper-Surfaced Gypsum Sheathing: ASTM C1396/C1396M, gypsum sheathing; with water-resistant-treated core and with water-repellent paper bonded to core's face, back, and long edges.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

    a. American Gypsum.
    b. CertainTeed Gypsum.
    c. Georgia-Pacific Gypsum LLC.
    d. National Gypsum Company.
    e. USG Corporation.

2. Type and Thickness: Type X, 5/8 inch thick.

C. Glass-Mat Gypsum Sheathing: ASTM C1177/C1177M.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

    a. CertainTeed Corporation.
    b. CertainTeed Gypsum.
    c. Continental Building Products, LLC.
    d. Georgia-Pacific Gypsum LLC.
    e. National Gypsum Company.
    f. USG Corporation.

2. Type and Thickness: Type X, 5/8 inch thick.

2.5 ROOF SHEATHING

A. Plywood Sheathing: DOC PS 1, sheathing.

2.6 PARAPET / DORMER SHEATHING

A. Plywood Sheathing: DOC PS 1, sheathing.

B. Glass-Mat Gypsum Sheathing: ASTM C1177/C1177M.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

    a. CertainTeed Corporation.
    b. Georgia-Pacific Gypsum LLC.
    c. National Gypsum Company.
    d. USG Corporation.

2. Type and Thickness: Type X, 5/8 inch thick.

2.7 COMPOSITE NAIL-BASE INSULATED WALL SHEATHING

A. Plywood-Surfaced, Polyisocyanurate-Foam Sheathing: ASTM C1289, Type V with DOC PS 2, Exposure 1 plywood on one face.

1. Basis of Design : Composite wall panels shall be Xci Ply as manufactured by Hunter Panels with a total thickness of 2.6 inches, with a thermal value of R=12.7 as per ASTM C518 with a compressive strength of 20 psi min. as per ASTM 1621, moisture vapor permeance of less than 1 perm, water absorption of less than 1% by volume as per ASTM C209, resistance to mold to pass ASTM D3272 and a dimensional stability of 2% linear change as per ASTM D2126. ubject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

2. Additional Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

    a. Atlas EPS; a Division of Atlas Roofing Corporation.
    b. Cornell Corporation.
    c. Dow Chemical Company (The).
    d. Johns Manville; a Berkshire Hathaway company.
    e. Rmax, Inc.

3. Polyisocyanurate-Foam Thickness: see description of Basis of Design.
4. Plywood Nominal Thickness: 5/8 inch.

2.8 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. For roof parapet and wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.

2.9 SHEATHING JOINT-AND-PENETRATION TREATMENT MATERIALS

A. Sealant for Glass-Mat Gypsum Sheathing: Elastomeric, medium-modulus, neutral-curing silicone joint sealant compatible with joint substrates formed by gypsum sheathing and other materials, recommended by sheathing manufacturer for application indicated and complying with requirements for elastomeric sealants specified in Section 079200 "Joint Sealants."

B. Sealant for Glass-Mat Gypsum Sheathing: Silicone emulsion sealant complying with ASTM C834, compatible with sheathing tape and sheathing and recommended by tape and sheathing manufacturers for use with glass-fiber sheathing tape and for covering exposed fasteners.

1. Sheathing Tape: Self-adhering glass-fiber tape, minimum 2 inches wide, 10 by 10 or 10 by 20 threads/inch, of type recommended by sheathing and tape manufacturers for use

with silicone emulsion sealant in sealing joints in glass-mat gypsum sheathing and with a history of successful in-service use.

C. Sheathing Tape for Foam-Plastic Sheathing: Pressure-sensitive plastic tape recommended by sheathing manufacturer for sealing joints and penetrations in sheathing.

2.10 MISCELLANEOUS MATERIALS

A. Adhesives for Field Gluing Panels to Wood Framing: Formulation complying with APA AFG-01 that is approved for use with type of construction panel indicated by manufacturers of both adhesives and panels.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.

B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

C. Securely attach to substrate by fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.
2. ICC-ES evaluation report for fastener.

D. Coordinate roof sheathing installation with flashing and joint-sealant installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.

3.2 WOOD STRUCTURAL PANEL INSTALLATION

A. General: Comply with applicable recommendations in APA Form No. E30, "Engineered Wood Construction Guide," for types of structural-use panels and applications indicated.

B. Fastening Methods: Fasten panels as indicated below:

1. Combination Subfloor-Underlayment:

a. Glue and nail to wood framing.
b. Screw to cold-formed metal framing.
c. Space panels 1/8 inch apart at edges and ends.

2. Subflooring:

    a. Glue and nail to wood framing.
    b. Screw to cold-formed metal framing.
    c. Space panels 1/8 inch apart at edges and ends.

3. Wall and Roof Sheathing:

    a. Nail to wood framing. Apply a continuous bead of glue to framing members at edges of wall sheathing panels.
    b. Screw to cold-formed metal framing.
    c. Space panels 1/8 inch apart at edges and ends.

4. Underlayment:

    a. Nail to subflooring.
    b. Space panels 1/32 inch apart at edges and ends.
    c. Fill and sand edge joints of underlayment receiving resilient flooring immediately before installing flooring.

3.3 GYPSUM SHEATHING INSTALLATION

A. Comply with GA-253 and with manufacturer's written instructions.

1. Fasten gypsum sheathing to wood framing with screws.
2. Fasten gypsum sheathing to cold-formed metal framing with screws.
3. Install panels with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
4. Install panels with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.

B. Seal sheathing joints according to sheathing manufacturer's written instructions.
1. Apply glass-fiber sheathing tape to glass-mat gypsum sheathing joints and apply and trowel sealant to embed entire face of tape in sealant. Apply sealant to exposed fasteners with a trowel so fasteners are completely covered. Seal other penetrations and openings.

END OF SECTION 061600

SECTION 102123 - CUBICLE CURTAINS AND TRACK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cubicle-curtain tracks and carriers.
2. Cubicle curtains.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Cubicle Curtains: Provide curtain fabrics with the following characteristics:

1. Laundering: Launderable to a water temperature of not less than 160 deg F.
2. Flame Resistance: Provide fabrics identical to those that have passed NFPA 701 when tested by a qualified testing agency acceptable to authorities having jurisdiction.

a. Identify fabrics with appropriate markings of a qualified testing agency.

2.2 CUBICLE-CURTAIN SUPPORT SYSTEMS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Construction Specialties, Inc.
2. Inpro Corporation.

B. Extruded-Aluminum Curtain Track: Not less than 5/8 inch wide by 1/2 inch high.

1. Curved Track: Factory-fabricated, 12-inch- radius bends.
2. Finish: Baked enamel, acrylic, or epoxy.

C. PVC Curtain Track: Not less than 1-1/4 inches wide by 15/16 inch high.

1. Curved Track: Factory-fabricated, 12-inch-radius bends.

D. Curtain Track Accessories: Fabricate splices, end caps, connectors, end stops, coupling and joining sleeves, wall flanges, brackets, ceiling clips, and other accessories from same material and with same finish as track.

1. End Stop: Removable with carrier hook.

E. Curtain Glide Carriers: One-piece nylon glide with chrome-plated steel hook.

F. Breakaway Curtain Carriers: One-piece nylon breakaway curtain carriers designed to allow curtains to detach from tracks with a pulling force of no more than 5 lbf.

G. Exposed Fasteners: Stainless steel.

H. Concealed Fasteners: Stainless steel.

2.3 CURTAINS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1. Inpro Corporation.

B. Fabric: Curtain manufacturer's standard, 100 percent polyester; inherently and permanently flame resistant, stain resistant, and antimicrobial.

1. Proprietary Fiber:

a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

1) INVISTA.
2) Trevira.

2. Pattern: Clikeze Super Bio Stat vinyl
3. Width: 5’-0”.
4. Color: As selected by Architect from manufacturer's full range.

C. Curtain Grommets: Two-piece, rolled-edge, rustproof, nickel-plated brass; spaced not more than 6 inches o.c.; machined into top hem.

D. Mesh Top: Not less than 20-inch- high mesh top.

1. Mesh: No. 50 nylon mesh.

E. Beaded-Chain Curtain Drop: 18 inches long; nickel-plated steel with aluminum hook.

F. Snap Attachments: Provide manufacturer's standard nickel-plated brass snap attachments for modular panels.

G. Curtain Tieback: Nickel-plated brass chain; one at each curtain termination.

2.4 CURTAIN FABRICATION

A. Continuous Curtain Panels:

1. Width: Equal to track length from which curtain is hung plus 10 percent of added fullness, but not less than 12 inches of added fullness.
2. Length: Equal to floor-to-ceiling height, minus depth of track and carrier at top, and minus clearance above the finished floor of 12 inches.

B. Modular Curtain Panels:

1. Fabric Panels: 48 inches wide. Fabricate panels in quantity required to provide assembled curtains equal to track lengths plus 10 percent added fullness, but not less than 12 inches added fullness.
2. Length: Equal to floor-to-ceiling height, minus depth of track and carrier at top, and minus clearance above the finished floor of 12 inches.
3. Mesh Top: Modular, matching width of modular fabric panels with snap attachments at side hems of mesh-top panels.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install tracks level and plumb, according to manufacturer's written instructions.

B. For tracks of up to 20 feet in length, provide track fabricated from single, continuous length.

1. Curtain-Track Mounting: Surface.

C. Track Accessories: Install splices, end caps, connectors, end stops, coupling and joining sleeves, and other accessories as required for a secure and operational installation.

1. Provide one hinged loading unit for each bed.

D. Curtain Carriers: Provide curtain carriers adequate for 6-inch spacing along full length of curtain plus an additional carrier.

E. Cubicle Curtains: Hang curtains on each curtain track. Secure with curtain tieback.

END OF SECTION 102123

SECTION 114100 - LABORATORY EQUIPMENT

1.1 SUMMARY

A. Section includes equipment for laboratory facilities.

B. Owner-Furnished Equipment: Where indicated, Owner will furnish equipment for installation by Contractor.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For fabricated equipment. Include plans, elevations, sections, roughing-in dimensions, fabrication details, utility service requirements, and attachments to other work.

C. Samples for Initial Selection: For units with factory-applied color finishes.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: For laboratory facilities.

1. Indicate locations of laboratory equipment and connections to utilities.
2. Key equipment using same designations as indicated on Drawings.
3. Include plans and elevations; clearance requirements for equipment access and maintenance; details of equipment supports; and utility service characteristics.
4. Include details of seismic bracing for equipment.

B. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.6 WARRANTY

A. Refrigeration Compressor Warranty: Manufacturer agrees to repair or replace compressors that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. NSF Standards: Provide equipment that bears NSF Certification Mark or UL Classification Mark certifying compliance with applicable NSF standards.

B. UL Certification: Provide electric and fuel-burning equipment and components that are evaluated by UL for fire, electric shock, and casualty hazards according to applicable safety standards, and that are UL certified for compliance and labeled for intended use.

C. Regulatory Requirements: Install equipment to comply with the following:

1. ASHRAE 15, "Safety Code for Mechanical Refrigeration."
2. NFPA 54, "National Fuel Gas Code."
3. NFPA 70, "National Electrical Code."
4. NFPA 96, "Ventilation Control and Fire Protection of Commercial Cooking Operations."

D. Seismic Restraints: Comply with SMACNA's "Kitchen Ventilation Systems and Food Service Equipment Fabrication and Installation Guidelines," Appendix A, "Seismic Restraint Details," unless otherwise indicated.

2.2 LABORATORY EQUIPMENT

A. Refrigeration Equipment: Refrigerators.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
   a. Frigidaire Appliance Company
   b. Or Approved Equal

2. Basis of Design Description: Reach-in type, side by side counter depth refrigerator – FPRU19F8WF

   a. Exterior Finish: Stainless steel.
   b. Interior Finish: Stainless steel.
   c. Doors: 1 Door Full length.
   d. Accessories:

      1) 2 Adjustable glass shelves, 1 fixed shelf, 1 pull out shelf
      2) 2 Drawers
      3) 5 Door bins
      4) Digital Display
      5) Door ajar alarm, high temp alarm, power failure alarm

   e. Electrical Service: Equip unit with plug and cord for service indicated on Drawings.

B. Cleaning Equipment: Dishwasher

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

   a. Frigidaire Appliance Company
   b. Or Approved Equal

2. Basis of Design Description: 24" W. Model PDSH4816AF

   a. Exterior Finish: Stainless steel.
   b. Interior Finish: Stainless steel.
   c. Door: Full length with 4" toe space
   d. Accessories:

      1) Stainless steel sides
      2) Drain hose
      3) Turbo fan drying
      4) LCD screen with time indicator
      5) Touch button controls
      6) Energy star qualified
      7) Cycle light indicator

   e. Electrical Service: Equip unit with plug and cord for service indicated on Drawings.

C. Equipment: Drying Oven "A".

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
   a. Thermo Fisher Scientific, PPD, Inc.
   b. Or Approved Equal

2. Basis of Design Description: Reach-in type, Model OGS60

   a. Exterior Finish: Stainless steel.
   b. Interior Finish: Stainless steel.
   c. Doors: 1 Full length.
   d. Accessories:

      1) 2 Adjustable wire mesh shelves
      2) Door Lock
      3) Door alarm
      4) Overtemperature alarm
      5) Undertemperature alarm

   e. Electrical Service: Equip unit with plug and cord for service indicated on Drawings.

D. Equipment: Drying Oven “B”.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
   a. Thermo Fisher Scientific, PPD, Inc.
   b. Or Approved Equal

2. Basis of Design Description: Reach-in type, Model OGS100

   a. Exterior Finish: Stainless steel.
   b. Interior Finish: Stainless steel.
   c. Doors: 1 Full length.
   d. Accessories:

      1) 2 Adjustable wire mesh shelves
      2) Door Lock
      3) Door alarm
      4) Over-temperature alarm
      5) Under-temperature alarm

   e. Electrical Service: Equip unit with plug and cord for service indicated on Drawings.

E. Storage Equipment: Acid / Corrosive Storage Cabinets.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
   a. Kewaunee Scientific Corporation
   b. Or Approved Equal

2. Basis of Design Description: Reach-in type, cabinets designed for safe storage of corrosive chemicals – Model G85M271821-0009V

   a. Exterior Finish: Stainless steel.
   b. Interior Finish: Stainless steel.
   c. 7 Gallon Capacity
   d. Doors: 2 Full length.
   e. Accessories:

      1) 1 shelf
      2) Self-Closing Doors
      3) Polyethylene trays for spill containment
      4) 1 upper and 1 lower side vent on opposite sides

2.3 MISCELLANEOUS MATERIALS

A. Installation Accessories, General: NSF certified for end-use application indicated.

B. Elastomeric Joint Sealant: ASTM C920; silicone. Type S (single component), Grade NS (nonsag), Class 25, Use NT (nontraffic) related to exposure, and Use M, G, A, or O as applicable to joint substrates indicated.

1. Public Health and Safety Requirements:

a. Sealant is certified for compliance with NSF standards for end-use application indicated.
b. Washed and cured sealant complies with the FDA's regulations for use in areas that come in contact with food.

2. Cylindrical Sealant Backing: ASTM C1330, Type C, closed-cell polyethylene, in diameter greater than joint width.

2.4 FINISHES

A. Stainless Steel Finishes: Remove tool and die marks and stretch lines, or blend into finish. Grind and polish surfaces to produce uniform finish, free of cross scratches.

B. Powder-Coat Finishes: Comply with resin manufacturer's written instructions for application, baking, and minimum dry film thickness.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install laboratory equipment level and plumb, according to manufacturer's written instructions.

1. Connect equipment to utilities.
2. Provide cutouts in equipment, neatly formed, where required to run service lines through equipment to make final connections.

B. Complete equipment assembly where field assembly is required.

1. Provide closed butt and contact joints that do not require a filler.
2. Grind field welds on stainless steel equipment until smooth and polish to match adjacent finish.

C. Install equipment with access and maintenance clearances that comply with manufacturer's written installation instructions and with requirements of authorities having jurisdiction.

D. Install cabinets and similar equipment on bases in a bed of sealant.

E. Install closure-trim strips and similar items requiring fasteners in a bed of sealant.

F. Install joint sealant in joints between equipment and abutting surfaces with continuous joint backing unless otherwise indicated. Produce airtight, watertight, vermin-proof, sanitary joints.

3.2 CLEANING AND PROTECTING

A. After completing installation of equipment, repair damaged finishes.

B. Clean and adjust equipment as required to produce ready-for-use condition.

C. Protect equipment from damage during remainder of the construction period.

3.3 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain laboratory equipment.

END OF SECTION 114000

SECTION 115313 - LABORATORY FUME HOODS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Bench-top laboratory fume hoods.
2. Piping and wiring within fume hoods for service fittings, light fixtures, fan switches, and other electrical devices included with fume hoods.
3. Fume hood base cabinets.
4. Fume hood base stands.
5. Work tops within fume hoods.
6. Laboratory sinks and cup sinks in fume hoods.
7. Water, laboratory gas, and electrical service fittings in fume hoods.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For laboratory fume hoods.

1. Include plans, elevations, sections, and attachment details.
2. Indicate details for anchoring fume hoods to permanent building construction including locations of blocking and other supports. Include calculations demonstrating that anchorages comply with seismic performance requirements.
3. Indicate locations and types of service fittings together with associated service supply connection required.
4. Indicate duct connections, electrical connections, and locations of access panels.
5. Include roughing-in information for mechanical, plumbing, and electrical connections.

C. Samples: For fume hood exterior finishes, interior lining and phenolic-composite work tops.

D. Delegated Design Submittals: For fume hoods indicated to comply with seismic performance requirements and design criteria.

1.3 INFORMATIONAL SUBMITTALS

A. Product Test Reports: Showing compliance with specified performance requirements for as-manufactured containment and static pressure loss, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency.

B. Field quality-control reports.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Constant Volume Fume Hoods with Steel Exterior:

1. Basis of Design: Kewaunee Scientific Corporation, Model V25 – General Purpose Bench Fume Hood with vertical rising sash.

2. Manufacturers: Subject to compliance with requirements, other available manufacturers offering products may be incorporated into the Work and are not limited to the following basis of design unit. The Laboratory Casework and the Laboratory Fume Hood shall be provided by the same manufacturer and the contractor must coordinate with the M-contract for fan specs.

B. Product Designations: Drawings indicate sizes, types, and configurations of fume hoods by referencing designated manufacturer's catalog numbers. Other manufacturers' fume hoods of similar sizes, types, and configurations, and complying with the Specifications, may be considered. See Section 016000 "Product Requirements."

2.2 PERFORMANCE REQUIREMENTS

A. Containment: Provide fume hoods that comply with the following when tested according to ASHRAE 110:

1. As-Manufactured (AM) Rating: AM 0.02 (0.02 ppm)
2. Average Face Velocity: 80 fpm plus or minus 10 percent with sashes fully open.
3. Face-Velocity Variation: Not more than 15 percent of average face velocity across the face opening with sashes fully open.

B. Static-Pressure Loss: Not more than 1/2-inch wg at 80-fpm face velocity with sash fully open when measured at four locations 90 degrees apart around the exhaust duct and at least three duct diameters downstream from duct collar.

C. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design fume hoods for seismic performance.

D. Seismic Performance: Fume hoods, including attachments to other work, to withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. Design earthquake spectral response acceleration, short period (Sds);
   a. See Structural Drawings.
2. Component Importance Factor: 1.5.

2.3 FUME HOODS

A. Product Standards: Comply with SEFA 1, "Laboratory Fume Hoods - Recommended Practices." Provide fume hoods UL listed and labeled for compliance with UL 1805.

B. Constant-Volume Fume Hoods: Provide constant-volume fume hoods without bypass where indicated.

2.4 MATERIALS

A. Steel Sheet: Cold-rolled, commercial steel (CS) sheet, complying with ASTM A1008/A1008M; matte finish; suitable for exposed applications.

B. Stainless Steel Sheet: ASTM A240/A240M or ASTM A666, Type 304, stretcher-leveled standard of flatness.

1. For perchloric acid fume hoods, use Type 316L instead of Type 304.

C. Glass-Fiber-Reinforced Polyester: Polyester laminate with a chemical-resistant gel coat on exposed faces, and having a flame-spread index of 25 or less according to ASTM E84.

D. Glass: Clear, laminated tempered glass complying with ASTM C1172, Kind LT, Condition A, Type I, Class I, Quality-Q3; with two plies not less than 3.0 mm thick and with clear, polyvinyl butyral interlayer.

1. Permanently mark safety glass with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction or the manufacturer. Label to indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.

E. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

F. Fasteners: Provide stainless steel fasteners where exposed to fumes.

2.5 FABRICATION

A. General: Assemble fume hoods in factory to greatest extent possible. Disassemble fume hoods only as necessary for shipping and handling limitations. Fume hoods to be capable of being partly disassembled as necessary to permit movement through a 35-by-79-inch door opening.

B. Steel Exterior: Fabricate from steel sheet, 0.048 inch thick, with component parts screwed together to allow removal of end panels, front fascia, and airfoil and to allow access to plumbing lines and service fittings. Apply chemical-resistant finish to interior and exterior surfaces of component parts before assembly.

C. Product Option: Provide either steel or fiberglass exterior as specified above.

D. Ends: Fabricate with double-wall end panels without projecting corner posts or other obstructions to interfere with smooth, even airflow. Close area between double walls at front of fume hood and as needed to house sash counterbalance weights, utility lines, and remote-control valves.

E. Splay top and sides of face opening to provide an aerodynamic shape to ensure smooth, even flow of air into fume hood.

F. Interior Lining: Provide the following unless otherwise indicated:

G. Stainless Steel Lining Assembly: Welded unit consisting of end panels, back panel, top, and work top; reinforced to form a rigid assembly to which exterior is attached.

1. For perchloric acid and radioisotope fume hood linings, cove corners and weld seams completely, and grind surfaces smooth and polish as needed to produce uniform, directionally textured finish with no evidence of welds and free of cross scratches. Passivate and rinse surfaces; remove embedded foreign matter and leave surfaces clean.

H. Rear Baffle: Unless otherwise indicated, provide baffle, of same material as fume hood lining, at rear of hood with openings at top and bottom. Secure baffle to cleats at rear of hood with stainless steel screws. Fabricate baffle for easy removal for cleaning behind baffle.

1. Provide preset baffles unless otherwise indicated.
2. Provide epoxy-coated, stainless steel screen at bottom baffle opening to prevent paper from being drawn into the exhaust plenum behind baffles.

I. Exhaust Plenum: Full width of fume hood and with adequate volume to provide uniform airflow from hood, of same material as hood lining, and with duct stub for exhaust connection.

1. Duct-Stub Material: stainless steel

J. Bypass Grilles: Provide grilles at bypass openings of fume hoods.

K. Sashes: Provide operable sashes of type indicated.

1. Fabricate from 0.050-inch- thick stainless steel. Form into four-sided frame with bottom corners welded and finished smooth. Make top member removable for glazing replacement. Set glazing in chemical-resistant, U-shaped gaskets.
2. Counterbalance vertical-sliding sash with sash weight and stainless steel cable system to hold sash in place regardless of position. Provide ball-bearing sheaves, plastic glides in stainless steel guides, and stainless steel lift handles. Provide rubber bumpers at top and bottom of each sash unit.

L. Airfoil: Unless otherwise indicated, provide airfoil at bottom of fume hood face opening with 1-inch space between airfoil and work top. Sash closes on top of airfoil, leaving 1-inch opening for air intake. Airfoil directs airflow across work top to remove heavier-than-air gases and to prevent reverse airflow.

1. Fabricate airfoil from stainless steel

M. Light Fixtures: An LED light fixture shall be provided in the hood roof. The light shall provide fifteen (15) intensity adjustment levels and three (3) color options. Illumination at the worksurface shall be at 100 foot-candles at the full intensity setting. The light fixture shall be isolated from the hood interior by a 1/4" thick tempered glass panel sealed from the hood cavity. Fixture shall be UL listed.

N. Perchloric Acid Fume Hood Washdown System: Provide perchloric acid fume hoods with washdown system consisting of stainless steel spray nozzles, washdown valve, and associated piping. Design system to thoroughly rinse all surfaces of fume hood interior, including areas

behind and above baffles, and to direct rinse water toward drain trough at rear of work top. Provide T-fitting for extending system to additional spray nozzles in exhaust ducts.

O. Filler Strips: Provide as needed to close spaces between fume hoods or fume hood base cabinets and adjacent building construction. Fabricate from same material and with same finish as fume hoods or fume hood base cabinets, as applicable.

P. Ceiling Extensions: Provide filler panels matching fume hood exterior to enclose space above fume hoods at front and sides of fume hoods and extending from tops of fume hoods to ceiling.

Q. Finished Back Panels: Where rear surfaces of fume hoods are exposed to view, provide finished back panels matching rest of fume hood enclosure.

R. Comply with requirements in other Sections for installing water and laboratory gas service fittings, piping, electrical devices, and wiring. Install according to Shop Drawings. Securely anchor fittings, piping, and conduit to fume hoods unless otherwise indicated.

2.6 FUME HOOD, BASE CABINETS, BASE STANDS, WORK TOPS, TROUGHS, SINKS, AND, SERVICE FITTINGS.

A. Comply with Section 123553.13 "Metal Laboratory Casework." Provide metal base cabinets in finish matching fume hood exterior finish.

B. Work Tops: Phenolic composite.

1. Work-Top Configuration: Raised (marine) edge with rounded edge and corners.
2. Where epoxy sinks occur in epoxy work tops, provide integral sinks bonded to tops with invisible joint line.
3. Where epoxy sinks occur in phenolic-composite work tops, provide undermount sinks.

C. Cup Sinks: Stainless steel, 5-inch diameter.

1. Provide with stainless steel strainers and integral tailpieces.

D. Structural Performance of Radioisotope Fume Hood Components: Capable of withstanding the following loads without permanent deformation, excessive deflection, or binding of cabinet drawers and doors:

1. Work Tops: 200 lb/ft..
2. Base Cabinets: 75 lb/ft. within cabinets, 50-lb/ft. work top, 200 lb/ft. on work top, plus weight of hood.

E. Fume Hood Base Stands: Welded steel tubing legs, not less than 2 inches square with channel stretchers and aprons. Weld or bolt stretchers to legs and cross-stretchers, and bolt legs to aprons. Provide leveling device welded to bottom of each leg.

1. Knee Space: Provide clear floor space not less than **30 inches** wide by 25 inches deep by 27 inches high within fume hood base stands unless otherwise indicated.

2.7 CHEMICAL-RESISTANT FINISH

A. Preparation: Clean steel surfaces, other than stainless steel, of mill scale, rust, oil, and other contaminants. After cleaning, apply a conversion coating suited to the organic coating to be applied over it.

B. Chemical-Resistant Finish: Immediately after cleaning and pretreating, apply fume hood manufacturer's standard two-coat, chemical-resistant, baked-on finish consisting of prime coat and thermosetting topcoat. Comply with coating manufacturer's written instructions for applying and baking to achieve a minimum dry film thickness of 2 mils.

1. Chemical and Physical Resistance of Finish System: Finish complies with acceptance levels of cabinet surface finish tests in SEFA 8M. Acceptance level for chemical spot test to be no more than four Level 3 conditions.
2. Colors for Fume Hood Finish: As selected by Architect from manufacturer's full range.

2.8 ACCESSORIES

A. Airflow Indicator and Alarm: Provide each fume hood with manufacturer's standard airflow indicator with audible and visual alarm that activates when airflow sensor reading is outside of preset range.

B. Airflow Indicator: Provide each fume hood with airflow indicator of[**one of**] the following type(s):

1. Indicator Type: Direct-reading aneroid (Magnehelic-type) gage that measures exhaust duct static pressure of fume hood as an indication of airflow.
2. Indicator Type: Thermal anemometer that measures fume hood face velocity and indicates whether it is below normal, normal, or above normal.
3. Indicator Type: Thermal anemometer that measures fume hood face velocity and displays data as digital readout.

C. Airflow Alarm: Provide fume hoods with audible and visual alarm that activates when airflow sensor reading is outside of preset range.

1. Provide with thermal-anemometer or aneroid (Magnehelic-type) gage airflow sensor.
2. Provide with reset and test switches.
3. Provide with switch that silences audible alarm and automatically resets when airflow returns to within preset range.

D. Sash Alarm: Provide fume hoods with audible and visual alarm that activates when sash is opened beyond preset position.

1. Provide with silence and test switches.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install fume hoods according to manufacturer's written instructions. Install level, plumb, and true; shim as required, using concealed shims, and securely anchor to building and adjacent laboratory casework. Securely attach access panels but provide for easy removal and secure reattachment. Where fume hoods abut other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.

B. Comply with requirements in Section 123553.13 "Metal Laboratory Casework" for installing fume hood base cabinets, work tops, and sinks.

C. Comply with requirements for installing water and laboratory gas service fittings and electrical devices.

1. Install fittings according to Shop Drawings, installation requirements in SEFA 2.3, and manufacturer's written instructions. Set bases and flanges of sink and work top-mounted fittings in sealant recommended by manufacturer of sink or work-top material. Securely anchor fittings to fume hoods unless otherwise indicated.

3.2 FIELD QUALITY CONTROL

A. Field test installed fume hoods according to ASHRAE 110 to verify compliance with performance requirements.

1. Adjust fume hoods, hood exhaust fans, and building's HVAC system, or replace hoods and make other corrections until tested hoods perform as specified.
2. After making corrections, retest fume hoods that failed to perform as specified.

END OF SECTION 115313

SECTION 123553.13 - METAL LABORATORY CASEWORK – R1

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal laboratory casework.
2. Utility-space framing at backs of base cabinets.
3. Filler and closure panels.
4. Laboratory countertops.
5. Tables.
6. Shelves.
7. Laboratory sinks.
8. Laboratory accessories.
9. Water, laboratory gas, and electrical service fittings.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For laboratory casework. Include plans, elevations, sections, and attachments to other work including blocking and reinforcements required for installation.

C. Samples: For casework finishes and materials requiring color selection.

D. Delegated-Design Submittal: For laboratory casework indicated to comply with seismic performance requirements, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

PART 2 - PRODUCTS

2.1 METAL LABORATORY CASEWORK

A. Basis of Design manufacturer: Kewaunee Scientific Corporation

B. Manufacturers: Subject to compliance with requirements, other available manufacturers offering products that may be incorporated into the Work. The Laboratory Casework and the Laboratory Fume Hood shall be provided by the same manufacturer and the contractor must coordinate with the M-contract.

C. Product Designations: Drawings indicate sizes and configurations of laboratory casework by referencing designated manufacturer's catalog numbers. Other manufacturers' laboratory casework of similar sizes and similar door and drawer configurations and complying with Specifications may be considered. See Section 016000 "Product Requirements."

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design laboratory casework installation.

B. Seismic Performance: Laboratory casework installation shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. Design earthquake spectral response acceleration, short period (Sds) for Project is indicated on Drawings.
2. Component Importance Factor: 1.0.
3. Base Cabinet Load (Including Countertop and Load on Countertop): 320 lb/ft.
4. Wall Cabinet (Upper Cabinet) Load: 160 lb/ft.

2.3 CASEWORK, GENERAL

A. Casework Product Standard: Comply with SEFA 8 M, "Laboratory Grade Metal Casework."

B. Flammable Liquid Storage: Where cabinets are indicated for solvent or flammable liquid storage, provide units that are listed and labeled as complying with requirements in NFPA 30 by a testing and inspecting agency acceptable to authorities having jurisdiction.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.4 METAL CASEWORK MATERIALS

A. Steel Sheet: Cold-rolled, commercial steel (CS) sheet, complying with ASTM A1008/A1008M; matte finish; suitable for exposed applications.

2.5 AUXILIARY CABINET MATERIALS

A. Acid Storage-Cabinet Lining: 1/4-inch thick, polyethylene, polypropylene, epoxy, or phenolic-composite lining material.

B. Glass for Glazed Doors: Clear tempered glass complying with ASTM C1048, Kind FT, Condition A, Type I, Class 1, Quality-Q3; not less than 5.0 mm thick.

2.6 CABINET HARDWARE

A. General: Provide laboratory casework manufacturer's standard, commercial-quality, heavy-duty hardware complying with requirements indicated for each type.

B. Hinges: lol-steel, five-knuckle hinges complying with BHMA A156.9, Grade 1, with antifriction bearings and rounded tips.

C. Hinged-Door and Drawer Pulls: stainless-steel back-mounted pulls.

D. Sliding-Door Pulls: Stainless-steel recessed flush pulls.

E. Door Catches: Nylon-roller spring catches. Provide two catches on doors more than 48 inches high.

F. Drawer Slides: Manufacturer's standard.

G. Locks: Cam or half-mortise type, brass with chrome-plated finish; complying with BHMA A156.11, Type E07261

1. Tumbler: Disc
2. Lock Locations: Provide on drawers and doors
3. Keying: Key locks alike within each room; key each room separately

    a. Masterkey for up to 225 key changes.

4. Key Quantity: Minimum of two keys per lock.
5. Master Key System: Key locks to be operable by master key.

    a. Master Keys: Provide two**.**

H. Sliding-Door Hardware Sets: Laboratory casework manufacturer's standard, to suit type and size of sliding-door units.

2.7 METAL CABINETS AND TABLES

A. Fabrication: Assemble and finish units at point of manufacture. Use precision dies for interchangeability of like-size drawers, doors, and similar parts. Perform assembly on precision jigs to provide units that are square. Reinforce units with angles, gussets, and channels. Except where otherwise specified, integrally frame and weld cabinet bodies to form dirt- and vermin-resistant enclosures. Where applicable, reinforce base cabinets for sink support. Maintain uniform clearance around door and drawer fronts of 1/16 to 3/32 inch.

B. Flush Doors: Outer and inner pans that nest into box formation, with full-height channel reinforcements at center of door. Fill doors with noncombustible, sound-deadening material.

C. Glazed Doors: Hollow-metal stiles and rails of similar construction as flush doors, with glass held in resilient channels or gasket material.

D. Hinged Doors: Mortise for hinges and reinforce with angles welded inside inner pans at hinge edge.

E. Drawers: Fronts made from outer and inner pans that nest into box formation, without raw metal edges at top. Sides, back, and bottom fabricated in one piece with rolled or formed top of sides for stiffening and comfortable grasp for drawer removal. Provide drawers with rubber bumpers, polymer roller slides, and positive stops to prevent metal-to-metal contact or accidental removal.

F. Adjustable Shelves: Front, back, and ends formed down, with edges returned horizontally at front and back to form reinforcing channels.

G. Toe Space: Fully enclosed, 4 inches high by 3 inches deep, with no open gaps or pockets.

H. Tables: Welded tubing legs, not less than 2 inches square with channel stretchers as needed to comply with product standard. Weld or bolt stretchers to legs and cross-stretchers, and bolt legs to table aprons. Provide leveling device welded to bottom of each leg.

1. Leg Shoes: Rubber Satin-finished, stainless-steel, open-bottom, slip-on type.

I. Utilities: Provide space, cutouts, and holes for pipes, conduits, and fittings in cabinet bodies to accommodate utility services and their support-strut assemblies.

1. Provide base cabinets with removable backs for access to utility space.

J. Utility-Space Framing: Steel framing units consisting of two steel slotted channels complying with MFMA-4, not less than 1-5/8 inches square by 0.105-inch nominal thickness, that are connected at top and bottom by U-shaped brackets made from 1-1/4-by-1/4-inch steel flat bars. Framing units may be made by welding channel material into rectangular frames instead of using U-shaped brackets.

K. Filler and Closure Panels: Provide where indicated and as needed to close spaces between casework and walls, ceilings, and equipment. Fabricate from same material and with same finish as casework and with hemmed or flanged edges unless otherwise indicated.

2.8 METAL CABINET FINISH

A. Chemical-Resistant Finish: Finish complies with acceptance levels of cabinet surface finish tests in SEFA 8 M. Acceptance level for chemical spot test shall be no more than for Level 3 conditions.

1. Colors for Metal Laboratory Casework Finish: As selected by Architect from manufacturer's full range.

2.9 COUNTERTOPS, TABLETOPS, SHELVES, TROUGHS, AND SINKS

A. Countertops, General: Provide units with smooth surfaces in uniform plane, free of defects. Make exposed edges and corners straight and uniformly beveled. Provide front and end overhang of 1 inch.

B. Sinks, General: Provide sizes indicated or laboratory casework manufacturer's closest standard size of equal or greater volume, as approved by Architect.

1. Outlets: Provide with strainers and tailpieces, NPS 1-1/2 (DN 40), unless otherwise indicated.
2. Overflows: For each sink except cup sinks, provide overflow of standard beehive or open-top design with separate strainer. Height 2 inches (50 mm) less than sink depth. Provide in same material as strainer.

C. Phenolic-Composite Countertops, Tabletops and Shelves:

1. Countertop Fabrication: Fabricate with cutouts for sinks, holes for service fittings and accessories, and butt joints assembled with epoxy adhesive and concealed metal splines.

    a. Flat Configuration: 1 inch thick with continuous drip groove on underside 1/2 inch from overhang edge and integral coved backsplash.

        1) Edges and Corners: Rounded.

2. Tabletop Fabrication:

    a. Flat Configuration: 1 inch thick with continuous drip groove on underside at perimeter.

        1) Edges and Corners: Rounded.

3. Shelf Configuration: Flat, 3/4 inch thick.

    a. Edges and Corners: Rounded.

D. Stainless-Steel Shelves: Made from stainless-steel sheet, not less than 0.050-inch nominal thickness, with No. 4 satin finish. Weld shop-made joints. Fold down front edge 3/4 inch; fold up back edge 3 inches.

1. Provide integral stiffening brackets, formed by folding up ends 3/4 inch and welding to upturned front and back edges.
2. After fabricating, grind welds smooth and polish to produce uniform, directionally textured finish with no cross scratches or evidence of welds. Passivate and rinse surfaces; remove embedded foreign matter and leave surfaces clean.

E. Stainless-Steel Sinks: Made from stainless-steel sheet, not less than 0.050-inch nominal thickness. Fabricate with corners rounded and coved to at least 5/8-inch radius. Slope sink bottoms to outlet. Provide continuous butt-welded joints.

1. Provide double-wall construction for sink partitions with top edge rounded to at least 1/2-inch diameter.
2. After fabricating and welding, grind surfaces smooth and polish to produce uniform finish with no cross scratches or evidence of welds. Passivate and rinse surfaces; remove embedded foreign matter and leave surfaces clean.
3. Factory punch holes for fittings.
4. Provide with stainless-steel strainers and tailpieces.
5. Provide with integral rims except where located in stainless-steel countertops.
6. Apply 1/8-inch- thick coating of heat-resistant, sound-deadening mastic to undersink surfaces.

F. Cup Sinks: Provide in material indicated, 3-by-9-inch

1. Stainless-Steel Cup Sinks: Provide with stainless-steel strainers and integral tailpieces.

G. Troughs: Provide in material indicated and pitch to drains not less than 1/8 inch/foot. Except where troughs empty into sinks, provide NPS 1-1/2 (DN 40) outlets with strainers and tailpieces.

1. Stainless-Steel Troughs: Made from stainless-steel sheet, not less than 0.062-inch nominal thickness. Fabricate with corners rounded and coved to at least 5/8-inch radius. Provide continuous butt-welded joints. After fabricating and welding, grind surfaces smooth and polish to produce uniform finish with no cross scratches or evidence of welds. Passivate and rinse surfaces; remove embedded foreign matter and leave surfaces clean. Provide stainless-steel strainers and tailpieces.

2.10 LABORATORY ACCESSORIES

A. Reagent Shelves: Provide as indicated, fabricated from same material as adjacent countertop unless otherwise indicated.

B. Burette Rods: Aluminum or stainless-steel rods, 1/2 inch in diameter and 18 inches long, threaded on one end to fit tapered plug adapter for flush socket receptacle. Provide with tapered plug adapter and receptacle.

C. Upright Rod Assembly and Metal Crossbar: Aluminum or stainless steel. Two vertical rods and one horizontal crossbar, 3/4 inch in diameter and 36 inches long unless otherwise indicated; two flush socket receptacles and two crossbar clamps. Ends of vertical rods are tapered to fit receptacles; other rod ends are rounded.

D. Greenlaw Arm Assembly: Aluminum or stainless-steel vertical rod, tapered on one end to fit flush socket receptacle. Adjustable crossbar of hardwood with black, acid-resistant finish, secured to upright with adjustable clamp. Provide with receptacle.

E. Lattice Assembly: Aluminum or stainless-steel, vertical and horizontal rod lattice assembly with 3/4-inch- diameter rods at approximately 12 inches o.c. with two flush socket receptacles for mounting.

1. Size: 36 inches wide by 24 inches high.

F. Pegboards: Polypropylene, epoxy, or phenolic-composite pegboards with removable polypropylene pegs and stainless-steel drip troughs with drain outlet.

G. Pegboards: Stainless-steel pegboards with removable polypropylene pegs and stainless-steel drip troughs with drain outlet.

2.11 WATER AND LABORATORY GAS SERVICE FITTINGS

A. <Double click here to find, evaluate, and insert list of manufacturers and products.>

B. Service Fittings: Provide units that comply with SEFA 7, "Recommended Practices for Fixtures." Provide fittings complete with washers, locknuts, nipples, and other installation accessories. Include wall and deck flanges, escutcheons, handle extension rods, and similar items.

1. Provide units that comply with "Vandal-Resistant Faucets and Fixtures" recommendations in SEFA 7.

C. Materials: Fabricated from cast or forged red brass unless otherwise indicated.

1. Reagent-Grade Water Service Fittings: Polypropylene, PVC, or PVDF for parts in contact with water.

D. Finish: Acid- and solvent-resistant powder coating complying with requirements in SEFA 7 for corrosion-resistant finishes.

1. Provide chemical-resistant powder coating in laboratory casework manufacturer's standard metallic brown, aluminum, white, or other color as approved by Architect.

E. Water Valves and Faucets: Provide units complying with ASME A112.18.1, with renewable seats, designed for working pressure up to 80 psig.

1. Vacuum Breakers: Provide ASSE 1035 vacuum breakers on water fittings with serrated outlets.
2. Aerators: Provide aerators on water fittings that do not have serrated outlets.
3. Self-Closing Valves: Provide self-closing valves where indicated.

F. Ball Valves: Chrome-plated ball and PTFE seals. Handle requires no more than 5 lbf to operate. Provide units designed for working pressure up to 75 psig, with serrated outlets.

1. Locking Safety Handles: Where ball valves are indicated for fuel-gas use, provide handles that must be pushed in before being turned on.

G. Ground-Key Cocks: Tapered core and handle of one-piece forged brass, ground and lapped, and held in place under constant spring pressure. Provide units designed for working pressure up to 40 psig, with serrated outlets.

H. Steam Valves: Stainless-steel seat and PTFE seat disc. Provide units designed for steam working pressure up to 20 psig, with serrated outlets.

I. Needle Valves: Provide units with renewable, self-centering, floating cones and renewable seats of stainless steel or Monel metal, with removable serrated outlets.

1. Provide units designed for working pressure up to **60 psig**.

J. Hand of Fittings: Furnish right-hand fittings unless fitting designation is followed by "L."

K. Remote-Control Valves: Provide needle valves, straight-through or angle type as indicated for fume hoods and where indicated.

L. Handles: Provide three- or four-wing, molded-plastic or powder-coated-metal handles for valves unless otherwise indicated.

1. Provide lever-type handles for ground-key cocks. Lever handle aligns with outlet when valve is closed and is perpendicular to outlet when valve is fully open.
2. Provide lever-type handles for ball valves unless otherwise indicated. Lever handle aligns with outlet when valve is closed and is perpendicular to outlet when valve is fully open.
3. Provide heat-resistant plastic handles for steam valves.
4. Provide knurled, molded-plastic handles for needle valves.

M. Service-Outlet Identification: Provide color-coded plastic discs with embossed identification, secured to each service-fitting handle to be tamper resistant. Comply with SEFA 7 for colors and embossed identification.

2.12 ELECTRICAL AND COMMUNICATION SERVICE FITTINGS

A. Service Fittings, General: Provide units complete with metal housings, receptacles, switches, pilot lights, data communication outlets, cover plates, accessories, and gaskets required for mounting on laboratory casework.

B. Electrical Wiring Devices: Comply with requirements in Section 262726 "Wiring Devices" for receptacles, switches, pilot lights, cover plates, and accessories.

C. Twisted-Pair Copper Data Outlets: Comply with requirements in Section 271513 "Communications Copper Horizontal Cabling."

D. Optical-Fiber Data Outlets: Comply with requirements Section 271523 "Communications Optical Fiber Horizontal Cabling."

E. Electrical Receptacles: General grade. 125 V, 20 A; NEMA WD 6, Configuration 5-20R unless otherwise indicated.

1. GFCI Receptacles: Feed-through type with integral LED indicator light.
2. SPD Receptacles: With LED indicator light and integral SPD in line to ground, line to neutral, and neutral to ground.
3. Color of Receptacles: As selected by Architect unless otherwise indicated or required by NFPA 70.

F. USB Charger Receptacles: Dual Type A, color matching electrical receptacles.

1. Type: Tamper resistant.

G. Switches: Comply with NEMA WD 1, UL 20, and FS W-S-896.

1. Color of Switches: As selected by Architect unless otherwise indicated or required by NFPA 70.

H. Data Communication Outlets: Two RJ-45 jacks for terminating 100-ohm, balanced, four-pair twisted-pair cabling complying with TIA-568-C.1; complying with Category 5e. Comply with UL 1863.

I. Cover Plates: Provide satin-finish, Type 304, stainless-steel cover plates with formed, beveled edges.

J. Cover-Plate Identification: Use 1/4-inch- high letters unless otherwise indicated. For stainless steel or chrome-plated metal, stamp or etch plate and fill in letters with black enamel.

1. Provide at every cover plate.

a. Receptacles other than standard 125-V duplex, grounding type.
b. Switches and thermal-overload switches.
c. Pilot lights when located remotely from associated equipment or switch, where function is not obvious.
d. Receptacles, switches, and other locations indicated.

2. Provide the following information:

a. Voltage and phase for receptacles other than standard 125-V duplex, grounding type.
b. Indicate equipment being controlled by switches and thermal-overload switches.
c. Indicate equipment being controlled for pilot lights when located remotely from associated equipment or switch, where function is not obvious.
d. Number of the breaker in panelboard that controls device.

K. Pedestal-Type Fittings: Cast-aluminum housings with sloped single face or two faces, as indicated, with neoprene gasket under base and with concealed mounting holes in base for attaching to laboratory casework. Provide holes tapped for conduits.

L. Line-Type Fittings: Provide with cast-metal boxes with threaded holes for mounting on rigid steel conduit. Provide cover plates same size as boxes.

M. Recessed-Type Fittings: Provide with galvanized-steel boxes.

N. Finishes for Service-Fitting Components: Provide housings or boxes for pedestal- and line-type fittings with manufacturer's standard baked-on, chemical-resistant enamel in color as selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 INSTALLATION OF CABINETS

A. Comply with installation requirements in SEFA 2. Install level, plumb, and true in line; shim as required using concealed shims. Where laboratory casework abuts other finished work, apply filler strips and scribe for accurate fit, with fasteners concealed where practical.

B. Utility-Space Framing: Secure to floor with two fasteners at each frame. Fasten to partition framing, wood blocking, or metal reinforcements in partitions and to base cabinets.

C. Base Cabinets: Fasten cabinets to utility-space framing, partition framing, wood blocking, or reinforcements in partitions, with fasteners spaced not more than 16 inches o.c. Bolt adjacent cabinets together with joints flush, tight, and uniform.

1. Where base cabinets are installed away from walls, fasten to floor at toe space at not more than 24 inches o.c. and at sides of cabinets with not less than two fasteners per side.

D. Wall Cabinets: Fasten to hanging strips, masonry, partition framing, blocking, or reinforcements in partitions. Fasten each cabinet through back, near top, at not less than 16 inches o.c.

E. Install hardware uniformly and precisely.

F. Adjust operating hardware so doors and drawers align and operate smoothly without warp or bind and contact points meet accurately. Lubricate operating hardware as recommended by manufacturer.

3.2 INSTALLATION OF COUNTERTOPS

A. Comply with installation requirements in SEFA 2. Abut top and edge surfaces true in plane with flush hairline joints and with internal supports placed to prevent deflection. Locate joints where indicated on Shop Drawings.

B. Field Jointing: Where possible, make in same manner as shop-made joints, using dowels, splines, fasteners, adhesives, and sealants recommended by manufacturer. Shop prepare edges for field-made joints.

1. Plastic-Laminate Countertops: Secure field-made joints using concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches . Tighten according to manufacturer's written instructions to exert a uniform heavy pressure at joints.

C. Fastening:

1. Secure countertops, except for epoxy countertops, to cabinets with Z-type fasteners or equivalent, using two or more fasteners at each cabinet front, end, and back.
2. Secure epoxy countertops to cabinets with epoxy cement, applied at each corner and along perimeter edges at not more than 48 inches o.c.
3. Where necessary to penetrate countertops with fasteners, countersink heads approximately 1/8 inch and plug hole flush with material equal to countertop in chemical resistance, hardness, and appearance.

D. Provide holes and cutouts required for service fittings.

E. Seal unfinished edges and cutouts in plastic-laminate countertops with heavy coat of polyurethane varnish.

F. Provide scribe moldings for closures at junctures of countertop, curb, and splash with walls as recommended by manufacturer for materials involved. Match materials and finish to adjacent laboratory casework. Use chemical-resistant, permanently elastic sealing compound where recommended by manufacturer.

G. Dress joints smooth, remove surface scratches, and clean entire surface.

3.3 INSTALLATION OF SINKS

A. Comply with installation requirements in SEFA 2.

B. Drop-in Installation of Epoxy Sinks: Rout groove in countertop to receive sink rim if not shop prepared. Set sink in adhesive and fill remainder of groove with sealant or adhesive. Use procedures and products recommended by sink and countertop manufacturers. Remove excess adhesive and sealant while still wet and finish joint for neat appearance.

C. Underside Installation of Epoxy Sinks: Use laboratory casework manufacturer's recommended adjustable support system for table- and cabinet-type installations. Set top edge of sink unit in sink and countertop manufacturers' recommended chemical-resistant sealing compound or adhesive, and firmly secure to produce a tight and fully leakproof joint. Adjust sink and securely support to prevent movement. Remove excess sealant or adhesive while still wet and finish joint for neat appearance.

D. Semiflush Installation of Stainless-Steel Sinks: Before setting, apply sink and countertop manufacturers' recommended sealant under rim lip and along top. Remove excess sealant while still wet and finish joint for neat appearance.

E. Drop-in Installation of Cup Sinks: Rout groove in countertop to receive sink rim if not shop prepared. Set sink in adhesive and fill remainder of groove with sealant or adhesive. Use procedures and products recommended by sink and countertop manufacturers. Remove excess adhesive and sealant while still wet and finish joint for neat appearance.

F. Surface Installation of Cup Sinks: Set sink in sealant or adhesive. Use procedures and products recommended by sink and countertop manufacturers. Remove excess sealant or adhesive while still wet and finish joint for neat appearance.

3.4 INSTALLATION OF LABORATORY ACCESSORIES

A. Install accessories according to Shop Drawings, installation requirements in SEFA 2, and manufacturer's written instructions.

B. Securely fasten adjustable shelving supports, stainless-steel shelves, and pegboards to partition framing, wood blocking, or reinforcements in partitions.

C. Install shelf standards plumb and at heights to align shelf brackets for level shelves. Install shelving level and straight, closely fitted to other work where indicated.

D. Securely fasten pegboards to partition framing, wood blocking, or reinforcements in partitions.

3.5 INSTALLATION OF SERVICE FITTINGS

A. Comply with requirements in other Sections for installing water and laboratory gas service fittings and electrical devices.

B. Install fittings according to Shop Drawings, installation requirements in SEFA 2, and manufacturer's written instructions. Set bases and flanges of sink- and countertop-mounted fittings in sealant recommended by manufacturer of sink or countertop material. Securely anchor fittings to laboratory casework unless otherwise indicated.

3.6 CLEANING AND PROTECTING

A. Clean finished surfaces, touch up as required, and remove or refinish damaged or soiled areas to match original factory finish, as approved by Architect.

B. Protect countertop surfaces during construction with 6-mil plastic or other suitable water-resistant covering. Tape to underside of countertop at a minimum of 48 inches o.c.

3.7 SERVICE-FITTING SCHEDULE

A. Water Service Fittings, coordinate type with plumbing drawings and specs.

B. Laboratory Gas Service Fitting, Type GF-1:

1. Service: Air.
2. Fitting Type: Turret.
3. Outlets: Two, at 180 degrees.
4. Outlet Type: Straight.
5. Valve Type: Ball valve.

C. Laboratory Gas Service Fitting, Type GF-2:

1. Service: Gas (fuel gas).
2. Fitting Type: Turret.
3. Outlets: Two, at 180 degrees.
4. Outlet Type: Straight.
5. Valve Type: Ball valve.

D. Laboratory Gas Service Fitting, Type GF-3:

1. Service: Vacuum.
2. Fitting Type: Turret.
3. Outlets: Two, at 180 degrees.
4. Outlet Type: Straight.
5. Valve Type: Ball valve.

E. Electrical Service Fitting, Type EF-1:

1. Fitting Type: Recessed.
2. Device: Two duplex receptacles .
3. Additional Requirements: GFCI receptacles.

F. Communication Service Fitting, Type CF-1:

1. Fitting Type: Recessed.
2. Device: One duplex communication receptacle.

END OF SECTION 123553.13

Exhibit A-1-R

Specifications – QuES&T

SECTION 028200 – Asbestos Abatement SECTION 028300 – Lead Safe Work Practices

SECTION 028200
ASBESTOS ABATEMENT

PART I – GENERAL

1.01 DESCRIPTION

A. All work under this contract shall be performed in strict accordance with the specifications and all applicable laws for asbestos removal projects. The Abatement Contractor shall furnish all labor, materials, supervision, services, insurance and equipment necessary for the complete and total removal of Asbestos-containing Materials (ACM) as described herein, in attachments to the specification, Job Specific Variance(s) and/or as directed by the ***Town of New Windsor*** (here-in-after the "Owner") and/or the Owners Representative(s) to support the ***Caesars Lane WWTP Expansion Project: Phase 1.***

B. Abatement Contractor shall provide for personnel air monitoring to satisfy OSHA regulation 29 CFR Parts 1926.1101(f). All work performed shall be in strict accordance with applicable provisions and regulations promulgated under New York State Department of Labor, Industrial Code 56 (ICR-56).

C. The Abatement Contractor shall satisfy the requirements for asbestos projects issued by the New York State Department of Labor concerning licensing and certification; notification; equipment; removal and disposal procedures; engineering controls; work area preparation; decontamination and clean-up procedures; and personnel air monitoring.

D. The Abatement Contractor shall be responsible for submittal of asbestos project notification(s) and applicable fees to EPA and NYSDOL concerning this project. Project notification(s) shall be made for the cumulative total of ACM to be removed as required by ICR-56-3.4. Work practices for each individual work area established shall be consistent with the quantity of ACM contained within that work area as defined in ICR-56-2.

E. The scope of work under this contract shall include the following:

1. All asbestos-containing materials (ACM) shall be removed in accordance with these specifications. The Abatement Contractor is responsible for field verification of estimated quantities, locations and other site conditions that may affect work.

2. All fixed objects remaining within the work area(s) shall be protected as required by Title 12 NYCRR Section 56-7.10(b) and as described in these specifications.

3. The containerization, labeling and disposal of all asbestos waste in accordance with applicable city, state and federal regulations and these specifications.

4. The Abatement Contractor will be responsible for repairing all building components damaged during abatement including, but not limited to, ceiling tiles, ceiling finishes, wall finishes and/or floor finishes, etc.

5. The Abatement Contractor shall be responsible for any and all demolition required to access materials identified in scope of work and on associated drawings.

6. Concealed conditions that are exposed and may require additional work shall be brought to the attention of the Owner(s) immediately. The Abatement Contractor shall not abate these areas without a written notice to proceed. If the Abatement Contractor removes additional asbestos prior to the order to proceed the additional work will not be acknowledged.

7. Permissible working hours shall be Monday through Friday 7:00 A.M. to 4:00 P.M. and/or as defined by the Owner(s) and/or Owner's Representative(s). Holidays shall be considered weekends and not included for working days. Upon written approval from the Owner, the Abatement Contractor may work past these hours. The Abatement Contractor will incur any and all costs associated for work performed beyond the defined schedule including, but not limited to: abatement activities, project/air monitoring, custodial/staffing labor, overtime, mobilizations, etc.

8. Buildings will be turned over to the Abatement Contractor as is. At that time, all electrical services and HVAC systems in the proposed work areas will be shut down. Electricity and water supply will be maintained in the building for use by the Abatement Contractor. The Abatement Contractor is responsible for securing all power in the work area(s) and establishing all temporary GFCI hookups necessary to complete his work.

9. The Abatement Contractor shall remove all identified Asbestos-containing Materials (ACM) to building substrate(s); in areas indicted. Subsequent to final air clearances, the substrate(s) shall be washed with a neutralizing agent to prepare the substrate to accept new floor covering and eliminate residual odors.

10. The Abatement Contractor must coordinate location of waste containers with the Facility and the Owner. Deliveries and storage of equipment must be coordinated with the Facility and the Owner.

11. All "Large" and "Small" asbestos abatement projects, as defined by 12 NYCRR56 shall not be performed while the building is occupied. The term "building" means a wing or major section of a building that can be completely isolated from the rest of the building with sealed non-combustible construction. The isolated portion of the building must contain exists that do not pass through the occupied portion(s) and ventilation systems must be physically separated and sealed at the isolation barriers.

1.02 PRE-CONTRACT SUBMITTALS

Within three (3) days after bids are opened, the three (3) apparent low bidders shall be required to submit the following documentation:

A. Resume': Shall include the following:

1. Provide a list of projects of similar nature performed within the past two (2) years and include the dollar value of all projects. Provide project references to include owner, consultant, and air monitoring firms' name, contact person, address, and phone number, include location of project and date of completion.

2. Abatement Contractor license issued by New York State Department of Labor for asbestos work in accordance with ICR-56-3.

3. A list of owned equipment available to be used in the performance of the project.

4. The number of years engaged in asbestos removal.

5. An outline of the worker training courses, and medical surveillance program conducted by the Abatement Contractor.

6. A standard operating procedures manual describing work practices and procedures, equipment, type of decontamination facilities, respirator program, special removal techniques, etc.
7. Documentation to the satisfaction of the Owner pertaining to the Abatement Contractor's financial resources available to perform the project. Such data shall include, but not be limited to, the firm's balance sheet for the last fiscal year.

B. Citations/Violations/Legal Proceedings

1. Submit a notarized statement describing any citations, violations, criminal charges, or legal proceedings undertaken or issued by any law enforcement, regulatory agency, or consultant concerning performance on previous asbestos abatement contracts. Briefly describe the circumstances citing the project and involved persons and agencies as well as the outcome of any actions.

2. Answer the question: "Has your firm or its agents been issued a Stop Work order on any project within the last two years?" If "Yes" provide details as discussed above.

3. Answer the question: "Are you now, or have you been in the past, a party to any litigation or arbitrations arising out of your performance on Asbestos Abatement Contracts?" If "Yes" provide details as discussed in 1. above.

4. Describe any liquidated damages assessed within the last two years.

C. Preliminary Schedule

1. Provide a detailed schedule including work dates, work shift times, estimate of manpower to be utilized and the start and completion date for completion of each major work area.

1.03 DOCUMENTATION

A. The Abatement Contractor shall be required to submit the following and receive the Consultant's approval prior to commencing work on this project:

1. Provide documentation of worker training for each person assigned to the project. Documentation shall include copies of each workers valid New York State asbestos handler certificates (for those employees who may perform asbestos removal), documentation of current respirator fit test and current OSHA required training and medical examination.

2. The attached "Asbestos Employee Medical Examination Statement" and "Asbestos Employee Training Statement" forms shall be completed, signed and submitted for each worker assigned to the project. Records of all employee training and medical surveillance shall be maintained for at least forty (40) years. Copies of the records shall be submitted to the Consultant prior to commencement.

3. The Abatement Contractor shall submit proof of a current, valid license issued by the New York State Department of Labor pursuant to the authority vested in the Commissioner by section 906 of the Labor Laws, and that the employees performing asbestos related work on this project are certified by the State of New York as required in Part 56 of Title 12 of the Official Compilation of Codes, Rules and Regulations of the State of New York latest edition. Copies of all licenses shall be submitted prior to the commencement of the project.

4. The Abatement Contractor shall submit a written respiratory protection program meeting the requirements of 29 CFR 1910.134 to the Consultant.

5. The name, address, social security number and NYS DOL certificate number of the person(s) who will supervise the asbestos project.

6. The name and address of the deposit or waste disposal site or sites where the asbestos materials are to be deposited or disposed of. This site must be approved by the Owner. The manifesting procedure must also be specified.

7. The name, address and New York State Dept. of Environmental Conservation ID Number of any transporters that are to be used to transport waste.

8. A written Standard Operation Procedure (SOP) that is designed and implemented to maximize protection against human exposure to asbestos dust. The SOP shall take into consideration the workers, visitors, building employees, general public and environment. As a minimum the procedures must include the following:

   a. Security for all work areas on an around-the-clock basis against unauthorized access.

   b. Project organization chart including the phone numbers of at least two responsible persons who shall be authorized to dispatch men and equipment to the project in the event of an emergency; including weekends.

   c. Description of protective clothing and NIOSH approved respirators to be used.

   d. Description of all removal methods to be used, including HEPA air filtration and decontamination sequence with special emphasis on any procedure that may deviate from these specifications.

   e. A list of manufacturers' certificates stating that all vacuums, negative air filtration equipment, respirators and air supply equipment meet OSHA and EPA requirements.

   f. A list of all materials proposed to be furnished and used under this contract.

g. Emergency evacuation procedures in the event of fire, smoke or accidents such as injury from falling, heat exposure, electrical shock, etc.

h. The name, address and ELAP number of the New York State Department of Health Certified Analytical Testing Laboratory the Contractor proposes to use for the OSHA monitoring.

9. A detailed plan, in triplicate, for the phasing of the project, division of work areas and location of decontamination facilities, waste containers and temporary office.

10. Work schedule, identifying firm dates and completion for actual areas. Bar chart or critical path chart indicating phases is required.

B. The Abatement Contractor shall post their NYS DOL contractor's license and maintain a daily log documenting the dates and time of the following items within each personal decontamination unit:

1. Meetings; purpose, attendants, discussion (brief)

2. Sign-in and sign-out of all persons entering the work area including name, date, time, social security number, position or function and general description of daily activity.

3. Testing of barriers and enclosure systems using smoke tubes prior to the beginning of abatement activities and at least once a day thereafter until satisfactory clearance air monitoring results have been achieved.

4. Inspection of all plastic barriers, twice daily, by the asbestos supervisor.

5. Loss of enclosure integrity; special or unusual events, barrier breaches, equipment failures, etc.

6. Daily cleaning of enclosures.

7. Personnel air monitoring test results for OSHA Compliance. Results shall be posted at the work site within 24 hours of testing and copies supplied to the Owner within five (5) days of testing. Abnormalities shall be supplied to the Owner immediately.

C. Documentation with confirmation signature of Consultant's representative of the following shall be provided by the Abatement Contractor at the final closeout of the project.

1. Testing of barriers and enclosure systems using smoke tubes shall be performed prior to the beginning of abatement activities and at least once a day thereafter until satisfactory clearance air monitoring results have been achieved.

2. Inspection of all plastic barriers.

3. Removal of all polyethylene barriers.

4. Consultant's inspections prior to encapsulation.

5. Removal of waste materials.

6. Decontamination of equipment (list items).

7. Consultant's final inspection/final air tests.

D. The Abatement Contractor shall provide records of all project information, to include the following which shall be submitted upon completion of the project and prior to approval of the Abatement Contractor's payment application:

1. The location and description of the abatement project.

2. The name, address and social security number of the person(s) who supervised the asbestos project.

3. Certified payroll documentation Pursuant to Article 8, Section 220 of the NYS Labor Law

4. Copies of EPA/NYSDOL Asbestos Certificates for all Workers and Supervisors employed on the Project.

5. Copies of Medical Approval and Respirator Fit Testing for all Asbestos Workers and Supervisors employed on the Project.

6. Copies of Abatement Contractors Daily Sign-In Sheets & Logs for persons entering and leaving the work area. – Title 12 NYCRR Part 56-7.3.

7. Copies of Abatement Contractor's personal air sampling laboratory results.

8. The amounts and type of asbestos materials that was removed, enclosed, encapsulated, or disturbed.

9. The name and address of the deposit or waste disposal site or sites where the asbestos waste materials were deposited or disposed of and all related manifests, receipts and other documentation associated with the disposal of asbestos waste.

10. The name and address of any transporters used to transport waste and all related manifests, receipts and other documentation associated with the transport of asbestos waste.

11. All other information that may be required by state, federal or local regulations.

12. Copy of the Supervisor's Daily Project Log of events as described in 1.03 B, above.

1.04 NOTIFICATIONS AND PERMITS

A. The Abatement Contractor shall be required to prepare and submit notifications to the following agencies at least ten (10) days prior to the commencement of the project:

1. Asbestos NESHAPS Contact
   U.S. Environmental Protection Agency
   NESHAPS Coordinator, Air Facilities Branch
   26 Federal Plaza
   New York, New York 10007
   (212) 264-7307

2. State of New York Department of Labor
   Division of Safety and Health
   Asbestos Control Bureau
   State Office Building Campus, Building 12, Room 454
   Albany, New York 12240

3. Owner(s): Town of New Windsor
   555 Union Avenue
   New Windsor, NY 12553
   ATTN: Michael Weeks, Town Engineer
   Ph. (845) 563-4618
   E-mail. mweeks@mhepc.com

4. Environmental Consultant(s): Quality Environmental Solutions & Technologies, Inc. (QuES&T)
   1376 Route 9
   Wappingers Falls, New York 12590
   ATTN: Rudy Lipinski, Director of Field Operations
   Ph. (845) 298-6031
   E-mail. rlipinski@qualityenv.com

B. The notification shall include but not be limited to the following information:

1. Name and address of Owner.

2. Name, address and asbestos handling license number of the Abatement Contractor.

3. Address and description of the building, including size, age, and prior use of the building or area; the amount, in square feet or linear feet of asbestos material to be removed; room designation numbers or other local information where asbestos material is found, including the type of asbestos material (friable or non-friable).
4. Scheduled starting and completion dates for removal.

5. Methods to be employed in abating asbestos containing materials.

6. Procedures and equipment, including ventilating/exhaust systems, that will be employed to comply with the Code of Federal Regulation (CFR) Title 40, Part 61 of the U.S. Environmental Protection Agency.

7. The name and address of the carting company and of the waste disposal site where the asbestos waste will be deposited.

NOTE: Notifications shall be submitted using standard forms as may be used by the respective agency.

For DOL (NYS) include "Asbestos Project Notification" form (DOSH-483) with proper fee, if required. For EPA include "Notification of Demolition and Renovation"; 40 CFR Part 61.

C. The Abatement Contractor shall secure any permits required by the city, town, county, or state that may be required and the cost for obtaining the permit shall be included in his base bid.

D. The Abatement Contractor shall erect warning signs around the work space at every point of potential entry into the work area in accordance with OSHA 1926.58k (2), (i). These signs shall bear the following information:

DANGER

CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE
CLOTHING
ARE REQUIRED IN THIS AREA

E. The Abatement Contractor shall post at entrances to the work place and immediate adjacent areas, notifications to building occupants which include the name and license number of the contractor, project location and size, amount and type of ACM, abatement procedures, dates of expected occurrence and name and address of the air monitor and laboratory in compliance with ICR 56-3.6.

F. The Abatement Contractor shall post a list of emergency telephone numbers at the job site which shall include the Owner's Representative, police, emergency squad, local hospital, Environmental Protection Agency, N.Y. State Department of Labor, Occupational Safety and Health Administration and the local Department of Health.

1.05 APPLICABLE STANDARDS

Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, applicable standards of the construction industry have the same force and effects (and are made a part of contract documents by reference) as if copied directly into contract documents, or as if published copies were bound herewith. Resolution of overlapping and conflicting requirements, which result from the application of several different industry standards to the same unit of work, shall be by adherence to the most stringent requirement.

A. Applicable standards listed in these Specifications form a part of this Specification and include, but are not necessarily limited to, standards promulgated by the following agencies and organizations:

1. ANSI:
   American National Standards Institute
   1430 Broadway
   New York, New York 10018

2. ASHRAE:
   American Society for Heating, Refrigerating
   and Air Conditioning Engineers
   1791 Tullie Circle NE
   Atlanta, Georgia 30329

3. ASTM:
   American Society for Testing and Materials
   1916 Race Street
   Philadelphia, Pennsylvania 19103

4. CFR
   Code of Federal Regulations Available
   from Government Printing Office
   Washington, District of Columbia 20402

5. CGA
   Compressed Gas Association
   1235 Jefferson Davis Highway
   Arlington, Virginia 22202

6. CS
   Commercial Standard of NBS
   (US Dept. of Commerce)
   Government Printing Office

7. EPA
   Environmental Protection Agency, Region II
   26 Federal Plaza
   New York, New York 10007
   Asbestos Coordinator - Room 802
   (212) 264-9538
   Part 61, Sub-Parts A & B
   National Emission Standard for Asbestos

8. FEDERAL SPECS
   Federal Specification (General Services Administration)
   7th and D Street, SW
   Washington, District of Columbia 20406

9. NBS
   National Bureau of Standards
   (US Department of Commerce)
   Gaithersburg, Maryland 20234

10. NEC
    National Electrical Code (by NFPA)

11. NFPA
    National Fire Protection Association
    Batterymarch Park
    Quincy, Massachusetts 02269

12. NIOSH
    National Institute for Occupational Safety and Health
    26 Federal Plaza
    New York, New York 10007

13. NYSDOH
    New York State Department of Health
    Bureau of Toxic Substance Assessment
    Room 359 - 3rd Floor
    Tower Building Empire State Plaza
    Albany, New York 12237

14. NYSDEC
    New York State Department of Environmental Conservation
    Room 136
    50 Wolf Road
    Albany, New York 12233-3245

15. NYSDOL
    State of New York Department of Labor
    Division of Safety and Health
    Asbestos Control Program
    State Campus
    Building 12
    Albany, New York 12240

16. OSHA
    Occupational Safety and Health Administration
    (US Department of Labor)
    New York Regional Office - room 3445
    1515 Broadway
    New York, New York 10036

17. UL
    Underwriters Laboratories
    333 Pfingsten Road
    Northbrook, Illinois 60062

B. Federal Regulations: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials:

1. U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA):

a. Asbestos Regulations
Title 29, Part 1910, of the Code of Federal Regulations.

b. Respiratory Protection
Title 29, Part 1910, Section 134 of the Code of Federal Regulations.

c. Construction Industry
Title 29, Part 1926, of the Code of Federal Regulations.

d. Access to Employee Exposure & Medical Records
Title 29, Part 1910, Section 20 of the Code of Federal Regulations.

e. Hazard Communication
Title 29, Part 1910, Section 1200 of the Code of Federal Regulations.

f. Specifications for Accident Prevention Signs and Tags
Title 29, Part 1910, section 145 of the Code of Federal Regulations.

2. U.S. Environmental Protection Agency (EPA):

a. Asbestos Hazard Emergency Response Act (AHERA) Regulation Asbestos Containing Materials in Schools Final Rule & Notice Title 40, Part 763, Subpart E of the Code of Federal Regulations.

b. Worker Protection Rule
40 CFR Part 763, Subpart G, CPTS 62044, FLR 2843-9
Federal Register, Vol. 50, No. 134, 7/12/85, P28530-28540

c. Regulation for Asbestos
Title 40, Part 61, Subpart A of the Code of Federal Regulations

d. National Emission Standard for Asbestos
Title 40, Part 61, Subpart M (Revised Subpart B) of the Code of Federal Regulations

e. Resource Conservation and Recovery Act (RCRA) 1976, 1980
Hazardous and Solid Waste Amendments (HSWA) 1984
Subtitle D, Subtitle C

3. U.S. Department of Transportation (DOT):

a. Hazardous Substances: Final Rule Regulation 49 CFR, Part 171 and 172.

C. State Regulations: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials:

1. New York State Department of Environmental Conservation (DEC) Regulations regarding waste collection registration. Title 6, Part 364 of the New York State Official Compilation of Codes, Rules and Regulations - 6NYCRR 364.

2. New York State Right-To-Know Law

3. New York State Department of Labor Asbestos Regulations Industrial Code Rule 56.

4. New York State Department of Health, Title 10 Part 73 Asbestos Safety Program Requirements.

D. Standards: Those which govern asbestos abatement work or hauling and disposal of asbestos waste materials:

1. American National Standards Institute (ANSI)

   a. Fundamentals Governing the Design and Operation of Local Exhaust Systems Publication Z9.2-79

   b. Practices for Respiratory Protection Publication Z88.2-80

E. Guidance Documents: Those that discuss asbestos abatement work or hauling, and disposal of asbestos waste materials are listed below only for the Abatement Contractor's information. These documents do not describe the work and are not a part of the work of this contract.

EPA:

1. Guidance for Controlling Asbestos Containing Materials in Buildings (Purple Book) EPA560/5-85-024.

2. Asbestos Waste Management Guidance EPA 530-SW-85-007.

F. Patents and Royalties: The Abatement Contractor shall pay all royalties and/or license fees. The Abatement Contractor shall defend all suits and claims for infringement of any patent rights and save the Owner and Consultant harmless from loss including attorney fees on account thereof.

1.06 DEFINITIONS

As used in or in connection with these specifications the following are terms and definitions.

Abatement - Procedure to control release from asbestos material. This includes removal, encapsulation and enclosure.

Aggressive sampling - A method of sampling in which the person collecting the air sample creates activity by the use of mechanical equipment during the sampling period to stir up settled dust and simulate activity in that area of the building.

AIHA - The American Industrial Hygiene Association, 475 Wolf Ledges Parkway, Akron, Ohio 44311.

Airlock - A system for permitting entrance and exit while restricting air movement between a containment area and an uncontaminated area. It consists of two curtained doorways separated by a distance of at least three feet such that one passes through one doorway into the airlock, allowing the doorway sheeting to overlap and close off the opening before proceeding through the second doorway, thereby preventing flow-through contamination.

Air sampling - The process of measuring the content of a known volume of air collected during a specific period of time.

Amended water - Water to which a surfactant has been added.

Approved asbestos safety program - A program approved by the Commissioner of Health providing training in the various disciplines that may be involved in an asbestos project.

Area air sampling - Any form of air sampling or monitoring where the sampling device is placed at some stationary location.

Asbestos - Any naturally occurring hydrated mineral silicate separable into commercially usable fibers, including chrysotile (serpentine), amosite (cumingtonite-gunerite), crocidolite (riebeckite), tremolite, anthophyllite and actinolite.

Asbestos contract - An oral or written agreement contained in one or more documents for the performance of work on an asbestos project and includes all labor, goods and service.

Asbestos handler - An individual who installs, removes, applies, encapsulates, or encloses asbestos or asbestos material, or who disturbs friable asbestos. Only individuals certified by NYS Department of Labor shall be acceptable for work under this specification.

Asbestos handling certificate - A certificate issued by the Commissioner of Labor of the State of New York, to a person who has satisfactorily completed an approved asbestos safety program.

Asbestos project - Work undertaken by a contractor which involves the installation, removal, encapsulation, application or enclosure of any ACM or the disturbance of friable ACM.

Asbestos Safety Technician (AST) - Individual designated to represent the Consultant, perform third party monitoring and perform compliance monitoring at the job site during the asbestos project.

Asbestos waste material - Asbestos material or asbestos contaminated objects requiring disposal.

Authorized visitor - The building owner, his or her representative or any representative of a regulatory or other agency having jurisdiction over the project.

Background level monitoring - A method used to determine ambient airborne concentrations inside and outside of a building or structure prior to starting an abatement project.

Building owner - The person in whom legal title to the premises is vested unless the premises are held in land trust, in which instance Building Owner means the person in whom beneficial title is vested.

Clean room - An uncontaminated area or room that is a part of the personal decontamination enclosure with provisions for storage of persons' street clothes and protective equipment.

Cleanup - The utilization of HEPA vacuuming to control and eliminate accumulations of asbestos material and asbestos waste material.

Clearance air monitoring - The employment of aggressive sampling techniques with a volume of air collected to determine the airborne concentration of residual fibers upon conclusion of an asbestos abatement project.

Commissioner - Commissioner of the New York State Department of Labor.

Contractor - A company, unincorporated association, firm, partnership or corporation and any owner or operator thereof, which engages in an asbestos project or employs persons engaged in an asbestos project.

Curtained doorway - A device that consists of at least three overlapping sheets of plastic over an existing or temporarily framed doorway. One sheet shall be secured at the top and left side, the second sheet at the top and right side, and the third sheet at the top and the left side. All sheets shall have weights attached to the bottom to ensure that the sheets hang straight and maintain a seal over the doorway when not in use.

Decontamination enclosure system - A series of connected rooms, separated from the work area and from each other by air locks, for the decontamination of persons, materials, equipment, and authorized visitors.

Encapsulant (sealant) or encapsulating agent - A liquid material that can be applied to asbestos material and which prevents the release of asbestos from the material by creating a membrane over the surface.

Enclosure - The construction of airtight walls, ceilings and floors between the asbestos material and the facility environment, or around surfaces coated with asbestos materials, or any other appropriate procedure that prevents the release of asbestos materials.

Equipment room - A contaminated area or room that is part of the personal decontamination enclosure system with provisions for the storage of contaminated clothing and equipment.

Fixed object - A unit of equipment, furniture or other fixture in the work area which cannot be readily removed from the work area.

Friable Asbestos Material - That condition of crumbled, pulverized, powdered, crushed or exposed asbestos capable of being released into the air by hand pressure.

Friable material containment - The encapsulation or enclosure of any friable asbestos material.

Glovebag technique - A method for removing asbestos material from heating, ventilating, and air conditioning (HVAC) ducts, piping runs, valves, joints, elbows, and other nonplanar surfaces in a noncontained work area. The glovebag assembly is a manufactured device consisting of a glovebag constructed of at least six mil transparent plastic, two inward-projecting longsleeve gloves, which may contain an inward projecting waterwand sleeve, an internal tool pouch, and an attached, labeled receptacle or portion for asbestos waste. The glovebag is constructed and installed in such a manner that it surrounds the object or area to be decontaminated and to contain all asbestos fibers released during the abatement process.

HEPA filter - A high efficiency particulate air filter capable of trapping and retaining 99.97 percent of particulate greater than 0.3 microns equivalent aerodynamic diameter.

HEPA vacuum equipment - Vacuuming equipment with a high efficiency particulate air filtration system.

Holding area - A chamber in the waste decontamination enclosure located between the washroom and an adjacent uncontaminated area.

Homogeneous work area - A site within the abatement work area that contains one type of asbestos material and where one type of abatement is used.

Large asbestos project - An asbestos project involving the installation, removal, disturbance, enclosure, or encapsulation of 160 square feet or more of asbestos or asbestos material or 260 linear feet or more of asbestos or asbestos material.

Minor asbestos project - An asbestos project involving the installation, removal, disturbance, enclosure, or encapsulation of 10 square feet or less of asbestos or asbestos material, or 25 linear feet or less of asbestos or asbestos material.

Movable object - A unit of equipment, furniture or fixture in the work area that can be readily removed from the work area.

Negative air pressure equipment - A local exhaust system equipped with HEPA filtration. The system shall be capable of creating and maintaining a negative pressure differential between the outside and the inside of the work area.

Non-asbestos material - Any material containing one percent or less asbestos by weight.

Occupied area - Any frequented portion of the work site where abatement is not taking place.

Outside air - The air outside the building or structure.

Personal air monitoring - A method used to determine an individual’s exposure to airborne contaminants. The sample is collected outside the respirator in the person's breathing zone.

Plasticize - To cover floors, walls, ceilings and other surfaces with 6 mil fire retardant plastic sheeting as herein specified.

Project - Any form of work performed in connection with the abatement of asbestos or alteration, renovation, modification or demolition of a building or structure that may disturb asbestos or asbestos material.

Removal - The stripping of any asbestos material.

Repair - Corrective action using required work practices to control fiber release from damaged areas.

Respiratory protection - Respiratory protection required of licensed asbestos workers and authorized visitors in accordance with the applicable laws.

Satisfactory clearance air monitoring results - For all post- abatement samples, airborne concentrations of total fibers that are less than 0.01 fibers per cubic centimeter or background levels, whichever are greater, using phase contrast microscopy (PCM).

Shower room - A room between the clean room and the equipment room in the personal decontamination enclosure with hot and cold running water controllable at the top and arranged for complete showering during decontamination.

Small asbestos project - An asbestos project involving the installation, removal, disturbances, enclosure, or encapsulation of more than 10 and less than 160 square feet of asbestos or asbestos material of more than 25 and less than 260 linear feet of asbestos or asbestos material.

Staging area - The area near the waste transfer airlock where containerized asbestos waste has been placed prior to removal from the work area.

Surfactant - A chemical wetting agent added to water to improve its penetration.

Visible emissions - An emission of particulate material that can be seen without the aid of instruments.

Washroom - A room between the work area and the holding area in the waste decontamination enclosure system, where equipment and waste containers are wet cleaned and/or HEPA vacuumed.

Waste decontamination enclosure system - An area, consisting of a washroom and a holding area, designated for the controlled transfer of materials and equipment.

Wet cleaning - The process of eliminating asbestos contamination from surfaces, equipment or other objects by using cloths, mops, or other cleaning tools.

Work area - Designated rooms, spaces, or areas where asbestos abatement takes place.

Work site - Premises where asbestos abatement is taking place.

Work Surface - Substrate surface from which asbestos-containing material has been removed.

1.07 UTILITIES, SERVICE AND TEMPORARY FACILITIES

A. The Owner shall make available to the Abatement Contractor all reasonable amounts of water and electrical power at no charge.

B. The Abatement Contractor shall provide, at his own expense, all electrical, water, and waste connections, extensions, and construction materials, supplies, etc. All connections must be approved in advance by the Owner and all work relative to the utilities must be in accordance with the applicable building codes.

C. The Abatement Contractor shall provide scaffolding, ladders and staging, etc. as necessary to accomplish the work of this contract. The type, erection and use of all scaffolding, ladders and staging, etc. shall comply with all applicable OSHA provisions.

D. All connections to the Owner's water system shall include reduced pressure backflow protection or double check and double gate valves. Valves shall be temperature and pressure rated for operation of the temperatures and pressures encountered. After completion of use, connections and fittings shall be removed without damage or alteration to existing water piping and equipment. Leaking or dripping valves shall be piped to the nearest drain or located over an existing sink or grade where water will not damage existing finishes or equipment.

E. The Abatement Contractor shall use only heavy-duty abrasion resistant hoses with a pressure rating greater than the maximum pressure of the water distribution system to provide water to each work area and to each decontamination unit. Provide fittings as required to allow for connection to existing wall hydrants or spouts, as well as temporary water heating equipment, branch piping, showers, shut-off nozzles and equipment. All water must be shut off at the end of each shift.

F. The Abatement Contractor shall provide service to decontamination unit electrical subpanel with minimum 60-amp, 2 pole circuit breaker or fused disconnect and ground-fault circuit interrupters (GFCI), reset button and pilot light, connected to the building's main distribution panel. Subpanel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion of the work. This electrical subpanel shall be used for hot water heater, PAPR battery recharging and air sampling pumps.

G. The Abatement Contractor shall provide UL rated 40-gallon electric hot water heater to supply hot water for the decontamination unit shower. Activate from 30-amp circuit breaker on the electrical subpanel located within the decontamination unit. Provide with relief valve compatible with water heater operation, relief valve down to drip pan on floor with type L copper. Wiring of the hot water heater shall follow NEMA, NEC, and UL standards.

H. The Abatement Contractor shall provide identification warning signs at power outlets, which are other than 110-120-volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 plugs into higher voltage outlets. Dry transformers shall be provided where required to provide voltages necessary for work operations. All outlets or power supplies shall be protected by ground fault circuit interrupter (GFCI) at the power source.

I. The Abatement Contractor shall use only grounded extension cords; use "hard-service" cords where exposed to abrasion and traffic. Use single lengths or use waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas of work.

J. The Abatement Contractor shall provide general service incandescent lamps of wattage indicated or required for adequate illumination; Protect lamps with guard cages or tempered glass enclosures; Provide exterior fixtures where fixtures are exposed to moisture.

K. The Abatement Contractor shall provide temporary heat or air conditioning as necessary to maintain comfortable working temperatures inside and immediately outside the work areas. Heating and A/C equipment shall have been tested and labeled by UL, FM or another recognized trade association related to the fuel being used. Fuel burning heaters shall not be used inside containment areas. The Contractor shall also provide a comfortable working environment for occupied areas that are impacted by the asbestos removal.

L. The Abatement Contractor shall comply with recommendations of the NFPA standard in regard to the use and application of fire extinguishers. Locate fire extinguishers where they are most convenient and effective for their intended purpose but provide not less than one extinguisher in each work area, equipment room, clean room and outside the work area.

1.08 REMOVAL OF FIXTURES

A. In locations where the Abatement Contractor is directed to dispose of fixtures, he shall either decontaminate the fixtures and dispose of them as non-asbestos containing materials or he shall place them in an appropriate container and dispose of them as asbestos containing material.

B. In locations where the Abatement Contractor is directed to remove and reinstall fixtures, the fixtures shall be removed, decontaminated, labeled, protected with plastic and stored by the contractor in a location as directed by the Owner.

C. Upon completion of the asbestos removal and upon receiving satisfactory clearance air monitoring results, all items to be replaced shall be restored to their original location and reinstalled by the Abatement Contractor.

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. GENERAL REQUIREMENTS

1. Materials shall be stored off the ground, away from wet or damp surfaces and under protective cover to prevent damage or contamination.

2. Damaged or deteriorating materials shall not be used and shall be removed from the premises.

3. Power tools used to drill, cut into, or otherwise disturb asbestos material shall be equipped with HEPA filtered local exhaust ventilation.

4. The Abatement Contractor shall make available to authorized visitors, ladders and/or scaffolds of sufficient dimension and quantity so that all work surfaces can be easily and safely reached for inspection. Scaffold joints and ends shall be sealed with tape to prevent incursion of asbestos. Scaffolds and ladders shall comply with all applicable codes.

B. PLASTIC BARRIERS (POLYETHYLENE)

1. In sizes and shapes to minimize the number of joints.

   a. Six mil. (.006") fire-retardant for vertical protection (walls, entrances and openings).

   b. Six mil. (.006") fire-retardant for horizontal protection (fixed equipment) and heating grilles.

   c. Six mil. (.006") reinforced fire-retardant for floors of decon units.

2. Provide two (2) layers over all roof, wall and ceiling openings. Floor penetrations shall be sealed with a rigid material prior to plasticizing to prevent tripping and fall hazards. All seams within a layer shall be separated by a minimum distance of six feet and sealed airtight. All seams between layers shall be staggered.

3. Barrier Attachment - Commercially available duct tape (fabric or paper) and spray-on adhesive. Duct tape shall be capable of sealing joints of adjacent sheets of plastic, facilitating attachment of plastic sheets to finished or unfinished surfaces of dissimilar materials and adhering under both dry and wet conditions.

C. SIGNS

1. Danger signs shall be provided and shall conform to 29 CFR 1926.1101 and be 14" x 20". These signs shall bear the following information:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
RESPIRATORS AND PROTECTIVE
CLOTHING
ARE REQUIRED IN THIS AREA

D. DANGER LABELS AND TAPE

1. Labels shall be affixed to any asbestos contaminated material in accordance with the requirements of 29 CFR 1910.1200 (f) of OSHA's Hazard Communication Standard, and shall contain the following information:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID BREATHING DUST
CANCER AND LUNG DISEASE HAZARD

2. A label shall be affixed on each container of asbestos waste in accordance with the requirements of 49 CFR Parts 171 and 172, Hazardous Substances; Final Rule (U.S. Department of Transportation), and shall contain the following information:

RQ HAZARDOUS SUBSTANCE
SOLID, NOS, ORM-E, NA 9188
(ASBESTOS)

3. A label shall be affixed on each container of asbestos waste in accordance with the requirements of 40 CFR Part 61.150, NESHAP; Asbestos; Final Rule (USEPA) and shall contain the name of the waste generator and the location at which the waste was generated.
   NOTE: All containers marked as above (1,2 and 3) shall be disposed of as asbestos waste.

4. Provide 3" red barrier tape printed with black lettered "DANGER ASBESTOS REMOVAL". Locate barrier tape across all corridors, entrances and access routes to asbestos work area.

E. PROTECTIVE EQUIPMENT

1. Respiratory Requirements

   a. Where fiber levels permit, and in compliance with regulatory requirements, Powered Air Purifying Respirators are the minimum allowable respiratory protection permitted to be utilized during removal operations.

   b. Where not in violation of NIOSH, OSHA, and any other regulatory requirements, the Abatement Contractor shall provide the following minimum respiratory protection to the maximum use concentrations indicated:

MSHA/NIOSH Approved Respiratory Protection	Maximum Use Concentration
Half-Mask Air Purifying with HEPA Filters	10x PEL
Full-Facepiece Air Purifying HEPA Filters and Quantitative Fit Test	10x PEL
Powered Air Purifying (PAPR), Loose fitting Helmet or Hood, HEPA Filter	25x PEL
Powered Air Purifying (PAPR), Full Facepiece, HEPA Filter	50x PEL
Supplied Air, Continuous Flow Loose fitting Helmet or Hood	25x PEL

Supplied Air, Continuous Flow Full Facepiece, HEPA Filter	50x PEL
Full Facepiece-Supplied Air Pressure Demand, HEPA Filter	100x PEL
Full Facepiece-Supplied Air Pressure Demand, with Aux. SCBA, Pressure Demand or Continuous Flow	>100x PEL

2. Disposable Clothing -"Tyvek" manufactured by Dupont or approved equal.

3. NIOSH approved safety goggles to protect eyes.

4. Polyethylene bags, 6 mil. (.006") thick (use double bags).

NOTE: Workers must always wear disposable coveralls and respirator masks while in the work area. Contaminated coveralls or equipment must be left in work area and not worn into other parts of the building.

F. TOOLS AND EQUIPMENT

1. Airless Sprayer - An airless sprayer, suitable for application of encapsulating material, shall be used.

2. Scaffolding - Scaffolding, as required to accomplish the specified work, shall meet all applicable safety regulations.

3. Transportation Equipment - Transportation equipment, as required, shall be suitable for loading, temporary storage, transport and unloading of contaminated waste without exposure to persons or property. Watertight, hard wall containers shall be provided to retain and dispose of any asbestos waste material with sharp-edged components that may tear plastic bags or sheeting. The containers shall be marked with danger labels.

4. Surfactant - Wetting Agents - "Asbestos-Wet" - Aquatrols Corp. of America or approved equal and shall be non-carcinogenic.

5. Portable (negative air pressure) asbestos filtration system - by Micro-Trap or approved equal.

6. Vacuum, HEPA type equal to "Nilfisk" #GA73, or "Pullman/Holt" #75 ASA.

7. Amended Water Sprayer - The water sprayer shall be an airless or other low-pressure sprayer for amended water application.

8. Other Tools and Equipment - The Abatement Contractor shall provide other suitable tools for the stripping, removal, encapsulation, and disposal activities including but not limited to: hand-held scrapers, nylon brushes, sponges, rounded edge shovels, brooms, and carts.

PART 3 – EXECUTION

3.01 PRE-ABATEMENT WORK AREA PREPARATION

A. The work area shall be vacated by the occupants prior to work area preparation and not reoccupied until satisfactory clearance air monitoring results have been achieved.

B. Caution signs shall be posted at all locations and approaches to a location where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted that permit a person to read the sign and take the necessary protective measures to avoid exposure.

C. Shut down and lock out electric power to all work areas. The Abatement Contractor shall provide temporary power and lighting and ensure safe installation of temporary power sources and equipment used where high humidity and/or water shall be sprayed in accordance with all applicable codes. All power to work areas shall be brought in from outside the area through a ground-fault interrupter at the source.

D. Isolate the work area HVAC system.

E. The personnel decontamination enclosure system shall be installed or constructed prior to preparatory work in the work area and in particular before the disturbance of asbestos material. The waste decontamination enclosure system shall be installed or constructed prior to commencement of abatement activities.

F. Movable objects within the work area shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning and such objects shall be removed from the work area to an uncontaminated location. If disposed of as asbestos waste material, cleaning is not required.

G. Fixed objects and other items, which are to remain within the work area, shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning. Such objects shall be enclosed with two layers of at least six mil plastic sheeting and sealed with tape.

H. The work area shall be pre-cleaned using HEPA filtered vacuum equipment and/or wet cleaning. Methods that raise dust, such as dry sweeping or vacuuming with equipment not equipped with HEPA filters, shall be prohibited. Asbestos material shall not be disturbed during pre-cleaning.

I. Isolation barriers that seal off all openings, including windows, corridors, doorways, ducts, and any other penetrations of the work area, shall be constructed using two layers of at least six mil fire-retardant plastic sheeting sealed with tape. Also, all seams in mechanical system components that pass through the work area shall be sealed. Doorways and corridors, which shall not be used for passage during work, shall also be sealed.

J. Removal of mounted objects. After isolation barriers are in place, objects such as light fixtures, electrical track, alarm systems, ventilation equipment and other items not previously sealed, shall be double sealed with six mil fire-retardant plastic sheeting. Localized HEPA filtered vacuum equipment shall be used during fixture removal to reduce asbestos dispersal.

K. Individual roof and floor drains shall be sealed watertight using two layers of 6-mil fire-retardant plastic sheeting and tape prior to plasticizing. Openings in floor shall be fully covered with plywood sheeting secured to the floor in such a way as to minimize a tripping hazard prior to plasticizing.

L. Emergency and fire exits from the work area shall be maintained or alternate exits shall be established according to all applicable codes.

M. Adequate toilet facilities shall be supplied by the Abatement Contractor and shall be located either in the clean area of the personnel decontamination enclosure or shall be readily accessible to the personnel decontamination enclosure.

3.02 LARGE ASBESTOS PROJECT PERSONNEL DECONTAMINATION ENCLOSURE SYSTEM (ICR 56-7.5)

A. The personnel decontamination enclosure shall be constructed prior to preparatory work in the work area and in particular before the disturbance of asbestos material.

1. Construction and use of personnel decontamination enclosure systems shall be in accordance with ICR-56 and any Applicable or Site-Specific Variances utilized on this project. Such systems may consist of existing rooms outside of the work area, if the layout is appropriate, that can be enclosed is plastic sheeting and are accessible from the work area. When this situation does not exist, enclosure systems may be constructed out of metal, wood or plastic support.

2. The personnel decontamination enclosure system shall consist of a clean room, a shower room, and an equipment room, in series, separated from each other and from the work area by three airlocks.

3. There shall be one shower per six full shift abatement persons calculated on the basis of the largest shift.

4. The personnel decontamination enclosure system shall be fully framed, sheathed for safety and constructed to prevent unauthorized entry.

5. Personnel decontamination enclosure systems constructed at the work site shall utilize at least six mil fire-retardant opaque plastic sheeting. At least two layers of six mil fire-retardant reinforced plastic sheeting shall be used for the flooring of this area.

6. All prefabricated decontamination units shall be completely decontaminated and sealed prior to separation and removal from the work area. Mobile decontamination units shall remain in place until satisfactory clearance results have been attained.

7. The clean room shall be sized to accommodate all authorized persons. Benches, lockers and hooks shall be provided for street clothes. Shelves for storing respirators shall also be provided. Clean clothing, replacement filters for respirators, towels and other necessary items shall be provided. The clean room shall not be used for the storage of tools, equipment or materials. It shall not be used for office space. A lockable door shall be provided to permit access to the clean room from outside the work area or enclosure. It shall be used to secure the work area and decontamination enclosure during off-shift hours.

8. The shower room shall contain one or more showers. Each shower head shall be supplied with hot and cold water adjustable at the tap. The shower enclosure shall be constructed to ensure against leakage of any kind. Uncontaminated soap, shampoo and towels shall be available at all times. Shower water shall be drained, collected and filtered through a system with at least 5.0 micron particle size collection capability. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filtration system by large particles. Filtered wastewater shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste. The shower room shall be constructed in such way that travel through the decontamination unit shall be through the shower.

9. The equipment room shall be used for the storage of equipment and tools after decontamination using a HEPA filtered vacuum and/or wet cleaning. A one day supply of replacement filters, in sealed containers, for HEPA vacuums and negative pressure ventilation equipment, extra tools, containers of surfactant and other materials and equipment that may be required during the abatement project may also be stored here. A walk-off pan filled with water shall be located in the work area just outside the equipment room for persons to clean foot covering when leaving the work area. A drum lined with a labeled, at least six mil plastic bag is required for collection of clothing and shall be located in this room. Contaminated footwear and work clothes shall be stored in this area.

3.03 WASTE DECONTAMINATION ENCLOSURE SYSTEM (ICR 56-7.5)

A. General Requirements

1. A waste decontamination enclosure system shall consist of the following:

   a. A washroom/cleanup room shall be constructed with an airlock doorway to the work area and another airlock doorway to the holding area.

   b. The holding area shall be constructed with an airlock doorway to the washroom/cleanup room and another lockable door to the outside.

2. Where there is only one egress from the work area, the holding area of the waste decontamination enclosure system may branch off from the equipment decontamination room, which doubles as a waste washroom, of the personnel decontamination enclosure.

3. The waste washroom shall be equipped with a drain installed to collect water and deliver it to the shower drain where it shall be filtered through a system with at least 5.0 micron particle size collection capability. A system containing a series of several filters with progressively smaller pore sizes shall be used to avoid rapid clogging of the filtration system by large particles. Filtered wastewater shall be discharged in accordance with applicable codes. Contaminated filters shall be disposed of as asbestos waste.

4. The waste washroom shall be constructed in such a way that travel through the rooms shall be through the waste washroom

3.04 WORK AREA ENTRY AND EXIT PROCEDURES

A. The following procedures shall be followed throughout the asbestos abatement project until satisfactory clearance air monitoring results have been achieved:

1. All persons shall enter and exit the work area through the personnel decontamination enclosure system.

2. All persons who enter the work area or an enclosure shall sign the entry/exit log, located in the clean room, upon every entry and exit.

3. All persons, before entering the work area, or an enclosure shall read and be familiar with all posted regulations, personal protection requirements, including work area entry and exit procedures, and emergency procedures. The entry/exit log headings shall indicate, and the signatures shall be used to acknowledge, that these have been reviewed and understood by all persons prior to entry.

4. All persons shall proceed first to the clean room, remove all street clothing, store these items in clean sealable plastic bags or lockers and don coveralls, head covering, foot covering and gloves. All persons shall also don NIOSH approved respiratory protection. Clean respirators and protective clothing shall be utilized, by each person, for each separate entry into the work area. Respirators shall be inspected prior to each use and tested for proper seal using quantitative or qualitative fit checks.

5. Persons wearing designated personal protective equipment shall proceed from the clean room through the shower room to the equipment room, where necessary tools are collected and any additional clothing shall be donned, before entry into the work area.

6. Before leaving the work area, all persons shall remove gross contamination from the outside of respirators and protective clothing by brushing, wet cleaning, and/or HEPA vacuuming.

7. Persons shall proceed to the equipment room where all coveralls, head covering, foot covering and gloves shall be removed. Disposable clothing shall be deposited into labeled containers for disposal. Reusable contaminated clothing, footwear, head gear and gloves shall be stored in the equipment room when not being used in the work area.

8. Still wearing respirators, persons shall proceed to the shower area, clean the outside of the respirator and the exposed face area under running water prior to removal of the respirator, and then fully and vigorously shower and shampoo to remove residual asbestos contamination. Respirators shall be washed thoroughly with soap and water. Some types of respirators will require slight modification of these procedures. An airline respirator with HEPA filtered disconnect protection shall be disconnected in the equipment room and worn into the shower. A powered air-purifying respirator facepiece shall be disconnected from the filter/power pack assembly prior to entering the shower.

9. After showering and drying, all persons shall proceed to the clean room and don clean personal protective equipment if returning to the work area or street clothing if exiting the enclosure.

3.05 EQUIPMENT AND WASTE CONTAINER DECONTAMINATION & REMOVAL PROCEDURES

A. The following procedures shall be followed throughout the asbestos abatement project until satisfactory clearance air monitoring results have been achieved.

1. External surfaces of contaminated containers and equipment shall be cleaned by wet cleaning and/or HEPA vacuuming in the work area before moving such items into the waste decontamination enclosure system airlock by persons assigned to this duty. These work area persons shall not enter the airlock.

2. These contaminated items shall be removed from the airlock by persons stationed in the washroom during waste removal operations. These washroom persons shall remove gross contamination from the exterior of their respirators and protective clothing by brushing, HEPA vacuuming and/or wet cleaning.

3. Once in the waste decontamination enclosure system, external surfaces of contaminated containers and equipment shall be cleaned a second time by wet cleaning.

4. The cleaned containers of asbestos material and equipment are to be dried of any excessive pooled or beaded liquid, placed in uncontaminated plastic bags or sheeting and sealed airtight.

5. The clean recontainerized items shall be moved into the airlock that leads to the holding area. The washroom persons shall not enter this airlock or the work area until waste removal is finished for that period.

6. Containers and equipment shall be moved from the airlock and into the holding area by persons dressed in clean personal protective equipment, who have entered from uncontaminated areas.

7. The cleaned containers of asbestos material and equipment shall be placed in water tight carts with doors or tops that shall be closed and secured. These carts shall be held in the holding area pending removal. The carts shall be wet cleaned and/or HEPA vacuumed at least once each day.

8. The exit from the decontamination enclosure system shall be secured to prevent unauthorized entry.

9. Where the waste removal enclosure is part of the personnel decontamination enclosure, waste removal shall not occur during shift changes or when otherwise occupied. Precautions shall be taken to prevent short circuiting and cycling of air outward through the shower and clean room.

10. Containers labeled with Asbestos hazard warnings shall not be used to dispose of non asbestos waste.

3.06 ENGINEERING CONTROLS

A. Ventilation.

1. The Abatement Contractor shall employ HEPA equipped vacuums or negative air pressure equipment for ventilation as required.

2. All negative air pressure equipment ventilation units shall be equipped with HEPA filtration. The Contractor shall provide a manufacturer's test certificate for each unit documenting the capability of trapping and retaining 99.97 percent of asbestos fibers greater than 0.3 microns equivalent aerodynamic diameter.

3. A power supply shall be available to satisfy the requirements of the total of all ventilating units.

4. On electric power failure, abatement shall stop immediately and shall not resume until power is restored and exhaust units are operating fully. On extended power failure, longer than one hour, the decontamination facilities, after the evacuation of all persons from the work area, shall be sealed airtight.

5. If extending the exhaust of the ventilation units 50 feet from the building would result in an exhaust location either in the road, blocking driveway access to the facility or within 50 feet of other buildings, a second unit will be run in series with the primary unit.

3.07 MAINTENANCE OF DECONTAMINATION ENCLOSURE SYSTEMS AND WORK AREA BARRIERS

A. GENERAL REQUIREMENTS

1. The Consultant must review and approve installation before commencement of work. Upon completion of the construction of all plastic barriers and decontamination system enclosures and prior to beginning actual abatement activities.

2. All plastic barriers inside the work area, in the personnel decontamination enclosure system, in the waste decontamination enclosure system and at partitions constructed to isolate the work area from occupied areas, shall be inspected by the asbestos supervisor at least twice daily. The barriers shall be inspected before the start of and following the completion of the day's abatement activities. Inspections and observations shall be documented in the project log.

3. Damage and defects in the barriers and/or enclosure systems shall be repaired immediately upon discovery and prior to resumption of abatement activities.

4. At any time during the abatement activities, if visible emissions are observed outside of the work area of if damage occurs to the barriers, work shall be stopped, repairs made and visible residue immediately cleaned up using HEPA vacuuming methods prior to the resumption of abatement activities.

5. The Abatement Contractor shall HEPA vacuum and/or wet clean the waste decontamination enclosure system and the personnel decontamination enclosure system at the end of each day of abatement activities.

3.08 HANDLING AND REMOVAL PROCEDURES

The Abatement Contractor may utilize existing provisions of ICR-56, Applicable Variances or a Site-Specific Variance, approved by the Owner's Consultant, to permit the conduct of this work.

3.09 ABATEMENT PROCEDURES

A. AIR SAMPLING - By Owner

1. Air sampling and analysis shall be conducted according to the requirements of Subpart 56-4 before the start, during and after the completion of the asbestos removal project.

2. In addition to the requirements of Subpart 56-4, air monitoring shall be conducted in accordance with any approved job specific variance(s) or applicable variance utilized.

3. Clearance samples may be analyzed using PCM to maintain compliance with ICR-56.

4. If applicable, clearance samples will be analyzed using TEM to maintain compliance with ICR-56 and 40 CFR 763.90[i].

B. The provisions of the Applicable Variances or a Job Specific Variance shall apply only in those areas where approval has been granted by the NYS DOL and the Contractor has obtained concurrence from the Owner's Consultant. All other applicable provisions of Industrial Code Rule 56-1 through 56-12 shall be complied.

C. A copy of the NYS DOL Job Specific or Applicable Variance, if applicable, shall be conspicuously posted at the work area(s).

D. The Abatement Contractor shall construct a decontamination unit at the work site. The Abatement Contractor shall, as a minimum, comply with the requirements of 29 CFR 1926.1101(j); Hygiene facilities and practices for employees.

3.10 ENCAPSULATION PROCEDURES

The following procedures shall be followed to seal in non-visible residue, after obtaining satisfactory clearance air monitoring results, while conducting lockdown encapsulation on any surfaces which were the subject of removal or other remediation activities:

A. Only encapsulants rated as acceptable or marginally acceptable on the basis of Battelle Columbus Laboratory test procedures and rating requirements developed under the 1978 USEPA contract shall be used for lockdown encapsulation.

B. Sealants considered for use in encapsulation shall first be tested to ensure that the sealant is adequate for its intended use. A section of the work surface shall be evaluated following this initial test application of the sealant to quantitatively determine the sealant's effectiveness in terms of penetrating and locking down the asbestos fibers. The American Society of Testing and Materials (ASTM) Committee E06.21.06E on Encapsulation of Building Materials has developed a guidance document to assist in the selection of an encapsulant.

C. The encapsulant solvent or vehicle shall not contain a volatile hydrocarbon.

D. Encapsulants shall be applied using airless spray equipment.

1. Spraying is to occur at the lowest pressure range possible to minimize fiber release from encapsulant impact at the surface. It shall be applied with a consistent horizontal or vertical motion.

E. Encapsulation shall be utilized as a surface sealant once all asbestos containing materials have been removed in a work area. In no event shall encapsulant be applied to any surface that was the subject of removal or other remediation activities prior to obtaining satisfactory clearance air monitoring.

3.11 CLEANUP PROCEDURES

A. The following cleanup procedures shall be required.

1. Cleanup of accumulations of loose asbestos material shall be performed whenever enough loose asbestos materials have been removed to fill a single leak tight container of the type commensurate with the material properties. In no case shall cleanup be performed less than once prior to the close of each working day. Asbestos material shall be kept wet until cleaned up.

2. Accumulations of dust shall be cleaned off all surfaces on a daily basis using HEPA vacuum cleaning methods.

3. Decontamination enclosures shall be HEPA vacuumed at the end of each shift.

4. Accumulations of asbestos waste material shall be containerized utilizing HEPA vacuums or rubber or plastic dust pans, squeegees or shovels. Metal shovels shall not be used to pick up or move waste.

5. Excessive water accumulation or flooding in the area shall require work to stop until the water is collected and disposed of properly.

B. The following cleanup procedures shall be required after completion of all removal activities.

1. All accumulations of asbestos waste material shall be containerized utilizing HEPA vacuums or rubber or plastic dust pan, squeegees or shovels. Metal shovels shall not be used to pick up or move waste. HEPA vacuums shall be used to clean all surfaces after gross cleanup.

2. Cleaning. All surfaces in the work area shall be HEPA vacuumed. To pick up excess liquid and wet debris, a wet purpose shop vacuum may be used and shall be decontaminated prior to removal from the work area.

3. Windows, doors, HVAC system vents and all other openings shall remain sealed. Decontamination enclosure systems shall remain in place and be utilized.

4. All containerized waste shall be removed from the work area and the holding area.

5. All tools and equipment shall be decontaminated and removed from the work area.

6. A final visual inspection and clearance air monitoring, as per the schedule for air sampling and analysis, shall be conducted.

7. The isolation barriers and decontamination unit shall be removed only after satisfactory clearance air monitoring results have been achieved.

3.12 SAFETY MONITORING – CONSULTANT:

The Consultant will designate an Asbestos Safety Technician (AST) to represent the Owner during the removal program. The AST must be on the job site at all times during abatement work. Absolutely no abatement or preparation work will occur without the presence of the AST.

The AST will conduct four (4) milestone inspections.

1. Pre-commencement inspection shall be conducted as follows:

   a. Notification in writing to the Consultant shall be made by the Abatement Contractor to request a pre-commencement inspection at least 48 hours in advance of the desired date of inspection. This inspection shall be requested prior to beginning preparatory work in another work area.

   b. The AST shall ensure that:

      i. The job site is properly prepared and that all containment measures are in place;

      ii. The designated supervisor shall present to the inspector a valid supervisor's license issued by the New York Department of Labor;

      iii. All workers shall present to the inspector a valid handler's license issued by the New York Department of Labor;

      iv. Measures for the disposal of removed asbestos material are in place and shall conform to the adopted standards;

      v. The Abatement Contractor has a list of emergency telephone numbers at the job site which shall include the monitoring firm employed by the Owner and telephone numbers for fire, police, emergency squad, local hospital and health officer.

   c. If all is in order, the AST shall issue a written notice to proceed in the field. If the job site is not in order, then any needed corrective action must be taken before any work is to commence. Conditional approvals shall not be granted.

Progress inspection shall be conducted as follows:

   a. Primary responsibility for ensuring that the abatement work progresses in accordance with these technical specifications and regulatory requirements rests with the Abatement Contractor. The AST shall continuously be present to observe the progress of work and perform required tests.

b. If the AST observes irregularities at any time, he shall direct such corrective action as may be necessary. If the Abatement Contractor fails to take the corrective action required, or if the Abatement Contractor or any of their employees habitually and/or excessively violate the requirements of any regulation, then the AST shall inform the Owner who shall issue a Stop Work Order to the Abatement Contractor and have the work site secured until all violations are abated.

Clean-up inspections shall be conducted as follows:

a. Notice for clean-up inspection shall be requested by the Abatement Contractor at least 24 hours in advance of the desired date of inspection;

b. The clean-up inspection shall be conducted prior to the removal of any isolation or critical barriers and before final air clearance monitoring;

c. The AST shall ensure that:

i. The work site has been properly cleaned and is free of visible asbestos containing material and debris.

ii. All removed asbestos has been properly placed in a locked secure container outside of the work area.

d. If all is in order, the AST shall issue a written notice of authorization to remove surface barriers from the work area. All isolation barriers shall remain in place until satisfactory clearance air sampling has been completed.

4. Clearance Visual Inspection shall be conducted after the removal of non-critical plastic sheeting. The AST shall insure that:

a. The work area is free of all visible asbestos or suspect asbestos debris and residue.

b. All waste has been properly bagged and removed from the work area.

c. Should clearance visual inspection identify residual debris, as determined by the AST, the Abatement Contractor is responsible for recleaning the area at his own cost and shall bear all costs of reinspection until acceptable levels are achieved.

B. The Abatement Contractor shall be required to receive written approval before proceeding after each milestone inspection.

3.13 PERSONNEL AIR MONITORING – CONTRACTOR (29 CFR 1926.1101)

A. Personnel air monitoring shall be provided to determine both short-term (STEL) and full shift during when abatement activities occur. Personnel sampling shall be performed in each work area in order to accurately determine the concentrations of airborne asbestos to which workers may be exposed.

B. The Abatement Contractor shall have a qualified "Competent Person" (as specified in 29 CFR 1926 OSHA) to conduct personnel air monitoring.

C. The laboratory performing the air sample analysis shall be certified by NYS DOH ELAP and approved by the consultant.

D. Personnel air monitoring test results for OSHA Compliance. Results shall be posted at the work site within 24 hours of testing and copies supplied to the Owner within five (5) days of testing. Abnormalities shall be supplied to the Owner immediately.

3.14 CLEARANCE AIR MONITORING

A. Air samples will be collected in and around the work areas at the completion of abatement activities.

B. Clearance samples may be analyzed using PCM to maintain compliance with ICR-56.

C. If applicable, clearance samples will be analyzed using TEM to maintain compliance with ICR-56 and 40 CFR part 763 “Asbestos-Containing Materials in Schools; Final Rule and Notice” section 763.90.

D. ***RETESTING***
Should clearance air monitoring yield fiber concentrations above the “Clearance” criteria of either 0.01 fibers per CC and/or background levels (PCM) –OR- seventy (70) structures per square millimeter (TEM/AHERA), the Abatement Contractor is responsible for re-cleaning the area at his own cost and shall bear all costs associated with the retesting of the work area(s) including monitoring labor, sampling, analysis, etc. until such levels are achieved.

3.15 RESPIRATORY PROTECTION REQUIREMENT

A. Respiratory protection shall be worn by all individuals inside the work area from the initiation of the asbestos project until all areas have successfully passed clearance air monitoring in accordance with these specifications. The Abatement Contractor shall keep available at all times two PAPR's with new filters and charged batteries for use by authorized visitors.

B. All respiratory protection shall be MSHA/NIOSH approved in accordance with the provisions of 30 CFR Part II. All respiratory protection shall be provided by the Abatement Contractor and used by workers in conjunction with the written respiratory protection program.

C. The Abatement Contractor shall provide respirators that meet the requirements of 29 CFR Parts 1910 and 1926.

1. Full facepiece Type C supplied-air respirators operated in pressure demand mode equipped with an auxiliary self- contained breathing apparatus, operated in pressure demand or continuous flow, shall be worn during gross removal, demolition, renovation and/or other disturbance of ACM whenever airborne fiber concentrations inside the work area are greater than 10.0 f/cc.

2. Full facepiece Type C supplied-air respirators operated in pressure demand mode with HEPA filter disconnect protection shall be work during gross removal, demolition, renovation and/or other disturbance of ACM with an amphibole content and/or whenever airborne fiber concentrations inside the work area are equal to or greater than 0.5 f/cc and less than or equal to 10.0 f/cc.

3. Full facepiece powered air-purifying respirators (PAPR) equipped with HEPA filters shall be worn during the removal, encapsulation, enclosure, repair and/or other disturbance of friable ACM if airborne fiber concentrations inside the work area are less than 0.5 f/cc. A supply of charged replacement batteries, HEPA filters and flow test meter shall be available in the clean room for use with powered air-purifying respirators. HEPA filters shall be changed daily or as flow testing indicates change is necessary. Any Type C supplied-air respirator operated in continuous flow, with HEPA filter disconnect protection, may be substituted for a powered air-purifying respirator.

4. Loose fitting helmets or hoods with powered air-purifying respirators (PAPR) equipped with HEPA filters may be worn during the removal, encapsulation, enclosure, repair and/or other disturbance of friable ACM if airborne fiber concentrations inside the work area are less than 0.25 f/cc. A supply of charged replacement batteries, HEPA filters and flow test meter shall be available in the clean room for use with powered air-purifying respirators. HEPA filters shall be changed daily or as flow testing indicates change is necessary. Any Type C supplied-air respirator operated in continuous flow may be substituted for a powered air- purifying respirator.

5. Half-mask or full-face air-purifying respirators with HEPA filters shall be worn only during the preparation of the work area and final clean up procedures provided airborne fiber concentrations inside the work area are less than 0.1 f/cc.

6. Use of single use dust respirators is prohibited for the above respiratory protection.

D. Workers shall be provided with personally issued and individually marked respirators. Respirators shall not be marked with any equipment that will alter the fit of the respirator in any way. Only waterproof identification markers shall be used.

E. The Abatement Contractor shall ensure that the workers are qualitatively or quantitatively fit tested by an Industrial Hygienist initially and every six months thereafter with the type of respirator he/she will be using.

F. Whenever the respirator design permits, workers shall perform the positive and negative air pressure fit test each time a respirator is worn. Powered air-purifying respirators shall be tested for adequate flow as specified by the manufacturer.

G. No facial hair, which interferes with the face-to-mask sealing surface, shall be permitted to be worn when wearing respiratory protection that requires a mask-to-face seal.

H. Contact lenses shall not be worn in conjunction with respiratory protection.

I. If a worker wears glasses, a spectacle kit to fit their respirator shall be provided by the Abatement Contractor at the Abatement Contractor's expense.

J. Respiratory protection maintenance and decontamination procedures shall meet the following requirement:

1. Respiratory protection shall be inspected and decontaminated on a daily basis in accordance with OSHA 29 CFR 1910.134(b); and

2. HEPA filters for negative pressure respirators shall be changed after each shower; and

3. Respiratory protection shall be the last piece of worker protection equipment to be removed. Workers must wear respirators in the shower when going through decontamination procedures; and

4. Airline respirators with HEPA filtered disconnect shall be disconnected in the equipment room and worn into the shower. Powered air-purifying respirator facepieces shall be worn into the shower. Filtered/power pack assemblies shall be decontaminated in accordance with manufacturers' recommendations; and

5. Respirators shall be stored in a dry place and in such a manner that the facepiece and exhalation valves are not distorted; and

6. Organic solvents shall not be used for washing of respirators.

K. No visitors shall be allowed to enter the contaminated area if they do not have their medical certification and training certificate. Authorized visitors shall be provided with suitable PAPR respirators and instructions on the proper use of respirators whenever entering the work area.

3.16 DISPOSAL OF WASTE

A. APPLICABLE REGULATIONS

1. All asbestos waste shall be stored, transported and disposed of as per, but not limited to, the following Regulations:

a. NYS Code Rule 56

b. U.S. Department of Transportation (DOT)
Hazardous Substances
Title 29, Part 171 and 172 of the code of Federal Regulations
regarding waste collector registration

c. Regulations regarding waste collector registration Title 6, part 364 of the New York State Official Compilation of Codes, Rules and Regulations – 6 NYCRR 364

d. USEPA NESHAPS 40 CRF 61

e. USEPA ASBESTOS WASTE MANAGEMENT GUIDANCE EPA/530-SW-85-007

B. TRANSPORTER OR HAULER - The Abatement Contractor shall bear full responsibility for proper characterization, transportation and disposal of all solid or liquid waste, generated during the project, in a legal manner. The Owner shall approve all transportation and disposal methods.

1. The Abatement Contractor's Transporter (hauler) and disposal site shall be approved by the Owner. The Abatement Contractor shall remove within 48 hours all asbestos waste from the site after completing the clean up.

2. The Transporter must possess and present to the Owner's representative a valid New York State Department of Environmental Conservation Part 364 asbestos hauler's permit to verify license plate and permit numbers. The Owner's representative will verify the authenticity of the hauler's permit with the proper authority.

3. The Abatement Contractor shall give 24 hour notification prior to removing any waste from the site. All waste shall be removed from site only during normal working hours. No waste may be taken from the site without authorization from the Owner's representative.

4. The Abatement Contractor shall have the Transporter give the date and time of arrival at the disposal site.

5. The Transporter with the Abatement Contractor and Owner's consultant shall inspect all material in the transport container prior to taking possession of and signing the Waste Manifest. The Transporter shall not have any off-site transfers or be combined with any other off-site asbestos material.

6. The Transporter must travel directly to the disposal site with no unauthorized stops.

C. WASTE STORAGE CONTAINER

1. During loading and on-site storage, the asbestos waste container shall be labeled with EPA Danger signage:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

2. The NYS DEC Hauler's Permit number shall be on both sides and back of the container.

3. The Container will not be permitted to leave the site without the proper signage.

4. A copy of the completed waste manifest shall be forwarded directly to the Owner's Consultant by the disposal facility.

5. Packaging of Non-friable Asbestos. Use of an open top container shall require written request, by the Contractor, and written approval by the Owners Representative, and be performed in compliance with all applicable regulations.

   a) A chute, if used, shall be air/dust tight along its lateral perimeter and at the terminal connection to the dumpster at ground level (solid wall and top container). The upper end of the chute shall be furnished with a hinged lid, to be closed when the chute is not being used.

   b) The container shall be lined with a minimum of two (2) layers of 6 mil. Fire-retardant polyethylene draped loosely over the sides so as to facilitate being wrapped over the top of the load and sealed prior to transport from the site.

   c) Prior to transport from the work site the Dumpster will be disconnected from the chute and sealed air/dust tight utilizing six mil plastic and tape. The waste material will be transported as an asbestos containing material by appropriate legal methods.

6. Packaging Friable Asbestos.

   a) The container shall be a solid wall, hard top and lockable container.

   b) The container shall be locked upon arrival at the site to restrict access. Security shall be provided at the entrance to the container during the loading process and immediately locked upon completion.

   c) The interior walls, floor and ceiling shall be lined with two (2) layers of 6 mil. Fire-retardant polyethylene.

   d) The waste shall be loaded in such a manner as to protect the integrity of the individual waste packages.

   e) Prior to transport from the work site the interior of the Dumpster will sealed air/dust tight utilizing six mil plastic and tape. The waste material will be transported as an asbestos containing material by appropriate legal methods.

D. WASTE DISPOSAL MANIFEST

1. The Asbestos Waste Manifest shall be equivalent to the “Waste Shipment Record” included in 40 CFR 61. A copy of the Contractor’s manifest shall be reviewed by the Owner’s Consultant and shall be the only manifest used.

2. The Manifest shall be verified by the Owner’s Consultant indicating that all the information and amounts are accurate and the proper signatures are in place.

3. The Manifest shall have the signatures of the Abatement Contractor and the Transporter prior to any waste being removed from the site.

4. The Manifest shall be signed by the Disposal Facility owner or operator to certify receipt of asbestos containing materials covered by the manifest.

5. A copy of the completed manifest shall be provided by the Abatement Contractor to the Owner's Consultant and remain on site for inspection.

6. Abatement Contractor shall maintain a waste disposal log which indicates load number, date and time left site, container size, type of waste, quantity of waste, name of hauler, NYS DES permit number, trailer and tractor license number, and date manifest was returned to Consultant.

7. The Disposal Facility owner or operator shall return a signed copy of the Waste Manifest directly to:

Town of New Windsor
555 Union Avenue
New Windsor, NY 12553
ATTN: Michael Weeks – Town Engineer

8. Copies of the completed Waste Manifest are to be sent by the disposal facility to the Hauler and Abatement Contractor.

9. Submit signed dump tickets and manifests with final payment request.

10. Final payment request will not be honored without signed dump ticket or manifests accounting for all asbestos waste removed from the site.

E. VIOLATIONS OF SPECIFICATIONS

1. Violations of the safety, hygiene, environmental, procedures herein, any applicable federal, state of local requirement s or failure to cooperate with the Owner's representative shall be grounds for dismissal and/or termination of this contract.

3.17 LOCATION OF "ABATEMENT WORK"

(Please see attached Drawings for approximate locations)

1) <u>CAESARS LANE WWTP DEWATERING BUILDING (INTERIOR ABATEMENT)</u>

- Abatement Contractor responsible for total and complete removal and disposal of approximately 1 SF of friable asbestos-containing flange gasket from the side of the incinerator, as detailed on associated abatement drawing(s). Abatement Contractor responsible for all demolition required to access material(s), as well as for providing all equipment necessary to access material(s). See below for breakdown:
  - Lower Level, Incinerator Flange Gasket (1 SF)

2) <u>CAESARS LANE WWTP DEWATERING BUILDING (EXTERIOR ABATEMENT)</u>

- Abatement Contractor responsible for total and complete removal and disposal of approximately 20 SF of non-friable asbestos-containing flashing tar from one roof top equipment curb, as detailed on associated abatement drawings. Abatement Contractor responsible for all demolition required to access material(s), as well as for providing all equipment necessary to access material(s). Temporary security and environmental protection throughout remaining openings shall be provided by the abatement contractor and/or roofing contractor.
  - Main Roof, Equipment Flashing (20 SF)

3) <u>CAESARS LANE WWTP UNDERGROUND SITE WORK (EXTERIOR ABATEMENT)</u>

- Abatement Contractor responsible for removals to facilitate wet tap of existing 8" non-friable asbestos-containing transite watermain, as detailed on drawing C-104. Abatement Contractor responsible for all excavation and equipment required to access material(s) facilitate wet tap of the water main.

Note #1: Excavator operator to have NYSDOL asbestos handler license to perform excavation to access transite piping. Mechanical excavation to be performed down to 6 inches around the pipe. Asbestos handlers perform hand excavation to expose the pipe.
Note #2: Abatement to be performed in compliance with ICR56-11.8 Abandoned Pipe/Duct/Conduit Wrap and Cut Removal, or an appropriately sized negative pressure tent regulated abatement enclosure and all other applicable federal and state regulations.
Note #3: If abatement contractor wants alternative means/methods for removal, they are to include the means/methods in their bid submission for review by the Town of New Windsor's environmental consultant. If a site-specific variance is required, the Town of New Windsor's consultant will develop the variance and submit it to NYSDOL ESU for review and approval.
Note #5: Coordinate removals and wet tap with site contractor and design team.
Note #6: If additional underground transite piping is encountered during construction, the procedures outlined within this specification and any means/methods in approved site-specific variance shall be followed.

END OF LOCATION OF WORK

3.18 GENERAL

A. The Abatement Contractor will be responsible for repairing all building components damaged during abatement including, but not limited to: ceiling tiles, ceiling finishes, wall finishes, floor finishes, etc.

B. The Abatement Contractor shall be responsible for all demolition required to access materials identified in scope of work and on associated drawings.

C. Concealed conditions that are exposed and may require additional work shall be brought to the attention of the Owner immediately. The Abatement Contractor shall not abate these areas without a written notice to proceed. Additional asbestos abatement performed prior to the order to proceed will not be acknowledged.

D. The Abatement Contractor shall remove asbestos-containing floor covering to the building substrate beneath; in areas indicted. Subsequent to final air clearance the substrate shall be washed with a neutralizing agent to prepare the substrate to accept new floor covering and eliminate residual odors.

E. Power tools used to drill, cut into or otherwise disturb asbestos containing material shall be equipped with HEPA filtered local exhaust ventilation.

F. The Abatement Contractor shall provide access to GFCI electrical power, required to perform the area air monitoring for this project, within and immediately adjacent to each work area.

G. Unwrapped or unbagged ACM shall be immediately placed in an impermeable waste bag or wrapped in plastic sheeting.

H. Coordinate all removal operations with the Owner.

Asbestos Employee Medical Examination Statement

Certificate of Worker Release

Asbestos Employee Training Statement

CERTIFICATE OF WORKERS'S ACKNOWLEDGEMENT

PROJECT NAME: **Town of New Windsor: Caesars Lane WWTP Expansion Project: Phase 1**

CONTRACTOR'S NAME:_____

WORKING WITH ASBESTOS INVOLVES POTENTIAL EXPOSURE TO AIRBORNE ASBESTOS FIBERS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER AND RESPIRATORY DISEASES. SMOKING CIGARETTES AND INHALATION OF ASBESTOS FIBERS INCREASES THE RISK THAT YOU WILL DEVELOP LUNG CANCER ABOVE THAT OF THE NON-SMOKING PUBLIC.

The Contract for this project requires your employer to 1) supply proper respiratory protection devices and training on their use 2) provide training on safe work practices and on use of the equipment used on the project 3) provide a medical examination meeting the requirements of 29 CFR 1926.1101. Your signature on this certificate, documents that your employer has fulfilled these contractual obligations and you understand the information presented to you.

************DO NOT SIGN THIS FORM UNLESS YOU FULLY UNDERSTAND THIS INFORMATION*********

RESPIRATORY PROTECTION: I have been trained in the proper use and limitations of the type of respiratory protection devices to be used on this project. I have reviewed the written respiratory protection program manual and a copy is available for my use. Respiratory protection equipment has been proved, by the Contractor, at no cost to me.

TRAINING COURSE: I have been trained in the risks and dangers associated with handling asbestos, breathing asbestos dust, proper work procedures, personal protection and engineering controls. I have satisfactorily completed and Asbestos Safety Training Program for New York State and have been issued a New York State Department of Health Certificate of Asbestos Safety Training.

MEDICAL EXAMINATION: I have satisfactorily completed a medical examination within the last 12 months that meets the OSHA requirement for an asbestos worker and included at least 1) medical history 2) pulmonary function 3) medical examination 4) approval to wear respiratory protection devises and may have included an evaluation of a chest x-ray.

Signature:_____Date_____

Printed Name:_____SS#:_____

Witness:_____Date:_____

Town of New Windsor: Caesars Lane WWTP Expansion Project: Phase 1

ESTIMATE OF ACM QUANTITIES

****

EACH ABATEMENT CONTRACTOR SHALL READ AND ACKNOWLEDGE THE FOLLOWING NOTICE. A SIGNED AND DATED COPY OF THIS ACKNOWLEDGMENT SHALL BE SUBMITTED WITH THE ABATEMENT CONTRACTOR'S BID FOR THIS PROJECT. FAILURE TO DO SO MAY, AT THE SOLE DISCRETION OF THE OWNER, RESULT IN THE BID BEING CONSIDERED NON-RESPONSIVE AND RESULT IN DISQUALIFICATION OF THE ABATEMENT CONTRACTOR'S BID ON THIS PROJECT.

****

*** **NOTICE** ***

The linear and square footages listed within this specification are approximates. Abatement Contractor is required to visit the work locations prior to bid submittal in order to take actual field measurements within each listed location. The Abatement Contractor shall base their bid on actual quantities determined, by them, at the site walkthrough. Estimates provided in these specifications are for informational purposes only and shall not be considered a basis for Change Orders on this project.

****

Acknowledgment: I have read and understand the above **NOTICE** regarding removal quantity estimates and understand that estimates provided in these specifications are for informational purposes only and shall not be considered a basis for Change Orders on this project. The Abatement Contractor's signatory represents to the Owner that he/she has the authority of the entity he/she represents to sign this agreement on its behalf.

Company Name: _____
Type or Print

BY: _____ _____ _____
Signature Title Date

Print Name: _____

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END OF SECTION

SECTION 028300
LEAD SAFE WORK PRACTICES

PART I – GENERAL

1.1 DESCRIPTION/SCOPE OF WORK

A. The work covered by these specifications shall consist of furnishing all labor, materials, tools, and equipment necessary to control and mitigate potential lead-based paint (LBP) hazards during demolition/renovation activities pertaining to the ***Town of New Windsor Caesars Lane WWTP Expansion Project: Phase 1.***

The following is a detailed listing of identified Lead-based Paint(s) and/or Lead-containing Material(s), above the EPA action level of 1.0 mg/sq. cm.:

TABLE I: IDENTIFIED LEAD-BASED PAINT
TOWN OF NEW WINDSOR
CAESARS LANE WWTP
EXPANSION PROJECT: PHASE 1

Location	LBP Component	Substrate	Color	LBP Condition
Dewatering Building				
Maintenance Room	Sink	Porcelain	White	Intact
Treatment Area	Piping	Metal	Gray	Intact

It should be noted that several components tested did in fact contain minimal lead-levels below the EPA threshold level of 1.0 mg/sq. cm for classification as Lead-Based Paint (LBP) and are considered lead-containing coatings by the OSHA Regulation, "Lead Exposure in Construction" (29 CFR 1926.62). OSHA does not recognize a minimum limit for lead concentrations in paint for the purposes of disturbance. Monitoring of workers performing demolition/cleaning/disturbance of painted surfaces shall be completed to document personnel occupational exposure. Items containing any amount of lead concentration are considered lead-containing coatings per 29 CFR 1926.62, OSHA Lead Exposure in Construction.

The work of this Contractor shall include the following, and shall be as required by specific work-related tasks and disturbance(s) of above-referenced Lead-based Paint(s) and/or Lead-containing Material(s), above the EPA action level of 1.0 mg/sq. cm:

1) Personnel air monitoring and analysis.

2) Waste characterization and classification.

3) Transportation/disposal off-site of LBP wastes/debris and lead-contaminated waste/debris generated from LBP disturbance(s).

B. Manual demolition, scraping and manual sanding of lead-based paint surfaces and power tool cleaning with dust collection systems shall be performed in conjunction with engineering and work practice controls meeting the requirements of 29 CFR 1926.62(e)(1).

C. Components with lead-based paint shall be removed intact to the extent practicable. A 6-mil polyethylene drop cloth shall be placed on either side of the component, prior to its removal, to catch any paint chips that may become dislodged. The component shall be wrapped in a layer of 6-mil polyethylene for movement to the disposal container. Follow proper disposal requirements. The area around the component removal shall be wet wiped and HEPA vacuumed, including the tent enclosure. The polyethylene sheeting shall be carefully folded in on itself and placed in a 6-mil disposal bag. Containment debris shall be properly disposed of as lead-based waste.

D. Chemical stripping should be used for LBP removal on surfaces that will be subjected to welding, cutting or torch burning. No chemical strippers containing methylene chloride shall be used by the Contractor on this project. Abrasive blasting, heat stripping, uncontained hydroblasting, welding, cutting or torch burning shall not be performed on surfaces where LBP is present. Abrasive blasting, heat stripping, uncontained hydroblasting, welding, cutting or torch burning shall only be performed on bare metal substrate.

E. The Contractor's use of a subcontractor shall not relieve the Contractor of full responsibility for the work to be performed.

F. If available, the Contractor may submit exposure assessment data obtained within the last twelve (12) months from previous jobs conducted under similar conditions, control methods, work practices and environmental conditions to be used in this contract. Other objective data may be used to demonstrate that work activities in this contract will not result in occupational exposures to airborne lead that exceeds the PEL. The assessment shall include comparable lead concentrations in coating materials, work practices, engineering controls and rates of work.

G. Until the exposure assessment is performed, the Contractor must provide to his workers the following: Respiratory protection with a minimum protection factor of 10, personal protective clothing, lead-free change areas, hand washing/shower facilities, biological monitoring and training per 29 CFR 1926.62.

This Specification shall be used as a Guideline for the use of Contractors who complete the demolition/renovation activities pertaining to the ***Town of New Windsor Caesars Lane WWTP Expansion Project: Phase 1*** as detailed within Section #1.2 of this specification. The intent of this Specification is to remain in conformance with 29 CFR 1926.62 and to maintain an airborne concentration of lead-dust below the action level. This Specification is written in order to outline the worst-case scenario in regard to lead safe work practices. However, the work procedures section is written in a manner, which outlines the requirements that should be necessary, at a minimum, to maintain an airborne concentration of lead dust below the action level.

H. The Contractor shall ensure that any HVAC equipment intakes within and around the work areas are protected by shutting down the units and/or installing HEPA filters over the intake. The Contractor shall coordinate rebalancing of the HVAC equipment prior to installing the HEPA filters. The Contractor shall alter the size and extent of the isolation barriers as necessary due to weather conditions, functional space use and density of building occupants in the vicinity, as required.

1.2 REGULATIONS & REFERENCE STANDARDS

A. General Requirements

All work of this section shall be conducted in strict accordance with all applicable Federal, State and Local regulations.

Matters of interpretations of the standards and regulations shall be submitted to the appropriate agency for resolution before starting work. Where these requirements vary the most stringent shall apply.

B. Specific Requirements

1. American National Standards Institute (ANSI)

   a. ANSI Z9.2-79 – Fundamentals Governing the Design and Operation of Local Exhaust Systems.

   b. Z88.2-80 – Practice for Respiratory Protection.

2. Title X - U.S. Department of Housing and Urban Development "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing."

3. Code of Federal Regulations (CFR)

   a. 29 CFR Part 1910.120 – Hazardous Waste Operations and Emergency Response.

   b. 29 CFR Part 1910.134 – Respiratory Protection.

   c. 29 CFR Part 1910.146 – Confined Space Entry Program.

   d. 29 CFR Part 1910.1025 – Lead.

   e. 29 CFR Part 1910.1200 – Hazard Communication.

   f. 29 CFR Part 1926.55 – Gases, Vapors, Fumes, Dusts and Mists.

   g. 29 CFR Part 1926.57 – Ventilation.

   h. 29 CFR Part 1926.62 – Lead (Construction Industry Standard).

   i. 40 CFR Part 260 – Hazardous Waste Management Systems: General.

   j. 40 CFR Part 261 – Identification and Listing of Hazardous Waste.

   k. 40 CFR Part 262 – Generators of Hazardous Wastes.

   l. 40 CFR Part 263 – Transporters of Hazardous Waste.

   m. 40 CFR Part 264 – Owners and Operators of Hazardous Waste Treatment, Storage & Disposal Facilities.

   n. 40 CFR Part 265 – Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage & Disposal Facilities.

   o. 40 CFR Part 268 – Land Disposal Restrictions.

   p. 40 CFR Part 745 – Lead; Requirements for Lead-Based Paint Activities in Child Occupied Facilities

q. 40 CFR Part 745.90 – EPA's Renovation, Repair & Painting Rule.

r. 49 CFR Parts 170-178 – Department of Transportation Regulations.

4. New York Codes of Rules and Regulations (NYCRR)

a. 6 NYCRR Part 360 – Solid Waste Regulations.

b. 6 NYCRR Part 364 – Waste Transporter Permits.

c. 6 NYCRR Part 370-373 – Hazardous Waste Regulations.

d. 8 NYCRR Part 155 – Uniform Safety Standards for School Construction & Maintenance Projects.

5. Steel Structures Painting Council (SSPC)

a. SSPC-Guide 6 – Guide for Containing Debris Generated During Paint Removal Operations.

SSPC-Guide 7 – Guide for the Disposal of Lead-Contaminated Surface Preparation Debris.

Preparation Debris.

6. Underwriters Laboratories. Inc. (UL)

a. UL 586 – High Efficiency, Particulate Air Filter Units.

1.3 DEFINITIONS

A. Abatement
For the purposes of this Specification, the term abatement shall refer to any procedure that impacts lead-based paint on any surface. Procedures can include: paint removal; whole removal of the surface (i.e. window replacement): demolition of painted surfaces; and clean-up of paint debris.

B. Action Level
Employee exposure without regard to use of respirators, to an airborne concentration of lead of thirty (30) micrograms per cubic meter of air averaged over an 8-hour period. As used in this section, micrograms per cubic meter of air" refers to the action level. (Note: For longer exposure period lower action level is triggered).

C. Area Monitoring
Sampling of lead concentrations within the lead control area (work area) and inside the physical boundaries which is representative of the airborne lead concentrations that may reach the breathing zone of personnel potentially exposed to lead.

D. Physical Boundary
Area physically roped or partitioned off around a work area to limit unauthorized entry of personnel. As used in this section, "inside boundary" shall mean the same as "outside lead control area."

E. Change Rooms and Shower Facilities
Rooms within the designated physical boundary around the work area equipped with separate storage facilities for clean protective work clothing and equipment and for street clothes which prevent cross-contamination.

F. Decontamination Room
Room for removal of contaminated personal protective equipment (PPE).

G. Eight-Hour Time Weighted Average (TWA)
Airborne concentration of lead averaged over an 8-hour workday to which an employee is exposed.

H. High Efficiency Particulate Air (HEPA) Filter Equipment
HEPA filtered vacuuming equipment with a UL 586 filter system capable of collecting and retaining lead-contaminated paint dust. A high efficiency particulate filter means 99.97 percent efficient against 0.3 micron size particles.

I. Lead Control Area
A work area within which engineering controls are implemented to prevent the spread of lead dust, paint chips or debris from lead-containing paint removal operations. The lead control area is isolated by physical boundaries to prevent entry of unauthorized personnel.

J. Lead Permissible Exposure Limit (PEL)
Fifty (50) micrograms per cubic meter of air as an 8-hour time weighted average as determined by 29 CFR Part 1926.62. If an employee is exposed for more than 8 hours in a work day, the PEL shall be determined by the following formula:

PEL (micrograms/cubic meter of air) = 400/No. hrs worked per day

K. Personal Monitoring
Sampling of lead concentrations within the breathing zone of an employee to determine the 8-hour time weighted average concentration in accordance with 29 CFR Part 1926.62. Samples shall be representative of the employees work tasks. Breathing zone shall be considered an area within a hemisphere, forward of the shoulders with a radius of 6 to 9 inches and the center at the nose or mouth.

L. Wipe Sampling
Clearance testing procedures, which determine the amount of existing lead-based paint surface dust by atomic absorption spectroscopy analysis, or inductively coupled plasma emission spectrometry expressed in micrograms of lead.

1.4 QUALITY ASSURANCE

A. Qualifications

1. Contractor: Certification that the Contractor has prior experience on LBP activity projects similar in nature and extent to ensure the capability to perform the required work procedures in a satisfactory manner.

2. Competent Person: Certification that the Contractor's full-time onsite Competent Person meets the competent person requirements of 29 CFR Part 1926.62 and is experienced in administration and supervision of LBP activity projects, including work practices, protective measures for building and personnel, disposal procedures, etc. This person shall have completed a Contractor Supervisor LBP abatement course by an EPA Training Center

or an equivalent certification course, and have had a minimum of 2 years on-the-job experience.

3. Testing Laboratory: The name, address, and telephone number of the independent testing laboratory selected to perform sampling and analysis for personal and area air samples and wipe samples, and TCLP analysis of LBP wastes and debris. Documentation that the laboratory performing the analysis is an EPA National Lead Laboratory Accreditation Program (NLLAP) accredited laboratory and that it is listed proficient in the NIOSH/EPA Environmental Lead Proficiency Analytical Testing Program (ELPAT), and a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified laboratory. Certification shall include accreditation for heavy metal analysis, list of experience relevant to analysis of lead in air, and a Quality Assurance and Quality Control Program. Currently, the American Association for Laboratory Accreditation (ASLA) and the American Industrial Hygiene Association (AIHA) are the EPA recognized laboratory accreditors. Documentation shall include the date of accreditation or reaccreditation.

4. Blood Lead Testing Laboratory: The name, address and telephone number of the blood lead testing laboratory; the laboratory's listing by OSHA and the U.S. Public Health Service Center for Disease Control (CDC); and documentation that the laboratory certified in the state where the work site is located.

B. Respiratory Protection Devices
Manufacturer's certification of NIOSH for respiratory protection devices utilized on the site.

C. Cartridges, Filters, and Vacuum Systems
Manufacturer's certification of NIOSH approval of respirator cartridges (organic vapor, acid gas, mist, dust, high efficiency particulate); High Efficiency Particulate Air (HEPA) filtration capabilities for all cartridges, filters, and HEPA vacuum systems.

D. Medical Examination and Records
Certification that employees who are involved in LBP abatement work have received medical examinations and will receive continued medical surveillance, including biological monitoring, as required by 29 CFR Part 1926.62, 29 CFR Part 910.1200, 29 CFR Part 1910.120 and by the state and local regulations pertaining to such work. Records shall be retained, at Contractor expense, in accordance with 29 CFR Part 1910.20.

1. Provide medical surveillance to workers until exposure monitoring reveals that workers are not exposed on any day of the job to airborne lead at or above the Action Level of 30 ug/dL of blood. This consists of a blood test measuring the level of lead and zinc protoporphyrin by a licensed physician. Further testing and medical exams may be necessary depending on the results of initial blood tests and/or the initial exposure assessment.

E. Training
Training certification shall be provided prior to the start of work involving LBP abatement, for all of the Contractors' workers, supervisors and Competent Person. Training shall meet the requirements of 29 CFR Part 1926.62, 29 CFR Part 1926.59, 29 CFR Part 1910.1200, 29 CFR Part 1910.120 and 49 CFR 172, and that required by EPA or the state LBP course for the work to be performed. Training shall be provided prior to the time of job assignment and, at least, annually. The project specific training shall. at a minimum, include the following.

1. Specific nature of the operation, which could result in exposure to lead.

2. Purpose, proper selection, fitting, use and limitations of respirators.

Purpose and description of the medical surveillance program and the medical removal protection program, including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant.)

3. Relevant engineering controls and good work practices.

4. The contents of any compliance plan in effect.

5. Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician.

6. The employee's right of access to records under 29 CFR part 1910.20.

F. Respiratory Protection Program

1. Furnish each employee required to wear a negative pressure respirator or other appropriate type with a respirator fit test at the time of initial fitting and at least every 12 months thereafter as required by 29 CFR Part1910.134 and 29 CFR Part 1926.62.

2. Establish and implement a respiratory protection program as required by ANSI Z88.2, 29 CFR Part 1910.134 and 29 CFR Part 1926.62.

3. All workers are required to don an appropriate level of protection commensurate with the airborne concentrations of lead in which they are working. The level of protection will be determined by the Contractor, based on objective air monitoring data.

G. Licenses and Permits
Copies of licenses and permits as required by applicable Federal, state and local regulations shall be obtained before the start of the LBP project.

1.5 SUBMITTALS

A. The submittals shall be submitted in accordance with Specification Section 01300, Submittals.

B. Certifications
Prior to the start of work, submit required certifications, plans, programs, permits and licenses identified in Paragraph 1.5 of this specification section.

C. Equipment List
Prior to the start of work submit list of equipment items to be used in the work, including brand names, model, capacity, performance characteristics, quantities and other pertinent information.

D. Lead-Based Paint (LBP) Management Plan
The contractor shall prepare a detailed LBP Management Plan that identifies the work procedures, health and safety measures to be used in LBP work procedures; and that addresses spill prevention, containment and emergency response procedures. The plan shall address the methods to be undertaken to abate the lead to include the following key elements:

1. LBP containment methods to control employee exposure to lead at or below the permissible exposure limit and to ensure that airborne lead concentrations of 30 micrograms per cubic meter of air are not exceeded outside of the lead control area.
2. Training requirements as required by Federal, state and local regulations.
3. Unique problems associated with the LBP project.
4. Sketch of location, size and details of LBP control areas, decontamination rooms/areas, change rooms and shower facilities.
5. Eating, drinking, smoking, and rest room procedures.
6. Sequencing of LBP related work.
7. Personnel protective equipment and respiratory protection program, including controls.
8. Engineering controls, containment structures and safety measures.
9. Worker exposure assessment procedures.
10. Work Practice controls.
11. Housekeeping.
12. Hygiene facilities and practice.
13. Medical surveillance, including medical removal procedures.
14. Sampling, testing and analytical methods to include personnel air sampling requirements of 29 CFR Part 1926.62, wipe sampling of the surface where the LBP was removed and, when required, toxicity characteristic leaching procedure (TCLP) testing of the waste material in accordance with 40 CFR 261 and 6 NYCRR Part 371, and area air sampling required by the specifications. Procedures must include frequency, locations, sampling and analytical methods to be used.

E. Compliance Program
Contractor's Compliance Program prepared in accordance with 29 CFR Part 1926.62 (e) (2).

F. Waste Transporter and Disposal Facility Permits, and Disposal Documents.

1. Name, address and telephone number of 6 NYCRR Part 364 transporter who will be transporting the LBP wastes and debris and a copy of the transporter's 6 NYCRR Part 364 permit.
2. Name, address and telephone number of disposal facility accepting the LBP wastes and debris and a copy of the permit from the disposal facility documenting the facility is permitted to accept the wastes being delivered.
3. Copy of completed waste characterization (waste profile) forms for obtaining approval to dispose of the LBP wastes and liquid wastes at the disposal facility.
4. Copy of the approved waste characterization (waste profile) forms from the disposal facility indicating they are permitted to accept the wastes and will accept the wastes being delivered.

5. Example of completed transportation and disposal documents (i.e., bill of lading or hazardous waste manifest and land disposal restriction notification forms, as applicable) prior to shipment of wastes.

6. Copy of the completed and signed transportation and disposal documents at time of shipment for the disposal of LBP wastes and debris, liquid wastes and any other wastes generated, and copy signed by the disposal facility.

7. Copy of certificate of destruction for incinerated wastes, certificate of treatment and/or certificate of disposal, as applicable and associated tracking documents from the final disposal facility for disposal of the LBP wastes and debris.

G. Health and Safety Plan And Confined Space Entry Program
Contractor's written site specific Health and Safety Plan prepared in accordance with 29 CFR Part 1910.120 and Contractor's confined space entry program prepared in accordance with 29 CFR Part 1910.146. These documents are requested for information only and as documentation that they exist.

H. Sampling and Laboratory Analysis Reports
Submit field sampling logs for all personal and area air samples, wipe samples and waste samples taken, and submit copy of laboratory analysis reports and chain of custody records for all sample analysis.

I. Competent person certification per Section 3.5.B.

1.6 POSTED WARNINGS & NOTICES

The following regulations, warnings and notices shall be posted at the work site in accordance with 29 CFR Part 1926.62.

A. Regulations
A copy of applicable Federal, state, and local regulations shall be maintained at the work site.

B. Warning Signs
Warning signs shall be provided at approaches to LBP control areas. Signs shall be located at a distance from the LBP control areas that will allow personnel to read the sign and take the necessary protective actions required before entering the LBP control area. The signs shall comply with the requirements of 29 CFR Part 1926.62.

C. Worker Information
Right-to-know notices shall be placed in clearly visible areas of the work site in compliance with Federal, State and Local regulations.

D. Air Monitoring Results
Daily air monitoring results shall be prepared in order to be easily understood by the workers and shall be placed in a clearly visible area of the work site.

E. Emergency Telephone Numbers
A list of telephone numbers shall be posted at the site. The list shall include numbers of the local hospital, emergency squad, police and fire departments, Government and Contractor representatives who can be reached 24 hours per day and professional consultants directly involved in the project.

1.7 EQUIPMENT & MATERIALS

Sufficient quantities of health and safety materials required by 29 CFR Part 1926.62, and other materials and equipment needed to complete the project, shall be available and kept on the site.

A. Respirators
Air-purifying respirators shall be approved by NIOSH for use with dust, fumes and mists having permissible exposure limits less than 0.05 milligrams per cubic meter (i.e., have high-efficiency particulate air (HEPA) filters) and for other hazardous airborne contaminants that may be encountered, as determined by the Competent Person. The Contractor shall furnish, at no cost to personnel/employee, respirators to provide protection from airborne concentrations of lead. Respirators shall comply with the requirements of 29 CFR Part 1926.62 and shall be used in accordance with 29 CFR Part 1926.62, 29 CFR Part 1926.103 and 29 CFR Part 1910.134.

B. Respirator Cartridges
A sufficient supply of respirator cartridges shall be maintained at the work site to provide new cartridges to employees and authorized visitors, throughout the duration of the project. Cartridges shall be replaced according to the manufacturer's recommendations, when breathing becomes difficult, or if the cartridge becomes wet.

C. Protective Clothing

1. The Contractor shall furnish, at no cost to personnel/employee, equipment/ clothing for protection from airborne and waterborne LBP debris. An adequate supply of these items shall be available for worker and authorized visitor use. Workers and visitors shall not take protective clothing and equipment off the work site at any time. Protective clothing includes:

   a. Coveralls (Whole Body Protective Coverings): Full-body coveralls and head covers shall be worn by workers in the work area as necessary. Sleeves shall be secured at the wrist and pants legs at the ankle with tape. Permeable clothing shall be provided in heat-stress conditions. Where non-disposable coveralls are provided, these coveralls shall be cleaned after each wearing. Cleaning of coveralls and other non-disposable clothing shall be in accordance with the provisions for cleaning in 29 CFR Part 1926.62.

   b. Boots: Work boots with nonskid soles or impermeable work boot covers shall be worn by workers. Where required by OSHA, safety boots (steel toe or steel toe and shank) shall be worn. Paint the uppers of boots red with waterproof enamel. Do not allow boots to be removed from the work area for any reason after being contaminated with LBP debris. Dispose of boots as LBP contaminated waste at the end of the work.

   c. Gloves: Inner gloves, appropriate for items and hazards encountered and disposable outer work gloves shall be provided to each worker and shall be worn while the worker is in the work area. Glove material shall be appropriate for the specific chemical exposure. Gloves shall not be removed from the work area and shall be disposed of as LBP contaminated waste at the end of the work.

   d. Hard Hats: Head protection (hard hats) shall be provided as required by OSHA for workers and authorized visitors. Protective plastic-strap suspension hats shall be used. Hard hats shall be worn at all times that work is in progress. Hats shall remain in the work area until the project is completed. Hats shall be thoroughly

cleaned, decontaminated and bagged before being removed from the work area at the end of the project.

e. Eye Protection: Fog-proof goggles for personnel engaged in LBP operations shall be worn when the use of a full-face piece respirator is not required.

D. Negative Air Pressure System

When a LBP control area requires the use of an airtight containment barrier, a negative air pressure system shall be used and pressure differential recordings taken. LBP shall not be removed from the LBP control area until the proper engineer controls and HEPA filtration systems are in place.

1. HEPA Filter Requirements

The negative air pressure system shall be equipped with approved HEPA filters per UL 586. Negative air pressure equipment shall be equipped with new HEPA filters, and shall be sufficient to maintain a minimum pressure differential of minus *5* Pa (0.02 inch) of water column relative to adjacent, unsealed areas. Negative air pressure system minimum requirements are listed below.

a. The unit shall be capable of delivering its rated volume of air with a clean first stage filter, an intermediate filter and a primary HEPA filter in place.

b. The HEPA filter shall be certified as being capable of removing particles as small as 0.3 micrometers at a minimum efficiency of 99.97 percent.

c. The unit shall be capable of continuing to deliver no less than 70 percent of rated capacity when the HEPA filter is 70 percent full or measures 620 Pa (2.5 inches of water) static pressure differential on a magnehelic gauge.

d. The unit shall be equipped with a manometer-type negative pressure differential monitor with minor scale division of 0.02 inch of water and accuracy within plus or minus 1.0 percent. The manometer shall be calibrated daily as recommended by the manufacturer. Record manually manometer readings of the pressure differential between the LBP control area and adjacent unsealed areas at the beginning of each workday and every 2 working hours thereafter.

e. The unit shall be equipped with a means for the operator to easily interpret the readings in terms of the volumetric flow rate of air per minute moving through the machine at any given moment.

f. The unit shall be equipped with an electronic mechanism that automatically shuts the machine off in the event of a filter breech or absence of a filter.

g. The unit shall be equipped with an audible horn that sounds an alarm when the machine has shut itself off.

h. The unit shall be equipped with an automatic safety mechanism that prevents a worker from improperly inserting the main HEPA filter.

i. The unit shall be ducted through the containment barrier wall to the outside of the work area. The unit shall not be exhausted into any work area.

2. Number of Units Required

The air within the containment barrier shall be changed at least once every 15 minutes by a continuously operating negative air pressure system, until the LBP control area

barrier is removed. Filters shall be replaced as necessary to maintain the efficiency of the system. A back-up unit shall be maintained onsite.

3. Auxiliary Generator
An auxiliary generator shall be provided with a capacity adequate to power a minimum of 50 percent of the negative air machines at any time during the work. When power fails, the generator controls shall automatically start the generator and switch the negative air machine to generator power. The generator shall not present a carbon monoxide hazard to workers.

4. Discontinuing Negative Air Pressure System
The negative air pressure system shall not be shut down during LBP work unless authorized by the Owner's Consultant. At the completion of the LBP work procedures and disposal project, units shall be run until full cleanup has been completed and wipe clearance samples have been collected, analyzed and have passed final clearance testing requirements. Dismantling of the negative air pressure systems shall conform to the written decontamination procedures. Prefilters shall be removed and properly disposed. The intake to the machines shall be sealed with polyethylene to prevent environmental contamination.

E. Expendable Supplies

1. Polyethylene Sheet and Bags - General
Polyethylene sheet and bags shall be minimum 6-mil thick. Bags shall have pre-printed labels, and 5-inch (minimum) long plastic ties, pointed and looped to secure the filled bags. Polyethylene sheets shall be in roll sizes to minimize seams.

2. Polyethylene Sheet - Flame Resistant
Where a potential for fire exists, flame-resistant polyethylene sheets shall be provided. Polyethylene film shall conform to the requirements of NFPA 701.

3. Polyethylene Sheet - Reinforced
Reinforced polyethylene sheet shall be provided where high skin strength is required such as where it constitutes the only barrier between the LBP control area and the outdoor environment. The sheet stock shall consist of translucent, nylon-reinforced or woven-polyethylene thread laminated between two layers of polyethylene film. Film shall meet flame resistant standards of NFPA 701.

4. Tape and Adhesive Spray
Tape and adhesive shall be capable of sealing joints between polyethylene sheets and for attachment of polyethylene sheets to adjacent surfaces. After dry application, tape or adhesive shall retain adhesion when exposed to wet conditions, including amended water. Tape shall be minimum 2 inches wide, industrial strength.

5. Containers
DOT approved impermeable containers shall be used to receive and retain LBP waste and debris, and lead contaminated material until disposal. Containers shall be labeled in accordance with EPA, DOT and OSHA standards.

6. Chemicals
Chemicals, including caustics and paint strippers, shall be properly labeled and stored in leak-tight containers.

F. Vacuum Systems
HEPA filtered vacuum systems shall be used during LBP operations which generate dust. The systems shall be suitably sized for the project, and filters shall be capable of removing particles as small as 0.3 micrometers at a minimum efficiency of 99.97 percent.

G. Heat Blower Guns
Heat blower guns shall be flameless, electrical, paint-softener type with controls to limit temperature to 590 degrees C (1,100 degrees F). Heat blower shall be DI (non-grounded) 120 Vac, and shall be equipped with cone, fan, glass protector and spoon reflector nozzles.

H. Chemical Paint Strippers
Chemical paint strippers shall contain no methylene chloride.

I. Chemical Paint Stripper Neutralizer
Neutralizers for paint strippers shall be compatible with the substrate and suitable for use with the chemical stripper that has been applied to the surface.

1.8 STORAGE OF MATERIALS

Materials shall be stored in a place and manner, which protects them from damage and contamination. During periods of cold weather, plastic materials shall be protected from the cold. Regularly inspect materials to identify damaged or deteriorating items. Damaged or deteriorated items shall not be used and shall be removed from the site as soon as they are discovered. Stored materials shall not present a hazard or an inconvenience to workers, visitors and/or other employees.

PART 2 – PRODUCTS

(NOT APPLICABLE)

PART 3 – EXECUTION

3.1 WORK PROCEDURES

LBP work procedures and related work shall be performed in accordance with the U.S. Department of Housing and Urban Development “Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing” and the accepted Contractor’s LBP Management Plan. Procedures and equipment required to limit occupational and environmental exposures to lead during LBP removal shall be in accordance with 29 CFR Part 1926.62 and as specified herein. LBP waste and debris, lead contaminated debris and personal protective clothing and equipment shall be disposed of in compliance with Federal, state, and local regulations.

A. Personnel Protection Procedures
Personnel shall wear and use protective clothing and equipment as specified and required by 29 CFR Part 1926.62 and 29 CFR Part 1910.120. Eating, smoking, drinking, chewing tobacco and chewing gum, and applying makeup shall not be permitted in the LBP control area. Personnel of trades not engaged in the LBP work procedures and disposal of LBP shall not be exposed at any time to airborne concentrations of lead equal to or in excess of 30 micrograms per cubic meter of air. Electrical service shall be disconnected when wet removal is performed, and temporary electrical service protected by a ground fault circuit interrupter shall be provided.

B. Safety and Health Procedures

The Competent Person shall be present on the work site throughout the LBP project to supervise, monitor and document the project's health and safety provisions. A daily log shall be maintained showing the results of sampling tests throughout the project area. LBP work being conducted within a LBP Control area where an airtight barrier is required shall be stopped if measured airborne lead concentrations, collected during LBP work procedures, exceed the pre- LBP work procedures airborne concentration levels.

C. Safety and Health Responsibilities

The Competent Person shall:

1. Verify that training meets applicable requirements.

2. Review and approve LBP Management Plan for conformance to the applicable referenced standards.

3. Inspect LBP removal work for conformance with the accepted LBP Management Plan.

4. Ensure that worker exposure air monitoring activities are in accordance with 29 CFR Part 1926.62.

5. Ensure work is performed in strict accordance with specifications.

6. Ensure hazardous exposure to personnel and to the environment are adequately controlled.

7. The Contractor's Competent Person shall be responsible for directing personal air monitoring.

8. The Owner's Consultant shall be responsible for directing area and final air/wipe testing.

D. Medical Surveillance Procedures

Medical surveillance shall be implemented in accordance with the accepted Contractor's LBP Management Plan, and shall comply with the requirements of 29 CFR Part 1926.62, including the provisions for biological monitoring, medical removal, protection and a physician's written opinion, signed by the physician performing the employee examination. The Contractor shall provide a copy of the written opinion for Contractor's employees prior to each employee's commencement of work.

E. Engineering Controls and Containment Structures

Engineering and work practice controls are the primary means of maintaining exposures to lead below the PEL. Paint removal and surface preparation activities must keep dust levels at a minimum. Torch cutting of surfaces with LBP will require appropriate personal protective equipment and exposure controls. Power tools must be equipped with vacuum shrouds including a high efficiency particulate air filtered vacuum system attached.

1. LBP Control Area

The LBP control area is where LBP work procedures occur and as such shall be considered contaminated. The LBP control area shall be isolated to prevent LBP containing dust or debris from passing into adjacent open areas. The control area shall be decontaminated at the completion of the LBP work procedure and disposal work.

2. Boundary Requirements.
Physical boundaries shall be provided around exterior LBP control areas by roping off the area indicated in the LBP Management Plan.

3. Control Barriers
The LBP control area shall be designated and separated from other outside areas with control barriers. The polyethylene sheeting shall have all openings masked and sealed. The LBP control area shall be erected according to the Contractors LBP Management Plan. Polyethylene sheeting shall be mechanically supported, independent of duct tape or spray adhesive.

4. Masking and Sealing

   a. Exterior LBP control area requirements: Where the construction of a contained LBP control area is impractical or not required based on the method of lead work procedures, a roped-off perimeter shall be installed 20 feet from and around the area where the LBP handling procedures are performed and other requirements for LBP control areas shall be maintained. Personal monitoring of airborne concentrations shall be conducted in adjacent areas during the work shift, in accordance with 29 CFR Part 1926.62. Area air monitoring inside and outside of the roped-off perimeter shall be conducted as specified. Airborne concentrations shall not exceed specified levels.

5. Personnel Decontamination Unit
Personnel decontamination units shall be provided when required for the LBP procedures. Materials fabricated or delivered to the site before the shop drawings have been returned to the Contractor will be subject to rejection by the Owner's Consultant. Specifications and drawings of portable prefab units, such as a trailer unit, if utilized, must be submitted for review and approval before start of construction. Submittal shall include, but not be limited to, a floor plan layout showing dimensions, materials, sizes, thickness, plumbing, and electrical outlets. Access between contaminated and uncontaminated areas shall be through an airlock. Access between any two rooms or room and trailer within the decontamination unit shall be through a plastic sheeting curtained doorway. A separate equipment decontamination unit shall be provided. Each work area shall have an emergency exit. The personnel decontamination unit's clean room shall be the only means of entrance and exit, except for emergencies, from the LBP control area. Materials shall exit the LBP control area through the equipment decontamination area.

6. Clean Room
The clean room shall have only one exit to non-contaminated areas of the site. An airtight seal shall be constructed of polyethylene between the clean room and uncontaminated areas. Surfaces of the clean room shall be protected with sheet polyethylene. A temporary unit with a separate equipment decontamination locker room and a clean locker room shall be provided for personnel who are required to wear whole body protective clothing. One locker shall be provided in each locker room for each LBP worker, and each Contractor's representative. Lead-free personal clothing and shoes shall be kept in the clean locker. Hand wash station/showers shall be located between the equipment decontamination locker room and the clean locker room, and employees shall wash or shower before changing into personal clothes. An adequate supply of clean disposable towels shall be provided. LBP contaminated work clothing shall be cleaned. Clean rooms shall be physically attached to the LBP control area for areas inside the building but may be directly adjacent to the LBP control area outside of the building. Joint use of this space for other functions, such as offices, equipment storage, etc., is prohibited.

7. Hand Wash Station/Shower Room
An operational shower and hand washing station shall be provided between the work area and the clean changing room. Workers shall wash and/or shower before entering the clean changing room. Shower room shall be separated from other rooms by air-tight walls fabricated from polyethylene sheeting. Water shall be hot and cold or warm. Shower heads/ controls, soap dish, continuing supply of soap, and clean towels shall be provided. The shower shall be maintained in a sanitary condition. Waste water shall be pumped to drain and through waste water filters that meet state and/or local requirements. These filters shall be located inside the shower unit and filters shall be changed regularly. Spent filters shall be discarded as LBP contaminated waste.

8. Equipment Decontamination
The Equipment Decontamination Unit shall be used for removal of equipment and materials from the LBP control area, and shall include a wash room, holding room, and an enclosed walkway. The unit shall be constructed from wood framing material and polyethylene sheeting. Workers shall not enter or exit the LBP control area through the Equipment Decontamination Unit. A washdown station, consisting of an enclosed shower unit, shall be located in the work area outside the Wash Room. The washdown station shall be used to clean equipment, bags and containers. Bagged or containerized LBP wastes shall be passed from the work area and cleaned in the Wash Room. The Wash Room shall be separated from the work area by a polyethylene sheet flap. Wastewater shall be filtered and filters shall be changed as required for the shower unit and the Wash Room. Filters shall be disposed of as LBP contaminated wastes. The Holding Room shall be used as a drop location for bagged LBP passed from the Wash Room. This room shall be constructed so that bagged materials cannot be passed from the Wash Room through the Holding Room to the enclosed walkway. The walkway shall provide access to the Holding Room from outside the work area. The enclosed walkway shall be separated from the exterior by a single flap of polyethylene sheeting. The Contractor's equipment used for LBP work procedures shall be decontaminated prior to its removal outside of the lead control area. The decontamination water shall be containerized, the containers labeled, the liquid sampled and analyzed in the laboratory for lead, and properly disposed of off-site according to applicable Federal, State and Local regulations. See Paragraph 3.5.C.2.

9. Maintenance of Decontamination Units
Barriers and polyethylene sheeting shall be effectively sealed and taped. Containment barriers shall be visually inspected at the beginning of each work period. Damaged barriers and defects shall be immediately repaired upon discovery. Smoke testing methods shall be used to test effectiveness of barriers when directed by the Owner's Consultant.

10. LBP Control Area Exiting Procedures
Personnel exiting a LBP control area shall perform the following procedures and shall not leave the work place wearing any clothing or equipment worn during the work day:

a. HEPA vacuum all protective clothing before removing.

b. Remove protective clothing in the decontamination room and place this clothing in an approved impermeable disposal bag.

c. Wash or shower.

d. Change to clean clothes prior to leaving the physical boundary designated around the lead-contaminated work site.

F. Temporary Utilities

1. Temporary equipment as necessary to provide adequate power, light, heat, and water shall be installed, as needed, to accomplish the LBP operations properly and safely. The Contractor shall maintain the security and maintenance of the utility system in the LBP control areas. In the event of a failure of any utility system, the Owner will not be responsible for any loss of time or other expense incurred by the Contractor. In addition to any site-specific temporary utility requirements, the Contractor shall provide:

   a. Back-flow protection on all water connections is required. Fittings installed by the Contractor shall be removed after completion of work with no damage or alteration to existing water piping and equipment.
   b. When applicable, heavy-duty abrasion-resistant hoses to provide water to each work area and decontamination area.

   c. A hot water heater, if necessary, to provide warm water to the decontamination showers.

   d. Electrical service to work areas. Electrical service shall comply with National Electric Code, State and Local requirements and UL standards. Warning signs shall be posted at power outlets, which are other than 110-120 volt power. Only grounded extension cords shall be used. Incandescent lamps and light fixtures shall be of adequate wattage to provide good illumination in LBP control areas.

   e. Temporary heating units, when needed, that have been tested and labeled by UL, FM, or another recognized trade association related to the fuel being consumed. Forced air or fan type units shall not be utilized inside a work area. Units shall have tip-over protection.

   f. Sufficient quantity of single-occupant, self-contained chemical toilets, properly vented and fully enclosed.

3.2 LEAD-BASED PAINT WORK PRACTICES (Use methods as applicable)

A. Component Removal:

Components shall be removed intact to the extent practicable. A 6-mil polyethylene drop cloth shall be placed on either side of the component, prior to its removal, to catch any paint chips that may become dislodged. The component shall be wrapped in a layer of 6-mil polyethylene for movement to the disposal container. Follow proper disposal requirements. The area around the component removal shall be wet wiped and HEPA vacuumed, including the tent enclosure. The polyethylene sheeting shall be carefully folded in on itself and placed in a 6-mil disposal bag. Containment debris shall be properly disposed of as lead-based waste.

Clearance will be performed as follows:

1. Visual Clearance - Determine that all required work has been completed.
   Look for settled dust, paint chips or debris in work area. If located, cleanings will commence until visual inspection locates no evidence of dust.

2. The Owner's Consultant shall perform Dust and/or Soil Sampling as outlined in the U.S. Department of Housing and Urban Development "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing".

B. Chemical Stripping: Assumed Exposure (50 ug/m^3 - 500 ug/m^3)

Chemical stripping, using an agent approved by the Owner's Consultant, followed by wet scraping is the preferred method of abatement for areas where torch cutting, welding and/or other hot-work will affect building components coated with lead-based paint or lead containing coatings. The specific stripping agent(s) proposed must be approved by the Owner. No chemical strippers containing methylene chloride shall be used by the Contractor on this project.

1. Horizontal surfaces directly below and at least 10' in a radial direction from the area where chemical stripping is to be performed shall be protected with 6-mil poly.

2. All LBP on specified surfaces shall be removed to the bare substrate. The job is not considered complete until the substrate is dry and free of paint, debris, and LBP residue.

3. LBP stripping agents shall be brushed or troweled on the designated surfaces, or otherwise applied in accordance with manufacturer's specifications. The minimum thickness of chemical stripping agent applied shall be 0.125 (1/8) inches or the manufacturer's recommendations.

4. Stripping agents shall not be applied to, nor be allowed to inadvertently penetrate, wood and/or other porous substrates.

5. The required dwell time for stripping will depend upon the ambient temperature, humidity, and thickness of LBP. If LBP is not completely removed following the initial application of stripper, a second application and wet scraping may be required.

6. Removed LBP shall not be deposited on the polyethylene containment surfaces but shall be transferred directly into 6-mil polyethylene bags from the scraper. LBP shall be removed by wet scraping to the maximum extent feasible.

7. Any residue not removable by wet scraping shall be washed down to the bare metal substrate with a high-phosphate solution. LBP-contaminated wastewater shall be kept to a minimum using wet scrub brushes or sponges. These residues and disposable cleaning media shall also be directly transferred to the 6-mil polyethylene bags containing other LBP wastes. Free standing water shall be eliminated by use of a drying agent.

8. Clearance will be performed as follows:

   a. Visual Clearance - Determine that all required work has been completed.
   Look for settled dust, paint chips or debris in work area. If located, cleanings will commence until visual inspection locates no evidence of dust.

   b. The Owner's Consultant shall perform Dust and/or Soil Sampling as outlined in the U.S. Department of Housing and Urban Development "Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing".

C. Manual Demolition/Scraping/Cleaning: Assumed Exposure (50 ug/m^3 - 500 ug/m^3)

Manual demolition, scraping, manual sanding and power tool cleaning with dust collection systems shall be performed in conjunction with engineering and work practice controls meeting the requirements of 29 CFR 1926.62(e)(1).

Seal openings of HVAC ductwork and other penetrations (doors, windows, etc.) within the Control Area with two layers of 6-mil polyethylene sheeting. For work on vertical surfaces, place a layer of 6-mil polyethylene sheeting below the area prior to manual demolition/scraping/ cleaning. The sheeting shall extend 5 ft. on either side of the work area, to catch any paint chips that may become dislodged.

Wet methods shall be used during manual scraping, manual sanding and power tool cleaning with dust collection systems. Local HEPA ventilation shall be utilized in conjunction with manual scraping, manual sanding and power tool cleaning with dust collection systems. In the case that local HEPA ventilation is not sufficient to control dust hazards, the Contractor shall be required to install engineering controls to meet requirements of Specification Section 1.8(D) “Negative Air Pressure System”.

Removed LBP shall not be allowed to accumulate on surfaces within the Control Area, but shall be HEPA vacuumed or placed directly into 6-mil polyethylene bags. The Contractor shall maintain all surfaces as free as practicable of accumulated lead dust to prevent the dispersal of lead into the work place. LBP shall be removed by manual methods to the maximum extent feasible.

Debris shall be bagged in 6-mil polyethylene bags and secured in leak proof drums until TCLP testing is completed. Follow proper disposal requirements. The area around the surfaces subject to work shall be wet wiped and HEPA vacuumed, including the polyethylene sheeting. Upon clearance by the Owner’s Consultant, the polyethylene sheeting shall be carefully folded in on itself and placed in a 6mil disposal bag. Containment debris shall be properly disposed of as lead-based waste.

Clearance will be performed as follows and as needed:

a. Visual Clearance – determine that all required work has been completed. Look for settled dust, paint chips or debris in work area. If located, cleanings will commence until visual inspection locates no evidence of dust.

D. Alternative Lead Work Procedures

1. Any Work Procedure other than the outline procedures above, shall be submitted to the Owner’s Consultant for approval prior to the start of the project. As there are many different components in differing areas of the building(s), it is impractical to address every potential lead work procedure. The intent of alternative lead work procedures shall be to maintain compliance with 29 CFR 1926.62 and maintain airborne concentrations of lead dust below the Action Level of 30 ug/dL of air.

3.3 MONITORING & CLEARANCE SAMPLING

During the entire LBP removal and disposal operations, the Owner's Consultant shall be on-site directing the monitoring/sampling and inspecting the work to ensure that the health and safety requirements of this contract are satisfied.

A. Personnel Air Monitoring (Provided by the Contractor, as necessary)

1. Personnel air monitoring samples for airborne concentrations of lead shall be collected and analyzed in accordance with 29 CFR Part 1926.62. Results shall be reported in micrograms per cubic meter of air. The Competent Person shall use personal air monitoring results to determine the effectiveness of engineering controls, the adequacy of PPE and to determine if proper work practices are being employed. The Owner's Consultant shall be notified if any personal air monitoring result equals or exceeds 30 micrograms per cubic meter of air. The Contractor shall take steps to reduce the concentration of lead in the air.

B. Area Air Monitoring (Provided by the Owner's Consultant, as requested)
Airborne concentrations of lead shall be collected and analyzed in the laboratory. Results shall be reported in micrograms per cubic meter of air.

1. Pre-LBP work
Pre- LBP work samples shall be collected in the following locations: I) inside the lead control area, one upwind of the LBP work and two downwind of the LBP work procedure activities; and 2) outside the physical boundary (roped off) area, one upwind of the LBP work and two downwind of the LBP work activities. A total of six (6) samples. If work is performed inside the building, similar numbers of samples are to be positioned inside and outside the LBP containment area.

2. LBP Work
The Competent Person shall collect area air samples on a daily basis during the duration of the LBP work. The samples shall be collected in the same location as the pre-work samples.

3. The area air samples shall be collected at 4 to 6 feet above grade, and using high volume air samplers.

4. The air samples shall be analyzed by NIOSH Method 7082 or method approved by Engineer.

5. Results
The Contractor shall have the results of the area air monitoring within 24 hours after completion of the sampling. Results shall be reported in micrograms per cubic meter of air.

6. Excessive Levels
Outdoor LBP work shall cease and the Owner's Consultant notified if measured airborne lead concentrations, collected during LBP activities, exceed the pre-work airborne concentration levels. The Contractor may be required to clean and re-sample the affected area, at no additional cost to the Owner, if directed by the Owner's Consultant. The Contractor shall correct the work practices and/or engineering controls and shall resume LBP work procedures at the direction of the Owner's Consultant.

3.4 ADJACENT AREAS

Damage to adjacent areas shall be repaired to the approval of the Owner.

3.5 CLEAN-UP & DISPOSAL

A. Cleanup

1. Daily
   Surfaces in the LBP control area shall be maintained free of accumulations of paint chips, LBP debris, blasting debris and dust. Spread of dust and debris shall be restricted; waste shall not be distributed over the work area. Dry sweep or compressed air shall not be used for cleanup. At the end of each shift, the area shall be cleaned of visible lead paint contamination by vacuuming with a HEPA filtered vacuum cleaner and wet wiping the area. LBP work procedures work shall cease during the cleanup.

2. At Completion of LBP work Procedure and a satisfactory visual inspection by the Engineer, a clean-up shall be performed by the Contractor. This clean-up includes removal of any contaminated material, equipment or debris including polyethylene sheeting from the work area. The polyethylene sheeting shall be sprayed or misted with water for dust control, construction debris removed and then the sheeting removed by folding it in upon itself.
   a. Lead-contaminated debris shall be containerized in accordance with paragraph 3.5.C.1, LBP Wastes and Lead-Contaminated Wastes. Waste bags shall not be overloaded, shall be securely sealed and stored in the designated area until disposal.

   b. Removal of surface polyethylene sheeting shall begin from top to bottom. Removal of floor polyethylene sheeting shall begin at the corners and folded in the middle to contain the dust. Polyethylene shall be disposed of as specified in Paragraph 3.5.C.l

   c. Cleaning Equipment. The Contractor shall decontaminate the lead abatement equipment and equipment used in the work area. The wastewater from cleaning shall be contained, sampled and disposed of as specified in Paragraph 3.5.C.2.

B. Certification
   The Contractor shall certify in writing that the inside and outside the lead control area air monitoring samples are less than 30 micrograms per cubic meter of air, the respiratory protection for the employees was adequate, the work procedures were performed in accordance with 29 CFR Part 1926.62 and that there was no visible accumulations of lead-based paint and dust on the worksite. Do not remove warning signs at the lead control area or roped-off boundary signs prior to the Owner's Consultant's receipt of the Contractor's certification. Re-clean areas showing dust, residual paint chips. LBP debris and blasting debris.

Waste Storage, Sampling/Analysis and Disposal (Provided by the Contractor)

1. LBP Wastes and Lead-Contaminated Water

   LBP waste, and lead-contaminated waste and debris shall be stored sampled and analyzed and disposed of as follows.

a. The LBP waste and debris, lead contaminated personal protective equipment (PPE), clothing and waste polyethylene and lead-contaminated waste and debris shall be containerized in DOT approved containers (i.e.. 55 gallon drums, roll-off, etc.). If the waste is placed in roll-off(s), the roll off shall be lined with a minimum of 2 layers of'6-il polyethylene prior to placing any waste in it and covered with a liquid tight cover. Each container shall be labeled to identify the type of waste as defined in 49 CFR Part 172, 6 NYCRR Part 371 and 6 NYCRR Part 360 and with the date lead contaminated wastes were first put into the container.

b. A representative sample of the container(s) of LBP wastes and lead-contaminated wastes and debris generated by the LBP activities shall be taken in accordance with SW-. 846, Chapter 9, Sampling Plan and analyzed in the laboratory for TCLP lead by EPA Methods 1311 (extraction) and 6010 (analysis). If the wastes are placed in roll-off(s), four (4) composite samples per roll-off shall be taken for analysis. If the wastes are placed in *55* gallon drums, one composite sample for every ten (10) drums of wastes shall be taken for analysis. The laboratory analyses results shall dictate the proper method of disposal of the waste. A copy of the results shall be attached to the waste characterization (waste profile) form.

c. A waste characterization (waste profile) form shall be completed for the LBP waste and lead-contaminated waste and debris, and lead contaminated personal protective equipment and clothing (if containerized separately) and the forms submitted to Owner's Consultant for approval The Owner shall sign the forms. The Contractor shall process the forms and forward to the disposal facility for approval. The approved waste profile forms from the disposal facility shall be submitted to the Owner and Engineer prior to shipment of the wastes off-site.

d. The applicable waste transportation and disposal documents (i.e., hazardous waste manifest, bill of lading, non-hazardous waste manifest, land disposal restriction notification, etc.) shall be obtained and completed. An example of the completed waste transportation and disposal documents shall be submitted to Owner's Consultant for approval prior to shipment of the waste off-site.

e. Pick-up of hazardous wastes shall be made as needed to ensure that containers do not remain on the work site longer than 90 calendar days from the date affixed to each container. The Owner will assign an area for interim storage of waste-containing containers.

f. Lead contaminated personal protective equipment/ clothing, lead contaminated polyethylene, filters and debris, which cannot be sampled, shall be handled, stored, transported, and disposed of in the same manner as the LBP wastes and lead-contaminated wastes and debris, based on the sampling, laboratory analyses results and SW-846, Chapter 9, Sampling Plan calculations performed on the LBP wastes and lead-contaminated wastes and debris.

g. The LBP and lead contaminated wastes/ debris shall be handled, stored, transported and disposed of in accordance with 40 CFR Parts 260 to 265, 6 NYCRR Par 370 to 373, 6 NYCRR Part 364 and 6 NYCRR Part 360, as applicable. Additionally, the disposal shall be based on the sampling, laboratory analysis results and SW-846, Chapter 9, Sampling Plan calculations. Land disposal restriction notification shall be as required by 40 CFR Part 268 and 6 NYCRR Part 376.

2. Wastewater and Decontamination Water

    a. Lead contaminated wastewater and decontamination water generated from the LBP work procedures shall be stored in DOT approved 55 gallon drums. Each drum shall be labeled to identify the type of waste as defined by 49 CFR Part 172, 6 NYCRR Part 371 and 6 NYCRR Part 360 and with the date lead contaminated liquid was first put into the drum.

    b. A representative sample from the drum(s) of liquid wastes shall be taken in accordance with SW-846, Chapter 9, Sampling Plan and analyzed in the laboratory for total lead and total cadmium by EPA Method 200.7/6010. One composite sample for every ten (10) drums of liquid wastes shall be taken for analysis. The laboratory analyses results shall dictate the proper method of disposal of the waste. A copy of the results shall be attached to the waste characterization (waste profile) form.

    c. A waste characterization (waste profile) form shall be completed for the liquid wastes and other wastes being generated and submitted to Owner's Consultant for approval. The Owner shall sign the form(s). The Contractor shall process the form(s) and forward the forms to the disposal facility for approval. The approved waste profile form(s) from the disposal facility shall be submitted to the Owner and Engineer prior to shipment of the wastes off-site.

    d. The applicable waste transportation and disposal documents (i.e., hazardous waste manifest, bill of lading, non-hazardous waste manifest, land disposal restriction notification, etc.) shall be obtained and completed. An example of the completed waste transportation and disposal documents shall be submitted to Owner's Consultant for approval prior to shipment of the waste off-site.

    e. The lead contaminated wastewater and decontamination water shall be handled, stored, transported and disposed of in accordance with 40 CFR Parts 260 to 265, 6 NYCRR Part 370 to 373, 6 NYCRR Part 364 and 6 NYCRR Part 360 as applicable.

3. Waste Pick-Up and Disposal

    a. Waste pick-up cannot be performed until all required submittals have been reviewed and approved by the Owner's Consultant. The Owner must be present at waste pick-up to sign the waste transportation documents and approve pick-up. No waste shall leave the site without approval and authorization by Owner.

    b. Coordinate scheduling of waste pick-up and transportation with Owner's Consultant. Notify Engineer at least 48 hours ahead of when the waste pick-up will take place.

    c. All wastes shall be properly disposed of off-site at an approved disposal facility. The wastes shall be transported by a transporter permitted to transport wastes per 6 NYCRR Part 364. The wastes shall be disposed of at a facility permitted to accept the waste being disposed of.

    d. Submit copy of completed and signed transportation and disposal documents to Owner and Engineer at time of shipment and submit copy of document signed by the disposal facility.

e. Return or cause to be returned all waste manifests and bills of lading signed by the disposal facility within fifteen *(15)* days of removal from the project site.

f. Submit certification of destruction for all incinerated wastes and certificates of final treatment and/or final disposal, as applicable, for all wastes disposed of off-site.

g. All waste transportation and disposal must be conducted in accordance with all applicable State, Local and Federal regulations, all generator State regulations, all the State regulations where the wastes are transported through, and the disposal State regulations.

C. Payment for Disposal of Wastes

Payment for disposal of wastes will not be made until the following are received by the Owner:

1. A signed copy of the manifests
2. Bills of lading
3. Weight tickets, etc.
4. Certificate of final disposal, from the final treatment or disposal facility certifying the amount of lead containing wastes and debris delivered.

PART 4 – INSPECTION

4.1 SUMMARY OF INSPECTION

Limited lead-based paint inspection(s) were completed throughout specific Renovation Areas as detailed on written narratives provided by the Town of New Windsor to identify suspect lead-based paints and/or lead-containing hazards potentially affected by scheduled demolition/renovation activities included within the ***Town of New Windsor Caesars Lane WWTP Expansion Project: Phase 1***as detailed within Section #1.2 of this specification.

The inspection was completed by **QuES&T** Niton-certified XRF Technician(s). Paint testing was completed on-site utilizing a Niton XLp-300A XRF Spectrum Analyzer Serial # 102273 in accordance with the EPA issued Performance Characteristics Sheet (PCS) and paint chip sampling. A summary of results above the EPA action level of 1.0 mg/sq. cm., has been included to aid prospective bidders.

The survey was completed in accordance with EPA, OSHA and/or HUD Guidelines for inspection of lead-based paint(s) and/or lead-containing material(s). Per these protocols, all suspect coated surfaces impacted by demolition/renovation activities were located and categorized by homogeneous painting histories and component types.

4.2 SUMMARY OF RESULTS ABOVE THE EPA ACTION LEVEL OF 1.0 mg/cm^2

The following is a detailed listing of identified Lead-based Paint(s) and/or Lead-containing Materials, above the EPA action level of 1.0 mg/sq. cm. The following listing should be utilized as a guide to specific work-related tasks and is not necessarily an Abatement Scope. Specified lead-safe work practices shall be performed in accordance with the stipulations defined within this specification as required by specific work-related tasks and in advance of disturbance(s) of the following Lead-based Paint(s) and/or Lead-containing Material(s), above the EPA action level of 1.0 mg/sq. cm:

TABLE I: IDENTIFIED LEAD-BASED PAINT
TOWN OF NEW WINDSOR
CAESARS LANE WWTP
EXPANSION PROJECT: PHASE 1

Location	LBP Component	Substrate	Color	LBP Condition
Dewatering Building				
Maintenance Room	Sink	Porcelain	White	Intact
Treatment Area	Piping	Metal	Gray	Intact

It should be noted that several components tested did in fact contain minimal lead-levels below the EPA threshold level of 1.0 mg/sq. cm for classification as Lead-Based Paint (LBP) and are considered lead-containing coatings by the OSHA Regulation, "Lead Exposure in Construction" (29 CFR 1926.62). OSHA does not recognize a minimum limit for lead concentrations in paint for the purposes of disturbance. Monitoring of workers performing demolition/cleaning/disturbance of painted surfaces shall be completed to document personnel occupational exposure. Items containing any amount of lead concentration are considered lead-containing coatings per 29 CFR 1926.62, OSHA Lead Exposure in Construction.

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END OF SECTION

Exhibit A-3

Pre-Demolition/Pre-Renovation Inspection

For Asbestos-Containing Materials (ACM) by QuES&T

May 18, 2019

QuES&T
Quality Environmental Solutions & Technologies, Inc.

PRE-DEMOLITION/PRE-RENOVATION INSPECTION FOR ASBESTOS-CONTAINING MATERIALS (ACM)

for

TOWN OF NEW WINDSOR
555 Union Ave
New Windsor, New York 12553

at

NEW WINDSOR WASTE WATER TREATMENT PLANT
Control Building & Microscreen Building
145 Caesar's Lane
New Windsor, New York 12553

May 28, 2019 Revision

Project #Q19-2382

1376 Route 9, Wappingers Falls, NY 12590 Phone (845) 298-6031 Fax (845) 298-6251
NYS MWBD MBE Cert # 49952-2006 NYSUCP DBE Certified NJUCP DBE Certified www.Qualityenv.com

QuES&T

Quality Environmental Solutions & Technologies, Inc.

May 28, 2019

Town of New Windsor
555 Union Ave
New Windsor, New York 12553

ATTN: John Eggito

Via Email: **nwwater@hvc.rr.com**

Re.: 145 Caesar's Lane, New Windsor, New York 12553
Waste Water Treatment Plant: Control Building & Microscreen Building
Pre-Demolition/Pre-Renovation Asbestos Inspection
QuES&T Project #Q19-2382

Dear Mr. Eggito,

Attached is the Pre-Demolition/Pre-Renovation Inspection Report for Asbestos-containing Materials (ACM) conducted throughout the interiors and exteriors of the above-referenced location(s) by **Qu**ality **E**nvironmental **S**olutions **& T**echnologies, Inc. **(QuES&T)**. The inspection included visual assessment and representative sampling for the detection of ACM in compliance with the requirements of Title 12 NYCRR Part 56-5.1.

The attached report summarizes the inspection protocol and inspection results for your review. **QuES&T** believes this report accurately reflects the material condition existing in the functional spaces at the time of our inspection.

Should you wish to discuss this matter further or require additional information concerning this submittal, please contact us at (845) 298-6031. **QuES&T** appreciates the opportunity to assist Town of New Windsor in the environmental services area.

Sincerely,

James Klemm
Field & Technical Services
NYS/AHERA Inspector
Cert. #13-11486

Cc: aperre@qualityenv.com
QuES&T File

Table of Contents

I. INTRODUCTION:

Quality **E**nvironmental **S**olutions **&** **T**echnologies, Inc. **(QuES&T)** performed an Asbestos Survey for Building/Structure Demolition, Renovation, Remodeling and Repair, in conformance with Title 12 NYCRR Part 56-5.1, on March 25 & May 15, 2019 for the Town of New Windsor at the Control Building and Microscreen Building of the Town of New Windsor Waste Water Treatment Plant, located at 145 Caesar's Lane, New Windsor, New York 12553. The survey included a visual inspection/assessment for PACM and suspect miscellaneous ACM throughout accessible interior and/or exterior spaces of the building/structure or portion thereof identified to be demolished, renovated, remodeled or repaired. Inspection/assessment of installed roofing material(s) was included within this inspection.

QuES&T established functional spaces based either on physical barriers (i.e. walls, doors, etc.) or homogeneity of material. Within each functional space identified, a visual inspection was performed using reasonable care and judgment, to identify and assess location, quantity, friability and condition of all accessible installed ACM building materials observed at the affected portion of the building/structure.

Limited localized demolition of building surfaces was performed, as part of this survey, to access concealed surfaces. No disassembly of installed equipment was conducted as part of this inspection. ACM concealed within structural components and equipment interiors or that is accessible only through extensive mechanical or structural demolition may not have been identified as part of this survey. When any construction activity, such as demolition, remodeling, renovation or repair work, reveals PACM or suspect miscellaneous ACM that has not been identified, as part of this survey, all construction activities shall cease in the affected area.

The survey included both visual inspection of accessible spaces and representative sampling of suspect building materials for ACM. Samples collected were analyzed by a laboratory approved under the New York State Department of Health Environmental Laboratory Approval Program (NYSDOH ELAP). Samples were analyzed in the laboratory by Polarized Light Microscopy (PLM), Polarized Light Microscopy-NOB (PLM-NOB) and/or Quantitative Transmission Electron Microscopy (QTEM), as required. Sample collection and laboratory analysis were conducted in compliance with the requirements of Title 12 NYCRR Part 56-5.1, 29 CFR 1926.1101 and standard EPA & OSHA accepted methods. Samples consisting of multiple layers were separated and analyzed independently in the laboratory.

Certified **QuES&T** personnel (Appendix C), Mr. James Klemm (Cert. #AH 13-11486), Mr. Shannon D. Talsma (Cert. #AH 16-07559), performed visual assessments throughout interior and exterior locations identified. A total of one-hundred thirty **(130)** samples/layers of installed and accessible suspect building materials were analyzed by a laboratory approved under the NYSDOH ELAP. Fifty-six (56) samples/layers were analyzed using Polarized Light Microscopy (PLM) for friable materials; thirty-nine (39) samples/layers were analyzed using Polarized Light Microscopy (PLM-NOB) for non-friable organically bound materials; and, thirty-five (35) samples/layers were analyzed by Confirmatory-QTEM following negative-determinations using PLM-NOB protocols.

II. INSPECTION SUMMARY:

A visual inspection was performed and homogenous material types were established based on appearance, color and texture. The findings presented in this report are based upon reasonably available information and observed site conditions at the time the assessment was performed. The findings and conclusions of this report are not meant to be indicative of future conditions at the site and does not warrant against conditions that were not evident from visual observations or historical information obtained from others.

Representative bulk sampling was performed on suspect building materials for laboratory analysis using PLM, PLM-NOB and QTEM. The following is a summary of installed building materials sampled:

- Ceiling Materials – Ceiling Tile.
- Wall Materials – Sheetrock, Joint Compound, Cementitious Block & Morat, Brick & Mortar.
- Flooring Materials – Quarry Tile System (i.e. grout, mudset, etc.), Ceramic Tile System (i.e. grouts, mudsets, etc.), Cementitious Slab
- Roofing Materials – Rolled Roofing, Tar/Vapor Barrier, Vapor Barrier, Perlite, EPDM, Isofoam, Shingle, Gypsum.
- Thermal System Insulation (TSI) – Pipe Insulation
- Miscellaneous Materials – Caulks, Glazings (multiple varieties).

III. IDENTIFIED ASBESTOS-CONTAINING MATERIALS (ACM):

(please see attached drawings for approx. ACM locations)

KEY: **ACM** = Materials containing greater than 1% of asbestos;
LF = Linear Feet; **SF** = Square Feet; **PACM** = Presumed Asbestos-containing Materials;
Friable = ACM capable of being released into air, and which can be crumbled, pulverized, powdered, crushed or exposed by hand-pressure.

Location	Material	Approx. Qty.	Friable?	Condition
CONTROL BUILDING – PRE-RENOVATION				
Interiors				
Walls, Throughout	Sheetrock with ACM Joint Compound	See Below	Yes	Good
Break Room		500 SF		
Men's Bathroom		400 SF		
Women's Bathrooms		300 SF		
Locker Rooms		450 SF		
Maintenance Room		350 SF		
Entrance Vestibule		750 SF		
Control Room		700 SF		
Laboratory		450 SF		
Reception		600 SF		
Exteriors				
Main Roof, Equipment Flashing	Flashing Tar	32 SF	No	Good
Front Entrance, Door & Window System, Metal to Brick	Caulk	60 LF	No	Good
MICROSCREEN BUILDING – PRE-DEMOLITION				
Interiors				
****No Asbestos-containing Materials (ACM) identified upon PLM & QTEM/PLM-NOB analysis.****				
Exteriors				
Roof, Field, Second Layer	Vapor Barrier	600 SF	No	Good
Roof, Perimeter Flashing, Bottom Layer, on Metal	Vapor Barrier	100 SF	No	Good

IV. GENERAL DISCUSSION:

All construction personnel as well as individuals who have access to locations where asbestos containing materials (ACM) exists should be informed of its presence and the proper work practices in these areas. Conspicuous labeling of all ACM is suggested to ensure personnel is adequately informed. Personnel should be informed not to rest, lean or store material or equipment on or near these surfaces and not to cut, saw, drill, sand or disturb ACM. All removal, disturbance, and repair of ACM should be performed in compliance with Title 12 NYCRR Part 56 by persons properly trained to handle ACM. Facility custodial and maintenance personnel should receive training commensurate with their work activities; as defined in 29 CFR 1910.1001.

The findings presented in this report are based upon reasonably available information and observed site conditions at the time the assessment was performed. Conditions may have changed since that time and the findings and conclusions of this report are not meant to be indicative of future conditions at the Site. This report does not warrant against conditions that were not evident from visual observations or historical information obtained, or conditions that could only be determined by physical sampling or other intrusive investigation techniques that are outside the proposed scope of work.

V. TRANSMITTAL OF BUILDING SURVEY INFORMATION:

As specified in Title 12 NYCRR Part 56-5.1 (g), information derived from this building survey shall be immediately transmitted by the building owner or his/her agent to the commissioner through the Department's Division of Safety and Health, Asbestos Control Bureau, and to the local government entity charged with issuing a permit for such demolition under applicable State or local laws or, if no such permit is required, to the town or city clerk where the building is located.

VI. ABATEMENT REQUIRED:

As specified in Title 12 NYCRR Part 56-5.1 (h) and (i), "If the building/structure asbestos survey finds that the portion of the building/structure to be demolished, renovated, remodeled, or have repair work contains ACM, PACM, suspect miscellaneous ACM assumed to be ACM, or asbestos material, which is impacted by the work, the owner or the owner's agent shall conduct, or cause to have conducted, asbestos removal performed by a licensed asbestos abatement contractor in conformance with all standards set forth in this Part. All ACM, PACM, suspect miscellaneous ACM assumed to be ACM, or asbestos material impacted by the demolition, renovation, remodeling or repair project shall be removed as per this Part, prior to access or disturbance by other uncertified trades or personnel. No demolition, renovation, remodeling or repair work shall be commenced by any owner or the owner's agent prior to the completion of the asbestos abatement in accordance with the notification requirements of this Part…All building/structure owners and asbestos abatement contractors on a demolition, renovation, remodeling, or repair project, which includes work covered by this part, shall inform all trades on the work site about PACM, ACM, asbestos material and suspect miscellaneous ACM…Bids may be advertised and contracts awarded for demolition, remodeling, renovation, or repair work, but no work on the current intermediate portion of the project shall commence on the demolition, renovation, remodeling or repair work by any owner or agent prior to completion of all necessary asbestos abatement work for the current intermediate portion of the entire project, in conformance with all standards set forth in this Part."

Prior to conducting demolition or construction work at the building, all ACM affected/impacted by such activities shall be removed utilizing a licensed asbestos abatement contractor and NYSDOL/EPA/NYC certified personnel prior to construction/demolition activities. All work conducted should be in accordance with all legal requirements, including but not limited to U.S. Environmental Protection Agency (EPA) National Emissions Standards for Hazardous Air Pollutants (NESHAP) [40 CFR Part 61], New York State Industrial Code Rule 56 Asbestos Regulations (ICR 56) and Chapter 1 of Title 15 of the Rules of the City of New York Regulations, as applicable. Advance notification of the asbestos project to the USEPA, NYSDOL, and NYCDEP may be required.

All suspect building materials not sampled during this survey should be considered ACM until these materials are sampled and analyzed for ACM in the laboratory. Concealed ACM: In addition to the ACMs identified at the site, there is a possibility that concealed ACM may exist at the subject facility. As such, if any concealed suspect ACM is encountered during future construction related activities, the work should immediately stop. Prior to resuming the work, the suspect ACM should either be 1) Sampled by an appropriately-certified asbestos professional and submitted to an Approved NYSDOH ELAP laboratory for asbestos analysis or 2) Presumed to be ACM (PACM) and removed by a licensed asbestos abatement contractor for disposal in accordance with all applicable regulations.

VII. DISCLAIMERS

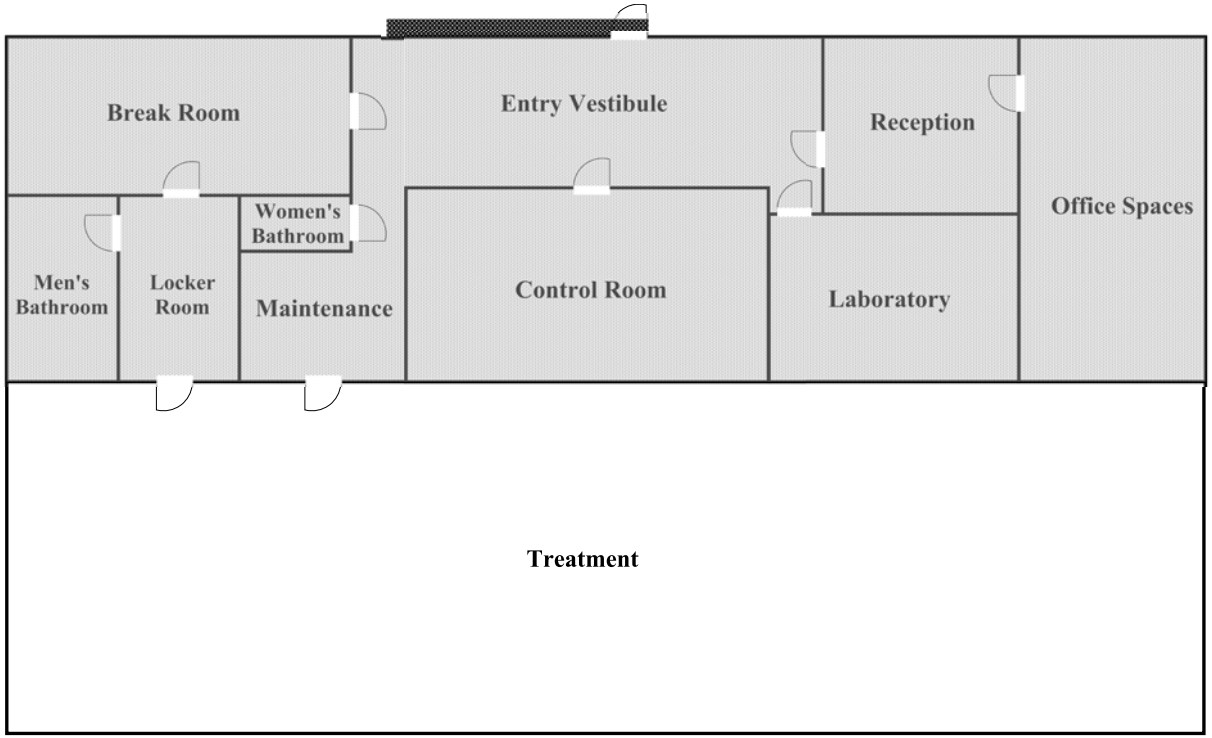
It should be noted that the information contained within this report is based solely upon site observations and the results of laboratory analysis for samples collected by **QuES&T.** These observations and results are time dependent, subject to changing site conditions and revisions to Federal, State and Local regulations. **QuES&T** warrants that these findings have been promulgated after being prepared in general accordance with generally accepted practices in the abatement industries. **QuES&T** also recognizes that inspection laboratory data is not usually sufficient to make all abatement and management decisions.

Due to the potential for concealed Asbestos-containing Materials (ACM) or other regulated materials, this report should not be construed to represent all ACM or regulated materials within the site(s). All quantities of ACM or other regulated materials identified, and all dimensions listed within this report are approximate and should be verified On-site.

This inspection report is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or Variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project. The Linear and/or Square Footages (LF / SF) listed within this Report are only approximates. Abatement Contractor(s) are required to visit the building(s) in order to take actual field measurements within each listed location.

Appendix A:
ACM LOCATION DRAWINGS & PHOTOS

Town of New Windsor - Waste Water Treatment Plant - Control Building



N

Building Key Plan - ACM Locations

Drawing Not to Scale

This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

ACM LEGEND: (see report for details)	
	ACM Joint Compound on Non-ACM Sheetrock Walls
	ACM Caulk on Window/Door System from Non-ACM Brick to Metal Frame

Town of New Windsor
555 Union Ave
New Windsor, NY 12553

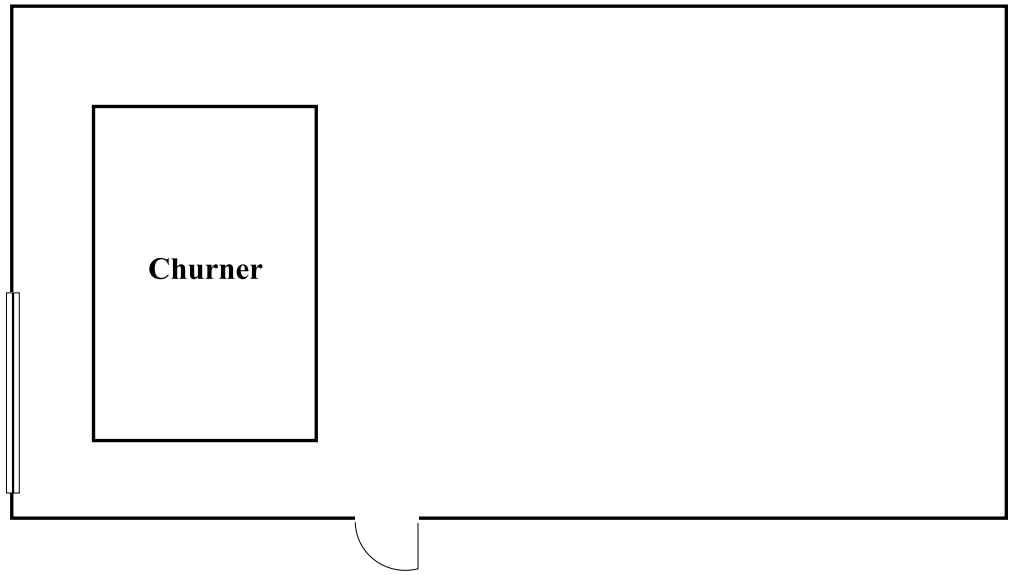
Waste Water Treatment Plant
Control Building
145 Caesar's Lane
New Windsor, New York 12553

QuES&T
Quality Environmental Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

Date: 4-1-2019
Version # 1
Issued For: Asbestos Survey
Project NO: Q19-2382
Project Manager: Anthony Perre
Drawing Prepared By: James Klemm

ASB-01

Town of New Windsor - Waste Water Treatment Plant - Micro Screen Building



N

Room Key Plan - ACM Locations

Drawing Not to Scale
This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

ACM LEGEND: (see report for details)	
NOTE	No Asbestos-containing Materials (ACM) identified upon PLM & QTEM/PLM analysis.

Town of New Windsor
555 Union Ave
New Windsor, NY 12553

Waste Water Treatment Plant
Micro Screen Building
145 Caesar's Lane
New Windsor, New York 12553

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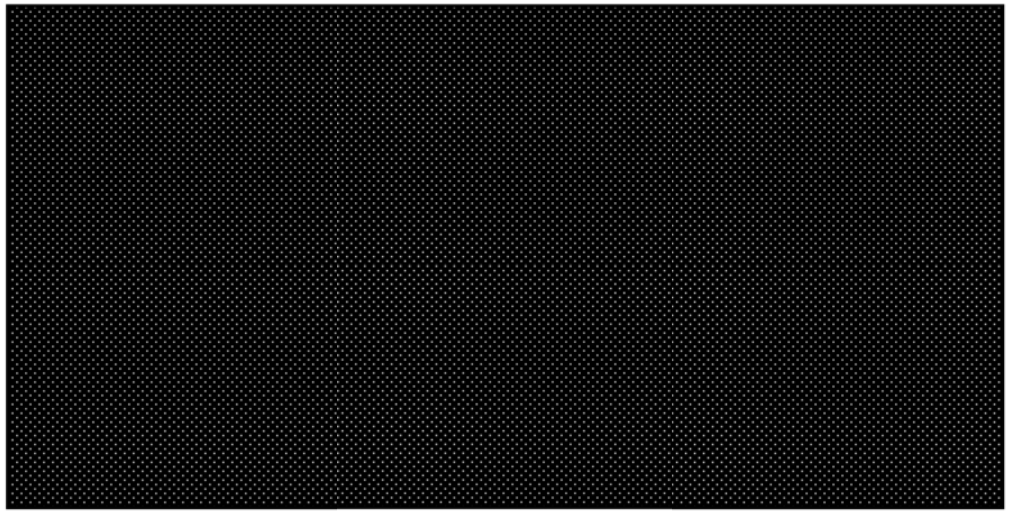
Drawing Prepared By: James Klemm

ASB-02

Town of New Windsor - Waste Water Treatment Plant - Micro Screen Building



N

Roof Key Plan - ACM Locations

Drawing Not to Scale
This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

ACM LEGEND: (see report for details)	
	ACM Tar Vapor Barrier on Roof Field and Perimeter Flashing.

Town of New Windsor
555 Union Ave
New Windsor, NY 12553

Waste Water Treatment Plant
Micro Screen Building
145 Caesar's Lane
New Windsor, New York 12553

QuES&T
Quality Environmental Solutions & Technologies, Inc.
1376 Route 9
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Phone: (845) 298- 6031
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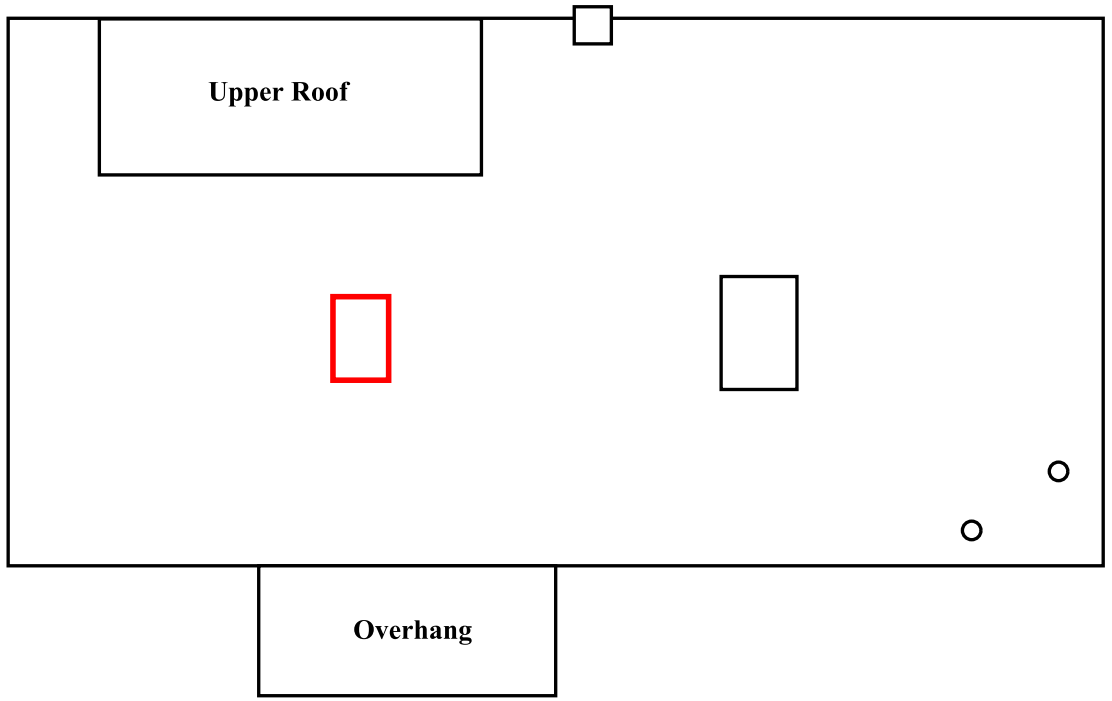
Date: 4-1-2019
Version # 1
Issued For: Asbestos Survey
Project NO: Q19-2382
Project Manager: Anthony Perre
Drawing Prepared By: James Klemm

ASB-03

Town of New Windsor - Waste Water Treatment Plant - Control Building



N

Roof Key Plan - ACM Locations

Drawing Not to Scale
This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

ACM LEGEND: (see report for details)	
	ACM Flashing Tar

Town of New Windsor
555 Union Ave
New Windsor, NY 12553

Waste Water Treatment Plant
Control Building
145 Caesar's Lane
New Windsor, New York 12553

QuES&T
Quality Environmental Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

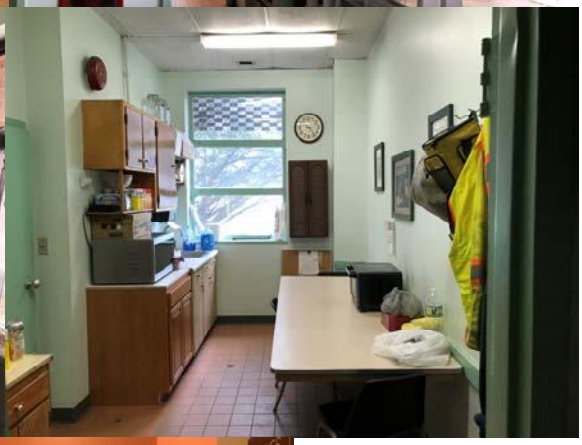
Date: 5-28-2019
Version # 1
Issued For: Asbestos Survey
Project NO: Q19-2382
Project Manager: Anthony Perre
Drawing Prepared By: James Klemm

ASB-04

QuES&T

Quality Environmental Solutions & Technologies, Inc.

Control Building – Sheetrock with ACM Joint Compound



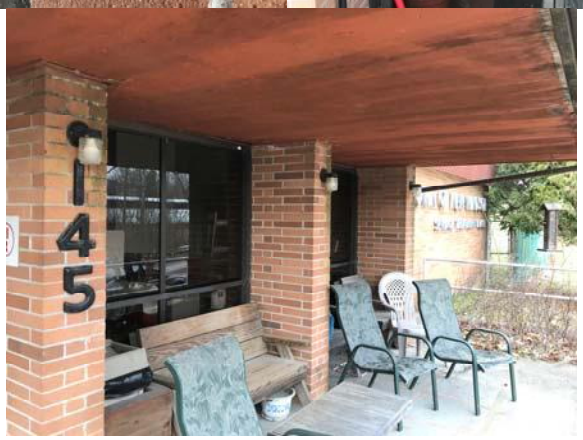
1376 Route 9, Wappingers Falls, NY 12590 Phone (845) 298-6031 Fax (845) 298-6251

NYS MWBD MBE Cert # 49952-2006 NYSUCP DBE Certified NJUCP DBE Certified www.Qualityenv.com

QuES&T

Quality Environmental Solutions & Technologies, Inc.

Control Building – ACM Caulk



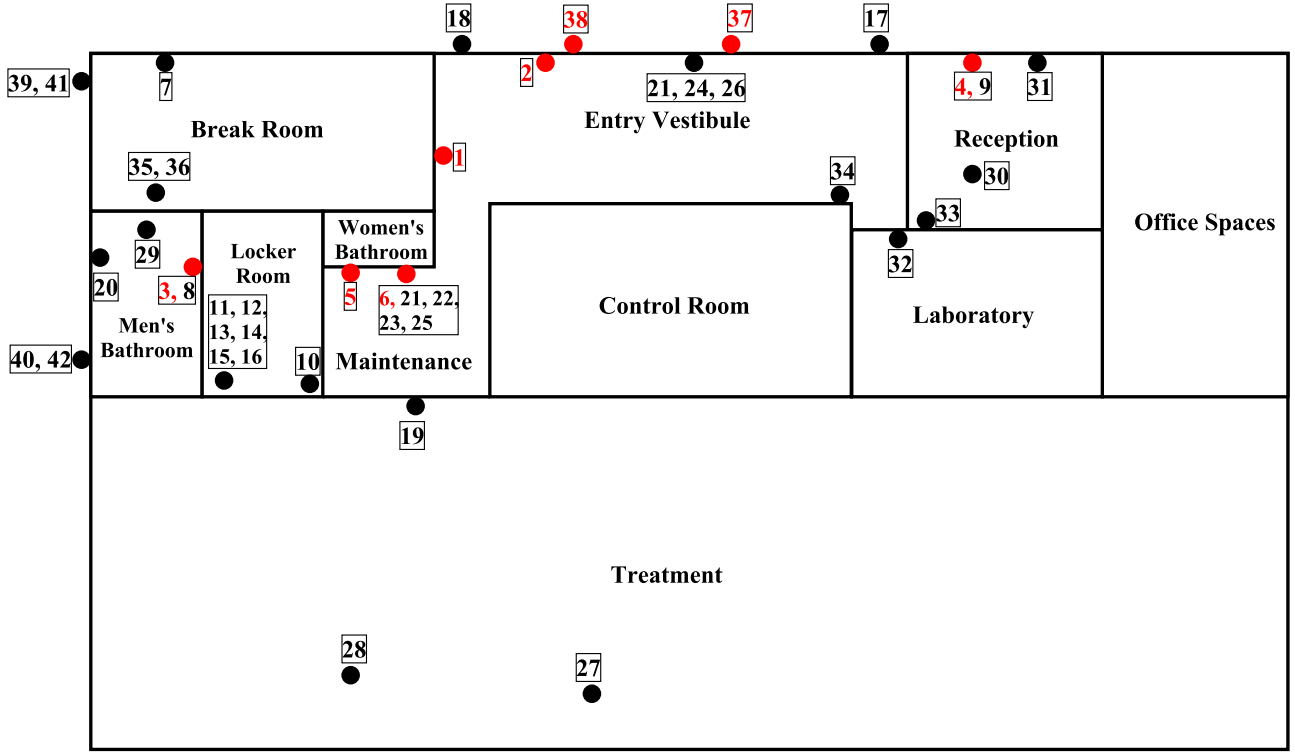
Control Building Roof – ACM Flashing Tar

1376 Route 9, Wappingers Falls, NY 12590 Phone (845) 298-6031 Fax (845) 298-6251

NYS MWBD MBE Cert # 49952-2006 NYSUCP DBE Certified NJUCP DBE Certified www.Qualityenv.com

Appendix B:
SAMPLE LOCATIONS & SAMPLE RESULTS

Town of New Windsor - Waste Water Treatment Plant - Control Building



Sample Location Key Plan - ACM Locations

N

Drawing Not to Scale

This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

SAMPLE LOCATION LEGEND	
●	Sample Location (Non-ACM)
●	Sample Location (ACM)

Town of New Windsor
555 Union Ave
New Windsor, NY 12553

Waste Water Treatment Plant
Control Building
145 Caesar's Lane
New Windsor, New York 12553

QuES&T
Quality Environmental Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

Date: 4-1-2019

Version # 1

Issued For: Asbestos Survey

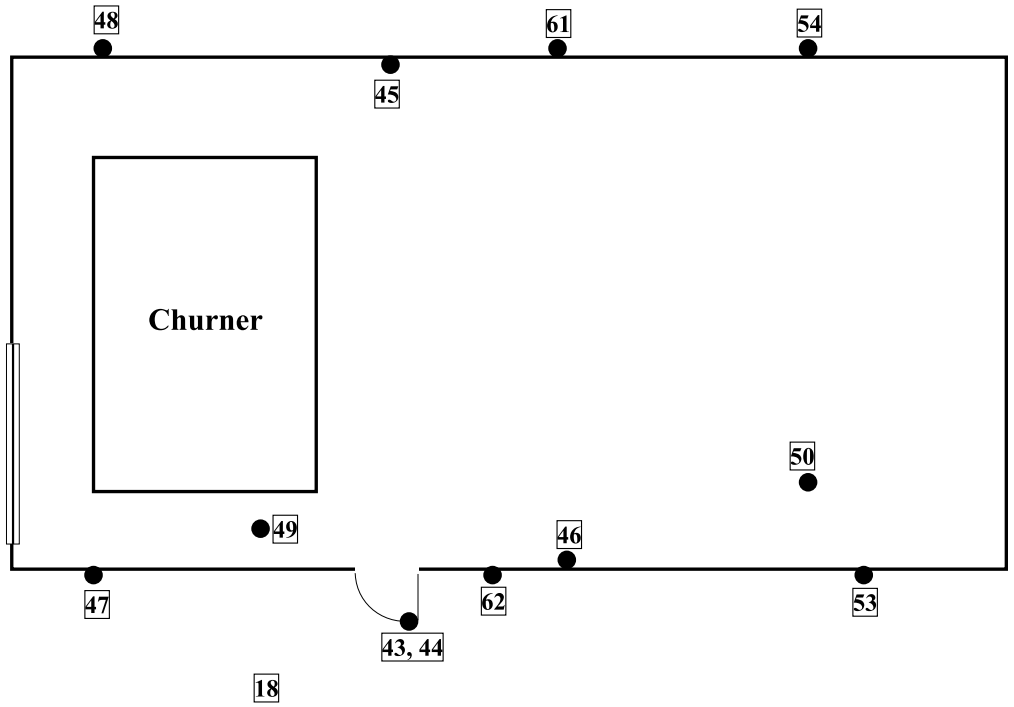
Project NO: Q19-2382

Project Manager: Anthony Perre

Drawing Prepared By: James Klemm

SL-01

Town of New Windsor - Waste Water Treatment Plant - Micro Screen Building



N

Sample Location Key Plan - ACM Locations

Drawing Not to Scale

This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

SAMPLE LOCATION LEGEND	
●	Sample Location (Non-ACM)

Town of New Windsor
555 Union Ave
New Windsor, NY 12553

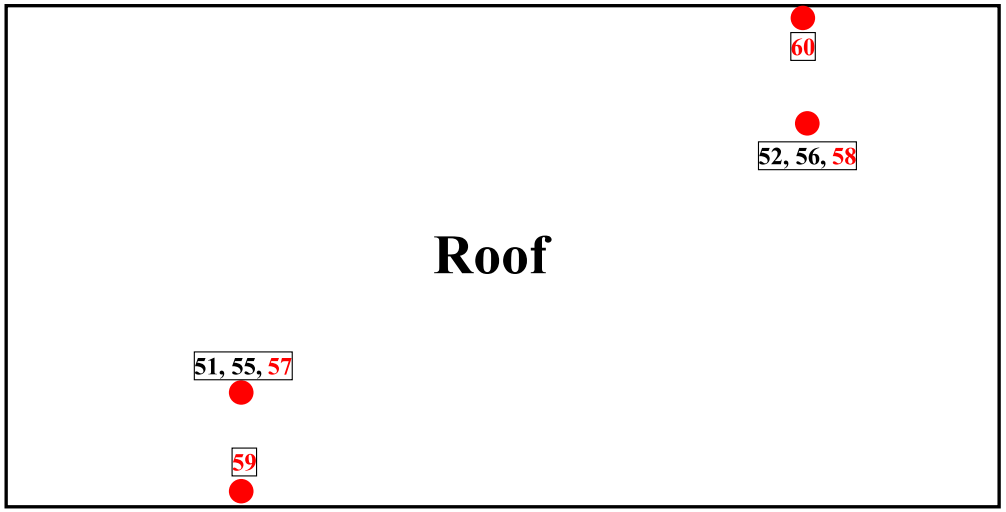
Waste Water Treatment Plant
Micro Screen Building
145 Caesar's Lane
New Windsor, New York 12553

QuES&T
Quality Environmental Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

Date: 4-1-2019
Version # 1
Issued For: Asbestos Survey
Project NO: Q19-2382
Project Manager: Anthony Perre
Drawing Prepared By: James Klemm

SL-02

Town of New Windsor - Waste Water Treatment Plant - Micro Screen Building



N

Sample Location Key Plan - ACM Locations

Drawing Not to Scale
This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

SAMPLE LOCATION LEGEND	
●	Sample Location (Non-ACM)
●	Sample Location (ACM)

Town of New Windsor
555 Union Ave
New Windsor, NY 12553

Waste Water Treatment Plant
Micro Screen Building
145 Caesar's Lane
New Windsor, New York 12553

QuES&T
Quality Environmental Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
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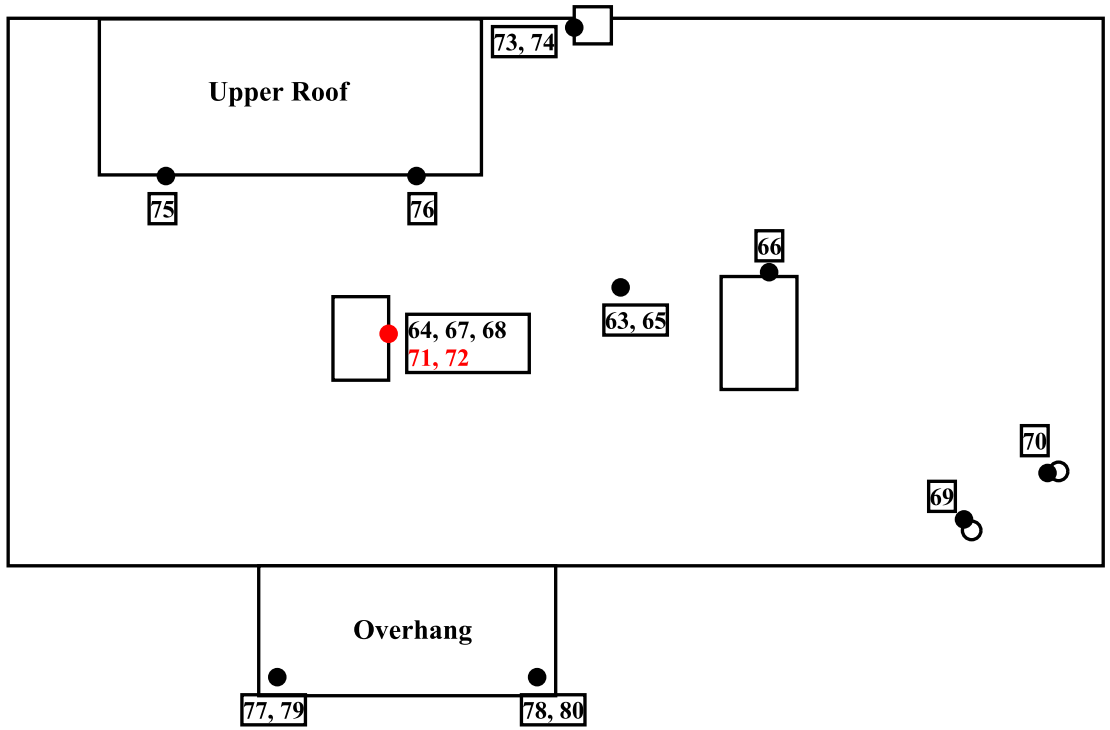
Date: 4-1-2019
Version # 1
Issued For: Asbestos Survey
Project NO: Q19-2382
Project Manager: Anthony Perre
Drawing Prepared By: James Klemm

SL-03

Town of New Windsor - Waste Water Treatment Plant - Control Building



N

Sample Location Key Plan

Drawing Not to Scale
This Drawing is not intended to be used as the sole basis for soliciting pricing for asbestos abatement. An abatement plan, specification, drawing and/or variances should be developed to identify scope, timing, phasing and remediation means & methods for any asbestos project.

SAMPLE LOCATION LEGEND	
●	Sample Location (Non-ACM)
●	Sample Location (ACM)

Town of New Windsor
555 Union Ave
New Windsor, NY 12553

Waste Water Treatment Plant
Control Building
145 Caesar's Lane
New Windsor, New York 12553

QuES&T
Quality Environmental Solutions & Technologies, Inc.
1376 Route 9
Wappingers Falls, NY 12590
Phone: (845) 298- 6031
Fax: (845) 298-6251

Date: 5-28-2019
Version # 1
Issued For: Asbestos Survey
Project NO: Q19-2382
Project Manager: Anthony Perre
Drawing Prepared By: James Klemm

SL-04

EMSL Analytical, Inc.

307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906553
Customer ID: QUES51
Customer PO:
Project ID:

Attention: Quality Environmental Solution & Tech
1376 Route 9
Wappingers Falls, NY 12590

Phone: (845) 298-6031
Fax: (845) 298-6251
Received Date: 03/26/2019 11:08 AM
Analysis Date: 03/30/2019 - 03/31/2019
Collected Date: 03/25/2019

Project: Q19-2382/ 145 CAESAR'S LANE, MAIN BUILDING

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2381-01 *031906553-0001*		**Description**	ENTRY, WALL, ON SHEETROCK - JOINT COMPOUND		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Tan/ Green	None	42.00% Ca Carbonate 6.00% Mica 49.60% Non-fibrous (other)	**2.40% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-02 *031906553-0002*		**Description**	ENTRY, PARTITION WALL, ON SHEETROCK - JOINT COMPOUND		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Tan/ Green	None	40.00% Ca Carbonate 4.00% Mica 52.80% Non-fibrous (other)	**3.20% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-03 *031906553-0003*		**Description**	MENS BATHROOM, PARTITION WALL, ON SHEETROCK - JOINT COMPOUND		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Tan	None	3.00% Mica 93.40% Non-fibrous (other)	**3.60% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-04 *031906553-0004*		**Description**	RECEPTION OFFICE, PARTITION WALL, ON SHEETROCK - JOINT COMPOUND		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Tan	None	8.00% Mica 89.30% Non-fibrous (other)	**2.70% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-05 *031906553-0005*		**Description**	MAINTENANCE AREA, PARTITION WALL, ON SHEETROCK - JOINT COMPOUND		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Tan/ Green	None	5.00% Mica 91.70% Non-fibrous (other)	**3.30% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

Initial report from: 03/31/2019 10:29:40

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906553
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2381-06 *031906553-0006*		**Description** HALLWAY CLOSET, PARTITION WALL, ON SHEETROCK - JOINT COMPOUND **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Tan/ Pink	None	7.00% Mica 89.50% Non-fibrous (other)	**3.50% Chrysotile**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-07 *031906553-0007*		**Description** BREAK ROOM, PERIMETER WALL, ON SHEETROCK - JOINT COMPOUND **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	White	3.00% Cellulose	65.00% Ca Carbonate 6.00% Mica 26.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-08 *031906553-0008*		**Description** MENS BATHROOM, PARTITION WALL - SHEETROCK **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Brown/ Gray	14.00% Cellulose	56.00% Gypsum 30.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-09 *031906553-0009*		**Description** RECEPTION OFFICE, PARTITION WALL - SHEETROCK **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray	8.00% Cellulose	65.00% Gypsum 27.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-10 *031906553-0010*		**Description** LOCKER ROOM, ON METAL PIPE - FIBERGLASS INSULATION **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	White/ Yellow	8.00% Cellulose 82.00% Glass	10.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-11-Ceramic Tile *031906553-0011*		**Description** LOCKER ROOM, SHOWER, FLOOR - CERAMIC TILE, GROUT & MUDSET **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	White		93.00% Non-fibrous (other) 7.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

Initial report from: 03/31/2019 10:29:40

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906553
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2381-11-Grout *031906553-0011A*		**Description** LOCKER ROOM, SHOWER, FLOOR - CERAMIC TILE, GROUT & MUDSET **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	White	15.00% Cellulose	30.00% Ca Carbonate 55.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-11-Mudset *031906553-0011B*		**Description** LOCKER ROOM, SHOWER, FLOOR - CERAMIC TILE, GROUT & MUDSET **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray		45.00% Gypsum 55.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-12-Ceramic Tile *031906553-0012*		**Description** LOCKER ROOM, SHOWER, FLOOR - CERAMIC TILE, GROUT & MUDSET **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-12-Grout *031906553-0012A*		**Description** LOCKER ROOM, SHOWER, FLOOR - CERAMIC TILE, GROUT & MUDSET **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray		45.00% Ca Carbonate 55.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-12-Mudset *031906553-0012B*		**Description** LOCKER ROOM, SHOWER, FLOOR - CERAMIC TILE, GROUT & MUDSET **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray	10.00% Cellulose	90.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-13-Ceramic Tile *031906553-0013*		**Description** LOCKER ROOM, SHOWER, WALL - CERAMIC TILE & GROUT **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	White		95.00% Non-fibrous (other) 5.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

Initial report from: 03/31/2019 10:29:40

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
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http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906553
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2381-13-Grout *031906553-0013A*		**Description** LOCKER ROOM, SHOWER, WALL - CERAMIC TILE & GROUT **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	White		35.00% Ca Carbonate 55.00% Non-fibrous (other) 10.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-14-Ceramic Tile *031906553-0014*		**Description** LOCKER ROOM, SHOWER, WALL - CERAMIC TILE & GROUT **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	White		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-14-Grout *031906553-0014A*		**Description** LOCKER ROOM, SHOWER, WALL - CERAMIC TILE & GROUT **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	White		45.00% Ca Carbonate 55.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-15 *031906553-0015*		**Description** LOCKER ROOM, SHOWER, WALL, BEHIND CERAMIC TILE, ON CMU - MORTAR **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray/ White		70.00% Non-fibrous (other) 30.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-16 *031906553-0016*		**Description** LOCKER ROOM, SHOWER, WALL, BEHIND CERAMIC TILE, ON CMU - MORTAR **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray		25.00% Ca Carbonate 25.00% Non-fibrous (other) 50.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-17-Brick *031906553-0017*		**Description** ENTRY, WALL - BRICK & MORTAR **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Red		85.00% Non-fibrous (other) 15.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

Initial report from: 03/31/2019 10:29:40

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906553
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2381-17-Mortar *031906553-0017A*		**Description** **Homogeneity**	ENTRY, WALL - BRICK & MORTAR Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Gray		35.00% Gypsum 28.00% Non-fibrous (other) 37.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-18-Brick *031906553-0018*		**Description** **Homogeneity**	ENTRY, WALL - BRICK & MORTAR Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Red		80.00% Non-fibrous (other) 20.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-18-Mortar *031906553-0018A*		**Description** **Homogeneity**	ENTRY, WALL - BRICK & MORTAR Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Gray		25.00% Ca Carbonate 20.00% Non-fibrous (other) 55.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-19-Block *031906553-0019*		**Description** **Homogeneity**	SEPARATOR ROOM, PARTITION WALL - CEMENTITIOUS BLOCK & MORTAR Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Gray		25.00% Ca Carbonate 40.00% Gypsum 35.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-19-Mortar *031906553-0019A*		**Description** **Homogeneity**	SEPARATOR ROOM, PARTITION WALL - CEMENTITIOUS BLOCK & MORTAR Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Gray		68.00% Non-fibrous (other) 32.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

Initial report from: 03/31/2019 10:29:40

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906553
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Fibrous	Asbestos
Sample ID 2381-20-Block *031906553-0020*		**Description** **Homogeneity**	MENS BATHROOM, PERIMETER WALL - CEMENTITIOUS BLOCK & MORTAR Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Gray		65.00% Ca Carbonate 35.00% Non-fibrous (other)	**None Detected**
Inseparable paint / coating layer included in analysis					
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-20-Mortar *031906553-0020A*		**Description** **Homogeneity**	MENS BATHROOM, PERIMETER WALL - CEMENTITIOUS BLOCK & MORTAR Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Gray		25.00% Ca Carbonate 20.00% Non-fibrous (other) 55.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-21 *031906553-0021*		**Description** **Homogeneity**	ENTRY, FLOOR - QUARRY TILE Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Red		88.00% Non-fibrous (other) 12.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-22 *031906553-0022*		**Description** **Homogeneity**	MAINTENANCE ROOM, CLOSET, FLOOR - QUARRY TILE Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Red		85.00% Non-fibrous (other) 15.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-23 *031906553-0023*		**Description** **Homogeneity**	MAINTENANCE ROOM, CLOSET, FLOOR, UNDER QUARRY TILE, ON SLAB - MUDSET Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Gray		52.00% Non-fibrous (other) 48.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-24 *031906553-0024*		**Description** **Homogeneity**	ENTRY, FLOOR, UNDER QUARRY TILE, ON SLAB - MUDSET Homogeneous		
PLM NYS 198.1 Friable	03/31/2019	Gray		25.00% Ca Carbonate 20.00% Non-fibrous (other) 55.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

Initial report from: 03/31/2019 10:29:40

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307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906553
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2381-25 *031906553-0025*		**Description** MAINTENANCE ROOM, CLOSET, FLOOR, ON QUARRY TILE - GROUT **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray		64.00% Non-fibrous (other) 36.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-26 *031906553-0026*		**Description** ENTRY, FLOOR, ON QUARRY TILE - GROUT **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray		45.00% Non-fibrous (other) 55.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-27 *031906553-0027*		**Description** SEPARATOR ROOM, FLOOR, PAD - CEMENTITIOUS SLAB **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray/ Yellow		42.00% Gypsum 34.00% Non-fibrous (other) 24.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-28 *031906553-0028*		**Description** SEPARATOR ROOM, FLOOR - CEMENTITIOUS SLAB **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray		25.00% Ca Carbonate 30.00% Non-fibrous (other) 45.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2381-29 *031906553-0029*		**Description** MENS BATHROOM, SUSPENDED CEILING, 2'X4' DOT CANYON - CEILING TILE **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Gray/ White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Gray/ White		100.00% Other	**None Detected**
Sample ID 2381-30 *031906553-0030*		**Description** RECEPTION OFFICE, SUSPENDED CEILING, 2'X4' DOT CANYON - CEILING TILE **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Gray/ White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Gray/ White		100.00% Other	**None Detected**

Initial report from: 03/31/2019 10:29:40

EMSL Analytical, Inc.
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EMSL Order: 031906553
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2381-31-Cove Base *031906553-0031*		**Description**	RECEPTION OFFICE, WALL, ON SHEETROCK - COVE BASE MOLDING & ADHESIVE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Black		100.00% Other	**None Detected**
Sample ID 2381-31-Adhesive *031906553-0031A*		**Description**	RECEPTION OFFICE, WALL, ON SHEETROCK - COVE BASE MOLDING & ADHESIVE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Yellow		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Yellow		100.00% Other	**None Detected**
Sample ID 2381-32-Cove Base *031906553-0032*		**Description**	LAB, WALL, ON SHEETROCK - COVE BASE MOLDING & ADHESIVE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Black		100.00% Other	**None Detected**
Sample ID 2381-32-Adhesive *031906553-0032A*		**Description**	LAB, WALL, ON SHEETROCK - COVE BASE MOLDING & ADHESIVE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Black		100.00% Other	**None Detected**
Sample ID 2381-33-Cove Base *031906553-0033*		**Description**	RECEPTION OFFICE, WALL, ON SHEETROCK - COVE BASE MOLDING & ADHESIVE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Gray		100.00% Other	**None Detected**
Sample ID 2381-33-Adhesive *031906553-0033A*		**Description**	RECEPTION OFFICE, WALL, ON SHEETROCK - COVE BASE MOLDING & ADHESIVE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Yellow		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Yellow		100.00% Other	**None Detected**

Initial report from: 03/31/2019 10:29:40

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EMSL Order: 031906553
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2381-34-Cove Base *031906553-0034*		**Description**	ENTRY, WALL, ON SHEETROCK - COVE BASE MOLDING & ADHESIVE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Gray		100.00% Other	**None Detected**
Sample ID 2381-34-Adhesive *031906553-0034A*		**Description**	ENTRY, WALL, ON SHEETROCK - COVE BASE MOLDING & ADHESIVE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Yellow		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Yellow		100.00% Other	**None Detected**
Sample ID 2381-35 *031906553-0035*		**Description**	BREAK ROOM, SINK, ON METAL - ANTI SWEAT TAR		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Black		100.00% Other	**None Detected**
Sample ID 2381-36 *031906553-0036*		**Description**	BREAK ROOM, SINK, ON METAL - ANTI SWEAT TAR		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Black		100.00% Other	**None Detected**
Sample ID 2381-37 *031906553-0037*		**Description**	EXTERIOR, ENTRANCE DOOR, METAL TO BRICK - CAULK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Gray	None	100.00% Other	**Inconclusive : <1.00% Chrysotile**
TEM NYS 198.4 NOB	03/31/2019	Gray	None	98.40% Other	**1.60% Chrysotile**
Sample ID 2381-38 *031906553-0038*		**Description**	EXTERIOR, ENTRANCE DOOR, METAL TO BRICK - CAULK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Gray	<1.00% Fibrous (other)	100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019				**Positive Stop (Not Analyzed)**

Initial report from: 03/31/2019 10:29:40

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http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906553
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2381-39 *031906553-0039*		**Description**	EXTERIOR, WINDOW, BRICK TO METAL - CAULK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Gray		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Gray		100.00% Other	**None Detected**
Sample ID 2381-40 *031906553-0040*		**Description**	EXTERIOR, WINDOW, BRICK TO METAL - CAULK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Gray	None	100.00% Other	**Inconclusive : <1.00% Chrysotile**
TEM NYS 198.4 NOB	03/31/2019	Gray	None	100.00% Other	**<1.00% Chrysotile**
Sample ID 2381-41 *031906553-0041*		**Description**	EXTERIOR, WINDOW, GLASS TO METAL - GLAZING		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Gray	<1.00% Fibrous (other)	100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Gray	None	100.00% Other	**<1.00% Anthophyllite**
Sample ID 2381-42 *031906553-0042*		**Description**	EXTERIOR, WINDOW, GLASS TO METAL - GLAZING		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/30/2019	Gray	<1.00% Fibrous (other)	100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Gray	None	100.00% Other	**<1.00% Anthophyllite**

Initial report from: 03/31/2019 10:29:40

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order:	031906553
Customer ID:	QUES51
Customer PO:	
Project ID:	

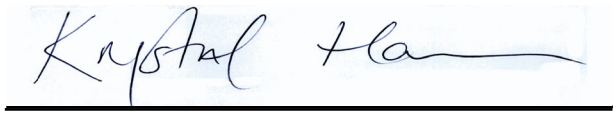
Test Report:Asbestos Analysis of Bulk Material

The samples in this report were submitted to EMSL for analysis by Asbestos Analysis of Bulk Materials via NYS ELAP Approved Methods . The reference number for these samples is the EMSL Order ID above. Please use this reference number when calling about these samples.

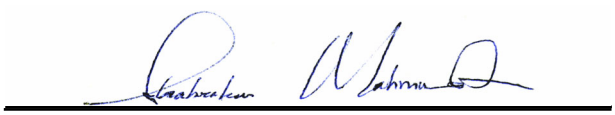
Report Comments:

Sample Receipt Date:	3/26/2019	Sample Receipt Time:	11:08 AM
Analysis Completed Date:	3/31/2019	Analysis Completed Time:	8:29 PM

Analyst(s):



Krystal Harris PLM NYS 198.1 Friable (16)



Shahrakur Mahmud PLM NYS 198.1 Friable (22)

Chad Layne PLM NYS 198.6 NOB (18)

Hongyan Ran TEM NYS 198.4 NOB (17)

Samples reviewed and approved by:

James Hall, Laboratory Manager
or Other Approved Signatory

NOB = Non Friable Organically Bound N/A = Not Applicable VCM = Vermiculite Containing Material

-In New York State, TEM is currently the only method that can be used to determine if NOB materials can be considered or treated as non -asbestos containing.
All samples examined for the presence of vermiculite when analyzed via NYS 198.1.
-NYS Guidelines for Vermiculite containing samples are available at http ://www.wadsworth.org/labcert/elapcert/forms/VermiculiteInterimGuidance_Rev070913.pdf EMSL maintains liability limited to cost of analysis. 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 . Interpretation and use of test results are the responsibility of the client. Samples were received in good condition unless otherwise noted.
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 . This report may contain data that is not covered by the NVLAP accreditation .

Samples analyzed by EMSL Analytical, Inc. New York, NY NYS ELAP 11506

Initial report from: 03/31/2019 10:29:40

OrderID: 031906553

031906553

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: **TOWN OF NEW WINDSOR**

ADDRESS: **555 UNION AVE**

NEW WINDSOR, NY 12553

CONTACT: **ANDREW WARREN**

PROJECT ID: **145 Caesar's Lane**

Main Building

PROJECT # : **Q19-2382**

SAMPLED BY: **J. Klemm/S. Talsma**

DATE SAMPLED: **25-Mar-19**

ANALYSIS METHOD: **PLM/PLM-NOB/QTEM as required**

TURN-AROUND TIME: _____ HOURS

5 DAYS

_____ OTHER

EMSL MANHATTAN LAB RECEIVED 19 MAR 26 AM 11:08

SAMPLE # LAB#	*LOCATION*	*SAMPLE DESCRIPTION*	*COMMENTS*
2382-01	Entry, Wall, on Sheetrock	Joint Compound	
2382-02	Entry, Partition Wall, on Sheetrock	Joint Compound	
2382-03	Mens Bathroom, Parititon Wall, on Sheetrock	Joint Compound	
2382-04	Reception Office, Partition Wall, on Sheetrock	Joint Compound	
2382-05	Maintence Area, Partition Wall, on Sheetrock	Joint Compound	
2382-06	Hallway Closet, Partition Wall, on Sheetrock	Joint Compound	
2382-07	Break Room, Perimeter Wall, on Sheetrock	Joint Compound	
2382-08	Mens Bathroom, Partition Wall	Sheetrock	**Stop At First Office**
2382-09	Reception Office, Partition Wall	Sheetrock	
2382-10	Locker Room, on Metal Pipe	Fiberglass Insulation (Confirmatory)	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:09 AM

PAGE 1 OF 5

031906553

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: TOWN OF NEW WINDSOR
ADDRESS: 555 UNION AVE
NEW WINDSOR, NY 12553
CONTACT: ANDREW WARREN
PROJECT ID: 145 Caesar's Lane
Main Building
PROJECT # : Q19-2382

SAMPLED BY: J. Klemm/S. Talsma
DATE SAMPLED: 25-Mar-19
ANALYSIS METHOD: PLM/PLM-NOB/QTEM as required
TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

SAMPLE # LAB#	LOCATION	SAMPLE DESCRIPTION	COMMENTS
2382-11	Locker Room, Shower, Floor	Ceramic Tile, Grout & Mudset (Separate Layers)	
2382-12	Locker Room, Shower, Floor	Ceramic Tile, Grout & Mudset (Separate Layers)	
2382-13	Locker Room, Shower, Wall	Ceramic Tile & Grout (Separate Layers)	Stop At First Office
2382-14	Locker Room, Shower, Wall	Ceramic Tile & Grout (Separate Layers)	
2382-15	Locker Room, Shower, Wall, Behind Ceramic Tile, on CMU	Mortar	Stop At First Office
2382-16	Locker Room, Shower, Wall, Behind Ceramic Tile, on CMU	Mortar	
2382-17	Entry, Wall	Brick & Mortar (Separate Layers)	Stop At First Office
2382-18	Entry, Wall	Brick & Mortar (Separate Layers)	
2382-19	Separator Room, Partition Wall	Cementitious Block & Mortar (Separate Layers)	Stop At First Office
2382-20	Mens Bathroom, Perimeter Wall	Cementitious Block & Mortar (Separate Layers)	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:07AM

PAGE 2 OF 5

OrderID: 031906553

031906553

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

EMSL MANHATTAN LAB RECEIVED 19 MAR 26 AM 11:08

CLIENT: **TOWN OF NEW WINDSOR**

ADDRESS: **555 UNION AVE**

NEW WINDSOR, NY 12553

CONTACT: **ANDREW WARREN**

PROJECT ID: **145 Caesar's Lane**

Main Building

PROJECT # : **Q19-2382**

SAMPLED BY: **J. Klemm/S. Talsma**

DATE SAMPLED: **25-Mar-19**

ANALYSIS METHOD: **PLM/PLM-NOB/QTEM as required**

TURN-AROUND TIME: _____ HOURS

5 DAYS

_____ OTHER

SAMPLE # LAB#	*LOCATION*	*SAMPLE DESCRIPTION*	*COMMENTS*
2382-21	Entry, Floor	Quarry Tile	**Stop At First Office**
2382-22	Maintence Room, Closet, Floor	Quarry Tile	
2382-23	Maintence Room, Closet, Floor, under Quarry Tile, on Slab	Mudset	**Stop At First Office**
2382-24	Entry, Floor, under Quarry Tile, on Slab	Mudset	
2382-25	Maintence Room, Closet, Floor, on Quarry Tile	Grout	**Stop At First Office**
2382-26	Entry, Floor, on Quarry Tile	Grout	
2382-27	Separator Room, Floor, Pad	Cementitious Slab	**Stop At First Office**
2382-28	Separator Room, Floor	Cementitious Slab	
2382-29	Mens Bathroom, Suspended Ceiling, 2' x 4', Dot Canyon	Ceiling Tile	**Stop At First Office**
2382-30	Reception Office, Suspended Ceiling, 2' x 4', Dot Canyon	Ceiling Tile	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:08 Am

PAGE 3 OF 5

OrderID: 031906553

031906553

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

EMSL MANHATTAN LAB RECEIVED 19 MAR 26 AM 11:08

CLIENT: TOWN OF NEW WINDSOR
ADDRESS: 555 UNION AVE
NEW WINDSOR, NY 12553
CONTACT: ANDREW WARREN
PROJECT ID: 145 Caesar's Lane
Main Building
PROJECT # : Q19-2382

SAMPLED BY: J. Klemm/S. Talsma
DATE SAMPLED: 25-Mar-19
ANALYSIS METHOD: PLM/PLM-NOB/QTEM as required
TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

SAMPLE # LAB#	LOCATION	SAMPLE DESCRIPTION	COMMENTS
2382-31	Reception Office, Wall, on Sheetrock	Cove Base Molding & Adhesive (Separate Layers)	Stop At First Office
2382-32	Lab, Wall, on Sheetrock	Cove Base Molding & Adhesive (Separate Layers)	
2382-33	Reception Office, Wall, on Sheetrock	Cove Base Molding & Adhesive (Separate Layers)	Stop At First Office
2382-34	Entry, Wall, on Sheetrock	Cove Base Molding & Adhesive (Separate Layers)	
2382-35	Break Room, Sink, on Metal	Anti Sweat Tar	Stop At First Office
2382-36	Break Room, Sink, on Metal	Anti Sweat Tar	
2382-37	Exterior, Entrance Door, Metal to Brick	Caulk	Stop At First Office
2382-38	Exterior, Entrance Door, Metal to Brick	Caulk	
2382-39	Exterior, Window, Brick to Metal	Caulk	Stop At First Office
2382-40	Exterior, Window, Brick to Metal	Caulk	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:08AM

PAGE 4 OF 5

OrderID: 031906553

031906553

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: TOWN OF NEW WINDSOR

ADDRESS: 555 UNION AVE
NEW WINDSOR, NY 12553

CONTACT: ANDREW WARREN

PROJECT ID: 145 Caesar's Lane
Main Building

PROJECT # : Q19-2382

SAMPLED BY: J. Klemm/S. Talsma

DATE SAMPLED: 25-Mar-19

ANALYSIS METHOD: PLM/PLM-NOB/QTEM as required

TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

EMSL MANHATTAN LAB
RECEIVED
19 MAR 26 AM 11:0

SAMPLE # LAB#	*LOCATION*	*SAMPLE DESCRIPTION*	*COMMENTS*
2382-41	Exterior, Window, Glass to Metal	Glazing	Stop At First Office
2382-42	Exterior, Window, Glass to Metal	Glazing	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:05AM

PAGE 5 OF 5

FedEx

March 26,2019

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Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	S.HARDOW	**Delivery location:**	New York, NY
Service type:	FedEx Priority Overnight	**Delivery date:**	Mar 26, 2019 11:05
Special Handling:	Deliver Weekday		

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

Shipping Information:

Tracking number:	795700640410	**Ship date:**	Mar 25, 2019
		Weight:	1.0 lbs/0.5 kg

Recipient:
New York, NY US

Shipper:
Wappingers Falls, NY US

Reference ARL-WEB(A)
RMA QUES51

Thank you for choosing FedEx.

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031906553

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: **TOWN OF NEW WINDSOR**

ADDRESS: **555 UNION AVE**
NEW WINDSOR, NY 12553

CONTACT: **ANDREW WARREN**

PROJECT ID: **145 Caesar's Lane**
Main Building

PROJECT # : **Q19-2382**

SAMPLED BY: **J. Klemm/S. Talsma**

DATE SAMPLED: **25-Mar-19**

ANALYSIS METHOD: **PLM/PLM-NOB/QTEM as required**

TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

EMSL MANHATTAN LAB
RECEIVED
19 MAR 26 AM 11:18

SAMPLE # LAB#	*LOCATION*	*SAMPLE DESCRIPTION*	*COMMENTS*
2382-01	Entry, Wall, on Sheetrock	Joint Compound	
2382-02	Entry, Partition Wall, on Sheetrock	Joint Compound	
2382-03	Mens Bathroom, Parititon Wall, on Sheetrock	Joint Compound	
2382-04	Reception Office, Partition Wall, on Sheetrock	Joint Compound	
2382-05	Maintence Area, Partition Wall, on Sheetrock	Joint Compound	
2382-06	Hallway Closet, Partition Wall, on Sheetrock	Joint Compound	
2382-07	Break Room, Perimeter Wall, on Sheetrock	Joint Compound	
2382-08	Mens Bathroom, Partition Wall	Sheetrock	**Stop At First Office**
2382-09	Reception Office, Partition Wall	Sheetrock	
2382-10	Locker Room, on Metal Pipe	Fiberglass Insulation (Confirmatory)	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:00 AM

PAGE 1 OF 5

3/31/19 6:17 am

OrderID: 031906553

031906553

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: TOWN OF NEW WINDSOR
ADDRESS: 555 UNION AVE
NEW WINDSOR, NY 12553
CONTACT: ANDREW WARREN
PROJECT ID: 145 Caesar's Lane
Main Building
PROJECT # : Q19-2382

SAMPLED BY: J. Klemm/S. Talsma
DATE SAMPLED: 25-Mar-19
ANALYSIS METHOD: PLM/PLM-NOB/QTEM as required
TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

SAMPLE # LAB#	LOCATION	SAMPLE DESCRIPTION	COMMENTS
2382-11	Locker Room, Shower, Floor	Ceramic Tile, Grout & Mudset (Separate Layers)	
2382-12	Locker Room, Shower, Floor	Ceramic Tile, Grout & Mudset (Separate Layers)	
2382-13	Locker Room, Shower, Wall	Ceramic Tile & Grout (Separate Layers)	Stop At First Office
2382-14	Locker Room, Shower, Wall	Ceramic Tile & Grout (Separate Layers)	
2382-15	Locker Room, Shower, Wall, Behind Ceramic Tile, on CMU	Mortar	Stop At First Office
2382-16	Locker Room, Shower, Wall, Behind Ceramic Tile, on CMU	Mortar	
2382-17	Entry, Wall	Brick & Mortar (Separate Layers)	Stop At First Office
2382-18	Entry, Wall	Brick & Mortar (Separate Layers)	
2382-19	Separator Room, Partition Wall	Cementitious Block & Mortar (Separate Layers)	Stop At First Office
2382-20	Mens Bathroom, Perimeter Wall	Cementitious Block & Mortar (Separate Layers)	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:07AM

PAGE 2 OF 5

OrderID: 031906553

031906553

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: **TOWN OF NEW WINDSOR**
ADDRESS: **555 UNION AVE**
NEW WINDSOR, NY 12553
CONTACT: **ANDREW WARREN**
PROJECT ID: **145 Caesar's Lane**
Main Building
PROJECT # : **Q19-2382**

SAMPLED BY: **J. Klemm/S. Talsma**
DATE SAMPLED: **25-Mar-19**
ANALYSIS METHOD: **PLM/PLM-NOB/QTEM as required**
TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

SAMPLE # LAB#	*LOCATION*	*SAMPLE DESCRIPTION*	*COMMENTS*
2382-21	Entry, Floor	Quarry Tile	**Stop At First Office**
2382-22	Maintence Room, Closet, Floor	Quarry Tile	
2382-23	Maintence Room, Closet, Floor, under Quarry Tile, on Slab	Mudset	**Stop At First Office**
2382-24	Entry, Floor, under Quarry Tile, on Slab	Mudset	
2382-25	Maintence Room, Closet, Floor, on Quarry Tile	Grout	**Stop At First Office**
2382-26	Entry, Floor, on Quarry Tile	Grout	
2382-27	Separator Room, Floor, Pad	Cementitious Slab	**Stop At First Office**
2382-28	Separator Room, Floor	Cementitious Slab	
2382-29	Mens Bathroom, Suspended Ceiling, 2' x 4', Dot Canyon	Ceiling Tile	**Stop At First Office**
2382-30	Reception Office, Suspended Ceiling, 2' x 4', Dot Canyon	Ceiling Tile	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:08 Am

KCM 3/13

PAGE__3__OF__5__

OrderID: 031906553

031906553

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: TOWN OF NEW WINDSOR
ADDRESS: 555 UNION AVE
NEW WINDSOR, NY 12553
CONTACT: ANDREW WARREN
PROJECT ID: 145 Caesar's Lane
Main Building
PROJECT # : Q19-2382

SAMPLED BY: J. Klemm/S. Talsma
DATE SAMPLED: 25-Mar-19
ANALYSIS METHOD: PLM/PLM-NOB/QTEM as required
TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

SAMPLE # LAB#	LOCATION	SAMPLE DESCRIPTION	COMMENTS
2382-31	Reception Office, Wall, on Sheetrock	Cove Base Molding & Adhesive (Separate Layers)	Stop At First Office
2382-32	Lab, Wall, on Sheetrock	Cove Base Molding & Adhesive (Separate Layers)	
2382-33	Reception Office, Wall, on Sheetrock	Cove Base Molding & Adhesive (Separate Layers)	Stop At First Office
2382-34	Entry, Wall, on Sheetrock	Cove Base Molding & Adhesive (Separate Layers)	
2382-35	Break Room, Sink, on Metal	Anti Sweat Tar	Stop At First Office
2382-36	Break Room, Sink, on Metal	Anti Sweat Tar	
2382-37	Exterior, Entrance Door, Metal to Brick	Caulk	Stop At First Office
2382-38	Exterior, Entrance Door, Metal to Brick	Caulk	
2382-39	Exterior, Window, Brick to Metal	Caulk	Stop At First Office
2382-40	Exterior, Window, Brick to Metal	Caulk	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:08AM

PAGE__4__OF__5__

OrderID: 031906553

031906553

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: **TOWN OF NEW WINDSOR**

ADDRESS: **555 UNION AVE**
NEW WINDSOR, NY 12553

CONTACT: **ANDREW WARREN**

PROJECT ID: **145 Caesar's Lane**
Main Building

PROJECT # : **Q19-2382**

SAMPLED BY: **J. Klemm/S. Talsma**

DATE SAMPLED: **25-Mar-19**

ANALYSIS METHOD: **PLM/PLM-NOB/QTEM as required**

TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

EMSL MANHATTAN LAB
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19 MAR 26 AM 11:0

SAMPLE # LAB#	*LOCATION*	*SAMPLE DESCRIPTION*	*COMMENTS*
2382-41	Exterior, Window, Glass to Metal	Glazing	**Stop At First Office**
2382-42	Exterior, Window, Glass to Metal	Glazing	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:05AM

PAGE__5__OF__5__

EMSL Analytical, Inc.

307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031910850
Customer ID: QUES51
Customer PO:
Project ID:

Attention: Quality Environmental Solution & Tech
1376 Route 9
Wappingers Falls, NY 12590

Phone: (845) 298-6031
Fax: (845) 298-6251
Received Date: 05/16/2019 11:22 AM
Analysis Date: 05/21/2019 - 05/22/2019
Collected Date: 05/15/2019

Project: Q19-2382A/ TOWN OF NEW WINDSOR 555 UNION AVE NEW WINDSOR NY 12553/ 145 CAESAR'S LANE MAIN BUILDING ROOF

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2382-63 *031910850-0001*		**Description**	ROOF, FIELD, TOP LAYER - EPDM		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	05/22/2019	Black		100.00% Other	**None Detected**
Sample ID 2382-64 *031910850-0002*		**Description**	ROOF, EQUIPMENT FLASHING, TOP LAYER - EPDM		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	05/22/2019	Black		100.00% Other	**None Detected**
Sample ID 2382-65 *031910850-0003*		**Description**	ROOF, FIELD, BOTTOM LAYER, ON METAL DECK - ISOFOAM		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable Sample is foam.	05/22/2019	Yellow		100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-66 *031910850-0004*		**Description**	ROOF, EQUIPMENT FLASHING, BOTTOM LAYER, ON METAL - ISOFOAM		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable Sample is foam.	05/22/2019			100.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-67 *031910850-0005*		**Description**	ROOF, EQUIPMENT FLASHING, SECOND LAYER - GYPSUM		
		Homogeneity	Homogeneous		
PLM NYS 198.1 Friable	05/22/2019	Gray	15.00% Glass	60.00% Gypsum 25.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

Initial report from: 05/22/2019 02:22:04

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031910850
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2382-68 *031910850-0006*		**Description** ROOF, EQUIPMENT FLASHING, SECOND LAYER - GYPSUM **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable	05/22/2019	Gray/ White	20.00% Glass	60.00% Gypsum 20.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-69 *031910850-0007*		**Description** ROOF, VENT, METAL TO PVC PIPE - SEAM TAR **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	White/ Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	05/22/2019	White/ Black		100.00% Other	**None Detected**
Sample ID 2382-70 *031910850-0008*		**Description** ROOF, VENT, METAL TO PVC PIPE - SEAM TAR **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	05/22/2019	Black		100.00% Other	**None Detected**
Sample ID 2382-71 *031910850-0009*		**Description** ROOF, EQUIPMENT FLASHING, BOTTOM LAYER, ON WOOD - TAR **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	Black	None	95.50% Other	**4.50% Chrysotile**
TEM NYS 198.4 NOB	05/21/2019				**Positive Stop (Not Analyzed)**
Sample ID 2382-72 *031910850-0010*		**Description** ROOF, EQUIPMENT FLASHING, BOTTOM LAYER, ON WOOD - TAR **Homogeneity**			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019				**Positive Stop (Not Analyzed)**
TEM NYS 198.4 NOB	05/21/2019				**Positive Stop (Not Analyzed)**
Sample ID 2382-73 *031910850-0011*		**Description** ROOF, CHIMNEY, TERMINATION BAR, METAL TO CMU - CAULK **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	05/22/2019	Black		100.00% Other	**None Detected**

Initial report from: 05/22/2019 02:22:04

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031910850
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2382-74 *031910850-0012*		**Description**	ROOF, CHIMNEY, TERMINATION BAR, METAL TO CMU - CAULK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	05/22/2019	Black		100.00% Other	**None Detected**
Sample ID 2382-75 *031910850-0013*		**Description**	UPPER ROOF, FAÇADE, METAL TO FIBERGLASS PANEL - CAULK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	05/22/2019	White		100.00% Other	**None Detected**
Sample ID 2382-76 *031910850-0014*		**Description**	UPPER ROOF, FAÇADE, METAL TO FIBERGLASS PANEL - CAULK		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	White		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	05/22/2019	White		100.00% Other	**None Detected**
Sample ID 2382-77 *031910850-0015*		**Description**	OVERHANG, ROOF, TOP LAYER - SHINGLE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	05/22/2019	Black		100.00% Other	**None Detected**
Sample ID 2382-78 *031910850-0016*		**Description**	OVERHANG, ROOF, TOP LAYER - SHINGLE		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	05/22/2019	Black		100.00% Other	**None Detected**
Sample ID 2382-79 *031910850-0017*		**Description**	OVERHANG, ROOF, BOTTOM LAYER, ON WOOD - VAPOR BARRIER		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	05/22/2019	Black		100.00% Other	**None Detected**

Initial report from: 05/22/2019 02:22:04

EMSL Analytical, Inc.

307 West 38th Street New York, NY 10018

Tel/Fax: (212) 290-0051 / (212) 290-0058

http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order:	031910850
Customer ID:	QUES51
Customer PO:	
Project ID:	

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2382-80 *031910850-0018*		**Description**	OVERHANG, ROOF, BOTTOM LAYER, ON WOOD - VAPOR BARRIER		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	05/21/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	05/22/2019	Black		100.00% Other	**None Detected**

Initial report from: 05/22/2019 02:22:04

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order:	031910850
Customer ID:	QUES51
Customer PO:	
Project ID:	

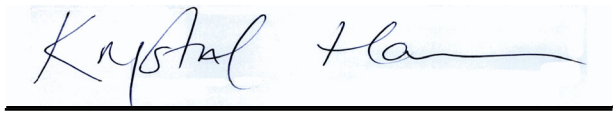
Test Report:Asbestos Analysis of Bulk Material

The samples in this report were submitted to EMSL for analysis by Asbestos Analysis of Bulk Materials via NYS ELAP Approved Methods . The reference number for these samples is the EMSL Order ID above. Please use this reference number when calling about these samples.

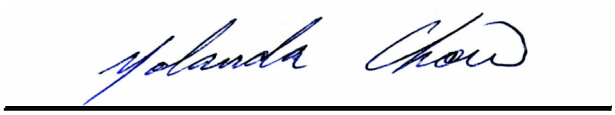
Report Comments:

Sample Receipt Date:	5/16/2019	Sample Receipt Time:	11:22 AM
Analysis Completed Date:	5/22/2019	Analysis Completed Time:	1:33 AM

Analyst(s):



Krystal Harris PLM NYS 198.1 Friable (2)



Yolanda Chow PLM NYS 198.1 Friable (2)

Chad Layne PLM NYS 198.6 NOB (13)

Steven Li TEM NYS 198.4 NOB (12)

Samples reviewed and approved by:

James Hall, Laboratory Manager
or Other Approved Signatory

NOB = Non Friable Organically Bound N/A = Not Applicable VCM = Vermiculite Containing Material

-In New York State, TEM is currently the only method that can be used to determine if NOB materials can be considered or treated as non -asbestos containing.
All samples examined for the presence of vermiculite when analyzed via NYS 198.1.
-NYS Guidelines for Vermiculite containing samples are available at http ://www.wadsworth.org/labcert/elapcert/forms/VermiculiteInterimGuidance_Rev070913.pdf EMSL maintains liability limited to cost of analysis. 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 . Interpretation and use of test results are the responsibility of the client. Samples were received in good condition unless otherwise noted.
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 . This report may contain data that is not covered by the NVLAP accreditation .

Samples analyzed by EMSL Analytical, Inc. New York, NY NYS ELAP 11506

Initial report from: 05/22/2019 02:22:04

OrderID: 031910850

031910850

EMSL MANHATTAN LAB RECEIVED 19 MAY 16 AM 11:22

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: TOWN OF NEW WINDSOR

ADDRESS: 555 UNION AVE
NEW WINDSOR, NY 12553

CONTACT: ANDREW WARREN

PROJECT ID: 145 Caesar's Lane
Main Building Roof

PROJECT # : Q19-2382A

SAMPLED BY: J. Klemm

DATE SAMPLED: 15-May-19

ANALYSIS METHOD: PLM/PLM-NOB/QTEM as required

TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

ESC 5/16/2019

SAMPLE # LAB#	LOCATION	SAMPLE DESCRIPTION	COMMENTS
2382-63	Roof, Field, Top Layer	EPDM	Stop At First Positive
2382-64	Roof, Equipment Flashing, Top Layer	EPDM	
2382-65	Roof, Field, Bottom Layer, on Metal Deck	Isofoam	Stop At First Positive
2382-66	Roof, Equipment Flashing, Bottom Layer, on Metal	Isofoam	
2382-67	Roof, Equipment Flashing, Second Layer	Gypsum	Stop At First Positive
2382-68	Roof, Equipment Flashing, Second Layer	Gypsum	
2382-69	Roof, Vent, Metal to PVC Pipe	Seam Tar	Stop At First Positive
2382-70	Roof, Vent, Metal to PVC Pipe	Seam Tar	
2382-71	Roof, Equipment Flashing, Bottom Layer, on Wood	Tar	Stop At First Positive
2382-72	Roof, Equipment Flashing, Bottom Layer, on Wood	Tar	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 5/15/2019 5-22-19

RECEIVED BY: _____ DATE: 5/16/19 11:22Am

PAGE 1 OF 2

OrderID: 031910850

031910850

EMSL MANHATTAN LAB
RECEIVED
19 MAY 16 AM 11:22

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: TOWN OF NEW WINDSOR
ADDRESS: 555 UNION AVE
NEW WINDSOR, NY 12553
CONTACT: ANDREW WARREN
PROJECT ID: 145 Caesar's Lane
Main Building Roof
PROJECT # : Q19-2382A

SAMPLED BY: J. Klemm
DATE SAMPLED: 15-May-19
ANALYSIS METHOD: PLM/PLM-NOB/QTEM as required
TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

SAMPLE # LAB#	LOCATION	SAMPLE DESCRIPTION	COMMENTS
2382-73	Roof, Chimney, Termination Bar, Metal to CMU	Caulk	Stop At First Positive
2382-74	Roof, Chimney, Termination Bar, Metal to CMU	Caulk	
2382-75	Upper Roof, Façade, Metal to Fiberglass Panel	Caulk	Stop At First Positive
2382-76	Upper Roof, Façade, Metal to Fiberglass Panel	Caulk	
2382-77	Overhang, Roof, Top Layer	Shingle	Stop At First Positive
2382-78	Overhang, Roof, Top Layer	Shingle	
2382-79	Overhang, Roof, Bottom Layer, on Wood	Vapor Barrier	Stop At First Positive
2382-80	Overhang, Roof, Bottom Layer, on Wood	Vapor Barrier	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 5/15/2019 5-22-19

RECEIVED BY: _____ DATE: 5/16/19 11:22AM

PAGE 2 OF 2

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Signed for by: E.EMILLES

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FROM	TO
Wappingers Falls, NY US	New York, NY US

Shipment Facts

TRACKING NUMBER
795721783090

SERVICE
FedEx Priority Overnight

WEIGHT
1 lbs / 0.45 kgs

DELIVERED TO
Receptionist/Front Desk

TOTAL PIECES
1

TOTAL SHIPMENT WEIGHT
1 lbs / 0.45 kgs

TERMS
Shipper

RMA
QUES51

SHIPPER REFERENCE
ARL-WEB(A)

PACKAGING
Your Packaging

SPECIAL HANDLING SECTION
Deliver Weekday

STANDARD TRANSIT
5/16/2019 by 10:30 am

SHIP DATE
Wed 5/15/2019

ACTUAL DELIVERY
Thu 5/16/2019 11:15 am

Travel History

Local Scan Time

Thursday , 5/16/2019

11:15 am	New York, NY	Delivered
7:51 am	NEW YORK, NY	On FedEx vehicle for delivery
7:43 am	NEW YORK, NY	At local FedEx facility

OrderID: 031910850

031910850

EMSL MANHATTAN LAB
19 MAY 16 AM 11:22
RECEIVED

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: TOWN OF NEW WINDSOR
ADDRESS: 555 UNION AVE
NEW WINDSOR, NY 12553
CONTACT: ANDREW WARREN
PROJECT ID: 145 Caesar's Lane
Main Building Roof
PROJECT # : Q19-2382A

SAMPLED BY: J. Klemm
DATE SAMPLED: 15-May-19
ANALYSIS METHOD: PLM/PLM-NOB/QTEM as required
TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

SAMPLE # LAB#	LOCATION	SAMPLE DESCRIPTION	COMMENTS
2382-63	Roof, Field, Top Layer	EPDM	Stop At First Positive
2382-64	Roof, Equipment Flashing, Top Layer	EPDM	
2382-65	Roof, Field, Bottom Layer, on Metal Deck	Isofoam	Stop At First Positive
2382-66	Roof, Equipment Flashing, Bottom Layer, on Metal	Isofoam	
2382-67	Roof, Equipment Flashing, Second Layer	Gypsum	Stop At First Positive
2382-68	Roof, Equipment Flashing, Second Layer	Gypsum	
2382-69	Roof, Vent, Metal to PVC Pipe	Seam Tar	Stop At First Positive
2382-70	Roof, Vent, Metal to PVC Pipe	Seam Tar	
2382-71	Roof, Equipment Flashing, Bottom Layer, on Wood	Tar	Stop At First Positive
2382-72	Roof, Equipment Flashing, Bottom Layer, on Wood	Tar	

CHAIN OF CUSTODY (SEE LAST PAGE)

YC 5/22/19

SUBMITTED BY: _____ DATE: 5/15/2019

RECEIVED BY: _____ DATE: 5/16/19 11:22Am

PAGE 1 OF 2

KAM 5/22

OrderID: 031910850

031910850

EMSL MAHWAH LAB RECEIVED 19 MAY 16 AM 11:2

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: TOWN OF NEW WINDSOR

ADDRESS: 555 UNION AVE
NEW WINDSOR, NY 12553

CONTACT: ANDREW WARREN

PROJECT ID: 145 Caesar's Lane
Main Building Roof

PROJECT # : Q19-2382A

SAMPLED BY: J. Klemm

DATE SAMPLED: 15-May-19

ANALYSIS METHOD: PLM/PLM-NOB/QTEM as required

TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

SAMPLE # LAB#	LOCATION	SAMPLE DESCRIPTION	COMMENTS
2382-73	Roof, Chimney, Termination Bar, Metal to CMU	Caulk	Stop At First Positive
2382-74	Roof, Chimney, Termination Bar, Metal to CMU	Caulk	
2382-75	Upper Roof, Façade, Metal to Fiberglass Panel	Caulk	Stop At First Positive
2382-76	Upper Roof, Façade, Metal to Fiberglass Panel	Caulk	
2382-77	Overhang, Roof, Top Layer	Shingle	Stop At First Positive
2382-78	Overhang, Roof, Top Layer	Shingle	
2382-79	Overhang, Roof, Bottom Layer, on Wood	Vapor Barrier	Stop At First Positive
2382-80	Overhang, Roof, Bottom Layer, on Wood	Vapor Barrier	

CHAIN OF CUSTODY (SEE LAST PAGE)

YC 5/22/19

SUBMITTED BY: _____ DATE: 5/15/2019

RECEIVED BY: _____ DATE: 5/16/19 11:22 AM

PAGE 2 OF 2

KAH 5/22

Track your package or shipment with FedEx Tracking

FedEx

795721783090

Delivered
Thursday 5/16/2019 at 11:15 am

DELIVERED

Signed for by: E.EMILLES

GET STATUS UPDATES

OBTAIN PROOF OF DELIVERY

FROM	TO
Wappingers Falls, NY US	New York, NY US

Shipment Facts

TRACKING NUMBER 795721783090	**SERVICE** FedEx Priority Overnight	**WEIGHT** 1 lbs / 0.45 kgs
DELIVERED TO Receptionist/Front Desk	**TOTAL PIECES** 1	**TOTAL SHIPMENT WEIGHT** 1 lbs / 0.45 kgs
TERMS Shipper	**RMA** QUES51	**SHIPPER REFERENCE** ARL-WEB(A)
PACKAGING Your Packaging	**SPECIAL HANDLING SECTION** Deliver Weekday	**STANDARD TRANSIT** 5/16/2019 by 10:30 am
SHIP DATE Wed 5/15/2019	**ACTUAL DELIVERY** Thu 5/16/2019 11.15 am	

Travel History

Local Scan Time

Thursday, 5/16/2019

11:15 am	New York, NY	Delivered
7:51 am	NEW YORK, NY	On FedEx vehicle for delivery
7:43 am	NEW YORK, NY	At local FedEx facility

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906554
Customer ID: QUES51
Customer PO:
Project ID:

Attention: Quality Environmental Solution & Tech
1376 Route 9
Wappingers Falls, NY 12590

Phone: (845) 298-6031
Fax: (845) 298-6251
Received Date: 03/26/2019 11:06 AM
Analysis Date: 03/31/2019
Collected Date: 03/25/2019

Project: Q19-2382/ 145 CAESAR'S LANE, OUT BUILDING

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos: Fibrous	Non-Asbestos: Non-Fibrous	Asbestos
Sample ID 2382-43 *031906554-0001*		**Description** DOOR, INSIDE DOOR - INSULATION **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Brown	55.00% Cellulose	45.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-44 *031906554-0002*		**Description** DOOR, INSIDE DOOR - INSULATION **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Brown	75.00% Cellulose	25.00% Non-fibrous (other)	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-45-Block *031906554-0003*		**Description** WALL - CEMENTITIOUS BLOCK & MORTAR **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray	3.00% Cellulose	25.00% Gypsum 17.00% Non-fibrous (other) 55.00% Quartz	**None Detected**
Inseparable paint / coating layer included in analysis					
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-45-Mortar *031906554-0003A*		**Description** WALL - CEMENTITIOUS BLOCK & MORTAR **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray		25.00% Ca Carbonate 25.00% Non-fibrous (other) 50.00% Quartz	**None Detected**
Inseparable paint / coating layer included in analysis					
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

Initial report from: 03/31/2019 10:11:17

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906554
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2382-46-Block *031906554-0004*		**Description** WALL - CEMENTITIOUS BLOCK & MORTAR **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray		25.00% Ca Carbonate 40.00% Non-fibrous (other) 35.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-46-Mortar *031906554-0004A*		**Description** WALL - CEMENTITIOUS BLOCK & MORTAR **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray		25.00% Ca Carbonate 22.00% Gypsum 18.00% Non-fibrous (other) 35.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-47-Brick *031906554-0005*		**Description** EXTERIOR, FAÇADE - BRICK & MORTAR **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Brown/ Red		85.00% Non-fibrous (other) 15.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-47-Mortar *031906554-0005A*		**Description** EXTERIOR, FAÇADE - BRICK & MORTAR **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray		25.00% Ca Carbonate 25.00% Non-fibrous (other) 50.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-48-Brick *031906554-0006*		**Description** EXTERIOR, FAÇADE - BRICK & MORTAR **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Red		90.00% Non-fibrous (other) 10.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**

Initial report from: 03/31/2019 10:11:17

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906554
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2382-48-Mortar *031906554-0006A*		**Description** EXTERIOR, FAÇADE - BRICK & MORTAR **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Gray		25.00% Ca Carbonate 40.00% Non-fibrous (other) 35.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-49 *031906554-0007*		**Description** FLOOR - CEMENTITIOUS SLAB **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Brown/ Gray		20.00% Ca Carbonate 25.00% Non-fibrous (other) 55.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-50 *031906554-0008*		**Description** FLOOR - CEMENTITIOUS SLAB **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Brown/ Gray		55.00% Non-fibrous (other) 45.00% Quartz	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-51 *031906554-0009*		**Description** ROOF, BOTTOM LAYER, ON METAL - PERLITE **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Brown	45.00% Cellulose	40.00% Non-fibrous (other) 15.00% Perlite	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-52 *031906554-0010*		**Description** ROOF, BOTTOM LAYER, ON METAL - PERLITE **Homogeneity** Homogeneous			
PLM NYS 198.1 Friable	03/31/2019	Brown	55.00% Cellulose	25.00% Non-fibrous (other) 20.00% Perlite	**None Detected**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB					**Not Analyzed**
TEM NYS 198.4 NOB					**Not Analyzed**
Sample ID 2382-53 *031906554-0011*		**Description** EXTERIOR, WINDOW, METAL TO GLASS - GLAZING **Homogeneity** Heterogeneous			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/31/2019	Gray	None	100.00% Other	**Inconclusive : <1.00% Anthophyllite**
TEM NYS 198.4 NOB	03/31/2019	Gray	None	100.00% Other	**<1.00% Anthophyllite**

Initial report from: 03/31/2019 10:11:17

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906554
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2382-54 *031906554-0012*		**Description**	EXTERIOR, WINDOW, METAL TO GLASS - GLAZING		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/31/2019	Gray	None	100.00% Other	**Inconclusive : <1.00% Anthophyllite**
TEM NYS 198.4 NOB	03/31/2019	Gray	None	100.00% Other	**<1.00% Anthophyllite**
Sample ID 2382-55 *031906554-0013*		**Description**	ROOF, TOP LAYER - ROLLED ROOFING		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/31/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Black		100.00% Other	**None Detected**
Sample ID 2382-56 *031906554-0014*		**Description**	ROOF, TOP LAYER - ROLLED ROOFING		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/31/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Black		100.00% Other	**None Detected**
Sample ID 2382-57 *031906554-0015*		**Description**	ROOF, SECOND LAYER - TAR VAPOR BARRIER		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/31/2019	Black	None	93.10% Other	**6.90% Chrysotile**
TEM NYS 198.4 NOB	03/31/2019				**Positive Stop (Not Analyzed)**
Sample ID 2382-58 *031906554-0016*		**Description**	ROOF, SECOND LAYER - TAR VAPOR BARRIER		
		Homogeneity			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/31/2019				**Positive Stop (Not Analyzed)**
TEM NYS 198.4 NOB	03/31/2019				**Positive Stop (Not Analyzed)**
Sample ID 2382-59 *031906554-0017*		**Description**	ROOF, PERIMETER FLASHING, ON METAL - VAPOR BARRIER		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/31/2019	Black	None	95.10% Other	**4.90% Chrysotile**
TEM NYS 198.4 NOB	03/31/2019				**Positive Stop (Not Analyzed)**

Initial report from: 03/31/2019 10:11:17

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order: 031906554
Customer ID: QUES51
Customer PO:
Project ID:

Test Report:Asbestos Analysis of Bulk Material

Test	Analyzed Date	Color	Non-Asbestos Fibrous	Non-Asbestos Non-Fibrous	Asbestos
Sample ID 2382-60 *031906554-0018*		**Description**	ROOF, PERIMETER FLASHING, ON METAL - VAPOR BARRIER		
		Homogeneity			
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/31/2019				**Positive Stop (Not Analyzed)**
TEM NYS 198.4 NOB	03/31/2019				**Positive Stop (Not Analyzed)**
Sample ID 2382-61 *031906554-0019*		**Description**	EXTERIOR, FOUNDATION WALL - WATERPROOFING TAR		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/31/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Black		100.00% Other	**None Detected**
Sample ID 2382-62 *031906554-0020*		**Description**	EXTERIOR, FOUNDATION WALL - WATERPROOFING TAR		
		Homogeneity	Heterogeneous		
PLM NYS 198.1 Friable					**Not Analyzed**
PLM NYS 198.6 VCM					**Not Analyzed**
PLM NYS 198.6 NOB	03/31/2019	Black		100.00% Other	**Inconclusive: None Detected**
TEM NYS 198.4 NOB	03/31/2019	Black		100.00% Other	**None Detected**

Initial report from: 03/31/2019 10:11:17

EMSL Analytical, Inc.
307 West 38th Street New York, NY 10018
Tel/Fax: (212) 290-0051 / (212) 290-0058
http://www.EMSL.com / manhattanlab@emsl.com

EMSL Order:	031906554
Customer ID:	QUES51
Customer PO:	
Project ID:	

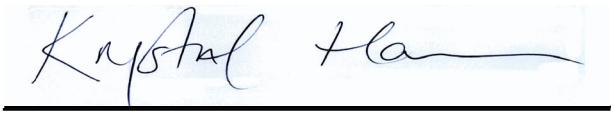
Test Report:Asbestos Analysis of Bulk Material

The samples in this report were submitted to EMSL for analysis by Asbestos Analysis of Bulk Materials via NYS ELAP Approved Methods . The reference number for these samples is the EMSL Order ID above. Please use this reference number when calling about these samples.

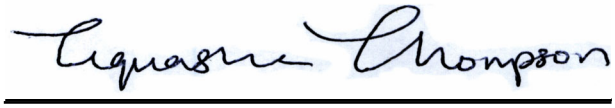
Report Comments:

Sample Receipt Date:	3/26/2019	Sample Receipt Time:	11:06 AM
Analysis Completed Date:	3/31/2019	Analysis Completed Time:	7:16 PM

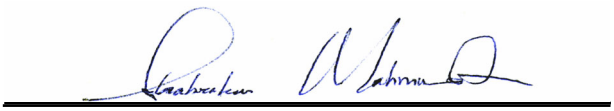
Analyst(s):



Krystal Harris PLM NYS 198.1 Friable (7)



Tiquasha Thompson PLM NYS 198.1 Friable (7)



Shahrakur Mahmud PLM NYS 198.6 NOB (8)

Hongyan Ran TEM NYS 198.4 NOB (6)

Samples reviewed and approved by:

James Hall, Laboratory Manager
or Other Approved Signatory

NOB = Non Friable Organically Bound N/A = Not Applicable VCM = Vermiculite Containing Material

-In New York State, TEM is currently the only method that can be used to determine if NOB materials can be considered or treated as non -asbestos containing.
All samples examined for the presence of vermiculite when analyzed via NYS 198.1.
-NYS Guidelines for Vermiculite containing samples are available at http ://www.wadsworth.org/labcert/elapcert/forms/VermiculiteInterimGuidance_Rev070913.pdf EMSL maintains liability limited to cost of analysis. 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 . Interpretation and use of test results are the responsibility of the client. Samples were received in good condition unless otherwise noted.
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 . This report may contain data that is not covered by the NVLAP accreditation .

Samples analyzed by EMSL Analytical, Inc. New York, NY NYS ELAP 11506

Initial report from: 03/31/2019 10:11:17

OrderID: 031906554

031906554

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

EMSL MANHATTAN LAB RECEIVED 19 MAR 26 AM 11:06

CLIENT: **TOWN OF NEW WINDSOR**

ADDRESS: **555 UNION AVE**
NEW WINDSOR, NY 12553

CONTACT: **ANDREW WARREN**

PROJECT ID: **145 Caesar's Lane**
Out Building

PROJECT # : **Q19-2382**

SAMPLED BY: **J. Klemm/S. Talsma**

DATE SAMPLED: **25-Mar-19**

ANALYSIS METHOD: **PLM/PLM-NOB/QTEM as required**

TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

SAMPLE # LAB#	*LOCATION*	*SAMPLE DESCRIPTION*	*COMMENTS*
2382-43	Door, Inside Door	Insulation	**Stop At First Positive**
2382-44	Door, Inside Door	Insulation	
2382-45	Wall	Cementitious Block & Mortar (Separate Layers)	**Stop At First Positive**
2382-46	Wall	Cementitious Block & Mortar (Separate Layers)	
2382-47	Exterior, Façade	Brick & Mortar (Separate Layers)	**Stop At First Positive**
2382-48	Exterior, Façade	Brick & Mortar (Separate Layers)	
2382-49	Floor	Cementitious Slab	**Stop At First Positive**
2382-50	Floor	Cementitious Slab	
2382-51	Roof, Bottom Layer, on Metal	Perlite	**Stop At First Positive**
2382-52	Roof, Bottom Layer, on Metal	Perlite	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:06AM

PAGE 1 OF 2

3/31/19 4:40pm

HR 3/31/19 10:25AM

OrderID: 031906554

031906554

EMSL MANHATTAN LAB RECEIVED 19 MAR 26 AM 11:08

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: **TOWN OF NEW WINDSOR**

ADDRESS: **555 UNION AVE**
NEW WINDSOR, NY 12553

CONTACT: **ANDREW WARREN**

PROJECT ID: **145 Caesar's Lane-Pre-Demolition/ Pre-Renovation ASB Survey**

PROJECT # : **Q19-2382**

SAMPLED BY: **J. Klemm/S. Talsma**

DATE SAMPLED: **25-Mar-19**

ANALYSIS METHOD: **PLM/PLM-NOB/QTEM as required**

TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

SAMPLE # LAB#	*LOCATION*	*SAMPLE DESCRIPTION*	*COMMENTS*
2382-53	Exterior, Window, Metal to Glass	Glazing	**Stop At First Positive**
2382-54	Exterior, Window, Metal to Glass	Glazing	
2382-55	Roof, Top Layer	Rolled Roofing	**Stop At First Positive**
2382-56	Roof, Top Layer	Rolled Roofing	
2382-57	Roof, Second Layer	Tar Vapor Barrier	**Stop At First Positive**
2382-58	Roof, Second Layer	Tar Vapor Barrier	
2382-59	Roof, Perimeter Flashing, on Metal	Vapor Barrier	**Stop At First Positive**
2382-60	Roof, Perimeter Flashing, on Metal	Vapor Barrier	
2382-61	Exterior, Foundation Wall	Water Proofing Tar	**Stop At First Positive**
2382-62	Exterior, Foundation Wall	Water Proofing Tar	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:06AM

PAGE 2 OF 2

HR 3/31/19

OrderID: 031906554

031906554

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: **TOWN OF NEW WINDSOR**

ADDRESS: **555 UNION AVE**
NEW WINDSOR, NY 12553

CONTACT: **ANDREW WARREN**

PROJECT ID: **145 Caesar's Lane**
Out Building

PROJECT # : **Q19-2382**

SAMPLED BY: **J. Klemm/S. Talsma**

DATE SAMPLED: **25-Mar-19**

ANALYSIS METHOD: **PLM/PLM-NOB/QTEM as required**

TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

SAMPLE # LAB#	*LOCATION*	*SAMPLE DESCRIPTION*	*COMMENTS*
2382-43	Door, Inside Door	Insulation	Stop At First Positive
2382-44	Door, Inside Door	Insulation	
2382-45	Wall	Cementitious Block & Mortar (Separate Layers)	Stop At First Positive
2382-46	Wall	Cementitious Block & Mortar (Separate Layers)	
2382-47	Exterior, Façade	Brick & Mortar (Separate Layers)	Stop At First Positive
2382-48	Exterior, Façade	Brick & Mortar (Separate Layers)	
2382-49	Floor	Cementitious Slab	Stop At First Positive
2382-50	Floor	Cementitious Slab	
2382-51	Roof, Bottom Layer, on Metal	Perlite	Stop At First Positive
2382-52	Roof, Bottom Layer, on Metal	Perlite	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:06 AM

PAGE 1 OF 2

3/31/19 11:24 AM

3/31

OrderID: 031906554

031906554

QUALITY ENVIRONMENTAL SOLUTIONS & TECHNOLOGIES, INC.

BULK SAMPLE FORM

CLIENT: **TOWN OF NEW WINDSOR**

ADDRESS: **555 UNION AVE**
NEW WINDSOR, NY 12553

CONTACT: **ANDREW WARREN**

PROJECT ID: **145 Caesar's Lane-Pre-Demolition/ Pre-Renovation ASB Survey**

PROJECT # : **Q19-2382**

SAMPLED BY: **J. Klemm/S. Talsma**

DATE SAMPLED: **25-Mar-19**

ANALYSIS METHOD: **PLM/PLM-NOB/QTEM as required**

TURN-AROUND TIME: _____ HOURS
5 DAYS
_____ OTHER

SAMPLE # LAB#	*LOCATION*	*SAMPLE DESCRIPTION*	*COMMENTS*
2382-53	Exterior, Window, Metal to Glass	Glazing	**Stop At First Positive**
2382-54	Exterior, Window, Metal to Glass	Glazing	
2382-55	Roof, Top Layer	Rolled Roofing	**Stop At First Positive**
2382-56	Roof, Top Layer	Rolled Roofing	
2382-57	Roof, Second Layer	Tar Vapor Barrier	**Stop At First Positive**
2382-58	Roof, Second Layer	Tar Vapor Barrier	
2382-59	Roof, Perimeter Flashing, on Metal	Vapor Barrier	**Stop At First Positive**
2382-60	Roof, Perimeter Flashing, on Metal	Vapor Barrier	
2382-61	Exterior, Foundation Wall	Water Proofing Tar	**Stop At First Positive**
2382-62	Exterior, Foundation Wall	Water Proofing Tar	

CHAIN OF CUSTODY (SEE LAST PAGE)

SUBMITTED BY: _____ DATE: 3/25/2019

RECEIVED BY: _____ DATE: 3/26/19 11:06AM

PAGE 2 OF 2

FedEx

March 26,2019

Dear Customer:

The following is the proof-of-delivery for tracking number **795700640410**.

Delivery Information:

Status:	Delivered	**Delivered to:**	Receptionist/Front Desk
Signed for by:	S.HARDOW	**Delivery location:**	New York, NY
Service type:	FedEx Priority Overnight	**Delivery date:**	Mar 26, 2019 11:05
Special Handling:	Deliver Weekday		

Signature image is available. In order to view image and detailed information, the shipper or payor account number of the shipment must be provided.

Shipping Information:

Tracking number:	795700640410	**Ship date:**	Mar 25, 2019
		Weight:	1.0 lbs/0.5 kg

Recipient:	**Shipper:**
New York, NY US	Wappingers Falls, NY US
Reference	ARL-WEB(A)
RMA	QUES51

Thank you for choosing FedEx.

Appendix C:
PERSONNEL LICENSES & CERTIFICATIONS

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2019
Issued April 01, 2018

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. JAMES HALL
EMSL ANALYTICAL, INC
307 WEST 38TH STREET SUITE 901
NEW YORK, NY 10018

NY Lab Id No: 11506

is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:

Miscellaneous

Asbestos in Friable Material	Item 198.1 of Manual
	EPA 600/M4/82/020
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)
Asbestos in Non-Friable Material-TEM	Item 198.4 of Manual
Asbestos-Vermiculite-Containing Material	Item 198.8 of Manual
Lead in Dust Wipes	EPA 7000B
Lead in Paint	EPA 7000B

Sample Preparation Methods

	EPA 3051A

Serial No.: 57819

New York State – Department of Labor
Division of Safety and Health
License and Certificate Unit
State Campus, Building 12
Albany, NY 12240

ASBESTOS HANDLING LICENSE

Quality Environmental Solutions & Technologies, Inc.

1376 Route 9

Wappinger Falls, NY 12590

FILE NUMBER: 99-0018
LICENSE NUMBER: 29085
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 01/03/2019
EXPIRATION DATE: 01/31/2020

Duly Authorized Representative – Lawrence J Holzapfel:

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

Eileen M. Franko, Director
For the Commissioner of Labor

SH 432 (8/12)

NEW YORK STATE

MINORITY- AND WOMEN-OWNED BUSINESS ENTERPRISE ("MWBE")

CERTIFICATION

Empire State Development's Division of Minority and Women's Business Development grants a

Minority Business Enterprise (MBE)

pursuant to New York State Executive Law, Article 15-A to:

Quality Environmental Solutions & Technologies Inc.

Certification Awarded on: August 11, 2015
Expiration Date: August 11, 2018
File ID#: 49952

NEW YORK STATE OF OPPORTUNITY. Division of Minority and Women's Business Development

A Division of Empire State Development

Suann Lander

From: Davis, Jamon (ESD) <Jamon.Davis@esd.ny.gov>
Sent: Wednesday, July 11, 2018 11:36 AM
To: Suann Lander
Subject: Quality Environmental Solutions & Technologies Inc.

To Whom It May Concern;

Please note that **Quality Environmental Solutions & Technologies Inc.** applied for Certification on **4/21/2017**. Their current Certification is **still pending** until **the final decision is made**. Due to our re-certification policy, their certification remains active. If his/her certification is approved they will remain in our database as active and can continue to conduct business as usual. To check their active status please go to our website at **https//ny.newnycontracts.com;** click the **SEARCH THE DIRECTORY** button and input the name of their business. The firm's status will appear at the **bottom of the page**. If you see the business name at the bottom of the page, this means it is **active**. Please feel free to contact the **MWBE Help Desk at 212-803-2414**, if you should need further assistance.

Best regards,

Jamon Davis

JAMON DAVIS
Certifications Specialist
633 3rd Avenue New York, NY 11017
Website Email

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE

N.Y.S

JAMES D KLEMM
CLASS(EXPIRES)
C ATEC(06/19) D INSP(06/19)
H PM (06/19)

CERT# 13-11486
DMV# 949876493

MUST BE CARRIED ON ASBESTOS PROJECTS

01213 004635662 22

EYES BLU
HAIR BRO
HGT 5' 10"

IF FOUND RETURN TO:
NYSDOL - L&C UNIT
ROOM 161A BUILDING 12
STATE OFFICE CAMPUS
ALBANY NY 12240

SHA Occupational Safety and Health Administration

12-004336042

s card acknowledges that the recipient has successfully completed a 10-hour Occupational Safety and Health Training Course in

Construction Safety and Health

JAMES KLEMM

David Veit

ner name – print or type)

06/05/2013

(Course end date)

)SHA recommends Outreach Training Courses as an orientation to occupational safety nd health for workers. Participation is voluntary. Workers must receive additional raining on specific hazards of their job. This course completion card does not expire.

Jse or distribution of this card for fraudulent purposes, including false claims of having eceived training, may result in prosecution under 18 U.S.C. 1001. Potential penalties nclude substantial criminal fines, imprisonment up to five years, or both.

For OSHA Outreach Training Program go to "Training" at www.osha.gov

Rev. 9/2009

STATE OF NEW YORK - DEPARTMENT OF LABOR
ASBESTOS CERTIFICATE

SHANNON D TALSMA
CLASS(EXPIRES)
C ATEC(10/19) D INSP(10/19)
H PM (10/19)

CERT# 16-07559
DMV# 963348232

MUST BE CARRIED ON ASBESTOS PROJECTS

EYES GRN
HAIR BLN
HGT 6' 00"

IF FOUND RETURN TO:
NYSDOL - L&C UNIT
ROOM 161A BUILDING 12
STATE OFFICE CAMPUS
ALBANY NY 12240

01213 0047358478 5

OSHA
Occupational Safety and Health Administration

12-006010504

This card acknowledges that the recipient has successfully completed:

10-hour Construction Safety and Health

This card issued to:

Shannon D. Talsma

David Veit — Trainer Name

04/22/2016 — Date of Issue

Atlantic OSHA Training Center
An OSHA Training Institute Education Center

732.235.9450
aotc.sph.rutgers.edu

OSHA recommends Outreach Training Courses as an orientation to occupational safety and health for workers. Participation is voluntary. Workers must receive additional training on specific hazards of their job. This course completion card does not expire.

Use or distribution of this card for fraudulent purposes, including false claims of having received training, may result in prosecution under 18 U.S.C. 1001. Potential penalties include substantial criminal fines, imprisonment up to 5 years, or both.

To verify this training, scan the QR code with your mobile device.

Rev. 1/2016

SUPPLEMENTARY CONDITIONS – R1, PART 1 OF THE CONSTRUCTION CONTRACT

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SUPPLEMENTARY CONDITIONS, PART 2 OF THE CONSTRUCTION CONTRACT

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SUPPLEMENTARY CONDITIONS, PART 1 OF THE CONSTRUCTION CONTRACT

These Supplementary Conditions amend or supplement EJCDC® C-700, Standard General Conditions of the Construction Contract (2018). The General Conditions remain in full force and effect except as amended.

The terms used in these Supplementary Conditions have the meanings stated in the General Conditions. Additional terms used in these Supplementary Conditions have the meanings stated below, which are applicable to both the singular and plural thereof.

The address system used in these Supplementary Conditions is the same as the address system used in the General Conditions, with the prefix "SC" added—for example, “Paragraph SC-4.05.”

Article 1 - **DEFINITIONS AND TERMINOLOGY**

No suggested Supplementary Conditions in this Article.

Article 2 - **PRELIMINARY MATTERS**

SC-2.01 Add the following new paragraphs immediately following Paragraph 2.01C:

2.01 D. LEGAL ADDRESS OF CONTRACTOR. The address given in the Proposal upon which this contract is based is hereby designated as the legal address where all notices, letters and other communications to the Contractor shall be mailed or delivered prior to the beginning of the WORK. Transmittal in post paid wrapper, directed to the above-named place, in any post office box regularly maintained by the post office, of any notice, letter or other communication to the Contractor, shall be deemed sufficient service thereof upon the Contractor, and the date of said service shall be the date of such delivery or mailing. Such address may be changed at any time by an instrument in writing executed and acknowledged by the Contractor and delivered to the Owner by certified mail (return-receipt). Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon the Contractor personally.

2.01 E. CONTRACTOR'S TELEPHONE NUMBER. The telephone number given in the Proposal and Agreement is hereby designated as the legal telephone number whereby the Contractor or his representatives may be contacted. The Contractor shall maintain such telephone in operation during regular working hours such that, as necessary, the Contractor or his representatives may be contacted. In addition, the Contractor shall provide 24-hour emergency phone numbers, with such numbers being available to contact the Contractor at any hour in the case of an emergency situation. The Contractor shall advise the Owner and the Engineer of such emergency numbers by letter at the time of execution of the Agreement.

Article 3 - **CONTRACT DOCUMENTS: INTENT, REQUIREMENTS, REUSE**

No suggested Supplementary Conditions in this Article.

Article 4 - **COMMENCEMENT AND PROGRESS OF THE WORK**

No suggested Supplementary Conditions in this Article.

Article 5 - **SITE, SUBSURFACE AND PHYSICAL CONDITIONS, HAZARDOUS ENVIRONMENTAL CONDITIONS**

SC-5.02 Add the following new paragraph immediately following Paragraph 5.02 D:

5.02 E. <u>TRAVEL NOT TO BE OBSTRUCTED.</u> Contractor shall not allow travel upon any street, park, roadway or alley to be hindered or inconvenienced needlessly, nor shall the same be wholly obstructed without the written permission of the OWNER, in which case the Contractor shall cause plain and properly worded signs announcing such fact to be placed, with proper barricades, at nearest cross street, upon each side of such obstructed portion, where travel can pass around the same in the shortest and the easiest way. The driveways to and from all fire department buildings and those required by all manufacturing plants, industrial establishments and other business concerns for the proper continuance of their operations shall be kept open and shall be maintained in passable condition at all times. The Contractor shall give reasonable notice to the Owners of all private driveways before interfering with them, and no private drive shall be completely obstructed for a period in excess of twenty-four (24) hours.

SC-5.03 Add the following new paragraph immediately following Paragraph 5.03 D:

5.03 E. <u>DEWATERING</u>. It is anticipated that there will be a high incidence of ground water intrusion at structure and trench locations. The Contractor shall provide and maintain, at his own expense, all the necessary equipment, materials and labor to properly dewater all excavations on the project; the cost of all dewatering shall be deemed included in the prices bid in the Proposal.

SC-5.05 Add the following new paragraphs immediately following Paragraph 5.05 F:

5.05 G. <u>LOCATION OF EXISTING UTILITIES.</u> The location of known existing utilities as shown on the plans, such as waterlines, storm drains, sewers and utility lines, have been located in an approximate way only, in accordance with the best available information and from field measurements and existing available drawings. The OWNER and/or Engineer do not guarantee the completeness or the correctness of the data. However, the Contractor shall verify these locations, and in no way shall the Contractor hold the OWNER and/or Engineer responsible for utilities which may not be located as shown on or which may have been omitted from the drawings. Prior to the start of work, the Contractor shall verify these locations, and he shall take all necessary precautions to protect the utilities and services and mains and any damage to them shall be repaired

immediately at the Contractor's expense. Where new construction crosses existing utilities, Contractor shall verify and/or determine location and elevation of same, prior to the beginning of construction. It should be noted that house connections for water, sewer and gas lines have not been shown on the plans, therefore, the Contractor should take every precaution to contact the applicable utility owners to verify and/or to determine locations of same.

5.05 H. NOTIFICATION OF BROKEN PIPE. In the case of a gas, water, sewer, drain, conduit or other pipe becoming broken or damaged in the prosecution of the work, the Contractor shall give immediate verbal and written notice to the proper authorities and utility owners' representatives and shall be responsible for any damage to persons or property caused by such breaks. Failure to give prompt notice to the authorities and utility owners' representatives shall make the Contractor responsible for any needless loss of water or gas.

5.05 I. UTILITY POLES AND POSTS WITHIN OR ADJACENT TO THE LINE OF TRENCH. Poles or posts of any public service corporation placed within the lines of the WORK, in such manner as to impede the progress of construction or which will lose their support because of being adjacent to the excavation, shall be removed, replaced or satisfactorily supported in accordance with mutually satisfactory arrangements between the Contractor and the said public service corporation or utility involved. The costs, if any, for such arrangements shall be at the Contractor's expense as incorporated into the various contract items with no liability or additional cost to the OWNER.

5.05 J. SERVICE TO BUILDINGS. Service to all facilities, buildings, improvements, and structures must be maintained at all times, and the Contractor shall furnish and install and necessary temporary structures, appurtenances and connections required to maintain the service.

5.05 K. MAINTAINING FLOW. The Contractor shall maintain, both temporarily and permanently as required, the flow through and from existing pipes, sewers, waterlines, services, drains and water ways as required during construction. All costs of maintaining this flow shall be provided by the Contractor at his own expense, unless otherwise specified, shall be deemed included in the various contract items.

5.05 L. PROJECT SUBSURFACE SOILS DATA. Wherever borings or other subsurface information, as obtained by the OWNER, is available for a Bidder's inspection, it is understood that the information has been obtained with reasonable care and recorded in good faith with reasonable interpretations placed on the results in character of materials and conditions to be expected. The Bidder must interpret this information according to his own judgment. Information is made available to the Bidder only in order that the Bidder may have access to the identical information to the OWNER. The OWNER

and/or Engineer shall assume no responsibility or liability pertaining to the Bidder's utilization or interpretation of said information.

Article 6 - **BONDS AND INSURANCE**

SC-6.01 Add the following new paragraph immediately following Paragraph 6.01 H:

6.01 I. **DISCHARGE OF CLAIM OF LIENS**. Promptly upon request of the OWNER, the Contractor or his surety on the Contractor's Labor and Material Payment Bond, or both shall, by bonding or otherwise, secure the discharge of any claim of lien or liens, which may be filed against the public improvement to be made by the contract WORK.

SC-6.02 Revise the paragraph 6.02A. to read as follows:

6.02 A. Owner and Contractor shall obtain and maintain insurance as required in this article and in the Supplementary Conditions. The OWNER, MHE Engineering, D.P.C. and their authorized subconsultants and agents shall be named as additional insured on all insurance policies.

Article 7 - **CONTRACTOR'S RESPONSIBILITIES**

SC-7.13 Add the following new paragraphs immediately following Paragraph 7.13 J:

7.13 K. ACCIDENT PREVENTION, SAFETY AND HEALTH REGULATIONS. The Contractor shall comply with Department of Labor Safety and Health Regulations for construction promulgated under Occupational Safety and Health Act of 1970 (PL 91-596) and under Section 107 of Contract Work Hours and Safety Standards Act (PL 91-54). Section 4(b) (4) of the Occupational Safety and Health Act of 1970 further states as follows:

"Nothing in this Act shall be construed to supersede or in any manner affect any workman's compensation law or to enlarge or diminish or affect any manner the common law or statutory rights, duties, or liabilities of employers and employees under any law with respect to injuries, diseases, or death of employees arising out of, or in the course of, employment."

The Contractor shall indemnify and save harmless the Owner and Engineer from any claims for damages resulting from personal injury and/ or death suffered or alleged to have been suffered by any person as a result of any work conducted under this contract.

7.13 L. BARRICADES, WARNING SIGNS AND LIGHTS. Barricades, danger signs and warning lights shall be provided in accordance with local jurisdictional authorities, and in accordance with the supplemental suggestions, if any, of the Engineer.

The Engineer, however, will not be responsible for specifying the number, location, type, etc. of any barricades, warnings and lights which shall fully and solely be the Contractor's responsibility.

a. The Contractor shall provide, erect and maintain as necessary, strong and suitable barricades, warning lights and danger signs along all roads accessible to the public, as required to insure safety to the public. All barricades and obstructions along public roads shall be illuminated at night and all lights for this purpose shall be kept burning from sunset to sunrise.

b. In addition, the Contractor shall provide and maintain such other warning signs and barricades in other areas as may be required for the safety of those employed in the WORK or visiting, or travelling through or adjacent to, the site.

c. Contractor shall provide and pay for necessary watchmen, as required to protect Work and materials, and flagmen required to permit the safe operation of pedestrian and vehicular traffic at all times.

d. Contractor shall not restrict access to any private road or driveway by open trenches or storage of materials or excavated material. The Contractor shall provide and maintain suitable temporary crossings over open ditches at all private roads and driveways.

SC-7.15 Add the following new paragraph immediately following Paragraph 7.15A:

7.15 B. **POWER OF OWNER TO ACT IN AN EMERGENCY**. In case of an emergency, which threatens loss or injury of property, and/or safety of life, the OWNER will be allowed to act, without consent of the Contractor, as he sees fit. The OWNER shall notify the Contractor thereof immediately thereafter.

Any cost to the OWNER shall be paid by the Contractor, if such acts by the OWNER should have been performed by the Contractor, if no emergency had existed which required the OWNER to act. Provisions of this section supersede those which may be conflicting in the Section entitled "Owner's Right to Complete Work".

SC-7.16 Add the following new paragraph immediately following Paragraph 7.16F:

7.16 G. OPERATION AND MAINTENANCE MANUALS. On all projects which include the furnishing and/installation of operating equipment or systems the Contractor shall furnish prior to acceptance testing of equipment and/or systems Operation and Maintenance (O&M) Manuals as follows:

a. After all start up and testing work has been completed, and the equipment is operating satisfactorily, the manufacturer of the equipment shall prepare and submit six (6) complete, original operation and maintenance (O & M) manuals. Manuals must

be furnished at least two (2) weeks prior to the scheduling of instruction of Owner's personnel.

b. Manuals shall reflect all operation; start up, maintenance and inspection functions, applicable to the specific equipment furnished.

c. Manuals shall include information regarding any accessories and appurtenances furnished specific to the project, as well as any modifications or adjustments made during erection and start-up.

d. Manuals shall include complete parts lists, names and telephone numbers for the manufacturer and local representatives for all equipment, and any other pertinent data regarding replacement parts.

e. Manuals shall be furnished in bound form, in quality three (3) ring binders (or other forms found acceptable by the Owner) with identification on the face and binder as to the equipment for which is applies.

SC-7.20 Add the following new section immediately following Paragraph 7.19G:

7.20 SURPLUS MATERIAL REMOVED. All parts of the WORK shall be kept in as neat and orderly condition as circumstances will permit and upon completion of the WORK all surplus material, earth, sand, rubbish and refuse of every kind, and all tools, machinery, equipment and other materials belonging to the Contractor shall be removed from the construction works and the adjoining premises, so as to leave everything in an acceptable condition, in as good or better condition than existed prior to construction.

Article 8 - **OTHER WORK AT THE SITE**

SC-8.04 Add the following new section immediately following Paragraph 8.03:

8.04 ADDITIONAL PROJECT WORK AT SITE. The phase 2 work scope of this project is expected to be bid, awarded and under construction prior to the completion of phase 1. The phase 2 work scope site plan has been provided in this document as a reference. Contractors shall plan their work accordingly, limiting their staging areas and work areas so as to minimize and impact to the phase 2 work. Phase 1 material staging, trailers, connex boxes, vehicles, etc shall be strictly limited to the area designated on the site plan. Phase 2 construction will be performed under a PLA, and coordination with the phase 2 contractor will be in accordance with Article 8.

Article 9 - **OWNER'S RESPONSIBILITIES**

No suggested Supplementary Conditions in this Article.

Article 10 - **ENGINEER'S STATUS DURING CONSTRUCTION**

No suggested Supplementary Conditions in this Article.

Article 11 - **CHANGES TO THE CONTRACT**

No suggested Supplementary Conditions in this Article.

Article 12 - **CLAIMS**

No suggested Supplementary Conditions in this Article.

Article 13 - **COST OF WORK; ALLOWANCE UNIT PRICE WORK**

SC-13.01 Add the following new section immediately following Paragraph 13.01E:

13.01 F. <u>CLAIMS FOR EXTRA COST</u>.

If the Contractor claims that any instructions by specifications, contract documents or otherwise involve extra cost or the extension of time, he shall, within seven (7) days after receipt of such instructions, and in any event before proceeding to execute the WORK, submit his protest thereto in writing to the OWNER with copy to the Engineer, stating clearly and in detail the basis of his objections. No such claim for a change in Contract Price and/or time will be considered unless written notice shall be so made within the aforementioned seven (7) day period.

Claims for additional compensation for extra work, due to alleged errors in ground elevations, contour lines, or bench marks, will not be recognized unless accompanied by survey data, certified by a Professional Surveyor, licensed in the State in which the work is performed, made prior to the time the original ground was disturbed, clearly showing that errors exist which resulted, or would result, in handling more material, or performing more work, than would be reasonably estimated from the drawings and maps issued.

Article 14 - **TESTS AND INSPECTIONS; CORRECTION, REMOVAL, OR ACCEPTANCE OF DEFECTIVE WORK**

No suggested Supplementary Conditions in this Article.

Article 15 - **PAYMENTS TO CONTRACTOR, SET OFFS; COMPLETIONS; CORRECTION PERIOD**

No suggested Supplementary Conditions in this Article.

Article 16 - **SUSPENSION OF WORK AND TERMINATION**

No suggested Supplementary Conditions in this Article.

Article 17 - **FINAL RESOLUTIONS OF DISPUTES**

No suggested Supplementary Conditions in this Article.

Article 18 - **MISCELLANEOUS**

SC-18.11 Add the following new section immediately following Paragraph 18.10:

18.11 PROJECT SIGN AND GRANTEE RECOGNITION. The municipality is required to ensure recognition of the role of Orange County and HUD in providing services for this Project. The funding source shall be clearly acknowledged with the placement of a Project Sign, located at the entrance to the project in a clearly visible, unobstructed location.

The sign shall follow the guidelines below and shall be submitted and approved by Orange County and Town of New Windsor:

The Project Sign shall be fabricated by a professional sign manufacturer, per the following specifications:

a. Size shall be four feet by eight feet, medium density overlay exterior grade plywood with grade B surface veneers (MDO B-B EXT-APA).

b. Exterior grade printed signs, such as closed cell PVC foamboard, mounted on APA exterior grade sheets are acceptable.

c. Lettering and striping shall be uniform with sharp, neat profiles.

d. Size of text and logos to be proportional, logos to be provided by Orange County and the Town of New Windsor.

e. Font: Arial & Arial Bold

SUPPLEMENTARY CONDITIONS, PART 2 OF THE CONSTRUCTION CONTRACT

Article 19 - **NEW YORK STATE LABOR LAW**

The Contractor shall comply in every respect with the provisions of Section 220 of the Labor Law and no laborer, workers, or mechanic in the employ of the Contractor, subcontractor or other person contracting to do the whole or part of the work contemplated by this Contract, shall be permitted or required to work more than eight (8) hours in any one calendar day or more than five (5) days in any one week except in cases of extraordinary emergency including fire, flood, or danger to life or property, and no such person shall be so employed more than eight (8) hours in any day or more than five (5) days in any one week, except in such an emergency. The wages to be paid for a legal day's work, as defined by said section, to laborers, workmen or mechanics employed as aforesaid shall be not less than the prevailing rate for a day's work in the same trade or occupation in the locality within the State where the aforesaid work, on, about or in connection with which such labor is performed in its final or completed form is to be situated, erected, or used. Laborers shall be paid not less than the minimum hourly rate or wage designated by the Industrial Commissioner, pursuant to Section 220-d of the Labor Law. Said minimum hourly rate of wages having been designated by the Industrial Commissioner are designated in the wage rate sheet forming a part of this Contract, and are to be paid in cash, provided, however, that an employer, except as otherwise provided in Subdivision 3.0 Section 220 of the State Labor Law, may pay his employees by check if he furnishes satisfactory proof to the Industrial Commissioner of his financial responsibility and gives reasonable assurance that such checks may be cashed by employees without difficulty and for the full amount for which they are drawn. The Contractor shall abide by and pay workmen, laborers and mechanics employed either by himself or a subcontractor no less than the wage rate set forth on the schedule of wages as annexed to and forming a part of the specifications for the work involved in the contract pursuant to the Labor Law.

The Contractor shall comply with the provisions of Section 222A of the Labor Law relating to prevention of dust hazard in public works if such hazard shall exist. If said section is not complied with by the Contractor, the Contract shall be void.

A. **QUALIFICATION FOR EMPLOYMENT**.

No person under the age of sixteen (16) years and no person currently serving sentence in a penal or correctional institution shall be employed to perform any work on the project under this contract. No person whose age or physical condition is such as to make his employment dangerous to his health or safety or to the health and safety of others shall be employed to perform any work on the project under this contract; provided that this sentence shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may be safely assigned to work which they can ably perform.

All employees engaged in work on the project under this contract shall have the right to organize and bargain collectively through representatives of their own choosing and such employees shall be free from interference, restraint, and coercion of employers in designation of such employee

representatives, in the self-organization and in other concerted activities of such employees, for the purpose of collective bargaining or other mutual aid or protection and no person seeking employment on the project under this contract and no person employed on the project under this contract shall be required as a condition of the initial or continued employment to join any company union or to refrain from joining, organizing, or assisting a labor organization of such person's own choosing.

B. **DISCRIMINATION**.

The Contractor shall comply with the provisions of Section 220-e of the Labor Law as follows:

1. That in the hiring of employees for the performance of work under this contract or any subcontract hereunder, no contractor, or subcontractor, or any person acting on behalf of such contractor or subcontractor, shall by reason of age, race, creed, color, national origin, sexual orientation, gender identity or expression, military status, sex, disability, predisposing genetic characteristics, familial status, marital status, or status as a victim of domestic violence discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates;
2. That no contractor, subcontractor, or any person on his behalf shall, in any manner, discriminate against or intimidate any employee hired for performance of work under this contract on account of race, creed, color, disability, sex or national origin;
3. That there may be deducted from the amount payable to the contractor by the State or municipality under this contract a penalty of fifty (50) dollars for each person for each calendar day during which such person was discriminated against or intimidated in violation of the provisions of the contract;
4. That this contract may be cancelled or terminated by the State or municipality, and all the monies due or to become due hereunder may be forfeited, for a second or any subsequent violation of the terms or conditions of this section of the contract; and
5. The aforesaid provisions of this section covering every contract for or on behalf of the State or a municipality for the manufacture, sale or distribution of materials, equipment or supplies shall be limited to operations performed within the territorial limits of the State of New York.
6. The Contractor's attention is also called to the State Law Against Discrimination, which also prohibits discrimination in employment because of age and sex.

C. **WAGE RATE**.

There shall be paid each employee engaged in work on the project under this contract in the trade or occupation listed not less than the wage rate set opposite the same, as shown on the attached Prevailing Rate Schedule.

D. **SUPPLEMENTS**.

Article 8, Section 220 of the Labor Law, as amended by Chapter 750 of the Laws of 1956, provides, among other things, that it shall be the duty of the fiscal officer to make a determination of the schedule of wages to be paid to all laborers, workmen and mechanics employed on the public work

projects including supplements for welfare, pension, vacation and other benefits. These supplements may include hospital, surgical, or medical insurance or benefits; life insurance or death benefits; accidental death or dismemberment insurance; and pensions or retirement benefits. If the amount of supplements provided by the employer is less than the total supplements shown on the wage schedule, the difference shall be paid in cash to employees.

1. Article 8, Section 220 of the Labor Law, as amended by Chapter 750 of the Laws of 1956, also provides, that supplements to be provided to laborers, workmen and mechanics upon the public works "shall be in accordance with the prevailing practices in the locality...". The amount for supplements listed on the enclosed schedule does not necessarily include all types of prevailing supplements in the locality, and a future determination of the Industrial Commissioner may require the Contractor to provide the additional supplements.

2. The Contractor shall provide the statutory benefits for disability benefits, workmen's compensation, unemployment insurance and social security.

E. **UNLISTED WAGE RATE**.

In case it becomes necessary for the Contractor or any subcontractor to employ on the project under this Contract any person in a trade or occupation (except executive, supervisory, clerical, administrative, or other non-manual workers as such) for which no minimum rate is herein specified, the Contractor shall immediately notify the Owner who will promptly thereafter furnish the Contractor with the minimum rate. The minimum rate thus furnished shall be applicable as a minimum for such trade or occupation from the time of the initial employment of the person affected and during the continuance of such employment.

F. **POSTING MINIMUM WAGE RATES**.

The Contractor shall post at conspicuous points on the site of the project a schedule showing all determined minimum wage rates and all authorized deductions, if any, from unpaid wages actually earned.

G. **WICKS LAW PROVISIONS. (NEW YORK STATE)** Where separate prime contracts are not required:

Each bidder on this project, “where the preparation of separate specifications is not required,” shall submit with its bid a separate sealed list that names each subcontractor that the bidder will use to perform work on the contract, and the agreed-upon amount to be paid to each, for: (a) plumbing and gas fitting, (b) steam heating, hot water heating, ventilating and air conditioning apparatus and (c) electric wiring and standard illuminating fixtures. After the low bid is announced; the sealed list of subcontractors submitted with such low bid will be opened and names of such subcontractors shall be announced, and thereafter any change of subcontractor or agreed-upon amount to be paid to each shall require the approval of the owner, upon a showing presented to the public owner of legitimate construction need for such change, which shall be open to public inspection. Legitimate construction need shall include, but not be limited to, a change in project specifications, a change in construction material costs, a change to subcontractor status as determined pursuant to paragraph (e) of subdivision two of section two hundred twenty-two of the labor law, or the subcontractor has become

otherwise unwilling, unable or unavailable to perform the subcontract. The sealed lists of subcontractors submitted by all other bidders will be returned to them unopened after the contract award. A separate form is included in the proposal pages for this purpose.

H. NEW YORK STATE ANTI-SEXUAL HARASSMENT LAWS.

Each bidder (and all Contractors awarded work) on this project must comply with the requirements of Section 201-G of the Labor Law, and shall have implemented a written policy addressing sexual harassment prevention in the workplace and shall provide annual training to all of its employees. Contractors shall also be required to comply with any specific provisions of the Owner (as applicable). Prospective bidders are required to complete the "Affidavit of Compliance with New York State Anti-Sexual Harassment Laws" as included in the Proposal.

I. CONTRACTOR REGISTRATION WITH NEW YORK STATE DEPARTMENT OF LABOR.

Beginning December 30, 2024, all contractors and subcontractors submitting bids and/or performing construction, demolition, reconstruction, excavation, rehabilitation, repair, installation, renovation, alteration, or custom fabrication work on any project that is subject to the provisions of Article 8 of New York Labor Law ("Labor Law") are required to register with the New York State Department of Labor (pursuant to Labor Law §220-i).

Contractors must register before submitting any new bid or commencing new work on any project that is subject to Article 8 of the Labor Law (which includes public works projects, construction projects performed under private contract, and renewable energy system projects) **on or after December 30, 2024.**

Further, subcontractors must register before commencing new work on any project that is subject to Article 8 of the Labor Law (which includes public works projects, construction projects performed under private contract, and renewable energy system projects) **on or after December 30, 2024.**

The County is requiring the following effective immediately:

1. All solicitations for projects/work/services that are subject to Article 8 of the Labor Law must include a requirement that each bidder include, in its bid, proof of its registration with the New York State Department of Labor as required by Labor Law §220-i. Any bidder that does not include such proof will be disqualified from consideration for a contract award.

2. A contractor under a new contract for projects/work/services that are subject to Article 8 of the Labor Law with a start date of December 30, 2024 must submit proof to the County of its

registration with the New York State Department of Labor as required by Labor Law §220-i before commencing any work under said contract.

3. No subcontractor may commence new work/services on a project that is subject to Article 8 of the Labor Law on or after December 30, 2024 before submitting proof to the County of its registration with the New York State Department of Labor as required by Labor Law §220-i.

Please note that if the County commences work on a project covered by Article 8 of the Labor Law with any contractor or subcontractor that it knew or should have known is not registered in accordance with Labor Law §220-i, a civil penalty of up to $1,000.00 may be imposed.

TITLE PAGE & DRAWING INDEX

DWG No.	DESCRIPTION
T-101	TITLE PAGE
T-102	DRAWING INDEX SHEET 1

CIVIL - PROCESS DRAWING LIST

DWG No.	DESCRIPTION
	100 SERIES - SITE
C-101	OVERALL EXISTING PLANT SITE PLAN
C-102	KEY PLAN FOR NEW WORK
C-103	NEW WORK AREA DEMOLITION PLAN
C-104	NEW CONTROL BUILDING SITE PLAN SHEET 1 OF 2
C-105	NEW CONTROL BUILDING SITE PLAN SHEET 2 OF 2
C-106	EROSION & SEDIMENT CONTROL PLAN
C-107	EXISTING CONTROL BUILDING SITE PLAN
C-108	SITE STAGING AREA PLAN
	200 SERIES - SITE DETAILS
C-201	WATER MAIN PROFILE & DETAILS
C-202	SANITARY SEWER, STORM & SITE DETAILS
C-203	SITE DETAILS
C-204	EROSION & SEDIMENT CONTROL NOTES AND DETAILS

ARCHITECTURAL DRAWING LIST

DWG No.	DESCRIPTION
G-001	ADA CLEARANCES, ABBREVIATIONS & LEGEND
	700 SERIES - EXISTING CONTROL BLDG. / DEWATERING
AD-701	DEWATERING BUILDING - LOWER LEVEL DEMOLITION PLAN, EXISTING INCINERATOR PHOTOS & NOTES
AD-702	DEWATERING BUILDING - UPPER LEVEL DEMOLITION PLAN & NOTES
AD-703	DEWATERING BUILDING - ROOF DEMOLITION PLAN & NOTES
AD-704	DEWATERING BUILDING - EXTERIOR ELEVATIONS DEMOLITION, PHOTOS & NOTES
A-701	DEWATERING BUILDING - LOWER LEVEL FLOOR PLAN & NOTES
A-702	DEWATERING BUILDING - UPPER LEVEL FLOOR PLAN & DETAILS
A-703	DEWATERING BUILDING - ROOF PLAN, DETAILS & NOTES
	900 SERIES - NEW CONTROL BUILDING
G-901	CONTROL BUILDING - EGRESS PLAN, CODE ANALYSIS & DETAILS
A-901	CONTROL BUILDING - FLOOR PLAN & WALL TYPES
A-902	CONTROL BUILDING - ROOF PLAN & DETAILS
A-903	CONTROL BUILDING - EXTERIOR ELEVATIONS
A-904	CONTROL BUILDING - SECTIONS
A-905	CONTROL BUILDING - INTERIOR PLAN, ELEVATIONS & DETAILS
A-906	CONTROL BUILDING - FLOOR PLAN LAB & INTERIOR ELEVATIONS
A-907	CONTROL BUILDING - WINDOW, DOOR & MISCELLANEOUS DETAILS & SCHEDULES
A-908	CONTROL BUILDING - REFLECTED CEILING PLAN & CEILING DETAILS
A-909	CONTROL BUILDING - FINISH FLOOR PLAN, SCHEDULE & DETAILS

STRUCTURAL DRAWING LIST

DWG No.	DESCRIPTION
	100 SERIES - SITE WORK RETAINING WALLS
S-100	CONTROL BUILDING RETAINING WALL (WALL #1) NOTES
S-101	CONTROL BUILDING RETAINING WALL (WALL #1) ELEVATIONS, SECTIONS & DETAILS
	700 SERIES - SLUDGE DEWATERING BUILDING
S-700	SLUDGE DEWATERING BUILDING MODIFICATION NOTES
S-701	SLUDGE DEWATERING BUILDING - GROUND LEVEL MODIFICATION PLAN
S-702	SLUDGE DEWATERING BUILDING - UPPER LEVEL MODIFICATION PLAN
S-703	SLUDGE DEWATERING BUILDING - ROOF MODIFICATION PLAN
S-704	SLUDGE DEWATERING BUILDING - SECTIONS
S-705	SLUDGE DEWATERING BUILDING - STRUCTURAL DETAILS
S-706	SLUDGE DEWATERING BUILDING - STRUCTURAL DETAILS CONTINUED
S-707	RETAINING WALL DETAILS AND ELEVATION
	900 SERIES - NEW CONTROL BUILDING
S-900	CONTROL BUILDING - STRUCTURAL NOTES AND PROVISIONS
S-901	CONTROL BUILDING - FOUNDATION PLAN
S-902	CONTROL BUILDING - SLAB PLAN
S-903	CONTROL BUILDING - WALL FRAMING PLAN
S-904	CONTROL BUILDING - ROOF FRAMING PLAN
S-905	CONTROL BUILDING - BUILDING SECTIONS
S-906	CONTROL BUILDING - WALL SECTIONS

ELECTRICAL DRAWING LIST

DWG No.	DESCRIPTION
	000 SERIES - SCHEMATICS
E-001	ELECTRICAL LEGENDS, ABBREVIATIONS & NOTES
E-010	ELECTRICAL NEW WORK SINGLE LINE DIAGRAMS
E-030	ELECTRICAL DETAILS
E-031	ELECTRICAL DETAILS
E-040	ELECTRICAL SCHEDULES
E-041	ELECTRICAL SCHEDULES
	100 SERIES - SITE WORK
E-100	ELECTRICAL SITE PLAN - NEW WORK
	700 SERIES - DEWATERING BUILDING
E-700	ELECTRICAL DEMOLITION PLAN - DEWATERING BUILDING
	900 SERIES - NEW CONTROL BUILDING
E-900	ELECTRICAL POWER PLAN - CONTROL BUILDING
E-901	ELECTRICAL SYSTEMS PLAN - CONTROL BUILDING
E-902	ELECTRICAL LIGHTING PLAN - CONTROL BUILDING

MECHANICAL DRAWING LIST

DWG No.	DESCRIPTION
	000 SERIES - SCHEMATICS
M-001	MECHANICAL LEGENDS, ABBREVIATIONS & NOTES
M-030	MECHANICAL DETAILS
M-040	MECHANICAL SCHEDULES
	900 SERIES - NEW CONTROL BUILDING
M-900	MECHANICAL FLOOR PLAN - NEW WORK

PLUMBING DRAWING LIST

DWG No.	DESCRIPTION
	000 SERIES - SCHEMATICS
P-001	PLUMBING LEGENDS, ABBREVIATIONS & NOTES
P-030	PLUMBING DETAILS & SCHEDULES
	900 SERIES - NEW CONTROL BUILDING
P-900	PLUMBING FLOOR PLAN - CONTROL BUILDING
P-901	PLUMBING FLOOR PLAN - CONTROL BUILDING

MHE ENGINEERING
33 Airport Center Drive, Suite 202
New Windsor, NY 12553
(845) 567-3100
111 Wheatfield Drive, Suite 1
Milford, PA 18337
(570) 296-2765

BID SET

UDIG·NY SAFE DIGGING STARTS HERE CALL 811

CAESARS LANE WWTP EXPANSION PROJECT: PHASE 1
145 CAESARS LN.
NEW WINDSOR, NY 12553
FOR TOWN OF NEW WINDSOR
555 UNION AVE.
NEW WINDSOR, NY 12553

DRAWING INDEX

REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 1	12/20/24

ISSUED DATE:	21 NOV, 2024
DESIGN BY:	MJS
DRAWN BY:	HPBJr
CHECKED BY:	MWW
REVIEWED BY:	MJL

SHEET NO.

T-102

PROJECT # 18-732 PHASE # 1

1 / C-105 NEW CONTROL BUILDING SITE PLAN
SCALE: 1" = 10'

GRAPHIC SCALE
10 0 5 10 20 40
1 inch = 10 feet

NOTES:
1. SURVEY AND TOPOGRAPHY SECURED FROM A PLAN PREPARED BY C.T. MALE ASSOCIATES ENTITLED "TOWN OF NEW WINDSOR WASTE WATER TREATMENT PLANT", LATEST REVISION 3/8/23.
2. THE ROAD GRADES SHOWN ON THIS PLAN REFLECT THE TOP OF FINISH TOP COURSE GRADE. HOWEVER THIS PROJECT INCLUDES PREPARATION OF SUBGRADE, PLACEMENT OF AGGREGATE AND ASPHALT BINDER COURSE. THE PLACEMENT OF ASPHALT TOP COURSE IS NOT INCLUDED IN THIS PROJECT.
3. EXISTING WATER LINE SHOWN SHALL BE CONSIDERED APPROXIMATE AND FIELD VERIFIED PRIOR TO THE REMOVAL OR INSTALLATION OF ANY STORM DRAINAGE PIPES OR STRUCTURES.
4. THE CONTRACTOR IS TO ALLOW OWNERS ACCESS TO OPERATE THE WWTP DURING CONSTRUCTION.

MHE ENGINEERING
33 Airport Center Drive, Suite 202
New Windsor, NY 12553
(845) 567-3100
111 Wheatfield Drive, Suite 1
Milford, PA 18337
(570) 296-2765

BID SET

HAZARDOUS MATERIAL NOTE:
THE SERVICES PROVIDED BY MHE, INCLUDING ALL WORK DEPICTED ON MHE PLANS, DO NOT INCLUDE SERVICES RELATED TO THE IDENTIFICATION, CONTROLS OR HANDLING OF HAZARDOUS MATERIALS, INCLUDING SUCH MATERIALS AS ASBESTOS AND LEAD PAINT. ALL TESTING, IDENTIFICATION, ABATEMENT, CONTROLS, AND HANDLING OF HAZARDOUS MATERIALS SHALL BE UNDERTAKEN BY A HAZARDOUS MATERIAL CONSULTANT AND CERTIFIED PROFESSIONALS. IF SUCH MATERIALS HAVE BEEN IDENTIFIED, CONTRACTOR WILL COMMUNICATE DIRECTLY WITH HAZARDOUS MATERIAL PROFESSIONAL FOR THE PERFORMANCE OF ANY WORK ON OR ADJACENT TO SAID MATERIALS. IF UNIDENTIFIED MATERIALS OF CONCERN ARE ENCOUNTERED WHILE UNDERTAKING THE WORK SHOWN HEREON, CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER AND OWNER, AND SHALL OBTAIN DIRECTION FROM THE HAZARDOUS MATERIAL CONSULTANT PRIOR TO THE CONTINUATION OF WORK INVOLVING SUSPECTED MATERIAL.

UDIG·NY SAFE DIGGING STARTS HERE
CALL 811

CAESARS LANE WWTP EXPANSION PROJECT: PHASE 1
145 CAESARS LN.
NEW WINDSOR, NY 12553
FOR TOWN OF NEW WINDSOR
555 UNION AVE.
NEW WINDSOR, NY 12553

NEW CONTROL BUILDING SITE PLAN
SHEET 2 OF 2

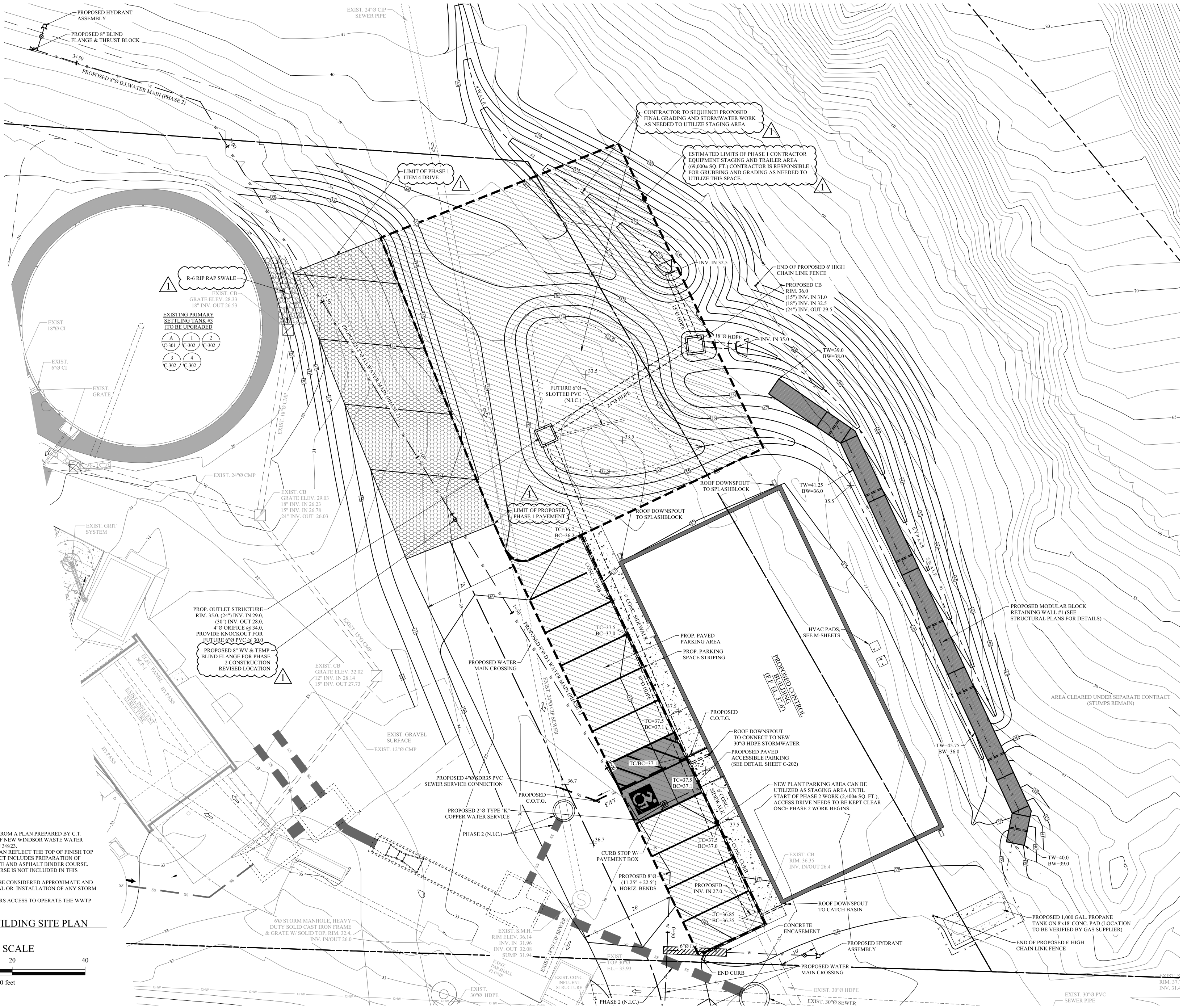
REVISIONS

NO.	DESCRIPTION	DATE
1	ADDENDUM 1	12/20/24

ISSUED DATE:	21 NOV, 2024
DESIGN BY:	MJS
DRAWN BY:	HPBJr
CHECKED BY:	MWW
REVIEWED BY:	MJL

SHEET NO.
C-105

PROJECT # 18-732 PHASE # 1



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4. THE CONTRACTOR IS TO ALLOW OWNERS ACCESS TO OPERATE THE WWTP DURING CONSTRUCTION.

1 / C-108 NEW CONTROL BUILDING SITE PLAN
SCALE: 1" = 10'

GRAPHIC SCALE
10 0 5 10 20 40
1 inch = 10 feet

MHE ENGINEERING
33 Airport Center Drive, Suite 202, New Windsor, NY 12553, (845) 567-3100
111 Wheatfield Drive, Suite 1, Milford, PA 18337, (570) 296-2765

BID SET

HAZARDOUS MATERIAL NOTE:
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UDIG·NY
SAFE DIGGING STARTS HERE
CALL 811

CAESARS LANE WWTP
EXPANSION PROJECT:
PHASE 1
145 CAESARS LN.
NEW WINDSOR, NY 12553
FOR TOWN OF NEW WINDSOR
555 UNION AVE.
NEW WINDSOR, NY 12553

SITE STAGING
AREA PLAN

REVISIONS:

NO.	DESCRIPTION	DATE
1	ADDENDUM 1	12/20/24

ISSUED DATE:	21 NOV, 2024
DESIGN BY:	MJS
DRAWN BY:	HPBJr
CHECKED BY:	MWW
REVIEWED BY:	MJL
SHEET NO.	

C-108

PROJECT # 18-732 PHASE # 1