The City of Waltham

Invites
Interested Parties
To propose the best offer and or bid
For the service or product herewith described:

ASBESTOS ABATEMENT FOR TWENTY BUILDINGS,
FORMER FERNALD SCHOOL, 200 TRAPELO RD., WALTHAM.

The bid opening will be held: 10:00AM Thursday October 6, 2016

Pre-bid Meeting and Site Visit: 1:00PM Thursday September 29, 2016
(Meet at 200 Trapelo Rd, In Front of Cottage 5)

Last Day for Written Questions: 12 Noon September 30, 2016
Via E-Mail Only to Jpedulla@city.waltham.ma.us

Phone: 781-314-3244, Fax: 781-314-3245

INTRODUCTION

The City of Waltham (City) acquired the former Fernald School in December 2014. The Commonwealth's DCAMM has turned over the site to the City with the exception of the Marquadt and Greene buildings.

The Community Preservation Act Committee (CPC) hired the City's storm water vendor to perform a wetlands analysis.

To address flooding on Shirley Road and downstream at Waverley Oaks Road and Beaver Street, the City desires to daylight and restore the wetlands in the northwest section of the property that were filled in by the Commonwealth to build the cottages.

The City has engaged a demolition contractor to demolish buildings, remove roadways, sidewalks, surfaces, railings, street lights, fencing and all other material exclusive of the hydrants and the generator at Malone Park, underground storage tanks (UST), transformers, above ground storage tanks (AST) and restore the land to its natural condition, loamed and seeded.

The scope of this project is the abatement of the twenty (20) structures highlighted in exhibit B. The demolition, by a contracted vendor, of these buildings will begin following the completion of the abatement can begin.

SITE INFORMATION

The property consists of approximately 190 acres, 140 acres purchased with CPA funds and 50 acres purchased with non-CPA funds. The front portion of Trapelo Road was purchased with CPA money.

See attached:
Exhibit A – Waltham Planning Department Map of Fernald with the Structures by Use
Exhibit B – Building Inventory of structure to be abated
Exhibit C – Environmentally Significant Features
Exhibit D – Area Site Plan Showing Roadway, Sidewalks, Surfaces etc. to be Removed
Exhibit E – Tech Law Inc. Draft Phase 1 Environmental Site Assessment
Exhibit F – Asbestos containing materials report, April 2016
Exhibit G – Asbestos containing materials report, April 2016

AGREEMENT

CITY OF WALTHAM

ARTICLE 1. This agreement, made this _____ day of _____, 2016 by and between the CITY OF WALTHAM, party of the first part, hereinafter called the CITY, by its MAYOR, and

_____

_____

hereinafter called the CONTRACTOR.

ARTICLE 2. Witnesseth, that the parties to this agreement, each in consideration of the agreement on the part of the others herein contained, do hereby agree, the CITY OF WALTHAM for itself, and said contractor for his heirs, executors, administrators and assigns as follows:

To furnish all equipment, machinery, tools and labor, to furnish and deliver all materials required to be furnished (except as otherwise specified) and deliver in and about the project and to do and perform all work in strict conformity with the provisions of this Contract and of the Notice to Bidders, bid, Project Manual, and Drawings hereto annexed. The said Notice to Bidders, bid, Project Manual, and Drawings are hereby made a part of this contract as fully and to the same effect as if the same had been set forth at length and incorporated in the contracts.

ARTICLE 3. In consideration of the foregoing premises the CITY agrees to pay and the CONTRACTOR agrees to receive as full compensation for everything furnished and done by the CONTRACTOR under this contract, including all work required by not included in the items herein mentioned, and also for all loss or damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen obstruction or difficulty encountered in the prosecution of the work, and for all expenses incurred by or in consequence of the suspension or discontinuance of the work specified, and for well and faithfully completing the work, and the whole thereof, as herein provided, such prices as are set forth in the accompanying bid.
Date for final completion of the project is **90 days** from the date of the Notice to Proceed (NTP).

This Agreement entered into as of the day and year first written above.

CITY OF WALTHAM, MASSACHUSETTS

FOR THE CITY

_____
Jeannette A. McCarthy, MAYOR,
City of Waltham
Date: _____

_____
John B. Cervone, City Solicitor
Date: _____
APPROVED AS TO FORM ONLY

_____
William Forte, Superintendent of Buildings
Date: _____

_____
Joseph Pedulla, Purchasing Agent
Date: _____

_____
Paul Centofanti, Auditor
Date: _____

I CERTIFY THAT SUFFICIENT FUNDS
ARE AVAILABLE FOR THIS CONTRACT

FOR THE COMPANY

_____
CONTRACTOR (Signature),
Date: _____

_____
Company

_____
Address

.

INSTRUCTIONS FOR BIDDERS

1. READ ALL DOCUMENTS.

Bidders should familiarize themselves with all the documents contained herein; it is mandatory that all Bids be in compliance with all the provisions contained in said documents.

2. FORMS AND ATTACHMENTS.

Bids are to be completed on the forms provided ONLY and enclosed in a sealed envelope marked on the outside "BID (title)" and the name and address of bidder. Attachments submitted in addition to the Waltham Purchasing Department produced forms may not be considered.

3. PRINTED OR TYPED RESPONSE.

All information must be typewritten or printed in ink, including the price the bidder offers in the space as provided on the bid form.

4. CORRECTIONS.

Bids that are submitted containing cross outs, white outs or erasures, will be rejected. All corrections or modifications to the original bid are to be submitted in a separate envelope, properly marked on the outside, "CORRECTION/ MODIFICATION TO BID (title)" and submitted prior to the bid opening.

ALL DOCUMENTS SUBMITTED WITH YOUR RESPONSE WILL BE INCORPORATED INTO THE CONTRACT.

5. PRICE IS ALL INCLUSIVE.

Bid prices shall encompass everything necessary for furnishing all items, materials, supplies or services as specified, and in accordance with the specifications, including proper packing, cost of delivery, and in the case of services, completion of same, as per specifications.

6. PRICE DISCREPANCY.

In the event of a discrepancy between the Unit Price and the Extension, the Unit Price shall prevail.

7. EXPLANATIONS, EXCEPTIONS

Explanations, exceptions or other information pertinent to the specifications may be made in writing and included in the same envelope with the bid.

8. BID DEPOSITS.

Bid deposits are to be made payable to the City of Waltham. In the event that the successful bidder fails to execute a Contract within (10) days of the receipt of said contract, such security shall be retained by the city as liquidated damages. Unsuccessful bidders' deposits will be returned immediately following the award to said successful bidder.

9. WITHDRAW.

A Bid may be withdrawn by written request prior to the schedule for the Bid Opening. No withdrawals are permitted after the bid opening date and time. Withdrawals after the bid opening date will cause the forfeit of the bid Deposit.

10. AWARD.

Bids will be awarded not later than (90) ninety days after the scheduled bid opening date, unless otherwise stated, in the specifications. Unless otherwise specified, bids will be evaluated on the basis of, completeness of your RFP response, responsiveness, responsibility, best price and experience.

11. AWARD CRITERIA.

Qualified and responsive proposals will be evaluated based on Price, Technical, and Compliance requirements.

12. DISCOUNTS.

Discounts for prompt payments will be considered when making awards.

13. TAX EXEMPT.

Purchases by the City of Waltham is exempt from any Federal, State or Massachusetts Municipal Sales and/or Excise Taxes.

14. SAMPLES.

The City of Waltham may require the submission of samples either before or after the awarding of a contract. Samples are to be submitted, at no charge to the City, so as to ascertain the product's suitability. If specifically stated in the Bid that samples are required, said samples must be submitted with the Bid prior to the Official Bid Opening. Failure to submit said samples would be cause for rejection of Bid. All samples must be called for and picked up within (30) thirty days of award or said samples will be presumed abandoned and will be disposed of.

15. ACTIVE VENDOR LIST.

Vendors who wish to remain on the Active Bid List must either submit a Bid, No Bid, or a letter requesting same, no later than the Official Bid Opening. This is applicable to those vendors who have received the Invitation to Bid.

16. FUNDS APPROPRIATION.

THE CONTRACT OBLIGATION ON BEHALF OF THE CITY IS SUBJECT TO PRIOR APPROPRIATION OF MONIES FROM THE GOVERNMENTAL BODY AND AUTHORIZATION BY THE MAYOR.

17. THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS, OR ANY PART OF ANY BID, WHICH IN THE OPINION OF THE AWARDING AUTHORITY, IS IN THE BEST INTERESTS OF THE CITY OF WALTHAM.

18. THE TAX ATTESTATION CLAUSE, CERTIFICATION OF NON-COLLUSION AND THE CERTIFICATE OF VOTE AUTHORIZATION, are required by statute and are an integral part of the Invitation for Bid and must be completed and signed by the person submitting the Bid, or by the person/persons who are officially authorized to do so. Failure to do so may disqualify the bid.

19. STANDARD OF QUALITY.

Where, in the specifications, one certain kind, type, catalog number, brand or manufacturer of material is named, it shall be regarded as the required standard of quality. Where two or more are named, these are presumed to be equal and the Bidder may select one or the other. If the Bidder proposes to offer a substitute as an equal, he shall so indicate on the Bid Form, the kind, type, catalog number, brand, or manufacturer of material that is offered as an equal, and describe where it differs from the specifications. Substituted items must be capable of performing all the functions and/or operational features described or indicated in the specifications. Failure to indicate the description of any substitute item on the Bid will be interpreted to mean that the Bidder will furnish the item or service as specified.

20. MODIFICATION.

No agreement, understanding, alteration or variation of the agreement, terms or provisions herein contained shall bind the parties, hereto unless made and executed in writing by the parties hereto.

21. ASSIGNMENT.

The final payment for work done under this Contract shall be made only after the Contractor has signed a statement under the penalty of perjury, certifying that he has completed the work described in the final estimate.

Neither party hereto shall assign this Contract or sublet it in part or as a whole without the prior written consent of the other party hereto. The Contractor shall not assign any sum or sums due or becoming due to him hereunder without the prior written consent of the City.

22. DELIVERIES (if applicable):

a) The Contractor shall pay all freight and delivery charges. TheWaltham Purchasing Department does not pay for shipping and packaging expenses. Items must be delivered as stipulated in the specifications. All deliveries must be made to the inside of city buildings. Sidewalk deliveries will not be accepted. City personnel are not required to assist in the deliveries and contractors are cautioned to notify their shippers that adequate assistance must be provided at the point of delivery, when necessary.

b) All items of furniture must be delivered inside the building, set up, in place and ready for use. Deliveries are to be made between the hours of 8:30 a.m. and 3:00 p.m., Monday through Friday, except on holidays.

c) All damaged items, or items which do not comply with specifications will not be accepted and title therefore will not vest to the Waltham Purchasing Department until such items are accepted and signed for, in good order, by the receiving department.

d) The contractor must replace, without further cost to the Waltham Purchasing Department, such damaged or non-complying items before payment will be made.

23. LABELING. (if applicable):

All packages cartons or other containers must be clearly marked with (a) building and room destination; (b) description of contents of item number from specifications; (c) quantity; (d) City of Waltham Purchase Order Number and (e) Vendor's name and order number.

24. GUARANTEES.

Unless otherwise stipulated in the specifications, furniture, equipment and similar durable items shall be guaranteed by the contractor for a period of not less than one year from the date of delivery and acceptance by the receiving department. In addition, the manufacturer's guarantee shall be furnished. Any items provided under this contract which are or become defective during the guarantee period shall be replaced the contractor free of charge with the specific understanding that all replacements shall carry the same guarantee as the original equipment. The contractor shall make such replacement immediately upon receiving notice from the Purchasing Agent.

25. SINGLE VENDOR.

The City desires to award a single contract based on the Grand Total Price. However, where applicable, the City reserves the right to make multiple awards on a unit price basis if, in the opinion of the Waltham Purchasing Department, it is in the best interest of the City

26. CHANGE ORDERS.

Change orders are not effective until, if, as and when signed by the Mayor and no work is to commence until the change orders are fully executed.

28. BID OPENING INCLEMENT WEATHER

If, at the time of the originally scheduled bid opening, City Hall is closed to inclement weather or another unforeseeable event, the bid opening will be extended until 2:00 PM on the next normal business day. Bids will be accepted until that date and time.

GENERAL CONDITIONS

1. INFORMATION

All information shall come from the Office of the City Purchasing Agent. The Contractor shall inquire at this office for any information needed. Wherever the words "or equal as approved" are used, it is to be understood that the opinion of the City Purchasing Agent shall govern.

2. SUITS

The Contractor shall assume defense of and shall indemnify and hold the City and its agents harmless from all suits and claims against the City and its sub-contractors arising from the use of any invention, patent right labor or employment, or from any act of omission or neglect of the City, its agents, employees or any subcontractor in performing the work, under this contract.

3. LAWS AND REGULATIONS

The Contractor shall conform to all the applicable rules, regulations, laws and ordinances of the City of Waltham, the Commonwealth of Massachusetts, the United States of America and all agencies having jurisdiction over this contract.

4. PROTECTION OF PROPERTY

The Contractor shall take all proper precautions to protect the City's property from damage and unnecessary inconvenience. Any City property damaged by the Contractor in carrying out the provisions of this contract shall be restored to its original condition, by and at the expense of the Contractor.

5. PROTECTION OF PERSONS

The Contractor shall take all proper precautions to protect persons from injury, unnecessary inconvenience, and shall be responsible for his failure to do so. The Contractor agrees to hold the City harmless from any and all liabilities of every nature and description, which may be suffered through bodily injury, including death, to any person, by reason of negligence of the Contractor, his agents or employees, or any subcontractor.

6. CONTRACT DURATION.

This contract is for the period required to complete the project but no later than **90 days** from the date of the Notice to Proceed (NTP)

7. INSURANCE

A. WORKMAN'S COMPENSATION: The Contractor shall provide insurance for the payment of compensation and furnishing of other benefits under Chapter 152 of the General Laws of the Commonwealth of Massachusetts to all persons to be employed under this contract, the premiums for which shall be paid by the Contractor. Contractors shall provide insurance on a primary basis and the contractor's policy shall be exhausted before resorting to other policies. The contractor's policy is the primary one not the contributory.

B. COMPREHENSIVE GENERAL LIABILITY

Bodily Injury:	$1,000,000 Each Occurrence
	$2,000,000 Aggregate
Property Damage:	$1,000,000 Each Occurrence
	$2,000,000 Aggregate

C. AUTOMOBILE (VEHICLE) LIABILITY

Bodily Injury	$2,000,000 Each Occurrence
Property Damage	$1,000,000 Aggregate

D. UMBRELLA POLICY

General liability	$2,000,000

Your bid response must include a Certificate of Insurance with the above limits as a minimum. In addition, the Certificate of Insurance must have the following text contained in the bottom left box of the Certificate: *"The City of Waltham is a named additional insured for all insurances under the contract, excluding Automobile and Workers Compensation coverage".* Failure by the contractor to provide a current and updated insurance policy, during the entire duration of the contract, may result in additional legal liability. The Certificate of Insurance must be mailed directly to:

Office of the Purchasing Agent
Purchasing Department
City of Waltham
610 Main Street
Waltham, MA 02452

8. LABOR AND MATERIALS BOND

The Contractor agrees to execute and deliver to the City, a Labor and Materials or Payment Bond and Material Bond each equal to 100% of the contract value. This contract shall not be in force until said bond has been delivered and accepted by the City. Bond to be issued by a company licensed by the Commonwealth of Massachusetts.

9. PERSONNEL:

The Contractor shall employ a competent supervisor and all properly licensed personnel necessary to perform the services required in this contract. The City Purchasing Agent shall have the right to require the Contractor to remove and/or replace any of the personnel for nonperformance or for unprofessional behavior. The City Purchasing Agent may require the Contractor to submit a weekly performance record of the areas and of the work performed, on forms approved by the City Purchasing Agent. The Contractor or his supervisor shall be available to inspect such work as required by the City Purchasing Agent.

10. PREVAILING WAGES

The Contractor is required to pay the prevailing wages as determined under the provisions of Chapter 149, Sections 26 and 27D of the Massachusetts General Laws, including the submission of weekly payrolls to the awarding authority. The prevailing wage schedule is too large to attach here. It can be found in the City of waltham web site at www.city.waltham.ma.us/open-bids

11. MATERIALS

The City or its Agent reserves the right to approve or reject any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any rejected supplies, materials or equipment, to the satisfaction of the City or its Agents.

12. TERMINATION OF CONTRACT

This contract may be terminated by the City upon deliverance to the Contractor of a five-day written notice of said termination.

13. CONTRACT OBLIGATIONS

Contract obligations on behalf of the City are subject to an annual appropriation to cover the contract obligation.

14. BIDDER EXPERIENCE EVALUATION

Each bidder shall submit with his bid, all the information relative to their experience and qualifications in performing the work required under this contract and shall have been in business for a minimum of five (5) years, in order for their bid to be considered.

15. NOT-TO-EXCEED AMOUNT

The bid amount proposed in your company's response is a "not-to- Exceed" amount unless the City makes changes, in writing, to the scope of work to be performed. The Change Order must be signed and approved by the City's Purchasing Agent, City Auditor, Law Department and the Mayor prior to the commencement of the change order work. No work is to begin until the proper approvals have been obtained. A change order will be priced at the unit price. Failure to comply with this procedure will result in the cancellation of the contract and the non-payment of services provided.

16. FINANCIAL STATEMENTS.

The City may require, within five (5) days after the bid opening, a complete and detailed Financial Statement prepared by a Certified Public Account, to determine a bidder's financial stability.

17 BREACH OF CONTRACT/ NON PERFORMANCE

If the Contractor shall provide services in a manner, which is not to the satisfaction of the City, the City may request that the Contractor refurnish services at no additional cost to the City until approved by the City. If the Contractor shall fail to provide services, which are satisfactory to the City, the City in the alternative may make any reasonable purchase or Contract to purchase services in substitution for those due from the Contractor. The City may deduct the cost of any substitute Contract for nonperformance of services together with incidental and consequential damages from the Contract price and shall withhold such damages from sums due or to become due to the Contractor. If the damages sustained by the City exceed sums due or to become due, the Contractor shall pay the difference to the City upon demand. The Contractor shall not be liable for any damages sustained by the City due to the Contractor's failure to furnish services under the terms of this Contract if such failure is in fact caused by the occurrence of a contingency the nonoccurrence of which was a basic assumption under which this Contract was made, including a state of war, embargoes, expropriation of labor strike or any unanticipated federal, state or municipal governmental regulation of order, provided that the Contractor has notified the City in writing of such cause within seven (7) days after its occurrence.

18 RIGHT TO AUDIT

The City of Waltham has the right to review and audit documents related to this contract. This right extends to any subcontractor, supplier or other entity used by the prime contractor to fulfill the obligations under this contract.

19. CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.

All contract made by any department, board or commission where the amount involved is two thousand dollars ($2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars ($5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor.

20. ACTIVE REPARATION CLAIMS

Does your company or any of its Principals have an active reparation Claim with the City. A claim is any demand by a contract for the payment of disputed invoices, payment penalties, labor disputes, interest, etc. YES _____, NO_____ (*circle or check applicable).*

If YES Please explain the nature of the claim, date of the claim and City Department

_____

_____

(Add an additional page if necessary)

21. RECAPTURE OF FUNDS

Upon determination by the City that the Contractor has failed to comply with any portion of the terms of this Agreement, and in particular has inappropriately expended Grant funds, the City may take such steps as necessary, in order to protect its ability to fulfill its obligations to HUD, including but not limited to legal action, to recapture grant funds already released to and/or expended by the Contractor.

22. CONFLICT OF INTEREST

No member, officer, or employee of the City, or its designees or agents, no members of the governing body of Waltham, and no other public official of such locality or localities who exercise any functions or responsibilities with respect to the CDBG Program during his or her tenure or for one year thereafter, shall have any interest, direct or indirect, in any contract or subcontract, or the proceeds thereof, or work to be performed in connection with the project assisted under this Agreement.

No Contractor agency official shall participate in any decision relating to this Agreement which affects his personal interest or the interest of any corporation, partnership, or other business for profit association in which he is directly or indirectly interested or has any personal or primary interest, direct or indirect, in this Agreement or the proceeds thereof. Individuals subject to conflict of interest provisions may nevertheless be members of, or associated with, or provide assistance to the Contractor agency so long as such persons do not have any financial interest in the activity or receive compensation for such services.

23. OFFICIALS NOT TO BENEFIT

No Members or Delegates to the Congress of the United States of America, and no Resident Commissioner, shall be admitted to any share or part hereof or to any benefit to arise here from.

24. LOBBYING AND RELIGIOUS ACTIVITIES

The Contractor agrees that Grant funds shall not be used by the Contractor for publicity or propaganda purposes designed to support or defeat legislation pending before Federal, State or local government. The Contractor also agrees Grant funds shall not be used for religious activities and/or religious promotion.

SUBSURFACE INVESTIGATION & DEMOLITION

ASBESTOS ABATEMENT

PART 1 - GENERAL

1.01 GENERAL REQUIREMENTS

A. The General Provisions of the contract apply to the work specified within this Section.

B. Examine all conditions as they exist at the project prior to submitting a bid for the work of this Section.

C. All provisions of this Section relating to the health and safety of workers and the general public, as well as protection of the environment are minimum standards. The General Contractor and the asbestos abatement Subcontractor are responsible for determining whether any additional and/or more stringent protective measures are required by any legal requirements or prudent conservative work practices, and implementing such measures if deemed necessary. Nothing in this Section shall be deemed to relieve the General Contractor and the asbestos abatement Subcontractor from any liability with respect to any such legal requirements or requirement of prudent conservative practice.

D. All work-site preparations and practices will be conducted in accordance with all Federal, Massachusetts and appropriate City and other local regulations, standards and codes pertaining to worker health protection, protection of the public health and the environment, including current US Environmental Protection Agency (EPA), Department of Labor Occupational Safety and Health Administration (OSHA), US Department of Transportation (DOT), Massachusetts Division of Occupational Safety (DOS), Massachusetts Department of Environmental Protection (DEP), local and all other Federal, Commonwealth of Massachusetts and local regulations pertaining to asbestos removal, its transportation and disposal.

E. Prior to use of any design, device, material, method of operation, or process covered by letters patent or copyright, the right for such use shall be secured by suitable legal agreement with the patentee or owner of the letters patent or copyright. No arrangement involving letters patent or copyright is acceptable, if subsequent payment for permanent use following completion of the work is required or implied. The contractor shall be responsible for any liability on the part of the Consultant, which may result from violations by the contractor.

1.02 SUMMARY OF WORK

A. Abatement of the *Training/Activity Center and Greenhouse/ Program Building, Site 5, Cottages 3 through 13, Site 7, Woodside, Brookside and Malone Park Buildings 21 through 24*, including but not limited to accumulated dirt piles, transformers and transformer pads which are to be removed. Also to be removed are all air conditioning and refrigeration units whether on the roofs or in the windows in a matter consistent with all environmental laws.

B. All Asbestos Abatement work under this Section shall be performed by a contractor holding a current Massachusetts DOS Asbestos Abatement Contractor's license. Contractor shall furnish all labor, worker

training, materials, equipment, and services for the complete and proper removal and disposal of asbestos-containing materials.

1. Removal and disposal of all specified asbestos-containing materials (ACM) and specified non-ACM materials as identified herein. This shall include all asbestos-containing pipe/pipe fitting insulation, floor tile and associated black mastic, sheet flooring and associated mastic, black-coated sinks, internal boiler components, and specified non-ACM where necessary to access asbestos, such as non-asbestos containing flooring. Removal of asbestos-containing flooring materials will include all floor tiles and associated mastic, any asbestos-contaminated flooring paper, contaminated plywood sub-floor, leveling compound, and contaminated hardwood floors.

2. Work area preparations, including pre-cleaning, installation of critical barriers and polyethylene sheeting, construction of decontamination facilities, work area enclosures, sealing, isolation, and other activities as directed by the Owner or Consultant.

3. Installation and operation of HEPA filtration units sufficient to achieve a minimum of four air changes per hour in each containment, and according to the provisions as set forth in this Section.

4. Protection on non-ACM materials and equipment inside of work areas with two layers of polyethylene sheeting.

5. Removal and proper disposal of all asbestos-containing pipe/pipe fitting insulation. Removal will be completed in accordance with Section 3.02 of this Section. The Glove Bag Removal Method, as specified in Section 3.03, may be used at the direction of the Consultant.

6. Removal and proper disposal of all asbestos-containing pipe/pipe fitting insulation in the crawl space. Removal to include a minimum of 3” of soil/dirt, all contaminated fiberglass insulation and all debris throughout the crawl space in accordance with Section 3.02 of this Section.

7. Removal and disposal of all asbestos-containing floor tile, sheet flooring and associated mastic, as specified in accordance with Section 3.02. Alternative methods, such as that specified in Section 3.04, may be used at the direction of the Consultant. Removal and disposal of all non-asbestos-containing materials (e.g., carpeting) to access the floor tile, including but not limited to all existing plywood sub floor. [Refer to Section 1.13 for additional considerations]. Removal of all asbestos-containing and asbestos-contaminated flooring materials will also include all layers of floor tiles, sheet flooring and associated mastic, flooring paper, leveling compound, and all hardwood floors (noted to be removed or to perform the work) until all asbestos-containing and asbestos-contaminated materials have been removed.

8. Removal of asbestos-containing coated sinks and internal boiler components. All work performed shall be as required by the Section 3.02.

9. Furnishing of all labor, materials, equipment, and services required for all work included under the provisions of this Section.

10. Compliance with all applicable federal, state, and local regulations, as well as all provisions set forth within this Section, and facility requirements.

11. Decontamination and clean up following removal activities in each designated work area. Clean up to include all visible debris from all surfaces present in the work areas.

12. Performance of any other work or activities required by this Section, applicable regulations, or as necessary to perform a complete job to the satisfaction of the Owner and Consultant.

13. Provide temporary electrical wiring and services as required for asbestos removal according to the Provisions as set forth in this Section.

14. Removal and disposal of asbestos-containing materials, and specified non-ACM materials, uncovered during demolition/renovation and not included in the base bid scope of work, in accordance with the Unit Price schedule as set forth in this Specification.

1.03 SEQUENCE OF WORK

A. The following is a typical sequence of work that Contractor shall adhere to during the asbestos abatement project. Consultant may authorize deviations from this typical sequence based upon the specific conditions encountered during the project.

1. Contractor shall post all required signage.

2. Contractor shall secure area from unauthorized access.

3. Owner/Contractor will remove all movable objects from the work area.

4. Contractor shall pre-clean the work area and cover all immovable objects and objects not removed from the work area with two (2) layers of six (6)-mil polyethylene sheeting, sealed airtight with duct tape. Contractor shall install critical barriers at all points of access required by regulations.

5. Contractor shall seal all rooms that do not contain ACM with two layers of six-mil polyethylene sheeting sealed airtight with duct tape.

6. Contractor shall install HEPA filtration units sufficient to achieve a minimum of four (4) air changes per hour. All units shall exhaust to the outside of the building through windows.

7. Contractor shall prepare the specified Work Area for total isolation, VAT and mastic removal, glove bag removal, internal boiler component removal and coated sink removal as described in this Section. Preparation shall include two (2) layers of six (6)-mil polyethylene sheeting, sealed with duct tape, on all floors (if applicable) and non impervious surfaces, including all interior walls.

8. Contractor shall construct decontamination unit, and any other construction needed to complete the work area to the satisfaction of Consultant.

9. Consultant shall inspect and approve all work area preparations before permitting Contractor to begin removal work.

10. Contractor shall construct demising barriers according to the Provisions as set forth in this Section, as deemed necessary and at the direction of the Consultant, if ceiling and wall voids are accessed during abatement activities.

11. Contractor shall remove and dispose all asbestos-containing materials as required by these Sections.

12. Contractor shall decontaminate and clean up each work area upon completion of removal. Clean up shall include the removal of all loose and peeling paint from various surfaces throughout the work area and all paint chips/debris. Clean up of the work area will include the removal of all visible dust and debris from all surfaces in the work area.

13. Consultant shall perform a final visual inspection to assure that no visible debris exist in the work area, including loose and peeling paint or paint chips. Contractor shall re-clean the work areas as needed until they pass a visual inspection by Consultant.

14. Contractor shall encapsulate all surfaces in the work area from which ACM was removed.

15. Consultant will perform final air clearance testing in each work area. Satisfactory results are required before containment may be removed.

16. Contractor shall remove all work area barriers, equipment, polyethylene sheeting, etc. and clean any areas to the satisfaction of Consultant and Owner.

1.04 INTENTIONALLY LEFT BLANK

1.05 ESTIMATES

A. Section 1.02 represents a brief description of the estimated quantities of asbestos and asbestos-containing materials to be removed. This data is provided for informational purposes only, and is based on the best information available at the time of specification preparation. Nothing in this section may be interpreted as limiting the scope of work otherwise required by this contract and related documents.

C. The quantities and location of ACM and the extent of work included in this section are only best estimates, which are limited by the physical constraints imposed by occupancy of the buildings. Accordingly, minor variations of plus or minus 15% of the estimated quantities of ACM within the limits of containment for each abatement stage are considered as having no impact on the price of this contract.

D. Where additional asbestos abatement work is required beyond the above variations, the contract price will be adjusted according to the Unit Price schedule as set forth in this Specification. Additional or reduced abatement work beyond the variations stated will be a basis for adjustment of the contract price according to the Unit Price schedule as set forth in this Specification.

1.06 COORDINATION AND PHASING OF WORK

A. Contractor shall coordinate all work in this Section with all other work of this Project. Where additional regulatory requirements apply to the work in this Section, the Contractor shall ensure compliance with all requirements.

B. Contractors work schedule must be coordinated with, and acceptable to the General Contractor and approved by the Owner. Contractor shall work continuously and diligently in each work area on the days and during the hours indicated on their work schedule

C. Contractor shall cooperate fully with other Contractors at the facility.

D. Contractor shall subdivide work areas and/or otherwise provide additional containments and mobilization where and when necessary to accomplish asbestos abatement in accordance with the project phasing, as determined by the General Contractor, and as specified by the Owner.

1.07 SUBMITTALS

A. Pre-Construction Meeting

The Contractor shall meet with the Owner and the Consultant for a Pre-Construction meeting prior to commencing work on the project. The meeting shall be at the facility or at the offices of the Owner, at a mutually convenient time and date. At the meeting, the Contractor shall be represented by authorized representatives and the field supervisor who shall run the project on a daily basis, and who shall present evidence that all requirements for initiation of the work have been met. The minimum agenda for the meeting shall be:

1. Review of "Pre-Job Submittals".
2. Channels of communication.
3. Construction schedule, including sequence of critical work.
4. Designation of responsible personnel.
5. Procedures for safety, security, quality control, housekeeping, and related matters.
6. Use of premises, facilities, and utilities.

B. PRE-JOB SUBMITTALS

The Contractor is required to provide one copy of the following Pre-Job Submittals at the Pre-construction Conference:

1. Copies of all notifications, permits, applications, personnel licenses and like documents required by Federal, State, or local regulations obtained or submitted in proper fashion,

2. List of employees to be used on this project.

3. Copies of medical records as required by OSHA or a notarized statement by examining medical doctor that such examinations took place and when for each employee to be used on project,

4. Record of successful respiratory fit test performed by a Competent person (as defined by OSHA) within the previous 6 months, as required elsewhere in the documents for each employee to be used on this project,

5. Certificate of Insurance,

6. Proposed respiratory program for employees throughout all phases of the job, including make, model and NIOSH approval numbers of respirators to be used,

7. Written description of all procedures, methods, or equipment to be utilized by the Contractor that differ from the Contract Sections, including manufacturers Sections on any equipment not specified for use by the Contract Sections,

8. Proposed electrical safeguards to be implemented, including but not limited to location of transformers, GFCI outlets, lighting, etc., necessary to safely perform the job, including a description of an electrical hazards safety plan for common practices in the work area,

9. A list of all equipment to be used on site, by make and model, including negative pressure equipment, HEPA vacuums, Water Atomizing Devices, etc.,

10. Chain of Command of responsibility at work site including supervisors, foreman, and competent person, their names, resumes and certificates of training,

11. Proposed Emergency plan and route of egress from work areas in case of fire or injury, including the name and phone number of nearest medical assistance center,

12. Contractor's testing lab, AIHA PAT proficiency, and Certification in the State where work site is located,

13. Schedule of values breaking down the work in sufficient detail so as to serve as the basis for payment, with disposal costs listed as a separate item.

C. Post-Construction Submittals

The Contractor is required to submit the following to the Consultant within thirty days after completion of the project:

1. Manifests and waste receipts acknowledging disposal of all waste material from the project showing delivery date, quantity, and appropriate signature of landfill's authorized representative,

2. A copy of the entry-exit logbook required elsewhere in these Sections,

3. All personnel monitoring results as required by OSHA and elsewhere in these Sections,

4. Copy of licenses, medical, and fit tests of all workers and supervisors who performed work on the project,

5. All notifications as required elsewhere in these Sections.

1.08 REFERENCE STANDARDS, REGULATIONS AND CODES

A. All work shall be performed strictly according to the Sections contained herein and with the regulations cited in this Article. The Contractor undertaking asbestos abatement work and persons in their employ shall comply with and be bound to requirements of the following Federal, State, and Local standards, regulations and codes. These standards and codes shall be by reference made part of this Section and shall be complied with. Whenever regulations are conflicting, the more stringent regulation will prevail.

1. US Department of Labor; Occupational Safety and Health Act of 1970. (Particular attention is drawn to the Asbestos Regulations: CFR Title 29, Part 1910, Sec. 1910.1001 and Part 1926, Sec. 1926.1101, and the Respirator Regulations; CFR Title 29, Part 1910, Sec. 1910.134 and the Hazard Communication Program, CFR Title 29, Part 1910.1200).

2. US Environmental Protection Agency, CFR, Title 40, Part 61, Subparts A and M, National Emission Standards for Hazardous Air Pollutants; Asbestos NESHAP Revision; Final Rule, Dated Tuesday, November 20, 1990.

3. US Environmental Protection Agency; TSCA Title II, Asbestos Hazard and Emergency Response Act (AHERA), 40 CFR Part 763 Subpart E - "Asbestos-Containing Materials in Schools" and also 40 CFR, Part 763, Subpart G - "Worker Protection Rule".

4. US Department of Transportation regulations, 49 CFR Parts 172 and 173.

5. All Commonwealth of Massachusetts laws, regulations and standards, including the regulations 453 CMR 6.00 "The Removal, Containment or Encapsulation of Asbestos" and 310 CMR 7.15 "Asbestos", 18.00 and 19.00 and MGL Chapter 21E.

6. Other Federal, State and local statutes, ordinances, regulations, or rules pertaining to this Section and the work described herein, including the storage, transportation and disposal of asbestos.

B. All regulations by these and other governing agencies in their most recent version are applicable. These Sections refer to many requirements found in these references, but in no way intend to cite or reiterate all provisions therein or elsewhere. It is the contractor's responsibility to know, understand, and abide by all such regulations and common practices. Other provisions contained in these references may from time to time during the execution of this contract be enforced by the Owner at his own discretion.

1.09 REGULATORY SUBMITTALS

A. The Contractor shall be responsible for securing all necessary permits for asbestos related work, including hauling, removal, and disposal, fire, and materials usage, or any other permits required to perform the specified work.

B. The Contractor shall notify the following agencies in appropriate manner and place of impending work, and shall provide evidence of notifications at the pre-construction conference:

1. U.S. Environmental Protection Agency,
J. F. Kennedy Federal Building
Boston, Massachusetts 02203
(10 working days in advance)

2. Massachusetts Department of Environmental Protection
Division of Air and Hazardous Materials
(10 working days in advance)
Send Notification to:
Commonwealth of Massachusetts
Asbestos Program
P.O. Box 120087
Boston, Massachusetts 02112-0087

3. Massachusetts Division of Occupational Safety
Asbestos Control Unit
(10 working days in advance)

4. Waltham Fire Department, Waltham Public Health Commission Environmental Health Office, and other state or city agencies as required by law or ordinance.

1.10 PROJECT CONDITIONS

A. Take all measures and provide all material necessary for protecting fixed machinery, controls, instrumentation, equipment, and furniture from asbestos fiber, dust and debris and from water damage.

B. Working space and space available for storing materials is restricted within the confines of the project and/or at locations to be designated by the Owner.

C. Provide access and personal protective equipment, including full face piece powered air-purifying respirators, to the Consultants, who are licensed and certified, to visit the Work Areas to maintain and adjust building services.

D. Schedule the use of existing utilities with the Owner. No utility service, fire protection system, or communication system may be interrupted without prior approval of the Owner.

E. Water, electric power, lighting and other utilities, toilets, and other facilities, shall be provided by the Owner from existing sources where Contractor's use is not excessive and does not interfere with buildings normal use. Where existing utilities of the facility are not adequate or cannot be used, the Contractor is responsible for providing alternative sources, the cost of which is to be included in bid price. The use of the Facility's utilities shall be coordinated through the Owner.

F. Post and affix caution signs and labels as required by OSHA regulation, 29.CFR.1926.1101 (k) (1). Post safety signs outside the work project as may be required by the Owner. Obtain two copies of 29.CFR.1910.1001, 29.CFR.1926.1101, m 40.CFR.61, Subpart M, and Commonwealth of Massachusetts Regulations 453 CMR 6.00 and 310 CMR 7.00, and post one copy at the job site and retain one copy on file.

G. Post at the job site, or at the entrance to each independent Work Area, one copy of all Material Safety Data Sheets (MSDS's) of all chemicals and other substances to be used on this contract. These sheets shall be made available to the Consultant for review.

H. No storage of waste will be permitted onsite. All ACM shall be removed off-site at the end of each shift except that limited storage space may be provided by the Owner at the facility. Contractor will supply any additional temporary storage as needed. All materials and equipment are to be kept in orderly fashion in designated areas, free and clear of halls and doorways, and in conformance with all regulations, codes, and in consideration of building usage.

1.11 RESPIRATORS AND PROTECTIVE CLOTHING

A. Personal protection, in the form of disposable Tyvek suits, and NIOSH approved respirators, are required for mechanics, contractor supervision, Consultant and visitors at the work site during the set-up, removal, and cleaning operations. Contractor shall provide all this protective equipment for workers, Consultant, and authorized personnel to access this work site.

B. Each worker shall be supplied with a minimum of two complete disposable uniforms everyday. Removal workers shall not be limited to two uniforms, and the Contractor will be required to supply additional uniforms as is necessary. Under no circumstances will anyone entering the removal area be allowed to reuse a contaminated uniform.

C. Work clothes shall consist of disposable full body suits, head covers, gloves, footwear, and eye protection.

D. The Contractor shall supply workers and supervisory personnel with NIOSH approved protective respirators and HEPA/filters. Appropriate respirator selection shall be determined by the daily personnel samples being taken and strictly follow the guidelines set forth in the OSHA respiratory program 29 CFR 1910.134 and the Massachusetts DOS Regulations 453 CMR 6.00. The respirators shall be sanitized and maintained according to the manufacturer's Sections. Appropriate respirators shall be selected using the information provided in OSHA Title 29 CFR Part 1910.1926 Final Rules. This determination has been made for this project. PAPR's shall be supplied by the contractor for all personnel associated with this work. Disposable respirators shall not be considered acceptable in any circumstance. The Contractor will maintain on site a sufficient supply of disposable HEPA/filters to allow workers and supervisory personnel to change contaminated filters at least three (3) times daily. The Contractor is solely responsible for means and methods used and for compliance with applicable regulations.

E. Respirators shall be individually assigned to removal workers for their exclusive use. All respiratory protection shall be provided to workers in accordance with the written submitted respiratory protection program, which includes all items in OSHA 29 CFR 1910.134 (b) (1-11). A copy of this program shall be kept at the work-site, and shall be posted in the Clean Room of the Decontamination Unit.

F. Workers must perform negative and positive pressure fit tests each time a respirator is put on, whenever the respirator design so permits. Powered air purifying respirators shall be tested for adequate flow as specified by the manufacturer.

G. Workers shall be given a qualitative fit test in accordance with procedures detailed in the OSHA Lead Standard (29 CFR 1910.1025, Appendix D, Qualitative Fit Test Protocols) for all respirators to be used on this abatement project. An appropriately administered quantitative fit test may be substituted for the qualitative fit test.

H. Upon leaving the active work area, pre-filters shall be discarded, cartridges removed, and respirators cleaned in disinfectant solution and clean water rinse. Clean respirators shall be stored in plastic bags when not in use. The contractor shall inspect respirators daily for broken, missing, or damaged parts.

I. Contractor shall provide daily personal sampling to check personal exposure levels for the purpose of establishing respiratory protection needs. Samples shall be taken for the duration of the work shift or for eight hours, whichever is less. Personal samples need not be taken every day after the first day if working conditions remain invariant, but must be taken every time there is a change in the removal operation, either in terms of the location or the type of work. Sampling will be to determine eight-hour Time-Weighted-Averages (TWA). The contractor is responsible for personal sampling as outlined in OSHA Standard 1926.1001.

J. Sampling personnel shall be proficient in the taking of air samples under NIOSH 7400, and must be supervised by an individual who has completed the training course NIOSH 582 or equivalent.

K. Air sampling results shall be available at the job site in written form no more than twenty-four (24) hours after the completion of a sampling cycle. The document shall list each sample's result, sampling time and date, person monitored, flow rate, sample duration, microscope field area, number of fibers per fields counted, cassette size and analysts name and company. Air sample analysis results will be reported in fibers per cubic centimeter.

1.12 WATER AND ELECTRICAL SERVICE

A. The Contractor shall provide temporary connections to existing building utilities and provide temporary facilities as required and necessary to carry out the work.

B. The Contractor shall provide temporary connections to building water service and provide all lines necessary for distribution of water.

C. Comply with applicable NEMA, NECA and UL standards and governing regulations for materials and layout of temporary electrical service. All power connections and panel work is to be performed by a licensed electrician.

D. The Contractor shall provide temporary service connections from power sources as required. All existing power service to the work area will be isolated and shut down for the duration of the project. Contractor shall provide service (sub-panel) with a minimum of 100 amp, two-pole circuit breaker or fused disconnect. Sub-panel and disconnect shall be sized and equipped to accommodate all electrical equipment required for completion. Contractor's electricians will make all necessary connections to main power system.

E. Provide I.D. warning signs at power outlets that are other than 110-120 volt power. Provide polarized outlets for plug-in type outlets, to prevent insertion of 110-120 volt plugs into higher voltage outlets.

F. Provide all receptacle outlets equipped with ground fault circuit interrupters (GFCI) and reset button for plug-in connection of equipment.

G. The Contractor must supply temporary lighting for all lighting requirements within contained areas. All existing lighting shall be isolated and shut down.

1.13 SPECIAL CONSIDERATIONS

A. Final Air Clearance Tests

1. All final air tests will be performed in accordance with Massachusetts Division of Occupational Safety (DOS) regulations at 453 CMR 6.00, this Section, and other applicable Rulings (i.e., AHERA). The first set of final clearance air tests for each removal area will be paid for by Owner. In the event that these air tests do not pass the clearance criteria, any subsequent air tests that need to be performed shall be paid for by Contractor. All additional sampling costs will be automatically deducted from the contract price until the areas in question pass the final air clearance criteria of less than 0.010 fibers per cubic centimeter for PCM clearance testing or an average of 70 structures per square millimeter for TEM clearance testing.

B. Exceptions to Work Area Preparation Requirements

1. In accordance with 453 CMR 6.14 (2) (a) (7), it will not be required to cover impervious surfaces of walls or floors with two (2) layers of polyethylene sheeting. Examples of such surfaces that may be considered to be impervious include concrete floors without any cracks or fissures and glazed walls,

i.e., painted brick walls. (Note: Wooden surfaces and surfaces constructed of stone/cement are not considered impervious). If Contractor wishes to utilize this exception, Contractor shall be required to state on their DOS notification forms that they do not intend to use two (2) layer of polyethylene sheeting for these particular surfaces. If the DOS does not permit this exception, Contractor shall be required to use two (2) layers of polyethylene sheeting in full accordance with the work area preparation requirements of this Section, and will not be entitled to any additional monies of payment.

PART 2 - PRODUCTS

2.01 ASBESTOS ABATEMENT SUPPLIES

A. Respirators: Respirators will be selected from those jointly approved by the National Institute for Occupational Safety and Health (NIOSH), US Department of Health and Human Services and the Mine Safety and Health Administration (MSHA), US Department of Labor.

B. Surfactant (Amended Water): All water to be used for removal and wet wiping of asbestos-contaminated materials during clean-up operations shall be amended through the addition of a surfactant (a 50/50 mixture of polyoxyethylene ether and polyoxyethylene ester, or equivalent) mixed and supplied in accordance with manufacturer's instructions.

C. Sealer: All surfaces from which asbestos-containing materials have been removed shall be sealed with a colored-asbestos sealer, mixed and applied in accordance with manufacturer's instructions. The proposed brand and product shall be submitted to the Consultant for approval.

D. Polyethylene Sheeting: All polyethylene sheeting used on the Project shall be fire resistant, and shall meet and be approved as called for in local, Fire Prevention Codes

E. Encapsulant: a bridging encapsulant such as Childer's Product Co., Chilcare CP215 bridging encasement/encapsulant; Barrier Systems Inc., Slaytex Asbestos Encasement System; CRSI/ISP Guardian Bridging encapsulant; IPC Serpiflex shield encapsulant; or equivalent shall be used. The proposed brand and product shall be submitted to the Consultant for approval.

F. Plaster impregnated glass-fiber cloth.

G. Mastic Remover - Sentinel 747, or approved equal.

PART 3 - EXECUTION

3.01 GENERAL

A. Approvals and Inspection

1. All temporary facilities, work procedures, equipment, materials, services, and agreements must strictly adhere to and meet these contract Sections along with EPA, OSHA, NIOSH, regulations and recommendations as well as any other federal, state, and local regulations. Where there exists

overlap of these regulations, the most stringent one applies. All work performed by the Contractor is further subject to approval of the Owner.

2. Modifications to these isolation and sealing methods, procedures, and design may be considered if all elements of proper and safe procedures to prevent contamination and exposure can be demonstrated. Written modifications to these Sections must be made to the Owner for review before they can be used for work on this project.

B. Damage and Repairs to the Work Site

1. Asbestos removal and disposal shall be performed without damage to the building, including, but not limited to, structural members, ceilings, walls, pipes, duct work, insulation, light fixtures, public address speakers, sprinklers, and heat and smoke sensors. Contractor shall provide protection of these items and materials as part of the work area preparation. Where asbestos abatement activity causes damage, the Contractor shall patch, repair, replace or otherwise restore it to its original condition at no additional cost to the Owner.

C. HVAC Systems

1. All duct work, heating units and HVAC equipment shall be wrapped in two layers of six-mil polyethylene prior to any other work taking place, or excluded from work area boundaries by airtight polyethylene sheeting.

D. Barriers and Isolation Areas

1. The Contractor shall construct and maintain suitable critical barriers within the building to separate work areas from spaces occupied by the Owner. Critical barriers shall be of sufficient size and strength to prevent staff, residents, the public and others from entering the work areas. Critical barriers shall be constructed at all hallways, doorways, grille openings, or other open entrances to the work area. Critical barriers shall be constructed with plywood and 2 x 4 lumber, reinforcing it, and placed in the locations specified and designated by the Owner's Representative. Any seams in the critical barriers shall be sealed airtight with caulking or an approved equal method. These barriers shall be removed by the Contractor at the completion of construction work.

2. Warning signs shall be posted on all critical barriers at the commencement of the work area preparation, as required in 1926.1101 of the Occupational Safety and Health Standards Federal Register, Volume 51, Number 119, June 20, 1986. The signs shall display the proper legend in the lower panel, with letter sizes and styles of a visibility at least equal to that specified in OSHA Standard 1926.1101. (k)(1)(ii). The signs will read as follows:

DANGER
ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATOR AND PROTECTIVE CLOTHING
REQUIRED IN THIS AREA

3. The signs shall be posted at the perimeters of asbestos removal, demolition or construction areas where the asbestos-containing material to be removed exists.

4. The Contractor shall maintain all temporary and critical barriers, facilities and controls as long as needed for the safe and proper completion of the work. Any breaches in the containment will be corrected at the beginning of each shift and as necessary during the workday. Work will not be allowed to commence until all control systems are in place and operable.

5. No barriers shall be removed until the work areas are thoroughly cleaned and all debris has been properly bagged and removed from work areas, and the air has passed final clearance tests, in accordance with provisions detailed herein.

3.02 ACM LOCATION PREPARATION AND REMOVAL

A. Preparation

1. Primary Barriers: Prior to construction of the asbestos removal area, all primary barriers shall be sealed with a minimum of one layer of six (6) mil plastic sheeting and duct tape. Primary barriers consist of all windows, vents, closed and locked doors, and openings to adjacent spaces from the work area. HVAC systems shall be sealed, where applicable, as described previously with two layers of 6 mil polyethylene sheeting.

2. Critical Barriers: Critical barriers consist of the boundaries of the work area including floors, walls, and any constructed barrier to restrict public access to the work area. Floors, if applicable, shall be sealed with a minimum of two layers of six (6) mil polyethylene sheeting.

There shall be a minimum overlap of two feet (24") at the floor seams and the sheeting will run a minimum of two feet (24") up the walls.

3. The containment walls shall be constructed using a minimum of two layers of six mil. polyethylene sheeting after sealing the floors. This shall be done using a minimum of one layer of six mil. polyethylene sheeting. Overlaps between the walls and floors shall be interwoven.

4. The first floor layer shall be taped up the wall a minimum of two feet (24"). The first wall layer shall be sealed to the floor layer at the corner of the floor and wall. The second floor layer shall be sealed to the first wall layer at a minimum of a two foot (24") overlap. The second wall layer shall cover all overlaps and be sealed to the floor.

5. The enclosure shall be constructed so as to allow the removal of interior layers of plastic without damaging the exterior layer. The exterior layer shall stay intact for the duration of the project and be designated the critical barrier.

B. Decontamination Unit and Procedures

1. It is the Contractor's responsibility to provide decontamination chambers consisting of an Equipment Room, Shower, and Clean Room for personnel involved in asbestos removal. Each of the three rooms shall be of sufficient size to accommodate authorized personnel and related equipment.

Each room shall be separate of other rooms by a double flap of 6 mil polyethylene sheeting acting as an airlock. This shall be designed to minimize fiber migration and air flow between the decontamination unit rooms. The rooms shall be framed with 2"x 4" lumber, masked, sealed and attached to the entry/exit ways of asbestos work areas. The three rooms together shall be referred to as the Decontamination Unit. A Decontamination Unit will be required for each separate containment area, if work is to be divided into sections.

2. The Equipment Room shall serve as a transfer room and an intermediate area between the work area and any decontamination procedures to occur in the shower room. This room shall be vacuumed and washed whenever necessary in order to prevent asbestos dust and debris accumulations or when required by Consultant. The Equipment Room will also serve as an access area to the shower for personnel leaving the work area. Workers leaving the containment shall remove and dispose of disposable protective suits and wear only respirators into the Shower. At the end of each day, bags of asbestos waste and contaminated materials shall be removed after a thorough decontamination procedure as described in the contract Sections. Workers performing this operation will wear respirators and disposable full-body protective suits.

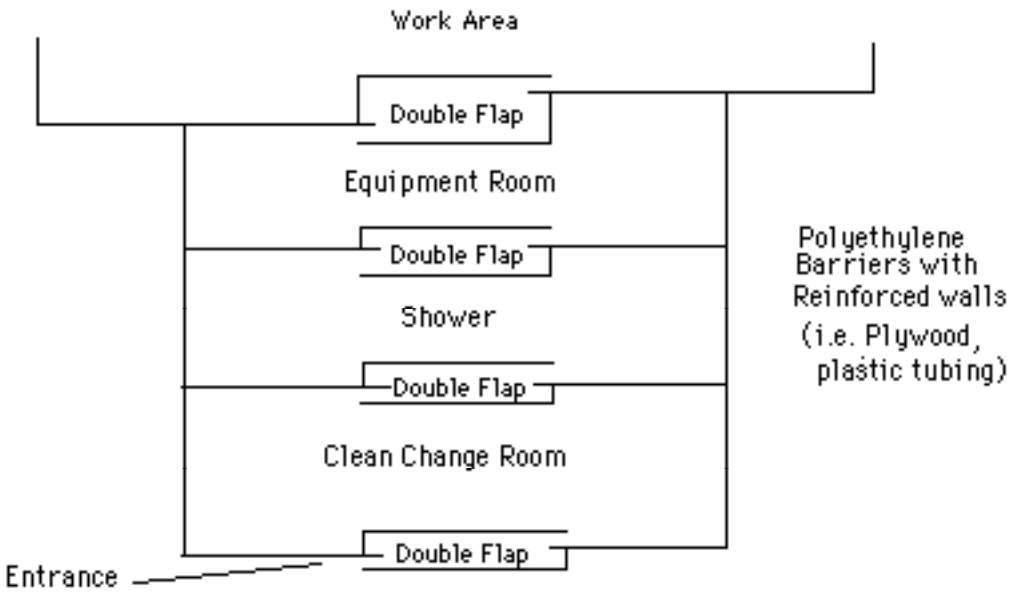
2. The Shower Room shall have a continuous supply of cold and hot water, and be suitably arranged for complete showering during decontamination. The Shower Room with curtained doorways will comprise an airlock between contaminated and clean areas.

3. All materials being passed from the equipment room to the clean room must pass through the shower and be thoroughly decontaminated. The shower floor will not be allowed to sit at ground level, but must be elevated a minimum of six inches off of the floor with a suitable catch basin for drainage into a filtration system.

4. The shower will be equipped with a sump pump and an in-line two stage filter. The first stage will efficiently filter fibers greater than twenty (20) microns in length and the second stage will filter bulk material and fibers greater than five (5) microns in length. Alternatively, shower water may be re-routed back into the work area to be bagged and disposed of as asbestos contaminated waste. The Contractor shall provide disposable towels and soap in the shower area.

5. The Clean Room shall store asbestos worker's clean protective clothing and clean respirator equipment. Contaminated clothing, respirators, tools, equipment, or other materials shall not be allowed into the Clean Room or beyond. The Clean Room will serve as an access for personnel entering the work area, and for the donning of respiratory protection and protective clothing. The contractor shall provide space in the clean room for the worker's personal clothing. This may be in the form of hangers or lockers.

TYPICAL DECONTAMINATION UNIT



6. The above decontamination enclosure is called a "three-stage" decontamination enclosure and shall be the type constructed and used for this project in specified areas. A "two stage" unit resembles the "three-stage" unit in construction detail, but it is built without a shower section.

C. HEPA Filtration: Adequate negative pressure shall be provided within the enclosure as specified below.

1. After the work area is totally isolated, and prior to commencement of work, the Consultant will perform a visual inspection of the work area. This will consist of checking the integrity of barriers including smoke testing the containment if deemed necessary by Consultant. This does not in any way relieve the Contractor's responsibilities to ensure the isolation of the work area. The volume of air within the contained work area shall be changed a minimum of four (4) times per hour. A pressure differential reading of 0.02 inches of water shall be maintained in the negative pressure work area relative to adjacent areas. Equipment used for producing a negative pressure work area shall have a filtering device that is at least 99.97% efficient at a 0.3 micron pore size. Filters meeting these standards are referred to as High Efficiency Particulate Air (HEPA) filters.

2. The HEPA filtration units shall be equipped with the following:

a. Magnehelic gauge to monitor the unit's air pressure difference across the filters and be able to interpret magnehelic reading to cubic feet per minute (CPM).
b. An affixed label, clearly marked and conspicuous, showing the most recent installation date and hour reading of the primary internal HEPA
c. A clock to record the unit's operation time.
d. Automatic shut off for filter failure or absence.

e. Audible alarm for unit shutdown.

f. Amber flashing warning light for filter loading.

g. The unit must be equipped with a safety system which prevents it from being operated with the HEPA filter in an improper orientation.

h. All flexible ducting, vent tubing, adapter plates and other equipment used for the passage of filtered air shall be undamaged, uncontaminated, and free of air leaks at all points.

3. Pre-filters shall be changed frequently during the removal.

4. Air movement will flow uninterrupted from outside the work area through the Decontamination Unit into the work area. There shall be no other openings for air to enter the containment unless approved by the Consultant in writing.

5. HEPA filtration units shall be placed as far as possible from the air intake to the containment to prevent short-cycling of fresh air.

6. This containment, along with the decontamination chamber, shall constitute the critical containment of the work area from the surrounding areas. All openings to this critical containment are to be sealed except where air must enter the work-site due to the use of exhaust equipment. Unless approved by the Owner, air shall enter the critical containment only through the Decontamination Unit.

7. Modifications to these isolation and sealing methods, procedures, and design may be considered if all elements of proper and safe procedures to prevent contamination and exposure can be demonstrated. Written modifications to these Sections must be made to the Owner for review before they can be used for work on this project.

D. ACM Removal

1. Asbestos removal will not begin until the Consultant has given authorization to proceed. This authorization will be given after the removal area has passed a visual inspection by the Consultant based on the criteria presented herein.

2. All asbestos-containing material must be soaked with amended water before removal. The material shall be sufficiently saturated to reduce fiber release so that the airborne fiber concentration does not exceed the established OSHA Permissible Exposure Limits, (PEL's). The amended water shall not be applied in amounts that will cause leakage or runoff of contaminated water from the removal area. Dry removal will not be permitted during this project.

3. Asbestos-containing material shall be carefully removed and placed immediately into bags. Bags must be filled with water to the point where all asbestos is adequately wetted as defined by Federal Regulations 40 CFR 61 Subpart M. Asbestos will not be permitted to let fall or sit on the ground before being bagged.

4. Fine cleaning of residual asbestos-containing material shall consist of carefully scraping or brushing the material from surfaces. The recommended method for brushing a substrate after gross

removal has taken place is to use a nylon brush. Wetting of the substrate shall also occur while this brushing is performed, since the chance of airborne fiber generation during fine cleaning still exists.

5. Water Atomizing Devices, commonly termed "misters," shall be utilized by the contractor during asbestos removal and fine cleaning phases to provide further dust control protection in the work area. The misters shall be supplied with amended water and in operation continuously during these phases.

6. Asbestos waste must be double bagged before it is removed from the contained area. The inner bag will be HEPA vacuumed and showered before being placed in the outer bag. Vacuuming must take place in the Equipment Room of the Decontamination Unit. Washing must take place in the Shower Room of the Decontamination Unit. Bags will normally be removed at the end of each working day and transported from the job site.

7. Any materials considered contaminated by the Owner or the Owner's representative that cannot be double bagged shall be wetted and containerized in disposal drums. Oversized contaminated materials (e.g., plywood subfloor, hardwood floors) shall be wrapped airtight in two layers of 6 mil polyethylene sheeting.

8. All bags, containers or wrapped materials transported out of the work area shall be labeled with preprinted labels required by Federal EPA, OSHA and the Department of Transportation regulations. Any carts used to transport asbestos waste to the on-site holding dumpster should be HEPA vacuumed and wet wiped each day, and may be inspected by the Owner or Consultant every day.

9. Carts that are not made of an impermeable material shall be lined with a minimum of one layer of 6 mil polyethylene sheeting to be removed after each shift and disposed of as contaminated waste. The transport route and the transport of waste out of the work area shall be coordinated with the on site Owner's representative.

10. The work area shall be cleaned of residual asbestos debris on a daily basis. The Decontamination Unit floor (top layer) shall be picked up and replaced on a daily basis, if required by Consultant.

11. Air testing will be performed continuously outside the enclosed area. If fiber concentrations exceed 0.010 fibers/cc or background levels, work shall stop and the Contractor shall perform clean up activities in the affected areas and check the integrity of the critical barriers. Clean up activities shall include but not be limited to wet wiping and vacuuming surfaces with a HEPA equipped vacuum. Work may continue only after the source of contamination is identified, corrected and proper cleaning activities are implemented. Air testing will be performed by the Consultant on site in the affected areas. If the results of these air tests are not below 0.010 fibers/cc, the Contractor shall perform a thorough decontamination of the affected areas.

12. After brushing and scraping, surfaces shall be free of visible debris and fibers. A final wipe-down of the substrate with wet, lint-free rags shall take place in order to ensure proper cleaning. All surfaces including floors, walls, and ceilings shall also be HEPA vacuumed clean. All visible asbestos-containing material is to be removed by the Contractor before encapsulation procedures are allowed to begin.

The Consultant will perform an inspection of the work area prior to giving approval to begin encapsulation of work area. Removal substrate must be clean and bare, and the entire work area must be free and clear of any suspect material for the contractor to pass this visual inspection and begin encapsulation.

13. Where insulated substrates penetrate walls or other demising structures, remove asbestos through to the opposite side of the demising structure. After the removal of the asbestos materials at the demising structures, any resulting spaces or breeches shall be foamed or sealed airtight.

E. Removal of Critical Barriers

1. No critical barrier shall be taken down until the final visual inspection and final clearance air tests are found to below 0.010 fibers/cc.

2. After a successful final visual inspection, encapsulation, and a successful final air test, Contractor shall perform post abatement take-down.

3. All encapsulated polyethylene sheeting used in the construction of the Decontamination Unit and Containment Area shall be bagged and disposed of as asbestos contaminated waste. Areas exposed during this process shall be examined for traces of suspect material. If any is found, it will be picked up by HEPA vacuuming and wet cleaning, and a coat of encapsulant be applied to the affected areas. Based on the amount of suspect material found, the Consultant may request the use of misters in the surrounding area. The Contractor will then implement the use of misters as a precautionary measure.

F. Encapsulation Procedures

1. The polyethylene barriers shall be cleaned of gross contamination before a lock-down sealant can be applied to the substrate. After the substrate has been cleaned and all polyethylene barriers of the work area are cleaned of all visible debris, the Contractor shall request a visual inspection of the work area by the Consultant. Prior to the inspection of the work area, the Contractor shall remove the inside layer of the work area polyethylene sheeting, after cleaning, and dispose of it as contaminated waste. The work area will still have all primary barriers intact and one layer of polyethylene sheeting over floor, walls, and permanent structures within the work area during the inspection.

2. Workers performing lock-down must wear disposable protective clothing and respirators suitable for asbestos. The encapsulation process shall not be treated any differently from the removal process in this respect.

3. The lock-down material shall be applied with a low pressure (less than 500 p.s.i.), airless spray-type mechanism.

4. All surfaces in the work area will be encapsulated. A minimum of one coat of lock-down encapsulant will be applied to prevent the generation of airborne residual fibers. The lock-down encapsulant will be applied to both the substrate and the polyethylene sheeting serving as the

containment barrier. During the encapsulation process, the Contractor shall decrease the negative pressure of the work area by shutting down some of the air filtration devices in the work area. If the lock-down material is being applied to irregular, grooved, or corrugated surfaces, it shall be administered from the opposing side, or at a right angle to the direction of the previous application. The encapsulant shall be left to dry before the commencement of final air testing. After final air clearance and inspection criteria have been met, the Contractor shall begin final take-down procedures.

3.03 GLOVE BAG REMOVAL METHOD

A. Removal of asbestos containing pipe and pipe fitting insulation shall be in accordance with the following procedure:

1. Glove bags may be used as a method of asbestos removal as an alternative to total isolation removal or in conjunction with total isolation removal in areas identified in the scope of work for pipe insulation removal, but only if the area will be unoccupied during all Phases of abatement. Several restrictions, which apply to the use of glove bags for asbestos removal purposes, may be found at OSHA Regulations 29 CFR 1926.1101.

2. Contractor shall set up a containment barrier around the immediate area of glove bag removal. This containment is to consist of two layers of six (6)-mil polyethylene sheeting walls and a two layer six-mil polyethylene sheeting floor forming a fully enclosed "cocoon"-like work area enclosure.

3. As an alternative to the "cocoon" enclosure described above, Contractor is permitted to erect a containment enclosure where all openings, windows, vents, and doors in the work area are sealed with two layers of six-mil polyethylene sheeting and duct tape. In addition, walls adjacent to the piping, floor surfaces below the piping, and any object in the work area shall be covered with two layers of six-mil polyethylene sheeting.

4. In either case, the containment area surrounding the glove bag area shall be under adequate negative pressure to achieve a minimum of four air changes per hour. Criteria for filtering and exhausting the work area shall be the same as in the total isolation method for removal.

5. Pipes and fittings where glove bags are to be used must be no warmer than 150°F, as the glove bag material may melt or stick to the pipes.

6. All workers must wear full protective suits and respirators during all Phases of glove bag work, including preparation, removal, clean up, and encapsulation.

7. Preparation of the area will include a minimum double-stage decontamination unit at the entrance to the contained area, equipped with a HEPA vacuum for personal decontamination, in accordance with OSHA 1926.1101, Appendix G. Glove bags will be placed on pipes or fittings and securely taped with tools enclosed. Bags will not have any holes, which might allow air to escape during removal. Bags will be checked with smoke tubes provided by Contractor. A HEPA vacuum will be inserted through the appropriate hole in the bag along with the nozzle for the water sprayer

containing amended water. When such preparations are completed, approval of the Consultant will be obtained for each glove bag work area before removal begins.

8. It is recommended that removal be performed by two-person teams. One will support the vacuum and assist with wetting the material in the bag while the other does the actual cutting of the material. Once the material is removed and the pipes are clean and bare, the material in the bag will be thoroughly wetted down and forced to the bottom of the bag. All air in the bag will be vacuumed out, and the bottom portion of the bag where all the asbestos must be will be twisted around before separating the bag from the pipe. Bags will then be immediately placed in another labeled bag for disposal purposes. Glove bags are not permitted to be left in the work area for any length of time after the removal.

9. All surfaces in the glove bag area will then be wet-wiped and HEPA- vacuumed. Clean up shall include all loose and peeling paint and paint chips/debris from the glove bag work area. Polyethylene sheeting used to protect the immediate area will be discarded as asbestos waste. Enclosure barriers will be left up until results of clearance air samples (if taken) are acceptable. Contractor will encapsulate the pipes and fittings for Consultant inspection.

10. Lock-down must be done with a pre-approved encapsulant, after the pipe is essentially dry. Workers performing lock-down must wear disposable protective clothing and suitable respirators. The lock-down material shall be applied with a low pressure (less than 500 psi), airless, spray-type mechanism or be hand-applied. A minimum of one coat of lock-down encapsulant will be applied. The lock-down encapsulant will be applied to both the substrate and the polyethylene sheeting, if in place. If the lock-down material is being applied to irregular, grooved, or corrugated surfaces, it should be administered from the opposing side, or at a right angle to the direction of the previous application.

11. Personal samples, containment area samples taken during glove bag operations, and/or final clearance air samples must not exceed 0.010 fibers/cc or above background levels. If this occurs, the area inside the containment must be thoroughly cleaned and encapsulated. Clearance air samples will then be taken with acceptance criteria of 0.010 f/cc required before the enclosure can be dismantled.

12. Glove bag work areas will be post-tested in the same manner and with the same acceptance criteria as specified for total isolation removal, i.e., 0.010 f/cc.

3.04 VAT/FLOOR COVERING AND ASSOCIATED MASTIC REMOVAL METHOD

A. Removal of vinyl asbestos floor tiles (VAT)/floor covering and associated asbestos-containing mastic, including removal of any asbestos-contaminated materials, including, but not limited to, additional layers of floor tiles and mastic, flooring paper, contaminated plywood sub-floor, leveling compound, and contaminated hardwood floors shall be in accordance with all applicable regulations including Part II, Department of Labor – Occupational Safety and Health Administration, 29 CFR Parts 1910, et. al., dated Wednesday, August 10, 1994. At a minimum, the following work practices shall apply:

1. Workers shall wear protective clothing and half-mask, dual-cartridge, HEPA-filtered respirator, at a minimum.

2. The work area shall be isolated as required by regulations and to the satisfaction of the Consultant. As a minimum, critical barriers, a negative pressure system, and a personal decontamination facility shall be erected in accordance with Section 3.02 of this Section. All areas were VAT/floor covering and mastic are to be removed shall be sealed off by the use of polyethylene sheeting on all openings and HEPA filtered negative pressure shall be established in each work area sufficient to achieve four air changes per hour.

3. VAT/floor covering and mastic shall be wet prior to removal and during removal.

4. Each tile shall be removed as a complete unit, with no breakage, wherever possible. Contractor shall remove any carpeting prior to removal of asbestos-containing flooring materials. It is the intention of the asbestos abatement scope of work to remove all layers of ACM flooring materials as well as any asbestos-contaminated materials down to the base substrate.

5. The exposed floor will be cleaned with a HEPA vacuum cleaner and wet-scraped. Repeat the process until the floor area is clean and smooth.

6. Grinding of mastic is not permitted unless work is being performed under the 'Total Isolation Method'.

7. Any chemicals to be used for removal of the mastic must be approved by the Consultant, Owner and General Contractor prior to being used.

8. Dispose of VAT/floor covering/mastic in a DEP-approved landfill, that legally accepts this type of waste.

3.05 DECONTAMINATION/WORK PROCEDURES

A. In order to avoid possible exposure to dangerous levels of asbestos, and to prevent possible contamination of areas outside the demarcated work zone, work shall follow the guidelines listed below.

1. At no time shall a worker entering the containment area go further than the Clean Room of the Decontamination Unit without a respirator and protective clothing.

2. Before leaving the work area, the worker shall remove all gross contamination and debris from the coveralls. In practice this is carried out by one worker assisting another.

3. All equipment used by the workers inside the demarcated work zone shall be either left in the Dirty Room of the Decontamination Unit or thoroughly decontaminated before being removed from the area. Extra work clothing (that in addition to the disposable garments supplied by the Contractor) shall be left in the Dirty Room of the Decontamination Unit until the completion of work in that area.

4. All persons leaving the removal area must shower before leaving the containment.

5. Under no circumstance shall workers or supervisory personnel be allowed to eat, drink, smoke, chew gum, or chew tobacco in the work area; to do so shall be grounds for the Consultant to stop all removal operations. Only in the case of life threatening emergency shall workers or supervisory personnel be allowed to remove their protective respirators while in the work area. In this situation, respirators are to be removed for as short a duration as possible.

6. As with additional clothing, all footwear shall be left inside the work area until the completion of the job, then cleaned or discarded.

3.06 DISPOSAL OF ASBESTOS WASTE

A. Waste removal procedure shall be done in accordance with all regulations as set forth by the agencies having authority to regulate.

B. The Contractor shall provide proof that disposal sites for the waste materials have current and valid permits to dump asbestos waste at the time of the pre-construction meeting.

C. Receipts shall be obtained by the Contractor from the dumping site(s), and submitted to the Owner upon request for final payment.

D. Warning labels having permanent, waterproof print and adhesive shall be affixed to all bags, trucks, drums (lids and sides), and other containers used to store and/or transport asbestos-containing material. Labels must be conspicuous and legible and contain the following warning:

CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

E. The Contractor shall be responsible for all necessary precautions to prevent pollution by spilling during the performance of services and shall assume full responsibility for all Contractor-caused spills, which shall be cleaned up at the Contractor's expense.

F. Temporary storage of asbestos waste on-site must be approved by the Owner.

3.07 HOUSEKEEPING

A. Throughout the work period, the Contractor shall maintain the building and site in a standard of cleanliness as specified throughout these Sections.

1. Contaminated disposable clothing, respirator filters, and other debris shall be bagged and sealed at the end of each work day.

2. All asbestos generated by either removal or repair, shall be bagged immediately and not allowed to be left exposed at the end of each work day.

3. Respirators shall be thoroughly cleaned at the end of each work day and stored for the next days use.

4. The Contractor shall retain all stored items in an orderly arrangement allowing maximum access, not impeding traffic, and providing the required protection materials.

5. The Contractor shall not allow the accumulation of scrap, debris, waste material, and other items not required for completion of the work.

6. The Contractor shall provide adequate storage for all items awaiting removal from the job site, observing all requirements for fire protection and protection of the ecology.

7. Daily, and more often if necessary, the Contractor shall inspect the work areas and adjoining spaces, and pick up all scrap, debris, and waste material. Remove all such items to the place designated for their storage.

8. The Contractor shall maintain the site in a neat and orderly condition at all times.

3.08 AIR MONITORING

A. Background (pre-testing) air and appropriate dust samples may be taken to represent conditions before the Contractor starts masking and sealing operations.

B. During removal, area samples will be collected by the Consultant (Owner's Representative) outside major openings in the containment: in the clean room, at other critical points outside the work areas, just outside the clean room, inside the contained work sites, and at HEPA exhaust locations. Contractor shall be responsible for all OSHA personal sampling.

C. Final clearance air samples will be collected inside the contained removal work area after all visual inspection criteria is met and the area is free and clear of any suspect material and debris. The insulation substrate, if any, must be clean and bare. The work area should be clear of any debris including loose and peeling paint from various surfaces and paint chips/debris from inside the work area.

1. Air will be agitated by means of a small leaf blower prior to the test, and kept agitated by means of a small electric fan. The results of all samples must be less than 0.010 fibers per cubic centimeter (f/cc) for PCM analysis or less than an average of 70 structures per square millimeter for TEM analysis to be in compliance with clearance criteria as described in this Section, Massachusetts Division of Occupational Safety regulations. The first set of final clearance air tests for each removal area will be paid by the Owner. In the event that these air tests do not pass the clearance criteria, any subsequent air tests that need to be performed shall be paid for by the Contractor. If the Contractor fails to meet the criterion, the Contractor will be required to re-clean the designated work site and then the Consultant (Owner's Representative) to repeat the final air clearance testing. Cleaning and testing will be repeated until the specified criterion is met.

3.09 WORK REVIEW

A. Consultant will review Contractor's work practices prior to the start of and during all asbestos related work and will report any Section violations to the Contractor. If the Contractor fails to correct deficiencies in a timely manner, the Owner will be notified in writing, and work may be stopped. The Consultant will review the containment structure and negative air conditions before work begins and after the Contractor Site Supervisor has given approval. Outside containment airborne fiber concentrations must not exceed 0.010 fibers/cc or pre-abatement levels, whichever is greater. If concentrations exceed this level, then work must be stopped, conditions reviewed as to the probable cause, and then corrected. A description of procedures regarding fiber concentrations greater than 0.010 fibers/cc outside the containment can be found above.

B. Consultant will keep a daily log of Contractor's work practices and will make these daily logs a part of the final project documents.

C. In addition to various daily inspections of containment and work practices, Consultant will make three (3) mandatory inspections throughout the removal work. These inspections include: a pre-abatement visual inspection, a post-abatement visual inspection, and a post-teardown visual inspection.

D. Each inspection must be requested by the Contractor and performed by Consultant, to the satisfaction of the Consultant, and be signed off by the Consultant, before work is to continue on to the next task in the phase. Failure on the part of the Contractor to obtain sign-off before proceeding is regarded as a serious violation of the contract and unacceptable.

END OF SECTION

Compliance

These documents must be signed and returned with your bid

Compliance

The compliance documents in this section must be completed, signed and returned **with your bid package**.

Purchasing Department

City of Waltham
610 Main Street
Waltham, MA 02452

Failure to submit the completed documents will cause the disqualification of the proposal.

Section Index

Check when Complete

- Non-collusion form and Tax Compliance form…… _____
- Corporation Identification Form…….. _____
- Certificate of Vote Authorization……. _____
- Certificate of Insurance (showing all limits of WC &GL)..... _____
- Three (3) References…… _____
- 5% Bid Bond or Certified Check>..... _____
- Debarment Certificate …….. _____
- Prevailing Wage Certificate……. _____
- Right-to-know Law…… _____
- OSHA 10 Certificate for all Assigned Employees (MGL ch30, §39M and Ch 149) _____

Before the commencement of the Job, the contractor must provide to the above office:

- Performance Bond for 100% of the contract value and naming the City of Waltham ***(Letter must be included with your response***)

Your Company's Name: _____

Service or Product Bid_____

NOTE: Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

NON-COLLUSION FORM AND TAX COMPLIANCE FORM

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity or group of individuals. The undersigned certifies that no representations made by any City officials, employees, entity, or group of individuals other than the Purchasing Agent of the City of Waltham was relied upon in the making of this bid

_____, _____
(Signature of person signing bid or proposal) Date

_____
(Name of business)

TAX COMPLIANCE CERTIFICATION

Pursuant to M.G.L. c. 62C, & 49A,I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

_____, _____
Signature of person submitting bid or proposal Date

_____
Name of business

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

CERTIFICATE OF VOTE OF AUTHORIZATION

Date:

I _____, Clerk of_____hereby certify that at a meeting of the Board of Directors of said Corporation duly held on the_____day of_____at which time a quorum was present and voting throughout, the following vote was duly passed and is now in full force and effect:

VOTED: That _____(*name*) is hereby authorized, directed and empowered for the name and on behalf of this Corporation to sign, seal with the corporate seat, execute, acknowledge and deliver all contracts and other obligations of this Corporation; the execution of any such contract to be valid and binding upon this Corporation for all purposes, and that this vote shall remain in full force and effect unless and until the same has been altered, amended or revoked by a subsequent vote of such directors and a certificate of such later vote attested by the Clerk of this Corporation.

I further certify that_____ is duly elected/appointed_____ _____of said corporation

SIGNED:

(Corporate Seal)

_____

Clerk of the Corporation:

Print Name: _____

COMMONWEALTH OF MASSACHUSETTS

County of_____ **Date:**

Then personally appeared the above named and acknowledged the foregoing instrument to be their free act and deed before me,_____

Notary Public;

My Commission expires: _____

CORPORATION IDENTIFICATION

The bidder for the information of the Awarding Authority furnishes the following information.

If a Corporation:

Incorporated in what state _____
President _____
Treasurer _____
Secretary _____
Federal ID Number_____

If a foreign (out of State) Corporation – Are you registered to do business in Massachusetts?
Yes _____, No _____
If you are selected for this work you are required under M.G.L.ch. 30S, 39L to obtain from the Secretary of State, Foreign Corp. Section, State House, Boston, a certificate stating that you Corporation is registered, and furnish said certificate to the Awarding Authority prior to the award.

If a Partnership: (Name all partners)
Name of partner _____
Residence _____
Name of partner _____
Residence _____

If an Individual:
Name _____
Residence _____

If an Individual doing business under a firm's name:
Name of Firm _____
Name of Individual _____
Business Address _____
Residence _____
Date _____

Name of Bidder _____
By _____
Signature
_____
Title
_____
Business Address (POST OFFICE BOX NUMBER NOT ACCEPTABLE)
_____
State Telephone Number Today's Date

PROVIDE THREE (3) SERVICE APPROPRIATE REFERENCES

1. Company Name:
   Address:
   Contact Name:
   Phone #
   Type of service/product provided to this Company:

   Dollar value of service provided to this Company:

2. Company Name:
   Address:
   Contact Name:
   Phone #
   Type of service/product provided to this Company:

   Dollar value of service provided to this Company:

3. Company Name:
   Address:
   Contact Name:
   Phone #
   Type of service/product provided to this Company:

   Dollar value of service provided to this Company:

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.

WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided, A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit, on a weekly basis, a copy of his or her weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those reports for three years.

In addition, each such contractor, subcontractor, or public body shall furnish to the awarding authority directly, within fifteen days after completion of its portion of the work, a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

_____, 200____

I_____, _____

(Name of signatory party) (Title)

I do hereby state that I pay or supervise the payment of the persons employed by

_____ on the_____

(Contractor, subcontractor or public body) (Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature_____, Title _____

Print_____

WEEKLY PAYROLL REPORT FORM

Company Name: _____

Project Name: _____

Awarding Auth.: _____

Work Week Ending: _____

☐ Final Report

☐ Prime Contractor

☐ Subcontractor
List Prime Contractor: _____

Employer Signature: _____

Print Name & Title: _____

Employee Name & Address	Work Classification	Hours Worked							(A) Tot. Hrs.	(B) Hourly Base Wage	Employer Contributions			(F) [B+C+D+E] Hourly Total Wage (prev. wage)	(G) [A*F] Weekly Total Amount
		S	M	T	W	T	F	S			(C) Health & Welfare	(D) Pension	(E) Supp. Unemp.		

NOTE: Every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority.

RIGHT TO KNOW LAW

Any vendor who receives an order or orders resulting from this invitation agrees to submit a Material Safety Data Sheet (MSDS) for each toxic or hazardous substance or mixture containing such substance, pursuant to M.G.L. c. 111F, §§8,9 and 10 and the regulations contained in 441 CMR 21.06 when deliveries are made. The vendor agrees to deliver all containers properly labeled pursuant to M.G.L. c. 111F §7 and regulations contained in 441 CMR 21.05. Failure to furnish MSDS and/or labels on each container may result in civil or criminal penalties, including bid debarment and action to prevent the vendor from selling said substances, or mixtures containing said substances within the Commonwealth. All vendors furnishing substances or mixtures subject to Chapter 111F or M.G.L. are cautioned to obtain and read the laws, rules and regulations referenced above. Copies may be obtained from the State House Bookstore, Secretary of State, State House, Room 117, Boston, MA (617) 727-2834.

Authorized Signature Indicating Compliance with the Right-to-know laws:

Signature **Date**

Print Name

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

DEBARMENT CERTIFICATION

In connection with this bid and all procurement transactions, by signature thereon, the respondent certifies that neither the company nor its principals are suspended, debarred, proposed for debarment, declared ineligible, or voluntarily excluded from the award of contracts, procurement or non procurement programs from the Commonwealth of Massachusetts, the US Federal Government and /or the City of Waltham. "Principals" means officers, directors, owners, partners and persons having primary interest, management or supervisory responsibilities with the business entity. Vendors shall provide immediate written notification to the Purchasing Agent of the City of Waltham at any time during the period of the contract of prior to the contract award if the vendor learns of any changed condition with regards to the debarment of the company or its officers. This certification is a material representation of fact upon which reliance will be placed when making the business award. If at any time it is determined that the vendor knowingly misrepresented this certification, in addition to other legal remedies available to the city of Waltham, the contract will be cancelled and the award revoked.

Company Name _____

Address _____

City _____, State_____, Zip Code _____

Phone Number (____) _____

E-Mail Address _____

Signed by Authorized Company Representative:

_____

Print name _____,

Date _____

10 HOURS OSHA TRAINING CONFIRMATION

Chapter 306 of the Acts of 2004

CONSTRUCTION PROJECTS

AN ACT RELATIVE TO THE HEALTH AND SAFETY ON PUBLIC

The undersigned hereby certifies that all employees to be employed at a worksite for construction, reconstruction, alteration, remodeling, repair, installation, demolition, maintenance or repair of any public work or any public building estimated to cost more than $10,000.00 have successfully completed a course in construction safety and health approved by the **United States Occupational Safety and Health Administration** that is at least **10 hours** in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first payroll report for each employee and will comply with all laws and regulations applicable to awards of subcontracts subject to section 44F.

Company Name: _____

Address: _____

Signature: _____

Title: _____

Print Name _____

Date_____

See Chapter 306 of the Acts of 2004

NOTE

Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.

PRICE SHEET

All Inclusive, not-to-exceed bid amount for the project specified within this document is

Base Bid: $ _____.

Environmental Allowance; $ 50,000.00 **

TOTAL BID: $_____

**** The environmental allowance is an amount discretionary to the City to be used for any unexpected conditions determined so by the City.**

Company's Name: _____

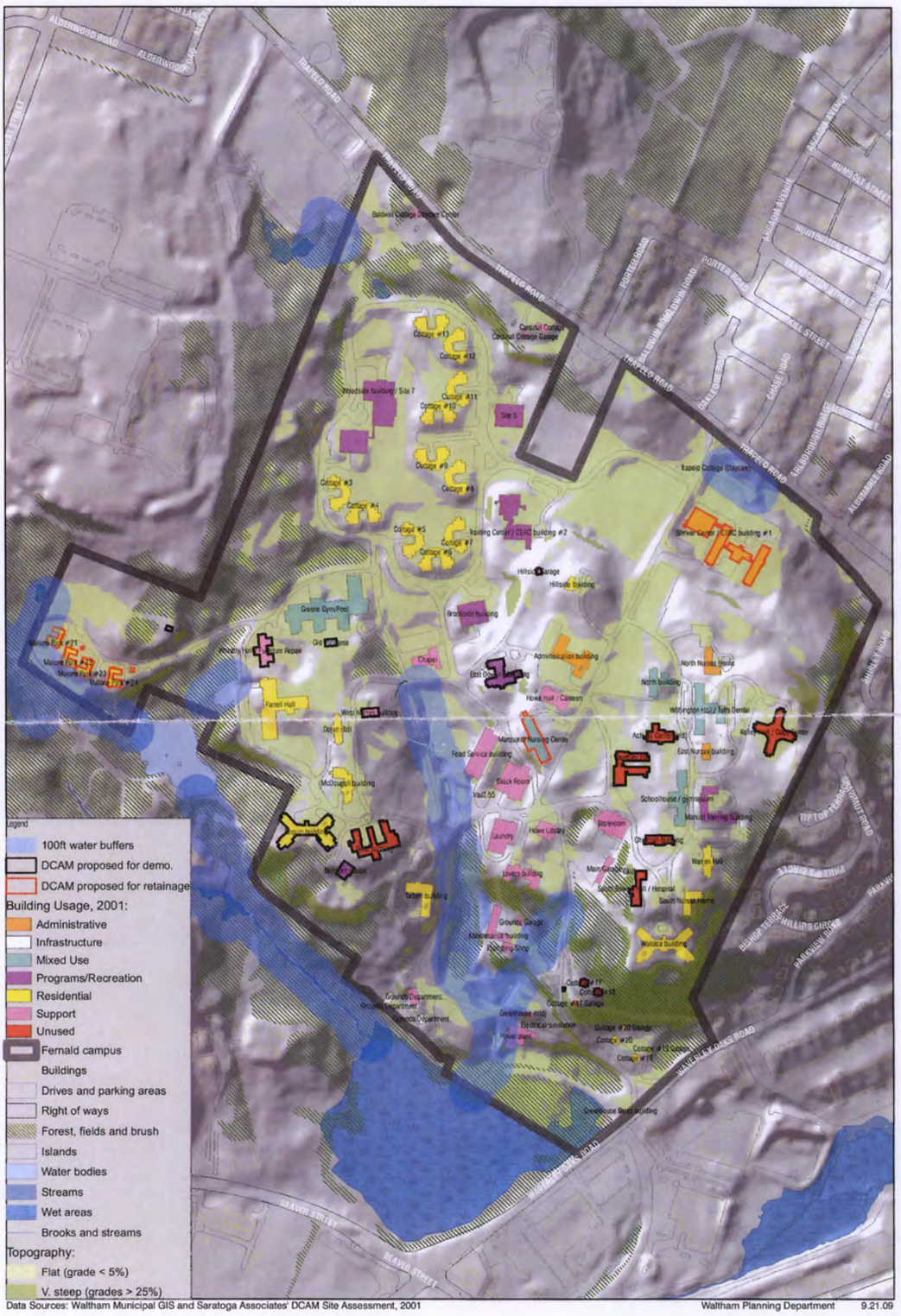
Authorized Signature: _____

Print Name: _____

Date: _____

My Company acknowledges receipt of Addendum #: _____, _____, _____, _____, _____, _____,

Exhibits



STRUCTURES BY USE

EXHIBIT A

FERNALD STATE CAMPUS

1 inch = 400 feet

0 200 400 800 Feet

Appendix 2: Building Inventory

Identification			Size		Construction Information						Utilization		
											Past	Current	
Building Number	Name	Location	Height	GSF	Year Constructed	Renovated	ADA Accessibility	Potential Asbestos Hazard	Heat/Hot Water Supply	Current Condition	Past Use	Current Use	DMR Current Usage Code
046	Wallace Building	East Campus	1 Story W/ Basement	29,550	1936	Yes	All Floors	No	System	good	Client Residential	Client - Residential (32 Beds)	Residential
047	Administration	Center Campus	2 Stories W/ Basement	26,656	1933	N	None	Yes	System	good	Administration/ Offices	Administration/ Offices	Admin.
048	Farrell Hall	West Campus	2 Stories W/ Basement	49,940	1960	Yes	All Floors	No	System	good	Client Residential	Client - Residential	Residential
049	Bowen Hall	East Campus	1 Story W/ Basement	12,000	1893	No	None	Yes	System	unusable	Client Residential/ Program	Vacant	Additional Structure
050	Greene Unit	West Campus	3 Stories W/ Basement	113,000	1953	Yes	All Floors	No	System	good	Client Residential	Client - Residential (108 beds)/ Program	Residential
051	Trapelo Cottage	East Campus	2 Stories W/ Basement	2,877	1860	No	None	Yes	Independent Oil	good	Staff Residential	Daycare	Support
052	Cardinal Cottage	West Campus	2 Stories W/ Basement	4,354	1850	No	None	Yes	Independent Oil	good	Staff Residential	Volunteer Center	Support
053	Cardinal Cottage Garage	West Campus	1 Story	440	1947	No	None	No	None	good	Garage	Garage/ Storage	Support
055	Cottage 17 Garage	East Campus	1 Story	1,344	1925	No	None	No	None	poor	Garage	Vacant	Support
056	ICF 20 Garage	East Campus	1 Story	440	1930	No	None	No	None	fair	Garage	Garage	Support
057	ICF 19 Garage	East Campus	1 Story	440	1955	No	None	No	None	fair	Garage	Garage	Support
100	Kelly Hall	East Campus	3 Stories	43,740	1961	No	None	Yes	System	poor	Client Residential	Vacant	Additional Structure
102	Withington	East Campus	3 Stories W/ Basement	40,428	1969	Yes	All Floors	Yes	System	good	Client Residential (64 Beds)	Offices	Mixed-Use
103	CERC Building	East Campus	1 Story W/ Basement	32,369	1969	Yes	All Floors	Yes	System	good	UMass Med. School	UMass Med School	Admin.
105	ICFMR Cottage 5	West Campus	1 Story	8,827	1976	No	All Floors	No	System	fair	Client Residential	Client Residential	Residential
106	ICFMR Cottage 6	West Campus	1 Story	8,827	1976	No	All Floors	No	System	fair	Client Residential	Client Residential	Residential
107	ICFMR Cottage 7	West Campus	1 Story	8,827	1976	No	All Floors	No	System	fair	Client Residential	Client Residential	Residential
108	ICFMR Cottage 8	West Campus	1 Story	8,827	1976	No	All Floors	No	System	fair	Client Residential	Client Residential	Residential
109	ICFMR Cottage 9	West Campus	1 Story	8,827	1976	No	All Floors	No	System	fair	Client Residential	Client Residential	Residential
110	ICFMR Cottage 10	West Campus	1 Story	8,827	1976	No	All Floors	No	System	fair	Client Residential	Client Residential	Residential
111	ICFMR Cottage 11	West Campus	1 Story	8,827	1976	No	All Floors	No	System	fair	Client Residential	Client Residential	Residential
112	ICFMR Cottage 12	West Campus	1 Story	8,827	1976	No	All Floors	No	System	fair	Client Residential	Client Residential	Residential
113	ICFMR Cottage13	West Campus	1 Story	8,827	1976	No	All Floors	No	System	fair	Client Residential	Client Residential	Residential
114	ICFMR Cottage 3	West Campus	1 Story	8,827	1979	No	All Floors	No	System	fair	Client Residential	Client Residential	Residential
115	ICFMR Cottage 4	West Campus	1 Story	8,827	1979	No	All Floors	No	System	fair	Client Residential	Client Residential	Residential
116	Brookside Building	West Campus	1 Story	11,520	1981	New	All Floors	No	System	good	Client Residential	Program	Day Program
117	Woodside Building	West Campus	1 Story	11,520	1981	New	All Floors	No	System	good	Client Residential	Program	Day Program
118	Training/Activities Center, New Greenhouse	West Campus	1 Story	18,130	1983	New	All Floors	No	Independent Oil	good	Program/ Recreation	Program/ Greenhouse	Day Program
119	Chapel	West Campus	1 Story W/ Basement	17,112	1960	No	1st Floor Only	Yes	System	good	Chapel	Chapel	Support
120	Old Greenhouse	Center Campus	1 Story	3,655	1946	No	None	Yes	System	fair	Greenhouse	Program	Day Program
121	Vault #14	East Campus	1 Story	150	1954		None	No	None	poor	Electrical Distribution	Electrical Distribution	Additional Structure
122	Electrical Substation	Center Campus	1 Story	150	1983		None	No	None	good	Electrical Distribution	Electrical Distribution	Additional Structure
123	Maintenance Building - Plumbing Shop	Center Campus	1 Story	180	1937	No	None	Yes	System	fair	Maintenance/ Plumbing Shop	Maintenance/ Plumbing Shop	Support
124	Grounds Department	Center Campus	1 Story	5,760	1973	No	None	Yes	Propane	poor	Grounds Department	Grounds Department	Support
125	Eunice Kennedy Shriver Center	East Campus	4 Stories W/ Basement	48,757	1973	No	All Floors	Yes	System (Gas)	good	Research	UMass Med School	Admin.
126	Old Pool Area (not a bldg.)	West Campus		4,950	1973	No		?	Propane	good	Pool - Recreation	Pool - Recreation	Additional Structure
127	Pool Shed 1	West Campus	1 Story	64	1982	No	None	?	Propane	poor	Pool Filtration and Pump (Heater)	Pool Filtration and Pump (Heater)	Additional Structure
128	Pool Shed 2	West Campus	1 Story	80	1979	No	None	?	Propane	poor	Pool Filtration and Pump (Storage)	Pool Filtration and Pump (Storage)	Additional Structure
210	Malone Park ICF #21	West Campus	1 Story	4,123	1986	New	All Floors	No	Independent Oil	good	Client Residential	Client Residential (8 Beds)	Residential

EXHIBIT B

Appendix 2: Building Inventory

Identification			Size		Construction Information						Utilization		
											Past	Current	
Building Number	Name	Location	Height	GSF	Year Constructed	Renovated	ADA Accessibility	Potential Asbestos Hazard	Heat/Hot Water Supply	Current Condition	Past Use	Current Use	DMR Current Usage Code
220	Malone Park ICF #22	West Campus	1 Story	4,123	1986	New	All Floors	No	Independent Oil	good	Client Residential	Client Residential (8 Beds)	Residential
230	Malone Park ICF #23	West Campus	1 Story	4,123	1986	New	All Floors	No	Independent Oil	good	Client Residential	Client Residential (8 Beds)	Residential
240	Malone Park ICF #24	West Campus	1 Story	4,123	1986	New	All Floors	No	Independent Oil	good	Client Residential	Client Residential (8 Beds)	Residential
400	Pearlman Building (New Food Service)	Center Campus	2 Stories	27,712	1993	New	None	No	System (Gas)	good	Food Prep/ Distribution	Food Prep/ Distribution	Support
501	Site 5 Building	West Campus	1 Story	12,000	1986	New	All Floors	No	Independent Oil	good	Program/ Client Residential	Program	Day Program
700	Site 7 Building	West Campus	1 Story	20,064	1985	New	All Floors	No	Independent Oil	good	Flow Inc. Program	Flow Inc. Program	Day Program
701	Greenhouse Sales	East Campus	1 Story on Slab	100	?	No	None	No	Electric Heat	good	Program	Program	Day Program

EXHIBIT B

Table 5-5
Fernald Developmental Center Building History and Environmentally Significant Features

Building Name	Construction Date	Heat Source	Historical Uses	Current Use	Environmentally Significant Features
Administration Bldg	1933, add. 1965	steam	Administrative offices	Administrative offices	None
Howe Hall	1933	steam	Auditorium, copy center	Copy center, dead storage	275-gal AST in basement for generator Pad-mounted transformer (#77)
Shriver Center	1969	steam	Research center	Research center	UST (installed 1970)
Thom Bldg	1952	steam	Hospital	Marquardt Nursing Center, medical clinic, offices, central supply	Propane AST on pad behind bldg Unused diesel AST inside bldg under loading dock Electrical vault in basement
Old Service Bldg	1931	steam	Original food service bldg	Closed, storage in basement	None
Building 55	1960	NA	Electrical vault	Electrical vault	PCB containing transformers outside bldg
Pearlman Bldg	Early 1990s	steam	New food service bldg	Food service bldg	5,000-gal diesel AST in building for generator
East/ Dowling Hall	1906	steam	Residence, offices, former bottle/can redemption center	Vacant	Pad-mounted transformer (#76) appears to be very old
Hillside	1904	natural gas	Superintendent's residence, later client residential bldg	Unoccupied	None
Training/Activity Center and Greenhouse/Program Bldg	1980s	oil	Greenhouse, client craft activities	Greenhouse, client craft activities	4,000-gal UST outside Pad-mounted transformer (#14)
Site 5	1981	oil	Program building	Waverley Bottle and Can Redemption Center	10,000-gal UST
Cottages #3 - #13	1976	UGHW	Residential	Residential (some unoccupied)	Pad-mounted transformers(T69-T72 and T75) 85-gal diesel AST under Onan generator (outside of Cottage #11)
Cottage Complex (Site 7) Bldg	1981	oil	Program activities	Workshop, Recreation area, piece work	Pad-mounted transformer (T75)
Woodside	1981	UGHW	Program activities	Recreation area, piece work	Pad-mounted transformer (T74)
Brookside	1981	UGHW	Program classrooms	Program classrooms	Pad-mounted transformer (T15)
Chapel	1960	steam	Church services	Church services	Non-PCB transformer T2 on UP SE corner of bldg
Greene Unit	1953	steam	Hospital	Hospital, pool, gym, conference rooms	275-gal diesel AST in bldg for generator Non-PCB Pad-mounted transformer (T12)
Wheatley Hall	1933	steam	Furniture repair	Unoccupied	Location marker for Exxon petroleum pipeline north-northwest of Wheatley Hall along Malone Park Drive
Farrell Hall	1960	steam	Residential	Residential	Pad-mounted transformer (T11) Kohler diesel generator (AST 3A) Could not locate AST 16A outside of bldg (may be inside)
Dolan Hall	1906	steam	Residential	Vacant	Non-PCB pad-mounted transformer (T10)
Malone Park Bldgs: ICF 21 – ICF 24	1980s-1990s	oil	Residential	Residential	Pad-mounted transformer (T68) Four 300-gallon No. 2 oil ASTs in plastic secondary containment lidded boxes Three monitoring wells observed near ICF 21 and ICF 22/23
MacDougall Hall	1898	steam	Residential	Unoccupied	None
Seguin Hall	1934	steam	Residential	unoccupied	100-gal diesel generator (AST 13A) outside building, battery on ground Non-PCB pad-mounted transformer (T9)
Belmont House	1890	Steam	Original power plant, later used as Program bldg	Unoccupied	Could not find T4, T5, and T6 due to dense vegetation
West Building	1989	steam	Residential asylum	Unoccupied	None
West Nurses	1906	steam	Staff residence and office	Unoccupied, dead record storage	None
Tarbell House	1934	steam	Residential	Residential	Non-PCB pad-mounted transformer (T8)
Day Care Center, 338 Trapelo Rd	c. 1900	gas	Private residence later used as FDC staff daycare	Unoccupied	none
Volunteer Center a.k.a. Cardinal	c. 1850	oil	Private residence (former church property), later used as	Unoccupied	Two oil tanks in basement

NOTES:
1) Construction dates for some Fernald Developmental Center (FDC) buildings are estimated, and intended to provide the era in which construction may have occurred.
Bldg – Building
c. - circa

AST – Aboveground Storage Tank
UGHW – Underground Hot Water
UST – Underground Storage Tank

EXHIBIT C

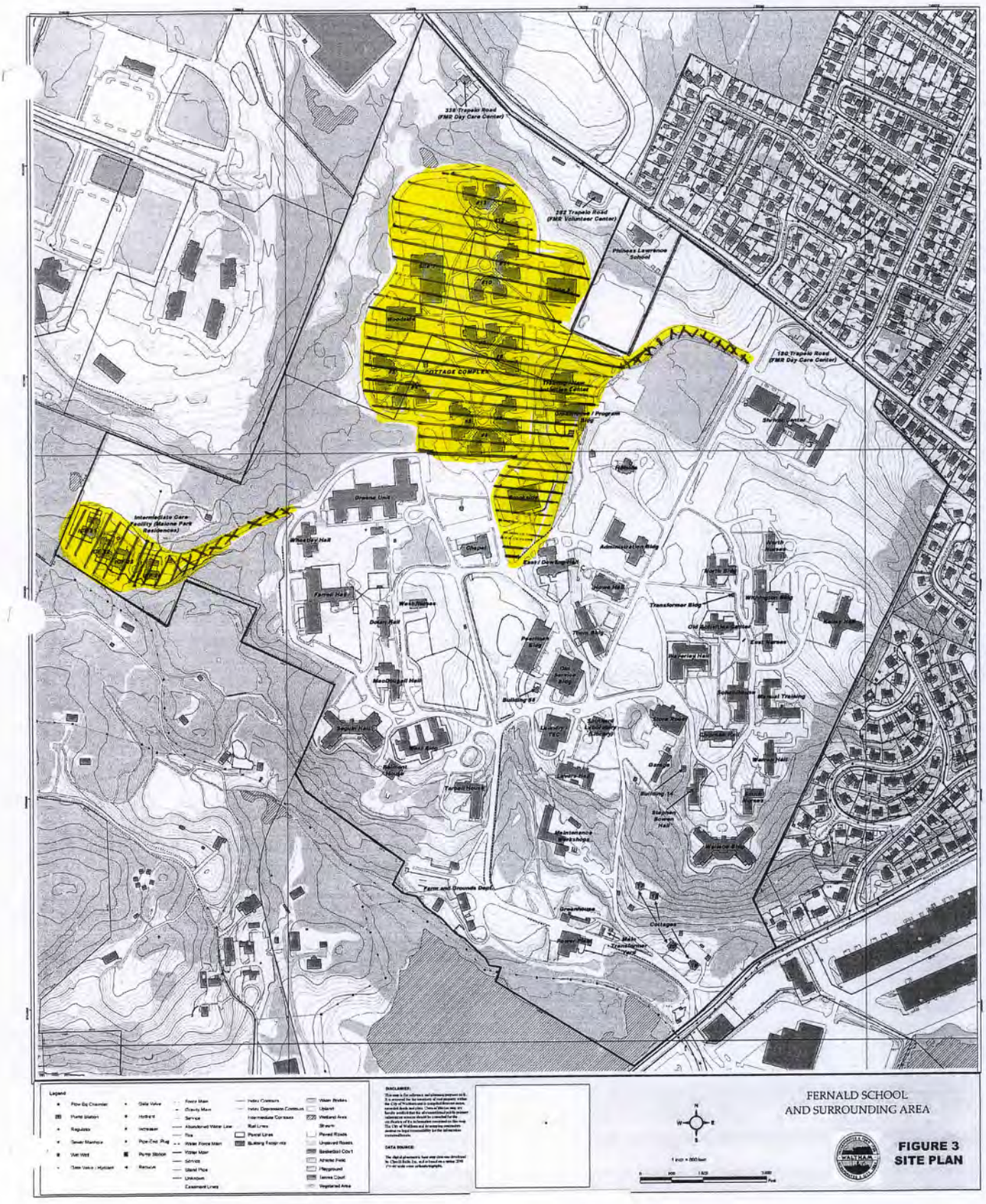


EXHIBIT D

Draft Phase I Environmental Site Assessment
Fernald Developmental Center
200 Trapelo Road
Waltham, Massachusetts

Submitted to:

John M. O'Donnell
Division of Capital Asset Management
One Ashburton Place, 15th Floor
Boston, MA 02108

Submitted by:

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Contract No.	**DCP 0507 HD1**
Project No.	**DMR0906-HS2**
DCAM Project Manager	**John O'Donnell**
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October 22, 2009

EXHIBIT E

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

* - located in Tables section at the end of the report.

APPENDICES

Appendix A – Site Photographs

Appendix B – Historical Research Documentation

Exhibit B-1	The EDR Aerial Photo Decade Package
Exhibit B-2	Certified Sanborn® Map Report
Exhibit B-3	The EDR-City Directory Abstract
Exhibit B-4	The EDR Historical Topographic Map Report
Exhibit B-5	The EDR Environmental LienSearch™ Report
Exhibit B-6	Application/Report National Register of Historic Places
Exhibit B-7	Wikipedia Historical Information

Appendix C – Regulatory Records Documentation

Exhibit C-1	The EDR Radius Map™ Report with GeoCheck®
Exhibit C-2	EPA SAND Summary – Duffy Bros Construction Inc.
Exhibit C-3	RTN 3-0011878, Rear Gate Off Waverly Oaks Rd
Exhibit C-4	RTN 3-0010367, Within Complex on Chapel St@ Power Plant
Exhibit C-5	RTN 3-0015442, Powerplant
Exhibit C-6	RTN 3-0021892, Malone Park Bldg No 21
Exhibit C-7	RTN 3-0013467, Power Plant Near Waverly Oaks Entrance
Exhibit C-8	RTN 3-0021893, Malone Park Bldg No 23
Exhibit C-9	RTN 3-0015149, Powerplant
Exhibit C-10	RTN 3-0010725, Fernald State School
Exhibit C-11	RTN 3-0021380, Thom Building
Exhibit C-12	RTN 3-0015121, Fernald School
Exhibit C-13	MassDEP Files for Adjacent Parcels
Exhibit C-14	Municipal File Review

Appendix D – User-Provided Information

Exhibit D-1	FDC SPCC Plan
Exhibit D-2	Oil Pipeline Documentation

Appendix E – Qualifications of Environmental Professional

ACRONYMS/ABBREVIATIONS

Acronym/ Abbreviation	Definition
ACEC	Area of Critical Environmental Concern
APN	Assessor Parcel Number
ASTM	American Society for Testing and Materials
AST	Aboveground Storage Tank
AUL	Activity and Use Limitation
BTEX	Benzene, toluene, ethylbenzene, and xylenes
bgs	Below ground surface
BWSC	Bureau of Waste Site Cleanup
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CESQG	Conditionally Exempt Small Quantity Generator
CORRACTs	Corrective Actions
CSA	Comprehensive Site Assessment
DCAM	Massachusetts Division of Capital Asset Management
DEQE	Department of Environmental Quality
DMR	Department of Mental Retardation
EDR	Environmental Data Resources, Inc.
EPA	U.S. Environmental Protection Agency
EPC	Exposure Point Concentrations
EPH	Extractable Petroleum Hydrocarbons
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
FDC	Fernald Developmental Center
FEMA	U.S. Federal Emergency Management Agency
FINDS	Facility Index System
FUDS	Formerly Used Defense Sites
HSWA	Hazardous and Solid Waste Amendments
ICF	Intermediate Care Facility
INST	Institutional Control Site
IRA	Immediate Response Action
LAST	Leaking Aboveground Storage Tank
LNAPL	Light Non-Aqueous Phase Liquid
LQG	Large Quantity Generator
LSP	Licensed Site Professional

Acronym/ Abbreviation	Definition
LUST	Leaking Underground Storage Tank
MassDEP	Massachusetts Department of Environmental Protection
MassGIS	Massachusetts Geographic Information System
MCP	Massachusetts Contingency Plan
MCRD	Middlesex Country Registry of Deeds
MLTS	Materials Licensing Tracking System
MSL	Mean Sea Level
MTBE	Methyl tert-butyl ether
MWRA	Massachusetts Water Resources Authority
NAPL	Non-aqueous Phase Liquid
NERO	Northeast Regional Office
NFRAP	No Further Remedial Action Planned
NOR	Notice of Responsibility
NPL	National Priority List
NRS	Numerical Ranking System
PAH	Polynuclear Aromatic Hydrocarbon
PCB	Polychlorinated biphenyl
PID	Photoionization detector
ppm	Parts per million
ppmv	Parts per million by volume
PRC	Property Record Card
RAM	Release Abatement Measure
RAO	Response Action Outcome
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act
RCRA-NonGen	RCRA Non-Generators
REC	Recognized Environmental Condition
RELEASE	Records of Emergency Release Reports
RNF	Release Notification Form
RTN	Release Tracking Number
SANDs	Sites Awaiting NPL Decision
SQG	Small Quantity Generator
SHWS	State Hazardous Waste Sites
SRM	Substantial Release Migration
SPH	Separate Phase Hydrocarbons
SWF/LF	Solid Waste Facilities/Landfill Site
SVOC	Semivolatile Organic Compound
TOV	Total Organic Vapors

Acronym/ Abbreviation	Definition
TPH	Total Petroleum Hydrocarbons
TSDF	Transportation, Storage, and Disposal Facility
UCL	Upper Concentration Limit
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound
mg/L	Milligram per liter
mg/kg	Milligrams per kilogram
mg/g	Milligrams per gram
µg/L	Micrograms per liter
µg/kg	Micrograms per kilogram
µg/g	Micrograms per gram

1.0 EXECUTIVE SUMMARY

TechLaw, Inc. (TechLaw) has performed a Phase I Environmental Site Assessment (ESA) in general accordance with the scope of work and limitations set forth by the Massachusetts Division of Capital Asset Management (DCAM) for the Fernald Developmental Center located at 200 Trapelo Road, Waltham, Massachusetts (the "Property"). On June 1, 2009, TechLaw received the Notice To Proceed authorization for this ESA (dated May 20, 2009) from DCAM for this ESA.

The Phase I ESA is designed to provide DCAM with an assessment concerning environmental conditions (limited to those issues identified in the report) as they exist at the property. This assessment was conducted utilizing generally accepted ESA industry standards in accordance with *ASTM Practices E1527-05 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process* (ASTM Practice E1527-05). The purpose of this ESA is to identify "Recognized Environmental Conditions" (RECs) in connection with the Property.

The scope of work specified by DCAM for the site assessment included: 1) interviews with people knowledgeable about the Property regarding current and former operations and uses; 2) review of records reasonably available for review from federal, state, and local sources; and 3) visual observations of site-specific and surrounding features and conditions. TechLaw was not tasked with inspection of the interior of on-site buildings.

The Property is currently developed as a 195-acre residential campus for developmentally delayed patients. The "Massachusetts School for Feeble Minded Children" was established in 1848 in South Boston, and moved to its current location in Waltham between 1888 and 1889. In 1925, the school was renamed the Walter E. Fernald State School and later was renamed the Fernald Developmental Center (FDC). The Property is improved with approximately 71 buildings designed for residential and program support and for facility infrastructure. The buildings were constructed between the mid-1800s and the early 1990s.

The Property is situated on the eastern side of Waltham, Massachusetts. The Property is bound to the northeast by Trapelo Road, an elementary school, residences, and a vacant former state mental institution building; to the southeast by residences and beyond Waverley Oaks Road by office buildings; to the southwest by a Girl Scout camp and a state-owned parcel operated by the University of Massachusetts (UMASS) Amherst Agricultural School; and to the northwest by Bentley College, a city-owned park, the F.C. Murphy Federal Records Center, and vacant land. Based upon topographic map interpretation and site observations, general groundwater flow in the region is inferred to the south toward the Charles River.

TechLaw reviewed a database report from Environmental Data Resources, Inc. (EDR) for the Property and the surrounding area. Based on review of the database report and available information, two adjacent sites were identified as potential concerns to the Property. TechLaw identified one Resource Conservation and Recovery Act (RCRA) generator on the Property. The Property is also listed on the underground storage tank (UST) database and is listed on the Massachusetts Spills (MA Spills) database. Ten past releases of petroleum on the Property have resulted in "disposal site" listings, and nine of these listings were present on the Massachusetts Reportable Release (MA RELEASE), state hazardous waste site (SHWS), and leaking underground

storage tank (LUST) databases. Although one Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS), and several MA RELEASE, SHWS, LUST, leaking aboveground storage tank (LAST) sites are located within one-quarter mile of the Property, all but two were identified as either cross or downgradient of the Property or with a regulatory status of Response Action Outcome (RAO) and, therefore, not considered to be RECs.

Conclusions

TechLaw has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-05 for the Fernald Developmental Center located at 200 Trapelo Road in Waltham, Massachusetts. Any exceptions to or deletions from this practice are described in Section 6.1 of this report. This assessment has revealed no evidence of RECs in connection with the Property, except for the following:

- Soil contaminated with No. 6 fuel oil is present in an AUL area under and south of the Power Plant.
- A 65-year old oil pipeline easement exists on the Property whose condition is unknown.
- Thermal pipe insulation present on pipes in outdoor locations was observed to be in fair to poor condition; asbestos may be present in the pipes and able to be dispersed by wind and water. Asbestos siding is also noted present on the former Volunteer Center (282 Trapelo Road) and the former Day Care (180 Trapelo Road).
- A 39-year-old, 750-gallon diesel UST located at the Shriver Center is not equipped with corrosion protection and could release diesel fuel into the ground.
- No. 2 fuel oil ASTs located in four vacant residential buildings are at least 30 years old, and the buildings are in poor condition.
- An oil plume appears to be approaching the Property from an upgradient adjacent parcel on the northwest side of the Property.
- The wetland on the southern portion of the Property may have been impacted by heavy metals due to an agricultural experiment on the adjacent parcel.

2.0 INTRODUCTION

2.1 Purpose

The purpose of this Phase I ESA is to identify RECs in connection with the Property. An REC is defined by ASTM E1527-05 as "the presence or likely presence of hazardous substances or petroleum products on a property under conditions that indicate an existing release, past release, or a material threat of a release of hazardous or petroleum products into structures on the property or into the ground, groundwater, or surface water of the property."

2.2 Scope-of-Services

The scope of work for this ESA included interviewing people knowledgeable about the Property with respect to current and former operations; reviewing records/files that were reasonably available for review from federal, state, and local sources; and conducting a site reconnaissance of the Property. This information is summarized in this report. Collected information was analyzed to determine the existence of RECs on or near the Property, as defined in ASTM Practice E1527-05. Within the limits of the scope of work and prior to the finalization of this report, every effort was made to evaluate potential hazardous environmental conditions that were identified during the site assessment.

2.2.1 Site Reconnaissance

TechLaw completed the site reconnaissance over three days between June 30 and July 13, 2009. Findings of the site reconnaissance are recorded in Section 6 of this report. Site photographs are presented in Appendix A of this report.

2.2.2 Review of Records and Database Printout

TechLaw reviewed readily available city, county, state, and federal government agency records to determine whether the site and/or adjacent properties are engaged in the storage, generation, transportation, or disposal of hazardous materials. TechLaw also reviewed records to determine the presence of on-site or nearby landfills, solid waste disposal sites, registered storage tanks, leaking registered storage tanks, and spill incident reports. Copies of U.S. Environmental Protection Agency (EPA) and state records consist of a database report which is appended to this report.

Standard historical information sources were reviewed by TechLaw to obtain site usage and included historical aerial photographs, historical U.S. Geological Survey (USGS) topographic maps, Sanborn Fire Insurance Maps, and a City Directory Abstract prepared for the Property. These resources were compiled by and obtained from Environmental Data Resources, Inc. (EDR) and are included in Appendix B.

TechLaw reviewed topographic, orthographic, geologic, hydrologic, and regulated area maps for information regarding the physical setting of the subject property. Copies of these maps are provided as Figures 1, 2, 4, 5, 6, 7, 8 and 9.

2.3 Significant Assumptions

This assessment was conducted in accordance with generally accepted industry practices and procedures within the scope of work authorized at the time and place of this study. TechLaw's observations are limited to those areas to which it had access on the subject property.

The site inspection included viewing accessible areas of the Subject Property on foot wherever possible. During the completion of this Phase I ESA, TechLaw followed the guidelines presented in ASTM E1527-05, with the exception of evaluating the building interiors. The work scope for this ESA included assessment of building exteriors and readily accessible areas on the Subject Property. TechLaw notes that other contractors have been tasked with interior assessments of Property buildings. TechLaw was not provided with access into the majority of Property buildings.

2.4 User Reliance

This report may be distributed and relied upon by DCAM, its successors and assigns. Reliance on the information and conclusions in this report by any other person or entity is not authorized without the written consent of TechLaw, Inc.

3.0 SITE DESCRIPTION

3.1 Location and Legal Description

The principal address for the Property is 200 Trapelo Road, Middlesex County, Waltham, Massachusetts. According to the Waltham Assessors Office, the Property occupies two parcels with a combined area of 195.06 acres of land and improvements. The two contiguous parcels are located on the east side of the City of Waltham. The larger 163.05-acre parcel is identified as Assessor Parcel No. (APN) R045 001 0001, and is listed in the Waltham Assessors records as 190 Trapelo Road. The smaller 32.01-acre parcel is identified as APN R036 008 0001, and is listed in the Waltham Assessors records as 338 Trapelo Road. The Commonwealth of Massachusetts is listed as the owner of the two parcels. Other street addresses for the Property include 180 Trapelo Road (a former residence that was most recently occupied as a staff daycare center) and 282 Trapelo Road (a former residence that was most recently occupied as a Volunteer Center). The Site Locus Map is included as Figure 1 and a Site Plan is included as Figure 2.

The Property features frontage on the south side of Trapelo Road and the northwest side of Waverley Oaks Road, and is accessed from entrances on each of these roads. The Property abuts parcels that are located north of Beaver Street and east of Forest Street.

A legal description was not provided by DCAM for the Property and was not obtained as part of this ESA.

3.2 Site General Characteristics

The Property occupies two irregularly-shaped contiguous parcels in a hilly area of Waltham north of the Charles River. Elevations vary widely across the Property, and range from a hilltop at an elevation of 240 feet above mean sea level (MSL) near the eastern property line to a wetland area at 50 feet above MSL near the southern corner of the Property near Waverley Oaks Road. Woodlands and broad spreading lawns on the Property divide functional areas and buildings.

The Property is surrounded by a public school and a parcel (formerly occupied as a state hospital) to the north; residential neighborhoods to the northeast and southeast; a commercial area occupied by commercial buildings to the south-southeast; a Girl Scout Camp and agricultural land (including a wetland) occupied by the University of Massachusetts Amherst Agricultural School (UMASS) to the southwest; and college buildings, a city park, and the Regional Archives of the Federal Records Center to the northwest.

3.3 Current Use of the Property

The Property is currently used primarily as a residential campus by the Massachusetts Department of Mental Retardation (DMR) and operates as the Fernald Developmental Center (FDC). The Eunice Kennedy Shriver Center (Shriver Center) is also located on the FDC campus and is operated by the University of Massachusetts Medical School. (For the purposes of this ESA, the Shriver Center is included in the Property boundaries.) Other state offices that occupy portions of the FDC facility include the State Police, Tufts Dental Facility for the Handicapped, and the Department of Weights and Measures.

3.4 Description of Structures, Roads, and Other Site Improvements

The Property is improved with approximately 71 major structures along with smaller sheds, garages, and temporary structures. Concrete and asphalt paved streets, sidewalks, driveways, and parking areas are present throughout the Property. Some unpaved roads are also present in the southern portion of the Property. Older structures in the campus core tend to be of brick construction and are typically situated over basements; several of these buildings have been condemned due to their poor condition and are surrounded by locked chain-link fences. Newer buildings on the property typically consist of slab-on-grade construction with brick, masonry, or walls covered with manufactured siding.

All of the FDC's buildings are provided with potable water and sewer service by the Massachusetts Water Resources Authority (MWRA); TechLaw notes that the Property's three former residential structures adjacent to Trapelo Road have water and sewer connections to the City of Waltham which also obtains water and sewer services from the MWRA. No clarifiers or other wastewater treatment systems are present on the Property.

The FDC operates a steam plant which provides heat to a majority of the campus buildings through a system of steam and hot water pipes. Steam pipes are conveyed through an underground tunnel system across the campus and hot water pipes are also buried underground. Remaining buildings that are not connected to the steam heat system are heated using oil, propane, or natural gas.

3.5 Current Uses of Adjoining Properties

TechLaw observed the following land uses on properties adjacent to the Property:

Northeast: Areas immediately adjacent to the northeast of the Property include the following: the Phineas Lawrence Elementary School (258 Trapelo Road), Trapelo Road, and beyond Trapelo Road by undeveloped city-owned land north of Trapelo Road (APN R036 001 0002C); city-owned land occupied by a vacant "dormitory" (285 Trapelo Road, formerly part of the Metropolitan State Hospital); the Metropolitan State Hospital (475 Trapelo Road), and single family residences along Trapelo Road.

Southeast: Areas immediately adjacent to the southeast of the Property include the following: residences along Shirley Road, Shawmut Road, TipTop Terrace, Phillips Circle,

Bishop Terrace, and Waverly Oaks Road; Waverley Oaks Road; commercial buildings beyond Waverley Oaks Road occupied by a variety of offices and businesses (355, 319, 307, and 271 Waverley Oaks Road).

Southwest: Areas immediately adjacent to the southwest of the Property include the following: agricultural land (including a wetland) owned by the State of Massachusetts and operated by the University of Massachusetts Amherst (225-227 Beaver Street) and the Massachusetts Girl Scout Council (265 Beaver Street).

Northwest: Areas immediately adjacent to the northwest of the Property include the following: an undeveloped city-owned parcel (APN R035 007 0016); Bentley College dormitories (371 Forest Street); Waltham City Park and athletic fields (424 Trapelo Road); the F.C. Murphy Federal Records Center (380 Trapelo Road; and a single family residence (385 Trapelo Road).

4.0 USER PROVIDED INFORMATION

4.1 Title Records

Title records for the Property parcels were not provided by DCAM and were not obtained as part of scope of this ESA. A title search was not required for this ESA.

4.2 Property Owner and Occupant Information

According to the Waltham Assessors information, the Commonwealth of Massachusetts is the current owner of the Property. The Commonwealth of Massachusetts has operated a facility for the benefit of developmentally delayed citizens at the Property since approximately 1890.

4.3 Reason for Performing the Phase I

This Phase I ESA was requested by DCAM to identify any RECs in connection with the Property.

5.0 RECORDS REVIEW

5.1 Standard Environmental Record Sources

Information from standard federal and state environmental record sources was provided for this ESA by EDR. Data from governmental agency lists are updated and integrated into EDR's database, which is updated as these data are released. This integrated database also contains postal service data in order to enhance address matching. The available geographic information provides assistance in identifying risk. The accuracy of the mapped locations is approximately +/-300 feet.

In some cases, location information supplied by the regulatory agencies is insufficient to allow database companies to map facility locations. These facilities are listed as "orphan sites" (i.e., unmappable sites) in the EDR report. A review of the Orphan Summary of unmappable facilities indicated that two of these facilities are within the ASTM minimum search distance from the Property. These facilities are discussed under the appropriate database heading below.

Regulatory information was reviewed from the following database sources regarding possible RECs within the ASTM minimum search distance from the Property. Specific facilities are discussed below if determined likely that a potential REC has resulted at the Property from the listed facilities. Please refer to Appendix C-1 for a complete listing.

5.1.1 Federal NPL

The National Priorities List (NPL) is the EPA database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund Program.

The Property is not listed as a NPL or Delisted NPL facility. No NPL or Delisted NPL sites are located within one mile of the Property.

5.1.2 Federal Resource Conservation and Recovery Act (RCRA) CORRACTS Facilities List

The EPA Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Treatment, Storage, and Disposal (TSD) database is EPA's compilation of reporting facilities that treat, store, or dispose of hazardous waste. The CORRACTS database is the EPA's list of TSD facilities subject to corrective action under RCRA.

The Property is not listed as a RCRA CORRACTS TSD facility. No RCRA CORRACTS TSD facilities are listed within one mile of the Property.

5.1.3 Federal Resource Conservation and Recovery Act (RCRA) Non-CORRACTS TSD Facilities List

The RCRA TSD database is a compilation by the EPA of reporting facilities that treat, store, or dispose of hazardous waste.

The Property is not listed as a RCRA-TSD facility. No RCRA TSD sites are listed within one-half mile of the Property.

5.1.4 Federal CERCLIS List

The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list is a compilation of sites that the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances.

The Property is not listed as a CERCLIS facility. One CERCLIS site is listed within one-half mile of the Property:

- ***Duffy Bros Construction Inc., 411 Waverley Oaks Rd. (MAD980916316, EDR Map ID C16)*** is mapped approximately 0.088 mile from the Property and is actually located on the southeast side of Waverley Oaks Road. CERCLIS milestones include Site Discovery (1984), a Preliminary Assessment (1987), Site Inspection (1991), and Site Reassessment (2001); the CERCLIS site status is listed as "low priority for further assessment."

  TechLaw obtained additional information for this CERCLIS site from the EPA website; the EPA Site Awaiting NPL Decision (SAND) summary is included in Exhibit C-2 of this report. Prior to Duffy Brothers purchase of the 27-acre site in 1973, the Pierce Brothers Oil Company (Pierce Brothers) operated greenhouses at the site which were heated with coal prior to 1920. After 1920, Pierce Brothers heated the greenhouses with waste oil obtained from various off-site sources. The waste oil was stored in aboveground storage tanks (ASTs), underground storage tanks (USTs), and a lagoon on the site. Waste oil storage reportedly ceased on the site after 1973. Extensive sampling revealed the presence of petroleum-related compounds, chlorinated volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and metals in soil, sediment, groundwater and surface water on the site.

  The site has been redeveloped with commercial buildings and paved parking areas, and is being remediated under the Massachusetts Contingency Plan (MCP) under Release Tracking Number (RTN) 3-0000454 and is discussed further in section 5.1.8 [as a State Hazardous Waste Site (SHWS)]. Currently, Separate Phase Hydrocarbons (SPH) are collected from five recovery wells and a trench on site for off-site disposal. TechLaw could not confirm the exact boundaries of this CERCLIS site; however, the MCP "disposal site" boundary is shown on a figure included with the supplemental information for RTN 3-0000454. The western edge of the "disposal site" begins on the southeast side of Waverley Oaks Road and the majority of the "disposal site" is located between Waverley Oaks Road and a brook and wetland area further to the east. The

"disposal site" boundary comes within approximately 100 feet of the Subject Property frontage on Waverley Oaks Road. The majority of the remaining contamination at the Duffy Brothers site is located on the southeastern portion of that site which is closest to Beaver Brook. Based on topographic elevations and inferred groundwater flow direction from the Property to the south or south-southeast, contamination from the Duffy Brothers site is not likely to have an adverse impact on the Subject Property.

5.1.5 Federal CERCLIS NFRAP Sites List

The CERCLIS No Further Remedial Action Planned (NFRAP) List is a compilation of sites that the EPA has investigated and has determined that, under the CERCLA framework, the facility does not pose a threat to human health or the environment,.

The Property is not listed as a CERCLIS-NFRAP facility. No CERCLIS-NFRAP sites are listed within one-half mile of the Property.

5.1.6 Federal RCRA Generator List

The RCRA program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Generators database is a compilation by the EPA of reporting facilities that generate hazardous waste.

The Property is listed as a RCRA facility:

- ***Eunice Kennedy Shriver Center, 200 Trapelo Road (MAD073798720, EDR Map ID A7)*** - The Eunice Kennedy Shriver Center (Shriver Center) is located at the Trapelo Road entrance to the FDC and, up until 2001, was part of the FDC campus. For the purposes of this ESA, the Shriver Center is considered part of the FDC campus. The Shriver Center currently operates as a research and training facility under the University of Massachusetts Medical School and is listed as a RCRA Small Quantity Generator (SQG). Three waste codes are specified for this facility in the EDR Report: ignitable wastes (EPA Waste Code D001), corrosive wastes (D002), and chromium-bearing wastes (D007). The facility was cited with nine RCRA violations in 1994, and the facility came into compliance for all violations in 1996. The RCRA violations appear to be administrative in nature. TechLaw does not consider this on-site RCRA facility to have adversely impacted the Subject Property.

No RCRA facilities were identified on adjacent properties.

5.1.7 Federal Emergency Response Notification System (ERNS)

The Emergency Response Notification System (ERNS) is a national database used to collect information on reported releases of oil or hazardous substances. No ERNS sites were listed on the Property.

5.1.8 State-Listed Disposal Sites (CERCLIS equivalent, LUST, and LAST)

The Massachusetts Department of Environmental Protection (MassDEP) maintains a listing of sites where oil and/or hazardous materials were reported to be released (MA RELEASE). The EDR report also identifies databases which are a subset of the MA RELEASE database which include sites where the source is identified as a leaking

underground storage tank (LUST), leaking aboveground storage tank (LAST), or fall in the category of sites considered to be actually or potentially contaminated by hazardous wastes and/or oil and that present a possible threat to human health and the environment [i.e., State Hazardous Waste Site (SHWS)]. SHWS are considered CERCLIS-equivalent sites.

Releases of oil and hazardous materials are regulated under the MCP. The MCP specifies notification, assessment, and response actions for "disposal sites" within the Commonwealth. Upon notification to MassDEP, a reportable release is assigned a Release Tracking Number (RTN) and is tracked by MassDEP until the site achieves a condition of "no significant risk" with the goal that a "permanent solution" [i.e., either a Class A or Class B Response Action Outcome (RAO)] is achieved at all sites. If a "temporary solution" (i.e., a Class C RAO) is achieved at a site, MassDEP requires the responsible party to re-evaluate the disposal site every five years to determine whether a "permanent solution" may be achieved.

In addition, the Commonwealth of Massachusetts operates a privatized cleanup program, and private sector Licensed Site Professionals (LSPs) are responsible to conduct notification, assessment, and response activities in accordance with the MCP. Most SHWS fall in the category of "Tier II" sites which generally tend to be less contaminated sites that do not require day-to-day oversight by MassDEP personnel. Tier I sites meet specific Tier I inclusionary criteria and have Numerical Ranking System (NRS) scores greater than 350. Tier I sites tend to have elevated levels of contamination and/or greater potential for human exposure. Under the privatized cleanup program, MassDEP reserves the right to audit sites after an RAO opinion has been rendered by an LSP. Approximately 20% of sites are audited as part of MassDEP's regulatory oversight. Based on audit findings, MassDEP has the authority to reverse the LSP decision and "re-open" a site which had been deemed by the LSP to have achieved RAO status.

TechLaw notes that a single RTN may be listed under multiple databases in the EDR Report. To avoid unnecessary duplication, all sites regulated under the MCP that are listed in the MA RELEASE, LUST, LAST, and/or SHWS databases are described in the category of State-Listed Disposal Sites.

TechLaw notes that EDR considers sites with multiple RTN listings under a single Site Name to be *one* site. For example, the EDR Report may identify 51 SHWS within one mile of the Subject Property, but there actually may be 61 RTNs associated with these listings. The analysis of state sites which follows, where convenient, segregates listings by RTN unless an RTN is linked (after the fact) by MassDEP. Four state databases were evaluated as part of this ESA. The sites selected for discussion in this ESA were screened, based on the following criteria:

MA RELEASE: Six of the 66 MA RELEASE sites mapped within a one-half mile radius of the Property were identified on the Subject Property. Of the 60 remaining off-site MA RELEASE sites, 18 are located less than 0.25 mile from the Subject Property and have potential to impact the Subject Property. Six of these 18 MA RELEASE sites are not considered an environmental concern to the Subject Property based on their distance, hydraulically downgradient location, location beyond an intervening steam, and/or "RAO" compliance status; these sites include ***Clematis***

Corporation (117 Beaver Street); ***No Location Aid*** (110 Beaver Street); ***No Location Aid*** (10 Clematis Avenue); ***George More Facility Fmr*** (110 Beaver Street); ***Light Metal Platers*** (70-74 Clematis Avenue); and ***Industrial Property*** (70-74 Clematis Avenue). The remaining 12 MA RELEASE sites are discussed below.

SHWS: Three of the 51 SHWS within one mile of the Property were identified on the Subject Property. Of the remaining 48 mapped SHWS listings, 31 SHWS are mapped more than 0.25 miles from the Subject Property boundaries and deemed not likely to have an adverse environmental impact on the Property based on their compliance status, distance, and/or downgradient location. Five of the 17 remaining SHWS mapped within a 0.25-mile radius of the Property are located hydraulically downgradient of the Subject Property and, in conjunction with their compliance status, are not considered an environmental concern to the Subject Property: ***Clematis Corporation*** (117 Beaver Street); ***No Location Aid*** (110 Beaver Street); ***George More Facility Fmr*** (110 Beaver Street); ***Light Metal Platers*** (70-74 Clematis Avenue); and ***Industrial Property*** (70-74 Clematis Avenue). The remaining 12 mapped SHWS located within 0.25-miles of the Subject Property are discussed below.

LUST: Five of the 13 mapped LUST facilities within 0.5 mile of the Property were identified on the Subject Property. Of the remaining eight mapped LUST sites, four are located greater than 0.25 mile from the Property and deemed not likely to have an adverse environmental impact on the Property based upon their status, distance, or downgradient locations. The four remaining mapped LUST sites which are in closer proximity to the Property are discussed below.

LAST: None of the three mapped LAST facilities within a one-half mile radius of the Property were identified on the Subject Property. Two of the three mapped LAST sites are located on Clematis Avenue which is located beyond a brook in a downgradient location and hydraulically separated from the Subject Property; therefore, any contamination present at these two LAST sites would not be likely to impact the Subject Property. The remaining LAST site is discussed below.

5.1.8.1 State-Listed Disposal Sites on the Subject Property

One RTN listing for the Property [RTN 3-0021380, Thom Building, Fernald Cener, 200 Trapello Rd *(sic)*] did not appear in the EDR report. The remaining nine RTN listings for the Property appear on the MA RELEASE, SHWS, LUST, and/or LAST databases and include:

RTN 3-0011878, Rear Gate Off Waverly Oaks Rd, 200 Trapelo Rd (EDR Map ID A2)

This site is listed in the MA RELEASE and SHWS databases, and on the MassDEP website with a status of Class A-1 RAO. A release of approximately 30 gallons of No. 6 fuel oil occurred in 1994 while filling a UST at the Power Plant. Oil impacted a paved area and the adjacent stream on the Property and, after response actions were completed, a Class A-1 RAO was achieved. This release is discussed in further detail in section 5.2.2 of this report.

RTN 3-0015121, Not reported, 200 Trapelo Rd (EDR Map ID A3)

This site is listed in the MA RELEASE and SHWS databases, and on the MassDEP website with a status of Class A-2 RAO. Approximately 35 to 40 gallons of gasoline were released in 1997 on the Property after a driver backed up into a light stanchion and inadvertently punctured the van's gasoline tank. The driver stopped at two additional locations after initially damaging the vehicle's fuel tank before the release was discovered. Response actions were completed and a Class A-2 RAO was achieved. This release is discussed in further detail in section 5.2.7 of this report.

RTN 3-0010367, Not reported, 200 Trapelo Rd (EDR Map ID A3)

This site is listed in the MA RELEASE and SHWS databases, and on the MassDEP website with a status of Class C RAO. Approximately 320 gallons of No. 6 fuel oil were released in 1993 at the Power Plant on the Subject Property after oil delivered to the UST was heated and expanded, thereby overflowing the UST. Some of the oil flowed into the adjacent stream. Response actions were completed and a Class C RAO was achieved; an activity and use limitation (AUL) was implemented as part of the RAO. This release is discussed in further detail in section 5.2.1 of this report.

RTN 3-0015442, Powerplant, 200 Trapelo Rd (EDR Map ID A5)

This site is listed in the MA RELEASE and SHWS databases, and on the MassDEP website with a status of Class A-2 RAO. A release of approximately 100 gallons of No. 6 fuel oil occurred while filling a UST at the Power Plant. Oil impacted a paved area and the adjacent stream on the Subject Property and, after response actions were completed, a Class A-2 RAO was achieved. This release is discussed in further detail in section 5.2.5 of this report.

RTN 3-0021892, Malone Park Bldg. No. 21, 200 Trapelo Rd. (EDR Map ID A1)

This site is listed in the MA RELEASE and LUST databases, and on the MassDEP website with a status of Class A-2 RAO. The EDR report indicates that a concentration of up to 200 parts per million of No. 2 fuel oil was reported from a UST near a residential building on the FDC campus in June 2002. MassDEP was notified of the heating oil release as a result of UST closure. This release is discussed in further detail in section 5.2.8 of this report.

RTN 3-0013467, Not reported, 200 Trapelo Rd. (EDR Map ID A3)

This site is listed in the MA RELEASE and LUST databases, and on the MassDEP website with a status of Class A-3 RAO. An unknown amount of No. 6 fuel oil was released in the vicinity of a concrete wall near the Power Plant on the Subject Property. The source of the oil was identified as the on-site USTs. Response actions were completed and a Class A-3 RAO was achieved which involved implementation of an AUL. This release also appears as a MA RELEASE site in the EDR report, and is discussed in further detail in section 5.2.3 of this report.

RTN 3-0021893, Malone Park Bldg. No. 23, 200 Trapelo Rd. (EDR Map ID A4)

This site is listed in the MA RELEASE and LUST databases, on the MassDEP website with a status of Class A-2 RAO. The EDR report indicates that a concentration of up to 200 parts per million of No. 2 fuel oil was reported from a UST near a residential building on the FDC campus in June 2002; the concentration units provided in the EDR report does not identify the environmental matrix (water or soil) that was reported to have been impacted.) MassDEP was notified of the heating oil release as a result of UST closure. This release is discussed in further detail in section 5.2.9 of this report.

RTN 3-0015149, Powerplant, 200 Trapelo Rd. (EDR Map ID A5)

This site is listed in the MA RELEASE and LUST databases, and on the MassDEP website with a status of Class B-1 RAO. The EDR report indicates that 250 parts per million by volume (ppmv) of gasoline was encountered in headspace during the closure of a 1,000 gallon gasoline UST at the Power Plant in 1997. An "assessment only" IRA was conducted, and a Class B-1 RAO was achieved at the site. This release is discussed in further detail in section 5.2.4 of this report.

RTN 3-0010725, Fernald State School, 200 Trapelo Rd. (EDR Map ID A8)

This site is listed in the MA RELEASE and LUST databases, and on the MassDEP website with a status of Class A-2 RAO. A release of gasoline-related compounds from gasoline USTs at the Farm and Grounds Department impacted soil and water. After response actions were completed, a Class A-2 RAO was achieved. This release is discussed in further detail in section 5.2.6 of this report.

5.1.8.2 State-Listed Disposal Sites Near the Property

Sixteen RTN listings on the MA RELEASE, SHWS, LUST, and/or LAST databases were identified in close proximity to the Subject Property and include:

RTN 3-0022303, Fmr Heating Plant South Of, 333 Forest St (EDR Map ID 45)

This site is listed in the MA RELEASE and SHWS databases, and is listed with a regulatory status of Class A-3 RAO.

A release of one pound of asbestos and 34.8 milligrams per kilogram (mg/kg) of arsenic was reported to MassDEP in 2002. This site is mapped approximately 0.25 miles west of the Subject Property and *is actually located at a higher elevation and potentially upgradient of the Subject Property*. This SHWS is presumed to be a former heating plant at the parcel adjacent to the northwest side of the Subject Property and approximately 700 feet upgradient of four residential buildings in the Intermediate Care Facility (ICF) for the Mentally Retarded off of Malone Park Drive. The federally owned parcel containing the heating plant was subdivided and redeveloped. TechLaw presumes that the heating plant site is located on land currently owned by Bentley College, although the street address suggests that is may be part of the New Jewish High School (Gann Academy) which does not directly abut the Subject Property parcel.

The EDR report indicates that an Immediate Response Action (IRA) and Release Abatement Measure (RAM) were completed at the Site, and that a Class A-3 RAO was achieved implementing an AUL. TechLaw obtained supplemental information for this Site from the MassDEP's website; this information is included in Exhibit C-13. Approximately 10,000 square feet of soil was reported to be contaminated with arsenic and asbestos, and the RAM Plan proposed capping the impacted soil with geotextile fabric and gravel. In addition, an AUL was implemented at the disposal site to protect the area from intrusive activities. Based on the non-mobile nature of the contaminants and "site closure" based on capping the impacted soil and implementation of an AUL, TechLaw does not consider this site likely to pose an environmental threat to the Subject Property.

RTN 3-0018952 & RTN 3-0003078, UTM 4694592N 318350E, 313 Waverley Oaks Rd (EDR Map ID B10)

RTN 3-0018952 is listed in the MA RELEASE and SHWS databases while RTN 3-0003078 is listed in the MA RELEASE, SHWS, LUST, and LAST databases. In the MassDEP database, the status of RTN 3-0018952 is listed as "RAONR" (RAO not required) and the status of RTN 3-0003078 is listed with a Class A-3 RAO.

According to the EDR report, this site is mapped 0.002 mile southeast of the Subject Property along Waverley Oaks Road. Based on TechLaw's review of aerial photographs and supplemental information obtained from the EDR Report and the MassDEP web site, this disposal site appears to be located southeast of the FDC Waverley Oaks Road entrance to the Subject Property and likely abuts the Subject Property beyond Waverley Oaks Road.

The EDR Report indicates that MassDEP was notified of a release of 10 gallons of petroleum and 100 gallons of water in November 1999. MassDEP assigned RTN 3-0018952 to the release, and an IRA was subsequently performed. The site did not require an RAO because it was determined that the Site was already listed under RTN 3-0003078 (which has the same street address and is listed as a fuel depot and former tank farm). The site is currently developed with an office building and parking lot. MassDEP Site Information for this "parent" site identifies the site as "Shell Product Dist Plant Fmr" and that after several remedial phases, a Class A-3 RAO was achieved for the disposal site (RTN 3-0003078) in 2004. A Class A-3 RAO indicates that a permanent solution was achieved through the use of an AUL, and that the contamination has not been reduced to background. As part of response actions under the MCP, the extent of contamination must be assessed to define the "disposal site" boundaries. Based on the groundwater flow direction to the south in this area of Waltham and site "closure" under the MCP via a Class A-3 RAO, TechLaw does not anticipate adverse environmental impacts to the Subject Property from this site.

RTN 3-0020538, UTM 4694592N 318350E, 313 Waverley Oaks Rd (EDR Map ID B10)

This site is listed in the MA RELEASE and SHWS databases, and the status listed on the MassDEP website is RAO not required.

According to the EDR report, this site is mapped 0.002 mile southeast of the Subject Property along Waverley Oaks Road. Based on TechLaw's review of aerial photographs and supplemental information obtained from the EDR Report and the MassDEP web site, this disposal site appears to be located southeast of the FDC Waverley Oaks Road entrance to the Subject Property and likely abuts the Subject Property beyond Waverley Oaks Road.

In 2001, MassDEP received notification that dibenzo(a,h)anthracene (1.9 mg/kg); benzo(a)anthracene (3.2 mg/kg); benzo(b)fluoranthene (8.8 mg/kg); total petroleum hydrocarbons (TPH) (4,700 mg/kg); barium (3,780 mg/kg); and lead (29,000 mg/kg) were present in soil at the site. The site status is listed as "RAO not required" because the site is "related to a Tier Classified Site." The Site Information on the MassDEP website does not specify which RTN the release has been linked with; however, the site name on the MassDEP website summary suggests that this RTN is associated with RTN 3-0003078. A RAM was completed at the site, but no further information was listed for the site. Based on the redevelopment of the site as office buildings and parking areas, the poor mobility of these contaminants of concern, and the site's location downgradient of the Subject Property, TechLaw does not consider this SHWS to be an environmental concern to the Subject Property.

RTN 3-0013458, Gas Station, 277 Waverley Oaks Rd (EDR Map ID 12)

This site is listed in the MA RELEASE and SHWS databases, and the status on the MassDEP website is listed as Class A-2 RAO.

According to the EDR report, this site is mapped 0.052 mile southwest of the Subject Property. Based on TechLaw's review of a 1995 aerial photograph and information from EDR and the MassDEP web site, this site appears to be located on the south side of Waverley Oaks Road and north of Beaver Street. MassDEP was notified in February 1996 of the release of 150 gallons of gasoline from a commercial gas pump, and MassDEP subsequently assigned RTN 3-0013458 to the release site. An IRA was completed in April 1996 and the site was "closed" with a Class A-2 RAO in February 1997. Based on this disposal site's downgradient location and presumed groundwater flow direction to the south, TechLaw does not consider this release of gasoline to pose an environmental threat to the Subject Property.

TechLaw notes that this site is currently addressed as 225 Waverley Oaks Road, according to a recently submitted Phase I Initial Site Investigation Report prepared for RTN 3-27761 for the Shell Branded Gasoline Station site at 225 Waverley Oaks Road.

RTN 3-0000454, Duffy Brothers Construction, 411 Waverley Oaks Rd (EDR Map ID C14)

This site is listed in the MA RELEASE and SHWS databases. The site status on the MassDEP website is listed as Class C-2 RAO.

According to the EDR report, this site is mapped 0.088 mile east-southeast of the Subject Property. Based on TechLaw's review of information obtained from EDR and the MassDEP web site, this site is located on the south side of Waverley Oaks Road and

directly abuts the residential neighborhood northwest of Waverley Oaks Road near its intersection with Parkview and Upton Roads. This residential neighborhood abuts the Subject Property to the southeast, and the disposal site boundary is approximately 100 feet from the Subject Site property line.

In 1987, MassDEP was notified of the release of an "unknown chemical of unknown type" and assigned RTN-30000454 to the release site. TechLaw reviewed a report for the site prepared by GZA GeoEnvironmental in May 2009 entitled *Phase IV As-Built Construction Report, Final Inspection Report, and Completion Statement Upland Area, 411 Waverley Oaks Road, Waltham, Massachusetts;* this report was available on the MassDEP website and included some site history and a site plan. The site is the location of a former waste oil facility which reportedly stored waste oil in "large volumes." Drums, ASTs, and lagoons reportedly occupied the southern and downgradient portion of this site. Groundwater and the downgradient wetland area which discharges into Beaver Brook were impacted by the release of separate phase hydrocarbons (SPH). The northern portion of the site along the south side of Waverley Oaks Road is currently occupied by several large commercial buildings and parking areas and is the portion of the Site that has achieved a Class B-1 RAO which indicates that remedial actions have not been conducted because a level of "no significant risk" exists.

Various response actions have been completed at the site between 1999 and May 2009 including completion of IRA, Phase II, Phase III, Phase IV, and RAM reports. A Class B-1 partial RAO was achieved for part of the Site in 1996. The MCP status of upland areas of the site is listed as a Class C RAO Operation, Maintenance, and Monitoring because groundwater on this portion of the site is being monitored as part of the implementation of a groundwater treatment system. TechLaw considers contamination at this disposal site to pose low environmental risk to the Subject Property based on its downgradient or cross-gradient location, presumed groundwater flow to the south and/or south-southeast, and surface water flow to a brook which impacts areas well downgradient of the Subject Property.

RTN 3-0010717, Rear Area of Site, 411 Waverley Oaks Road (EDR Map ID C15)

This site is listed in the MA RELEASE and SHWS databases. The status of the site on the MassDEP website is listed as Class A-2 RAO.

According to the EDR report, this site is mapped 0.088 mile east-southeast of the Subject Property. Based on TechLaw's review of information obtained from EDR and the MassDEP web site, this site is co-located with the Duffy Brother Construction site on the south side of Waverley Oaks Road. 411 Waverly Oaks Road directly abuts the residential neighborhood northwest of Waverley Oaks Road near its intersection with Parkview and Upton Roads; this residential neighborhood abuts the Subject Property to the southeast. The site name suggests that the area of contamination is likely on the east (rear) area of the parcel.

In 1994, MassDEP was notified of the release of a total of 40 gallons of water and an unknown concentration of PCBs from a tanker to a water body at the site. A wetland is located on the southeasterly portion of the 411 Waverley Oaks property. MassDEP assigned RTN 3-0010717 to the release and provided oral approval for implementation of

an IRA. A Class A-2 RAO was achieved at the site in May 1994 which indicates that a permanent solution was achieved but that contamination was not reduced to background levels. TechLaw considers PCB contamination at this disposal site to pose little to no environmental risk to the Subject Property based on its RAO status, the site's downgradient or cross-gradient location relative to the Subject Property, presumed regional groundwater flow to the south, and surface water flow to a brook which impacts areas well downgradient of the Subject Property.

RTN 3-0025816, Rear of Property, 411 Waverley Oaks Road (EDR Map ID C19)

This site is listed in the MA RELEASE and SHWS databases. The site status listed on the MassDEP website is RAO not required.

According to the EDR report, this site is mapped 0.088 mile east-southeast of the Subject Property. Based on TechLaw's review of information obtained from EDR and the MassDEP web site, this site is co-located with the Duffy Brother Construction site on the south side of Waverley Oaks Road. 411 Waverly Oaks Road directly abuts the residential neighborhood northwest of Waverley Oaks Road near its intersection with Parkview and Upton Roads; this residential neighborhood abuts the Subject Property to the southeast. The site name suggests that the area of contamination is likely on the east (rear) area of the parcel.

In 2006, MassDEP was notified of a release of water to a water body at the site but no other chemical constituents were reported. A wetland is located on the southern portion of the 411 Waverley Oaks property. MassDEP assigned RTN 3-0025816 to the release. An IRA was completed at the site approximately two months later. The EDR report indicates that the primary RTN for this site is 3-0000454 (refer to the discussion of ***Duffy Brothers Construction*** site above), and that an RAO is not required. The RTN was subsequently closed since response actions were being completed as part of 3-0000454. Based on this information, TechLaw does not consider this release to pose a threat to the Subject Property based on the site's downgradient and/or cross-gradient location relative to the Subject Property, presumed groundwater flow to the south or south-southeast, and surface water flow to a brook which impacts areas downgradient of the Subject Property.

RTN 3-0017581, Waltham Federal Center, 424 Trapelo Road (EDR Map ID D20)

This site is listed in the MA RELEASE and SHWS databases. The site status listed on the MassDEP website is Class C1 RAO.

According to the EDR report, this site is mapped 0.161 mile northwest of the Subject Property. Based on TechLaw's review of information obtained from EDR and the MassDEP web site, this site is located south of Trapelo Road, east of Forest Street, and abuts the west side of the Subject Property. TechLaw notes that MassDEP records the site name for RTN 3-0017581 as "Murphy Federal Ctr Boiler Plant."

In 1998, MassDEP was notified of a release of 0.5 inches of No. 4 fuel oil and 4 inches of non-aqueous phase liquids (NAPL). The EDR report indicates that, in 1999, an RAO was not required since the site was "related to" a Tier Classified site. (TechLaw presumes that RTN 3-0017581 is linked to LUST site RTN 3-0006013). However, in 2001, an IRA

completion statement was received by MassDEP and the current compliance status for this release is listed as a Class C1 RAO. A Class C RAO indicates that a temporary solution has been achieved since the site does not present a "substantial hazard" but the site has not yet achieved a condition of "no significant risk."

Based on information obtained by TechLaw for LUST site 3-0006013, a release of petroleum was reported to MassDEP in 1994. and MassDEP received Phase I, Phase II, and Phase III Completion Statements between 1998 and 2001. This release was classified as a Tier II site, and a Class C RAO was achieved in June 2009. TechLaw obtained a copy of report from the MassDEP website entitled *Letter Report of Post Response Action Outcome Monitoring – Year Seven, Event One, April 2009 Ground-Water Gauging, Murphy Federal Center, Former Boiler Plant Underground Storage Tanks, 424 Trapelo Road, Waltham, MA 02154, MA DEP RTN 3-6013*. This report was prepared by Advent Environmental Inc. (ADVENT), and is included in Exhibit C-13 of this report. TechLaw notes that the report includes a site plan which shows a plume depicting the approximate extent of "separate phase oil" which was released from the former USTs at the boiler plant at that site. The leading edge of the separate phase oil plume is shown to be within 25 feet of the Subject Property and progressing down the hillside slope toward the Subject Property. Based on this information, TechLaw considers this release to be an off-site REC that has potential to impact the Property.

RTN 3-0018887, FC Murphy Federal Center, 424 Trapelo Road (EDR Map ID D21)

This site is listed in the MA RELEASE and SHWS databases. The site status is listed on the MassDEP website as Class A-2 RAO.

According to the EDR report, this site is mapped 0.161 mile northwest of the Subject Property. Based on TechLaw's review of information obtained from EDR and the MassDEP web site, this site is located on the south side of Trapelo Road and abuts the northwest corner of the Subject Property.

In 1999, MassDEP was notified of a release of an unknown concentration of 2-methylnaphthalene, benzo(a)anthracene [2.1 parts per million (ppm)], and benzo(a)pyrene (2 ppm). A RAM was completed in 2001 and a Class A-2 RAO was achieved for the site in 2001 using a MCP Method 3 Risk Assessment. Based upon the information reviewed by TechLaw, the release contains relatively low concentrations of polynuclear aromatic hydrocarbons (PAHs). PAHs preferentially adsorb to soil and do not travel significant distances in groundwater. Based on the site status as "RAO" and the low mobility characteristics of the contaminants, TechLaw does not consider this release to be an environmental threat to the Subject Property.

RTN 3-0006013, Waltham Federal Center, 424 Trapelo Road (EDR Map ID D20)

This site is listed in the MA RELEASE and LUST databases. The site status is listed on the MassDEP website as Class C-1 RAO.

According to the EDR report, this site is mapped 0.161 mile northwest of the Subject Property. Based on TechLaw's review of information obtained from EDR, the MassDEP web site, and the Waltham GIS website, this LUST site is located south of Trapelo Road,

east of Forest Street, and abuts the west side of the Subject Property. TechLaw notes that MassDEP records the site name for RTN 3-0006013 as "Murphy Federal Center - Boiler Plant UST." This site is connected with SHWS identified as 3-0017581 (discussed previously). The site is listed with a Class C RAO, which indicates that a temporary solution has been achieved since the site does not present a "substantial hazard" but has not yet achieved a condition of "no significant risk."

Based on information obtained by TechLaw for LUST site 3-0006013, a release of petroleum was reported to MassDEP in 1994. MassDEP received Phase I, Phase II, and Phase III Completion Statements between 1998 and 2001. This release was classified as a Tier II site and a Class C RAO was submitted in June 2009. TechLaw obtained a copy of report from the MassDEP website entitled *Letter Report of Post Response Action Outcome Monitoring – Year Seven, Event One, April 2009 Ground-Water Gauging, Murphy Federal Center, Former Boiler Plant Underground Storage Tanks, 424 Trapelo Road, Waltham, MA 02154, MA DEP RTN 3-6013*. The report was prepared by Advent Environmental Inc. (ADVENT), and is included in Exhibit C-13 of this report. TechLaw notes that the report includes a site plan which shows a plume showing the approximate extent of "separate phase oil" which was released from the former USTs at the boiler plant at that site. The leading edge of the separate phase oil plume is shown to be within 25 feet of the Subject Property and progressing down the hillside slope toward the Subject Property. Based on this information, TechLaw considers this release an off-site REC that has potential to impact the Subject Site.

RTN 3-0015749, No Location Aid, 426 Trapelo Road (EDR Map ID D23)

This site is listed in the MA RELEASE and SHWS databases. The site status is listed on the MassDEP website as Class A-1 RAO.

According to the EDR report, this site is mapped 0.165 mile northwest of the Subject Property. Based on TechLaw's review of information obtained from EDR and the MassDEP web site, this site is located on Trapelo Road. The exact location of the site could not be determined although it appears that the site is likely to be associated with the Waltham Federal Center at 424 Trapelo Road which is adjacent to the northwest corner of the Subject Property.

In 1997, MassDEP was notified of a release of 10 gallons of diesel fuel and 12 gallons of diesel fuel which is assumed by TechLaw to have occurred from a motor vehicle incident at the site. Immediate approval of an IRA was provided by MassDEP the same day as the release, and a Class A-1 RAO was submitted for the site two months later. Since the release was cleaned up to background levels, TechLaw does not consider this release to pose an environmental threat to the Subject Property.

RTN 3-0027761, Shell Service Station #137873, 225 Waverley Oaks Road (EDR Map ID 24)

This site is listed in the MA RELEASE and SHWS databases. According to the MassDEP website, a Phase II Scope of Work was submitted and MCP response actions are continuing on the site.

According to the EDR report, this site is mapped 0.169 mile southwest of the Subject Property. Based on TechLaw's review of information obtained from EDR and the MassDEP web site, this site is located north of Beaver Street and east of Waverley Oaks Road and is the Shell Station at the intersection of these two roads.

MassDEP was notified of a release of aliphatic and aromatic petroleum hydrocarbons and methyl tert-butylether (MTBE) associated with a release of gasoline from an unknown source at the site in June 2008. A Phase I Initial Site Investigation report was submitted to MassDEP by Sovereign Consulting, Inc. (SCI) in May 2009. TechLaw reviewed the SCI Phase I report and notes that, based upon Figure 3 in that report, groundwater flow direction across this disposal site is to the south-southeast. Since the site is downgradient of the Subject Property and groundwater flows away from the Subject Property, TechLaw does not consider this site to pose an environmental threat to the Subject Property.

RTN 3-0028049, University of Massachusetts, 225-227 Beaver Street (EDR Map ID 39)

This site is listed in the MA RELEASE and SHWS databases. According to the MassDEP website, a Release Notification has been made by the responsible party and MCP response actions are continuing on the site.

According to the EDR report, this site is mapped 0.209 mile southwest of the Subject Property. TechLaw reviewed information obtained from EDR, the Waltham Assessors office, and the MassDEP web site. This site actually abuts the Subject Property to the south, and is shown as Waltham Assessor Parcel ID R054 001 0001 which is owned by the State of Massachusetts.

MassDEP was notified of a release of cadmium (9.1 mg/kg), chromium (37.5 mg/kg), and lead (1,520 mg/kg) in October 2008 at a facility operated by the University of Massachusetts. A Notice of Responsibility (NOR) was issued to the University of Massachusetts (Amherst) in November 2008. No additional information was found on the MassDEP website for this RTN. However, TechLaw contacted Mr. Ethan Gould [MassDEP Northeast Regional Office (NERO)] and obtained copies of the Release Notification Forms (RNF) for the release. Mr. Gould also noted that a RAM Plan for the release at 240 Beaver Street (RTN 3-0028050) was available for download from the MassDEP website. After reviewing the RNF forms and RAM Plan, TechLaw contacted Ms. Theresa Bechta, Assistant Director for Environmental and Hazardous Materials Management at UMASS Amherst for additional information. Copies of the RNF forms for RTN 3-0028048, 3-0028049, and 3-0028050 and RAM Plan report are included in Exhibit C-13.

According to these information sources, a wetland area identified as "Parcel 2" was used as part of the Phoenix Project, which was a joint research project conducted by EPA, MassDEP [previously known as the Massachusetts Department of Environmental Quality and Engineering (DEQE)], and the city of Waltham in 1978. Fly ash containing heavy metals was spread over the wetland area to assess its impact on growth of vegetation. According to Ms. Bechta, U-MASS has "plenty of records" that demonstrate that heavy metals contamination is not migrating, that it has good vegetation covering the contaminants, and that groundwater in the wetlands has not been adversely impacted with elevated levels of dissolved metals. She also indicated that U-MASS is working with

MassDEP and the Waltham Conservation Commission to isolate the wetland and place an AUL on the parcel. Heavy metals have an affinity for adsorbing to soil or solid particles and, as such, tend not to be highly mobile in the environment unless the soil is transported by mechanisms such as air or water.

This wetland disposal site is on the parcel south of the Property and its exact location and the extent of contamination has not been fully defined by ECS, according to Dr. Bruce Tease, the LSP of record. Although the Property is divided from the UMASS parcel by a chain-link fence, it is not known how and where fly ash was applied to the UMASS parcel and whether heavy metals contamination may have been mobilized and deposited on the Subject Property via wind or water (flooding). Based on the limited amount of information obtained from Ms. Bechta and ECS, the contamination on this southwesterly adjacent parcel may have had an impact on the southern portion of the Subject Property.

RTN 3-28048, U-MASS Waltham, 240 Beaver Street (EDR Map ID J41)

This site is listed in the MA RELEASE and SHWS databases. According to the MassDEP website, a Release Notification has been made by the responsible party and MCP response actions are continuing on the site.

According to the EDR report, this site is mapped 0.219 miles southwest of the Subject Property. TechLaw reviewed information obtained from EDR, the Waltham Assessors office, and the MassDEP web site. This site is located on the south side of Beaver Street, and is shown as Waltham Assessor Parcel ID R053 003 0001 which is owned by the State of Massachusetts and operated by the University of Massachusetts (UMASS) Amherst Agricultural School.

MassDEP was notified of a release of petroleum constituents including C11-C22 aromatic petroleum hydrocarbons (1,510 mg/kg) and C9-C18 aliphatic petroleum hydrocarbons (5.5 mg/L in groundwater and 3,150 mg/kg in soil) in October 2008 at the facility. A NOR was issued to UMASS Amherst in November 2008. According to a RAM Plan prepared by consulting firm ECS for RTN 3-0028050, this petroleum release was associated with the boiler house located on the parcel south of Beaver Street.

Based on the site's distance and downgradient location relative to the Subject Property, and regional groundwater flow in a generally southerly direction, this site is not considered an environmental concern to the Subject Property.

RTN 3-0028050, U-MASS Waltham, 240 Beaver Street (EDR Map ID 39)

This site is listed in the MA RELEASE and SHWS databases. According to the MassDEP website, a Release Notification has been made by the responsible party and MCP response actions are continuing on the site.

According to the EDR report, this site is mapped 0.219 miles southwest of the Subject Property. TechLaw reviewed information obtained from EDR, the Waltham Assessors office, and the MassDEP web site. This site is located on the south side of Beaver Street, and is shown as Waltham Assessor Parcel ID R053 003 0001 which is owned by the State of Massachusetts and operated by the UMASS Amherst Agricultural School.

MassDEP was notified of a release of cadmium (40.9 mg/kg), chromium (92.8 mg/kg), lead 3,770 mg/kg), and arsenic (23.2 mg/kg) in October 2008 at the facility operated by the University of Massachusetts. A NOR was issued to the University of Massachusetts (Amherst) in November 2008. Information related to the heavy metals release was presented in the RAM Plan downloaded from the MassDEP website and provided in a conversation with Ms. Theresa Bechta, Assistant Director for Environmental and Hazardous Materials Management at U-Mass Amherst. A copy of the RNF form for RTN 3-0028050 and the RAM Plan report are included in Exhibit C-13.

According to these information sources, an upland area identified as "Parcel 1" was used during the Phoenix Project (a joint research project conducted by EPA, DEQE, and the city of Waltham in 1978) to assess the impact of spreading of fly ash containing heavy metals on growth of vegetation. According to Ms. Bechta, the soil impacted by heavy metals on Parcel 1 was limited to the upper soil layer and was being remediated (via excavation from the site). The RAM Plan asserted that groundwater impacts by heavy metals were unlikely.

This site is located at a lower elevation and is hydraulically downgradient of the Subject Property, and groundwater flow direction in the region is generally southerly (away from the Property and toward this site). Based on this information and its distance from Subject Property, this site is not considered an environmental threat to the Subject Property.

RTN 3-0015883, U-MASS Waltham, 240 Beaver Street (EDR Map ID J41)

This site is listed in the MA RELEASE and LUST databases. The site status listed on the MassDEP website is Class A-2 RAO.

According to the EDR report, this site is mapped 0.219 miles southwest of the Subject Property. TechLaw reviewed information obtained from EDR, the Waltham Assessors office, and the MassDEP web site. This site is located on the south side of Beaver Street, and is shown as Waltham Assessor Parcel ID R053 003 0001 which is owned by the State of Massachusetts and operated by the University of Massachusetts Agricultural School.

MassDEP was notified of a release of 93 gallons of gasoline and a 139 ppmv gasoline headspace reading in January 1998 at a facility operated by the UMASS Amherst Agricultural Center. An IRA and Phase I were completed, and the site was classified as a Tier II site. MassDEP received the RAO statement in 2001 for a Class A-2 RAO which indicates that a permanent solution was achieved but that contamination was not reduced to background. Based on the parcel's distance and downgradient location relative to the Subject Property and groundwater flow generally in a southerly direction, this site is not considered an environmental concern to the Subject Property.

5.1.8.3 State-Listed Disposal Sites on the Orphan List

TechLaw identified two "Orphan" sites within the applicable ASTM radius of the Subject Property, but neither site is in close proximity to the Subject Property and TechLaw does not expect any adverse impact to the Subject Property based on the distance, downgradient, and/or crossgradient locations of these two sites:

- ***RTN 3-0019560, Fitzgerald School, Beal Rd*** - This MA RELEASE/LUST site is located at 140 Beal Road approximately 0.33 miles south of the Subject Property beyond Beaver Street, a set of railroad tracks, and Clematis Brook. According to the EDR Facility Details Report, a release of No.2 fuel oil occurred from a UST in May 2000 at the school. A Class A-2 RAO was achieved in July 2000, indicating that a permanent solution was achieved but that contamination was not reduced to background.
- ***RTN 3-0023111, No Location Aid, Bishop Forest Rd*** – This MA RELEASE/SHWS site is located somewhere along Bishops Forest Drive between 2,500 feet and one mile west-northwest of the Subject Property. According to the EDR Facility Details Report, a release of 25 gallons of No. 2 fuel oil impacted a roadway. A Class A-1 RAO was achieved for the site, indicating that contamination was reduced to background.

5.1.9 State Solid Waste/Landfill Facilities (SWLF)

A database of SWLF is prepared by MassDEP. The Property is not listed as a SWLF facility. No SWLF facilities are listed within one-half mile of the Property.

5.1.10 State Underground Storage Tank List (UST)

The Massachusetts Department of Fire Services Office of Pubic Safety compiles a list of UST locations.

The Property is listed as an UST facility. Ten USTs were removed from the Walter E. Fernald Developmental Center and no active USTs appear on EDR's database. The locations and removal dates for the ten removed USTs were not provided in the EDR report. According to the EDR report, the tank volumes and products stored in the removed USTs are tabulated below:

Table 5-1

USTs Removed from the Fernald Developmental Center

Tank ID No.	Volume (gallons)	Product Stored	Tank Construction Type
1	4,000	Gasoline	Steel
2	4,000	Gasoline	Steel
3	750	Diesel	Steel
4	550	Diesel	Steel
5	1,500	Diesel	Reinforced Steel
6	1,000	Diesel	Reinforced Steel
7	1,000	Diesel	Reinforced Steel
8	500	Gasoline	Steel
9	1,000	Diesel	Steel
10	1,000	Gasoline	Steel

TechLaw notes that the existing USTs, including the two USTs at the Power Plant, do not appear on the table above.

One registered UST facility is listed adjacent to the Property:

- ***General Services Administration, 424 Trapelo Road (Facility ID 40051)*** - Three removed USTs are listed for the facility which is formally known as the Frederick C. Murphy Federal Center. A 2,000-gallon gasoline UST, a 2,000-gallon diesel UST, and a 550 gallon diesel UST were removed from the facility. No active registered USTs appear in the EDR database report for this facility.

5.1.11 State Institutional Control/Engineering Control Registries

The MassDEP compiles a list of Institutional Control and Engineering Controls.

The Property is listed as having an Institutional Control or Engineering Control. An AUL for an 0.4-acre parcel was implemented at the Site in association with the closure of a No. 6 fuel oil release at the Power Plant (RTN 3-0013467). This AUL is discussed further in section 5.2.3.5 of this report.

5.1.12 State Spills Listing

The MassDEP compiled a list of Spills sites. Four MA Spills sites are identified for the 200 Trapelo Road address:

- ***Spill ID N80-5148*** – On November 30, 1980, a release of 200 gallons of No. 6 fuel oil was reported. The case was subsequently closed.
- ***Spill ID N86-0944*** – On September 29, 1986, a leak of gasoline was reported from a UST. The case was subsequently closed.
- ***Spill ID N92-0350*** – On March 16, 1992, contaminated soil was reported from an unknown source. The case was subsequently closed.
- ***Spill ID N92-0797*** – On June 24, 1992, a release of waste oil was reported from a drum that was dumped on the FDC property. The case was subsequently closed.

No further information was provided in the EDR report related to these releases.

5.1.13 Municipal File Review Findings

TechLaw conducted a records review at the City of Waltham municipal offices for information related to the Property. Copies of pertinent records are included in Exhibit C-14.

5.1.13.1 Assessors Office

TechLaw reviewed historic Assessors Property Record Cards (PRCs) dated 1981. The deed reference for APN R045 001 0001 (the 163.049 acre parcel) was identified as located in Middlesex County Registry of Deeds (MCRD) Book 5600, Page 550 with a date of October 22, 1931. Two PRCs were found for APN R036 008 0001 (the 32.01 acre parcel) which indicate that 282 Trapelo Road was conveyed to the Commonwealth of Massachusetts on August 17, 1931 (MCRD Book 5584, Page 383) and 338 Trapelo Road was conveyed to the Commonwealth of Massachusetts on May 22, 1930 (MCRD Book 5463, Page 286).

In addition, copies of several Assessors ownership cards were reviewed which indicated incremental land takings and acquisitions by the Commonwealth dating back to the late 1880s.

5.1.13.2 Engineering Department

The Waltham Engineering Department had no records for water and sewer lines for most of the Property buildings except for water lines to the residence at 338 Trapelo Road (water supply only) and the residence at 282 Trapelo Road (water and sewer lines). According to the Engineering Department, the city does not maintain records for the majority of FDC buildings since it is a state property. The Engineering Department's Billing Clerk, however, noted that city records show inactive water and sewer connections for 180, 282, and 338 Trapelo Road.

5.1.13.3 Health Department

The Waltham Health Department provided TechLaw with a copy of a Public Involvement Notification Letter related to RTN 3-21892 (Malone Park Building No. 21), RTN 3-21893 (Malone Park Building No. 23), and RTN 3-13467 (The Fernald Center Power Plant, which includes a copy of the recorded AUL).

5.1.13.4 Fire Prevention Bureau

TechLaw provided a "21E" request to the Waltham Fire Prevention Bureau on June 8, 2009. A response was received on July 17, 2009. The Waltham Fire Prevention Bureau provided records for two USTs installed at the Property:

Table 5-2
Waltham Fire Prevention Records for USTs Installed at 200 Trapelo Road

No. of Tanks	Volume (Gals)	Product	Date Installed	Comments	Presumed Location
1	20,000	No. 6	11/22/1986?	"Installed and buried before inspection"	Power Plant, west side
1	20,000	No. 6	11/22/1986?	"Installed and buried before inspection"	Power Plant, west side

UNK – Unknown

The installation dates for the two 20,000-gallon USTs above (which are presumed to be the replacement tanks for the three No. 6 fuel oil USTs removed in October 1996) appear to be incorrect. The Waltham Fire Prevention Bureau also provided TechLaw with records for seven ASTs installed at the Property:

Table 5-3
Waltham Fire Prevention Records for ASTs Installed at 200 Trapelo Road

No. of Tanks	Volume (Gals)	Product	Date Installed	Comments	Presumed Location
4	330	No. 2	6/20/2002	"For htg"	Malone Park residences
1	275	UNK	10/2/2001	"For htg"	Unknown

No. of Tanks	Volume (Gals)	Product	Date Installed	Comments	Presumed Location
2	275	UNK	4/15/1998	"For htg"	Unknown

UNK – Unknown

In addition, seventeen USTs were documented as having been removed from the Property by the Waltham Fire Prevention Bureau. These USTs include:

Table 5-4
Waltham Fire Prevention Records for USTs Removed from 200 Trapelo Road

No. of Tanks	Volume (Gals)	Product	Date Removed	Comments	Presumed Location
1	22,000	No. 6	10/17/1996	"Oil in ground. DEP notified"	Power Plant, west side
1	25,000	No. 6	10/17/1996	"Oil in ground. DEP notified"	Power Plant, west side
1	29,000	No. 6	10/17/1996	"Oil in ground. DEP notified"	Power Plant, west side
1	1,000	UNK	5/20/1997	"Tank ok"	Unknown
1	500	UNK	5/21/1997	"Tank ok"	Unknown
2	4,000	Gasoline	5/22/1997	None	Farm & Grounds Building
1	1,000	Gasoline	5/29/1997	"Tank appears ok"	Power Plant, northeast side
1	1,000	UNK	9/16/1997	"Clean Appearance"	Unknown
1	750	UNK	10/30/1998	"Tank & hole ok"	Unknown
1	1,500	UNK	4/27/2001	"Tank & site appear ok"	Unknown
1	1,000	UNK	4/27/2001	"Tank & site appear ok"	Unknown
1	500	UNK	4/27/2001	"Tank & site appear ok"	Unknown
4	500	No. 2	6/27/2002	"3-tank & hole appear clean. 1 had oil on exterior bottom of tank. DEP notified."	Malone Park residential buildings

UNK - Unknown

The EDR report indicated that ten USTs had been removed from the Property. TechLaw concludes that limited amount of information provided by the Waltham Fire Prevention Bureau is not sufficiently detailed to confirm the location and number of USTs and ASTs historically present on the Property or the location and number of USTs and ASTs currently in use at the Property. The data provided above does not correlate well with the UST and AST information in the FDC SPCC Plan.

5.2 Massachusetts DEP File Review

As part of this ESA, TechLaw completed a file review at MassDEP's NERO. Per the recommendation of DCAM personnel, copies of only the most pertinent MCP reports were obtained for each of the RTNs associated with FDC. Copies of these reports and the MassDEP Site Information summary are included in Appendix 8. To be consistent with the MassDEP web site, the Site Name associated with each RTN below was obtained from the online MassDEP Site Information summary.

Of the ten releases on record for FDC, five RTNs are associated with the Power Plant building and include RTN 3-0010367, RTN 3-0011878, RTN 3-0013467, RTN 3-0015149, and RTN 3-0015442 which are described in further detail in sections 5.2.1 through 5.2.5. The remaining RTNs are summarized in sections 5.2.6 through 5.2.10 and are associated with the Farm & Grounds building (RTN 3-10725); the Thom Building (RTN 3-0021380); Malone Park Building No. 21 (RTN 3-0021892); Malone Park Building No. 23 (RTN 3-0021893); and several buildings and roadways (RTN 3-0015121). A permanent solution [(i.e., Response Action Outcome (RAO)] has been achieved for all ten releases; only one of the sites involved the implementation of an AUL.

5.2.1 RTN 3-0010367, Within Complex on Chapel St @ Power Plant

File information for this RTN obtained during the MassDEP file review and a website search is provided in Exhibit C-4. This release has a current status of Class C RAO and includes implementation of an AUL.

5.2.1.1 Phase I Site Investigation

According to the Phase I Site Investigation completed on July 11, 1995 by Lord Associates, Inc. (LAI), a release of No. 6 fuel oil occurred on December 29, 1993 after a UST on the west side of the Power Plant was filled. The release was attributed to oil expanding upon heating, and No. 6 fuel oil overflowed from the UST spill box to the ground surface. Some of the oil flowed over the nearby concrete retaining wall into the adjacent brook, and free phase oil and oil-stained debris was observed in the brook as far as 300 feet south and downgradient of the Power Plant.

Upon notification, MassDEP provided verbal approval for an IRA. Response actions included placement of sorbent boom at several locations in the brook, placement of a containment fence 150 feet downgradient of the power plant, collection of approximately 150 gallons of free phase product, and stockpiling of oil-contaminated debris (e.g., wood, soil, hay, and rocks) collected from in and around the brook. In April 1994 per the request of MassDEP, all remaining No. 6 fuel oil was removed from the fill boxes and placed into drums. When the fill boxes were steam cleaned, LAI noticed that the bottom of the fill boxes were open. In May 1994, two surface water samples were collected from upgradient and downgradient locations in the stream and analyzed for TPH and PAH

analysis; laboratory analysis indicated that no contaminants were present in the surface water samples. The LAI report recorded the size of the three No. 6 fuel oil USTs as 23,000, 25,000, and 28,000 gallons and that they had been installed at the facility in 1954.

In December 1994, LAI conducted an assessment of the extent of soil and groundwater contamination in the vicinity of the USTs as part of the MCP Phase I Initial Site Investigation. LAI advanced four soil borings to a depth ranging from 11 to 16 feet below ground surface (bgs) in the area upgradient and downgradient of the No. 6 fuel oil USTs, and completed all four borings as monitoring wells. Soil samples were collected for TPH and groundwater samples were collected for TPH and VOCs. Contamination was not detected in groundwater, but TPH was detected in two borings at concentrations of 68 and 290 mg/kg. Three surface water samples were collected from upstream and downstream locations in the adjacent stream in January 1995 and analyzed for TPH, but no contamination was detected in the surface water samples. Two composite sediment samples were collected from the stream and analyzed for TPH; sediment collected from the base of the retaining wall adjacent to the USTs contained TPH at a concentration of 966 mg/kg and a second sediment sample collected approximately 200 feet downstream of the Power Plant contained TPH at a concentration of 687 mg/kg. LAI interviewed FDC facility personnel who indicated that approximately 200 gallons of No. 6 fuel oil was released onto the ground and into the stream in November 1980.

LAI stated that, although low concentrations of TPH were present in soil and sediment samples, environmental receptors were not threatened [based upon the absence of threatened species, areas of critical environmental concern (ACEC), or fish habitats near the Power Plant] and no private or municipal water supply wells were likely to be impacted.

5.2.1.2 Linking of RTN 3-0010367 with RTN 3-0013467

TechLaw noted that it appears that RTN 3-0010367 and RTN 3-0013467 were linked in 1997 because the Phase I and Tier Classification report, the Phase III Comprehensive Site Assessment (CSA) report, and the Class C RAO statements for these two RTNs were received by MassDEP on the same day. These releases occurred in close proximity to one another. TechLaw subsequently confirmed in a telephone conversation with Mr. Christopher Coolen of the MassDEP Bureau of Waste Site Cleanup (BWSC) Permits Division that the two RTNs are connected, and the Release Log Detail in the internal MassDEP database accessed by Mr. Coolen indicates that RTN 3-0013467 is the "daughter" of RTN 3-0010367.

5.2.1.3 Phase III Remedial Action Plan (RAP) and Class C RAO

Vertex Engineering Services, Inc. (Vertex) prepared a Phase III Remedial Action Plan (RAP) and Class C RAO Statement dated June 25, 2002 which was subsequently received by MassDEP on June 28, 2002. This report was not available for TechLaw's review in the MassDEP files; however, this report was summarized in the RAO statement

for RTN 3-0013467 which was prepared by Coneco Engineers & Scientists, Inc. (Coneco). Coneco reviewed the Phase III RAP report and summarized response activities related to either or both of these RTNs:

- December 29, 1993 – Between 150 and 300 gallons of No. 6 fuel oil were released due to a "UST failure" which resulted in impacts to the adjacent stream. MassDEP assigned RTN 3-0010367 to the release site.

- June 1994 - An IRA completion statement was submitted to MassDEP.

- 1995 - Coneco reported that LAI prepared a Phase I Site Investigation and Tier II Classification Scoresheet; TechLaw notes, however, that the MassDEP website indicates that the Phase I Completion and Tier II Classification report was received by MassDEP on April 3, 1997.

- February 20, 1996 – Another oil release was reported to MassDEP near the UST area adjacent to the Power Plant "in the vicinity of a concrete retaining wall located between the three No. 6 fuel oil USTs at the Site." Vertex reported that this release also impacted the adjacent stream, and MassDEP subsequently assigned RTN 3-0013467 to this release. After the February 20, 1996 notification, Vertex subsequently conducted an IRA which included (1) deployment of oil absorbent pads and booms at the base of the retaining wall and in the stream, (2) removal of the three USTs between July and December 1996, and (3) removal of 1,000 cubic yards of No. 6 fuel oil impacted soil and 15,000 gallons of impacted groundwater. The USTs were reportedly installed in 1954.

- August 1998 – Vertex completed a Phase II CSA report and reported that light non-aqueous phase liquid (LNAPL) consisting of No. 6 fuel oil measured greater than 0.5 inches in product thickness in two monitoring wells located inside the Power Plant building. The monitoring wells were advanced during Phase II assessment activities. LNAPL was not detected in any other of the wells completed in the vicinity of the Power Plant, and concluded that groundwater was flowing in a southwesterly direction across the disposal site. Vertex concluded that the LNAPL was confined to a "localized area beneath the concrete floor of the Power Plant building" and that, due to the presence of LNAPL, a condition of "no significant risk" did not exist at the site.

- June 25, 2002 – Vertex prepared a Phase III RAP and Class C RAO statement for the site. Vertex stated that LNAPL remained present in some site monitoring wells at a thickness of greater than 0.5 inches as recently as March 2002. Vertex recommended groundwater monitoring and product removal as the remedial action alternative for the site. Vertex also indicated that a temporary solution (i.e., a Class C RAO) was achieved since remedial actions had eliminated substantial hazards at the Site but that a condition of "no significant risk" did not exist at the

site. No further Site Information was posted on the MassDEP website after June 2002.

5.2.2 RTN 3-0011878, Rear Gate Off Waverley Oaks Road

File information for this RTN obtained during the MassDEP file review and a website search is provided in Exhibit C-3. This release has a current status of Class A-1 RAO.

According to the RAO Statement completed by Clean Harbors Environmental Services, Inc. (CHES) on January 11, 1995, approximately 30 gallons of No. 6 fuel oil were released on November 21, 1994 during the filling of one of three USTs located on the west side of the power plant. The release occurred when a clogged vent pipe created back pressure, forcing oil from the tank's fill port. Oil flowed across the pavement and over a retaining wall into the stream located west of the Power Plant building. Quality Fuel and Transportation, Inc. (Quality) and FDC personnel placed absorbent boom across the ground and several locations along the stream to contain the oil release. MassDEP was notified prior to the two-hour notification deadline, and the MassDEP representative approved of IRA activities which included (1) application of Speedi-Dri to the pavement, (2) deployment of boom across the stream, (3) collection of oil using absorbent materials, (4) wiping down of residual oil on the concrete retaining wall, (5) drumming of spent boom, Speedi-Dri, and absorbent materials, and (6) removal of residual oil from rocks in the stream. After cleanup was completed, CHES inspected the stream and observed oil-impacted sediment along the brook. CHES obtained approval from MassDEP and the Waltham Conservation Commission to remove two 55-gallon drums of impacted sediment removed from three locations along the stream bed. Sediment confirmation samples could not be collected because all the oily sediment was removed and only large rocks and boulders remained. CHES concluded that the response actions resulted in the removal of all released oil, and that no residual impacts from this release remained. Since a level of "no significant risk" was achieved, remedial actions resulted in a Class A-1 RAO.

5.2.3 RTN 3-0013467, Power Plant Near Waverly Oak Entrance

File information for this RTN obtained during the MassDEP file review and a website search is provided in Exhibit C-7. This release has a current status of Class A-3 RAO and includes implementation of an AUL.

5.2.3.1 Notification

According to the RAO Statement completed by Coneco on March 19, 2008, RTN 3-0013467 was assigned by MassDEP on February 20, 1996, after No. 6 fuel oil was observed on the west side of the Power Plant in the vicinity of the concrete retaining wall located near three No. 6 fuel oil USTs. As discussed in section 5.2.1, RTN 3-0013467 was subsequently linked with RTN 3-001367.

5.2.3.2 IRA

The IRA which addressed this release involved deployment of oil absorbent pads and boom in the adjacent stream as well as removal of the three approximately 42-year old USTs. The USTs were removed between July and December 1996. In addition, approximately 1,000 cubic yards of No. 6 fuel oil impacted soil and 15,000 gallons of impacted groundwater were removed from the site during IRA activities. Facility personnel interviewed as part of this ESA stated that since the whole facility was powered by the Power Plant, the tanks needed to be removed one at a time to avoid any interruption of services to the facility.

5.2.3.3 Phase II CSA

Coneco reported that in August 1998, Vertex completed a Phase II CSA report and reported that LNAPL consisting of No. 6 fuel oil measured greater than 0.5 inches in product thickness in two monitoring wells located inside the Power Plant building. The monitoring wells were advanced during Phase II assessment activities. LNAPL was not detected in any other of the wells completed in the vicinity of the Power Plant, and determined that groundwater was flowing in a southwesterly direction across the disposal site. Vertex concluded that the LNAPL was confined to a "localized area beneath the concrete floor of the Power Plant building" and that, due to the presence of LNAPL, a condition of "no significant risk" did not exist at the site. TechLaw notes that the MassDEP Site Information indicates that the Phase II Completion Statement was received on January 15, 1999.

5.2.3.4 Phase III RAP and Class C RAO

According to the Coneco RAO completed dated March 19, 2008, Vertex prepared a Phase III RAP and Class C RAO Statement on June 25, 2002. These findings were summarized by Coneco. Vertex reported that LNAPL remained present in some site monitoring wells at a thickness of greater than 0.5 inches as recently as March 2002. Vertex recommended groundwater monitoring and product removal as the remedial action alternative for the site. Vertex also indicated that a temporary solution (i.e., a Class C RAO) was achieved since remedial actions had eliminated substantial hazards at the Site but that a condition of "no significant risk" did not exist at the site.

5.2.3.5 Class A RAO and AUL

Coneco completed a Class A-3 RAO statement on March 19, 2008. A Class C RAO related to this release was previously submitted by Vertex in 2002. A Class C RAO is a temporary cleanup. The MCP requires that every five years, sites with a Class C RAO must be re-evaluated to determine whether a Class A or Class B RAO is possible. Under the MCP, all sites are expected to achieve either a Class A or Class B RAO. A Class A-3 RAO is considered a "permanent solution" at sites where contamination has not been reduced to background and for which an AUL has been implemented as part of the

"permanent solution." AULs are recorded at the Registry of Deeds and limit future exposure to contaminants remaining at a site.

Beginning in August 2003, Coneco began quarterly groundwater monitoring at the site and submitted groundwater samples for Extractable Petroleum Hydrocarbon (EPH) analysis. In May 2007, Coneco advanced two additional soil borings south and east of the Power Plant to further define the boundaries of the "disposal site." The two borings were completed as monitoring wells and two soil boring samples were submitted for EPH analysis. In addition, Coneco completed a Stage I Environmental Screening to characterize potential exposure to Site biota and habitats which may have been impacted by the release. Based on groundwater elevations in the two new and seven previously installed site wells, groundwater flow direction was determined to be in a southwest to southerly direction. On May 2007, groundwater depths within the nine site wells ranged from 0 to 10.4 feet bgs. LNAPL was last detected in one well, MW-B2 (located inside the Power Plant building), in October 2005 and has not been detected at thicknesses greater than 0.1 inch in any site well in the four subsequent quarterly sampling rounds. No EPH constituents were detected in groundwater from the nine groundwater samples collected in May 2007.

Coneco concluded that groundwater at the Site is classified under the MCP as GW-2 and GW-3 and that a condition of "no significant risk" exists at the Site with respect to groundwater. Groundwater exposure point concentrations (EPCs) for all site wells were calculated well below the applicable GW-2 and GW-3 MCP Method 1 standards for the C9-C18 aliphatic hydrocarbon fraction, the C19-C36 aliphatic hydrocarbon fraction, and the C11-C22 aromatic hydrocarbon fraction. Coneco did not calculate EPCs for PAH target compounds. Detectable concentrations of PAHs were not reported by the laboratory between January 2006 and May 2007. In addition, the NAPL Upper Concentration Limit (UCL) of 0.5 inches has not been exceeded during the final four groundwater sampling rounds.

For the purposes of the MCP Method 1 Risk Assessment, Coneco compared soil EPCs with the most conservative MCP Method 1 S-1/GW-2 and S-1/GW-3 standards to account for potential future site uses which may involve redevelopment of the Site. Coneco stated that for current site uses, a condition of NSR exists but for potential future development scenarios involving residential development, a condition of NSR does not exist. Therefore, as part of the conditions of the Class A-3 RAO, Coneco implemented an AUL at the Disposal Site to prevent future potential exposure to contaminated soil.

Further, Coneco concluded that the sources of contamination have been removed and that an Imminent Hazard (IH) and a condition of Substantial Release Migration (SRM) do not currently exist at the Site. Coneco further concluded that it was not feasible to reduce contamination to background (i.e., "non-detectable") conditions.

The AUL for the Site was recorded in Middlesex County Registry of Deeds (MCRD) Plan Book 50880, Pages 306 through 325. The AUL applies to a 17,835 square foot (approximately 0.4 acre) surveyed parcel which is located along the south side of the

Power Plant building and includes approximately one-half the footprint of the Power Plant building. The AUL applies to soil between 2 and 15 feet below surface grade within the surveyed area. Activities prohibited within the AUL area include use of buildings within the AUL area as an office, store, residence, school, or daycare; cultivation of fruits and vegetables for human consumption; recreational and leisure activities; and relocation of contaminated soils within the designated area.

5.2.4 RTN 3-0015149, Power Plant, 200 Trapelo Road

File information for this RTN obtained during the MassDEP file review and a website search is provided in Exhibit C-9. This release has a current status of Class B-1 RAO.

As part of an underground tank closure at the FDC Power Plant on May 29, 1997, Vertex observed the removal of a 1,000-gallon gasoline UST which was situated between the north wall of the Power Plant building and Chapel Street. The UST stored gasoline for a generator located inside the Power Plant building. The UST was pumped of gasoline and water prior to its removal from the ground. The UST was slightly weathered but had "no apparent areas of significant corrosion or holes." Vertex collected soil samples from the excavation base and side walls for soil headspace screening using a photoionization detector (PID). Vertex did not observe visual and olfactory indications of gasoline contamination in soil side wall samples; however, Vertex observed a gasoline odor in the soil collected from the bottom of the excavation. Groundwater was not observed at the base of the 8-foot deep excavation. Five soil headspace screening samples were then collected from the four sidewalls and base of the excavation. The side wall sample PID readings ranged from non-detected to 7 ppmv Total Organic Vapors (TOV) by volume, but the headspace reading for the base of excavation sample was 250 ppmv. Because the soil headspace from the base of the excavation exceeded the MCP notification criteria of 100 ppmv, VERTEX notified MassDEP of the release on May 30, 1997. MassDEP subsequently assigned RTN 3-15149 to the gasoline release and provided verbal approval for an "Assessment only" Immediate Response Action (IRA) which consisted of collecting soil samples to assess the nature and extent of the release. The "Assessment only" IRA was conducted due to the presence of underground utilities (including high pressure steam pipes) which were located near and adjacent to the excavation.

Vertex collected soil confirmation samples, and the excavation was lined with polyethylene sheeting and backfilled to grade with soil. Six soil confirmation samples were submitted for laboratory analysis for gasoline-related VOCs [i.e., benzene, toluene, ethylbenzene, and xylenes (BTEX) and MTBE] and two soil samples were submitted for TPH analysis. Detected concentrations of toluene, ethylbenzene, total xylenes, MTBE, and TPH did not exceed their corresponding MCP Method 1 S-1/GW-2 standards. Vertex completed the RAO statement on June 30, 1997 and concluded that, based upon these laboratory results, further remedial actions were not necessary and that a condition of "no significant risk" was present at the Site. Closure for this release is categorized as a Class B-1 RAO which indicates that no remedial work was necessary to achieve a level of "no significant risk."

5.2.5 RTN 3-0015442, Power Plant, 200 Trapelo Road

File information for this RTN obtained during the MassDEP file review and a website search is provided in Exhibit C-5. This release has a current status of Class A-2 RAO.

According to the RAO Statement completed by Corporate Environmental Advisors (CEA) on October 24, 1997, a release of approximately 100 gallons of No. 6 fuel oil occurred at the Power Plant on August 19, 1997, during a routine fuel delivery. The fill line on an oil delivery truck became disconnected from the UST fill port, and the oil was released to an asphalt and concrete driveway surface. Approximately 50 gallons of oil flowed down the concrete retaining wall adjacent to the driveway to the dry stream bed. T.S. Truck Service notified MassDEP within the required two-hour notification period.

MassDEP personnel subsequently granted verbal IRA approval to the response contractor to apply absorbents to the driveway and other impacted surfaces as well as boom in the dry stream bed in an effort to contain the release. The MassDEP representative also granted verbal IRA approval for pumping of pooled oil from the stream bed and excavation of up to 5 cubic yards of impacted soil from the stream. A post-excavation composite soil sample for EPH analysis was collected from the dry stream bed on August 20, 1997. Approximately 6 weeks later, a background soil sample was collected from an upgradient location in the stream and submitted for EPH analysis. The concentrations of EPH aliphatic and aromatic hydrocarbon fractions were below the most conservative MCP Method 1 soil standards; additionally, further excavation in the stream to reduce concentrations to background was determined to be infeasible due to the inaccessible location and presence of boulders in the stream bed.

Based on detected EPH constituents in a soil sample collected on August 20, 1997 from a "parting" within the impacted stained driveway area, CEA subsequently completed a subsurface soil assessment beneath the concrete and asphalt driveway area where cracks and breaches were observed. Three soil borings were advanced through the driveway surface and soil samples were collected from 6 inches to 1 foot bgs and submitted for EPH analysis. Although EPH aliphatic and aromatic hydrocarbon fractions were below the applicable MCP Method 1 standards, the concentrations of four PAH compounds exceeded the Method 1 standard. These PAH compounds included benzo(a)anthracene, dibenzo(a,h)anthracene, benzo(b)fluoranthene, and benzo(a)pyrene. As a result, in October 1997, CEA excavated approximately 10 cubic yards of soil from beneath the impacted driveway area to a depth of approximately 3 feet below grade. Three additional composite soil samples were collected for EPH analysis from the extent of the excavation; PAH concentrations for the same four compounds remained above the Method 1 standards in only one of the soil samples. Based on an interview with facility personnel, CEA attributed the elevated residual PAH concentrations to a historical release in the vicinity of the driveway. CEA removed the stockpiled and drummed remediation waste from the Site and completed an MCP Method 2 Risk Assessment to "close" the Site with a Class A-2 RAO. A Class A-2 RAO indicates that a permanent solution has been achieved but that contaminant concentrations have not been reduced to background (i.e., non-detect).

5.2.6 RTN 3-0010725, Fernald School

File information for this RTN obtained during the MassDEP file review and a website search is provided in Exhibit C-10. This release has a current status of Class A-2 RAO.

According the RAO Statement completed by Vertex on June 21, 2000, MassDEP was notified on March 22, 1994 of a threat of a release following tank tightness testing of two, 4,000-gallon gasoline USTs located in a paved area on the east side of the Farm and Grounds building. The tanks were used to store gasoline used to refuel FDC vehicles; the tanks were connected to a gasoline pump in this location. MassDEP subsequently assigned RTN 3-0010725 to this location.

As part of the initial site investigation, the tanks were uncovered and faulty check valves and venting systems were repaired on each tank. The tanks were subsequently tested and "confirmed tight." Nevertheless, MassDEP ordered further subsurface investigation. Soil and groundwater levels of gasoline-related contaminants exceeded applicable MCP Method 1 standards. Web Engineering Associates, Inc. (WEB) submitted the IRA and Phase I Completion reports to MassDEP in June 1995, and WEB classified the disposal site as a Tier II site.

The two gasoline USTs, the associated pumping system, and impacted soil were subsequently removed as part of a RAM conducted by Vertex in 1997. Confirmation soil samples were collected from each of the tank graves, and laboratory results indicated that gasoline contamination had been reduced to below MCP Method 1 S-1/GW-2 and S-1/GW-3 standards. Under subsequent RAM assessment activities, downgradient soil borings were completed as monitoring wells, and additional soil and groundwater samples collected from these downgradient locations. Because gasoline related compounds were detected in groundwater within the former UST excavation, and a soil sample from a boring beyond the limits of the excavation exceeded applicable MCP Method 1 standards, additional remedial excavation was completed in March 2000. Subsequent soil and groundwater analyses indicated that remaining concentrations of gasoline-related compounds in these media were below the applicable MCP Method 1 standards; as such, Vertex submitted an RAO statement for a Class A-2 RAO for the site in June 2000.

5.2.7 RTN 3-0015121, Fernald School

File information for this RTN obtained during the MassDEP file review and a website search is provided in Exhibit C-12. This release has a current status of Class A-2 RAO.

According to an RAO Statement prepared by Vertex dated June 30, 1997, MassDEP assigned RTN 3-0015121 to a gasoline release from the damaged fuel tank of a passenger van owned by the Massachusetts Department of Mental Retardation (MDMR) on May 20, 1997. The van driver backed up into a broken light stanchion which resulted in a punctured gasoline tank. Unaware of the leak, the driver proceeded over paved roadways throughout the FDC campus, making stops at two additional locations. Because the capacity of the gas tank was 35 gallons and the exact amount of fuel present in the gas tank was not known prior to the incident, the estimate of 35 gallons is considered an upper limit; the total amount of gasoline released was estimated at less than 35 gallons.

The areas which were impacted and the estimated volume of gasoline released at these locations included (1) approximately 3 to 4 gallons of gasoline to the paved and grassy area around the point of contact with the light stanchion near the "Fernald Workshops" (presumed to be Site 7) (2) approximately 5 to 10 gallons of gasoline onto the pavement in the parking lot of the Shriver Center, (3) approximately 10 to 12 gallons of gasoline impacting a puddle in the paved parking area at the on-campus bottle Redemption Center (which was located at East/Dowling Hall at that time), and (4) an undetermined amount of gasoline along the roadways between the three locations. The report noted that some residual gasoline at the Shriver Center was washed across the parking lot onto soils near a dumpster.

MassDEP provided verbal approval for an IRA on the day of the incident. Response actions conducted by the response contractor included the use of absorbent materials to collect gasoline on paved areas and collection of gasoline impacted rainwater in a puddle using a vacuum truck. Vertex subsequently collected shallow soil samples from two unpaved locations, and submitted the samples to a laboratory for TPH and VOC analysis (for BTEX and MTBE only). Since soil sample concentrations did not exceed the applicable Method 1 S-1/GW-2 cleanup standard, Vertex concluded that response actions resulted in the removal of the source and that a condition of "no significant risk" existed at the Site. Because contamination remained above background levels in soil areas impacted by the release, a Class A-2 RAO was achieved at the Site.

As part of this ESA, TechLaw verified with Mr. Paul Bermingham that the Release Locations depicted on Figure 2 of the Vertex report were not entirely correct. The building noted by Vertex to be the Redemption Center is actually Hillside, the former Superintendent's residence. TechLaw manually corrected Figure 2 of the Vertex report to correctly indicate the location of the Redemption Center, which at the time was located in the East/Dowling Hall.

5.2.8 RTN 3-0021892, Malone Park Bldg. No. 21

File information for this RTN obtained during the MassDEP file review and a website search is provided in Exhibit C-6. This release has a current status of Class A-2 RAO.

According to the RAO Statement completed by Coneco on June 27, 2003, a release of an unknown quantity of No. 2 fuel oil was discovered during closure of a 500-gallon No. 2 fuel UST located on the south side of Malone Park Building No. 21 (ICF 23) on June 26, 2002. Upon removal, the tank was inspected and no holes were observed in the tank shell. Because the PID readings for the soil jar headspace samples collected from the UST excavation exceeded 100 parts ppmv, MassDEP was notified within the required 72-hour time period, assigned RTN 3-0021892 to the release, and provided verbal approval for IRA activities.

This "disposal site" is located in the area of the former UST along the south wall of Malone Park Building No. 21. Following the detection of elevated PID headspace readings and observation of a light sheen on groundwater within the UST excavation, Coneco used PID headspace readings to determine the endpoint of the UST excavation. The final excavation dimensions were 15 feet by 15 feet to a depth of 7 feet. Five composite soil confirmation samples were collected for EPH from the excavation sidewalls and base; no EPH petroleum hydrocarbon fractions and PAH

target compounds were detected in any of the confirmation samples. Petroleum-impacted soil was stockpiled and subsequently removed from the site.

In January 2003, three test borings were advanced to depths ranging from 6 to 14 feet bgs to assess for the presence of downgradient petroleum impacts, and the borings were completed as monitoring wells. Two soil and three groundwater samples collected in January 2003 were submitted for EPH analysis. EPH petroleum hydrocarbon fractions and target analytes were not detected in either soil sample and in two of the three groundwater samples, but low levels of EPH petroleum hydrocarbon fractions were detected in groundwater collected from the well installed in the backfilled UST excavation. A second round of groundwater samples was collected for EPH in June 2003; no detectable levels of EPH petroleum hydrocarbon fractions and target analytes were reported by the laboratory. A Method 1 Risk Characterization was completed, and soil and groundwater EPH EPCs were below the applicable Method 1 standards. Additionally, Coneco concluded that no uncontrolled sources of contamination remained at this site and no additional response actions were necessary. The Method 1 Risk Characterization indicated that a permanent solution was achieved, resulting in a condition of "no significant risk" at the disposal site for all current and future activities and uses. Therefore, conditions meeting the criteria of a Class A-2 RAO were achieved.

5.2.9 RTN 3-0021893, Malone Park Bldg. No. 23

File information for this RTN obtained during the MassDEP file review and a website search is provided in Exhibit C-8. This release has a current status of Class A-2 RAO.

According to an IRA Status Report completed by Coneco on February 26, 2004, a release of an unknown quantity of No. 2 fuel oil was discovered during closure of a 500-gallon No. 2 fuel UST located on the west side of Malone Park Building No. 23 on June 26, 2002. Upon removal, the tank was inspected and no holes were observed in the tank shell. Because the PID readings for the soil jar headspace samples collected from the UST excavation exceeded 100 parts ppmv, MassDEP was notified within the required 72-hour time period, assigned RTN 3-0021893 to the release, and provided verbal approval for IRA activities.

The disposal site is located in the area of the former UST between the west wall of Malone Park Building No. 23 (ICF 23) and a stone retaining wall further to the west of the former UST area. Coneco detected elevated PID headspace readings and observed a light sheen on groundwater within the UST excavation. In July 2002, soil was excavated from the former UST location. The final excavation dimensions were 20 feet by 20 feet to a depth of 11 feet. Five composite soil confirmation samples were collected for EPH from the excavation sidewalls and base; no EPH petroleum hydrocarbon fractions and PAH target compounds were detected in any of the confirmation samples above applicable Method 1 standards. Petroleum-impacted soil was stockpiled and subsequently removed from the site.

As part of a supplemental subsurface investigation begun in January 2003 and completed in June 2003, three test borings were advanced to depths ranging from 11 to 13 feet bgs to assess for the presence of downgradient petroleum impacts. Three borings were completed as monitoring wells. Two soil and three groundwater samples were submitted for EPH analysis. Low

concentrations of EPH petroleum hydrocarbon fractions and PAH target analytes were detected in soil sample B-2, and soil sample B-3 was non-detected for all EPH petroleum hydrocarbon fractions and PAH target compounds. However, concentrations of EPH petroleum hydrocarbon fractions and the PAH target compound phenanthrene exceeded applicable Method 1 GW-2 and/or GW-3 standards for the groundwater collected from monitoring well CMW-1 installed in the backfilled UST excavation. Only one EPH aliphatic fraction exceeded the Method 1 GW-2 standard for groundwater collected from monitoring well CMW-2 which is located approximately 20 feet from the southeast corner of the final UST excavation. Because a condition of "no significant risk" was not present in groundwater at the site, further soil excavation was completed in September 2003. Further, in order to meet MCP deadlines, Coneco submitted a Phase I Initial Site Investigation and Tier II Classification submittal for the disposal site in July 2003; TechLaw did not review the MCP Phase I report because the IRA Status Report summarizes findings which were included in the Phase I report.

Remedial activities resulted in reduced EPH concentrations in groundwater. Three additional rounds of groundwater samples were collected for EPH analysis in November 2003, December 2003, and February 2004. The IRA Status Report specified that at least four additional rounds of groundwater samples would be collected from the Site.

According to the Site Information presented on the MassDEP website, the IRA Completion report and RAO Statement were received by MassDEP on August 4, 2005. A Class A-2 RAO was achieved at the site, which indicates that a permanent solution was achieved but that contamination was not reduced to background.

5.2.1 5.2.10 RTN 3-0021380, Thom Building

File information for this RTN obtained during the MassDEP file review and a website search is provided in Exhibit C-11. This release has a current status of Class A-1 RAO.

According to an IRA Completion and RAO Statement prepared by Coneco on July 9, 2002, 12 gallons of diesel fuel were released by a malfunctioning supply pump inside the basement of the generator room in the Thom Building on January 7, 2002. Diesel fuel flowed across the concrete slab floor and underneath the door outside the building, impacting an approximately 50 square foot area of soil and asphalt pavement.

MassDEP was notified within two hours of facility personnel obtaining knowledge of the release, and assigned RTN 3-0021380 to the release. IRA activities included the application of absorbent materials to the release area and drumming of spent absorbent and liquids; collection of five surficial soil samples for EPH analysis from the impacted soil on the north side of Thom Building; hand excavation of surficial soils located adjacent to the generator room to a depth of approximately 14 inches (resulting in the excavation and removal of 0.65 cubic yards of contaminated soil); and collection of post-excavation soil confirmation samples for EPH analysis. No petroleum hydrocarbon fractions were detected in the post-excavation soil confirmation samples. Coneco concluded that since no uncontrolled sources of contamination remained, additional response actions were not necessary. Coneco also concluded that remedial

actions reduced contaminant levels to background; therefore, a condition of "no significant risk" for current and future uses existed at the site; therefore a permanent solution was achieved which meets the criteria of a Class A-1 RAO.

5.3 Activity and Use Limitations

An AUL was implemented for a 0.4-acre parcel impacted by No. 6 fuel oil from the former USTs at the Power Plant. The AUL was implemented in association with the Class A-3 RAO for the Power Plant under RTN 3-0013467 which restricts land uses in the vicinity of the Power Plant located on the southern portion on the Property. TechLaw notes that the EDR Environmental Lien Report did not identify any AULs recorded for 200 Trapelo Road.

5.4 Physical Setting Sources

Information regarding the physical setting of the Property was obtained from the MassGIS website, a site visit, and topographic maps.

5.4.1 Topography

The USGS Boston North Quadrangle 7.5 minute series topographic map was reviewed for this ESA and is included as the Site Locus Plan (Figure 1). Property elevations range from approximately 50 feet above MSL in the wetland area southwest of the FDC's Waverley Oaks entrance driveway to approximately 240 feet above MSL near the peak of Owl Hill, located on the eastern portion of the Property. Areas to the southwest and southeast are at lower elevations than the Property elevations in general. Clematis Brook is not on the Property, but flows from the northwest to the southeast just south of the Property and ultimately discharges into Beaver Brook. Beaver Brook flows generally from north to south beyond the eastern perimeter of the Property beyond Waverley Oaks Road. Slopes across the Property are gentle closest to Trapelo Road but steepen further to the south on the Property.

5.4.2 Soils/Geology

According to the MassGIS Bedrock Lithology map for the Property (Figure 5), bedrock consists of mafic rocks and granite. TechLaw observed numerous bedrock outcrops across the Property during the site inspection.

According to the MassGIS Surficial Geology map (Figure 6), nearly all of the Property consists of till or bedrock with a minor component of sand and gravel deposits in the vicinity of the wetland on the southern corner of the Property.

5.4.3 Hydrology

Site Hydrographic Features are presented on Figure 4. Groundwater in the vicinity of the Property flows in a generally southerly direction toward the Charles River which is located between 1.0 and 1.5 miles south of the Property. However, actual groundwater flow direction on the Property varies based on land topography, and could flow in directions other than to the south, depending on localized features.

Groundwater in the vicinity of the Property is not used for potable water purposes as Waltham's water supply is provided by the MWRA whose source is the Quabbin Reservoir. Depth to groundwater on the Property varies based on elevation, local topographic gradients, and proximity to water bodies. A wetland area occupies the southern corner of the Property and the nearest surface water in the vicinity of the Property is Clematis Brook which follows the southwestern property line beyond the Property and discharges into Beaver Brook, a tributary of the Charles River.

5.4.4 Flood Zone Information

A review of the MassGIS FEMA Flood Zone map (Figure 8) indicates that the yellow area surrounding the wetland on the southern corner of the Property is mapped as flood zone X500. The on-site wetland is within Flood Zone AE, the area of a 100-year flood zone.

5.4.5 Oil and Gas Exploration

No oil or gas wells were observed on the Property or depicted on the USGS Topographic Map.

5.5 Historical Use Information on the Property

The Property was used for agricultural and residential uses prior to its development as a school for developmentally delayed patients. TechLaw reviewed available standard historical resources to obtain information on past uses and development of the Property and surrounding parcels.

5.5.1 Aerial Photographs

TechLaw obtained aerial photographs for the Property vicinity from EDR and reviewed available aerial photographs dated 1938, 1955, 1960, 1978, 1980, 1987, 1995, and 2006. A copy of the EDR Aerial Photo Decade Package is included in Exhibit B-1 of this report. The photographs are summarized below:

Date: December 1938
Description: The 1938 aerial photograph shows the Property with numerous buildings to the south and primarily agricultural fields along Trapelo Road to the north (except for the residences present on the south side of Trapelo Road). Areas to the north of Trapelo Road include agricultural fields and residential neighborhoods. The area to the west, south, and east of the Property is mostly wooded terrain. Waverley Oaks Road is present on the southeastern corner of the photograph and the Pierce Brothers greenhouse complex is visible east of Waverley Oaks Road.

Date: December 1955
Description: The 1955 aerial photograph shows the Property with few notable changes since the 1938 photograph except for the addition of the Greene Unit on the western portion of the Property. Significant changes in surrounding

properties include the oval-shaped Murphy Army Hospital complex (northwest of the Property); a building of the Massachusetts Metropolitan State Hospital (north of the Property), further development of residential neighborhoods (north and east of the Property); tank farms with large ASTs (southeast of the Property beyond Waverley Oaks Road). The photograph shows containers (possibly ASTs) and a lagoon at the rear portion of the Pierce Brothers greenhouse complex located southeast of Waverley Oaks Road. This complex is shown immediately north of a winding stream and north of railroad tracks.

Date: May 1960
Description: The 1960 aerial photograph shows the Property in much the same configuration as in 1955. The resolution of the photograph is poor, making it difficult to observe any changes since 1955.

Date: April 1978
Description: The 1978 aerial photograph shows changes on the Property including the addition of a portion of the Cottage Complex (on the northwest side of the Property) and the Shriver Center (located near the Trapelo Road entrance to the Property). Off-site changes include the development of the residential neighborhoods between the east side of the Property and Waverley Oaks Road; replacement of the Pierce Brothers greenhouse complex with an office building, and construction of the Federal Records Center Archives building adjacent to the northwest Property boundary (formerly a baseball field on the Murphy Army Hospital grounds in a prior photograph). The wetland area west of Waverley Oaks Road is deeply furrowed, possibly due to the fly ash experiment that was being conducted on that parcel in 1978.

Date: October 1980
Description: The 1980 aerial photograph shows the Property in the same configuration as in 1978. The only significant change noted on nearby parcels is the addition of a second office building to the former Pierce Brothers greenhouse property (by that time owned by Duffy Brothers Construction).

Date: April 1987
Description: The 1987 aerial photograph shows the Property as previously shown. Although the photographic resolution is poor, it is possible to see that Malone Park has, at least in part, been developed or been cleared for construction of the four residential buildings. No other significant changes are noted to the Property or nearby properties.

Date: March 1995
Description: The 1995 aerial photograph shows the Property as it currently exists. The only significant changes noted to surrounding properties since 1987 includes the redevelopment of the tank farm on the southeast side of Waverley Oaks Road (the tanks having been removed and only the tank footprints visible) and additional office buildings across from the FDC Waverley Oaks entrance.

Date: 2006
Description: The 2006 aerial photograph shows the majority of the Property except for the Malone Park Drive residences on the southwestern portion of the Property. No significant changes are noted on the Property, and the former Murphy Army Hospital area (partially visible) has begun to be redeveloped with athletic fields.

No on-site RECs are evident on the Property. Off-site RECs or historical RECs include the area southeast of Waverley Oaks Road formerly utilized by Pierce Brothers (later purchased by Duffy Construction) which was impacted by waste oil and PCBs, the area southeast of Waverley Oaks Road formerly occupied by the Shell Products Distribution tank farm, and the fly-ash impacted wetland south of the Property.

5.5.2 Fire Insurance Maps

Sanborn Fire Insurance Maps (Sanborn Maps) dated 1897, 1903, 1911, 1918, 1950 and 1972 were available for review, and were provided by EDR/Sanborn. Adjacent parcels were not depicted on most of the Sanborn Maps. Copies of the Sanborn Maps are included in Exhibit B-2.

Date: 1897
Description: Two campus areas are depicted on the Sanborn Map. The E-shaped West Building (having dormitory wings, a kitchen, a dining room, day rooms, and a school room) is depicted adjacent to and northeast of a small building with three "heaters" and an attached coal shed (presumed to be Belmont House), and south of a building identified as North West Building (presumed to be MacDougall Hall). These buildings are noted as located one-half mile west of "Main Building" and that fire hydrants shown on the Sanborn Map were connected to the Waltham Water Works.

The remaining portion of the campus appears to be the old "quad" area. Fire hydrants around the buildings are connected by an 8-inch diameter water pipe connected to the Waltham Water Works. Fire hoses are noted for each of the major campus buildings. The northernmost building is identified as the North Building, and a Boy's Dormitory (in the location of the Old Activities Center) is shown approximately 125 feet south of the North Building. The Administration Building (Waverley Hall) is southwest of the Boy's Dormitory and the Schoolhouse (with a gymnasium and school building) is south-southeast of the Boy's Dormitory. Further south of the Boy's Dormitory is the Girl's Dormitory

(Chipman Hall). A building with a laundry, boilers, and attached coal shed (the Store Room) is shown approximately 125 feet south of the Administration Building. Four smaller buildings are present further to the south including a hospital and what appears to be a carpenter shop with small detached shed and a "fumigating house." TechLaw notes that these three of these four buildings no longer exist, although it appears that the "hospital" may be located at the same location as Stephen Bowen Hall. Text notes that "heat and power" are generated by steam.

Date: 1903
Description: The 1903 Sanborn Map shows that most of the structures had not significantly changed since 1897. Changes noted on the Sanborn Map include a northern addition to the Administration Building (Waverley Hall), a small addition to the laundry building (Store Room), and a southerly addition to the hospital (Stephen Bowen Hall)

Date: 1911
Description: The 1911 Sanborn Map shows two additional unidentified buildings on the western portion of the FDC campus north of MacDougall Hall which includes West Nurses and Dolan Hall. By 1911, an addition was constructed on the northwest side of MacDougall Hall and to the south side of Belmont House. Although not specifically named, six new structures were also added to the eastern portion of the FDC campus including North Nurses, Withington Building, East Nurses, Manual Training, Warren Hall, and South Nurses. An addition was also constructed onto the Store Room.

Date: 1918
Description: The 1918 Sanborn Map depicts a consolidated view of the FDC campus along with driveways. The only change to the western portion of the campus is the addition of a "pipe subway" that originates at the Boiler House (Belmont House), proceeds to the West Building, then connecting beyond with North West Building (MacDougall Hall) through two pipe subways and beyond that by one pipe subway to the N. North West Building (Dolan Hall). West Nurses does not appear to be connected to the pipe subway in this map.

The southwest corner of the Property is shown on the 1918 Sanborn Map depicts a cow barn and silo approximately 300 feet south of West Building and the Boiler House. Smaller structures south of the cow barn include a tool house, a long wagon shed, a two-story stable, and a one-story shed. An irregularly-shaped farmhouse with small building (presumed to be a shed) are located approximately 250 feet southeast of the cow barn, and two small structures connected by a structure (such as a porch or awning) and labeled "Men's Home" is located approximately 200 feet northeast of the farmhouse.

By 1918, all but one of the major buildings on the eastern portion of the campus were connected by a pipe subway system which originated from

the Boiler and Laundry Building (Store Room). New buildings on the eastern side of the campus included an infirmary (Lavers Hall) and a recreation building (Southard Laboratory). A 35,000-gallon stand pipe was also visible on the hill east of the Manual Training building. Warren Hall and Chipman Hall were identified as girls' dormitories and Withington Building and the Old Activity Center were identified as boys' dormitories.

By 1918, two new structures had appeared on the FDC campus between the west and east campuses: East Dormitory (East/Dowling Hall) and the Superintendent's residence (Hillside). East Dormitory is shown having a heater room with two boilers; these two structures were not shown to be connected with any of the pipe subways.

Offsite buildings along Waverley Oaks Road included small residences, and the Pierce Brothers greenhouse complex to the southeast. In 1918, there were two entrances to the FDC from Waverley Oaks Road. Trapelo Road is not shown on the 1918 Sanborn Map.

Date: 1950

Description: Changes since the 1918 Sanborn Map include construction of the existing Administration Building; Assembly Hall (Howe Hall); Service Building (Old Service Building); a new laundry building (Laundry/Therapeutic Equipment Center); Tarbell Hall (designated as an employees building); Seguin Hall (an infirmary); the Maintenance Building; the Power Plant; the greenhouse, four small cottages (Cottages 17 through 20); a men's infirmary in the Wallace Building; a small storehouse; the garage; and Wheatley Hall (designated as a nursery). Other changes include additions onto North Nurses Home and the Old Service Building (which was shown to be used for storage), a transformer house between the garage and Stephen Bowen Hall. The transformer appears to be in the location of the former sterilizing building (fumigating building). By 1950, Waverley Hall was shown to be a dormitory. Medical and dental labs were shown in the Southard Laboratory building. Off-site properties do not appear to have changed significantly since 1918.

Date: 1972

Description: The 1972 Sanborn Map shows the addition of the Chapel, Thom Building (designated as a hospital), Building 55 (designated as a transformer yard); and Kelley Hall (designated as a boy's home and dormitory). The cow barn was no longer present, having been replaced by a small shed. Additions were made to East Dormitory (East/Dowling Hall) and the Old Service Building. Off-site properties do not appear to have changed significantly since 1950, although more residences are present on either side of Waverley Oaks Road than in 1950. One of the buildings in the former farmhouse area was identified as a "slaughter house."

Potential use of hazardous materials or petroleum as identified in the Sanborn Map review include the probable presence of asbestos in the "pipe subway" system, Power

Plant, and buildings with boilers (East Dormitory a.k.a. East/Dowling Hall, the Store Room, Belmont House); PCBs in transformer areas (Buildings 14 and 55); coal and/or petroleum storage (Power Plant, Belmont House); laboratory chemicals (including mercury) in Southard Laboratory which was used for dental and medical research purposes; herbicides, fungicides, and pesticides (Greenhouse); bactericides (in medical facilities and the sterilizing house); petroleum (Power Plant); and oils and solvents (Garage) and Maintenance workshops.

5.5.3 City Directories

TechLaw obtained a City Directory abstract from EDR to review historical uses of the Property. City directory abstracts were reviewed in five-year increments between 1970 and 2005. A copy of the EDR City Directory Abstract is included in Exhibit B-3. Environmentally significant occupants of the Property included the Shriver Center (medical research facility), various clinics, and Tufts Dental. These types of facilities generate small quantities of medical-related hazardous wastes.

5.5.4 Historical Topographic Maps

TechLaw obtained historical USGS topographic maps from EDR. Copies of the historical topographic maps are included in Exhibit B-4 and discussed below:

Date: 1903
Description: Some development is suggested on the southern portion of the Property between Cedar Hill and Owl Hill. A stream and wetland area is located on the western portion of the Property.

Date: 1947
Description: Buildings and roadways are present on the Property (which is shown as the Fernald State School), on the west side of Owl Hill. Clematis Brook is shown flowing beyond the southern portion of the Property, and an unnamed stream and pond on the Property discharge into Clematis Brook. Beaver Brook flows along the northern side of the Boston and Maine Railroad line southeast of the Property. The Metropolitan State Hospital complex is located north of the Property a considerable distance beyond Trapelo Road. Other than residential development in the immediate vicinity of the Property, no other changes have been observed since the 1903 topographic map. The Pierce Brothers greenhouse complex appears southeast of Waverley Oaks Road.

Date: 1950
Description: One substantial change noted since the 1947 topographic map is the development of the Murphy General Hospital Complex west of the Property.

Date: 1956
Description: Changes to the Property since the 1950 topographic map includes the addition of the Greene Unit on the western portion of the Property. The railroad siding which enters the Property from the southeast is visible on the topographic map. The initial development of the Shell Oil Distribution facility is noted by the two tanks (black circles) on the map south of Waverley Oaks Road. The water tower that serves the Property is located on the hilltop north of Trapelo Road, and a building of the Metropolitan State Hospital is located along the road to the water tower.

Date: 1971
Description: By 1971, the topographic map includes the Murphy Federal Archives building northwest of the Property, and additional large ASTs on the Shell Products Distribution center south of the Property and Waverley Oaks Road.

Date: 1985
Description: Changes to the Property include construction of a portion of the Cottage Complex on the northwest side of the Property and the construction of Malone Park Road. The only significant change to nearby properties is the construction of a long office building south of Waverley Oaks Road where the Pierce Brothers greenhouses were previously located.

Off-site RECs observed from the review of the USGS topographic maps include the Shell Distribution Center tank farm and Pierce Brother greenhouses southeast of Waverley Oaks Road.

5.5.5 Additional Historical Record Sources

TechLaw reviewed several documents as part of this ESA to obtain historical use information and ascertain whether past operations on the Property indicated the potential presence of RECs. These historical records include two documents reviewed at the Archive Room of the Waltham Public Library, and the Wikipedia entry for the Fernald School. Historical information relevant to the development and historical use of the Property is summarized below.

5.5.5.1 National Register of Historic Places Registration Form and Attachments

On August 31, 1992, Preservation Consultant Candace Jenkins prepared a Registration Form including the final draft of a report to place the Walter E. Fernald State School on the National Register of Historic Places. A copy of the report is included in Exhibit B-6. The report provides information on the history of the FDC and includes building construction and use information as well as activities which occurred on the Property. Dates of construction for the buildings on the Property and their historical usage are incorporated into Table 5-5 which included as an attachment at the end of this report.

According to the Jenkins report, the Massachusetts School for Feeble Minded Children was originally founded in South Boston in 1848. By 1887, the school had outgrown its

physical facility in South Boston, and the Massachusetts State Legislature purchased farm land in rural Waltham from the Bird, Baldwin, Lawrence, and Warren families. In 1888, the legislature appropriated funding to construct buildings for the School for Feeble Minded Children in Waltham. In 1888, an existing stone farmhouse was renovated to house an "advance team" of up to 30 boys who, along with the resident farmer and his family, dug drains and made roads for the new school. By 1890, the Asylum Building (now the West Building) was completed in the southwestern corner of the campus and included steam heat and incandescent electric lights from the original power plant (now the Belmont House).

Between March 1890 and December 1891, patients from South Boston were transferred to the new Waltham facility. Several major buildings that comprise the campus core area were subsequently completed between 1891 and 1914. Tufts Dental clinic was established on campus 1917, and research involving x-ray examination of the brain began in the 1920s. During the 1920s, staff residences and Southard Research Laboratory were constructed. By 1925, the Massachusetts School for the Feeble Minded was renamed the Walter E. Fernald State School, one year after the death FDC's first resident superintendent. A third wave of construction was completed during the 1930s. Major post-war expansion of the campus occurred during the 1950s through the 1970s with construction of many of the more modern structures. Additional housing clusters were constructed on the northwest (Cottages 3-13) and southwest (Malone Park) sides of the Property from the mid-1970s through the late 1980. The FDC was added to the National Register of Historic Places in 1994. TechLaw notes that the newest campus building, Pearlman, was not mentioned in the Jenkins report; this facility operates as the "new food service building" and was likely completed in 1992.

5.5.5.2 History of the Walter E. Fernald State School

TechLaw reviewed Dr. Anna M. Wallace's *History of the Walter E. Fernald State School* which was dated 1941. This history was used as a source of information for the Jenkins report, and was available for review at the Waltham Public Library In addition to information provided in section 5.5.5.1, the Wallace history stated that a sewer connection to the Waltham Division of Metropolitan Sewerage System was completed in 1894.

5.5.5.3 Wikipedia Summary

TechLaw also obtained information from a Wikipedia posting for the Fernald School, which is included in Exhibit B-7. Of potential environmental interest, Wikipedia cited that, during the period of 1946 through 1953, 57 boys were fed oatmeal laced with radioactive calcium and iron. The experiments on FDC children were conducted by Harvard University and the Massachusetts Institute of Technology (MIT) researchers, presumably to determine the effect of radiation on body systems. Radiation levels were measured in the boys' blood and stool samples. Wikipedia suggests that the radiation doses were relatively low. No further information was obtained which confirmed the location where radioactive chemicals may have been stored or analyzed on the Property;

however, suspected storage locations for the radioactive materials include the Southard Laboratory and Lavers Hall which served as the infirmary at the time of the testing.

5.5.5.4 EDR Environmental Lien Report

At TechLaw's request, EDR conducted an environmental lien search for the Property. The EDR Environmental Lien Report (Lien Report) is included in Exhibit B-5. The Lien Report does not indicate that any environmental liens have been recorded for 200 Trapelo Road. The Lien Report included a copy of a 1931 deed related to 200 Trapelo Road recorded at the MCRD in Book 5600 and Page 550 along with a Plan of Land. The deed was executed to convey a 1.5-acre parcel from the City of Waltham (located behind the Phineas Lawrence School) to the Walter E. Fernald State School (owned by the Commonwealth of Massachusetts). TechLaw notes that the Plan of Land, dated December 1929, identifies owner of the parcel to the west of the Phineas Lawrence School as the Roman Catholic Archbishop of Boston; this church-owned parcel is currently part of the Subject Property parcel (APN R036 008 0001). The parcel east of the Phineas Lawrence School (part of APN R045 001 0001) was identified as formerly owned by the Heirs of James F. Baldwin.

5.5.6 Prior Assessment Reports

Mr. Paul Bermingham, Director of Campus Safety, provided TechLaw with a copy of the Spill Prevention, Control, and Countermeasure (SPCC) Plan for the FDC which was prepared by FS Engineers, Inc. and finalized in March 2005. A copy of the SPCC plan is included in Exhibit D-1, and listed the locations of petroleum filled USTs, ASTs, and transformers on the Property. The Facility Site Plan shows the locations of these containers. Each numbered container is listed either on SPCC Table 1 (for Total Petroleum Product Bulk Storage) or SPCC Table 2 (Total Petroleum Product Bulk Storage FDC Transformers).

The SPCC plan appears to be outdated based on the following discrepancies:

- Table 1 indicates that 3 USTs (2U to 4U) are present at the Power Plant. According to Power Plant personnel, these three USTs were removed and replaced by two 20,000-gallon USTs approximately 15 years ago. Waltham Fire Department records indicate that the three old USTs were removed in 1996.

- *Section 3.2 Spill Control* states that Thom Building has a double-walled, 275-gallon diesel AST outside the building; however, TechLaw observed that the AST outside the Thom Building is a propane AST. The 275-gallon AST may remain inside the Thom Building.

- *Section 3.2.2 Non-Bulk Storage Control* indicates that "all transformers have been retrofitted with non-PCB containing transformer oil; however, PCB warning signs are posted on the chain link fencing around Building 55's transformer area and at least one transformer inside the fenced compound.

- *Section 6.0 Site Security* indicates that gasoline tanks at the "Grounds Department" (presumed to be Farm and Grounds Department) are equipped with overfill detection and prevention features; however, other records indicate that the two gasoline USTs were removed in 1997 along with the fuel pump.

TechLaw notes that reports submitted to MassDEP related to response actions conducted on the Property are discussed in a prior section of this report.

5.6 Historical Use Information on Adjoining Properties

By review of the standard historical sources referenced above, the historical uses of the adjoining properties are summarized below:

Northeast: Prior to the current use of properties to the northeast as residences, a vacant state dormitory, undeveloped land, and an elementary school, the land was rural farmland. The state-owned building at 475 Trapelo Road was closed in 1992 and was part of the Metropolitan State Hospital; it housed a treatment center for insane children and was built some time between 1938 and 1955. The Phineas Lawrence public school has occupied its parcel since at least the 1930s. Construction of the off-site residences along Trapelo Road occurred between the 1930s and the 1960s.

Southeast: Prior to the current use of the properties to the southeast as residences and office buildings, the majority of the land consisted of undeveloped woodland or residences. Most of the land southeast of the Property was owned by the Pierce family and, by the 1920s, the Pierce Greenhouse complex occupied the land southeast of Waverley Oaks Road. The residential neighborhoods east of the Property were built on land originally owned by the Pierce family; houses in this area were constructed between the 1930s and late 1970s. The Pierce Brothers Greenhouses were demolished sometime between the 1960s and 1978, by which time a long office building was constructed by Duffy Brothers Construction, Inc. on the parcel located at 411 Waverley Oaks Road. By 1955, large gasoline and oil ASTs occupied the parcel across the road from the FDC's Waverley Oaks entrance; this was, in later years, referred to as the former Shell Product Distribution Plant. The tanks were removed between 1987 and 1995, and office buildings replaced the tank farm between the 1990s and 2006. Due to the storage and use of waste oil on the Duffy Brothers parcel, response actions are continuing under the MCP.

Southwest: Prior to the current use as an agricultural experiment station and a Girl Scout camp, the property parcels to the southwest were farmland or undeveloped. The Girl Scouts acquired the land for the camp in 1923. The wetland area southwest of the Property parcel had an old calf barn, silos, ice house, and farmhouse and was acquired by the State of Massachusetts (date not determined) and used as part of an agricultural experiment station. The wetland parcel is currently an active

MassDEP release site. Fly ash was applied to the wetland as part of an experiment conducted by EPA, MassDEP, and the City of Waltham in 1978.

Northwest: Prior to the current use as college campus, a municipal park, and F.C. Murphy Record Center, the property to the northwest was undeveloped land. The Murphy General Hospital (originally an Army hospital) was constructed between 1938 and 1946. It closed in 1958. The buildings remained occupied until the mid-to late 1990s when much of the land was acquired by Bentley College (for use as dormitories) and the City of Waltham (as recreation fields and for a new high school). The F.C. Murphy Federal Records Center was built some time between 1956 and 1971.

Off-site historical RECs include the former Shell Product Distribution Plant at 313 Waverley Oaks Road. Active off-site RECs include the Duffy Brothers Construction property (a.k.a. Duffy Brothers Construction, Inc.) at 411 Waverley Oaks Road; the UMASS parcel occupied by the fly-ash impacted wetlands at 225-227 Beaver Street; and the area south of the boiler room at the Former Heating Plant at 333 Forest Street.

6.0 SITE RECONNAISSANCE

6.1 Methodology and Limiting Conditions

The site reconnaissance for the Property was completed by Gretchen Fodor on June 30, July 1, and July 13, 2009. Mr. Paul Bermingham, Director of Campus Safety, provided access to and accompanied Ms. Fodor through the Property. Paul Bermingham has worked at FDC for approximately 31 years. TechLaw notes that the work scope for this ESA did not include accessing building interiors, presumably because they have been accessed by other DCAM contractors as part of a building assessment survey. As such, TechLaw's observations are limited to exterior areas of the Property.

Limiting conditions specifically pertaining to this ESA include:

- Only exterior environmental conditions were surveyed as since building interiors were not accessed (due to work scope limitations);
- Municipal file review information was very limited because the City of Waltham does not have jurisdiction over state property, except for certain functions (such as Fire Department records where the Waltham Fire Department provides response services);
- Although most exterior areas of the Property were observed by foot and vehicle, steep hillside grades, densely vegetated woodlands, and wetlands are present near most of the Property lines. Therefore, not all areas on the 195-acre Property were accessible for viewing.
- Observations made by TechLaw were typically based on an inspection of each building's perimeter, where it was possible to do so. Notable exceptions to the building perimeter inspection included the Maintenance complex and Farm and Grounds Department where dense woodland and excessive shrubbery made it impossible to observe all side of the buildings; and
- Many building perimeters, particularly for unsafe and/or condemned buildings which are fenced off and locked due to safety concerns, are heavily covered with vegetation (e.g., landscaping, vines, brush, trees, and poison ivy). As a result, not all features of potential concern (such as UST fill and vent pipes) may have been identified on the Property.

RECs identified as part of this ESA are based on observed exterior environmental conditions and/or information provided by a review of historical files.

6.2 General Site Setting

The Property is comprised of an irregularly-shaped parcel approximately 195 acres in size and was designed as a full service campus for serving the needs of developmentally delayed children and adults. Currently, the Property is developed with approximately 71 buildings, not including sheds. The structures were constructed between the mid-1800s and 1993, and construction building materials vary depending on the function of the structure and date of construction. Many of the FDC's older institutional structures are primarily constructed of brick and mortar and have gable

rooflines, while newer residential structures have manufactured siding on exterior walls and flat roofs. Many buildings have been or are being vacated as part of the closure of the FDC.

Most administrative and functional buildings are centrally located on the Property while perimeter areas tend to be residential. The physical plant area located on the southernmost portion of the Property includes the Power Plant, workshops at the Maintenance building, the Farm and Grounds Department, and the Main Transformer and is accessed from Waverley Oaks Road. The Property buildings are connected by asphalt and concrete paved private roads, driveways, and parking lots. The main entrance to the FDC is from Trapelo Road north of the Property. The service entrance to the FDC is from Waverley Oaks Road, located on the southeast side of the Property.

Electricity to the Property is provided by NSTAR. The main water and sewer lines serving most of the FDC buildings connect with Property water and sewer mains at the southern portion of the Property. Water and sewer are provided to the Property by the Massachusetts Water Resources Authority (MWRA). TechLaw notes that the former residential buildings on the Property on Trapelo Road are connected to the Waltham water distribution and sewer collection systems. The MWRA also provides the City of Waltham with water and sewer service. The Power Plant, located near the southwestern property line, supplies steam heat to the majority of the campus on a year round basis. The Power Plant uses No. 6 fuel oil to generate steam. Buildings that are not on the underground steam distribution system use No. 2 fuel oil, natural gas, or propane for heat. A system of catch basins and drainage swales discharge storm water that collects on the Property toward retention basins, Clematis Brook, or the wetland area near the Power Plant. A small unnamed brook has remnants on the Property, and flows past the Power Plant and discharges to the wetland area.

6.3 Environmental Conditions

As part of TechLaw's site inspection, environmental conditions were observed at the Property to assess whether potential RECs are present. The Property was evaluated for potential RECs related to the following environmental conditions:

6.3.1 Solid Waste Disposal

According to Paul Bermingham, Waste Management, Inc. (WMI) collects solid waste on the Property daily from dumpsters located near Property buildings. No obvious indication of hazardous waste disposal was observed in the dumpster areas.

6.3.2 Surface Water Drainage

Storm water flows directly into swales or is collected by catch basins in paved areas and diverted to drainage swales and ultimately flows into wetlands, nearby ponds, detention basins, or streams. A small unnamed stream once flowed from the northwest portion of the Property to the southeast portion of the Property; a segment of this stream remains west of the Power Plant and was observed during the site reconnaissance to be running clear, without evidence of sheens. Paul Bermingham was not aware if catch basins on the Property were equipped with oil/water separators or whether any storm water treatment units were present on the Property.

6.3.3 Wells and Cisterns

TechLaw observed no potable or irrigation wells or cisterns on the Property. One stick-up monitoring well and several flush mounted monitoring wells observed in the vicinity of the Malone Park residential complex (Buildings ICF 21 and ICF 23). TechLaw did not observe any of the monitoring wells located in the paved parking area adjacent to the Farm and Grounds Department; these wells had been installed when the gasoline USTs were removed from the area and may have been paved over after MCP response actions were completed. Several downgradient monitoring wells are also present on the hillside south of the Power Plant USTs, and monitoring wells may remain inside the Power Plant but were not viewed as part of this ESA.

6.3.4 Wastewater

No indications of industrial wastewater disposal or treatment facilities were observed during the onsite reconnaissance. Paul Bermingham indicated that all sanitary discharges on the Property are diverted to the MWRA collection system, and he was not aware of any buildings which may have septic systems. He stated that sewage from FDC buildings flows by gravity through the FDC sewer mains down to the MWRA sewer connection near the Farm and Grounds Department. TechLaw notes that for the old Trapelo Road residences which are part of the FDC complex (at 180, 282, and 338 Trapelo Road), the City of Waltham Engineering Department confirmed that they had inactive water and sewer connections. TechLaw did not observe evidence of any septic vent pipes on the Property.

6.3.5 Additional Site Observations

TechLaw observed a marker post for an oil pipeline operated by Exxon on the north side of Malone Park Drive, west of the Greene Unit and east of ICF 24. TechLaw contacted Mr. Allen Wiggin (DCAM) for additional information on the pipeline. Mr. Wiggin provided information related to a 30-foot wide easement which runs through the western and southern portions of the Property. These documents are included in Exhibit D-2. The easement was originally granted to Colonial Beacon Oil Company during the mid-1940s by the Commonwealth of Massachusetts for installation of two pipelines (4 inches and 6 inches in diameter) "for the conveyance of petroleum and the products or by-products thereof..." Exxon Mobil Corporation subsequently acquired the easement. Exhibit A of the *Commonwealth License to Occupy State-Owned Real Property* (License Agreement) indicates that the pipeline enters the western portion of the Property from Trapelo Road and travels south-southwest, crosses Malone Park Drive, then continues south-southwest into the Girl Scout Camp property, and then turns southeast where it intersects Waverley Oaks Road. The Lease Agreement is for use of the pipeline easement for conveyance of fiber optic cables. TechLaw was informed that the pipeline was abandoned. Exhibit A specifies that Segments 2, 3, 4 and 6 are located on FDC property. Two plans depict a portion of the easement locations on the Property. One plan incorrectly depicts the pipeline segment location near Wheatley Hall (which is actually Seguin Hall) and the southern property line. "Pierce Brothers" and "Shell Oil Co." are noted on the southeast side of Waverley Oaks Road. The other mapped segment shows the pipeline easement on the east side of the pond on the Girl Scout camp property. Based upon the pipeline's projected age (perhaps up to 65

years old) and the unknown condition of the pipeline, TechLaw considers the presence of the pipeline on the Property to be a REC.

TechLaw also noted areas with discarded debris on the Property. Building materials, hoses, a ladder, and tires were present in a pile on the north side of the Farm and Grounds Building. A discarded AST and tires were present adjacent to the waste oil berm in front of the Garage.

6.3.6 Hazardous Materials and Petroleum Products Used or Stored at the Site

The Shriver Center was identified on the EDR report as a RCRA SQG which generates small quantities of hazardous waste. TechLaw notes that although Tufts Dental operates on the Property (currently in the Withington Building) and hospitals, clinics, or infirmaries have operated or continue to operate on the Property (in the Thom Building), these entities do not appear as generators of hazardous waste on the database report. No evidence of the use of hazardous materials or storage areas for hazardous wastes was observed on exterior portions of the Property during TechLaw's site reconnaissance. However, TechLaw would expect that the past or present use of x-ray photographic developing equipment would generate silver-bearing and photographic waste streams and medical waste streams as part of routine clinic operations. TechLaw would, therefore, expect that these clinics could potentially be listed as RCRA generators.

Hazardous materials used for heating purposes include propane and natural gas. Propane is stored in a large tank behind the Farm and Grounds Department building and is used to heat the building. A couple of small propane tanks were observed adjacent to the Steam Plant boiler room, and are reportedly used to light the boiler pilot lights in the event of a power outage. Gas grill sized propane tanks were observed in some areas of the Property. Natural gas heat is piped to the following FDC buildings: the Day Care Center at 338 Trapelo Road, Cottages 19 and 20, and Hillside.

With the exception of used motor oil, petroleum products used or stored on the Property are for consumptive use. Paul Bermingham stated that used motor oil is shipped off-site for disposal by a contractor, and that the FDC sends its vehicles off-site for repair. Petroleum products used and stored at the Property include No. 6 fuel oil, No. 2 fuel oil, diesel fuel, and waste oil. General storage locations include:

- No. 2 and No. 6 fuel oil are stored in USTs or ASTs in various locations on the Property for use in oil-fired boilers which provide heat to campus buildings. High-pressure steam is generated using No. 6 fuel oil by the Power Plant, and subsequently distributed to heat the majority of campus buildings. No. 2 fuel oil is stored in USTs at Site 5, Site 7, and the new Activity Center which are all in the northwestern corner of the Property near the Cottage Complex. TechLaw notes that high pressure steam is converted to hot water and the forced hot water is piped underground to heat Cottages 3 through 13, Woodside, and Brookside. No. 2 fuel oil is stored in ASTs and used for heating the following buildings: ICF 21 through ICF 24, the Day Care at 180 Trapelo Road, the former Volunteer Center (282 Trapelo Road), and Cottages 17 and 18.
- Diesel fuel used to power an electrical generator is stored in a UST at the Shriver Center and in ASTs at the Thom Building, Howe Hall, Farrell Hall, Greene Unit,

Wallace Building, Seguin Hall, Cottage 11, and the Pearlman Building. The vent and fill pipes for a second diesel AST inside Farrell Hall (identified as "A16" on the SPCC Facility Site Plan) were not found during TechLaw's site reconnaissance; exterior walls of the building were noted to be heavily covered with vines and vegetation, possibly obscuring the fill and vent piping for this AST. TechLaw notes that diesel fuel is also stored in three 55-gallon drums in the Farm and Grounds Department building for use as a fuel for tractors and other heavy machinery used on site. A 275-gallon AST present inside this building was empty; based on Table 1 of the SPCC Plan, it may have been used for storage of diesel fuel in the past, although on-site grounds staff indicated that it previously stored No. 2 fuel oil (for heating the building).

- Used motor oil is stored in two 275-gallon ASTs and two 55-gallon drums within a secondary containment structure at the FDC Garage.

6.3.7 Unlabeled Containers and Drums

TechLaw did not have access into site buildings. However labeled drums of diesel fuel were observed through the open door inside the Farm and Grounds Department building. Except for the drums of waste oil in the secondary containment shed outside the Garage, drum storage areas were not observed outside of FDC buildings.

TechLaw observed a rusted out 55-gallon drum within the fenced enclosure outside of Waverley Hall and a discarded, rusty 55-gallon drum behind the Garage. No other unlabeled containers or drums were observed during the site reconnaissance.

6.3.8 Disposal Locations of Regulated/ Hazardous Waste

The Shriver Center is operated as part of the University of Massachusetts Medical Center independently of FDC and is a RCRA SQG. No disposal information was available for review for the Shriver Center other than the EDR report.

According to Paul Bermingham, waste oil collected at the Garage is disposed off-site by a licensed disposal company. No other obvious indications of hazardous waste generation, storage, or disposal were observed on the Property or were indicated during interviews.

TechLaw notes that the on-site medical and dental facilities may generate small quantities of hazardous waste as part of these services. These waste streams may include medical waste, x-ray photographic processing wastes containing silver, and mercury-bearing wastes from amalgam used in dental care. Other than the Shriver Center, the EDR report did not list any other RCRA generators operating on the Property.

TechLaw noted that several discarded computer monitors and other solid waste were outside the Volunteer Center building at 282 Trapelo Road. If broken, computer monitors can release hazardous materials (i.e., heavy metals such lead) into soil. Other solid waste disposal areas observed during the site reconnaissance included the hillside area behind the Garage where tires, automotive parts, and other debris was discarded. TechLaw considers these discarded materials to be a de minimis condition.

6.3.9 Evidence of Releases

No obvious indication of hazardous material or petroleum product releases, such as stained areas or stressed vegetation, was observed outside Property buildings during the site reconnaissance. Paul Bermingham indicated that an incident occurred at FDC many years ago involving a drum that was illegally dumped on the Property by someone from off site; this information was confirmed in a spill listing involving a drum in the EDR report.

6.3.10 Polychlorinated Biphenyls (PCBs)

Older transformers and other electrical equipment could contain polychlorinated biphenyls (PCBs) at a level that subjects them to regulation by the U.S. EPA. PCBs in electrical equipment are controlled by U.S. EPA regulations 40 CFR, Part 761. Under the regulations, there are three categories into which electrical equipment can be classified:

- Less than 50 parts per million (ppm) of PCBs – *"Non-PCB" transformer*
- 50 ppm - 500 ppm – *"PCB-Contaminated" electrical equipment*
- Greater than 500 ppm – *"PCB" transformer*

TechLaw observed nearly all of the pole-mounted or pad-mounted oil-filled transformers at the locations noted on the FDC SPCC Facility Site Plan. Access was not provided to transformers or other electrical equipment located inside Transformer vaults/buildings (such as in Building 14) or within fenced enclosures (Building 55). Transformers associated with Kelley Hall (T82-T86) were not observed, and may be located either inside the building or may have been removed after the building was closed and boarded up. The transformer location adjacent to the Chapel (T2) is actually located on a utility pole on the southeast side of the Chapel rather than the northeast side as shown on the SPCC Facility Site Plan. TechLaw also did not observe the pole-mounted transformed closest to Cottage 18 (T7) due to excessive vegetation; it may be located in the densely wooded area between Cottages 18 and 20. Access was also not provided into the high voltage switchgear enclosure northwest of the Power Plant and north of Chapel Street which is identified by a sign as "NSTAR STA436." TechLaw presumes that the equipment within this enclosure is owned and operated by NSTAR.

TechLaw observed that most of the transformers on the Property were labeled with "Non-PCB" labels adhered to the exterior of the transformer. Paul Bermingham stated that most of the transformers on the Property are state owned, and that historically when transformers on the Property leaked, they were repaired or replaced in order to phase out use of PCB transformers on the Property.

Signage indicating the presence of PCBs was noted in the following locations: Exterior transformers in the Building 55 fenced enclosure. Other areas not accessed as part of this assessment but potentially containing PCB oils includes the electrical vault inside the Thom Building (in the room beneath the rear loading dock) and in the switchgear and/or electrical vaults inside the Power Plant. Old electrical equipment containing PCB oil may be used if the equipment is operating properly without leakage. PCBs present in electrical

equipment on the Property are considered a de minimis condition since none of the containers appeared to be leaking.

6.3.11 Landfills

No evidence of on-site landfills was observed or reported during the site reconnaissance, and no evidence of historic landfills on the Property was revealed by the file review.

6.3.12 Pits, Ponds, Lagoons, Sumps, and Catch Basins

TechLaw observed a detention pond north of the Cottage Complex located on the northern corner of the Property. A low-lying wetland is located on the northwest side of the Pearlman building; no standing water was observed in this wetland although wetland vegetation was observed present and the wetland area was surrounded by chain-link fencing. The Site Orthographic Photo (Figure 3) and the FDC Site Plan (Figure 3) also show that a portion of the wetland along the south-southwestern side of the Property encroaches onto the southernmost portion of the Property. In addition, a natural pond is located on the Girl Scout property parcel adjacent to the Property; storm water runoff in this portion of the Property flows toward the pond on the Girl Scout property.

No evidence of on-site pits or lagoons was observed or reported during the site reconnaissance. Catch basins on the Property are used to drain storm water from roadways and parking lots. No sumps were observed as part of this assessment. Catch basins and ponds on the Property are not considered an environmental concern.

6.3.13 On-Site ASTs and USTs

TechLaw observed evidence of ASTs and USTs in use at the Property during the Site reconnaissance. Tank information provided in the tables below was obtained from the SPCC Plan. Sizes and construction of tanks located underground or inside buildings could not be verified. Dates of installation could not be confirmed since Fire Department records were not sufficiently detailed to confirm installation dates. The presence of fill and vent pipes was used as an indicator that tanks listed in the SPCC plan remained on site. TechLaw was not able to verify that following ASTs on the Property.

Table 6-1
ASTs Not Confirmed Present at Fernald Developmental Center

SPCC Tank #	Location	In (I) or Out (O)	Type	Volume (gals)	Product	Installed	Use
16A	Farrell Hall north wing	I	Steel	30	Diesel	1980	Generator
17A	Cottage 17	I	Steel	275	No. 2 fuel	1975	Heat
18A	Cottage 18	I	Steel	275	No. 2 fuel	1975	Heat

I – Inside building
O – Outside building

Table 6-2
USTs and ASTs Confirmed Present at Fernald Developmental Center

SPCC Tank #	Location	In (I) or Out (O)	Type	Volume (gals)	Product	Installed	Use
USTs							
1U	Shriver Center	O	Steel	750	Diesel	1970	Generator
2U*	Power Plant	O	UNK	2 x 20,000	No. 6 oil	c. 1996	Heat
6U	Site 5	O	Fiberglass	10,000	No. 2 oil	1984	Heat
5U	Site 7	O	Fiberglass	10,000	No. 2 oil	1984	Heat
7U	Training/Activities Center	O	Fiberglass	4,000	No. 2 oil	1981	Heat
ASTs							
NA	Power Plant	O	Steel	UNK	Propane	UNK	Pilot light
NA	Thom Bldg	O	Steel	UNK	Propane	UNK	Generator
1A	Thom Bldg	I	Steel	275	Diesel	1999-2001	Not used
2A	Howe Hall	I	Steel	275	Diesel	1999-2001	Generator
3A	Farrell Hall	O	Steel	1,000	Diesel	1999-2001	Generator
4A	Greene Unit	O	Steel	275	Diesel	1999-2001	Generator
5A	ICF 21	O	Steel	330	No. 2 oil	1999-2001	Heat
6A	ICF 22	O	Steel	330	No. 2 oil	1999-2001	Heat
7A	ICF 23	O	Steel	330	No. 2 oil	1999-2001	Heat
8A	ICF 24	O	Steel	330	No. 2 oil	1999-2001	Heat
9A	Farm & Grounds	1	Steel	275	Empty	1975	Not used
10A	Day Care (180 Trapelo Rd)	I	Steel	275	No. 2 oil	1975	Heat
11A	Volunteer Center (282 Trapelo Rd)	I	Steel	2 x 275	No. 2 oil	1975	Heat
12A	Wallace Bldg	O	Steel	100	Diesel	1984	Generator
13A	Seguin Hall	O	Steel	100	Diesel	1984	Generator
14A	Cottage 11	O	Steel	85	Diesel	1995	Generator
15A	Pearlman	I	Steel	5,000	Diesel	1992	Generator
19A	Garage	O	Steel	2 x 275	Lube oil	1980	Disposal

* - Tank location for new USTs is the same as for removed USTs 2U, 3U, and 4U
I – Inside building
ICF – Intermediate Care Facility
NA – Not applicable
O – Outside building
UNK - Unknown

TechLaw notes that current Power Plant personnel stated that the three tanks referenced in the SPCC Plan were removed and replaced about 15 years ago with two 20,000-gallon double walled USTs. The tank sensors which monitor product levels and interstitial space between tanks are reported to no longer work properly. Tank product levels are measured by stick.

Based on the absence of visible fill and vent piping on the outside of the buildings, TechLaw was not able to confirm that the following ASTs listed in the SPCC plan remain on the Property:

The 750-gallon UST at the Shriver Center was installed in 1970. Based upon its age and steel construction, it is likely that the tank shell has been weakened over its 39-year lifetime. TechLaw considers this tank, which the SPCC plan notes as having no corrosion protection or secondary containment, to be an REC.

ASTs located the two former residential buildings at 180 and 282 Trapelo Road and the ASTs that may remain in Cottages 17 and 18 were installed during the 1970s. The condition and amount of oil present in the tanks is unknown, and the unoccupied buildings were observed to be in poor condition. These ASTs are considered an REC based upon their age and the condition of the buildings.

6.3.14 Radiological Hazards

Radiological equipment is reported to be in use in the Shriver Center, and is also presumed to be used for dental x-rays by Tufts Dental which is currently located in the Withington Building. Other x-ray equipment may currently be present or have historically been present in buildings used as medical facilities (most notably the Thom Building). Historical information indicates that x-ray equipment was first used at the Property in the 1920s.

TechLaw notes that during the 1940s and early 1950s, Harvard and MIT researchers dosed oatmeal with radioactive isotopes of calcium and iron that was fed to a select population of FDC boys as part of an experiment on human health effects of radiation exposure. Blood and stool samples were collected for radioactive analysis. Although no documentation was obtained during the historical file review for this ESA, TechLaw suspects that medical buildings present at that time or the Southard Laboratory could have been used to store radioactive chemicals and/or conduct the analyses. According to Paul Bermingham, the Southard Laboratory was the original FDC medical lab where autopsies and medical research on the brain was conducted. In addition, Sanborn Maps identify a dental lab at Southard Laboratory.

Since the Property buildings were connected to the municipal sewer in the years prior to the oatmeal experiment and no information was obtained indicating that a release of radioactive materials has impacted the Property, radioactive contamination is not likely a current environmental concern in exterior portions of the Property.

6.3.15 Drinking Water

The Property is connected to the MWRA water supply which receives its water supply from the Quabbin Reservoir in central Massachusetts. No potable wells are known to be present

on the Property, and drinking water wells are not present within a one-mile radius of the surrounding Property. Water sampling was not conducted at the site to verify water quality. Drinking water quality is not an environmental concern.

6.3.16 Asbestos

Asbestos is not typically evaluated as part of an ASTM scope of work unless specifically required. However, the MCP is developing regulations for asbestos in soil, and since damaged material was observed that is exposed to weather, TechLaw is noting it herein.

TechLaw observed thermal system insulation (TSI) that is presumed to contain asbestos in the form of pipe wrap on various locations of the Property. Asbestos is likely to be present and has the potential to be released to air, soil, and water. As shown on historical Sanborn Maps, steam pipe tunnels are located throughout the Property and transport steam to most of the Property buildings. Redevelopment of the property would require removal of steam piping between buildings; this process would require asbestos abatement prior to removal.

TechLaw observed TSI in fair to poor condition which is exposed to ambient conditions in several locations on the Property:

- Generator vent piping on the northeast side of Howe Hall,
- Steam pipe in a venting structure adjacent to the Store Room, and
- Piping on underside of overhead metal decking outside the northwest wall of the Power Plant between the smokestack and UST location.

The poor condition of the TSI coupled with erosion due to wind and rain would disperse asbestos. TechLaw considers that TSI in poor condition and subject to dispersion by weather to be a REC. TechLaw also notes that asbestos siding is present on the former Volunteer Center (282 Trapelo Road) and the former Day Care (180 Trapelo Road).

7.0 INTERVIEWS

7.1 Interviews with Owner

The Commonwealth of Massachusetts owns the Property. Mr. Paul Bermingham, FDC Director of Safety, was assigned as the primary point of contact for the operations at FDC, and was interviewed by TechLaw as part of this ESA. Mr. Bermingham escorted TechLaw through the Property and answered questions. Information obtained from Mr. Bermingham has been incorporated into Section 6 of this report.

7.2 Interviews with Local Governmental Officials

On June 3, 2009, TechLaw contacted MassDEP to schedule a file review for the purpose of obtaining information regarding historic and current RECs on the Property. TechLaw conducted the file review at the MassDEP Northeast Regional Office (NERO) on June 11, 2009, and subsequently reviewed pertinent files related to the Property. On July 24, 2009, TechLaw obtained information from Mr. Ethan Gould (MassDEP NERO) and Mr. Chris Coolen (MassDEP NERO) related to on-site and off-site RTNs. These records are included in Appendix C and the information is incorporated into Section 5.2.

On June 4, 2009, TechLaw contacted the Waltham Fire Department by telephone in order to inquire about UST and ASTs located on the Property. On June 5, 2009, TechLaw visited the Waltham Fire Department and submitted a "21E" request form for the Property. TechLaw received a response from the Waltham Fire Department on July 23, 2009 (see Exhibit C-14). This information is incorporated into Section 5.1.

On June 8 and June 11, 2009, TechLaw visited the archivist at the Waltham Public Library to obtain information regarding the historical use of the Property. TechLaw reviewed and collected documents pertaining to the history of FDC. This file material is included in Exhibit B-6 and the information is incorporated into Section 5.5.

During the course of this ESA, TechLaw obtained zoning information for the Property from the Town of Waltham GIS website which indicated that the Property is zoned for "Conservation/Recreation" use. TechLaw also obtained a detailed site plan of the Property from Mr. Eric Rizzo of the City of Waltham MIS Department. TechLaw has identified the Property buildings on the site plan provided by Mr. Rizzo for the ESA.

On June 8, 2009, TechLaw visited the City of Waltham Public Health Department to obtain documents relating to potential RECs at the Property. These records are located in Exhibit C-14 and the information is incorporated into Section 5.1.

On June 8 and July 13, 2009, TechLaw visited the City of Waltham Assessors Department and Engineering Department to obtain information pertaining to the Property. These records are included in Exhibit C-14.

8.0 FINDINGS AND OPINION

TechLaw has identified known or suspected environmental conditions associated with the Property or nearby Properties. These environmental conditions include RECs, historical RECs, and/or de minimis conditions.

8.1 On-Site RECs

An oil pipeline easement traverses the western and southern portions of the Property. Two oil pipes were installed in the easement during the mid-1940s by Colonial Beacon Oil Company. The pipeline was subsequently acquired by Exxon Mobil Corporation. The oil pipeline was reportedly abandoned, and a lease agreement was executed for use of the easement for conveyance of fiber optic cables. The oil pipeline is considered an REC considering its age (approximately 65 years old) and absence of information regarding its subsurface condition and integrity.

Thermal pipe insulation was observed on steam pipes and other piping that is exposed to weather on the Property. Because of its presumed age, the thermal pipe insulation likely contains asbestos, and was observed to be in fair to poor condition. Exposed thermal insulation was observed in three locations including (1) on steam pipes in an open venting structure adjacent to the Store Room, (2) pipes on the underside of an open metal deck outside the northwest wall of the Power Plant, and (3) on a generator exhaust pipe located on the northeast wall of Howe Hall. Asbestos siding is also noted present on the former Volunteer Center (282 Trapelo Road) and the former Day Care (180 Trapelo Road).

The 750-gallon diesel UST at the Shriver Center was installed in 1970. Based upon its age and steel construction, it is probable that the tank has been weakened since it was installed. The tank was not equipped with corrosion protection or secondary containment. This UST is considered an REC based upon its age and absence of corrosion protection.

Petroleum-contaminated soil is present in the vicinity of the Power Plant on the Property resulting from historical releases of No. 6 fuel oil. An AUL has been implemented for an approximately 0.4-acre parcel which is partially located under the Power Plant's building footprint and partially south of the Power Plant. Under a potential redevelopment scenario involving demolition of the Power Plant, petroleum-contaminated soil could become exposed. The MA RELEASE is related to two linked RTNs. RTN 3-0010367, the "parent" RTN, is listed with a status of "Class C RAO" and is linked with "daughter" RTN 3-0013467, which is listed with a status of a "Class A-3 RAO."

ASTs located the two former residential buildings at 180 and 282 Trapelo Road and the ASTs that may remain in Cottages 17 and 18 were installed during the 1970s. The condition and amount of oil present in the tanks is unknown, and the unoccupied buildings were observed to be

in poor condition. These ASTs are considered an REC based upon their age and the condition of the buildings.

8.2 Off-Site RECs

Two off-site RECs were identified which have potential to impact the Property, based on their proximity and/or upgradient location relative to the Property.

The **Waltham Federal Center** "disposal site" at 424 Trapelo Road is located adjacent to the northwest side of the Property. A "separate phase oil" plume is present on a portion of the adjacent parcel, and the release listed under two apparently linked RTNs (RTN 3-6013 and RTN 3-17581) under the name "Waltham Federal Center." TechLaw reviewed a site plan presented which shows the approximate extent of "separate phase oil" which was released from the former USTs at the boiler plant at that site. The leading edge of the separate phase oil plume is shown to be within 25 feet of the Subject Property and appears to be progressing down the hillside slope toward the Subject Property. Based on this information, TechLaw considers this release an off-site REC that has potential to impact the Subject Property. The current status of the "disposal site" is listed as Class C RAO which indicates that a temporary solution has been achieved but response actions have not yet achieved a condition of "no significant risk." The Malone Park Drive residences (ICF 21- ICF 24) are located downgradient of the advancing plume.

The **UMASS** parcel at 225-227 Beaver Street is located adjacent to the southern portion of the Property and is identified as a MA RELEASE disposal site under RTN 3-28049. The parcel is owned by the Commonwealth of Massachusetts and occupied by UMASS Amherst Agricultural School. The parcel was contaminated with cadmium, chromium, and lead at levels exceeding MCP Reportable Concentrations. The wetlands on the UMASS parcel was used in 1978 as part of the Phoenix Project, and contaminated by application of fly-ash residue containing heavy metals. Negotiations are currently on-going to determine whether an AUL could be applied to the "disposal site" in lieu of excavation of the wetland area as part of site closure under the MCP. At the time of the writing of this report, TechLaw was unable to obtain information on the exact location and boundary of the wetland test parcel, and extent of contamination. Since the wetland on the Subject Property and the wetland that the UMASS parcel occupies are contiguous, it is possible that heavy metals could have been transported by wind or water and deposited on the Subject Property.

8.3 Previously Resolved On-Site RECs

Based on the results of this assessment, eight historical RECs for the Property are currently not considered an environmental concern. The eight reported MA RELEASES for the Property have been assessed and remediated under the MCP and have a Class A or Class B RAO status.

Power Plant - RTN 3-0011878 and 3-0015442 (MA RELEASE and SHWS):
These two incidents involved No. 6 fuel oil releases at the Power Plant which were due to overfilling or overflowing of the USTs. Oil impacted the nearby brook and soil, sediment, and

recovered product and oil-impacted debris were removed as part of MCP response actions. The status listed by MassDEP for these releases are a Class A-1 and a Class A-2 RAO, respectively.

Power Plant - RTN 3-0015149 (MA RELEASE and LUST):
During closure of a gasoline UST at the Power Plant, a soil headspace reading exceeded the MCP reporting notification threshold. After the tank and soil was removed from the tank grave, soil confirmation samples were collected and analyzed for gasoline constituents. Since none of the soil concentrations exceeded regulatory standards, and the site was "closed" with a Class B-1 RAO.

Farm and Grounds Department - RTN 3-0010725 (MA RELEASE and LUST):
After gasoline USTs and a gas pump were removed from the Farm and Grounds Department parking lot, gasoline constituents were detected in soil and groundwater above regulatory levels. Response actions were completed, the site was "closed" with a Class A-2 RAO.

Malone Park Residences - RTN 3-0021892 and 3-0021893 (MA RELEASE and LUST):
Fuel oil contaminated soil and/or groundwater were discovered during closure of the USTs located adjacent to Malone Park residences. After response actions were completed, these two sites were "closed" with a Class A-2 RAO.

Thom Building – RTN 3-0021380 (MA RELEASE):
Approximately 12 gallons of diesel fuel were released by a malfunctioning pump associated with a generator in the building, and flowed out the doorway onto the ground. After response actions were completed, the site was "closed" with a Class A-1 RAO.

Various locations at 200 Trapelo Road – RTN 3-0015121 (MA RELEASE and SHWS):
Up to 40 gallons of diesel fuel were released on the FDC campus after a van punctured a fuel tank. Three parking lot locations on the Property were impacted including the Fernald Workshops (Site 7), the Shriver Center, and East/Dowling Hall and well as the roadway between these buildings. After response actions were completed, the site was "closed" with a Class A-1 RAO.

8.4 Previously Resolved Off-Site RECs

Previously resolved off-site RECs were identified for three parcels adjacent to the Property:

Former Shell Product Distribution Plant Oil at 313 Waverley Oaks Road:
Three releases are associated with this location including RTNs 3-0003078, 3-0018952, and 3-0020538. Contaminants of concern included PAH compounds, TPH, and metals due to releases of petroleum at the former tank farm. The site was "closed" with a Class A-3 RAO and implementation of an AUL to contain remaining contaminants.

Former Heating Plant at 333 Forest Street:
Response actions were completed for a release of asbestos and arsenic in soil listed under RTN 3-0022303. The former heating plant was located northwest of the Property and the site was

"closed" with a Class A-3 RAO and implementation of an AUL to contain remaining contaminants.

FC Murphy Federal Center at 424 Trapelo Road:
Response actions were completed for a release of PAHs listed under RTN 3-0018887. The site was "closed" with a Class A-2 RAO.

8.5 De Minimis Environmental Conditions

De minimis environmental conditions were identified or suspected in connection with the Property during the course of this assessment and include:

- Discarded computer monitors observed on the ground near the garage at the Volunteer Center.
- Discarded tires and automotive parts observed on the ground behind the FDC Garage and a discarded 275-gallon AST adjacent to the waste oil secondary containment berm in front of the Garage.
- Discarded building materials and debris in front of the Farm and Grounds Department building.
- PCB containing transformers and/or electrical equipment: Signs and labeling indicates that PCBs are present in transformers located in the transformer yard adjacent to Building 15. PCBs may also be present in other inaccessible locations on the Property including Building 14, a transformer building located between the North Building and the old Activities Center, the Main Transformer Pad, and electrical vaults located within various buildings (such as the Power Plant). No stains or leaks were observed from visible transformers in the Building 15 transformer yard and the Main Transformer Pad, but other areas containing electrical equipment was not accessible as part of the ESA. TechLaw notes that old electrical equipment containing PCB oil may be used if the equipment is operating properly without leakage.
- Coal Ash: Coal was historically stored and used to generate steam at the Power Plant and Belmont House. Although coal ash is considered exempt under the MCP, compounds or analytes present in coal ash (such as PAHs and metals) may be present in soil around these buildings. Compounds related to coal ash is exempt from notification to MADEP in accordance with 310 CMR40.0317(9) of the MCP.
- Herbicide and pesticide residues that may be present in the Greenhouse area.

9.0 CONCLUSIONS

TechLaw has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E1527-05 for the Fernald Developmental Center located at 200 Trapelo Road in Waltham, Massachusetts. Any exceptions to or deletions from this practice are described in Section 6.1 of this report. This assessment has revealed no evidence of RECs in connection with the Property, except for the following:

- Soil contaminated with No. 6 fuel oil is present in an AUL area under and south of the Power Plant.
- A 65-year old oil pipeline easement exists on the Property whose condition is unknown.
- Thermal pipe insulation present on pipes in outdoor locations was observed to be in fair to poor condition; asbestos may be present in the pipes and able to be dispersed by wind and water. Asbestos siding is also noted present on the former Volunteer Center (282 Trapelo Road) and the former Day Care (180 Trapelo Road).
- A 39-year old 750-gallon diesel UST located at the Shriver Center is not equipped with corrosion protection and could release diesel fuel into the ground.
- No. 2 fuel oil ASTs located in four vacant residential buildings are at least 30 years old, and the buildings are in poor condition.
- An oil plume appears to be approaching the Property from an upgradient adjacent parcel on the northwest side of the Property.
- The wetland on the southern portion of the Property may have been impacted by heavy metals due to an agricultural experiment on the adjacent parcel.

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GZA GeoEnvironmental, Inc., Phase IV As-Built Construction Report, Final Inspection Report and Completion Statement, Upland Area, 411 Waverley Oaks Road, Waltham, Massachusetts, RTN 3-0454, May 2009.

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VERTEX Engineering Services, Inc., Response Action Outcome (RAO) Statement, Massachusetts Department of Mental Retardation, Walter E. Fernald School, 200 Trapelo Road, Waltham, Massachusetts, RTN 3-15149, June 30, 1997.

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Waltham Municipal Files

Assessors Department:

Property Record Card, 190 Trapelo Road, April 28, 1981.
Property Record Card, 282 Trapelo Road, undated.
Property Record Card, 338 Trapelo Road, April 28, 1981.
Historical Ownership Index Cards, various dates.
Printable Abutter List, July 15, 2009.

Engineering Department:

Water Connection Card for 282 Trapelo Rd., Service No. 3974, undated.
Sewer Connection Card for 282 Trapelo Rd., Service No. 5349-S, undated.
Water Connection Card for 338 Trapelo Rd., Service No. 4515-W.

Waltham Fire Department:
Letter Report, RE: Tanks Installed and Removed, July 16, 2009.

Waltham GIS Maps

Printable Zoning Map, 190 Trapelo Rd, August 1, 2009.
Printable Zoning Map, 338 Trapelo Rd, August 1, 2009.
Printable Interactive Map, 190 Trapelo Rd, July 15, 2009.
Printable Interactive Map, 228 Trapelo Rd, July 15, 2009.
Printable Parcel Viewer Map, 355 Waverley Oaks Rd, July 24, 2009.
Printable Parcel Viewer Map, 319 Waverley Oaks Rd, July 24, 2009.
Printable Parcel Viewer Map, 307 Waverley Oaks Rd, July 24, 2009.
Printable Parcel Viewer Map, 313 Waverley Oaks Rd, July 24, 2009.
Printable Parcel Viewer Map, 271 Waverley Oaks Rd, July 24, 2009.
Printable Parcel Viewer Map, 411 Waverley Oaks Rd, July 24, 2009.
Printable Parcel Viewer Map, 425 Waverley Oaks Rd, July 24, 2009.
Printable Parcel Viewer Map, 225 Beaver St, July 24, 2009.
Printable Parcel Viewer Map, 265 Beaver St, July 24, 2009.
Printable Parcel Viewer Map, 135 Beaver St, July 24, 2009.
Printable Parcel Viewer Map, Forest St, July 24, 2009
Printable Parcel Viewer Map, 371 Forest St, July 24, 2009.
Printable Parcel Viewer Map, 333 Forest St, July 24, 2009.
Printable Parcel Viewer Map, 424 Trapelo Rd, July 24, 2009.
Printable Parcel Viewer Map, 380 Trapelo Rd, July 24, 2009.
Printable Parcel Viewer Map, 385 Trapelo Rd, July 24, 2009.
Printable Parcel Viewer Map, 475 Trapelo Rd, July 24, 2009.
Printable Parcel Viewer Map, 285 Trapelo Rd, July 24, 2009.
Printable Parcel Viewer Map, 475 Trapelo Rd, July 24, 2009.
Printable Parcel Viewer Map, 258 Trapelo Rd, July 24, 2009.

MassGIS Datalayers

- *Assessors Parcels Datalayer. December 2007*
- *Bedrock Lithology Datalayer. January 2004.*
- *Surficial Geology Datalayer. December 2007.*
- *Title 5 Setback Areas Datalayer. January 2009.*
- *Transmission Lines Datalayer. March 2007.*
- *Zoning Datalayer. August 2007.*
- Hydrography Datalayer. January 2009.
- MADEP Bureau of Waste Prevention Regulated Sites Datalayer.
- MassDEP Oil and/or Hazardous Material Sites with Activity and Use Limitations (AUL) Datalayer. February 2009.
- MassDEP Tier Classified Oil and/or Hazardous Material Sites (MGL c. 21E) Datalayer. February 2009.
- Non-Potential *Drinking Water Source Areas Datalayer. June 2006.*

11.0 CERTIFICATION AND QUALIFICATIONS

The lead assessor/environmental professional for this Phase I report was Ms. Gretchen Fodor. Ms. Fodor earned a Bachelor of Science degree in Chemistry from St. Lawrence University and a Masters of Science in Environmental Studies from the University of Massachusetts – Lowell. She has over 20 years of experience as an environmental chemist and has completed approximately 200 ASTM Phase I ESAs since 2001. In addition, Ms. Fodor has completed five EPA Targeted Brownfields Site Assessments while working as a contractor to EPA Region I. A copy of Ms. Fodor's resume is included in Appendix 11.

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 312.10 of 40 CFR 312.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed all the appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Gretchen M. Fodor

Signature of Lead Assessor/Environmental Professional:

Date: October 22, 2009

Fernald Development Center
200 Trapelo Road
Waltham, MA 02452

Inquiry Number: 2508314.5
June 02, 2009

The EDR Aerial Photo Decade Package

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDRs professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography June 02, 2009

Target Property:

200 Trapelo Road
Waltham, MA 02452

Year	*Scale*	*Details*	*Source*
1938	Aerial Photograph. Scale: 1"=500'	Panel #: 2442071-D2/Flight Date: December 15, 1938	EDR
1955	Aerial Photograph. Scale: 1"=750'	Panel #: 2442071-D2/Flight Date: December 01, 1955	EDR
1960	Aerial Photograph. Scale: 1"=1000'	Panel #: 2442071-D2/Flight Date: May 26, 1960	EDR
1978	Aerial Photograph. Scale: 1"=750'	Panel #: 2442071-D2/Flight Date: April 23, 1978	EDR
1980	Aerial Photograph. Scale: 1"=750'	Panel #: 2442071-D2/Flight Date: October 10, 1980	EDR
1987	Aerial Photograph. Scale: 1"=1000'	Panel #: 2442071-D2/Flight Date: April 27, 1987	EDR
1995	Aerial Photograph. Scale: 1"=750'	Panel #: 2442071-D2/Flight Date: March 29, 1995	EDR
2006	Aerial Photograph. Scale: 1"=501'	Flight Year: 2006	EDR


INQUIRY #: 2506314.5
YEAR: 1938
= 500'
N


INQUIRY #: 2508314.5
YEAR: 1955
= 750'
N


INQUIRY #: 2508314.5
YEAR: 1960
= 1000'
N


INQUIRY #: 2508314.5
YEAR: 1978
= 750'
N


INQUIRY #: 2508314.5
YEAR: 1980
= 750'
N


INQUIRY #: 2508314.5
YEAR: 1987
= 1000'
N


INQUIRY #: 2508314.5
YEAR: 1995
= 750'
N


INQUIRY #: 2508314.5
YEAR: 2006
= 501'
N

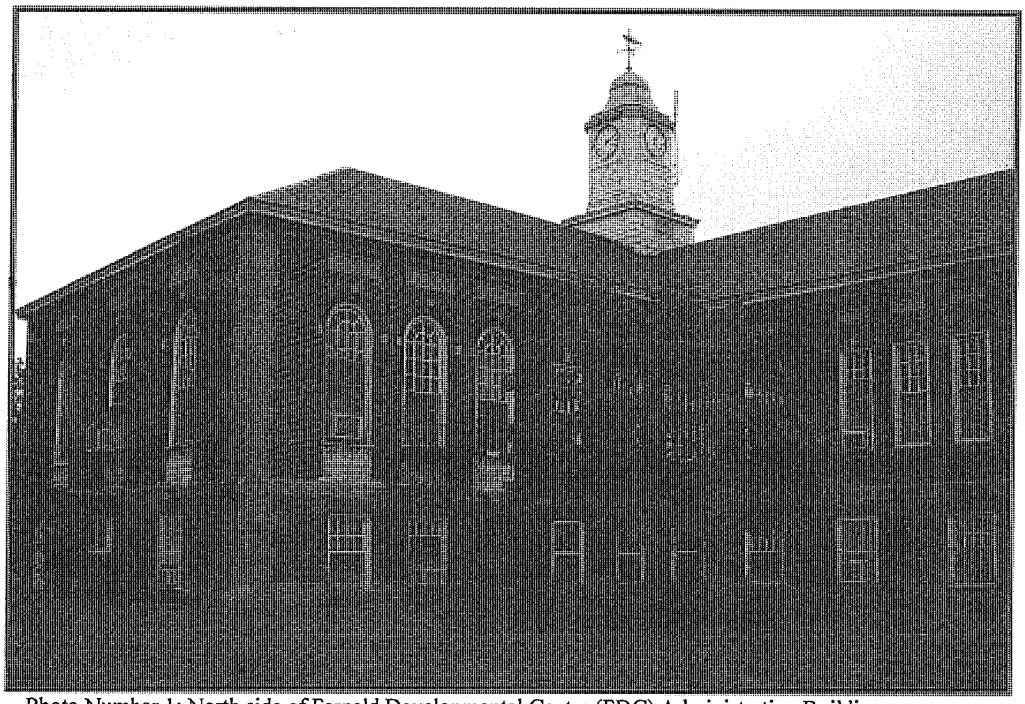

Photo Number 1: North side of Fernald Developmental Center (FDC) Administration Building.

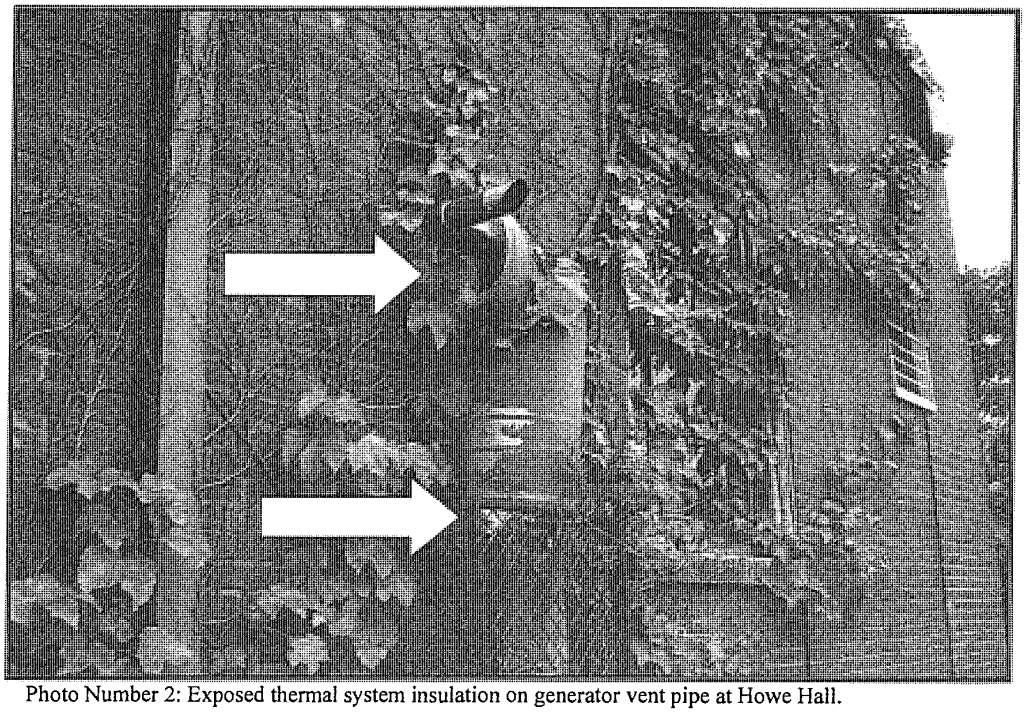

Photo Number 2: Exposed thermal system insulation on generator vent pipe at Howe Hall.

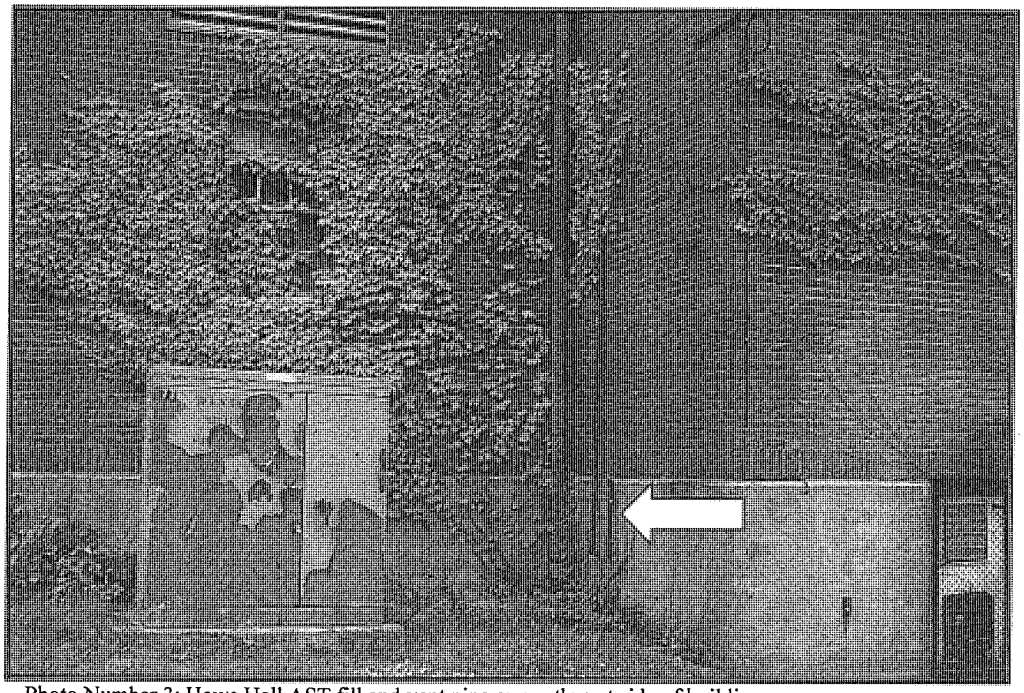

Photo Number 3: Howe Hall AST fill and vent pipe on northwest side of building.

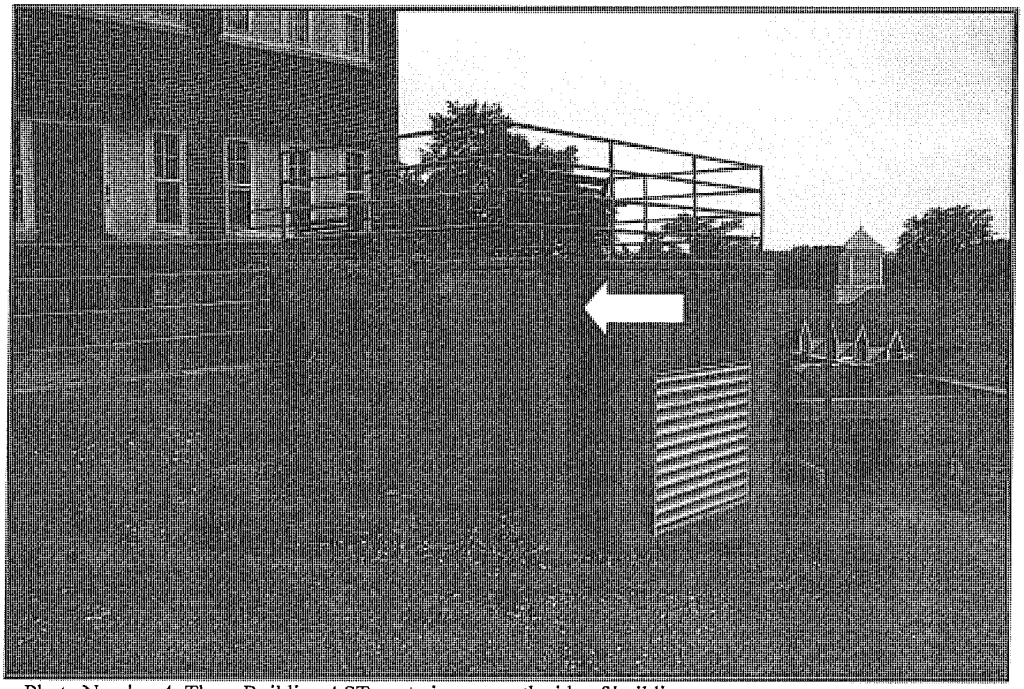

Photo Number 4: Thom Building AST vent pipe on north side of building.

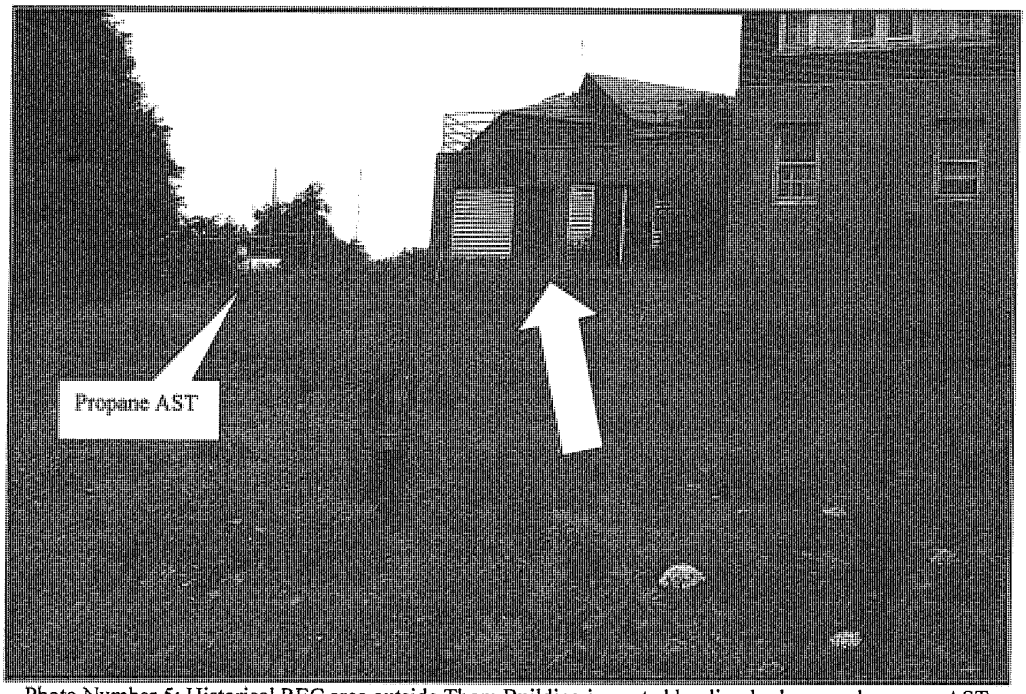

Photo Number 5: Historical REC area outside Thom Building impacted by diesel release and propane AST.

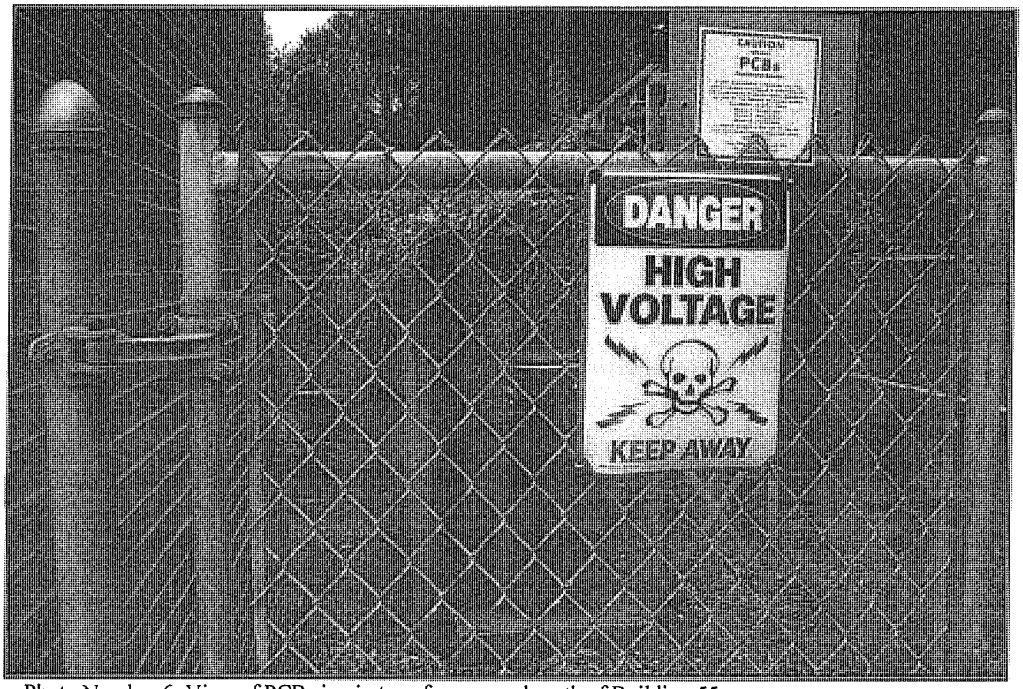

Photo Number 6: View of PCB sign in transformer yard north of Building 55.

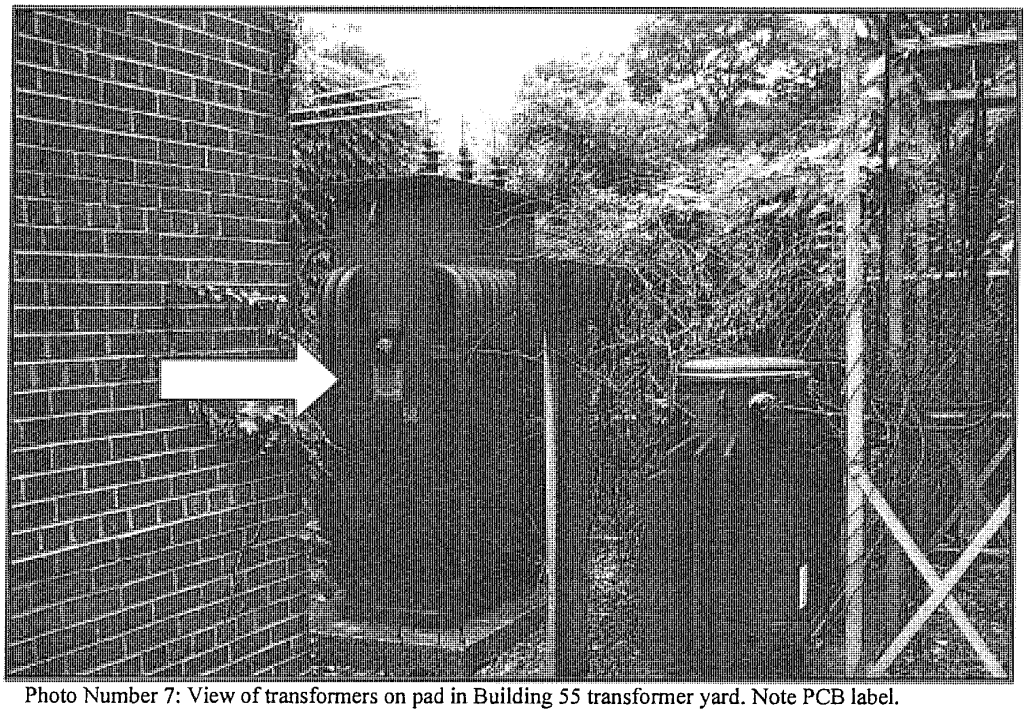

Photo Number 7: View of transformers on pad in Building 55 transformer yard. Note PCB label.

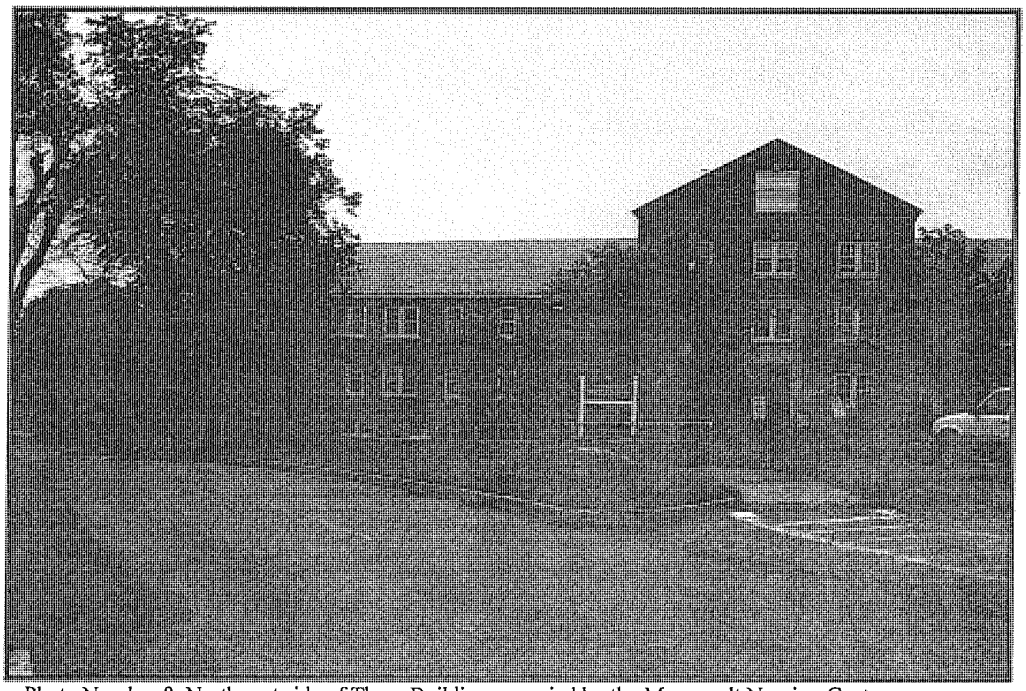

Photo Number 8: Northwest side of Thom Building occupied by the Marquardt Nursing Center.

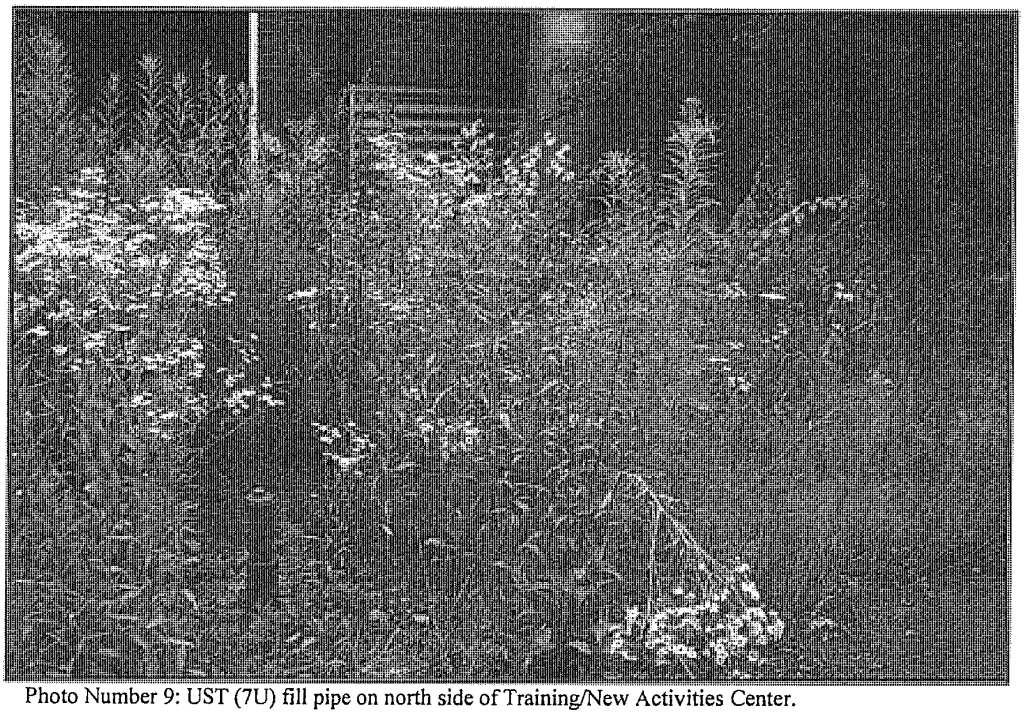

Photo Number 9: UST (7U) fill pipe on north side of Training/New Activities Center.

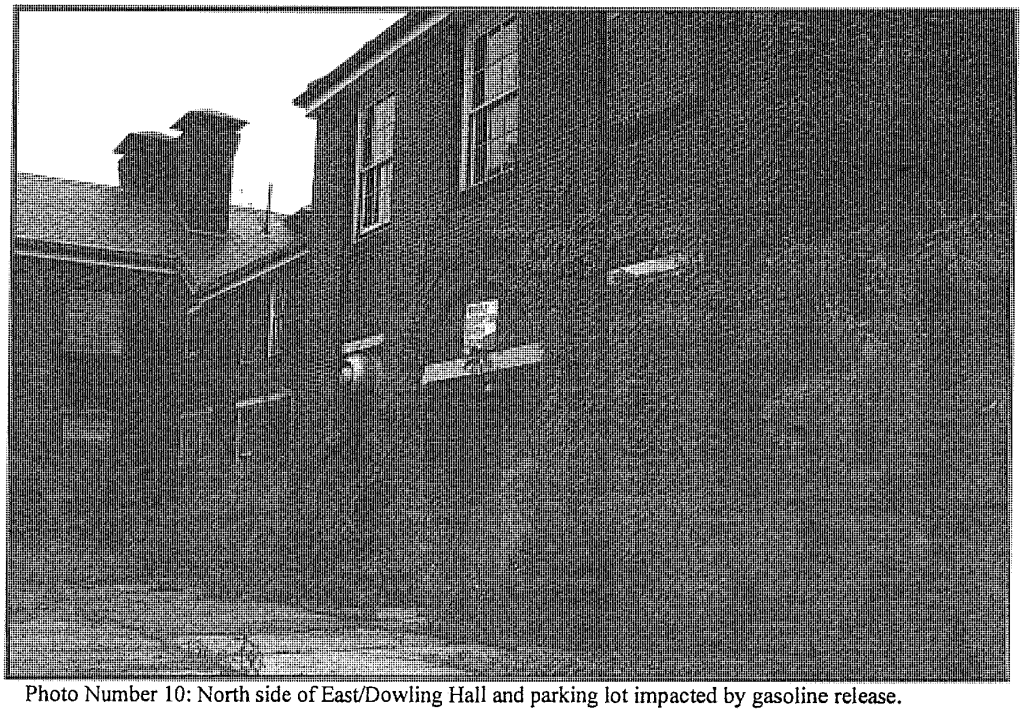

Photo Number 10: North side of East/Dowling Hall and parking lot impacted by gasoline release.

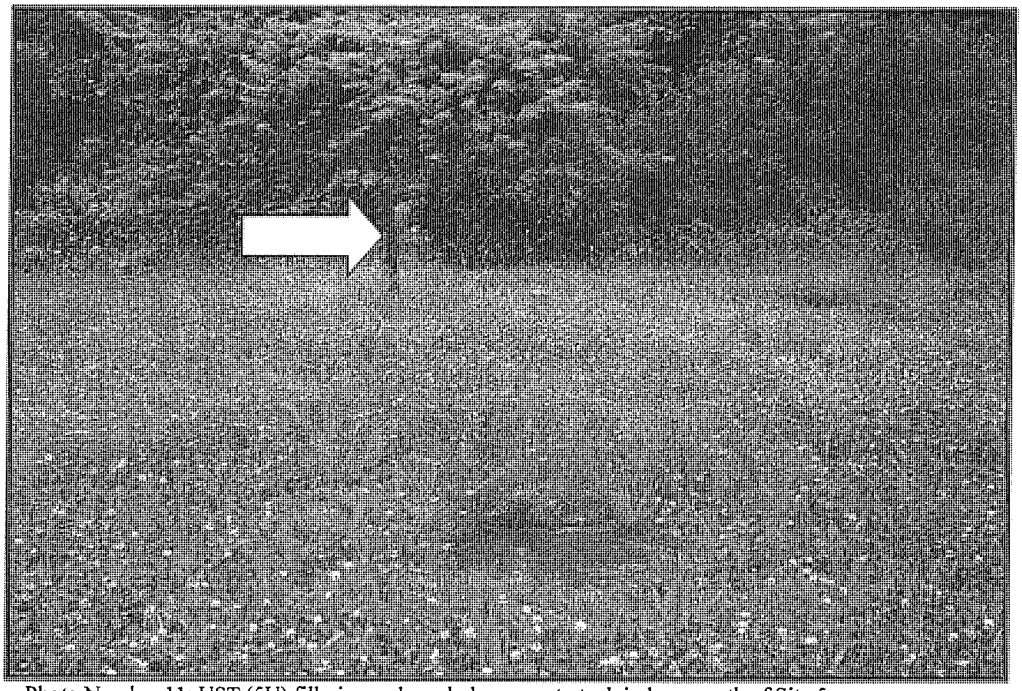

Photo Number 11: UST (5U) fill pipe and manhole access to tank in lawn south of Site 5.

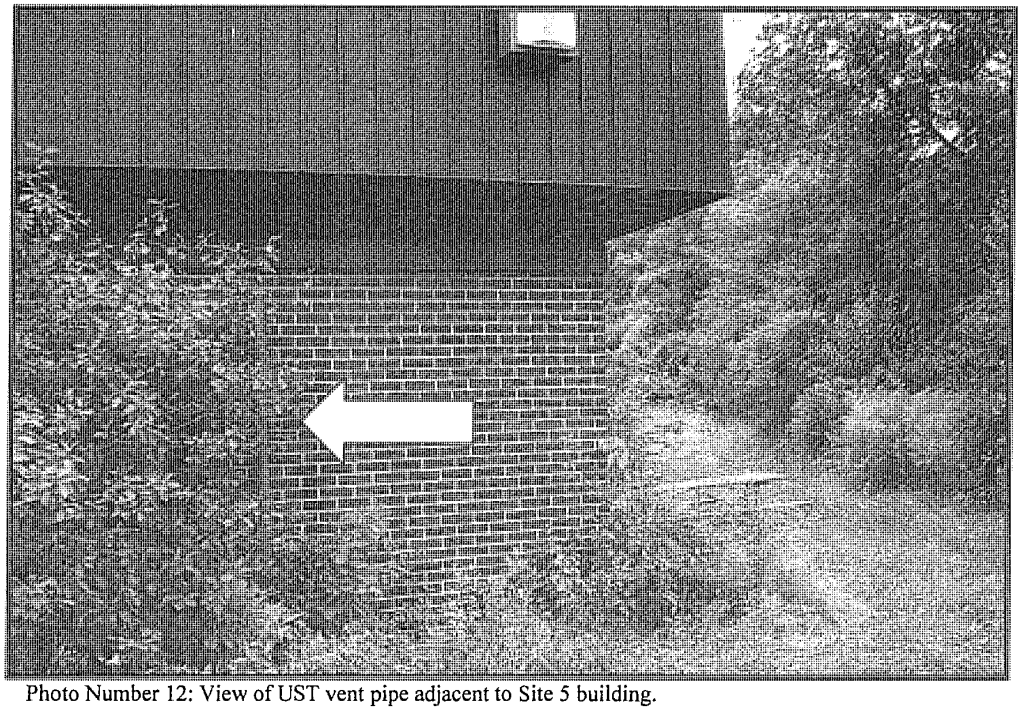

Photo Number 12: View of UST vent pipe adjacent to Site 5 building.

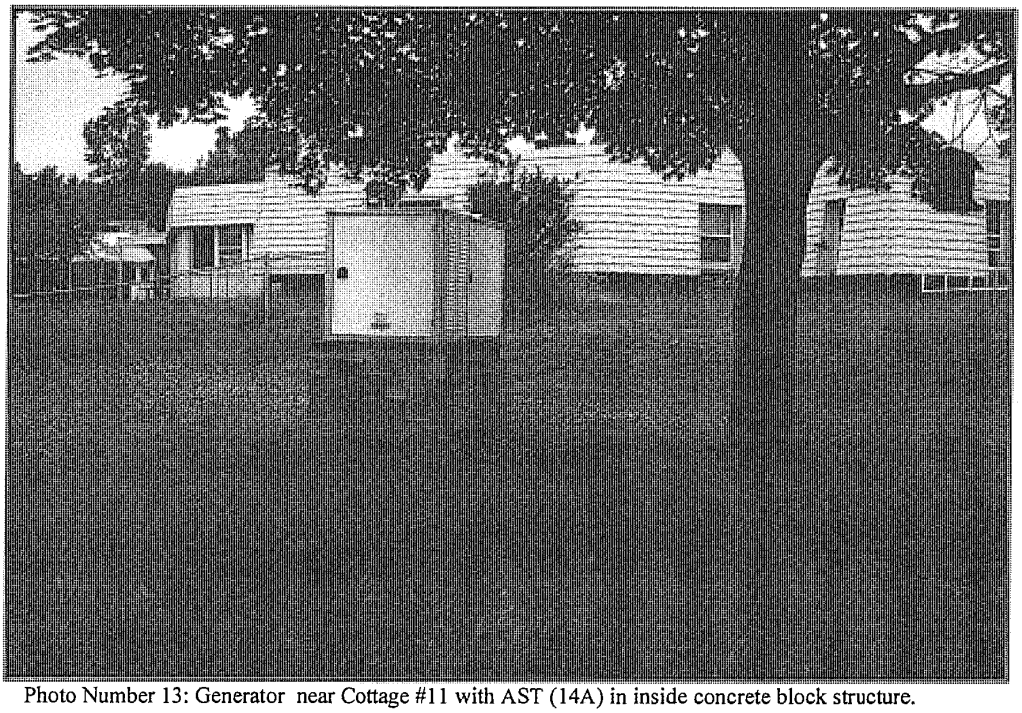

Photo Number 13: Generator near Cottage #11 with AST (14A) in inside concrete block structure.

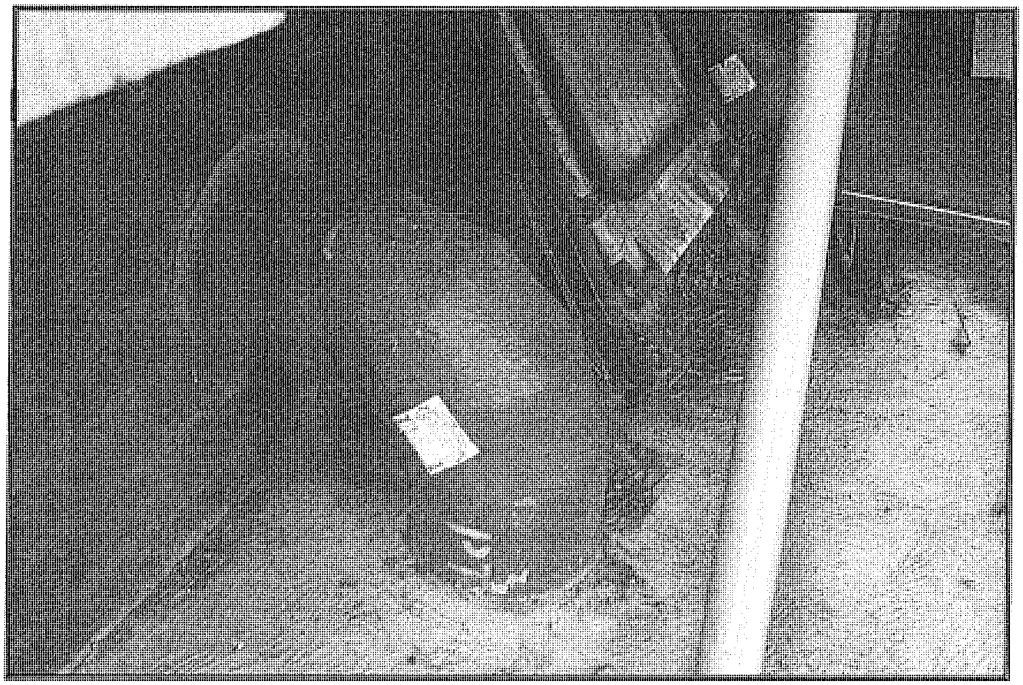

Photo Number 14: Hot water heating pipe enters Cottage Complex buildings from ground.

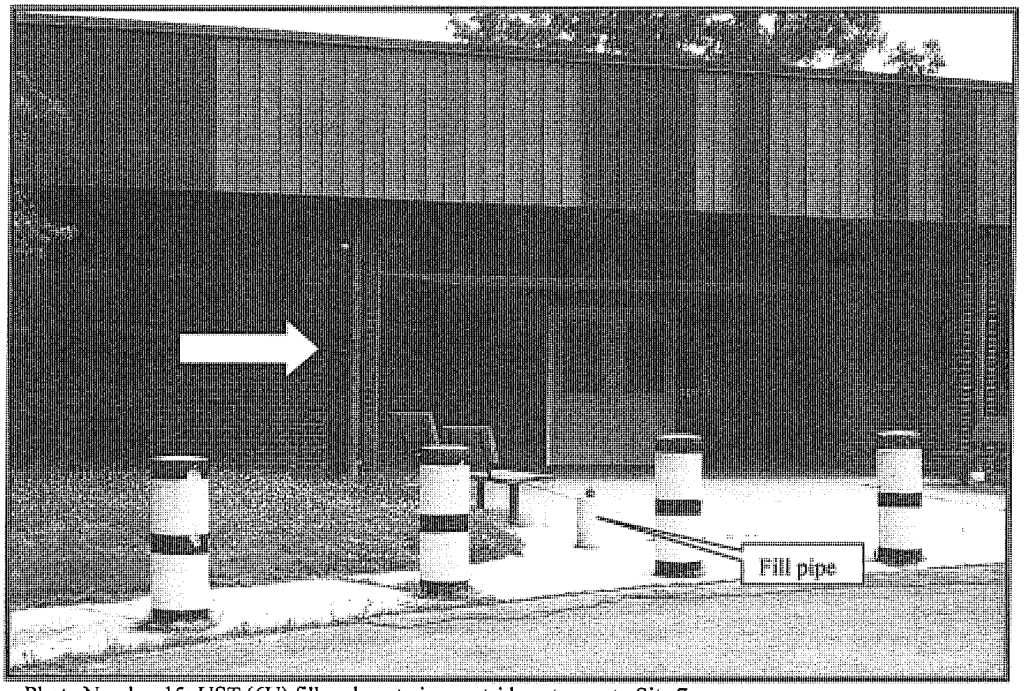

Photo Number 15: UST (6U) fill and vent pipes outside entrance to Site 7.

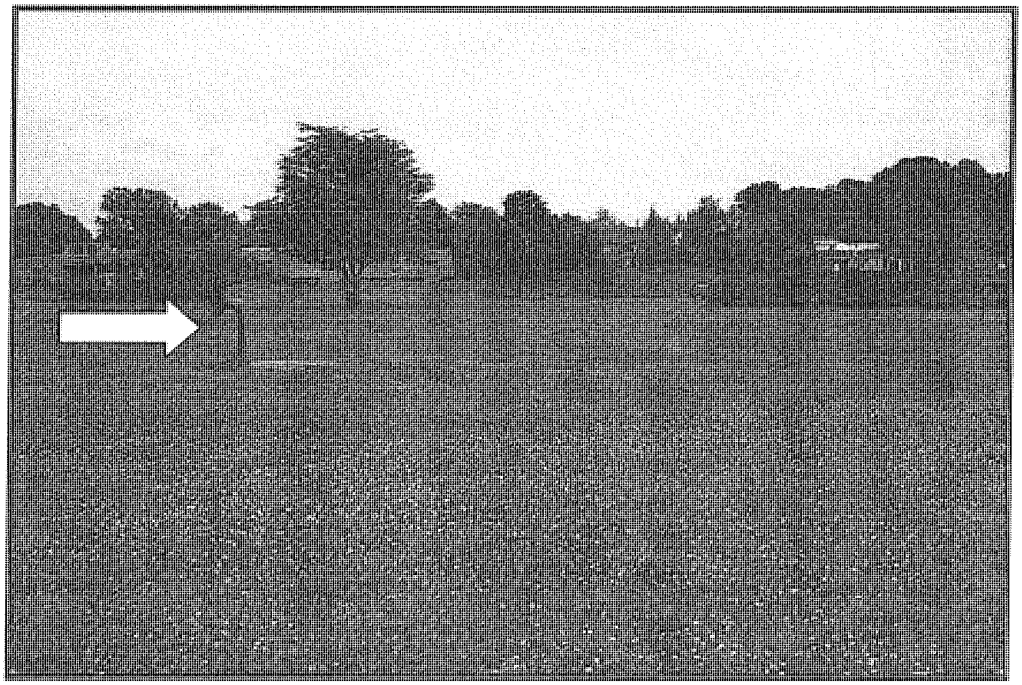

Photo Number 16: Vent pipe for underground hot water pipe system in Cottage Complex.

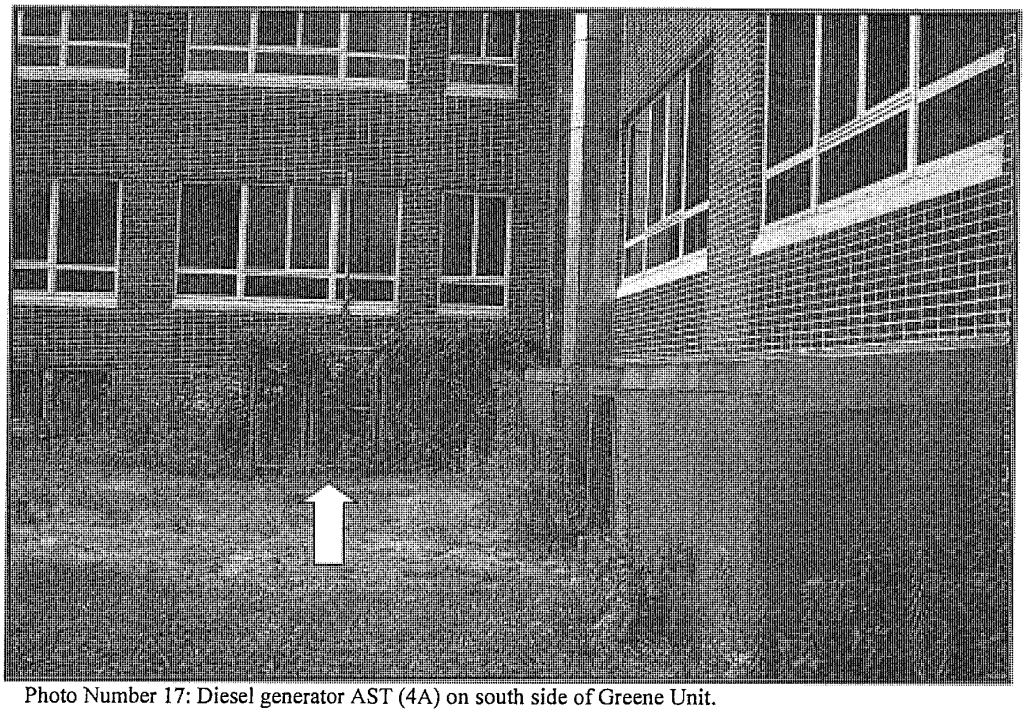

Photo Number 17: Diesel generator AST (4A) on south side of Greene Unit.

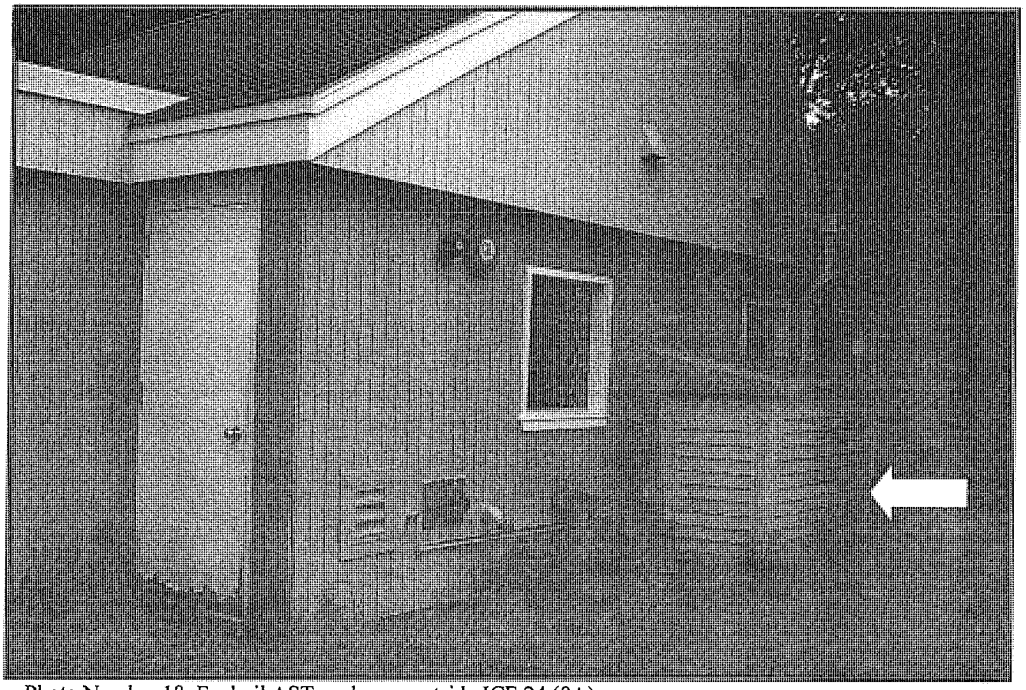

Photo Number 18: Fuel oil AST enclosure outside ICF 24 (8A).

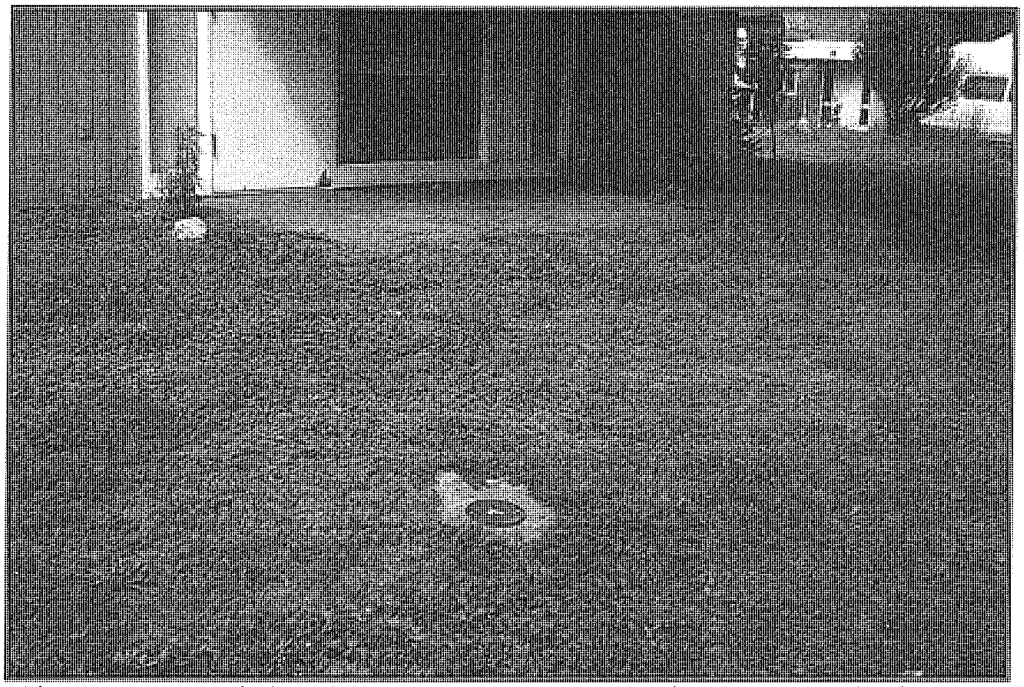

Photo Number 19: Monitoring well CMW-1R outside ICF 23, and location of removed heating oil tank.

Photo Number 20: Oil pipeline marker near Malone Park Drive.

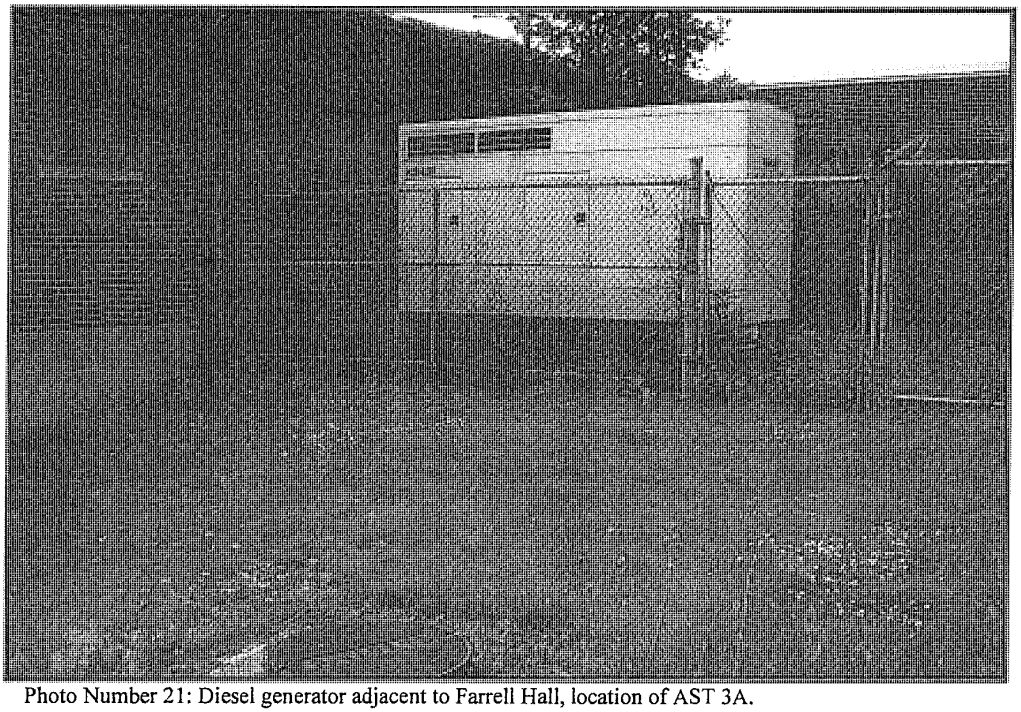

Photo Number 21: Diesel generator adjacent to Farrell Hall, location of AST 3A.

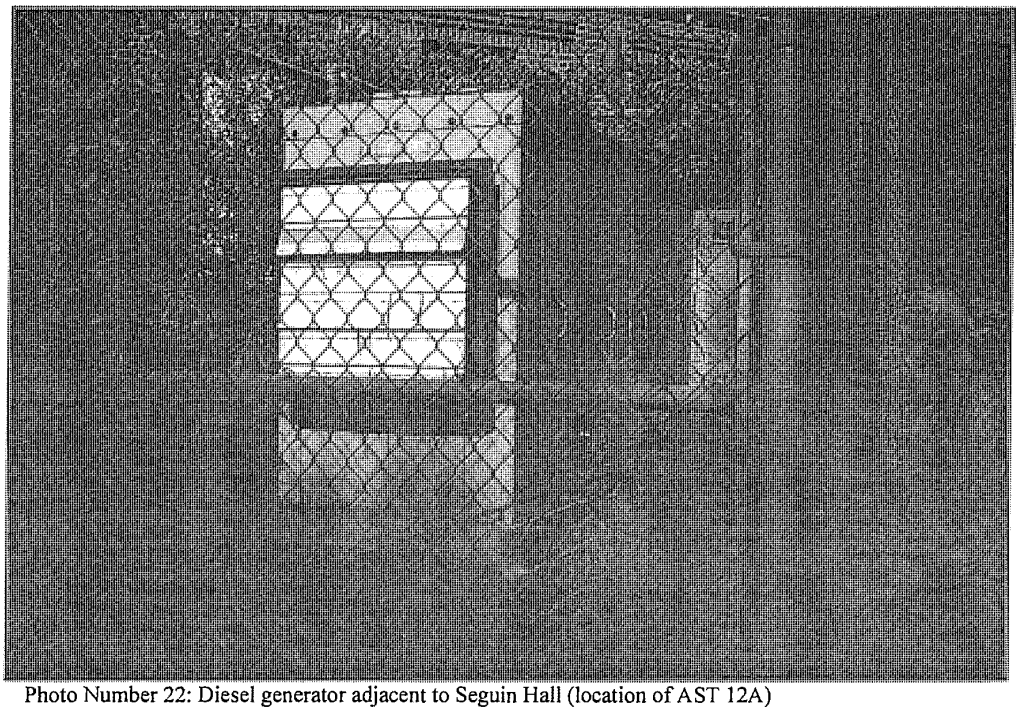

Photo Number 22: Diesel generator adjacent to Seguin Hall (location of AST 12A)

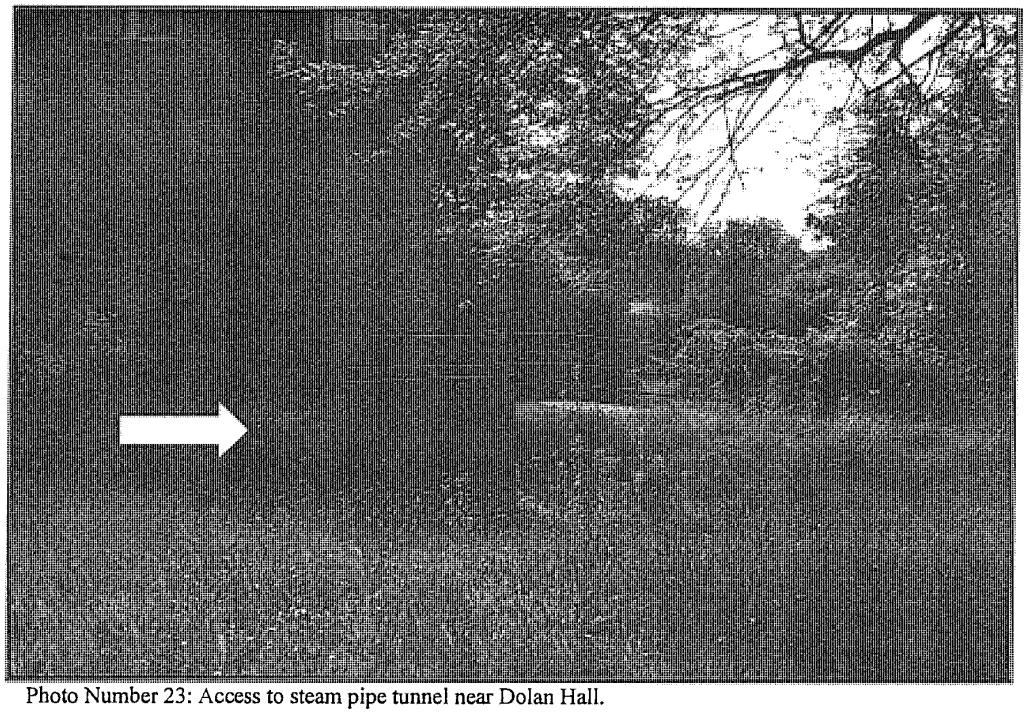

Photo Number 23: Access to steam pipe tunnel near Dolan Hall.

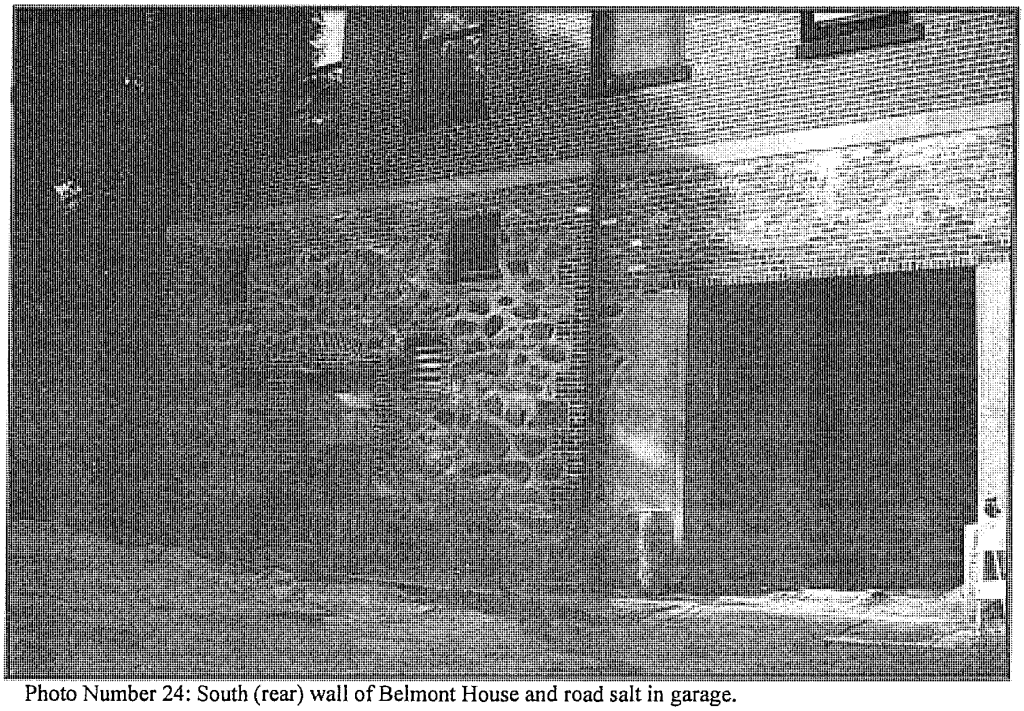

Photo Number 24: South (rear) wall of Belmont House and road salt in garage.

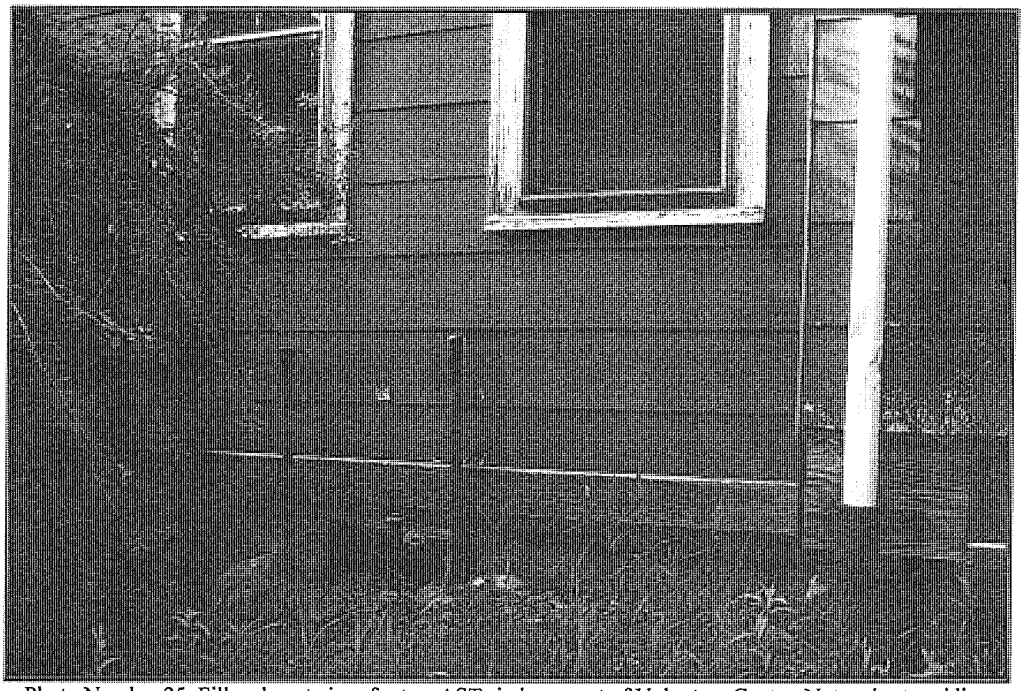

Photo Number 25: Fill and vent pipes for two ASTs in basement of Volunteer Center. Note asbestos siding.

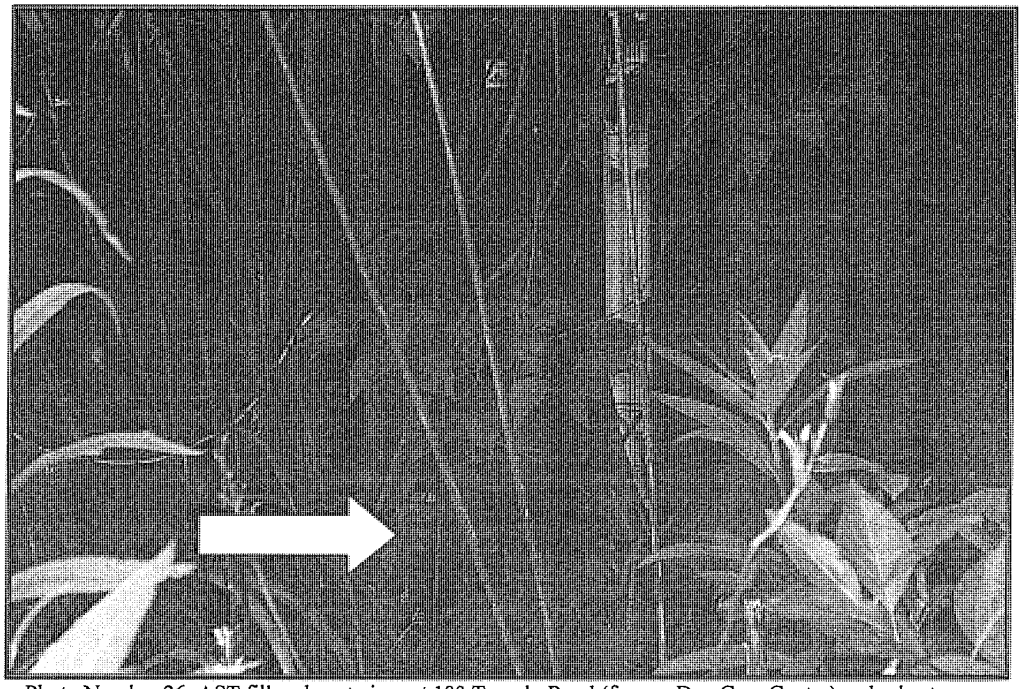

Photo Number 26: AST fill and vent pipes at 180 Trapelo Road (former Day Care Center) and asbestos siding.

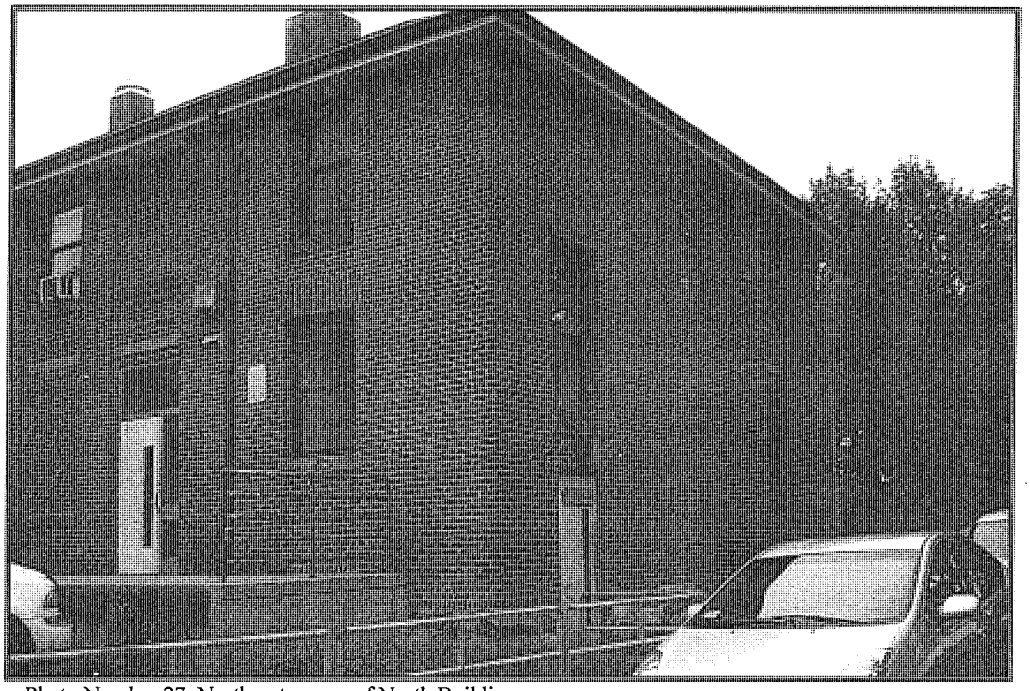

Photo Number 27: Northeast corner of North Building.

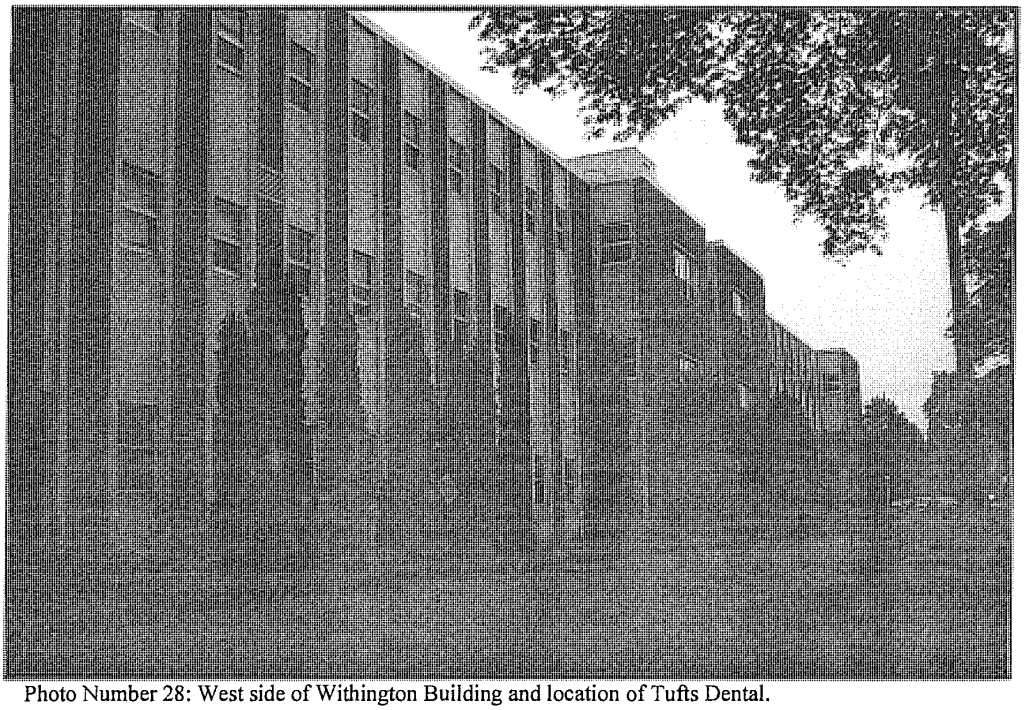

Photo Number 28: West side of Withington Building and location of Tufts Dental.

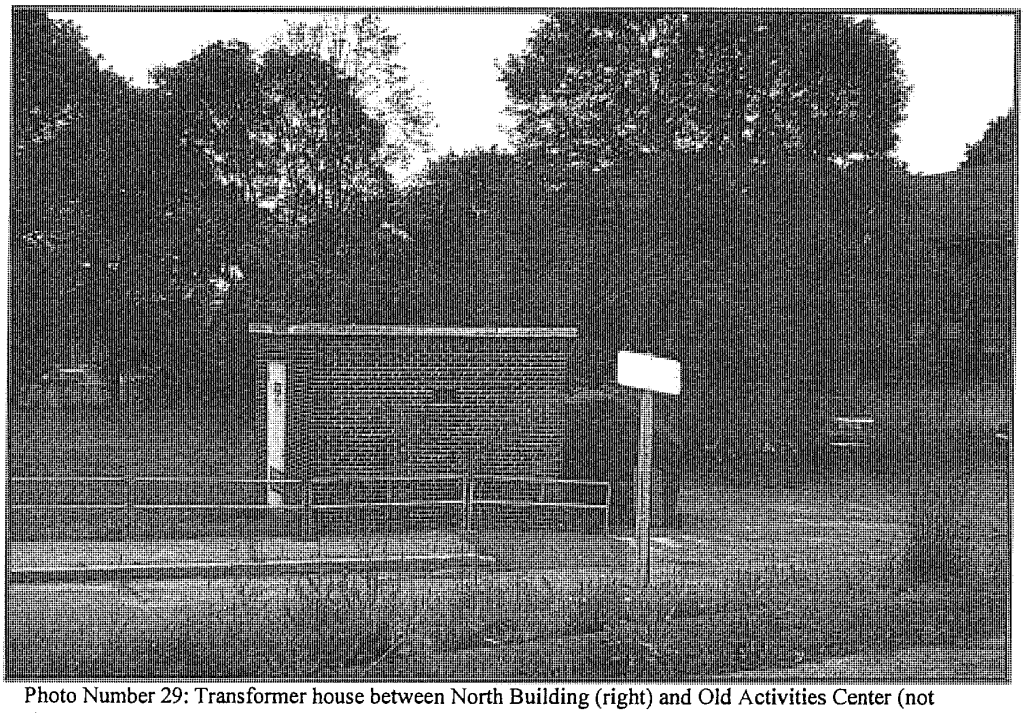

Photo Number 29: Transformer house between North Building (right) and Old Activities Center (not shown).

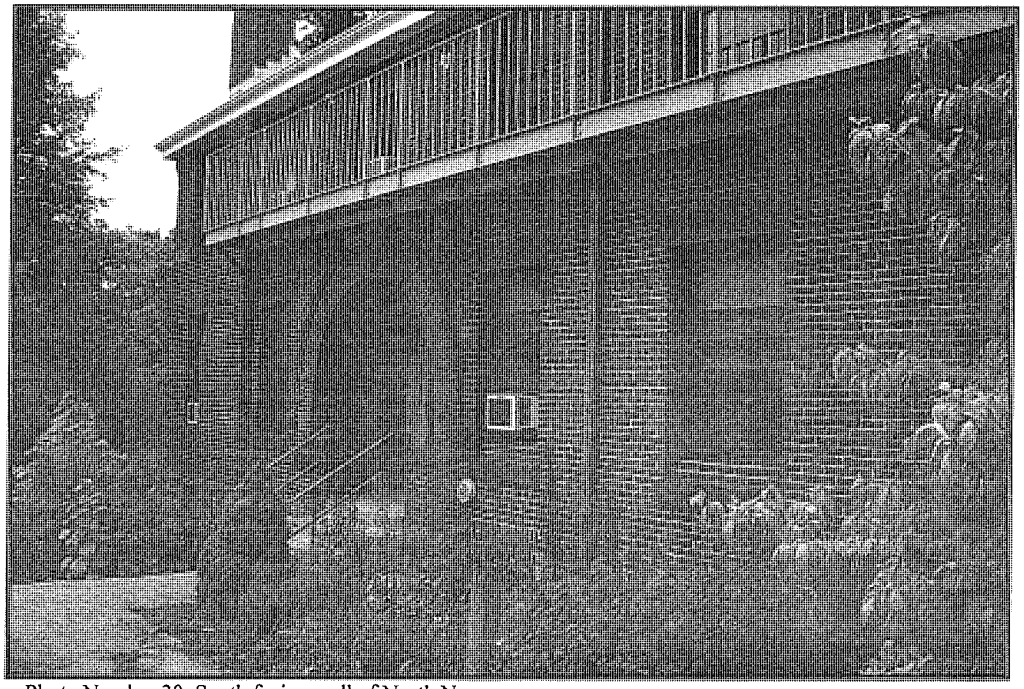

Photo Number 30: South facing wall of North Nurses.

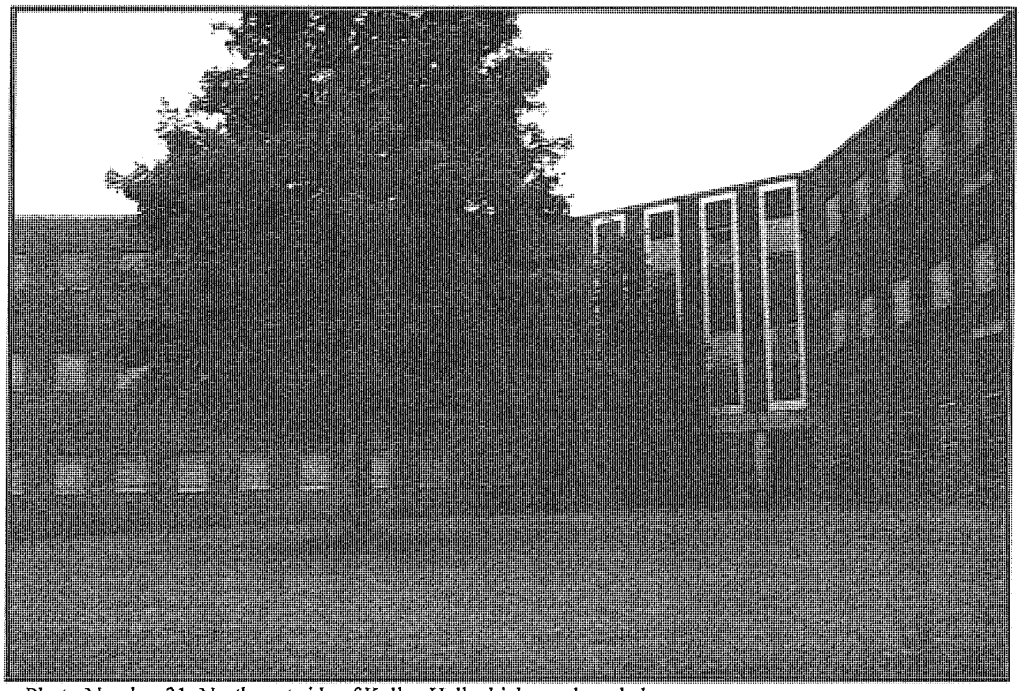

Photo Number 31: Northwest side of Kelley Hall which was boarded up.

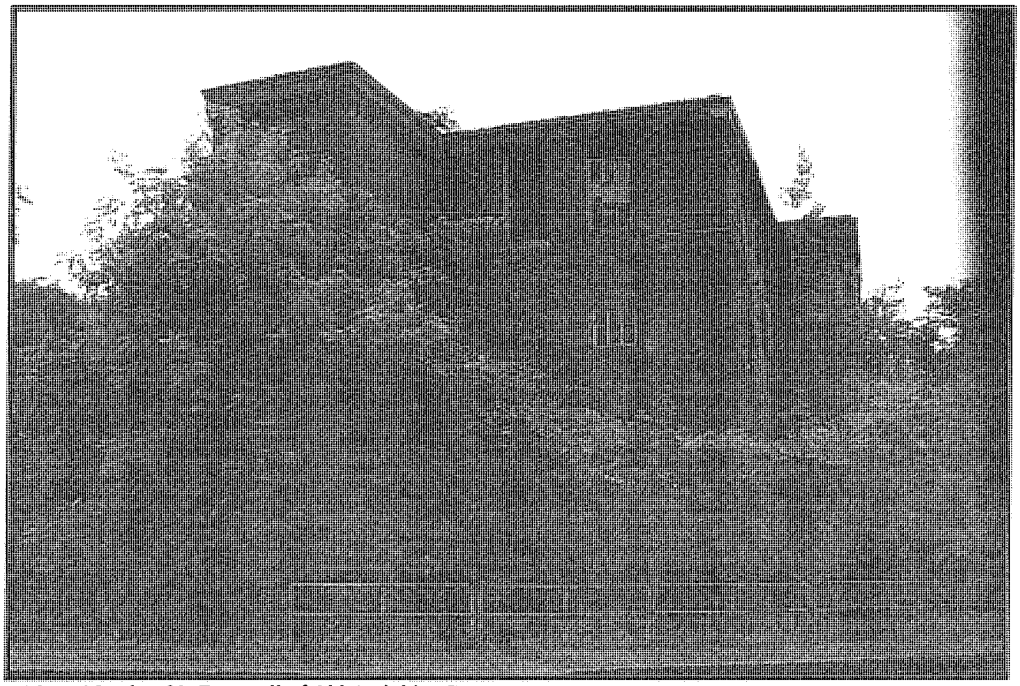

Photo Number 32: East wall of Old Activities Center.

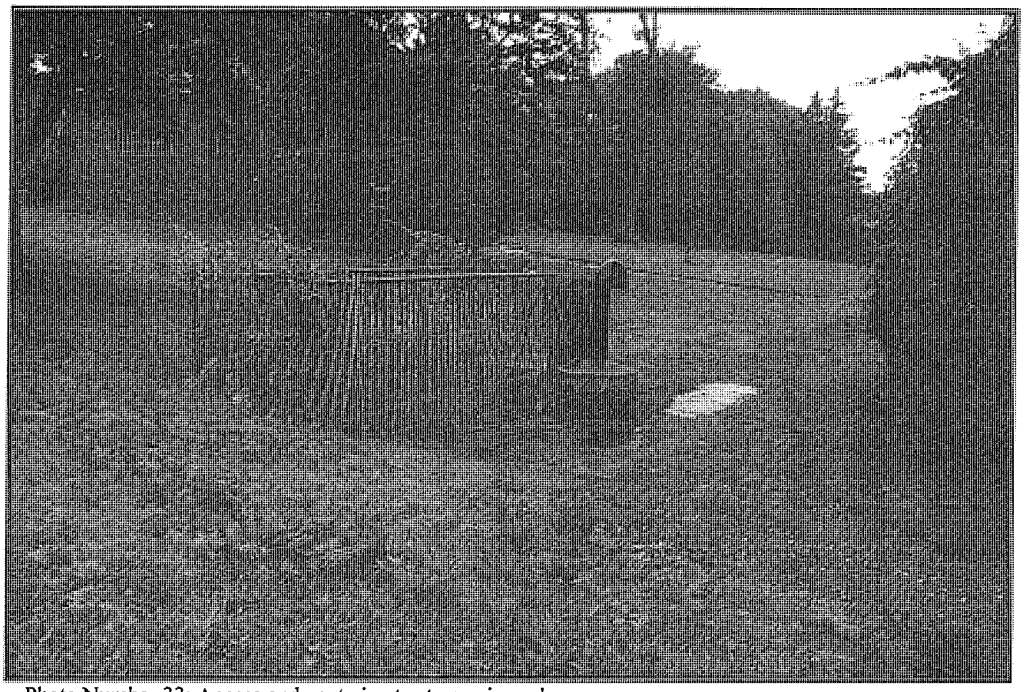

Photo Number 33: Access and vent pipe to steam pipe subway.

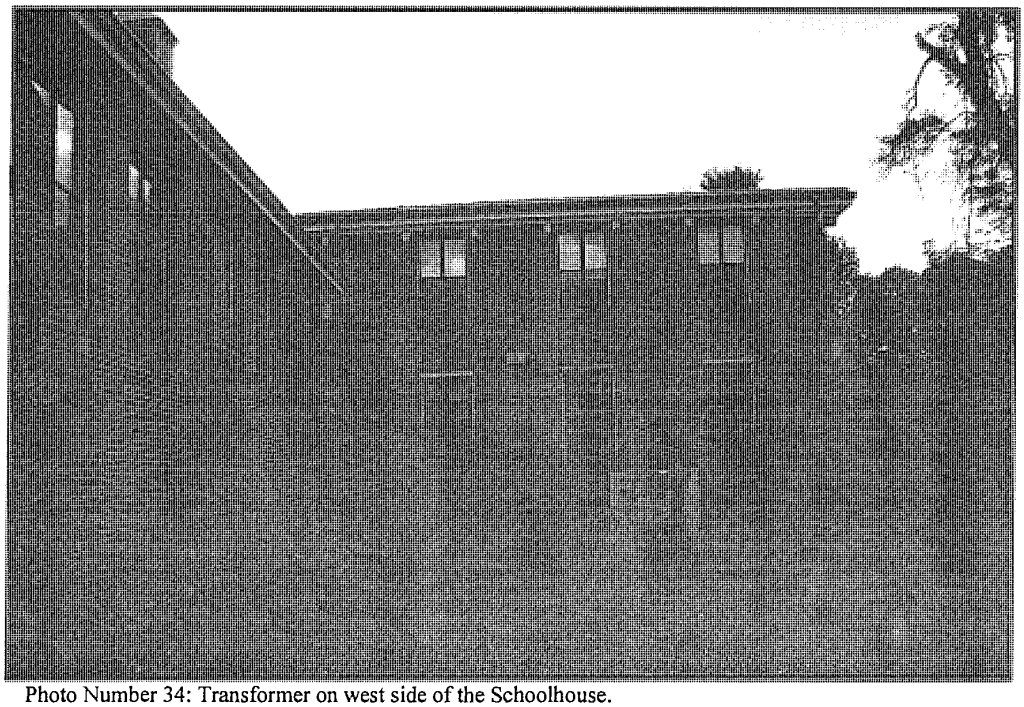

Photo Number 34: Transformer on west side of the Schoolhouse.

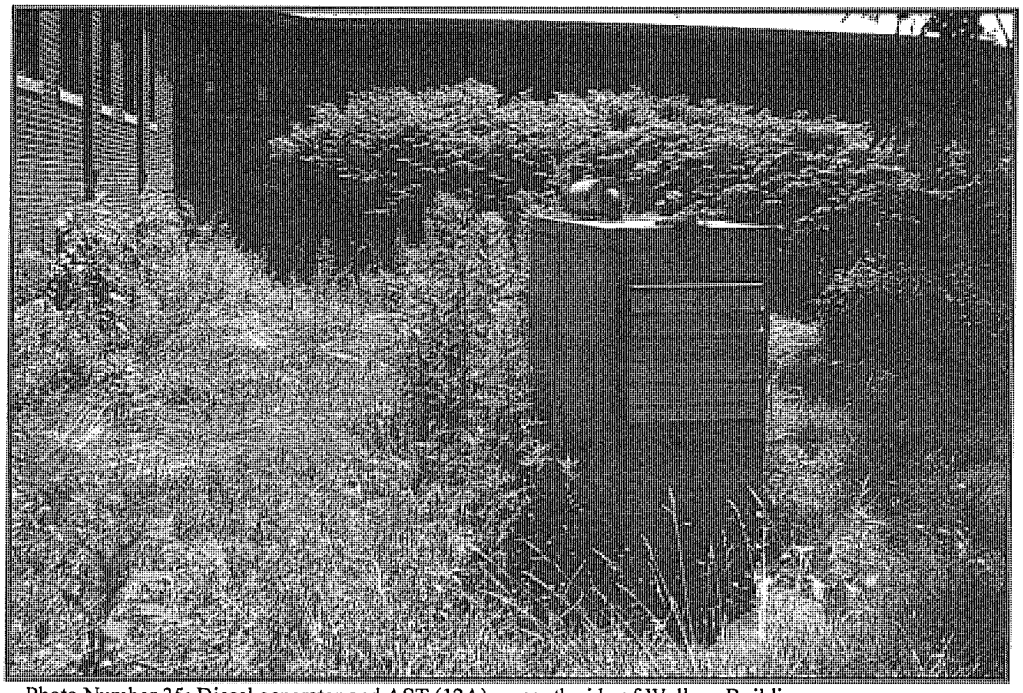

Photo Number 35: Diesel generator and AST (12A) on south side of Wallace Building

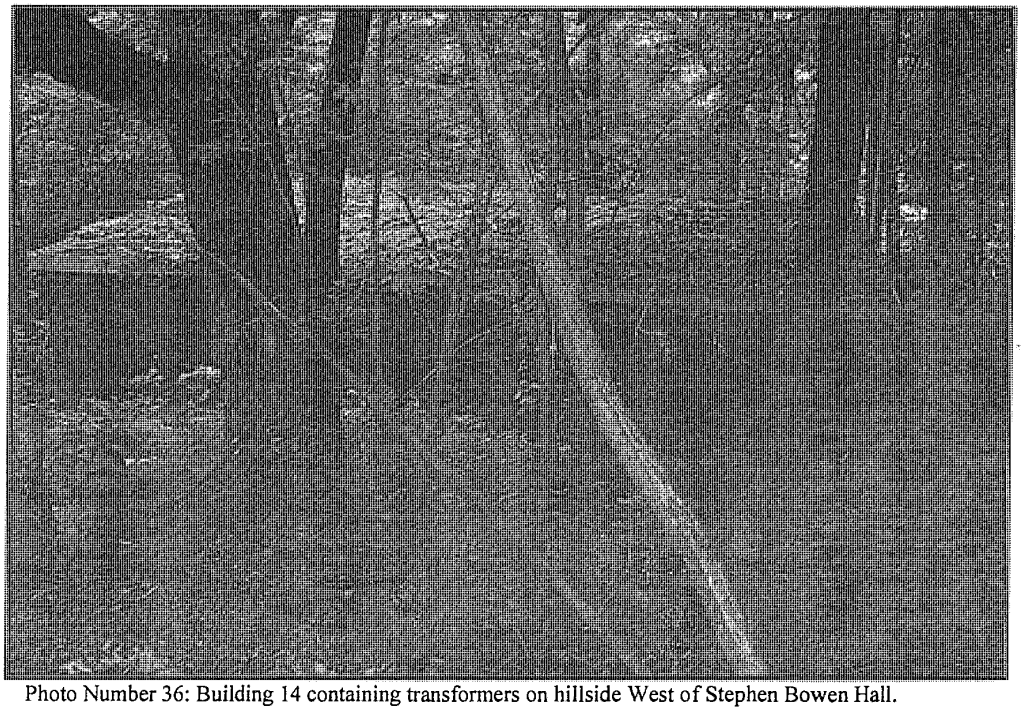

Photo Number 36: Building 14 containing transformers on hillside West of Stephen Bowen Hall.

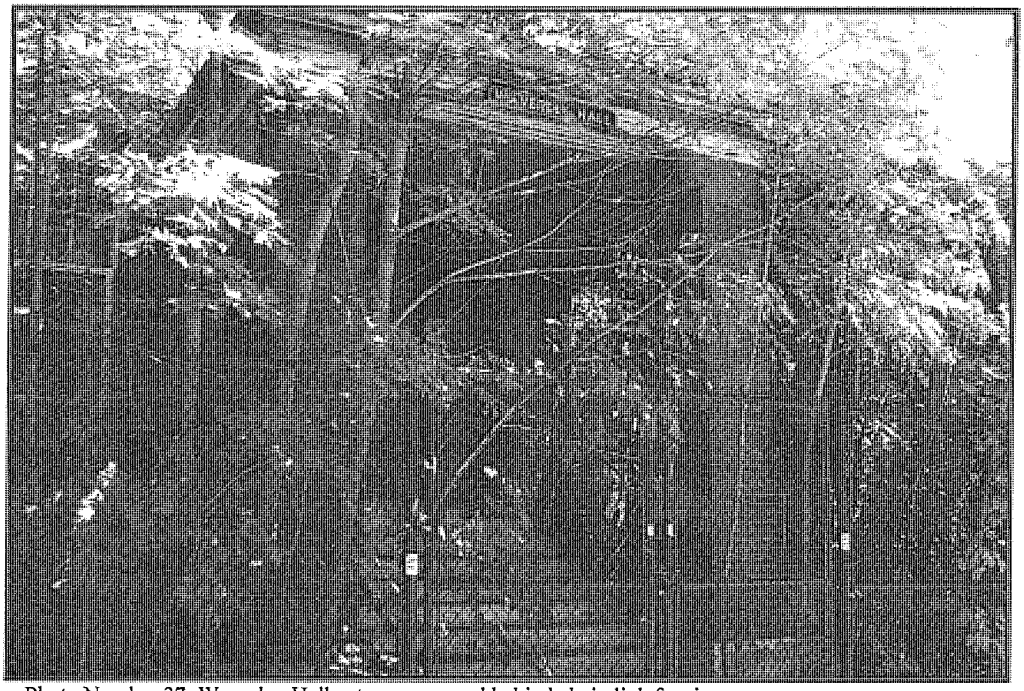

Photo Number 37: Waverley Hall entrance secured behind chain link fencing.

Photo Number 38: Rusted out drum in Waverley Hall fenced enclosure.

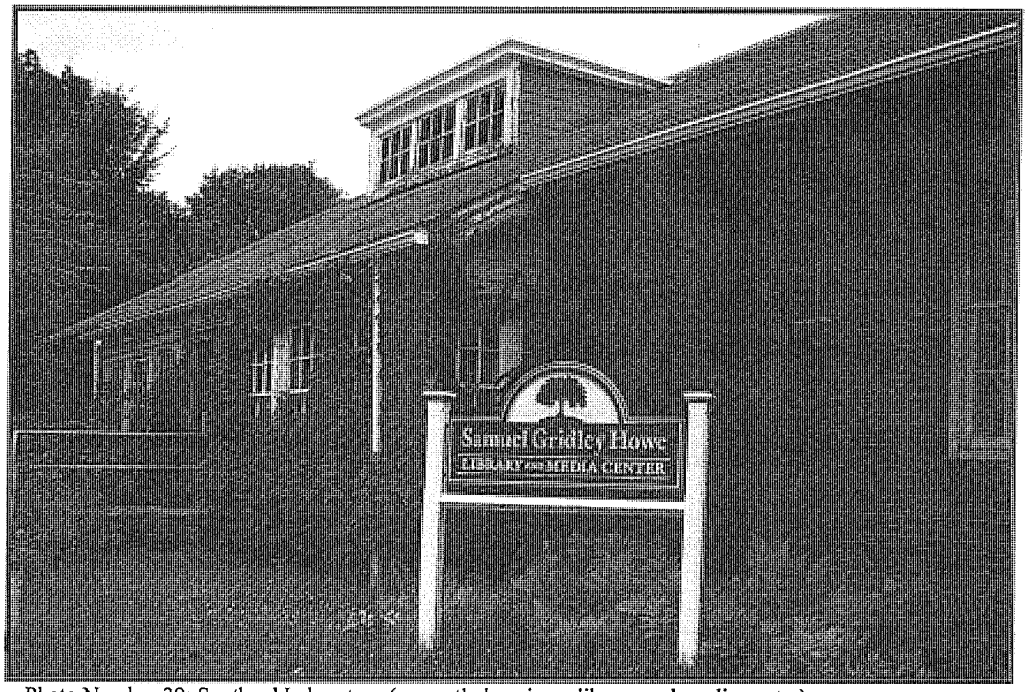

Photo Number 39: Southard Laboratory (currently housing a library and media center).

Photo Number 40: Southwest wall of Store Room and open steam pipe vault (on left).

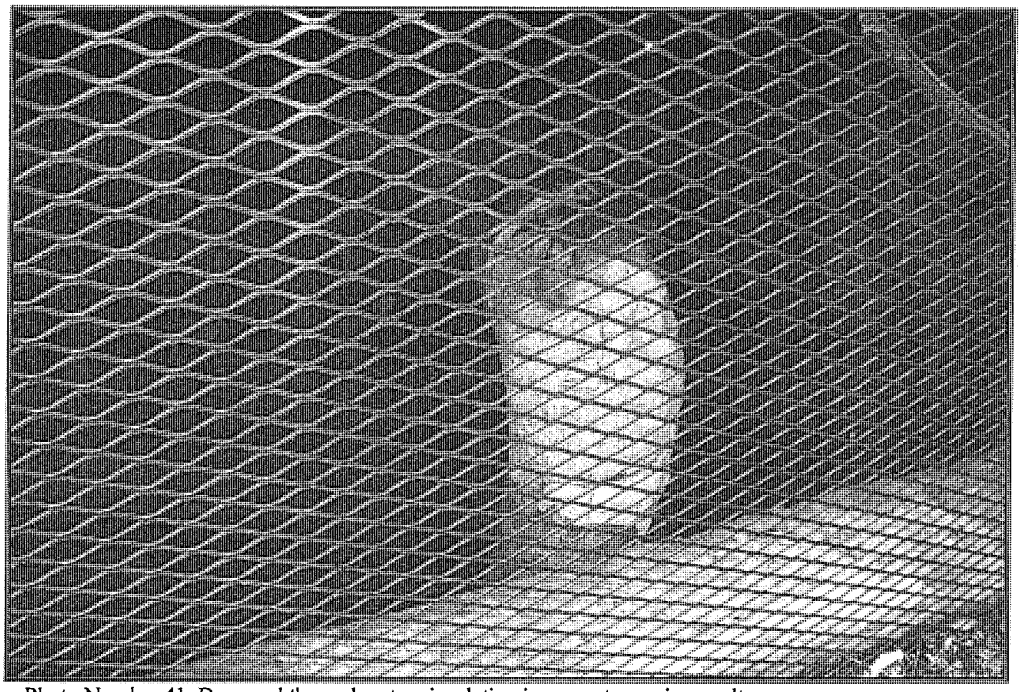

Photo Number 41: Damaged thermal system insulation in open steam pipe vault.

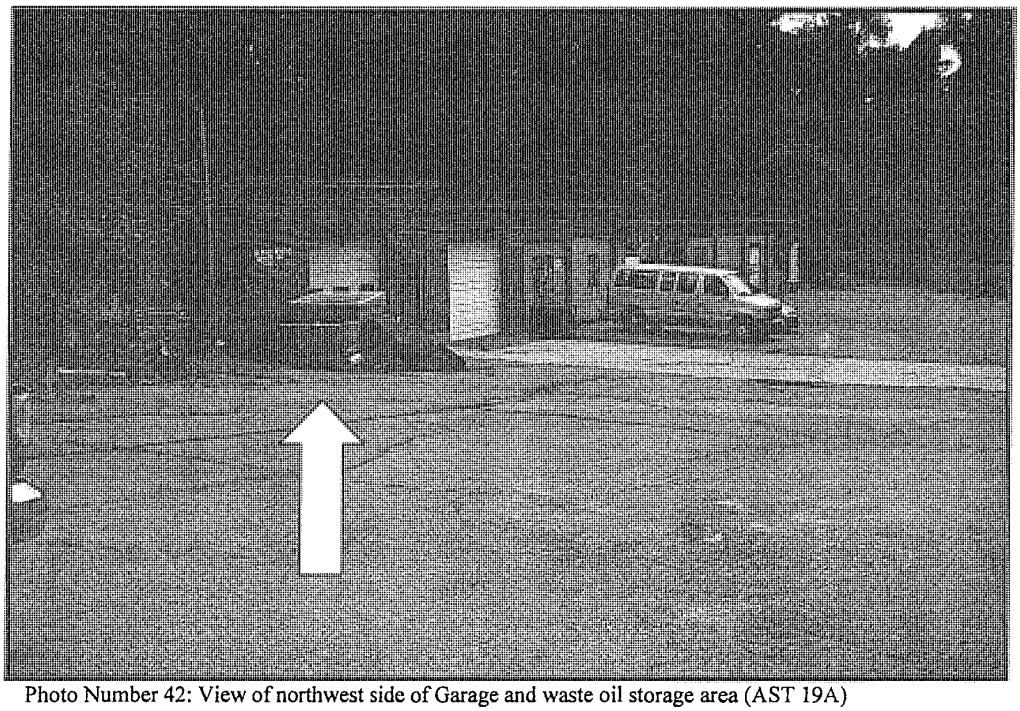

Photo Number 42: View of northwest side of Garage and waste oil storage area (AST 19A)

Photo Number 43: Discarded drum, tired, and automotive parts on hillside on east side of Garage.

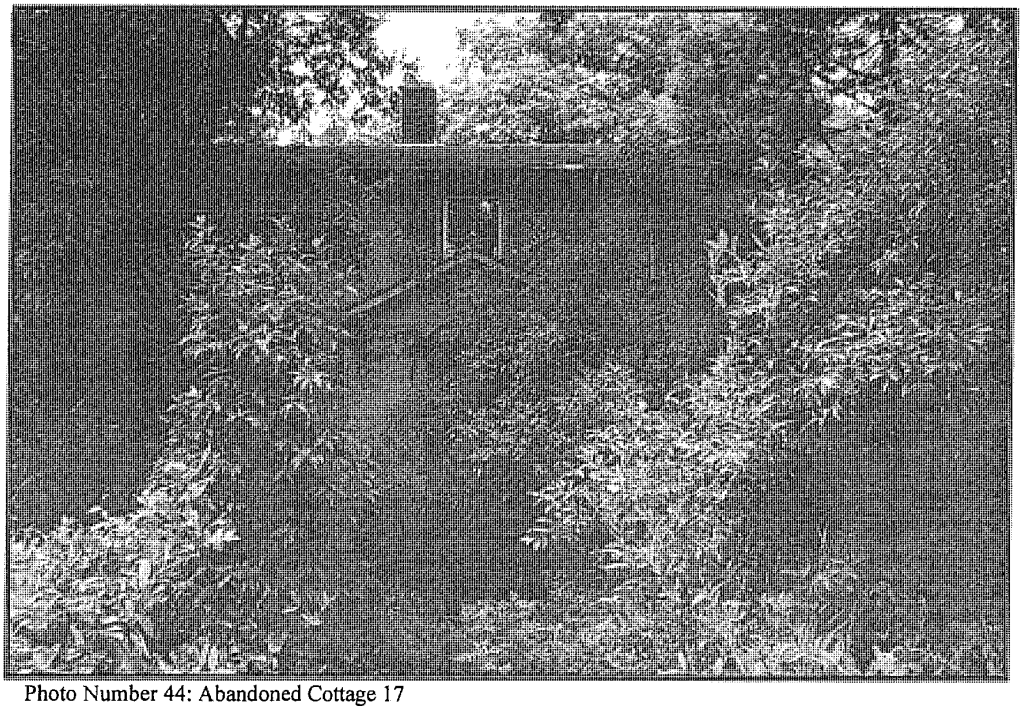

Photo Number 44: Abandoned Cottage 17

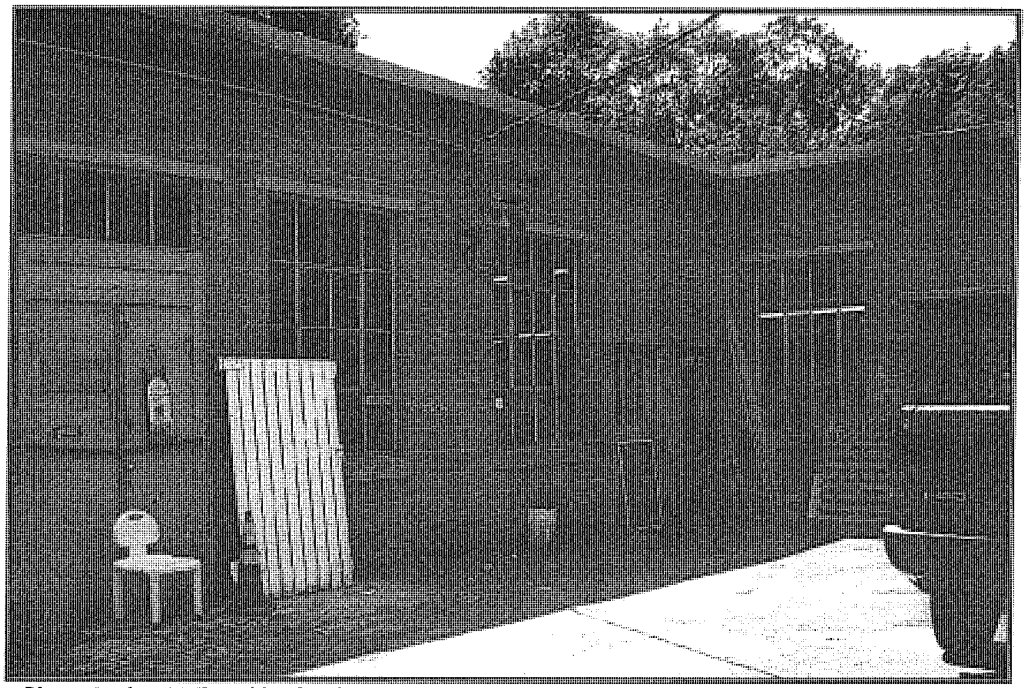

Photo Number 45: East side of Maintenance buildings and workshop entrances.

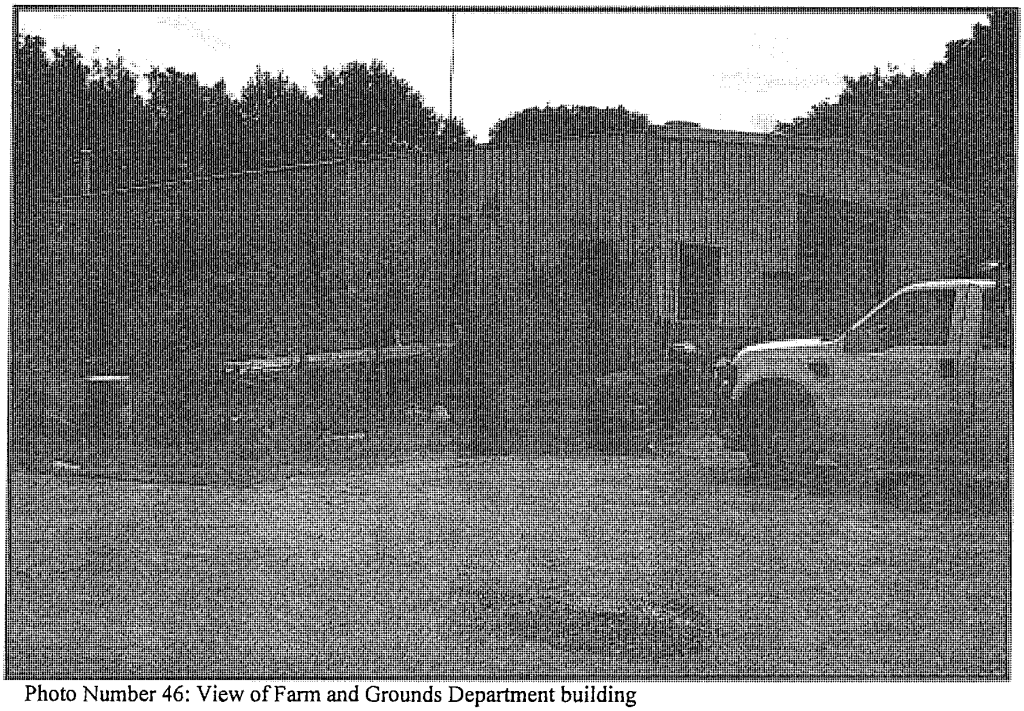

Photo Number 46: View of Farm and Grounds Department building

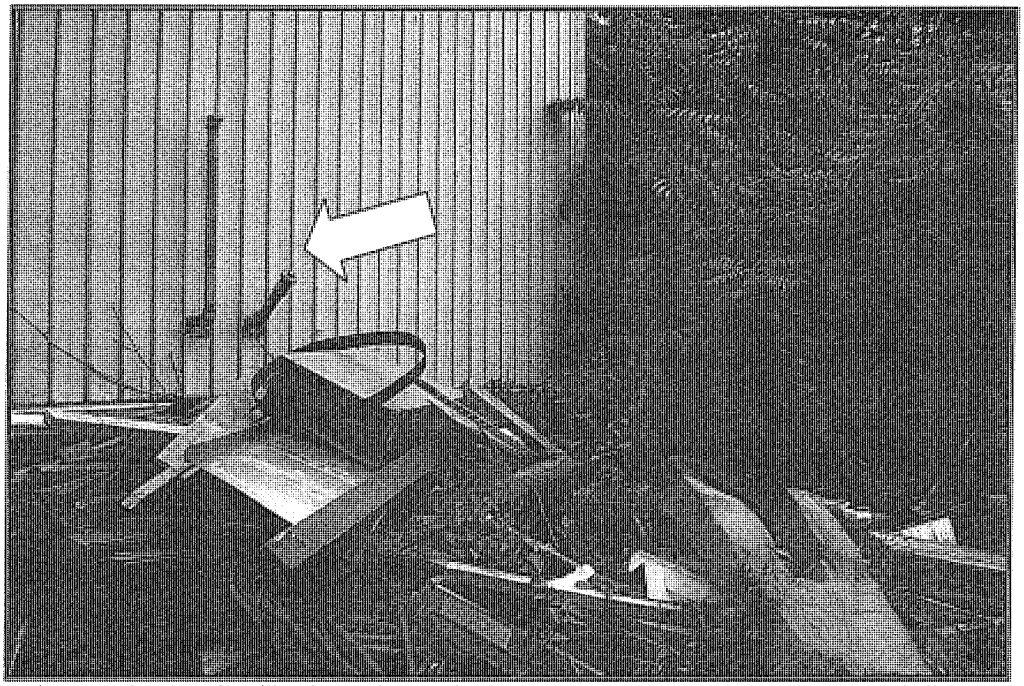

Photo Number 47: AST Fill and vent pipe and debris pile next to Farm and Grounds Department building

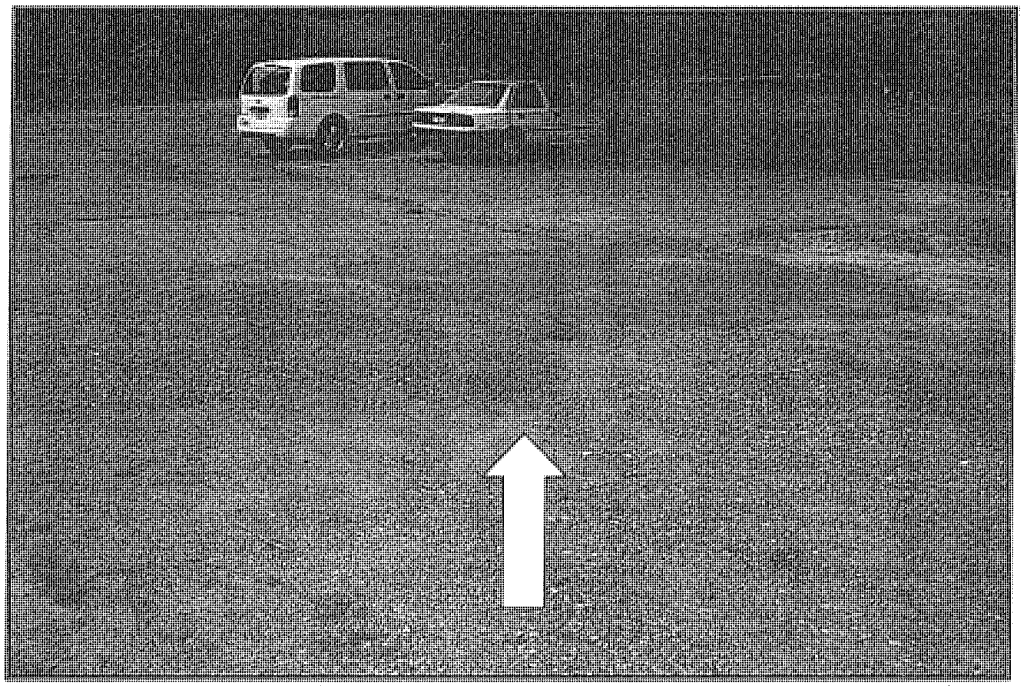

Photo Number 48: Former gasoline UST and pump island area in Farm and Grounds Department parking lot.

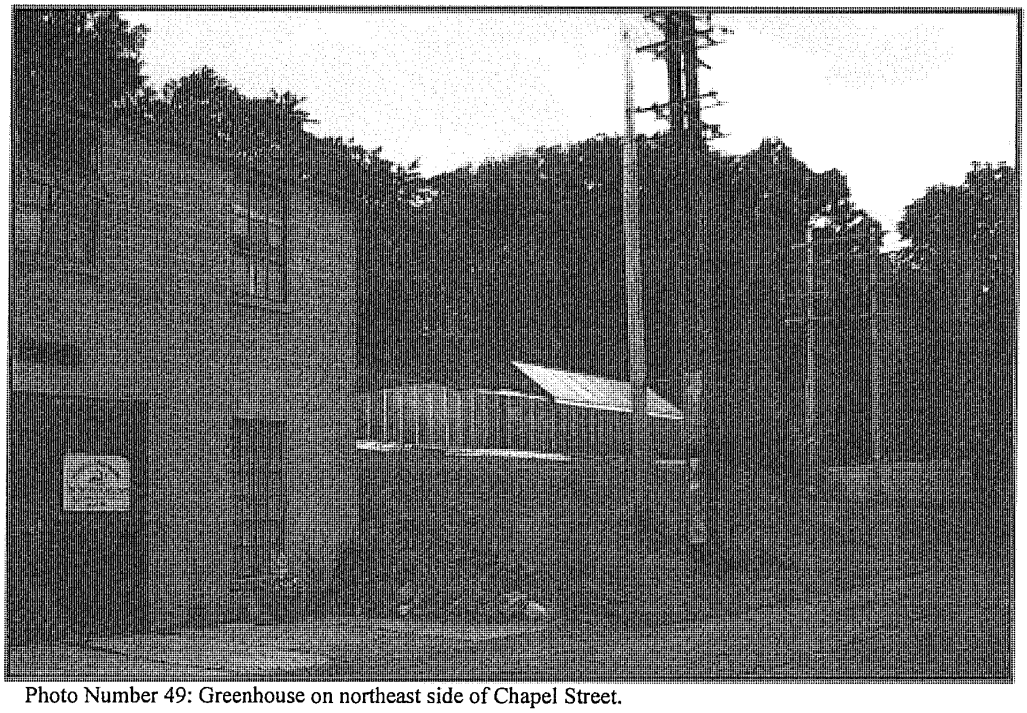

Photo Number 49: Greenhouse on northeast side of Chapel Street.

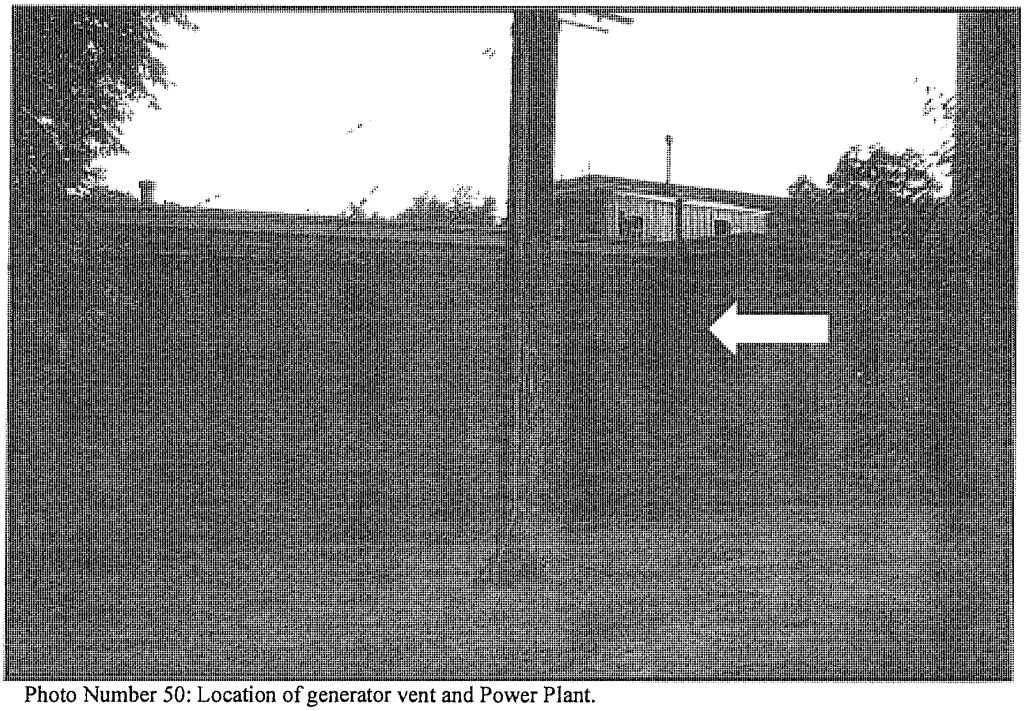

Photo Number 50: Location of generator vent and Power Plant.

Photo Number 51: Former location of gasoline UST (formerly used for Power Plant generator)

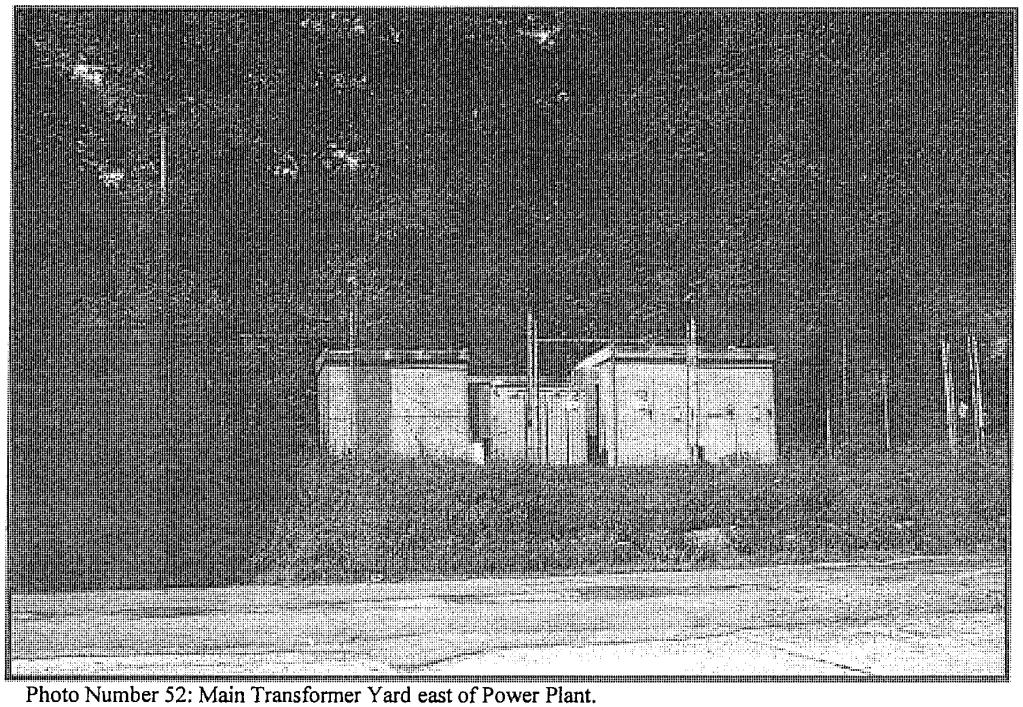

Photo Number 52: Main Transformer Yard east of Power Plant.

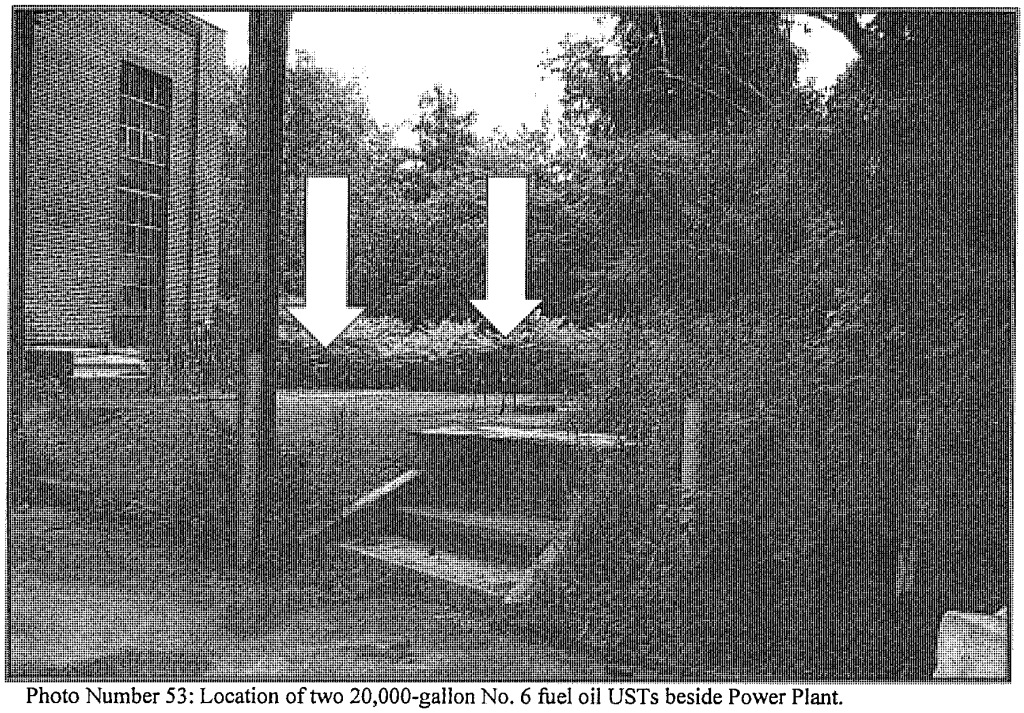

Photo Number 53: Location of two 20,000-gallon No. 6 fuel oil USTs beside Power Plant.

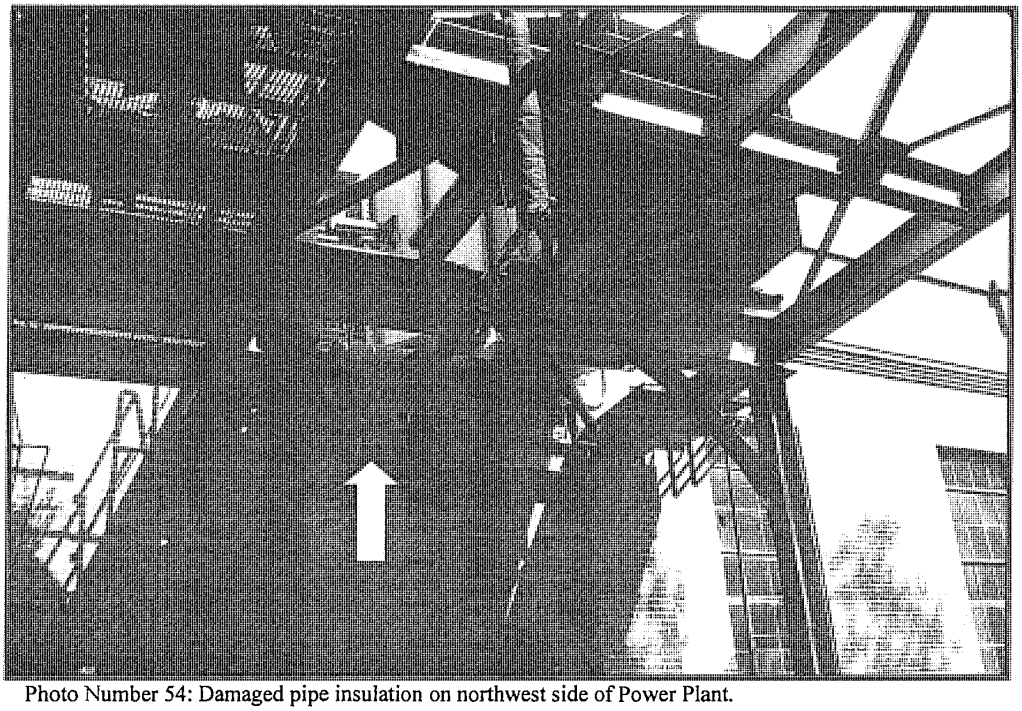

Photo Number 54: Damaged pipe insulation on northwest side of Power Plant.

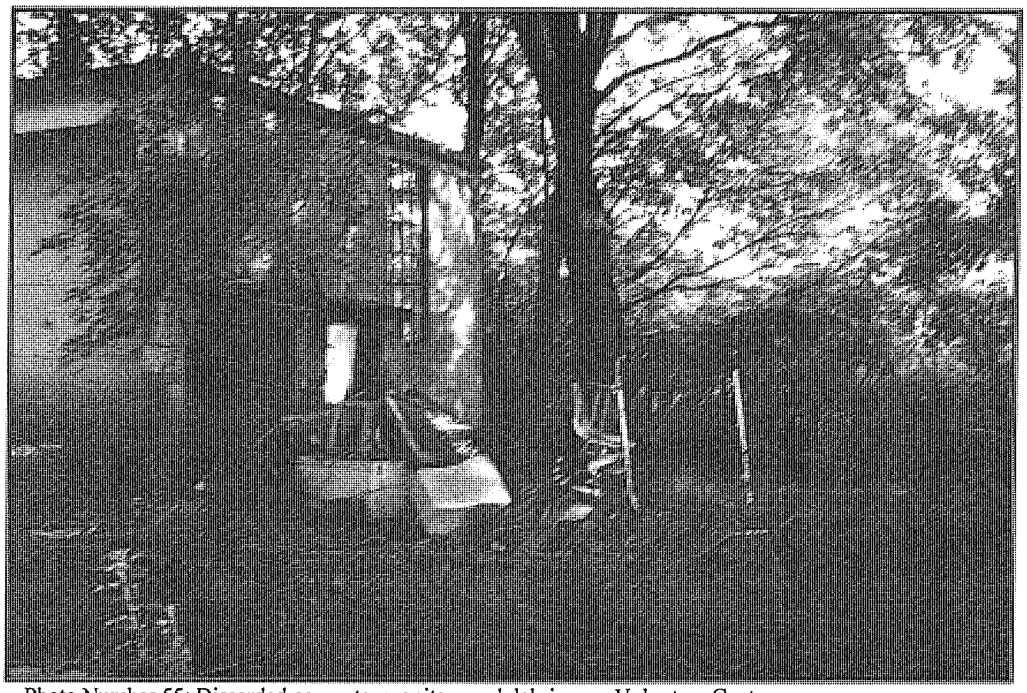

Photo Number 55: Discarded computer monitors and debris near Volunteer Center garage.

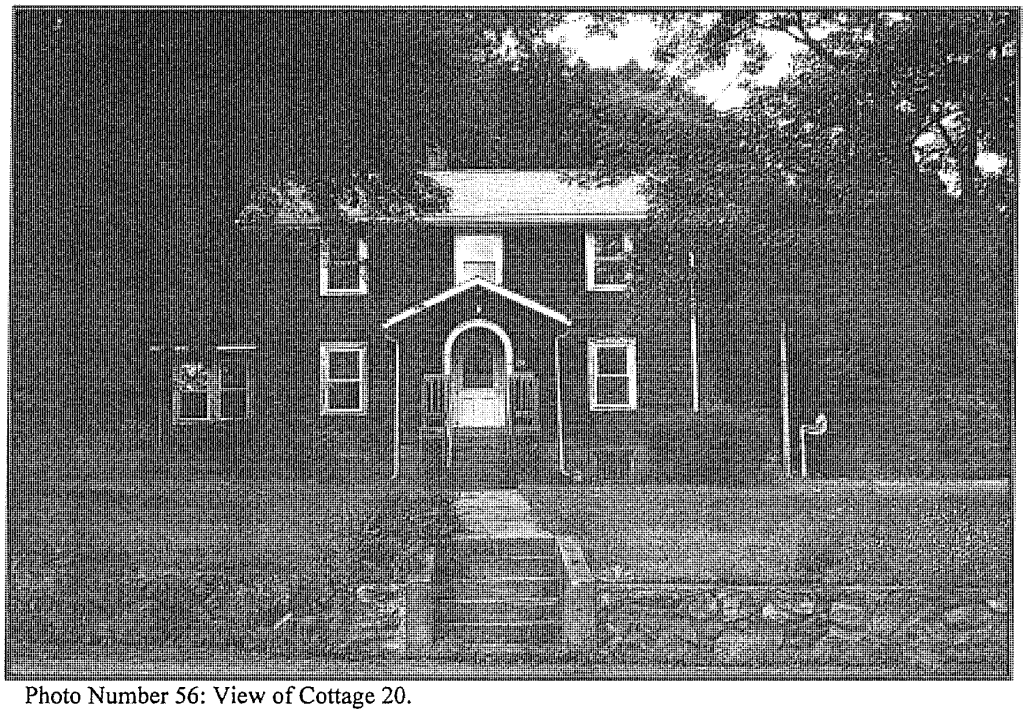

Photo Number 56: View of Cottage 20.

Table 5-5
Fernald Developmental Center Building History and Environmentally Significant Features

Building Name	Construction Date	Heat Source	Historical Uses	Current Use	Environmentally Significant Features
Administration Bldg.	1933, add. 1965	steam	Administrative offices	Administrative offices	None
Howe Hall	1933	steam	Auditorium, copy center	Copy center, dead storage	275-gal AST in basement for generator Pad-mounted transformer (#77)
Shriver Center	1969	steam	Research center	Research center	UST (installed 1970)
Thom Bldg	1952	steam	Hospital	Marquardt Nursing Center, medical clinic, offices, central supply	Propane AST on pad behind bldg. Unused diesel AST inside bldg under loading dock Electrical vault in basement
Old Service Bldg.	1931	steam	Original food service bldg.	Closed, storage in basement.	None
Building 55	1960	NA	Electrical vault	Electrical vault.	PCB containing transformers outside bldg
Pearlman Bldg	Early 1990s	steam	New food service bldg	Food service bldg.	5,000-gal diesel AST in building for generator
East/ Dowling Hall	1906	steam	Residence, offices, former bottle/can redemption center	Vacant	Pad-mounted transformer (#76) appears to be very old
Hillside	1904	natural gas	Superintendent's residence, later client residential bldg.	Unoccupied	None
Training/Activity Center and Greenhouse/Program Bldg	1980s	oil	Greenhouse, client craft activities	Greenhouse, client craft activities	4,000-gal UST outside Pad-mounted transformer (#14)
Site 5	1981	oil	Program building	Waverley Bottle and Can Redemption Center	10,000-gal UST
Cottages #3 - #13	1976	UGHW	Residential	Residential (some unoccupied)	Pad-mounted transformers(T69-T72 and T75) 85-gal diesel AST under Onan generator (outside of Cottage #11)
Cottage Complex (Site 7) Bldg	1981	oil	Program activities	Workshop, Recreation area, piece work	Pad-mounted transformer (T75)
Woodside	1981	UGHW	Program activities	Recreation area, piece work	Pad-mounted transformer (T74)
Brookside	1981	UGHW	Program classrooms	Program classrooms	Pad-mounted transformer (T15)
Chapel	1960	steam	Church services	Church services	Non-PCB transformer T2 on UP SE corner of bldg
Greene Unit	1953	steam	Hospital	Hospital, pool, gym, conference rooms	275-gal diesel AST in bldg for generator Non-PCB Pad-mounted transformer (T12)
Wheatley Hall	1933	steam	Furniture repair	Unoccupied	Location marker for Exxon petroleum pipeline north-northwest of Wheatley Hall along Malone Park Drive
Farrell Hall	1960	steam	Residential	Residential	Pad-mounted transformer (T11) Kohler diesel generator (AST 3A) Could not locate AST 16A outside of bldg (may be inside)
Dolan Hall	1906	steam	Residential	Vacant	Non-PCB pad-mounted transformer (T10)
Malone Park Bldgs: ICF 21 – ICF 24	1980s-1990s	oil	Residential	Residential	Pad-mounted transformer (T68) Four 300-gallon No. 2 oil ASTs in plastic secondary containment lidded boxes Three monitoring wells observed near ICF 21 and ICF 22/23
MacDougall Hall	1898	steam	Residential	Unoccupied	None
Seguin Hall	1934	steam	Residential	unoccupied	100-gal diesel generator (AST 13A) outside building, battery on ground Non-PCB pad-mounted transformer (T9)
Belmont House	1890	Steam	Original power plant, later used as Program bldg	Unoccupied	Could not find T4, T5, and T6 due to dense vegetation
West Building	1989	steam	Residential asylum	Unoccupied	None
West Nurses	1906	steam	Staff residence and office	Unoccupied, dead record storage	None
Tarbell House	1934	steam	Residential	Residential	Non-PCB pad-mounted transformer (T8)
Day Care Center, 338 Trapelo Rd	c. 1900	gas	Private residence later used as FDC staff daycare	Unoccupied	none
Volunteer Center a.k.a. Cardinal	c. 1850	oil	Private residence (former church property), later used as	Unoccupied	Two oil tanks in basement

NOTES:
1) Construction dates for some Fernald Developmental Center (FDC) buildings are estimated, and intended to provide the era in which construction may have occurred.
Bldg – Building
c. - circa

AST – Aboveground Storage Tank
UGHW – Underground Hot Water
UST – Underground Storage Tank

Table 5-5
Fernald Developmental Center Building History and Environmentally Significant Features

Building Name	Construction Date	Heat Source	Historical Uses	Current Use	Environmentally Significant Features
Cottage			"Volunteer Center"		Potential asbestos shingle siding Discarded computer monitors near garage bldg
Day Center Center, 180 Trapelo Rd	c. 1860	oil	Residence later uses as FDC staff day care	Unoccupied	Oil tank in basement Potential asbestos shingle siding
North Bldg	1897	steam	Residences	Offices	Non-PCB pad-mounted transformer (T16)
Withington Bldg	c. 1950s-1960	steam	Replaced old Boys Home	Offices, Tufts Dental, DMR Investigation unit office	Inactive gas-powered generator in basement/tank was removed 10-15 years ago Pad-mounted transformer (T17)
North Nurses	1904	steam	Residential	Offices	None
Kelley Hall	1969	steam	Residential	Unoccupied	Could not find Transformers 82 - 86
East Nurses	1906	steam	Residential, offices	Unoccupied	None
"Old" Activities Center	1891	steam	Residential, recreation center, office	Unoccupied	None
Schoolhouse	1891	steam	Schoolhouse for training, gymnasium, later office	Offices for speech & audiology department	Non-PCB pad-mounted transformer (T19)
Manual Training	1904	steam	Residential, trades education, offices	Unoccupied	Non-PCB pad-mounted transformer (T18)
Chipman Hall	1892	steam	Residence, day programs	Unoccupied	None
Waverley Hall	1891	steam	First administration bldg, (until 1936), staff residences	Unoccupied	Stored 55-gal drums of waxes and strippers in basement
Warren Hall	1906	steam	Residential	Unoccupied	Non-PCB pad-mounted transformer (T10) southwest of building
South Nurses	1907	steam	Residential	Unoccupied, used for dead storage	None
Wallace Bldg	1936	steam	Residential	Residential – used by Metro Regional Services	Generator with 100-gal diesel (12A) capacity on pad outside south side of building Non-PCB pad-mounted transformer (T21)
Stephen Bowen Hall	1893-1907	steam	Original infirmary, then residential, offices, day program	Unoccupied	None
Transformer vault (Bldg 14)	1960	none	Electrical vault	Electrical vault	Transformers T62-T64 and T27- T28 inside bldg
Store Room	1891	steam	Warehouse	Receiving warehouse	None
Garage	1932	steam	Maintenance garage	Maintain and park for FDC vehicles	2x 275-gal Waste Oil ASTs in secondary containment (19A)
Southard Research Laboratory	1921	steam	Medical lab (autopsies and research), library	Historical repository for DMR records	Past use of chemicals and perhaps radioactive isotopes
Laundry/Therapeutic Equipment Center	1928	steam	FDC Laundry facilities, and workshops for design and manufacture of therapeutic equipment	Workshops for design and manufacture of therapeutic equipment	None (no dry cleaning)
Lavers Hall	1914	steam	Infirmary, then residential, offices	Offices	None
Farm & Grounds Complex with assorted sheds and outbuildings	1930s – 1970s	propane	Garage and maintain heavy equipment and vehicles	Garage and maintain heavy equipment and vehicles (FDC snowplow, dump trucks, etc.)	Pole-mounted transformer (T1) Potential waste oil storage Empty 275-gal heating oil AST in garage Three 55-gal drums of diesel fuel
Maintenance Yard	c. 1930	steam	Carpentry, paint, electrician, plumbers, and locksmith shops	Carpentry, paint, electrician, plumbers, and locksmith shops	Pole-mounted transformer (T3)
Blue trailer	Unknown	none	Residential	Unoccupied	None – temporarily stored near Maintenance yard
Cottages 17 and 18	1925	oil	Residential	Unoccupied	Each reported to have heating oil AST in basement (17A, 18A) Transformer T7 not found
Cottages 19 and 20	1925	natl gas	Residential, offices	Unoccupied, garages used for dead storage	None
Greenhouse	1940s	steam	Greenhouse	Greenhouse	Possible storage of fertilizers, herbicides, and pesticides
Main Transformer Station (T57)	1960s	none	Transformer facility	Transformer facility	Main power station into FDC
Power Plant	1921	steam	FDC Steam plant	FDC Steam plant	Gasoline generator in building never functioned and UST was removed Two 20,000-gal No. 6 oil tanks on west side of bldg Exposed pipe insulation in poor condition in scaffolding above driveway near USTs

NOTES:
1) Construction dates for some Fernald Developmental Center (FDC) buildings are estimated, and intended to provide the era in which construction may have occurred.
Bldg – Building
c. - circa

AST – Aboveground Storage Tank
UGHW – Underground Hot Water
UST – Underground Storage Tank

Fernald Development Center
200 Trapelo Road
Waltham, MA 02452

Inquiry Number: 2508314.3
June 02, 2009

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6/02/09

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Waltham, MA 02452

EDR Inquiry # 2508314.3

Client Name:
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175 Cabot Street
Lowell, MA 01854

Contact: Melanie Littman

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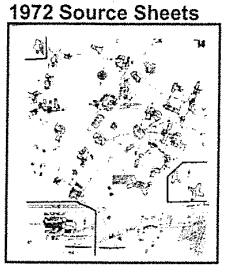

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1950 Source Sheets

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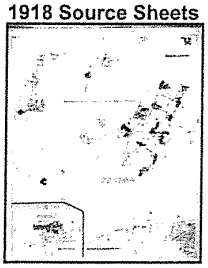
1918 Source Sheets



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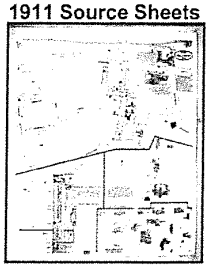

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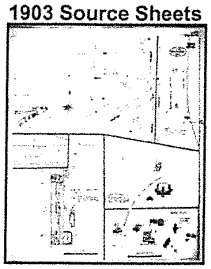
1903 Source Sheets



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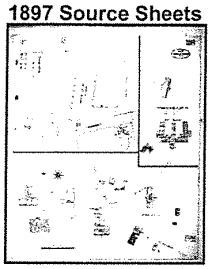
1897 Source Sheets



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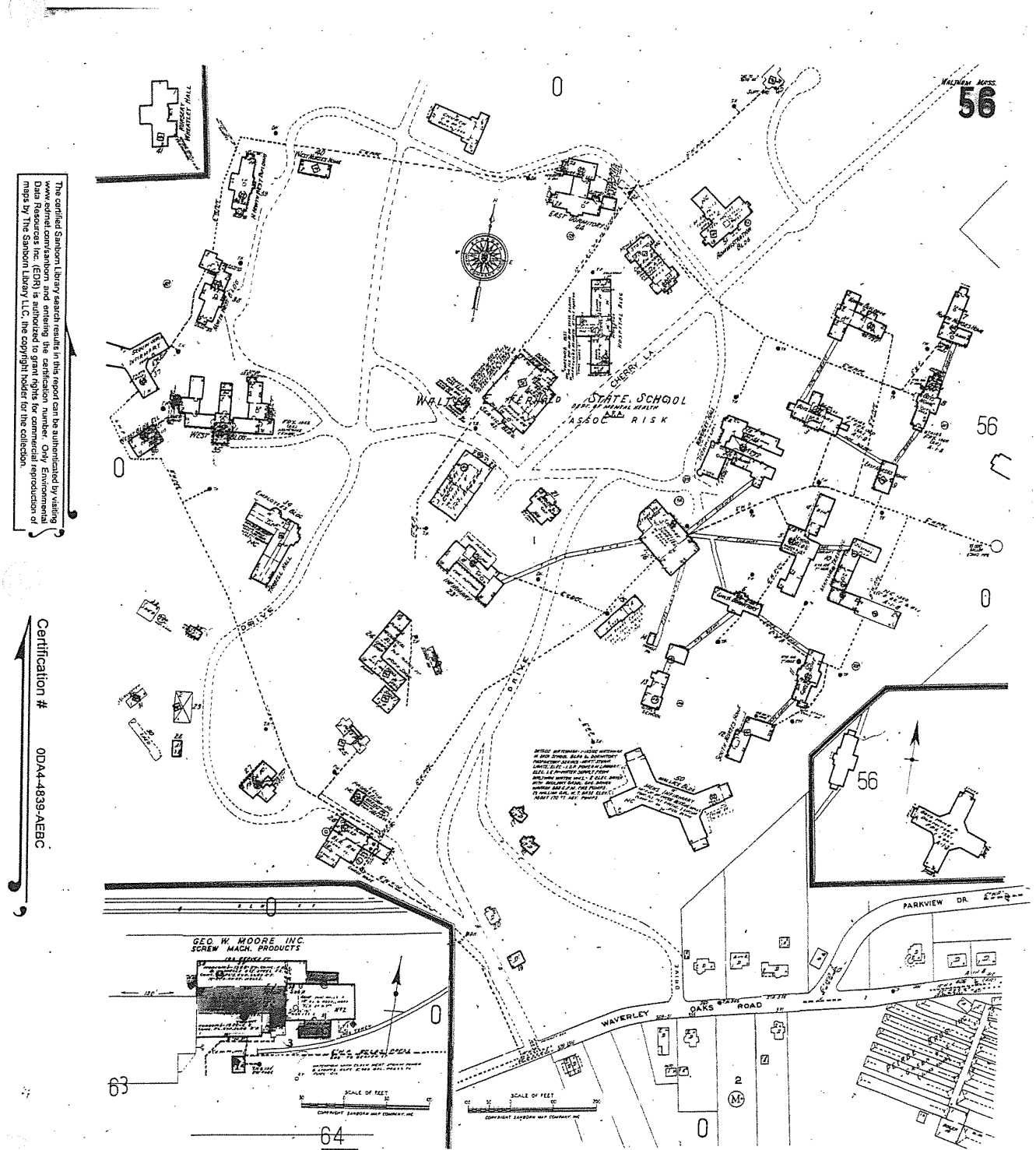

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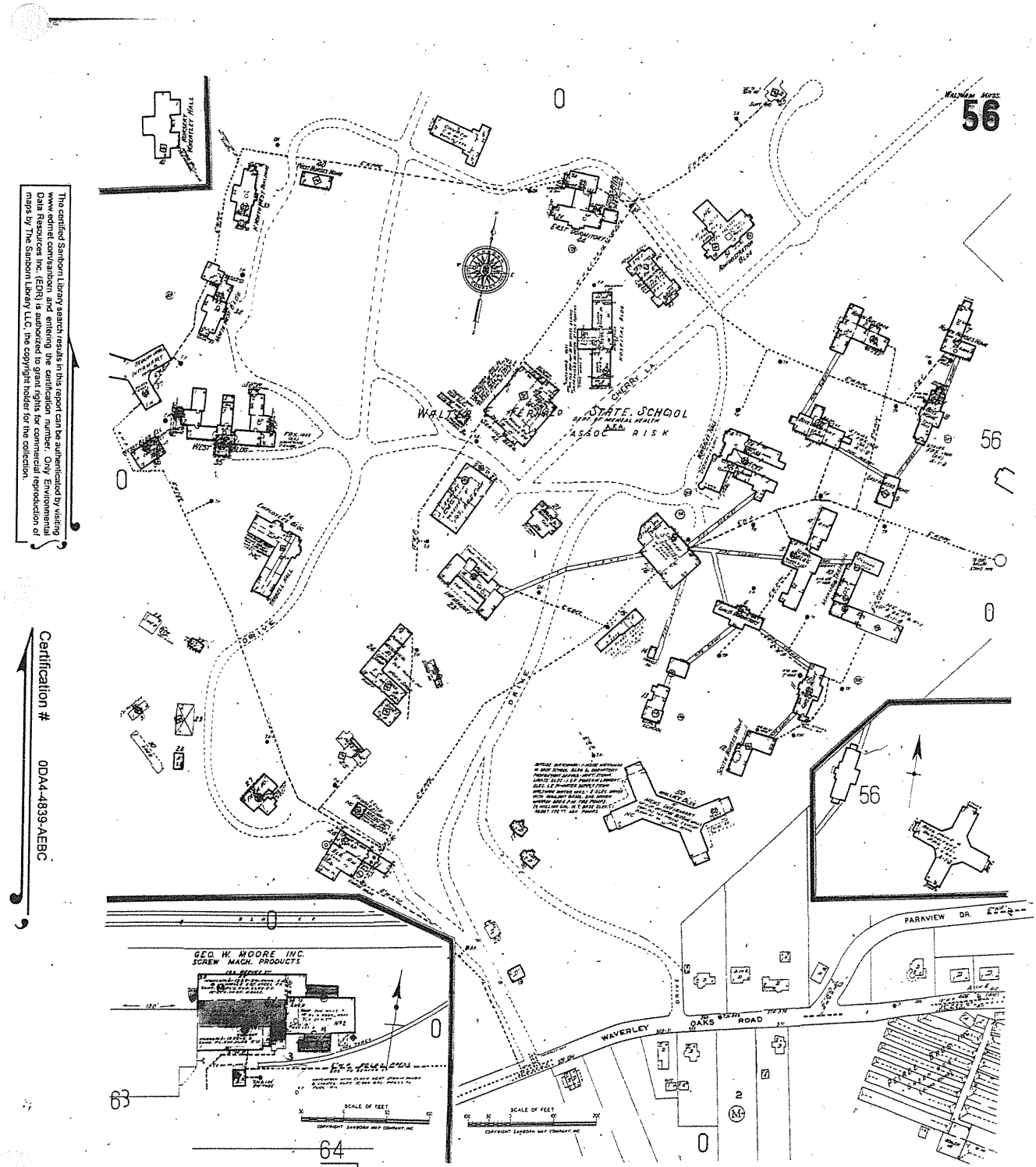

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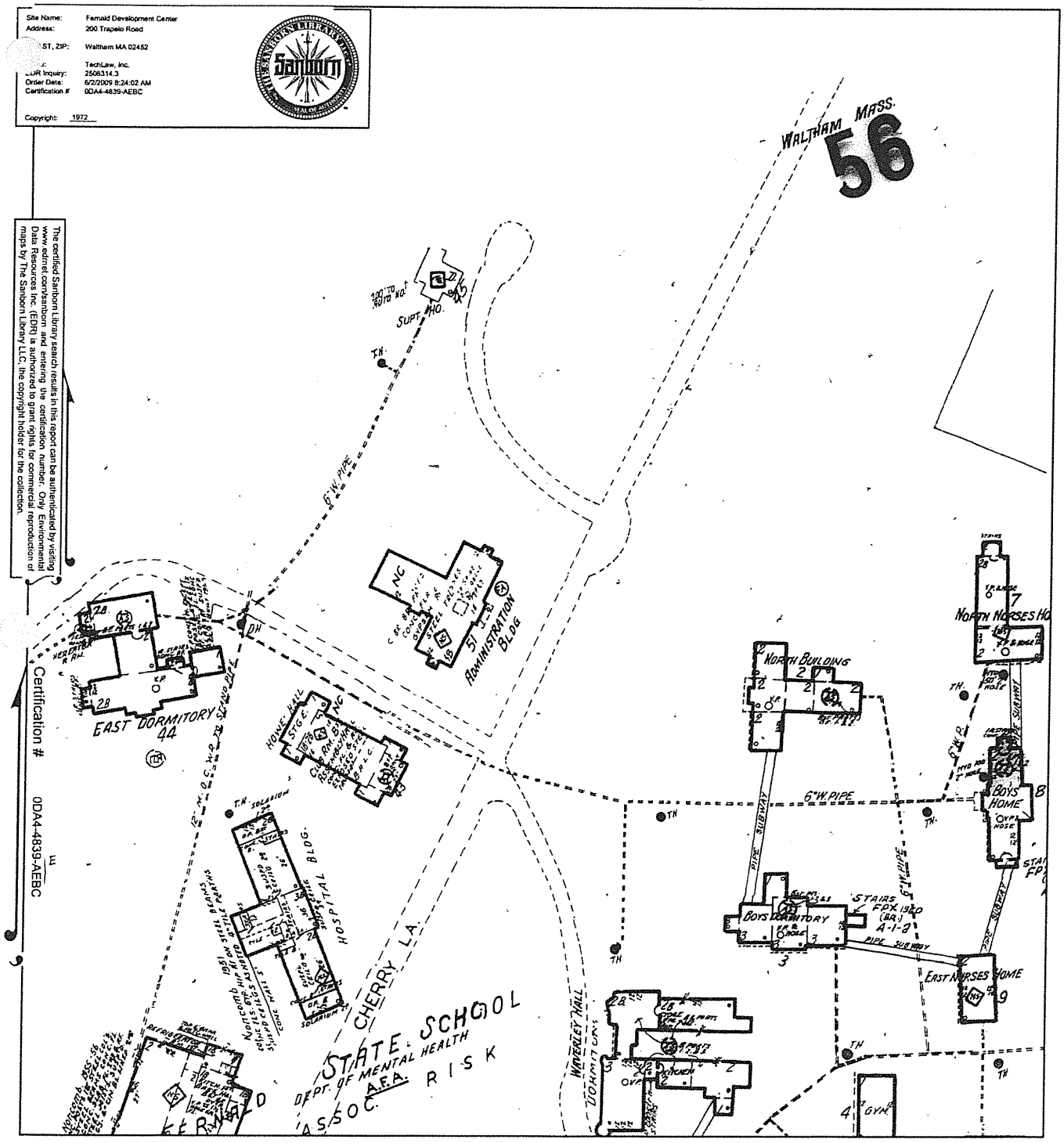

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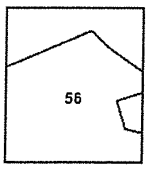

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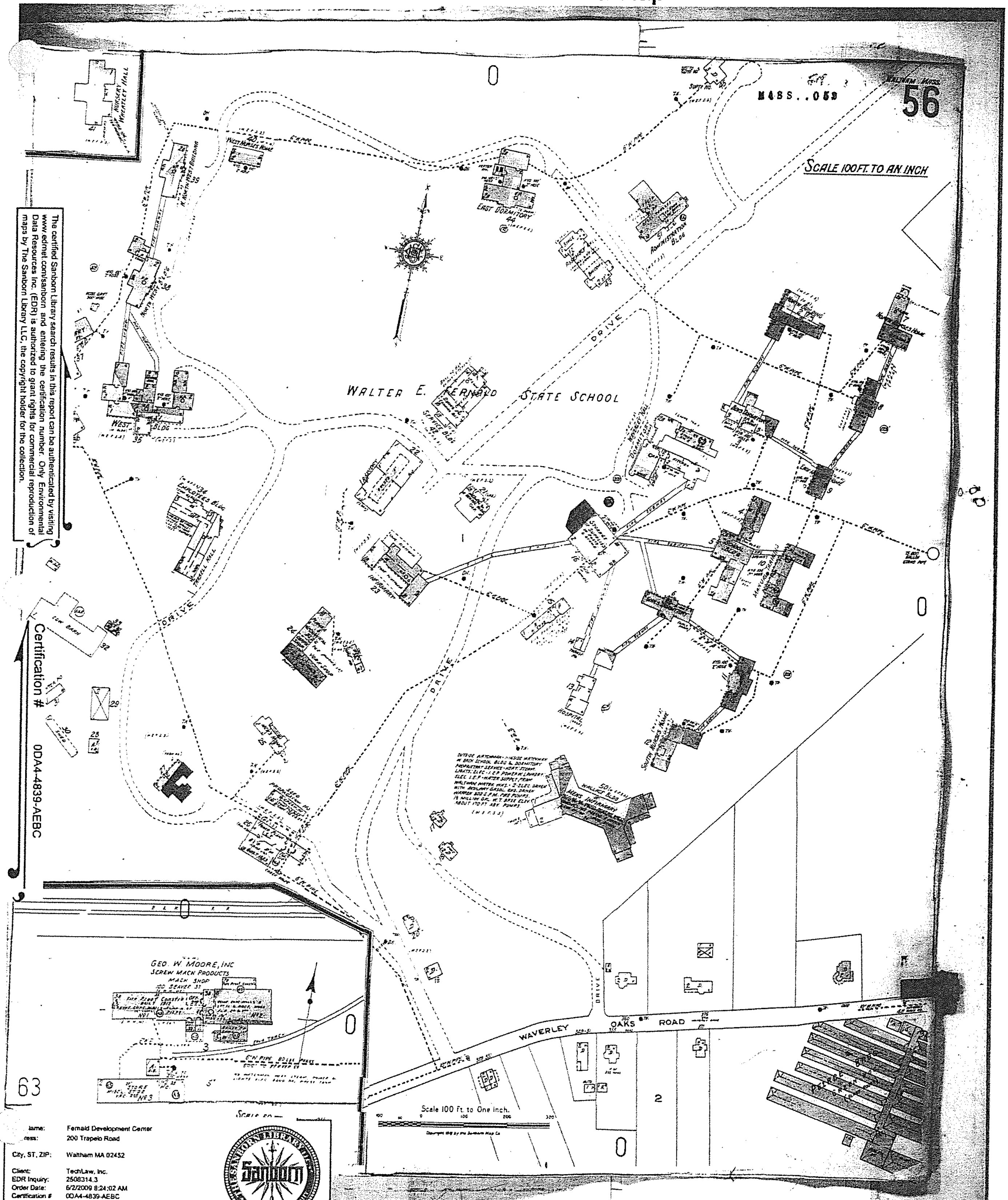

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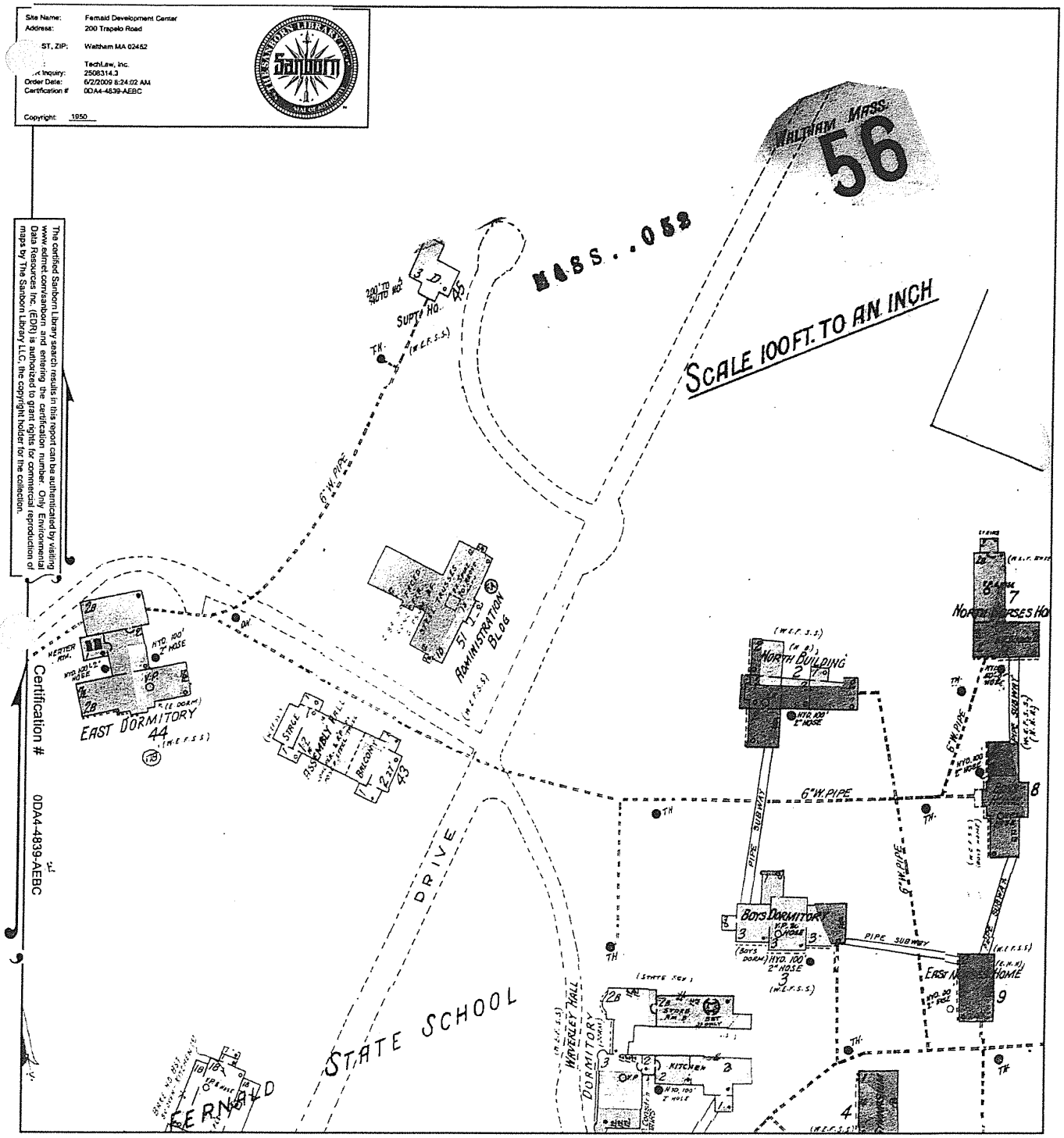

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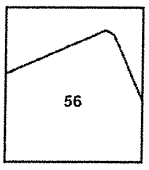

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2508314 - 3 page 10

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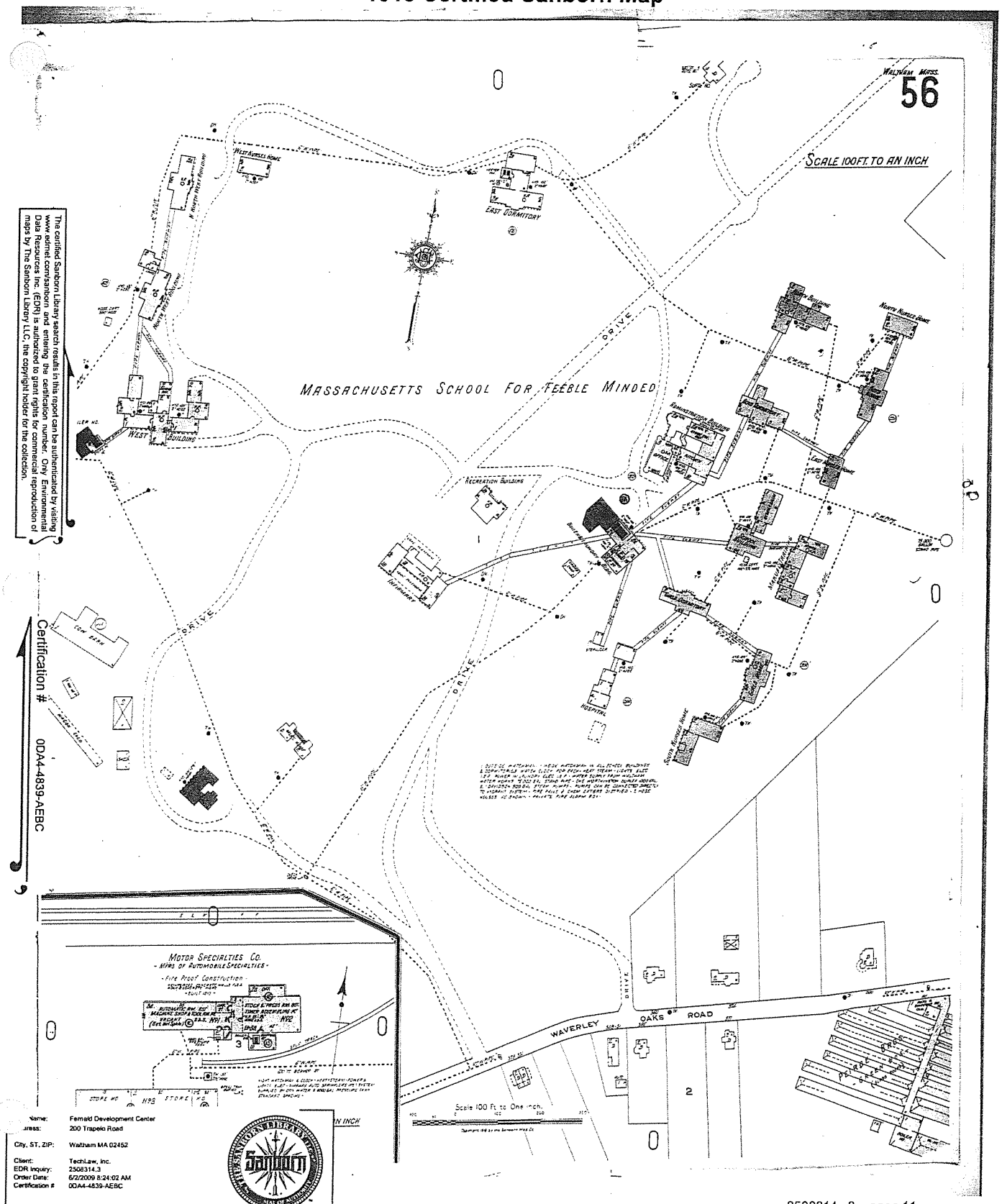

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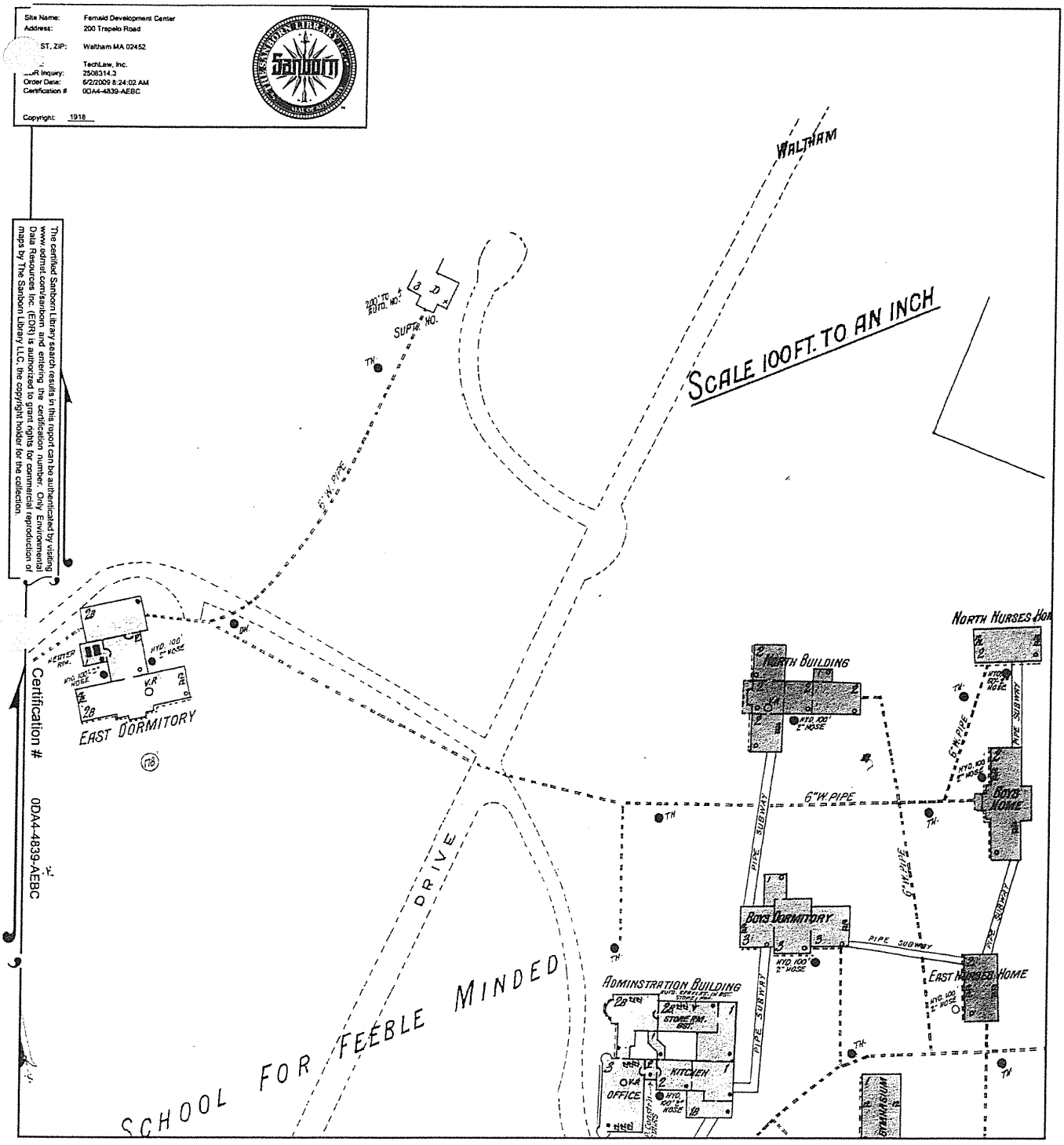
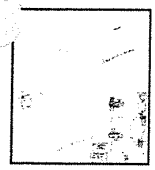
EDR Inquiry: 2508314.3
Order Date: 6/2/2009 8:24:02 AM
Certification #: 00A4-4839-AEBC

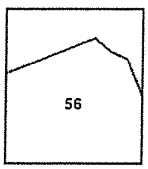
Copyright: 1918

1918 Certified Sanborn Map



This Certified Sanborn Map combines the following sheets (thumbnails on page 3).

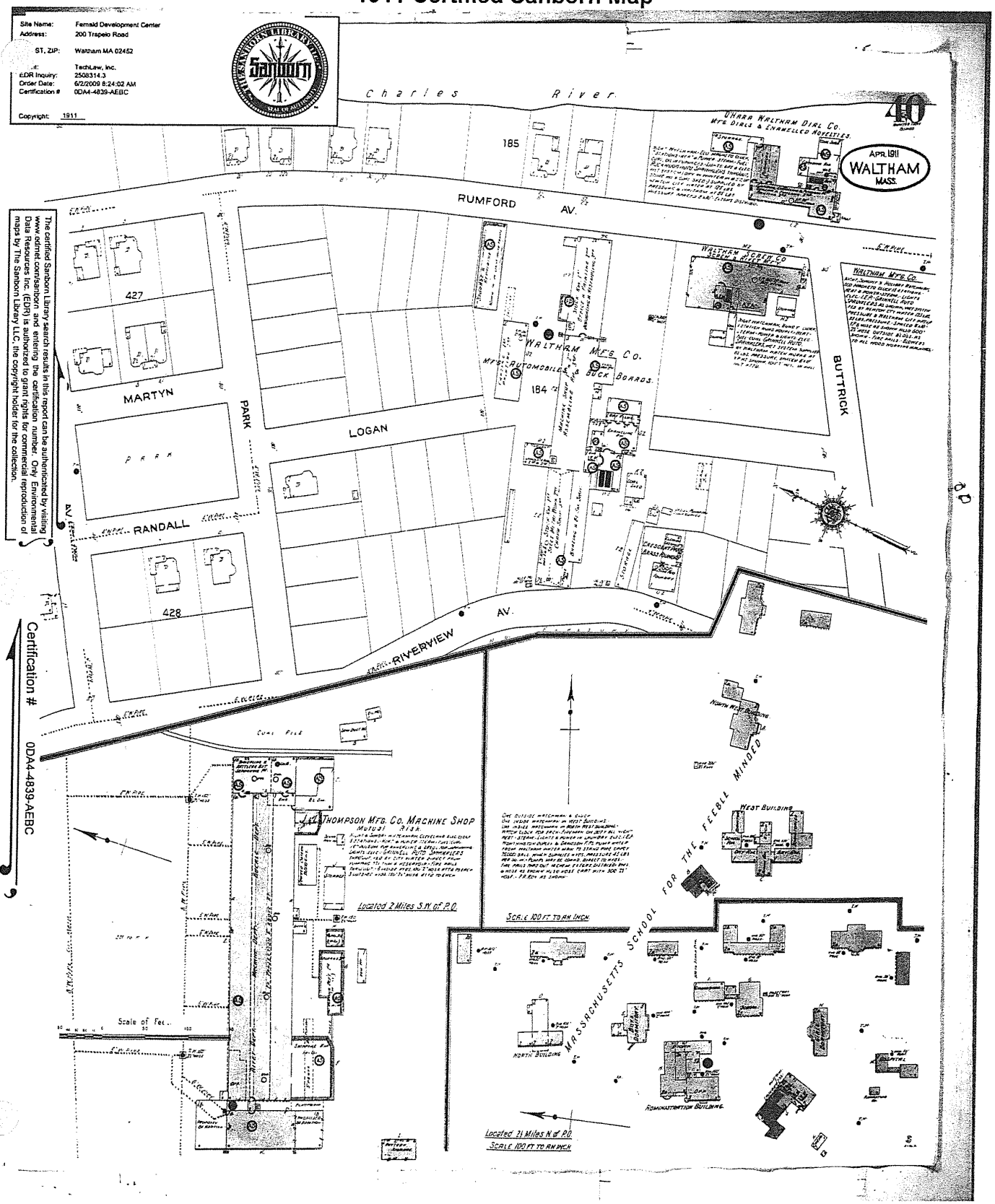




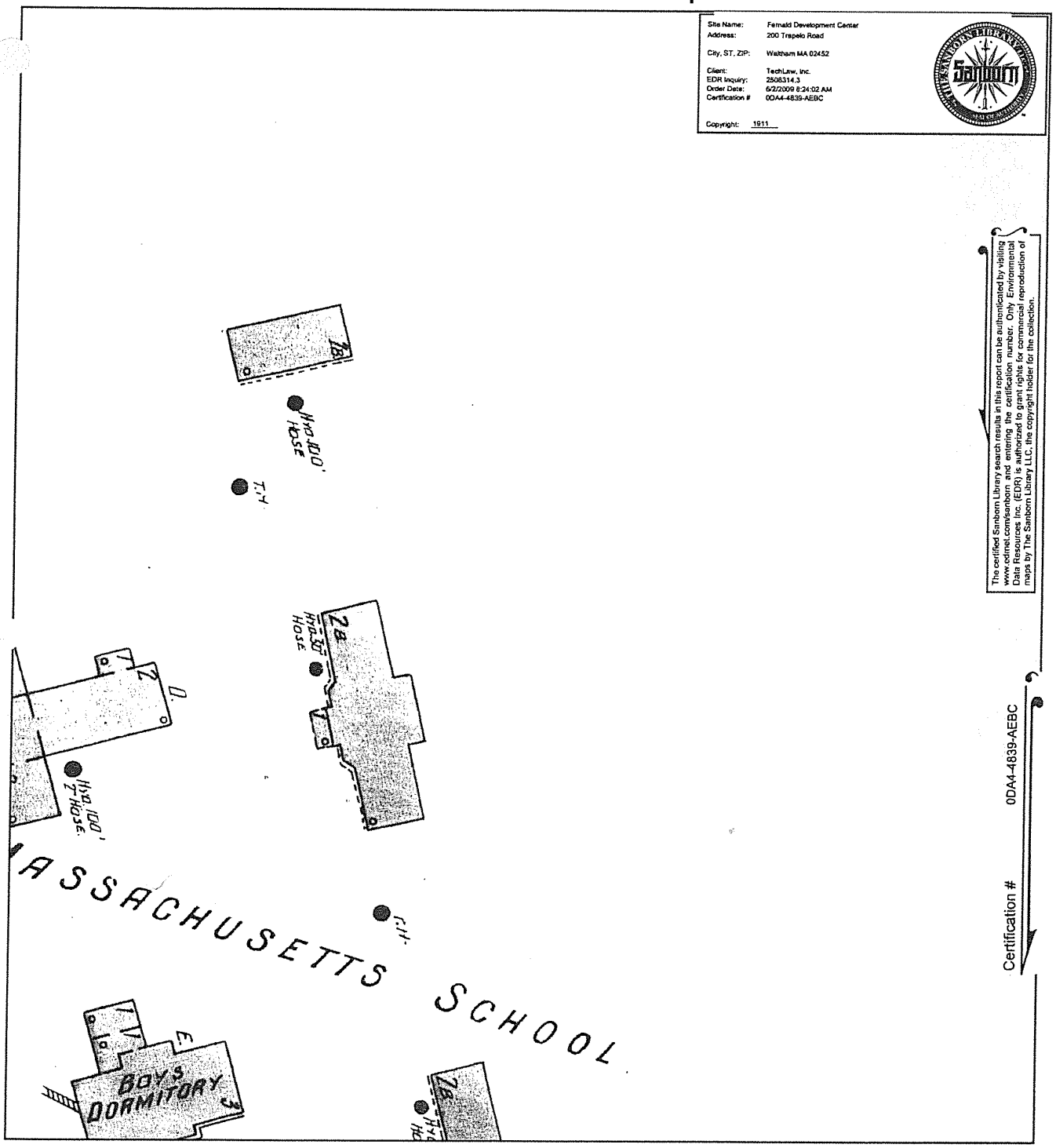
Volume 1, Sheet 56

2508314 - 3 page 12

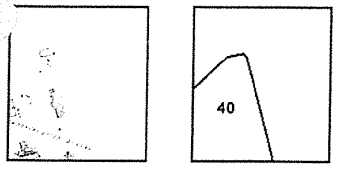
1911 Certified Sanborn Map



1911 Certified Sanborn Map



This Certified Sanborn Map combines the following sheets (thumbnails on page 3).



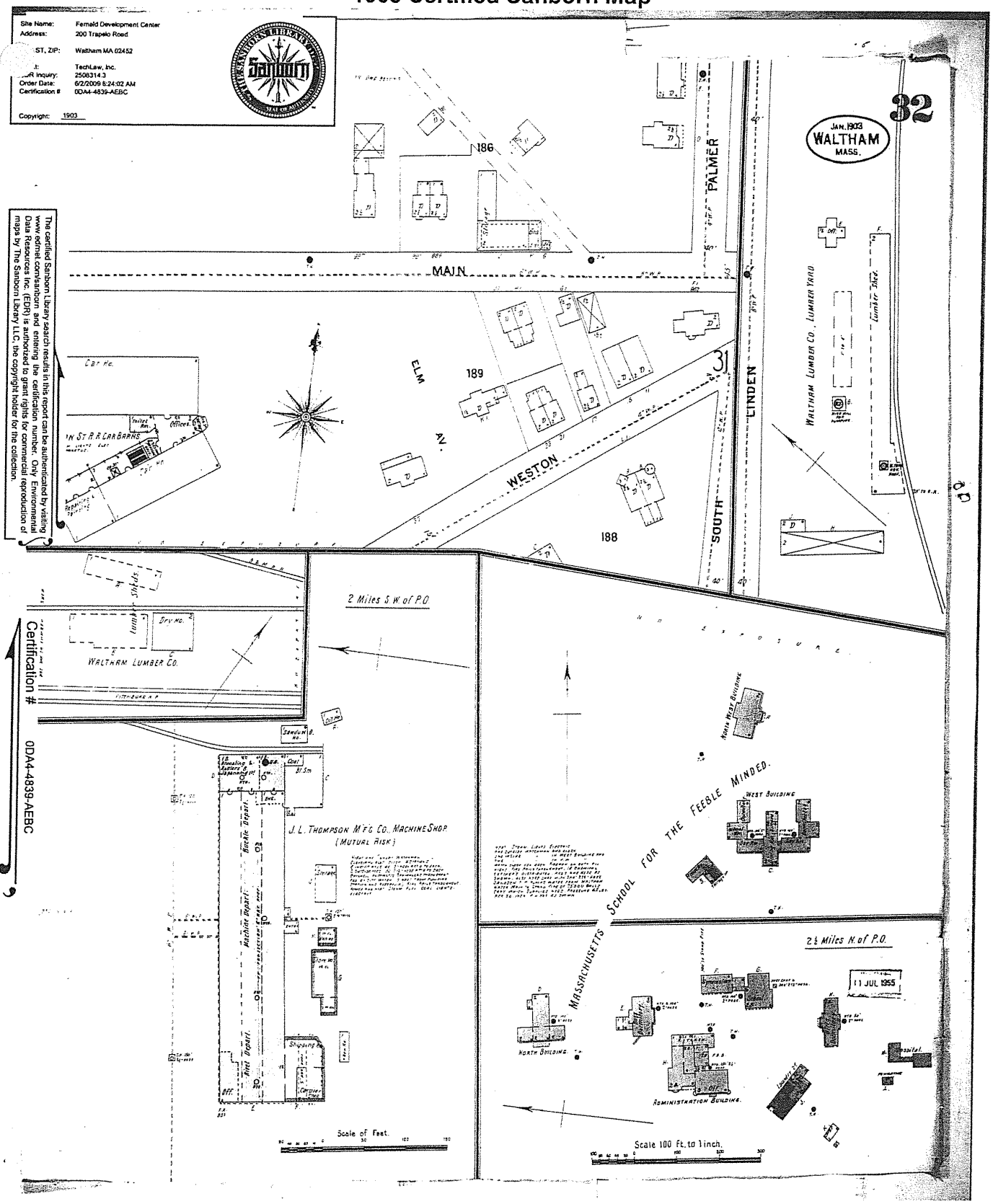
Volume 1, Sheet 40

0 Feet 150 300 60

N

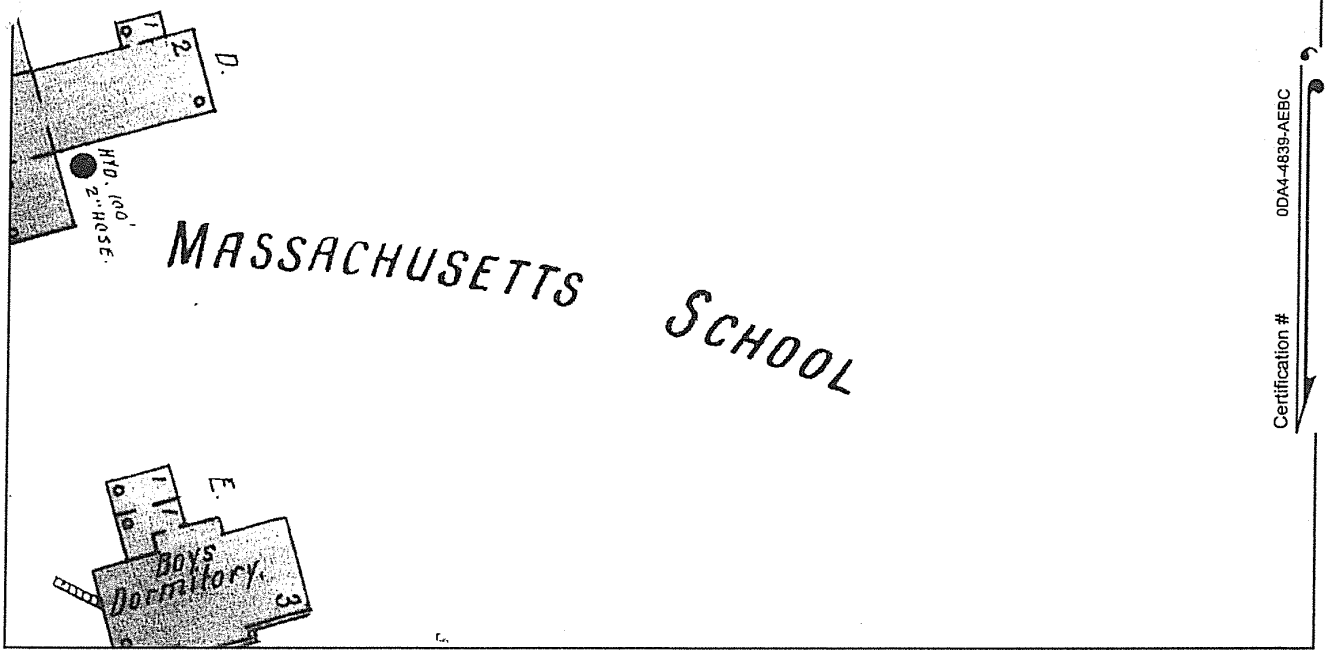
2508314 - 3 page 14

1903 Certified Sanborn Map



1903 Certified Sanborn Map

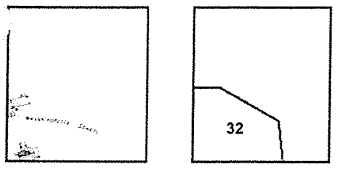
Site Name: Fernald Development Center
Address: 200 Trapelo Road
City, ST, ZIP: Waltham MA 02452
Client: TechLaw, Inc.
EDR Inquiry: 2508314.3
Order Date: 6/2/2009 8:24:02 AM
Certification #: 0DA4-4839-AEBC
Copyright: 1903



Certification # 0DA4-4839-AEBC

This Certified Sanborn Map combines the following sheets (thumbnails on page 3).

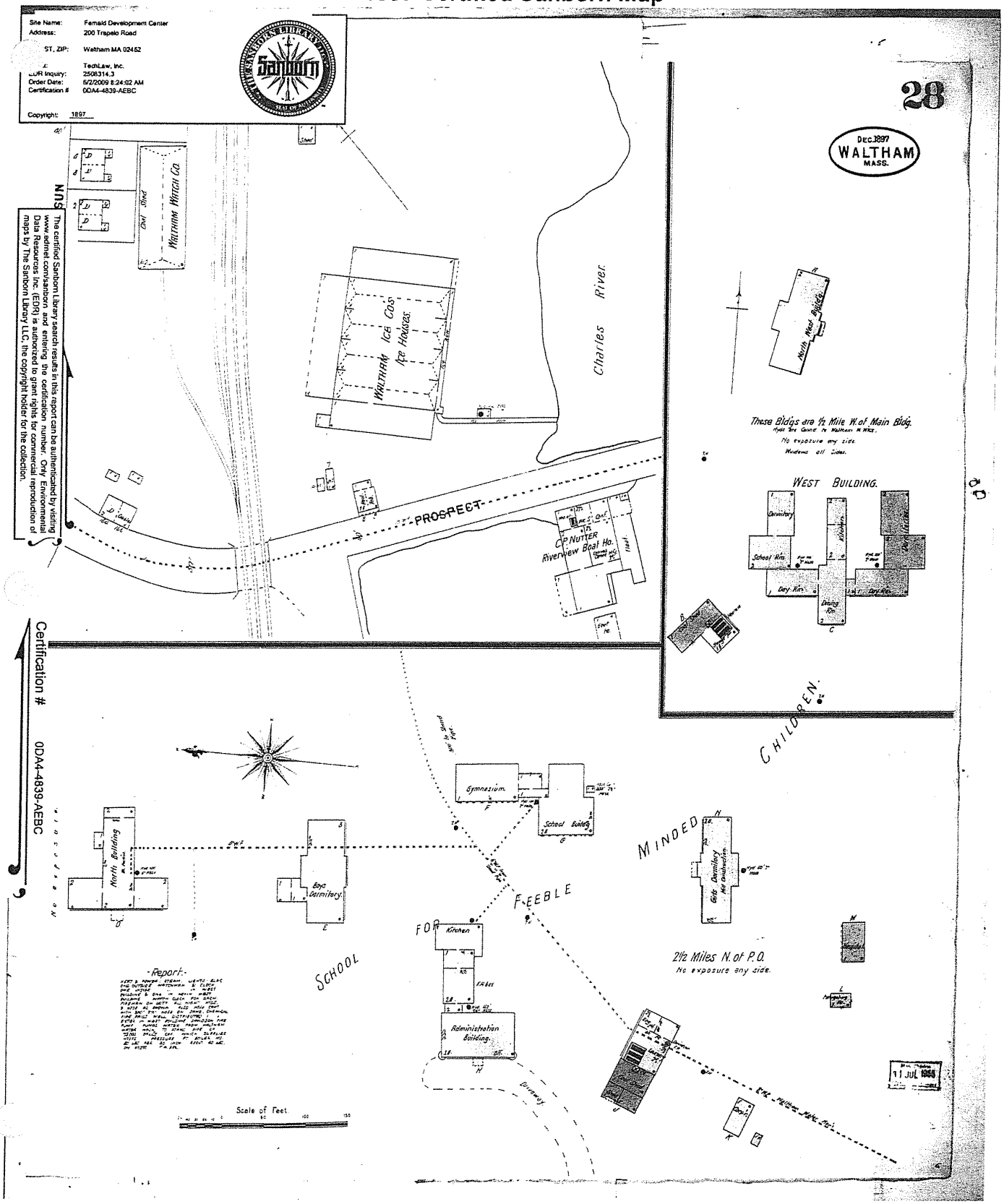
0 Feet 150 300 60



Volume 1, Sheet 32

N

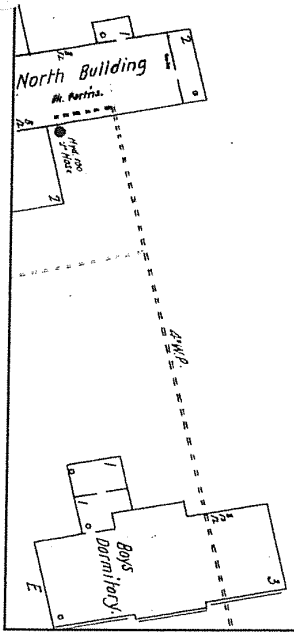
1897 Certified Sanborn Map



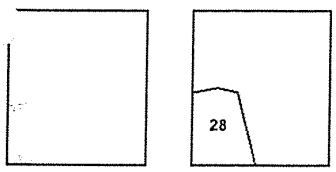
1897 Certified Sanborn Map

Site Name: Fernald Development Center
Address: 200 Trapelo Road
City, ST, ZIP: Waltham MA 02452
Client: TechLaw, inc.
EDR Inquiry: 2506314.3
Order Date: 6/2/2009 8:24:02 AM
Certification #: 0DA4-4839-AEBC
Copyright: 1897

Certification # 0DA4-4839-AEBC



This Certified Sanborn Map combines the following sheets (thumbnails on page 3).



Volume 1, Sheet 28

0 Feet 150 300 60

N

2506314 - 3 page 18

Fernald Development Center
200 Trapelo Road
Waltham, MA 02452

Inquiry Number: 2508314.6
June 02, 2009

The EDR-City Directory Abstract

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

2009 Enhancements to EDR City Directory Abstract

New for 2009, the EDR City Directory Abstract has been enhanced with additional information and features. These enhancements will make your city directory research process more efficient, flexible, and insightful than ever before. The enhancements will improve the options for selecting adjoining properties, and will speed up your review of the report.

City Directory Report. Three important enhancements have been made to the EDR City Directory Abstract:

1. *Executive Summary.* The report begins with an Executive Summary that lists the sources consulted in the preparation of the report. Where available, a parcel map is also provided within the report, showing the locations of properties researched.

2. *Page Images.* Where available, the actual page source images will be included in the Appendix, so that you can review them for information that may provide additional insight. EDR has copyright permission to include these images.

3. *Findings Listed by Location.* Another useful enhancement is that findings are now grouped by address. This will significantly reduce the time you need to review your abstracts. Findings are provided under each property address, listed in reverse chronological order and referencing the source for each entry.

Options for Selecting Adjoining Properties. Ensuring that the right adjoining property addresses are searched is one of the biggest challenges that environmental professionals face when conducting city directory historical research. EDR's new enhancements make it easier for you to meet this challenge. Now, when you place an order for the EDR City Directory Abstract, you have the following choices for determining which addresses should be researched.

1. *You Select Addresses and EDR Selects Addresses.* Use the "Add Another Address" feature to specify the addresses you want researched. Your selections will be supplemented by addresses selected by EDR researchers using our established research methods. Where available, a digital map will be shown, indicating property lines overlaid on a color aerial photo and their corresponding addresses. Simply use the address list below the map to check off which properties shown on the map you want to include. You may also select other addresses using the "Add Another Address" feature at the bottom of the list.

2. *EDR Selects Addresses.* Choose this method if you want EDR's researchers to select the addresses to be researched for you, using our established research methods.

3. *You Select Addresses.* Use this method for research based solely on the addresses you select or enter into the system.

4. *Hold City Directory Research Option.* If you choose to select your own adjoining addresses, you may pause production of your EDR City Directory Abstract report until you have had a chance to look at your other EDR reports and sources. Sources for property addresses include: your Certified Sanborn Map Report may show you the location of property addresses; the new EDR Property Tax Map Report may show the location of property addresses; and your field research can supplement these sources with additional address information. To use this capability, simply click "Hold City Directory research" box under "Other Options" at the bottom of the page. Once you have determined what addresses you want researched, go to your EDR Order Status page, select the EDR City Directory Abstract, and enter the addresses and submit for production.

Questions? Contact your EDR representative at 800-352-0050. For more information about all of EDR's 2009 report and service enhancements, visit www.edrnet.com/2009enhancements

EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	Source	TP	Adjoining	Text Abstract	Source Image
2005	Cole Criss-Cross Directory	X	X	X	-
2000	Cole Criss-Cross Directory	X	X	X	-
1995	Cole Criss-Cross Directory	X	X	X	-
1990	Cole Criss-Cross Directory	X	X	X	-
1985	Cole Criss-Cross Directory	X	X	X	-
1975	Cole Criss-Cross Directory	X	X	X	-
1970	Cole Criss-Cross Directory	X	X	X	-

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

200 Trapelo Road
Waltham, MA 02452

FINDINGS DETAIL

Target Property research detail.

Year	Uses	Source
2005	Edco ESIS	Cole Criss-Cross Directory
	Eunice Kennedy Shriver Center	Cole Criss-Cross Directory
	Fernald League For Retarded Childre	Cole Criss-Cross Directory
	Fernald League Oprtnt Wkshp	Cole Criss-Cross Directory
	Flow Inc	Cole Criss-Cross Directory
	Marquardt Nursing Center	Cole Criss-Cross Directory
	New England Index	Cole Criss-Cross Directory
	Propax	Cole Criss-Cross Directory
	Sandras Lodge Family Shelter	Cole Criss-Cross Directory
	Shriver Center University	Cole Criss-Cross Directory
	Shriver E Kennedy Center For Me	Cole Criss-Cross Directory
	Walter E Fernald School	Cole Criss-Cross Directory
	Waverly Redemption Cntr	Cole Criss-Cross Directory
2000	Amercn CO & Mncpl	Cole Criss-Cross Directory
	Bristol Lodge Sp	Cole Criss-Cross Directory
	Edco Esis	Cole Criss-Cross Directory
	Eunice Knndy Shrvr	Cole Criss-Cross Directory
	Fernald Lea Rtrdd	Cole Criss-Cross Directory
	Flow Inc	Cole Criss-Cross Directory
	Morrison Hlth Care	Cole Criss-Cross Directory
	Newe Engld Index	Cole Criss-Cross Directory
	Sandras Lodge	Cole Criss-Cross Directory
	Shriver Center	Cole Criss-Cross Directory
	Tay Sachs Prvntn	Cole Criss-Cross Directory
	Tufts Dntl Faclty	Cole Criss-Cross Directory
	Unicco Service Co	Cole Criss-Cross Directory
	W E Fernald	Cole Criss-Cross Directory
	Waverly Redemption Cntr	Cole Criss-Cross Directory
1995	Amer Fed Mncpl Emp	Cole Criss-Cross Directory

FINDINGS

Year	Uses	Source
1995	E K Shriver Cntr	Cole Criss-Cross Directory
	Fernald Retrd Chld	Cole Criss-Cross Directory
	Flow Inc	Cole Criss-Cross Directory
	Marriot Fac Mndg	Cole Criss-Cross Directory
	New Eng Index	Cole Criss-Cross Directory
	Shriver Ctr Clncs	Cole Criss-Cross Directory
	Tay Sachs Prvntn	Cole Criss-Cross Directory
	Tufts Dental Fclty	Cole Criss-Cross Directory
	Waverly Rdmptn Ctr	Cole Criss-Cross Directory
1990	Amer Fed Mncpl Emp	Cole Criss-Cross Directory
	Carl Bray	Cole Criss-Cross Directory
	Eunice Kndy Shrvr	Cole Criss-Cross Directory
	Fernald Retrd Chld	Cole Criss-Cross Directory
	Flow Inc	Cole Criss-Cross Directory
	Marriot Fac Mndg	Cole Criss-Cross Directory
	Mtrpltn St Hospital	Cole Criss-Cross Directory
	Shriver Ctr Clncs	Cole Criss-Cross Directory
	Tay Sachs Prvntn	Cole Criss-Cross Directory
	Tufts Dental Fclty	Cole Criss-Cross Directory
	WE Fernald School	Cole Criss-Cross Directory
1985	Amer Fed Mncpl Emp	Cole Criss-Cross Directory
	Bay Colny Cnstrctn	Cole Criss-Cross Directory
	Concrete Constr Co	Cole Criss-Cross Directory
	D P Donnelly Elc	Cole Criss-Cross Directory
	David C Bunker	Cole Criss-Cross Directory
	E Shriver Center	Cole Criss-Cross Directory
	Fernald League	Cole Criss-Cross Directory
	Fernald Workshops	Cole Criss-Cross Directory
	Feteal Alchol Synd	Cole Criss-Cross Directory
	Mtrpltn St Hosptl	Cole Criss-Cross Directory
	Paxcucci Bros Co	Cole Criss-Cross Directory
	Pritchard Sv Inc	Cole Criss-Cross Directory
	Tay Sachs Preventn	Cole Criss-Cross Directory
	Tufts Dental Fclty	Cole Criss-Cross Directory
	Wexler Construction	Cole Criss-Cross Directory
1975	D H Project	Cole Criss-Cross Directory
	Dr B Ray	Cole Criss-Cross Directory
	Dr P Touchette	Cole Criss-Cross Directory
	Dr R H McClure	Cole Criss-Cross Directory

FINDINGS

Year	Uses	Source
1975	Fernald Lge Rtrded	Cole Criss-Cross Directory
	Fernald Schl Activ	Cole Criss-Cross Directory
	Media Resource Ctr	Cole Criss-Cross Directory
	Shriver Mr	Cole Criss-Cross Directory
	W E Fernald Schl Em	Cole Criss-Cross Directory
	W E Fernald School	Cole Criss-Cross Directory
1970	Antonellis Inc	Cole Criss-Cross Directory
	W E Fernald School.	Cole Criss-Cross Directory
	West Nurses Home	Cole Criss-Cross Directory

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

Trapelo Road

180 Trapelo Road

Year	Uses	Source
2005	Common Wealth Massachusetts	Cole Criss-Cross Directory
	Waverly Oaks Child Dev	Cole Criss-Cross Directory
2000	Waverly Oaks Child Dev	Cole Criss-Cross Directory
1995	No Return	Cole Criss-Cross Directory
1990	No Return	Cole Criss-Cross Directory
1985	No Return	Cole Criss-Cross Directory
1975	Residential	Cole Criss-Cross Directory

185 Trapelo Road

Year	Uses	Source
2005	Residential	Cole Criss-Cross Directory
2000	Residential	Cole Criss-Cross Directory
1995	Residential	Cole Criss-Cross Directory
1990	Residential	Cole Criss-Cross Directory
1985	Residential	Cole Criss-Cross Directory
1975	Residential	Cole Criss-Cross Directory
1970	Residential	Cole Criss-Cross Directory

191 Trapelo Road

Year	Uses	Source
2005	Residential	Cole Criss-Cross Directory
2000	Residential	Cole Criss-Cross Directory
1995	Residential	Cole Criss-Cross Directory
1990	Residential	Cole Criss-Cross Directory
1985	Residential	Cole Criss-Cross Directory
1975	Residential	Cole Criss-Cross Directory
1970	Residential	Cole Criss-Cross Directory

208 Trapelo Road

Year	Uses	Source
1975	Dr Hugo Moser	Cole Criss-Cross Directory

FINDINGS

211 Trapelo Road

Year	*Uses*	*Source*
2005	Residential	Cole Criss-Cross Directory
2000	Residential	Cole Criss-Cross Directory
1995	Residential	Cole Criss-Cross Directory
1990	Residential	Cole Criss-Cross Directory
1985	No Return	Cole Criss-Cross Directory
1975	Residential	Cole Criss-Cross Directory
1970	Residential	Cole Criss-Cross Directory

225 Trapelo Road

Year	*Uses*	*Source*
2005	Residential	Cole Criss-Cross Directory
2000	Residential	Cole Criss-Cross Directory
1995	Residential	Cole Criss-Cross Directory
1990	Residential	Cole Criss-Cross Directory
1985	Dr Amos Naor	Cole Criss-Cross Directory
1975	Residential	Cole Criss-Cross Directory
1970	Mass Social Worker	Cole Criss-Cross Directory

231 Trapelo Road

Year	*Uses*	*Source*
2005	Residential	Cole Criss-Cross Directory
2000	Residential	Cole Criss-Cross Directory
1995	Residential	Cole Criss-Cross Directory
1990	Residential	Cole Criss-Cross Directory
1985	Residential	Cole Criss-Cross Directory
1975	Residential	Cole Criss-Cross Directory
1970	No Return	Cole Criss-Cross Directory

FINDINGS

ADJOINING PROPERTY: ADDRESSES NOT LISTED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not listed in research source.

Address Researched	Address Not Listed in Research Source
180 Trapelo Road	1970
208 Trapelo Road	1970

Fernald Development Center
200 Trapelo Road
Waltham, MA 02452

Inquiry Number: 2508314.4
June 01, 2009

The EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

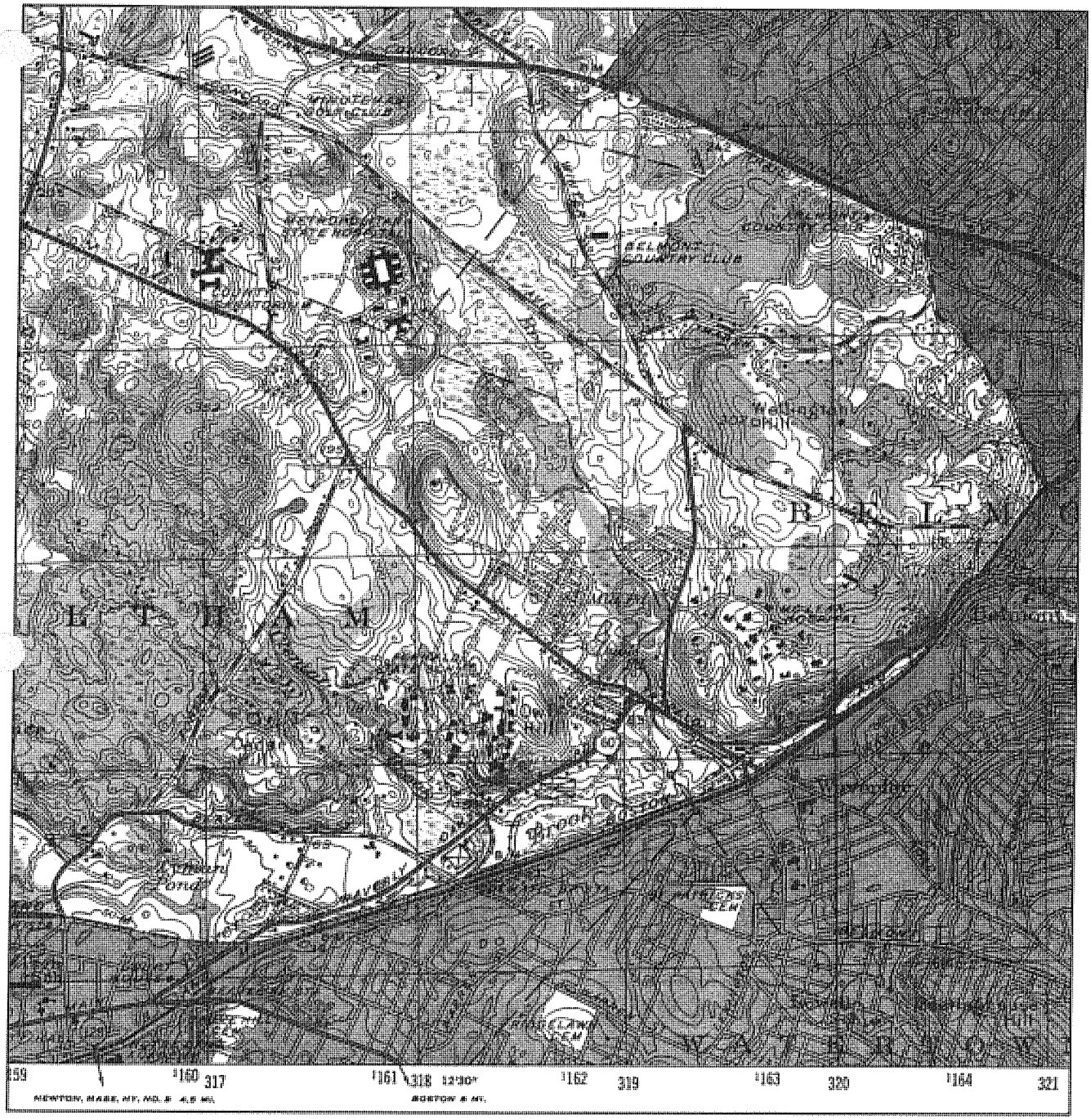
Historical Topographic Map

N			
	TARGET QUAD NAME: BOSTON MAP YEAR: 1903 SERIES: 15 SCALE: 1:62500	SITE NAME: Fernald Development Center ADDRESS: 200 Trapelo Road Waltham, MA 02452 LAT/LONG: 42.3915 / 71.2068	CLIENT: TechLaw, Inc. CONTACT: Melanie Littman INQUIRY#: 2508314.4 RESEARCH DATE: 06/01/2009

Historical Topographic Map

N	TARGET QUAD NAME: BOSTON AND VICINITY MAP YEAR: 1903 SERIES: 15 SCALE: 1:62500	SITE NAME: Fernald Development Center ADDRESS: 200 Trapelo Road Waltham, MA 02452 LAT/LONG: 42.3915 / 71.2068	CLIENT: TechLaw, Inc. CONTACT: Melanie Littman INQUIRY#: 2508314.4 RESEARCH DATE: 06/01/2009

Historical Topographic Map



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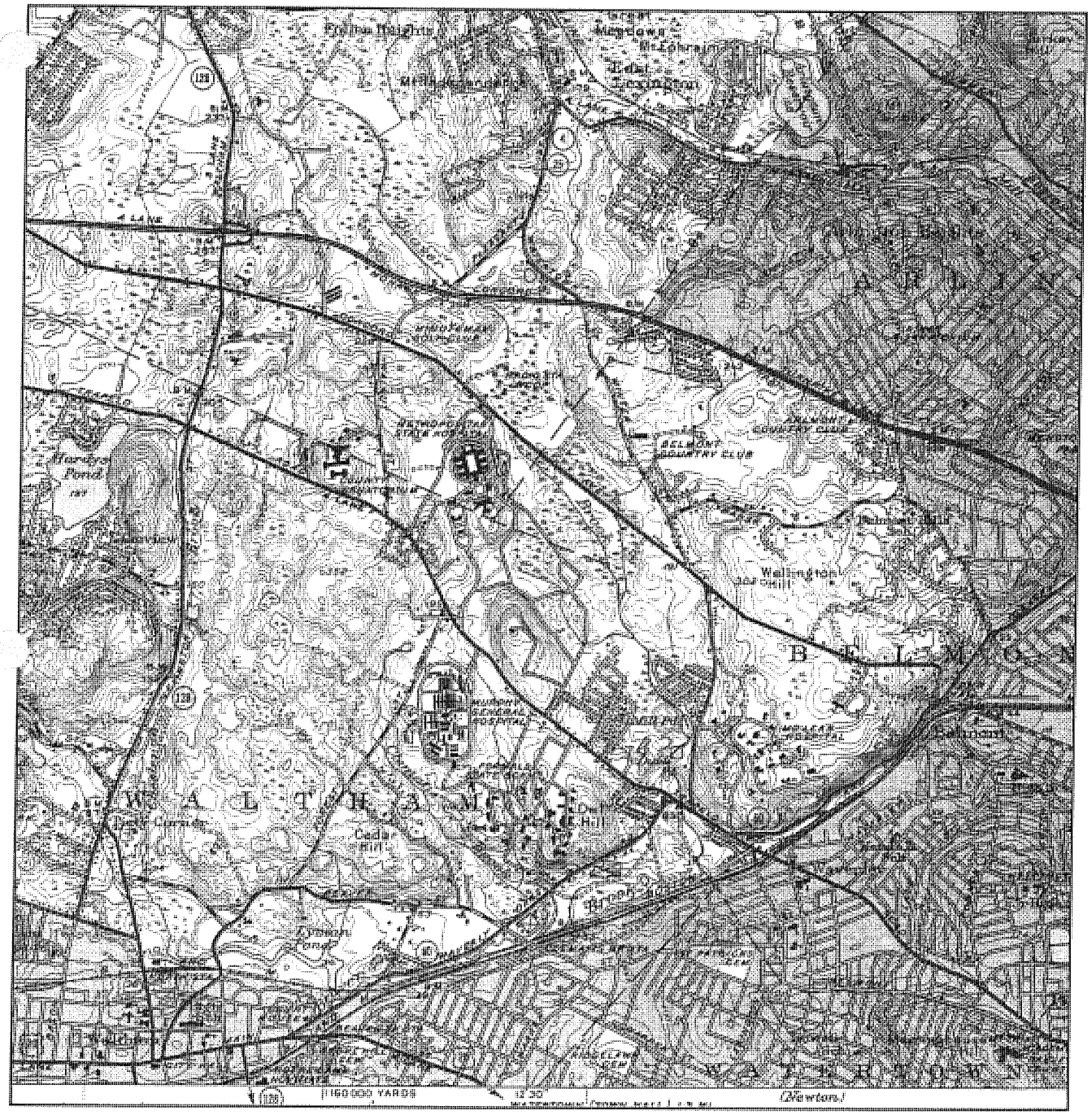
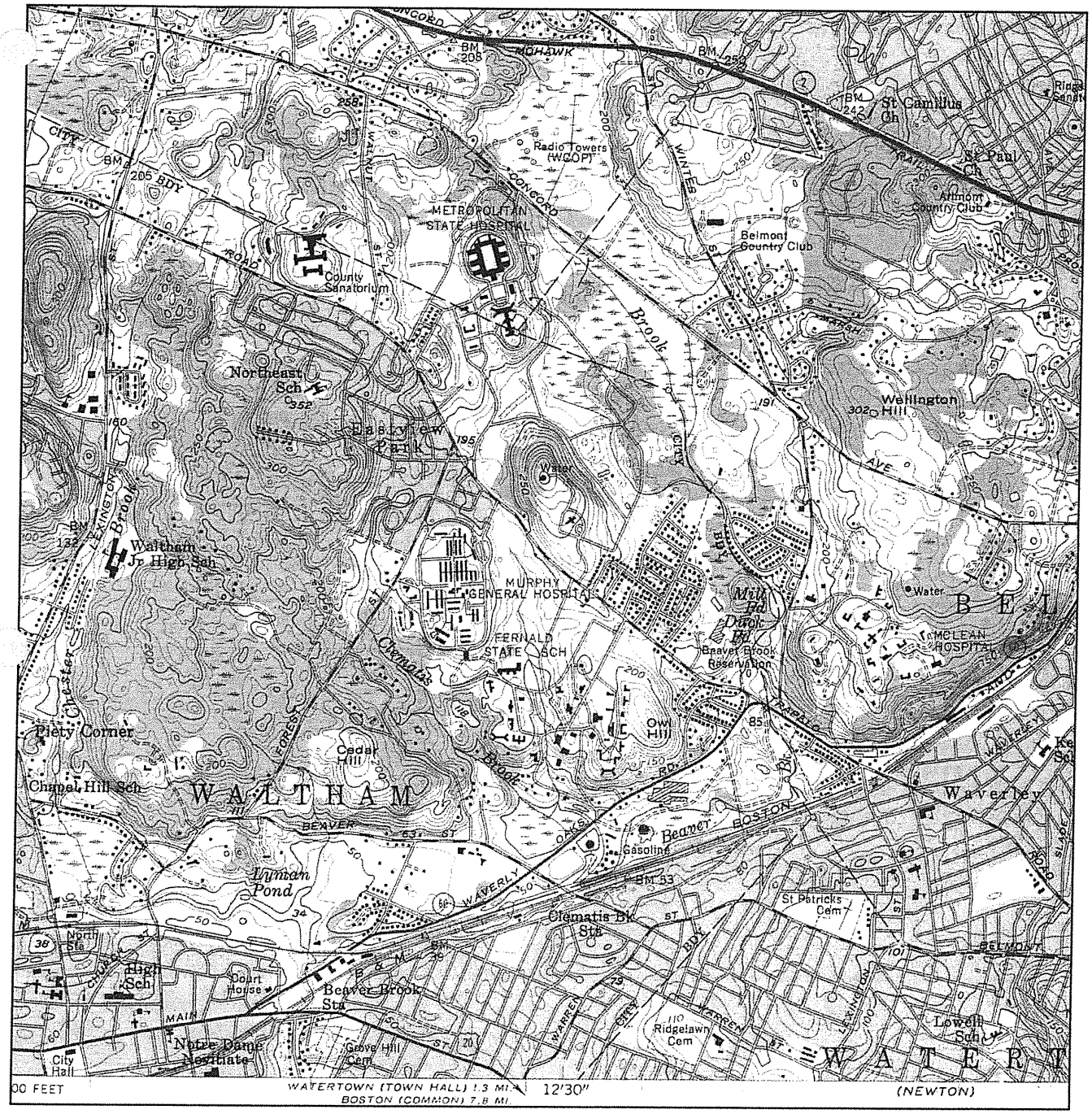
	TARGET QUAD NAME: LEXINGTON MAP YEAR: 1947 SERIES: 7.5 SCALE: 1:25000	SITE NAME: Fernald Development Center ADDRESS: 200 Trapelo Road Waltham, MA 02452 LAT/LONG: 42.3915 / 71.2068	CLIENT: TechLaw, Inc. CONTACT: Melanie Littman INQUIRY#: 2508314.4 RESEARCH DATE: 06/01/2009

Historical Topographic Map



N	TARGET QUAD NAME: LEXINGTON MAP YEAR: 1950 REVISED FROM:1946 SERIES: 7.5 SCALE: 1:31680	SITE NAME: Fernald Development Center ADDRESS: 200 Trapelo Road Waltham, MA 02452 LAT/LONG: 42.3915 / 71.2068	CLIENT: TechLaw, Inc. CONTACT: Melanie Littman INQUIRY#: 2508314.4 RESEARCH DATE: 06/01/2009

Historical Topographic Map

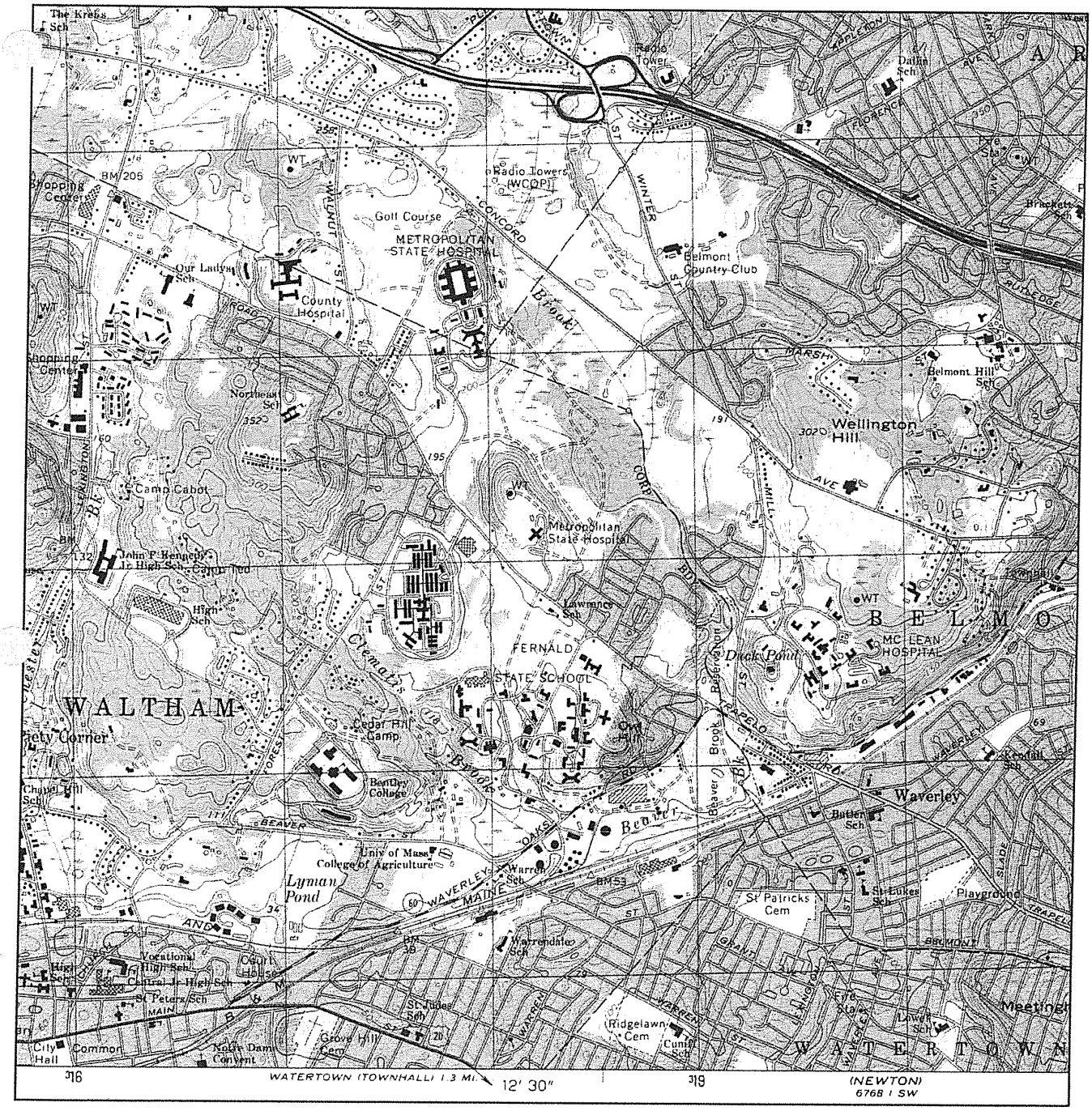


N	TARGET QUAD NAME: LEXINGTON MAP YEAR: 1956 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Fernald Development Center ADDRESS: 200 Trapelo Road Waltham, MA 02452 LAT/LONG: 42.3915 / 71.2068	CLIENT: TechLaw, Inc. CONTACT: Melanie Littman INQUIRY#: 2508314.4 RESEARCH DATE: 06/01/2009

Historical Topographic Map

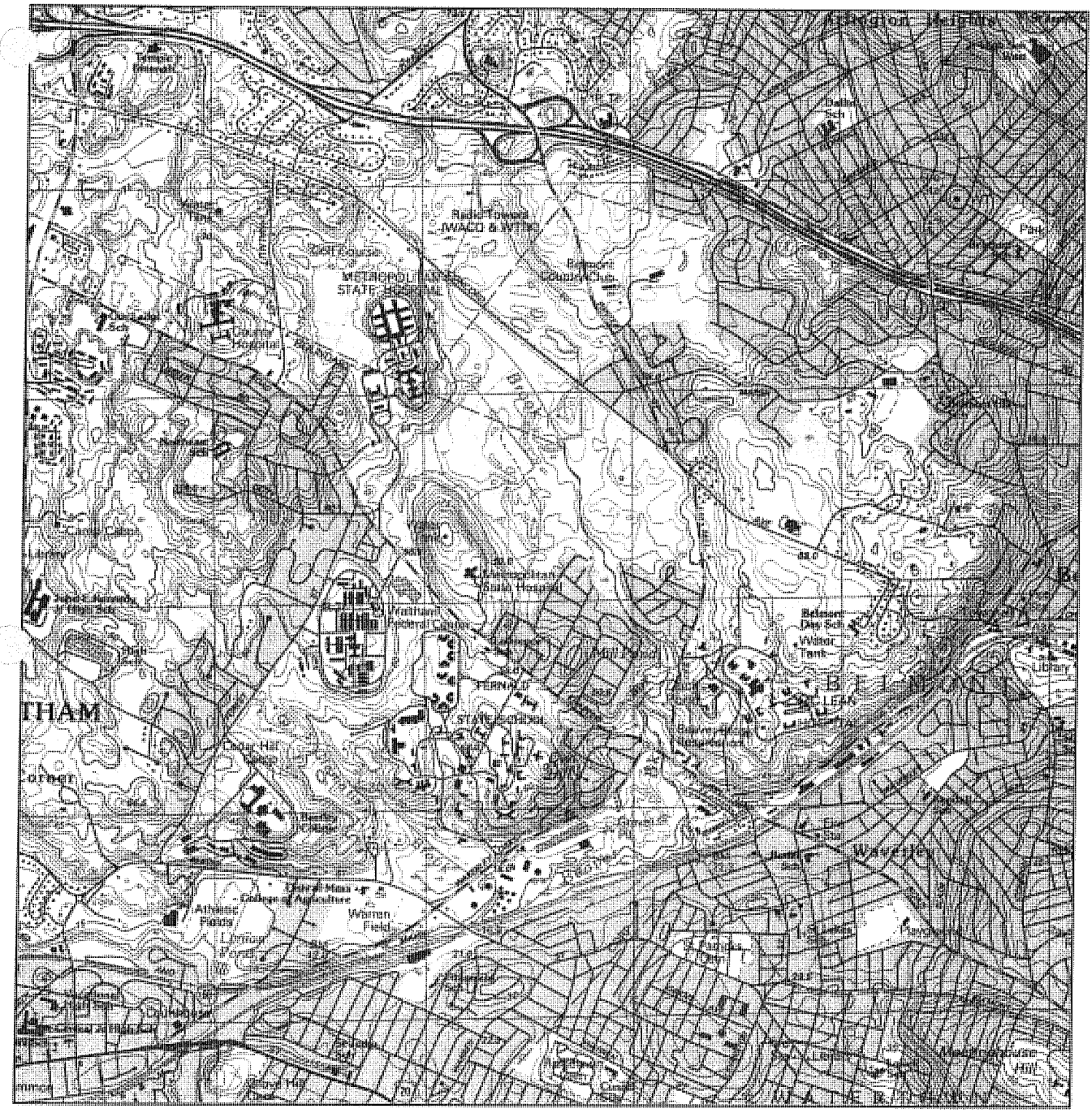
N			
	TARGET QUAD NAME: BOSTON VICINITY 1 OF 4 MAP YEAR: 1958 SERIES: 7.5 SCALE: 1:31680	SITE NAME: Fernald Development Center ADDRESS: 200 Trapelo Road Waltham, MA 02452 LAT/LONG: 42.3915 / 71.2068	CLIENT: TechLaw, Inc. CONTACT: Melanie Littman INQUIRY#: 2508314.4 RESEARCH DATE: 06/01/2009

Historical Topographic Map



N	TARGET QUAD NAME: LEXINGTON MAP YEAR: 1971 SERIES: 7.5 SCALE: 1:25000	SITE NAME: Fernald Development Center ADDRESS: 200 Trapelo Road Waltham, MA 02452 LAT/LONG: 42.3915 / 71.2068	CLIENT: TechLaw, Inc. CONTACT: Melanie Littman INQUIRY#: 2508314.4 RESEARCH DATE: 06/01/2009

Historical Topographic Map



N			
	TARGET QUAD NAME: BOSTON NORTH MAP YEAR: 1985 SERIES: 7.5 SCALE: 1:25000	SITE NAME: Fernald Development Center ADDRESS: 200 Trapelo Road Waltham, MA 02452 LAT/LONG: 42.3915 / 71.2068	CLIENT: TechLaw, Inc. CONTACT: Melanie Littman INQUIRY#: 2508314.4 RESEARCH DATE: 06/01/2009

Fernald Development Center
200 Trapelo Road
Waltham, MA 02452

Inquiry Number: 2508314.7
June 05, 2009

The EDR Environmental LienSearch™ Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

The EDR Environmental LienSearch™ Report

The EDR Environmental LienSearch Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

The EDR Environmental LienSearch™ Report

TARGET PROPERTY INFORMATION

ADDRESS

200 Trapelo Road
Fernald Development Center
Waltham, MA 2452

RESEARCH SOURCE

Source 1:
Middlesex Clerk
Middlesex, MA

PROPERTY INFORMATION

Deed 1:

Type of Deed:	Deed
Title is vested in:	Commonwealth of Massachusetts
Title received from:	City of Waltham
Deed Dated	10/2/1931
Deed Recorded:	10/22/1931
Book:	5600
Page:	550
Volume:	NA
Instrument:	NA
Docket:	NA
Land Record Comments:	
Miscellaneous Comments:	
Legal Description:	see exhibit
Legal Current Owner:	Commonwealth of Massachusetts
Property Identifiers:	R045-001-0001, R045-001-0001A
Comments:	see exhibit

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒
If found:

1st Party:
2nd Party:
Dated:
Recorded:
Book:
Page:
Docket:

Volume:
Instrument:
Comments:
Miscellaneous Comments:

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found ☐ Not Found ☒
If found:

1st Party:
2nd Party:
Dated:
Recorded:
Book:
Page:
Docket:
Volume:
Instrument:
Comments:
Miscellaneous Comments:

Deed Exhibit 1

Middlesex ss. Oct. 22, 1931. 8h. 30m. A.M. Rec'd & Recorded.

TY OF WALTHAM

ORDER

At a special meeting of the City Council of the City of Waltha duly called, held July 21, 1931, it was ORDERED: That the Mayor be and hereby is authorized to execute a deed, conveying to the Walter E.Fern School a tract of land off Trapelo Road, being the rear portion of the Lawrence School lot and comprising about one and one-half acres. This order supersedes Order No 11583 Adopted July 21, 1931 Approved July 1931 A true copy Attest Elbert L. Greene (Elbert L. Greene) Assistant City Clerk -

Middlesex ss. Oct. 22, 1931. 4h. 36m. P.M. Rec'd & Recorded.

ITY OF WALTHAM

to

ALTER E. FERNALD TATE SCHOOL OF HE DEPT. OF ENTAL DISEASES, COM. OF MASS.

The City of Waltham, a municipal corporation duly organized ac cording to law, of Middlesex County, Massachusetts, for consideration paid, grants to the Walter E. Fernald State School of the Department c Mental Diseases, Commonwealth of Massachusetts, of Waverley, Middlesex County, with QUITCLAIM COVENANTS the land in said WALTHAM bounded and described as follows: Beginning at the Northwesterly corner of the gr ed premises at a point in the dividing line between land of the grant and land of the Roman Catholic Archbishop of Boston distant 615.60 fe Southerly from its intersection with the Southerly line of Trapelo Ro thence running South 52 deg. 10 min. 30 secs. East along other land o the grantor 264.99 feet to land formerly of the Heirs of James F. Bal win, now of the Commonwealth of Massachusetts; thence turning and run ning South 36 deg. 26 min. 40 secs. West along said land of the Commo wealth of Massachusetts 51.26 feet to a stone bound; thence running South 38 deg. 16 min. 40 secs. West along said land of the Commonweal of Massachusetts 203.22 feet to a stone bound; thence turning and run ning North 48 deg. 33 min. 50 secs. West along other land of the Comm wealth of Massachusetts 265.15 feet to a stone bound at land of the R man Catholic Archbishop of Boston; thence turning and running North 3 deg. 49 min. 30 secs. East along said land of the Roman Catholic Arch bishop of Boston 237.76 feet to the point of beginning. The above de scribed parcel contains 65,340 square feet and is shown on a "Plan of land off Trapelo Road, Waltham Massachusetts to be conveyed to the Co monwealth of Massachusetts by the City of Waltham", scale 1 in. = 80 f dated December 1929 by George C. Brehm, City Engineer, to be recorded herewith. IN WITNESS WHEREOF, the said City of Waltham has caused its

551

orporate seal to be hereto affixed and these presents to be signed in ts name and behalf by Patrick J. Duane, its Mayor, hereunto duly authorzed this 31st day of July 1931. City of Waltham by Patrick J. Duane ayor (Corporate seal) Loretto J. McCarty - Witness to signature COMONWEALTH OF MASSACHUSETTS Middlesex ss. Waltham July 31, 1931 Then ersonally appeared the above-named Patrick J. Duane and acknowledged he foregoing instrument to be the free act and deed, of the City of altham, before me Elbert L. Greene Notary Public (Notarial seal) My ommission expires Nov. 4, 1934 - Approved as to matters of form and itle Geo. B. Lourie Assistant Attorney General - - - - - - - - - - - -

Middlesex ss. Oct. 22, 1931. 4h. 36m. P.M. Rec'd & Recorded.

*END of Document

Plan of Land
off
Trapelo Road
WALTHAM, MASS.
to be conveyed to the
Commonwealth of Mass.
by the
City of Waltham

Scale 1 inch = 80 feet December 1929

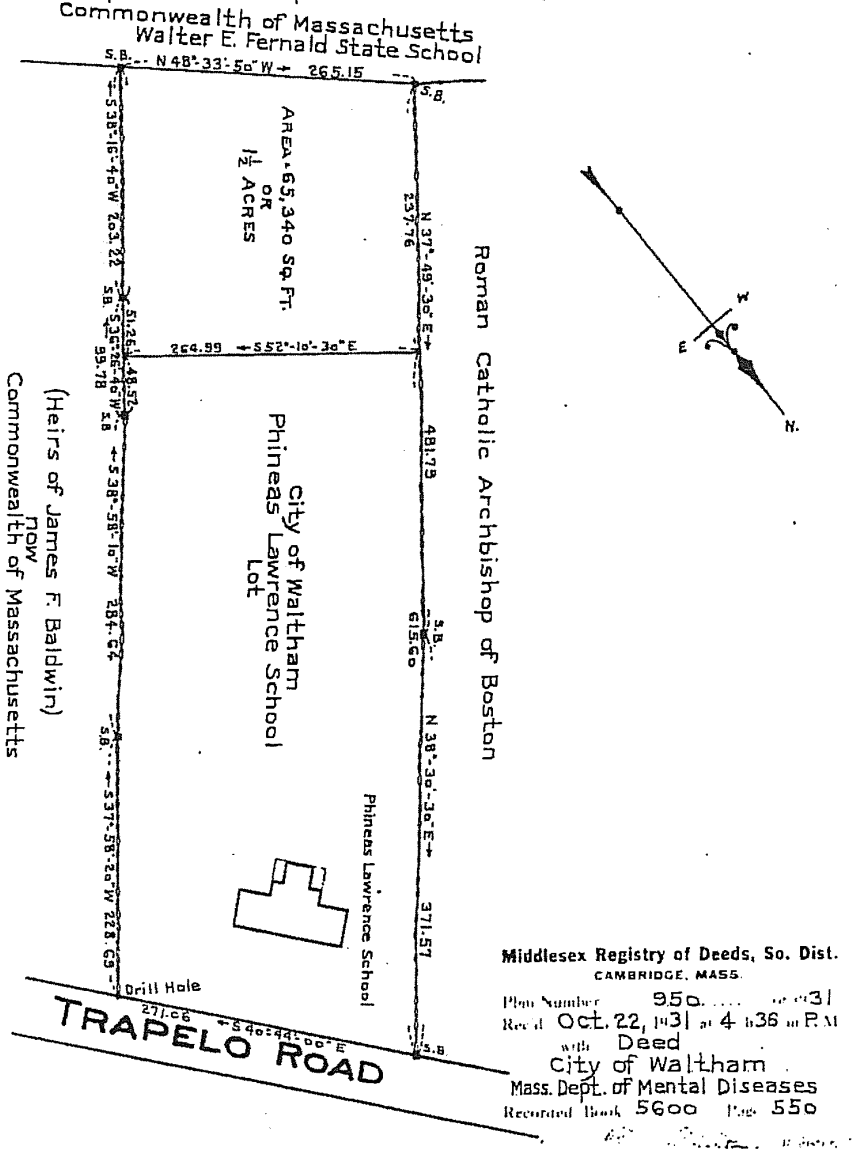
George C. Brehm City Engineer

Authorized Dec. 30, 1929 by City Council Order #11583

Superceded July 21, 1931 by City Council Order #12046

(Original on file)

(Scale of this plan: 1 inch = 100 feet)



Middlesex Registry of Deeds, So. Dist.
CAMBRIDGE, MASS.
Plan Number 950 of 1931
Recd Oct. 22, 1931 at 4 h 36 m P.M.
with Deed
City of Waltham
Mass. Dept. of Mental Diseases
Recorded Book 5600 Page 550

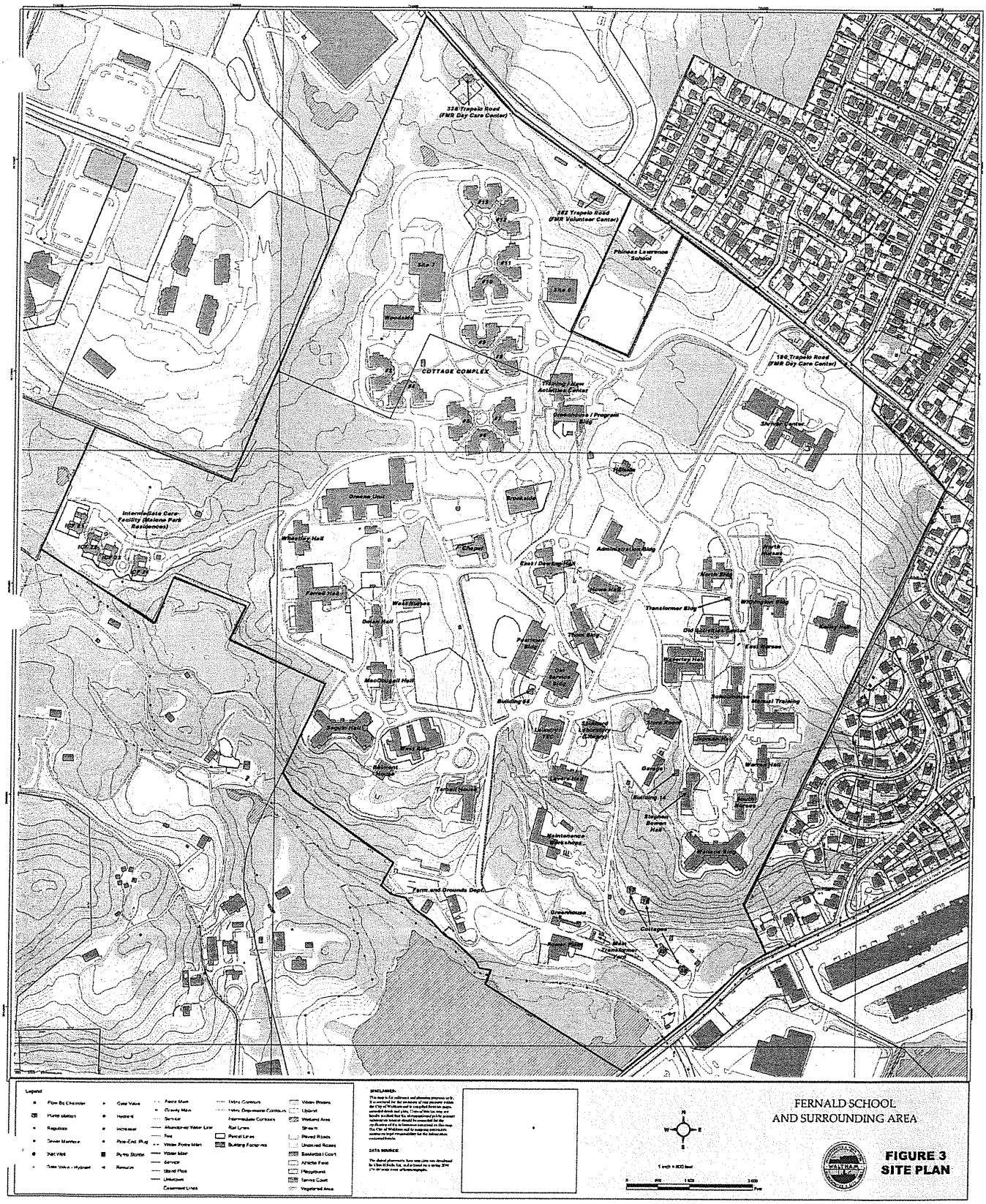

336 Trapelo Road (FMR Day Care Center)
325 Trapelo Road (FMR Volunteer Center)
Thomas Lawrence School
186 Trapelo Road (FMR Day Care Center)
COTTAGE COMPLEX
Greenhouse / Program Bldg
Intermediate Care Facility (Malone Park Residences)
Greene Unit
Wheatley Hall
Forest Hall
Dolan Hall
MacDougall Hall
Powell Hall
Pearson Bldg.
Thiret Bldg.
Transformer Bldg.
Old Administration Building
Waverley Hall
Stickney Bowen Hall
Maintenance Workshops
Farm and Grounds Dept.
Greenhouse
Cottages
Main Transformer Yard
Legend
Data Source:
FERNALD SCHOOL
AND SURROUNDING AREA
FIGURE 3
SITE PLAN

EXHIBIT F

Inspection for Asbestos Containing Materials

At the

Former Fernald School
200 Trapelo Road
Waltham, MA

Malone Park
The Cottages

HUB TESTING LABORATORY, INC.
Environmental Testing and Consulting Service
Certified Woman-owned Business Enterprise (WBE)

95 Beaver Street
Waltham, MA 02453

(781) 893-8330
FAX (781) 893-4414
www.hubtesting.net

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Waltham, MA 02453

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Report For:	City of Waltham Maintenance Division 119 School Street, 1st Floor Waltham, MA 02453
Project:	The Former Fernald School 200 Trapelo Road Waltham, MA Malone Park The Cottages
Scope:	Inspection for Asbestos Containing Materials at the Above Noted Buildings
Date:	July 22, 2016
Submitted By:	Hub Testing Laboratory 95 Beaver Street Waltham, MA 02453

Susan Boyle,
President

Table of Contents

Building Materials Survey Report
Malone Park and the Cottages
Fernald Project, Waltham, MA

Attachment B: The Cottages

Section 1, Cottage 103
- Homogeneous Materials Charts
- Asbestos PLM Sample Results

Section 2, Cottage 104
- Homogeneous Materials Charts
- Asbestos PLM Sample Results

Section 3, Cottage 105
- Homogeneous Materials Charts
- Asbestos PLM Sample Results

Section 4, Cottage 106
- Homogeneous Materials Charts
- Asbestos PLM Sample Results

Section 5, Cottage 107
- Homogeneous Materials Charts
- Asbestos PLM Sample Results

Section 6, Cottage 108
- Homogeneous Materials Charts
- Asbestos PLM Sample Results

Section 7, Cottage 109
- Homogeneous Materials Charts
- Asbestos PLM Sample Results

Section 8, Cottage 110
- Homogeneous Materials Charts
- Asbestos PLM Sample Results

Section 9, Cottage 111
- Homogeneous Materials Charts
- Asbestos PLM Sample Results

Section 10, Cottage 112
- Homogeneous Materials Charts
- Asbestos PLM Sample Results

Section 11, Cottage 113
- Homogeneous Materials Charts
- Asbestos PLM Sample Results

Section 12, Drawings

Section 13, Roof Sample reprot, Mastic Sample report, Miscellaneous Sample report

Attachment C Inspector Licenses and Certifications

Attachment D Laboratory Licenses and Certifications

1 Introduction

Hub Testing Laboratory, Inc. representatives, Mr. James Brimhall, MS. Lynne Brimhall and Ms. Susan Boyle, performed a building materials survey associated with the planned demolition of the four residential dwelling units, shed and the interior of the pump house of Malone Park as well as the eleven structures identified as 103 through 113 of the Cottages at the former Fernald School in Waltham, Massachusetts. Refer to Attachment C for a copy of the licenses and certifications of the inspectors.

During the site visit, a walk-through investigation was conducted to identify material that would be impacted by the planned demolition project and are suspect of containing asbestos. The Hub Testing Laboratory inspectors returned after the walk through investigation to conducted sampling of these suspect asbestos containing materials (ACM). The survey included interior areas and the roofs of the buildings but did not include any sub-grade materials.

Under EPA's NESHAPs regulation as well as the Commonwealth of Massachusetts Department of Environmental Protect regulation 310 CMR 7.15 facilities or facility components that will be impacted by demolition or renovation must first be inspected for asbestos containing materials.

NESHAPS indicates that "Prior to the commencement of the demolition or renovation, thoroughly inspect the effected facility, or part of the facility where the demolition or renovation operation will occur, for the presence of asbestos including category I and category II non-friable ACM." The MA DEP requires that the owner/operator of a facility "employ or engage an asbestos inspector to thoroughly inspect the facility or facility component, or those parts thereof where the demolition or renovation will occur, to identify the presence, location and quantity of any ACM or suspect ACM and to prepare a written asbestos survey report."

The Malone Park and the Cottages appear to be of a similar vintage within each other's grouping. In discussion with Mr. Don Cusano who indicated that expediency was on concern as well as the number of samples collected if the presence of asbestos in a type of material developed a pattern, then sampling of that type material was stopped and all of that type of material was assumed to be positive for the presence of asbestos. Specifically ten samples were collected randomly from six of the Cottages and found to be asbestos containing; therefore sampling of the floor tile and mastic was ceased and all flooring tile and mastic was assumed to be asbestos containing. This pattern of a positive presence of asbestos was also identified in the caulking f the wood panels below windows in room 6, 41 and 21 as well as some other areas.

The inspection project consisted of the inspection of the seventeen structures and did not include any tunnels or connection to the power plant.

The report is created to supply information by building. Attachment A is Malone Park and Attachment B is the Cottages. Each Section is specific to a building within the Attachment.

Each section of an Attachment is dedicated to a specific building and consists of two parts: the Homogeneous Materials Charts, which is the chart of all the material identified as suspect asbestos containing; and the Asbestos PLM Sample Results. One section per attachment consists

of drawings identifying locations of asbestos containing materials as well as a master drawing identifying space numbers.

2 Asbestos Inspection

A property owner must ensure that a thorough ACM inspection is performed prior to possible disturbance of suspect ACM during renovation or demolition activities. This is a requirement of the United States Environmental Protection Agency (EPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation located at Title 40 CFR, Part 61, Subpart M.

An inspection is conducted by a licensed asbestos inspector who performs a walk-through investigation to visually identify suspect ACM. Once the suspect materials are identified, samples are collected to satisfy current regulations.

A licensed and experienced asbestos inspector must identify any and all materials that are suspect of containing asbestos and sample according to regulation.

Asbestos was added to materials to enhance their thermal properties, for fire protection, to add flexibility or tensile strength and reduce impact from acidity. Therefore materials which may have been used for insulation, fire retardency, acid resistance or require flexibility, at a minimum may have had asbestos added to them. This would include materials such as wall and ceiling materials; sheetrock, joint compound, brown coat or skim coat plasters, cement or brick mortars, ceiling tiles and floor tiles, sheet flooring, adhesives for floor tiles, to hold bulletin boards to the wall, or glue daubs; other materials such as insulations or packing around insulation such as pipe or boiler insulation or rope gaskets or vibrations dampers. Other miscellaneous materials such as window caulking or glazing, roofing materials such as caulking, felts, shingles and tar may also have had asbestos as an additive. In addition, materials such as the textured underside coating on stainless steel sinks were known to be asbestos containing. Asbestos is still used and there is no total ban of its use. Specific materials and types of materials have been banned from the use of asbestos; however, materials manufactured well into the 80's and beyond can contain asbestos.

2.1 Discussion

No documentation was available as to the age of the buildings or their construction history however from the site walk through it appeared that the buildings in each of Malone Park or the Cottages were of similar age. The buildings were inspected individually however if the presence of asbestos in a particular material developed a pattern then the material was assumed to be asbestos containing to reduce further potentially un-necessary sampling.

The roofing systems in Malone Park were consistent. They consisted of a flat roof with shingled peaks. All were all inspected and cuts made through the rubber membranes. Two different types of insulation were noted below the rubber membrane; rigid foam board and fiber board, neither of which is a suspect asbestos containing material. However, other materials such as the caulking at seams and at edges and the flashing mastics are suspect materials. Samples were collected of those materials.

The roofs of the Cottages were also consistent as wood shingles with an asphalt built-up roof. Likewise these roofs were inspected however after sampling and analysis of three of the roofs all the built up roofs and the flashing mastic were assumed to be asbestos containing.

The Malone Park buildings had small package style boilers. The boiler rope gasketing was inspected and randomly sampled; some of the samples were positive for asbestos however due to the age and similarity of the boilers all the boilers are considered to be asbestos containing.

There were no boilers in the Cottages; it is assumed these structures were heated from a boiler plant and there may be underground supply lines.

Interior as well as exterior windows were inspected and where caulking was present it was sampled. Some buildings had interior windows, wire reinforced windows and/or hallways lights. Again where these were present they were inspected, the keeper strips was removed in several locations to verify the absence or presence of glazing and where present was sampled.

Interior walls within the building mainly consisted of sheetrock with some skim coat. The majority of the ceilings were suspended tiles with exposed metal roof structure above them. Floors throughout were different floor tiles with ceramic tiles in the bathrooms. The ceramic tile and grout were sampled as well as the mastic and floor tiles.

Under regulations, wood, rubber and pink & yellow fiberglass are not considered suspect asbestos containing materials. However, samples were collected of all other materials on the interior and exterior that would be impacted by the demolition project and returned to the laboratory. These samples were received within the laboratory and analyzed for asbestos. A best attempt was made to sample all layers.

Refer to the Attachments for a chart with the homogenous materials identified.

2.2 Methodology

The inspection was conducted by visually inspecting for suspect ACM and touching each of the suspect materials. Since the project consists of the demolition of the building an identification of the materials as friable or non-friable was not made as they will be required to be removed prior to demolition.

However, the inspector in the field identified materials under three groups; Surfacing material, thermal systems insulation or miscellaneous material. Under state-of-the-art methods for inspections, sampling of the different groups is conducted with varying number of samples in order to prove a material is non-asbestos containing.

1. Surfacing Materials (i.e., plasters, spray-applied fireproofings, etc.) must be collected in a randomly distributed manner representing each homogenous area based on the overall quantity represented by the sampling as follows:

a) Three (3) samples collected from each homogenous area that is less than or equal to 1,000 square feet.
b) Five (5) samples collected from each homogenous area that is greater than 1,000 square feet but less than or equal to 5,000 square feet.
c) Seven (7) samples collected from each homogenous area that is greater than 5,000 square feet.

2. Thermal System Insulation (i.e., pipe insulations, tank insulations, etc.) must be collected in a randomly distributed manner representing each homogenous area. Three (3) samples must be collected from each material. Also, a minimum of one (1) sample of any patching materials applied to TSI presuming the patched area is less than 6 linear or square feet should be collected.

3. Miscellaneous materials (i.e., floor tile, gaskets, construction mastics, etc.) should have a minimum of two (2) samples collected for each type of homogenous material. Sample collection was conducted in a manner sufficient to determine asbestos content of the homogenous material as determined by the inspector.

Refer to the Attachment G for the asbestos laboratory licenses and certifications.

2.3 Results

The US EPA defines any material that contains greater than one percent (>1%) asbestos, utilizing PLM, as being an ACM. The Commonwealth of Massachusetts Department of Environmental Protection (DEP) definition of an asbestos containing material is a material that contains equal to or greater than one percent (1%) asbestos however, the MA DEP also considers any material that contains asbestos to fall under their jurisdiction.

Samples were analyzed using EPA 600 R-93/116, 1993.

Malone Park
Building 21, 22, 23, 24, shed, pump house, little structures in front of each building

The four main building of Malone Park (buildings 21, 22, 23 and 24) are single story buildings with minimal attic space and no basements. Interior walls are sheetrock, heating system is baseboard and is supplied through a small boiler room accessed from the exterior of the building near the front doors. The boilers are small package style boilers which have deteriorated with age and appear to have been periodically repaired/altered. The rope gasketing in the boilers was sampled and found to be inconsistently asbestos containing. For that reason the package style boilers should be considered to be asbestos containing and handled as such.

In addition a shed and pump house are located in the Malone Park area; access was available to the shed however the pump house was not accessed and sampling was conducted of the roof only. No sampled collected form the shed or pump house were found to be asbestos containing.

A small structure was located in front of each of the main buildings of Malone Park. These were small storage or mailbox like structures made of wood with shingle rooming. A sample of the shingle roofing was collected and no asbestos was detected in the four small structures.

The flooring in the buildings is consistent in that the main entrances have 6" red ceramic black flooring and the bathrooms have ceramic tile flooring. The laundry inconsistently has ceramic tile or 12"x12"vyinle floor tile. The mastic associated with all the 12"x12" vinyl floor tile is asbestos containing. Therefore the tile and mastic must both be handled as an asbestos containing or asbestos contaminated material.

The roof has both flat sections as well as peaked. The peaked roof is shingled and the flat roof is a rubber membrane. The roofing including underlayment and sealants were sampled an no asbestos was detected however the flashing mastic noted around the windows in the peaked sections of the roof were sampled and identified as asbestos containing materials.

Asbestos Containing Materials	Locations
Vinyl floor tile and associated mastic	Throughout except for bathrooms and entrance, mechanical room, boiler room and in some buildings laundry
Flashing mastic	Associated with the windows in the peaked roofs
Boiler rope gasket	Gasket material associated with the package style boilers.

This project did not include investigation of any underground materials

Cottages
Building 103 through 113

The eleven cottages on Cottage Street, buildings 103 through 113 are single story "U" shaped residential units. The roofs are similar to mansard style roofs with wooden shingle on the sides and a built up roof on top. The roofs have both HVAC and vent penetrations with flashing mastic. The built up roofs and flashing mastics are asbestos containing.

The structures have pre-fabricated windows throughout. The windows in the main dining area (21) and the two center rear rooms (6, 41) are set above a wooden three panel façade. The caulking used on the wooden three panel façade is asbestos containing.

The interior of the cottages area mostly the same. The 12"x12" floor tile although different colors and patterns is adhered to the floor using asbestos containing mastic and therefore all vinyl floor tile is considered contaminated with asbestos containing mastic. The bathrooms in the cottages as well as the slop sink room have ceramic tile on floors and some walls. The adhesive used to adhere the ceramic tiles is also asbestos containing. The floors of the bathrooms in the bedroom area (#9, 12, 37 and 36) were installed over the old black floor tile mastic there for the adhesive as well as the black mastic is present in these rooms.

Wire re-enforced windows were used in some nursing stations as well as in doors. The glazing associated with the wire re-enforced windows is asbestos containing. See attached drawing for locations.

The mechanical rooms of the cottages were void of boilers. Some rooms had large water heater units. There were some gaskets noted in the large diameter pipe flanges in the mechanical room which were visually identified as asbestos containing.

Asbestos Containing Materials	Locations
Vinyl floor tile and associated mastic	Throughout except for spaces with ceramic tile (9, 12, 4, 43, 36, 37, 15, 32, 51, 52) or cement slab floors (22, 23, 24, 29, 30, 20, 18) Note: mastic exists below the thin set in bathrooms 9, 12, 36, and 37.
Ceramic tile adhesive	Below ceramic tile on floors and sporadically walls (9, 12, 4, 43, 36, 37, 15, 32, 51, 52, 51A, 52A)
Wire re-enforced window glazing on windows and doors	Rooms 21, 22, 25, 26, 1, 27, 48, 19, 16, 28, 47, 49, 17, 31, 33, 14, 46 and 50
Built-up roof and Flashing mastic	Roof
Caulking associated with the wooden panels under the windows	Rooms 21, 6 and 41
Gaskets on large diameter pipe flanges	Mechanical room (29)

This project did not include investigation of any underground materials

2.4 Conclusion

Prior to disturbance, materials determined to contain asbestos that will be impacted by any proposed renovation and selective demolition work must be abated. All asbestos abatement activities must be performed by Massachusetts licensed asbestos abatement contractors having submitted the appropriate notification to the regulatory agencies. At the completion of abatement activities, a final clearance inspection and air sampling must be performed by a

licensed asbestos abatement Project Monitor who is an independent third party. This is a requirement of the Commonwealth of Massachusetts DLS & DEP as well as under the US EPA NESHAP standard for asbestos abatement.

Any suspect material encountered during renovation/demolition that is not identified in this report, as being non-ACM should be assumed to be ACM unless sample results prove otherwise.

This report is not intended to be utilized as a bidding document or as a project specification document. The report is designed to aid the building owner, architect, construction manager, general contractors, and asbestos abatement contractors in locating ACM. Quantities and locations of identified ACMs should be confirmed and observed by the abatement contractors during the bidding process.

All asbestos abatement plans or specifications should be designed by qualified, licensed and accredited asbestos abatement designers.

Attachment A: Malone Park

Section 1, Building 21

- Homogeneous Materials Charts
- Asbestos PLM Sample Results

HA Description	Sample ID - 26234	Sample Location	Location of HA	Quantity	Asbestos Yes/No
1" Ceramic floor tile grout	1	Room 6	Rooms 6 & 7		No
	2	Room 7			
1" Ceramic floor tile thinset/adhesive	3	Room 6	Rooms 6 & 7		No
	4	Room 7			
4" Ceramic wall tile grout	5	Room 6	Rooms 6 & 7		No
	6	Room 7			
4" Ceramic wall tile thinset/adhesive	7	Room 6	Rooms 6 & 7		No
	8	Room 7			
6" Red ceramic floor tile grout	9	Room 19	Room 19		No
	10	Room 19			
6" Red ceramic floor tile thinset/adhesive	11	Room 19	Room 19		No
	12	Room 19			
12"x12" White w/black flecks floor tile	13	Room 15	Rooms 14,15, 17, 18, 20, 5, Hallways, Slop sink (23) Also under 12" beige floor tile in rooms 1-4 and 9-11		No
	14	Room 8			
	29	Room 11-2nd layer			
Mastic associated w/12"x12" White w/black flecks floor tile	15	Room 15	Rooms 14, 15, 17, 18, 20, 5, Hallways, Slop sink (23) Also under 12" beige floor tile in rooms 1-4 and 9-11		Yes
	16	Room 8			
	30	Room 11-2nd layer			
12"x12" Gray white checkerboard pattern floor tile	17	Room 16	Room 16 w/ 12" beige floor tile		No
	18	Room 16			
Mastic associated w/12"x12" Gray white checkerboard pattern floor tile	19	Room 16	Room 16 w/ 12" beige floor tile		Yes
	20	Room 16			
12" Beige w/brown flecks floor tile	21	Room 1	Room 16 w/12" gray floor tile; Rooms 1-4 and 9-11		No
	22	Room 11			
Mastic associated w/12" Beige w/brown flecks floor tile	23	Room 1	Room 16 w/12" gray floor tile; Rooms 1-4 and 9-11		No
	24	Room 11			
4" Black cove base mastic	25	Room 9-Gray	Gray mastic in room 1-4 and 9-11; Remainder is beige		No
	26	Room 2-Gray			
	27	Room 15-Beige			
	28	Room 12-Beige			
Sheetrock	31	Room 15-Ceiling	Ceilings and walls throughout. Exterior walls have 2 layers		No
	32	Room 5-Ceiling			
	33	Room 21-Wall			
	34	Room 2-Wall			
	35	Room 14-Exterior 2nd layer			
Joint compound	36	Room 21-Wall			No
	37	Room 15-Ceiling			
	38	Room 2-Wall			

HA Description	Sample ID - 26234	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Peaked textured coating	39	Room 5-Center	Room 5		No
	40	Room 5-Rear			
	41	Room 5-Front			
Door and window caulking	42	Room 16/15-Door	Exterior		No
	43	Room 1-Window			
Fiberboard	44	Room 21	Room 21-Piece on ground	4 SF	No
	45	Room 21			
Rope gasketing	46	Room 21	Boiler Room 21		No
	47	Room 21			
The boilers in the four buildings of Malone Park are similar style small package style boilers. The boilers are degraded and appear to have been periodically repaired. Some rope gasket material appears to be newer. Sample of rope gasket form building 24 were positive for the presence of asbestos, therefore the rope gasket on the boilers in all four buildings of Malone Park should all be considered asbestos containing.					
Hard packing	48	Room 21	Boiler Room 21	≈60 SF Boiler room	No
	49	Room 21			
Hard packed fitting	50	Valve 4	Room 21-CW valve 4 and CW valve 6	2	No
	51	Valve 6			
End coating on fiberglass lines	52	Above room 6 and 7			No
	53	Boiler room 21			
Skim coat	54	Hallway 12 by Room 6	Hallway 12 by Room 6		No
	55	Hallway 12 by Room 19	Hallway 12 by Room 19		
	56	Hallway 12 by Room 16	Hallway 12 by Room 16		
	57	Hallway 8 by Room 4	Hallway 8 by Room 4		
	58	Hallway 8 by Room 9	Hallway 8 by Room 9		
Boiler caulking	59	Room 21	Room 21		No
Glazing			Either rubber strips or pre-fabricated (silicone)		Not suspect
Glass block glazing			Rooms 6 and 7-Interior		Not suspect
Roof shingles (black, gray, red)	L12	Top layer	On peaked roofs		N
	S12	Top layer			
	S12A	Top layer			
Felt paper	L 17	Roof	Below shingles		N
	S17	Roof			
	S 17A	Roof			
Sealant	L1	Roof @entry	Used on flat roof and some location to shingled edges		N
	S1	Roof @entry			
	S1A	Roof @entry			
Flashing mastic	L5		At windows in roof		Y
Shingles	L8	Roof of storage shed	Roof of little storage shed in front of building		N

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510421 - PLM
Project:
Project No.: 26234

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937151
Client No.: 1
Description: Red Grout
Facility:
Location: Rm 6

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5937152
Client No.: 2
Description: Red Grout
Facility:
Location: Rm 7

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5937153
Client No.: 3
Description: Grey Cementitious
Facility:
Location: Rm 6

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5937154
Client No.: 4
Description: Grey Cementitious
Facility:
Location: Rm 7

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5937155
Client No.: 5
Description: White Grout
Facility:
Location: Rm 6

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5937156
Client No.: 6
Description: White Grout
Facility:
Location: Rm 7

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/26/2016 12:00:00 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510421 - PLM
Project:
Project No.: 26234

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937157 **Client No.:** 7	**Description:** Tan Mastic **Facility:**	**Location:** Rm 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937158 **Client No.:** 8	**Description:** Tan Mastic **Facility:**	**Location:** Rm 7
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937159 **Client No.:** 9	**Description:** Grey Grout **Facility:**	**Location:** Rm 19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937160 **Client No.:** 10	**Description:** Grey Grout **Facility:**	**Location:** Rm 19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937161 **Client No.:** 11	**Description:** Grey Cementitious **Facility:**	**Location:** Rm 19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937162 **Client No.:** 12	**Description:** Grey Cementitious **Facility:**	**Location:** Rm 19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/26/2016 12:00:00 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510421 - PLM
Project:
Project No.: 26234

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937163 **Client No.:** 13	**Description:** White Floor Tile; 12x12 **Facility:**	**Location:** Rm 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937164 **Client No.:** 14	**Description:** White Floor Tile; 12x12 **Facility:**	**Location:** Rm 8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937165 **Client No.:** 29	**Description:** White Floor Tile; 12x12 **Facility:**	**Location:** 2nd Layer Rm 11
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937166 **Client No.:** 15	**Description:** Black Mastic **Facility:**	**Location:** Rm 15
Percent Asbestos: *4 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 96
Quantitation by Calibrated Visual Area Estimation only. Per client Request.		
Lab No.: 5937167 **Client No.:** 16	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 8
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5937168 **Client No.:** 30	**Description:** Sample Not Analyzed **Facility:**	**Location:** 2nd Layer Rm 11
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/26/2016 12:00:00 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510421 - PLM
Project:
Project No.: 26234

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937169 **Client No.:** 17	**Description:** Grey Floor Tile; 12x12 **Facility:**	**Location:** Rm 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937170 **Client No.:** 18	**Description:** Grey Floor Tile; 12" **Facility:**	**Location:** Rm 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937171 **Client No.:** 19	**Description:** Black Mastic **Facility:**	**Location:** Rm 16
Percent Asbestos: *3 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 97
Quantitation by Calibrated Visual Area Estimation only. Per client Request.		
Lab No.: 5937172 **Client No.:** 20	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 16
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5937173 **Client No.:** 21	**Description:** Off-White Floor Tile; 12" **Facility:**	**Location:** Rm 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937174 **Client No.:** 22	**Description:** Off-White Floor Tile; 12" **Facility:**	**Location:** Rm 11
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/26/2016 12:00:00 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510421 - PLM
Project:
Project No.: 26234

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937175 **Client No.:** 23	**Description:** Tan Mastic **Facility:**	**Location:** Rm 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937176 **Client No.:** 24	**Description:** Tan Mastic **Facility:**	**Location:** Rm 11
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937177 **Client No.:** 25	**Description:** Grey Mastic **Facility:**	**Location:** Rm 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937178 **Client No.:** 26	**Description:** Grey Mastic **Facility:**	**Location:** Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937179 **Client No.:** 27	**Description:** Tan Mastic **Facility:**	**Location:** Rm 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937180 **Client No.:** 28	**Description:** Tan Mastic **Facility:**	**Location:** Rm 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/26/2016 12:00:00 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510421 - PLM
Project:
Project No.: 26234

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937181 **Client No.:** 31	**Description:** White Sheetrock **Facility:**	**Location:** Ceiling Rm 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937182 **Client No.:** 32	**Description:** White Sheetrock **Facility:**	**Location:** Ceiling Rm 5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937183 **Client No.:** 33	**Description:** White Sheetrock **Facility:**	**Location:** Wall Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937184 **Client No.:** 34	**Description:** White Sheetrock **Facility:**	**Location:** Wall Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937185 **Client No.:** 35	**Description:** White Sheetrock **Facility:**	**Location:** 2nd Layer Rm 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937186 **Client No.:** 36	**Description:** White Joint Compound **Facility:**	**Location:** Rm 21 Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/26/2016 12:00:00 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510421 - PLM
Project:
Project No.: 26234

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937187 **Client No.:** 37	**Description:** White Joint Compound **Facility:**	**Location:** Rm 15 Ceiling
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937188 **Client No.:** 38	**Description:** White Joint Compound **Facility:**	**Location:** Rm 2 Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937189 **Client No.:** 39	**Description:** White Texture **Facility:**	**Location:** Rm 5 Center
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937190 **Client No.:** 40	**Description:** White Texture **Facility:**	**Location:** Rm 5 Rear
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937191 **Client No.:** 41	**Description:** White Texture **Facility:**	**Location:** Rm 5 Front
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937192 **Client No.:** 42	**Description:** Grey Caulk **Facility:**	**Location:** Door Rm 16/15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/26/2016 12:00:00 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510421 - PLM
Project:
Project No.: 26234

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937193 **Client No.:** 43	**Description:** Grey Caulk **Facility:**	**Location:** Window Rm1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937194 **Client No.:** 44	**Description:** Brown Fibrous **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Fibrous Glass	Percent Non-Fibrous Material: 60
Lab No.: 5937195 **Client No.:** 45	**Description:** Tan Fibrous **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 65 Fibrous Glass	Percent Non-Fibrous Material: 35
Lab No.: 5937196 **Client No.:** 46	**Description:** White Gasket **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 98 Fibrous Glass	Percent Non-Fibrous Material: 2
Lab No.: 5937197 **Client No.:** 47	**Description:** White Gasket **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 98 Fibrous Glass	Percent Non-Fibrous Material: 2
Lab No.: 5937198 **Client No.:** 48	**Description:** Black Non-Fibrous **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Fibrous Glass	Percent Non-Fibrous Material: 98

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/26/2016 12:00:00 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510421 - PLM
Project:
Project No.: 26234

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937199 **Client No.:** 49	**Description:** Black Non-Fibrous **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Fibrous Glass	Percent Non-Fibrous Material: 98
Lab No.: 5937200 **Client No.:** 50	**Description:** Tan Insulation **Facility:**	**Location:** Valve 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Fibrous Glass	Percent Non-Fibrous Material: 70
Lab No.: 5937201 **Client No.:** 51	**Description:** Tan Insulation **Facility:**	**Location:** Valve 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Fibrous Glass	Percent Non-Fibrous Material: 70
Lab No.: 5937202 **Client No.:** 52	**Description:** White Non-Fibrous **Facility:**	**Location:** Above Rm 6 & 7
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937203 **Client No.:** 53	**Description:** White Non-Fibrous **Facility:**	**Location:** Boiler Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/26/2016 12:00:00 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510421 - PLM
Project:
Project No.: 26234

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510421 - PLM
Project:
Project No.: 26234

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/7/2016
Report No.: 511071 - PLM
Project:
Project No.: 26234

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5944038 **Client No.:** 54	**Description:** White Plaster **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944039 **Client No.:** 55	**Description:** White Plaster **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944040 **Client No.:** 56	**Description:** White Plaster **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944041 **Client No.:** 57	**Description:** White Plaster **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944042 **Client No.:** 58	**Description:** White Plaster **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944043 **Client No.:** 59	**Description:** Grey Caulk **Facility:**	**Location:** Boiler, Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/2/2016
Date Analyzed: 6/7/2016 9:19:58 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/7/2016 2:58:07 PM

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/7/2016
Report No.: 511071 - PLM
Project:
Project No.: 26234

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/7/2016
Report No.: 511071 - PLM
Project:
Project No.: 26234

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately I Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment A: Malone Park

Section 2, Building 22

- Homogeneous Materials Charts
- Asbestos PLM Sample Results

HA Description	Sample ID - 26235	Sample Location	Location of HA	Quantity	Asbestos Yes/No
2" Ceramic blue floor tile grout	1	Room 22	Rooms 22 and 23		No
	2	Room 23			
2" Ceramic blue floor tile thinset/adhesive	3	Room 22	Rooms 22 and 23		No
	4	Room 23			
4" Ceramic white wall tile grout	5	Room 22	Rooms 22 and 23		No
	6	Room 23			
4" Ceramic white wall tile thinset/adhesive	7	Room 22	Rooms 22 and 23		No
	8	Room 23			
6" Red ceramic floor tile grout	9	Room 13	Room 13		No
	10	Room 13			
6" Red ceramic floor tile adhesive	11	Room 13	Room 13		No
	12	Room 13			
12"x12" White w/ black flecks floor tile	13	Room 7	Everywhere except bathrooms, entry and kitchen		No
	14	Room 2			
Mastic associated w/12"x12" White w/black flecks floor tile	15	Room 7	Everywhere except bathrooms, entry and kitchen		Yes
	16	Room 2			
12"x12" Blue/white checkerboard floor tile	17	Room 16	Kitchen area		No
	18	Room 16			
Mastic associated w/12"x12" Blue/white checkerboard floor tile	19	Room 16	Kitchen area		Yes
	20	Room 16			
4" Blue cove base mastic	21	Room 16-Kitchen	Room 16-Kitchen area		No
	22	Room 16-Kitchen	Room 16-Kitchen area		
2" Black cove base mastic	23	Room 6	Inside rooms 10, 11, 12, 13, 14, 1-8		No
	24	Room 1			
6" Black cove base mastic	25	At hall 9 and 17	Hallways 9, 17; Room 15		No
	26	Outside Room 15			
Sheetrock	27	Room 16-Ceiling	Walls and ceilings throughout; lower ½ of wall in hallways has vinyl over skim over sheetrock		No
	28	Room 3-Wall			
	29	Room 10-Wall			
Joint compound	30	Room 16-Ceiling	Walls and ceilings throughout; lower ½ of wall in hallways has vinyl over skim over sheetrock		No
	31	Room 3-Wall			
	32	Room 10-Wall			
Skim coat	35	Room 22	Lower ½ of wall in hallways; Full walls in Rooms 16,21 and 22		No
	36	Room 16			
	37	Room 9 by Room 7			
	38	Room 9 by Room 3			
	39	Room 9 by Room 1			
	40	Rooms 17 and 9-Corner			
	41	Room 17			
Door and window caulking	33	Door by Room 21	Exterior		No
	34	Room 1-Window			

HA Description	Sample ID - 26235	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Fiberboard	42	Room 21	Room 21-Pieces on ground	≈8 SF	No
	43	Room 21			
Rope gasketing	44	Boiler			Yes
	45	Boiler			
The boilers in the four buildings of Malone Park are similar style small package style boilers. The boilers are degraded and appear to have been periodically repaired. Some rope gasket material appears to be newer. Sample of rope gasket form building 24 were positive for the presence of asbestos, therefore the rope gasket on the boilers in all four buildings of Malone Park should all be considered asbestos containing.					
End coating	46	Room 10	On fiberglass lines		No
	47	Above Room 21			
Hard packed fitting	48	CW Value 1	Room 10		No
Glazing			Either rubber stripe or pre-fabricated w/silicone		Not suspect
Glass block glazing		Rooms 6 and 7	Silicone		Not suspect
Sealant	2	Roof at entry	Used on flat roof and some location to shingled edges		No
	S2A	Roof at entry			
Flashing mastic	6		At windows in roof		Yes
	Flashing mastic was found to be asbestos containing; therefore additional samples per building were not analyzed.				
Roof shingles (black, gray, red)	13	Top layer	On peaked roofs		No
	S13A	Roof			
Felt paper	18	Roof	Below shingles		No
	S18A	Roof			
Shingles	9	Roof	Roof of little storage shed in front of building		No

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510422 - PLM
Project:
Project No.: 26235

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937204 **Client No.:** 1	**Description:** Grey Grout **Facility:**	**Location:** Rm 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937205 **Client No.:** 2	**Description:** Grey Grout **Facility:**	**Location:** Rm 23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937206 **Client No.:** 3	**Description:** Lt Grey Mortar **Facility:**	**Location:** Rm 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937207 **Client No.:** 4	**Description:** Lt Grey Mortar **Facility:**	**Location:** Rm 23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937208 **Client No.:** 5	**Description:** White Grout **Facility:**	**Location:** Rm 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937209 **Client No.:** 6	**Description:** White Grout **Facility:**	**Location:** Rm 23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/26/2016 9:41:47 AM
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/6/2016 3:03:17 PM

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937210 **Client No.:** 7	**Description:** Tan Mastic **Facility:**	**Location:** Rm 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937211 **Client No.:** 8	**Description:** Tan Mastic **Facility:**	**Location:** Rm 23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937212 **Client No.:** 9	**Description:** Brown Grout **Facility:**	**Location:** Rm 13
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937213 **Client No.:** 10	**Description:** Brown Grout **Facility:**	**Location:** Rm 13
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937214 **Client No.:** 11	**Description:** Grey Mortar **Facility:**	**Location:** Rm 13
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937215 **Client No.:** 12	**Description:** Grey Mortar **Facility:**	**Location:** Rm 13
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Client: HUB949

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Project No.: 26235

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937216 **Client No.:** 13	**Description:** White Floor Tile; 12x12 **Facility:**	**Location:** Rm 7
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937217 **Client No.:** 14	**Description:** White Floor Tile; 12x12 **Facility:**	**Location:** Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937218 **Client No.:** 15	**Description:** Black Mastic **Facility:**	**Location:** Rm7
Percent Asbestos: ***10** Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 90
Lab No.: 5937219 **Client No.:** 16	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 2
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5937220 **Client No.:** 17	**Description:** Lt Blue Floor Tile; 12x12 **Facility:**	**Location:** Rm 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937221 **Client No.:** 18	**Description:** Lt Blue Floor Tile; 12x12 **Facility:**	**Location:** Rm 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Laboratory Director

Dated : 6/6/2016 3:03:17 PM

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Client: HUB949

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Project:
Project No.: 26235

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937222 **Client No.:** 19	**Description:** Black Mastic **Facility:**	**Location:** Rm 16
Percent Asbestos: *10 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 90
Lab No.: 5937223 **Client No.:** 20	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 16
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5937224 **Client No.:** 21	**Description:** Tan Mastic **Facility:**	**Location:** Kitchen 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937225 **Client No.:** 22	**Description:** Tan Mastic **Facility:**	**Location:** Kitchen 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937226 **Client No.:** 23	**Description:** Black Cove Base **Facility:**	**Location:** Rm 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937227 **Client No.:** 24	**Description:** Black Cove Base **Facility:**	**Location:** Rm 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937228 **Client No.:** 25	**Description:** Tan Mastic **Facility:**	**Location:** At Hall 9 & 17
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937229 **Client No.:** 26	**Description:** Tan Mastic **Facility:**	**Location:** Outside 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937230 **Client No.:** 27	**Description:** White Sheetrock **Facility:**	**Location:** Ceiling Rm 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 5 Fibrous Glass	Percent Non-Fibrous Material: 90
Lab No.: 5937231 **Client No.:** 28	**Description:** White Sheetrock **Facility:**	**Location:** Wall Rm 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 5 Fibrous Glass	Percent Non-Fibrous Material: 90
Lab No.: 5937232 **Client No.:** 29	**Description:** White Sheetrock **Facility:**	**Location:** Wall Rm 10
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 5 Fibrous Glass	Percent Non-Fibrous Material: 90
Lab No.: 5937233 **Client No.:** 30	**Description:** White Joint Compound **Facility:**	**Location:** Ceiling Rm 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937234 **Client No.:** 31	**Description:** White Joint Compound **Facility:**	**Location:** Wall Rm 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937235 **Client No.:** 32	**Description:** White Joint Compound **Facility:**	**Location:** Wall Rm 10
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937236 **Client No.:** 35	**Description:** White Joint Compound **Facility:**	**Location:** Rm 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937237 **Client No.:** 36	**Description:** White Joint Compound **Facility:**	**Location:** Rm 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937238 **Client No.:** 37	**Description:** White Joint Compound **Facility:**	**Location:** Rm 9 By Rm 7
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937239 **Client No.:** 38	**Description:** White Joint Compound **Facility:**	**Location:** Rm 9 By Rm 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937240 **Client No.:** 39	**Description:** White Joint Compound **Facility:**	**Location:** Rm 9 By Rm 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937241 **Client No.:** 40	**Description:** White Joint Compound **Facility:**	**Location:** Rm 17 & 9 Corner
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937242 **Client No.:** 41	**Description:** White Joint Compound **Facility:**	**Location:** Rm 17
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937243 **Client No.:** 33	**Description:** White Caulk **Facility:**	**Location:** Door By 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937244 **Client No.:** 34	**Description:** White Caulk **Facility:**	**Location:** Window
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937245 **Client No.:** 42	**Description:** Grey Fibrous **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass	Percent Non-Fibrous Material: 10

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Project No.: 26235

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937246 **Client No.:** 43	**Description:** Grey Fibrous **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass	Percent Non-Fibrous Material: 10
Lab No.: 5937247 **Client No.:** 44	**Description:** Black/White Gasket **Facility:**	**Location:** Boiler
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass	Percent Non-Fibrous Material: 10
Lab No.: 5937248 **Client No.:** 45	**Description:** Black/White Gasket **Facility:**	**Location:** Boiler
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass	Percent Non-Fibrous Material: 10
Lab No.: 5937249 **Client No.:** 46	**Description:** White Non-Fibrous **Facility:**	**Location:** BR 10
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Synthetic	Percent Non-Fibrous Material: 100
Lab No.: 5937250 **Client No.:** 47	**Description:** White Non-Fibrous **Facility:**	**Location:** Above 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Synthetic	Percent Non-Fibrous Material: 100
Lab No.: 5937251 **Client No.:** 48	**Description:** White Insulation **Facility:**	**Location:** CW Valve 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Fibrous Glass 10 Cellulose	Percent Non-Fibrous Material: 70

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/26/2016 9:41:47 AM
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank Ehrenfeld
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510422 - PLM
Project:
Project No.: 26235

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment A: Malone Park

Section 3, Building 23

- Homogeneous Materials Charts
- Asbestos PLM Sample Results

HA Description	Sample ID - 26236	Sample Location	Location of HA	Quantity	Asbestos Yes/No
2" Ceramic floor tile grout, beige	1	Room 20	Rooms 6, 7 and 20		No
	2	Room 7			
2" Ceramic floor tile thin set/adhesive, beige	3	Room 20	Rooms 6, 7 and 20		No
	4	Room 7			
4" Ceramic white wall tile grout	5	Room 6	Rooms 6 and 7		No
	6	Room 7			
4" Ceramic white wall tile thin set/adhesive	7	Room 6	Rooms 6 and 7		No
	8	Room 7			
6" Red ceramic floor tile grout	9	Room 19	Room 19		No
	10	Room 19			
6" Red ceramic floor tile adhesive	11	Room 19	Room 19		No
	12	Room 19			
12"x12" White w/ black flecks floor tile	13	Room 9	Everywhere except bathrooms, entry and kitchen		Trace
	14	Room 12			
Mastic associated w/12"x12" White w/black flecks floor tile	15	Room 9	Everywhere except bathrooms, entry and kitchen		Yes
	16	Room 12			
12"x12" Gray/white floor tile checkerboard with 12"x12" Beige floor tile	17	Room 16	Room 16		No
12"x12" Beige floor tile checkerboard with 12"x12" Gray/white floor tile	18	Room 16	Room 16		No
Mastic associated w/12"x12" Gray/white checkerboard with Beige floor tile	19	Room 16	Room 16		Yes
	20	Room 16			
4" Gray cove base mastic	21	Room 14	Room 14 and 15		No
	22	Room 15			
Faux wood floor linoleum backing	23	Room 1	Room 1 over 12"x12" white with black floor tile		No
	24	Room 1			
2" Black cove base mastic	25	Room 21	Rooms 11 and 21		No
	26	Room 11			
Sheetrock	27	Room 12- Wall	Walls and ceilings throughout; lower ½ of wall in hallways has vinyl over skim over sheetrock		No
	28	Room 5- Ceiling			
	29	Room 15- Wall, interior			
	30	Room 15- Wall, exterior			
Joint compound	31	Room 5-Ceiling	Walls and ceilings throughout; lower ½ of wall in hallways has vinyl over skim over sheetrock		No
	32	Room 11			
	33	Room 21			

HA Description	Sample ID - 26236	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Skim coat under the vinyl	34	Room 16	Lower ½ of wall in hallways; Full walls in Rooms 16 and 5		No
	35	Room 5			
	36	Room 12 by Room 17			
	37	Room 12 by Room 6			
	38	Room 12 by Room 11			
	39	Rooms 8 by 3			
	40	Room 8 by 9			
Hard packed fitting	43	Fitting	CW Value 1, Boiler Rm 21		No
Glass block glazing		Rooms 6 and 7	Silicone		Not suspect
Exterior window and door frame caulking	41	Door, front	Doors and windows		No
	42	Window, rear			
Window glazing			Either rubber stripe or pre-fabricated w/silicone		Not suspect
End coating	44	Room 21	On fiberglass lines		No
	45	Room 21			
Rope gasketing	46, 47	Boiler	Room 21		Yes
The boilers in the four buildings of Malone Park are similar style small package style boilers. The boilers are degraded and appear to have been periodically repaired. Some rope gasket material appears to be newer. Sample of rope gasket form building 24 were positive for the presence of asbestos, therefore the rope gasket on the boilers in all four buildings of Malone Park should all be considered asbestos containing.					
Boiler caulking	47	Boiler	Room 21		No
Sealant	3	Roof at entry	Used on flat roof and some location to shingled edges		No
	S3A	Roof at entry			
Flashing mastic	L7		At windows in roof		Yes
	Flashing mastic was found to be asbestos containing; therefore additional samples per building were not analyzed.				
Roof shingles (black, gray, red)	14	Top layer	On peaked roofs		No
	S14A	Top layer			
Felt paper	19	Roof	Below shingles		No
	S19A	Roof			
Shingles	L10	Roof	Roof of little storage shed in front of building		No

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CERTIFICATE OF ANALYSIS

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510420 - PLM
Project:
Project No.: 26236

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937106
Client No.: 1
Description: Tan Grout
Facility:
Location: Rm 20

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5937107
Client No.: 2
Description: Tan Grout
Facility:
Location: Rm 7

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5937108
Client No.: 3
Description: Tan Grout
Facility:
Location: Rm 20

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5937109
Client No.: 4
Description: Off-White Grout
Facility:
Location: Rm 7

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5937110
Client No.: 5
Description: Off-White Grout
Facility:
Location: Rm 6

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5937111
Client No.: 6
Description: Off-White Grout
Facility:
Location: Rm 7

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/25/2016 12:30:56 PM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/13/2016 10:08:19 AM

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510420 - PLM
Project:
Project No.: 26236

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937112 **Client No.:** 7	**Description:** Off-White Mastic **Facility:**	**Location:** Rm 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937113 **Client No.:** 8	**Description:** Off-White Mastic **Facility:**	**Location:** Rm 7
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937114 **Client No.:** 9	**Description:** Brown Grout **Facility:**	**Location:** Rm 19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937115 **Client No.:** 10	**Description:** Brown Grout **Facility:**	**Location:** Rm 19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937116 **Client No.:** 11	**Description:** Olive Cementitious **Facility:**	**Location:** Rm 19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937117 **Client No.:** 12	**Description:** Olive Cementitious **Facility:**	**Location:** Rm 19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/25/2016 12:30:56 PM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510420 - PLM
Project:
Project No.: 26236

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937118 **Description:** Off-White Floor Tile; 12x12 **Location:** Rm 9
Client No.: 13 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
Trace Chrysotile	None Detected	100

Quantitation by Calibrated Visual Area Estimation only. Per client Request.

Lab No.: 5937119 **Description:** Off-White Floor Tile; 12x12 **Location:** Rm 12
Client No.: 14 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
Trace Chrysotile	None Detected	100

Quantitation by Calibrated Visual Area Estimation only. Per client Request.

Lab No.: 5937120 **Description:** Black Mastic **Location:** Rm 9
Client No.: 15 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
1 Chrysotile	None Detected	99

Quantitation by Calibrated Visual Area Estimation only. Per client Request.

Lab No.: 5937121 **Description:** Black Mastic **Location:** Rm 12
Client No.: 16 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
1 Chrysotile	None Detected	99

Quantitation by Calibrated Visual Area Estimation only. Per client Request.

Lab No.: 5937122 **Description:** Lt Grey Floor Tile; 12x12 **Location:** Rm 16
Client No.: 17 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 5937123 **Description:** Black/Tan Mastic **Location:** Rm 16
Client No.: 19 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
1 Chrysotile	None Detected	98.8

Quantitation by Calibrated Visual Area Estimation only. Per client Request.

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/25/2016 12:30:56 PM
Signature:
Analyst: Ellen Smith

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Report Date: 5/26/2016
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Project:
Project No.: 26236

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937124 **Client No.:** 18	**Description:** Lt Grey Floor Tile; 12x12 **Facility:**	**Location:** Rm 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937125 **Client No.:** 20	**Description:** Tan Mastic **Facility:**	**Location:** Rm 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937126 **Client No.:** 21	**Description:** Tan Mastic **Facility:**	**Location:** Rm 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 1 Cellulose	Percent Non-Fibrous Material: 99
Lab No.: 5937127 **Client No.:** 22	**Description:** Tan Mastic **Facility:**	**Location:** Rm 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 1 Cellulose	Percent Non-Fibrous Material: 99
Lab No.: 5937128 **Client No.:** 23	**Description:** Tan Vinyl Sheet Flooring **Facility:**	**Location:** Rm 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 15 Cellulose 3 Fibrous Glass	Percent Non-Fibrous Material: 82
Lab No.: 5937129 **Client No.:** 24	**Description:** Tan Vinyl Sheet Flooring **Facility:**	**Location:** Rm 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 88

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Analyst: Ellen Smith

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Client: HUB949

Report Date: 5/26/2016
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Project:
Project No.: 26236

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937130 **Client No.:** 25	**Description:** Tan Mastic **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 1 Cellulose	Percent Non-Fibrous Material: 99
Lab No.: 5937131 **Client No.:** 26	**Description:** Tan Mastic **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 1 Cellulose	Percent Non-Fibrous Material: 99
Lab No.: 5937132 **Client No.:** 27	**Description:** Lt Tan Sheetrock **Facility:**	**Location:** Rm 21 Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 3 Cellulose 1 Fibrous Glass	Percent Non-Fibrous Material: 96
Lab No.: 5937133 **Client No.:** 28	**Description:** Lt Tan Sheetrock **Facility:**	**Location:** Rm 5 Ceiling
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose 1 Fibrous Glass	Percent Non-Fibrous Material: 97
Lab No.: 5937134 **Client No.:** 29	**Description:** Lt Tan Sheetrock **Facility:**	**Location:** Rm 15 Wall Int
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 88

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
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Client: HUB949

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Project No.: 26236

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937135 **Client No.:** 30	**Description:** Lt Tan Sheetrock **Facility:**	**Location:** Rm 15 Wall Ext
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 78
Lab No.: 5937136 **Client No.:** 31	**Description:** White Joint Compound **Facility:**	**Location:** Rm 5 Ceiling
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937137 **Client No.:** 32	**Description:** White Joint Compound **Facility:**	**Location:** Rm 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937138 **Client No.:** 33	**Description:** White Joint Compound **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937139 **Client No.:** 34	**Description:** White Joint Compound **Facility:**	**Location:** Rm 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937140 **Client No.:** 35	**Description:** White Joint Compound **Facility:**	**Location:** Rm 5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 5/26/2016
Report No.: 510420 - PLM
Project:
Project No.: 26236

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937141 **Client No.:** 36	**Description:** White Joint Compound **Facility:**	**Location:** Rm 12 By 17
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937142 **Client No.:** 37	**Description:** White Joint Compound **Facility:**	**Location:** Rm 14 By 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937143 **Client No.:** 38	**Description:** White Joint Compound **Facility:**	**Location:** Rm 12 By 11
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937144 **Client No.:** 39	**Description:** White Joint Compound **Facility:**	**Location:** Rm 8 By 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937145 **Client No.:** 40	**Description:** White Joint Compound **Facility:**	**Location:** Rm 8 By 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937146 **Client No.:** 43	**Description:** Tan Insulation **Facility:**	**Location:** Fitting
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 4 Cellulose 10 Fibrous Glass	Percent Non-Fibrous Material: 86

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
Date Analyzed: 5/25/2016 12:30:56 PM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

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95 Beaver Street
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Client: HUB949

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5937147 **Client No.:** 41	**Description:** White Caulk **Facility:**	**Location:** Door - Front
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose	Percent Non-Fibrous Material: 98
Lab No.: 5937148 **Client No.:** 42	**Description:** White Caulk **Facility:**	**Location:** Window - Rear
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937149 **Client No.:** 44	**Description:** White Sealant **Facility:**	**Location:** Boiler Line
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5937150 **Client No.:** 45	**Description:** White Sealant **Facility:**	**Location:** Boiler Line
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 5/24/2016
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Client: HUB949

Report Date: 5/26/2016
Report No.: 510420 - PLM
Project:
Project No.: 26236

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Client: HUB949

Report Date: 5/26/2016
Report No.: 510420 - PLM
Project:
Project No.: 26236

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

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Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

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CERTIFICATE OF ANALYSIS

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Client: HUB949

Report Date: 6/7/2016
Report No.: 511072 - PLM
Project:
Project No.: 26236

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5944044
Client No.: 46
Description: Lt.Tan Gasket
Facility:
Location: Rm 21

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
100 Fibrous Glass

Percent Non-Fibrous Material:
None Detected

Lab No.: 5944045
Client No.: 47
Description: Grey Caulk
Facility:
Location: Rm 21

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/2/2016
Date Analyzed: 6/7/2016 9:20:22 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/7/2016 2:59:02 PM

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Client: HUB949

Report Date: 6/7/2016
Report No.: 511072 - PLM
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Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

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iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

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*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment A: Malone Park

Section 4, Building 24

- Homogeneous Materials Charts
- Asbestos PLM Sample Results

HA Description	Sample ID - 26237	Sample Location	Location of HA	Quantity	Asbestos Yes/No
2"x2" Ceramic floor tile grout	1	Room 22	Rooms 12, 22 and 23	≈194 SF	No
	2	Room 23			
2"x2" Ceramic floor tile adhesive (associated)	3	Room 22	Rooms 12, 22 and 23		No
	4	Room 23			
4" Ceramic wall tile grout	5	Room 22	Rooms 22 and 23	≈350 SF	No
	6	Room 23			
4" Ceramic wall tile adhesive	7	Room 22	Rooms 22 and 23		No
	8	Room 23			
5"x5" Red ceramic floor tile grout	9	Room 13-Entry	Room 13	≈50 SF	No
	10	Room 13-Entry			
5"x5" Red ceramic floor tile adhesive	11	Room 13-Entry	Room 13		No
	12	Room 13-Entry			
12"x12" White w/black flecks floor tile	13	Room 21	Rooms 20, 21, 17, 15, 11, 14 and 1-9	≈2600 SF	No
	19	Room 3			
Associated mastic	14	Room 21	Rooms 20, 21, 17, 15, 11, 14 and 1-9		Yes
	20	Room 3			
12"x12" Gray/white checker board floor tile	15	Room 16-White floor tile	Room 16	≈165 SF	No
	17	Room 16-Gray floor tile			
Associated mastic	16	Room 16	Room 16		Yes
	18	Room 16			
Sheetrock	21	Room 15	Throughout		No
	22	Room 7			
	30	Boiler room			No
	31	Boiler room			
Joint compound	23	Room 16	Throughout		No
	24	Room 1			
Skim coat under vinyl	25	Room 17 by bathroom 15	Hallways-lower half of walls		No
	26	Room 17 by Room 8			
	27	Room 9 by Room 6			
	28	Room 9 by Room 1			
	29	Room 9 by Room 3			
Exterior window door frame caulk	32	Door by Room 16	All exterior windows and door frames	≈550 LF	No
	33	Room 1-Window			
Hard packed fitting	34	CW valve	Room 10	2 fittings	No
End cap on fiberglass	35	Room 10-Boiler	Room 10		No
	36	Room 10-Boiler			
Rope gasketing	37	Room 10-Boiler	Room 10-Boiler		Yes
The boilers in the four buildings of Malone Park are similar style small package style boilers. The boilers are degraded and appear to have been periodically repaired. Some rope gasket material appears to be newer. Sample of rope gasket form building 24 were positive for the presence of asbestos, therefore the rope gasket on the boilers in all four buildings of Malone Park should all be considered asbestos containing.					
Caulking	38	Room 10-Boiler	Room 10-Boiler		No
Cove base mastic			Wood cove base; no mastic		Not suspect
Window glazing			Rubber-Reinforced window lights and doors		Not suspect

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Client: HUB949

Report Date: 6/6/2016
Report No.: 511073 - PLM
Project:
Project No.: 26237

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5944046 **Client No.:** 1	**Description:** Brown Grout **Facility:**	**Location:** Rm 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944047 **Client No.:** 2	**Description:** Brown/Grey Grout **Facility:**	**Location:** Rm 23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944048 **Client No.:** 3	**Description:** Off-White Mastic **Facility:**	**Location:** Rm 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944049 **Client No.:** 4	**Description:** Off-White/Grey Cementitious **Facility:**	**Location:** Rm 23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944050 **Client No.:** 21	**Description:** Tan/White Sheetrock **Facility:**	**Location:** Rm 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose	Percent Non-Fibrous Material: 98
Lab No.: 5944051 **Client No.:** 22	**Description:** Tan/White Sheetrock **Facility:**	**Location:** Rm 7
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose	Percent Non-Fibrous Material: 98

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/2/2016
Date Analyzed: 6/6/2016 11:22:42 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Client: HUB949

Report Date: 6/6/2016
Report No.: 511073 - PLM
Project:
Project No.: 26237

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5944076 **Client No.:** 33	**Description:** White Caulk **Facility:**	**Location:** Window 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944077 **Client No.:** 7	**Description:** Off-White Ceramic **Facility:**	**Location:** Room 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944078 **Client No.:** 8	**Description:** White Mastic **Facility:**	**Location:** Room 23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944079 **Client No.:** 34	**Description:** Tan Insulation **Facility:**	**Location:** CW Valve
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 5 Mineral Wool	Percent Non-Fibrous Material: 90
Lab No.: 5944080 **Client No.:** 35	**Description:** White Mastic **Facility:**	**Location:** Boiler Rm
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944081 **Client No.:** 36	**Description:** White Mastic **Facility:**	**Location:** Boiler Rm
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/2/2016
Date Analyzed: 6/6/2016 11:22:42 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/6/2016
Report No.: 511073 - PLM
Project:
Project No.: 26237

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5944082 **Client No.:** 37	**Description:** Tan/Black Insulation **Facility:**	**Location:** Boiler Rm 10
Percent Asbestos: *95 Chrysotile*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: None Detected
Lab No.: 5944083 **Client No.:** 38	**Description:** Black Cementitious **Facility:**	**Location:** Boiler Rm 10
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/2/2016
Date Analyzed: 6/6/2016 11:22:42 PM
Signature:
Analyst: Muhammad Mirza

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Report Date: 6/6/2016
Report No.: 511073 - PLM
Project:
Project No.: 26237

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

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iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

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Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

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1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment A: Malone Park

Section 5, Shed

- Homogenous Materials Chart

Asbestos PLM sample results can be found under Section 8

HA Description	Sample ID - 26275	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Shingles	L16	Roof	Roof		No
	S16A	Roof			
Silicone Caulking			Shed door		No

Attachment A: Malone Park

Section 6, Pump House

- Homogenous Materials Chart

Asbestos PLM sample results can be found under Section 8

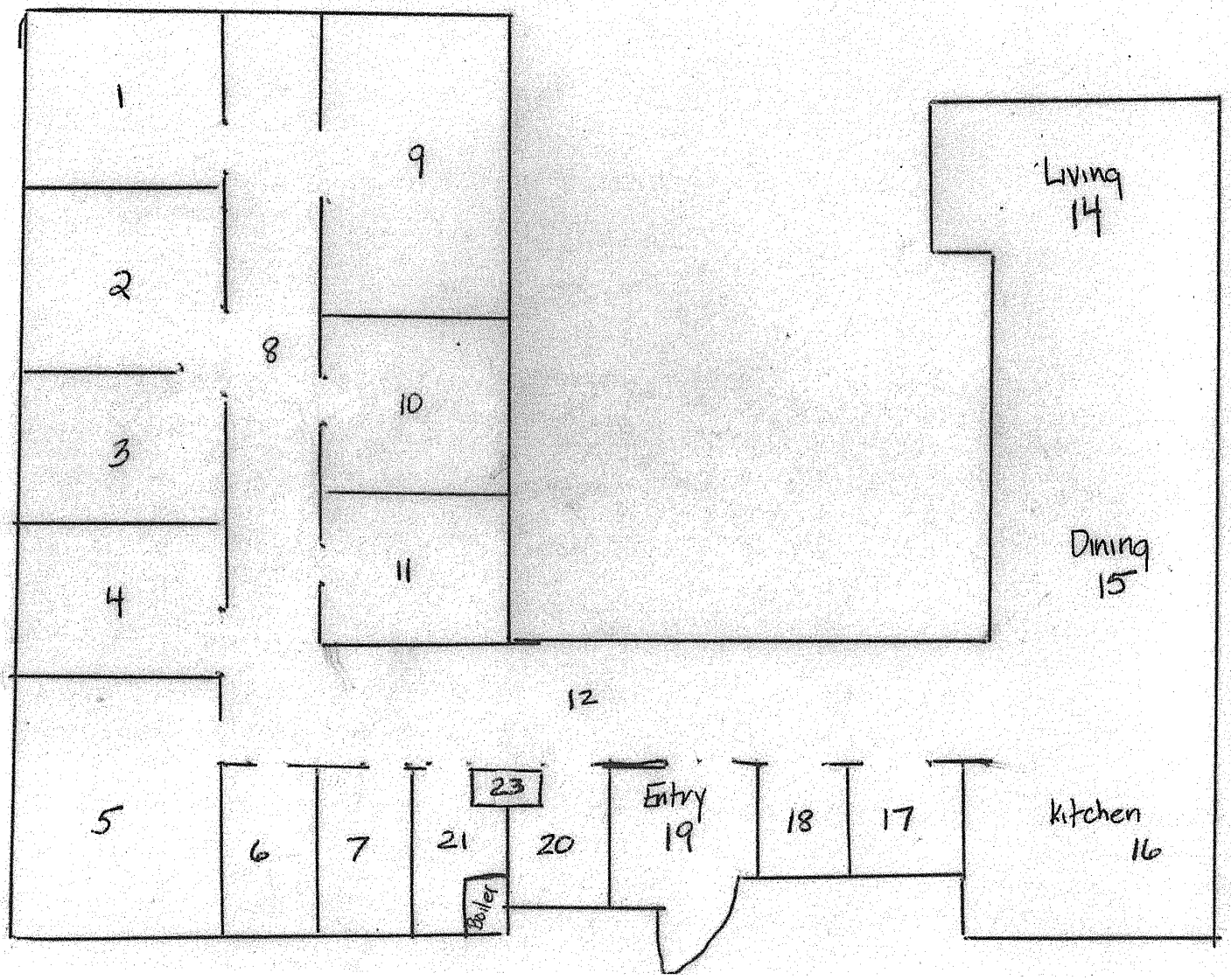
HA Description	Sample ID - 26275	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Shingles	S21	Roof	Roof		No
	S22	Roof			
Associated tarlike drops	S23	Roof	Roof		No
	S24	Roof			

Attachment A: Malone Park

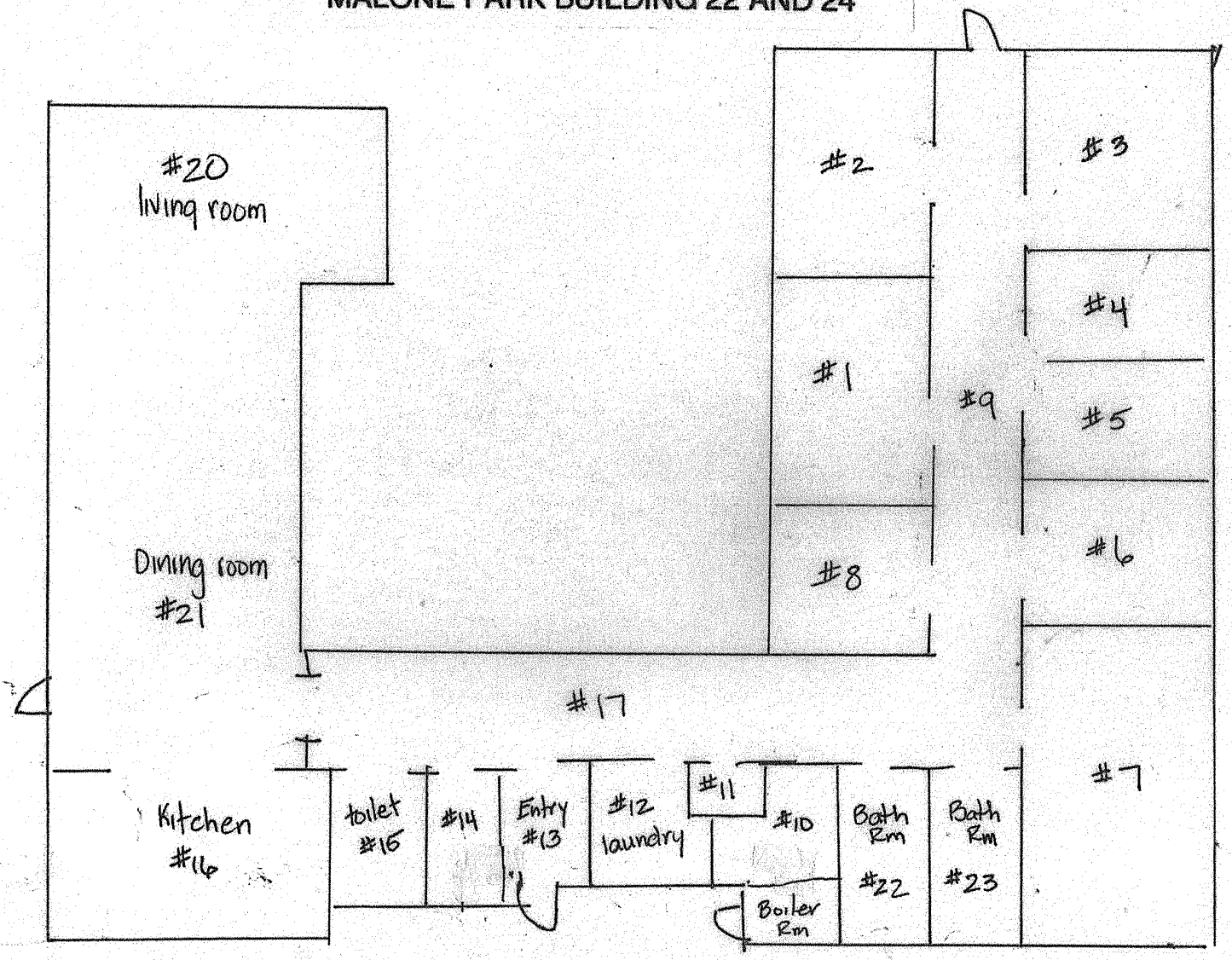
Section 7,

Drawings

MALONE PARK BUILDING 21 AND 23

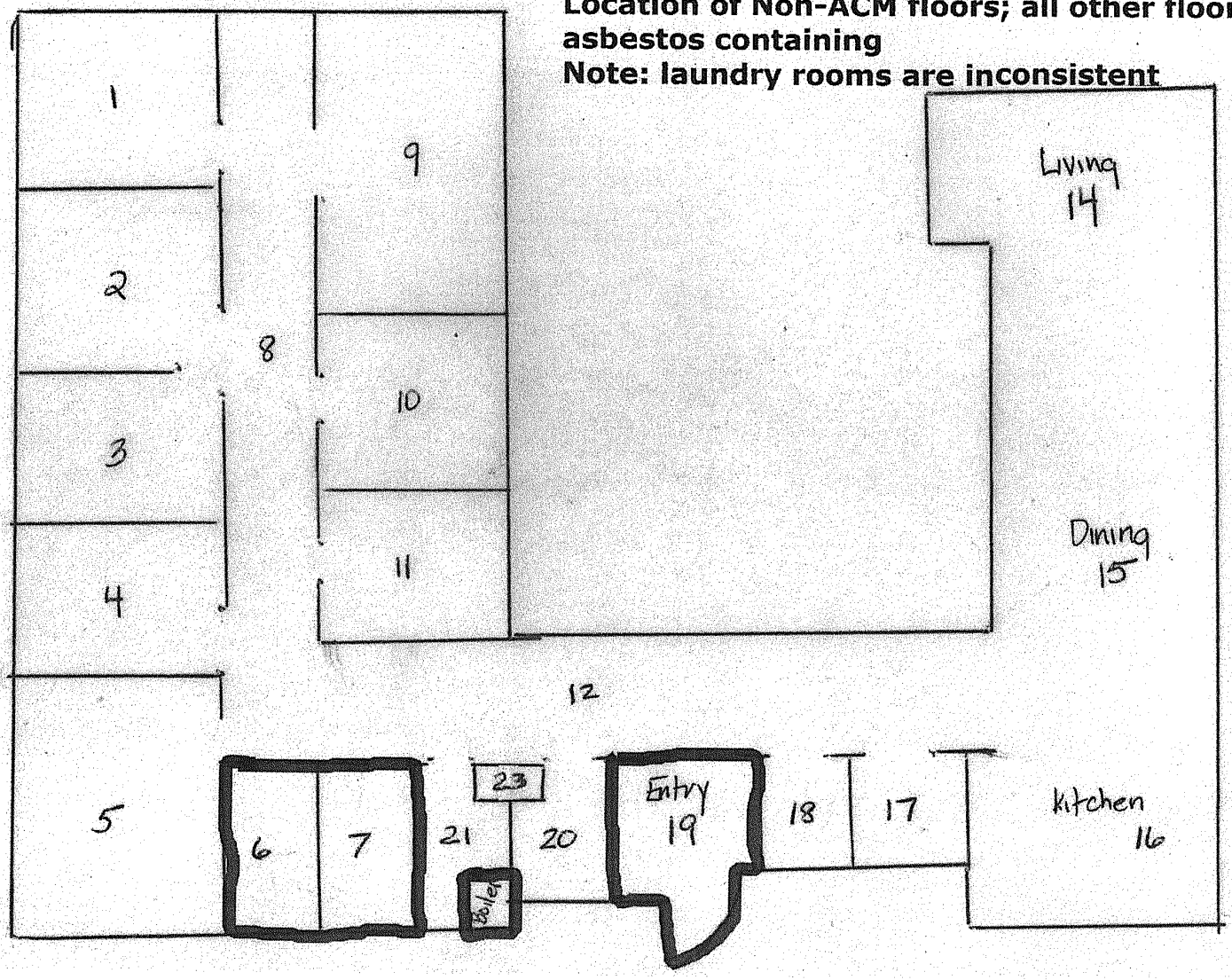


MALONE PARK BUILDING 22 AND 24

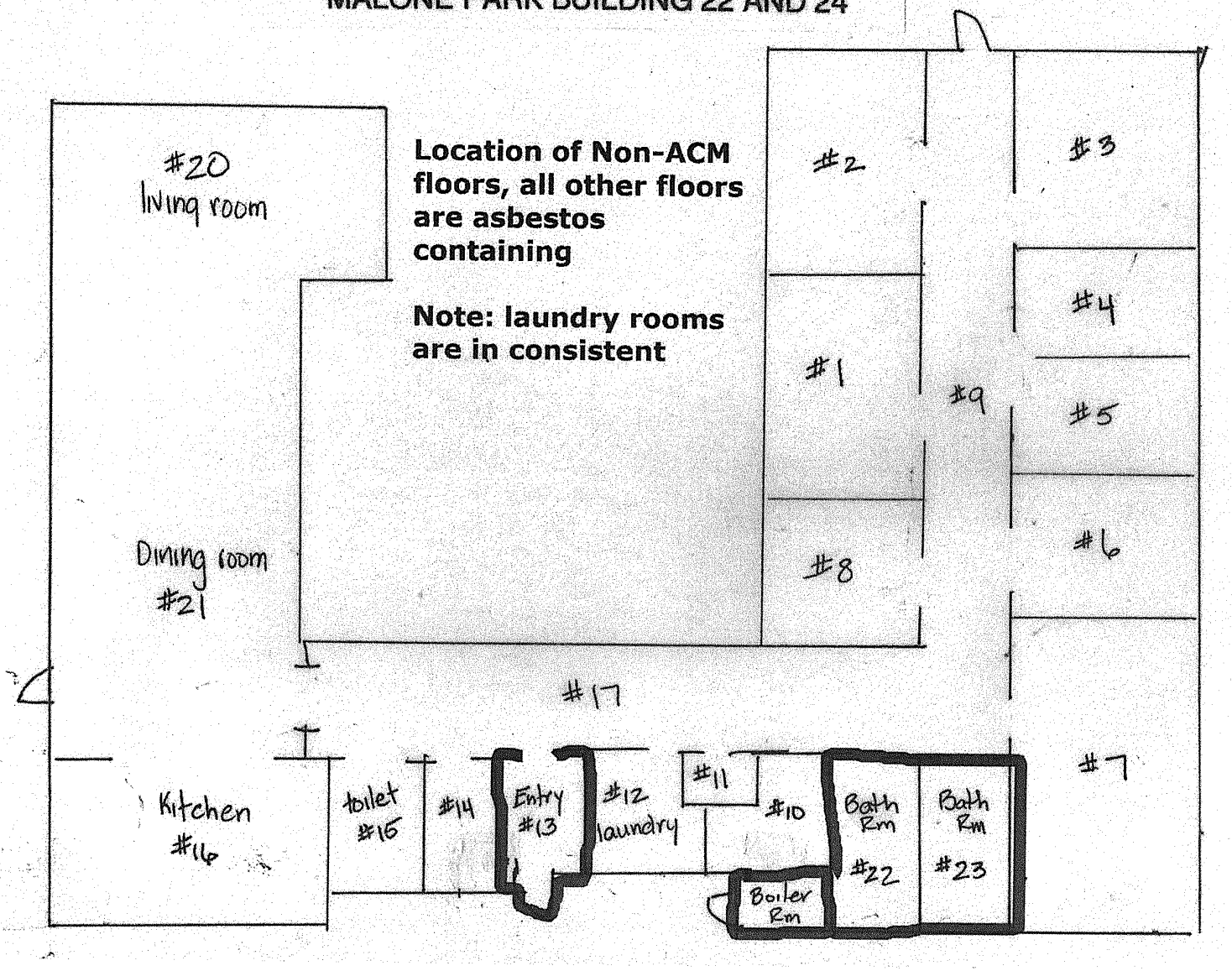


MALONE PARK BUILDING 21 AND 23

Location of Non-ACM floors; all other floors are asbestos containing
Note: laundry rooms are inconsistent



MALONE PARK BUILDING 22 AND 24



Attachment A: Malone Park

Section 8

- Roof, Shed & Pump House sample reports

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9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/6/2016
Report No.: 511074 - PLM
Project: Malone Roofing
Project No.: 26275

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5944084 **Client No.:** 1	**Description:** Black Sealant **Facility:**	**Location:** Entry Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944085 **Client No.:** 2	**Description:** Black Sealant **Facility:**	**Location:** Middle Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944086 **Client No.:** 3	**Description:** Black Sealant **Facility:**	**Location:** Rear Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944087 **Client No.:** 4	**Description:** Black Sealant **Facility:**	**Location:** Middle Roof
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5944088 **Client No.:** 5	**Description:** Black Mastic **Facility:**	**Location:** Bldg 21
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5944089 **Client No.:** 6	**Description:** Sample Not Analyzed **Facility:**	**Location:** Bldg 22
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/2/2016
Date Analyzed: 6/6/2016 11:25:02 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/7/2016 11:49:25 AM

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Client: HUB949

Report Date: 6/6/2016
Report No.: 511074 - PLM
Project: Malone Roofing
Project No.: 26275

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5944090 **Client No.:** 7	**Description:** Sample Not Analyzed **Facility:**	**Location:** Bldg 23
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5944091 **Client No.:** 8	**Description:** Black Shingle **Facility:**	**Location:** Bldg 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: 95
Lab No.: 5944092 **Client No.:** 9	**Description:** Black Shingle **Facility:**	**Location:** Bldg 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: 95
Lab No.: 5944093 **Client No.:** 10	**Description:** Black Shingle **Facility:**	**Location:** Bldg 23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: 95
Lab No.: 5944094 **Client No.:** 11	**Description:** Lt Green/Black Shingle **Facility:**	**Location:** Bldg 24
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: 95
Lab No.: 5944095 **Client No.:** 12	**Description:** Grey/Black Shingle **Facility:**	**Location:** Bldg 21 - Top
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: 95

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/2/2016
Date Analyzed: 6/6/2016 11:25:02 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Client: HUB949

Report Date: 6/6/2016
Report No.: 511074 - PLM
Project: Malone Roofing
Project No.: 26275

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5944096 **Client No.:** 13	**Description:** Grey/Black Shingle **Facility:**	**Location:** Bldg 22 - Bottom
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: 95
Lab No.: 5944097 **Client No.:** 14	**Description:** Black Shingle **Facility:**	**Location:** Bldg 23 - Bottom
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: 95
Lab No.: 5944098 **Client No.:** 15	**Description:** Lt Grey/Red/Black Shingle **Facility:**	**Location:** Bldg 24 - Top
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: 95
Lab No.: 5944099 **Client No.:** 16	**Description:** Grey/Black Shingle **Facility:**	**Location:** Shed
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: 95
Lab No.: 5944100 **Client No.:** 17	**Description:** Black Tar Paper **Facility:**	**Location:** Bldg 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 80 Cellulose	Percent Non-Fibrous Material: 20
Lab No.: 5944101 **Client No.:** 18	**Description:** Black Tar Paper **Facility:**	**Location:** Bldg 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 80 Cellulose	Percent Non-Fibrous Material: 20

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/2/2016
Date Analyzed: 6/6/2016 11:25:02 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Report Date: 6/6/2016
Report No.: 511074 - PLM
Project: Malone Roofing
Project No.: 26275

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5944102 **Client No.:** 19	**Description:** Black Tar Paper **Facility:**	**Location:** Bldg 23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 80 Cellulose	Percent Non-Fibrous Material: 20
Lab No.: 5944103 **Client No.:** 20	**Description:** Black Tar Paper **Facility:**	**Location:** Bldg 24
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 80 Cellulose	Percent Non-Fibrous Material: 20
Lab No.: 5944104 **Client No.:** 26275-22	**Description:** Black Shingle **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: 95

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/2/2016
Date Analyzed: 6/6/2016 11:25:02 PM
Signature:
Analyst: Muhammad Mirza

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Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

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iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

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iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

HUB TESTING LABORATORY, INC.

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Certified Woman-owned Business Enterprise (WBE)

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June 14, 2016

Report For: City of Waltham-Building Department
Attn: Don Cusano, Clerk of the Works
119 School Street
Waltham, MA 02453

Hub ID: 26275

Project ID: Roofing-Buildings 21-24
Fernald Center-Malone Park

Date Collected: June 6, 2016

Scope: Seventeen (17) samples of suspect material were collected by Hub Testing Laboratory. It was requested that the samples be analyzed for the presence of asbestos.

Methodology: Analysis for the presence of asbestos was performed using Polarized Light Microscopy EPA/600/R-93/116, July 1993.

Results:

Sample ID		Material/Location	Composition	%
26275-S1A		Seam Sealant, Building 21	Other	100
	Color:	Black		
26275-S2A		Seam Sealant, Building 22	Other	100
	Color:	Black		
26275-S3A		Seam Sealant, Building 23	Other	100
	Color:	Black		
26275-S4A		Seam Sealant, Building 24	Other	100
	Color:	Black		
26275-S12A		Black, gray and red granular shingle, Building 21	Fiberglass Mineral Chip	10 50
	Color:	Red/Black	Organic Binder**	
26275-S13A		Black, gray and red granular shingle, Building 22	Fiberglass Mineral Chip	15 55
	Color:	Black/Gray/Red	Organic Binder**	

Results:

Sample ID		Material/Location	Composition	%
26275-S14A		Black, gray and red granular shingle, Building 23	Fiberglass	10
			Mineral Chip	60
	Color:	Red/Gray/Black	Organic Binder**	
26275-S15A		Black, gray and red granular shingle, Building 24	Fiberglass	15
			Mineral Chip	55
	Color:	Red/Black	Organic Binder**	
26275-S16A		Black, gray and red granular shingle, Shed roof	Fiberglass	10
			Mineral Chip	50
	Color:	Red/Black	Organic Binder**	
26275-S17A		Felt paper below shingles, Building 21	Cellulose	65
			Organic Binder**	
	Color:	Black		
26275-S18A		Felt paper below shingles, Building 22	Cellulose	60
			Organic Binder**	
	Color:	Black		
26275-S19A		Felt paper below shingles, Building 23	Cellulose	60
			Organic Binder**	
	Color:	Black		
26275-S20A		Felt paper below shingles, Building 24	Cellulose	60
			Organic Binder**	
	Color:	Black		
26275-S21		Shingles, Pump house roof	Cellulose	15
	Color:	Black	Mineral Chip	45
			Organic Binder**	
26275-S22		Shingles, Pump house roof	Cellulose	15
	Color:	Black	Mineral Chip	45
			Organic Binder**	
26275-S23		Associated tar like drops, Pump house roof	Fiberglass	10
			Mineral Chip	35
	Color:	Black	Organic Binder**	
26275-S24		Associated tar like drops, Pump house roof	Fiberglass	25
			Mineral Chip	35
	Color:	Black	Organic Binder**	

**Cannot quantify due to use of organic solvent to break down the organic binder.

Condition: The sample was received in good condition.

Comment: No asbestos was detected in the samples analyzed.

Asbestos-containing materials must be removed prior to demolition. All asbestos abatement activities must be performed by Massachusetts licensed asbestos abatement contractors having submitted the appropriate notification to the regulatory agencies. At the completion of abatement activities, a final clearance inspection and air sampling must be performed by a licensed asbestos abatement Project Monitor who is an independent third party.

This analysis pertains only to the samples submitted.

Susan Boyle, President
MA Analytical Lab #AA000013

Attachment B: The Cottages

Section 1, Cottage 103

- Homogenous Materials Chart
  - Asbestos PLM Results

HA Description	Sample ID 26280	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Sheetrock	1	Room 2	Walls & Ceilings Throughout		No
	2	Room 21			
Skim coat associated with sheetrock	3	Room 21 wall	Same		No
	4	Room 2 wall			
	5	Room 2 ceiling			
	6	Room 16 wall			
	7	Room 18 ceiling			
	8	Room 39 wall			
	9	Room 42 wall			
2'x2' Small fissure ceiling tile (thin fissure with dots)	22	Room 44	Throughout except 43,37,36,32,45, slop sink rooms, 22, 51, 52, 20, 29, closets, 15, 2, 4, 9, 12		No
	23	Room 21			
12"x12" Beige mottled floor tile			All floors throughout except in rooms 4, 15, 20, 18, 51, 52, 51A, 2A, 24, 26, 22, 43, 32, 30, 29; Also in rooms 9, 12, 36, and 37 below thinset	Approximately 5,000 square feet (SF)	Yes*
12"x12" Tan with black flecks floor tile					
12"x12" Black with white checkered floor tile					
12"x12" Brown floor tile					
12"x12" Light brown floor tile					
12"x12" White with brown streaks floor tile					
12"x12" Gray floor tile					
Associated mastic			Same	Same	Yes*
	*Associated mastic was sampled in multiple areas and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of floor tile and mastic was ceased. Mastic is considered to be asbestos containing and the floor tile is considered to be asbestos contaminated.				
Window glazing associated with wire re-enforced panels	40	Room 31	Panes in doors or windows in rooms 1, 49, 50, 6, 14, 17, 19, 21, 25, 22, 26, 27, 41, 46, 47, 30, 31, 48	18 - 8" windows, 275 linear feet (LF) of glazing on doors and windows in rooms and 8 entry doors at approximately 20 LF each	Yes*
	41	Room 41			
	*Glazing associated with wire re-enforced windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of wire re-enforced windows was ceased. The glazing is considered to be asbestos containing.				

HA Description	Sample ID 26280	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Caulking associated with wooden panels on three panel windows			Exterior on the wooden panels of the three panel windows at Rooms 21, 6, and 41	Approximately 150 LF	Yes*
	*Caulking associated with the wooden panels below the three panel windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of this caulking was ceased. The caulking is considered to be asbestos containing.				
Window and door caulking	47, 48	47,Room 11	All window and door caulking other than at wooden panels in rooms 21, 6 and 41 is silicone		No
1"x1" Ceramic floor tile grout	14	Room 51	Tile Color: Multi colored Rooms 51, 52	Approximately 1000 SF of floor tile plus additional wall tile	No
	15	Room 52			
1"x1" Ceramic floor tile adhesive	16	Room 51			Yes[1]
	17	Room 52			
2"x2" Ceramic floor tile grout	10	Room 9	Tile Color: Gray. Lt Gray, Pink Rooms 9, 12, 15 wall, 32 wall, 36 floor, 37 floor		No
	11	Room 37			
2"x 2" Ceramic floor tile adhesive	12	Room 9			Yes[1]
	13	Room 37			
1"x4" Ceramic tile grout	30	Room 51	Tile Color: White Rooms 51, and 52		No
	31	Room 52			
1"x4" Ceramic tile adhesive	32	Room 51			Yes[1]
	33	Room 52			
[1]Adhesive associated with ceramic tile	The adhesive associated with the ceramic tile was found to be asbestos containing with some inconsistency. Most adhesive was brown. It was found below 1", 2" and 1"x4" ceramic tile both on the walls and floor. In rooms 9, 12, 36 and 37 the ceramic floor was applied over the old asbestos containing black mastic. For this reason all adhesive associated with ceramic tile is considered to be asbestos containing other than the 4"ceramic tile which consistently analyzed and no asbestos was detected.				
4"x4" Ceramic wall tile grout	18	Room 9	Tile Color: Gray & Red Rooms 37,36, 9 and 12		No
	19	Room 37			
4"x4" Ceramic wall tile adhesive	20	Room 9			No
	21	Room 37			
Mastic associated with 4" cove base	28	Room 21	Interior walls		Yes
	29	Room 16			
Brick	26398-3	Exterior	Exterior façade		No
	26398-4	Exterior			
Associated mortar	26398-5	Exterior	Exterior façade		No
	26398-6	Exterior			
Tar paper moisture barrier, below exterior brick façade and shingles	26	Exterior	Exterior façade		No
	27	Exterior			
Wall heating unit caulk	26398-1	Room 21		40 Units; 14 LF each	No
	26398-2	Room 3			

HA Description	Sample ID 26280	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Gasket of flanges of large diameter piping			Mechanical room		Yes*
	*Where visible gasket materials was visually identified as asbestos containing.				
Built-up Roof		Roof	Roof		Yes*
Flashing mastic		Roof	Roof at HVAC and mushroom caps		Yes*
	*Flashing mastic and BUR felts were sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of these materials was ceased. The roofing is considered to be asbestos containing.				
Spray-on fireproofing on roof beams	34	Room 21	Roof beams	< 5000 SF	No
	35	Room 28			
	36	Room 39			
	37	Room 16			
	38	Room 8			
	39	Room 26			
Hard packed fittings	45	Room 21 elbow	Room 21		No
	46	Room 21 fitting			
Textured ceiling plaster	42	Room 7, right	Room 7	Approximately 200 SF	No
	43	Room 7, center			
	44	Room 7, left			

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511308 - PLM
Project: Bldg 103
Project No.: 26280

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946663 **Client No.:** 1	**Description:** Off-White Sheetrock **Facility:**	**Location:** Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Cellulose 5 Fibrous Glass	Percent Non-Fibrous Material: 75
Lab No.: 5946664 **Client No.:** 2	**Description:** Off-White Sheetrock **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose 5 Fibrous Glass	Percent Non-Fibrous Material: 85
Lab No.: 5946665 **Client No.:** 3	**Description:** White Joint Compound **Facility:**	**Location:** Rm 2 Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946666 **Client No.:** 4	**Description:** Off-White Joint Compound **Facility:**	**Location:** Rm 2 Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946667 **Client No.:** 5	**Description:** White Plaster **Facility:**	**Location:** Rm 2 Ceiling
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946668 **Client No.:** 6	**Description:** Off-White Plaster **Facility:**	**Location:** Rm 16 Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 1:44:48 PM
Signature: Rebecca Reed
Analyst: Rebecca Reed

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 3:02:02 PM

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Client: HUB949

Report Date: 6/9/2016
Report No.: 511308 - PLM
Project: Bldg 103
Project No.: 26280

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946669 **Client No.:** 7	**Description:** White Plaster **Facility:**	**Location:** Rm 18 Ceiling
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946670 **Client No.:** 8	**Description:** White Plaster **Facility:**	**Location:** Rm 34 Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946671 **Client No.:** 9	**Description:** White Plaster **Facility:**	**Location:** Rm 42 Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946672 **Client No.:** 10	**Description:** Brown Grout **Facility:**	**Location:** Rm 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946673 **Client No.:** 11	**Description:** Brown Grout **Facility:**	**Location:** Rm 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946674 **Client No.:** 12	**Description:** Grey Cementitious **Facility:**	**Location:** Rm 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Client: HUB949

Report Date: 6/9/2016
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Project No.: 26280

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946675 **Client No.:** 13	**Description:** Grey Cementitious **Facility:**	**Location:** Rm 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Cellulose	Percent Non-Fibrous Material: 100
Lab No.: 5946676 **Client No.:** 14	**Description:** Grey Cementitious **Facility:**	**Location:** Rm 51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946677 **Client No.:** 15	**Description:** Grey Cementitious **Facility:**	**Location:** Rm 52
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946678 **Client No.:** 16	**Description:** Lt Tan Mastic **Facility:**	**Location:** Rm 51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946679 **Client No.:** 17	**Description:** Lt Tan Mastic **Facility:**	**Location:** Rm 52
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946680 **Client No.:** 18	**Description:** White Grout **Facility:**	**Location:** Rm 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
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Project: Bldg 103
Project No.: 26280

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946681 **Client No.:** 19	**Description:** White Grout **Facility:**	**Location:** Rm 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946682 **Client No.:** 20	**Description:** Off-White Mastic **Facility:**	**Location:** Rm 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946683 **Client No.:** 21	**Description:** Off-White Mastic **Facility:**	**Location:** Rm 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946684 **Client No.:** 22	**Description:** White/Off-White Ceiling Tile; 2x2 **Facility:**	**Location:** Rm 49
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 60 Fibrous Glass 30 Cellulose	Percent Non-Fibrous Material: 10
Lab No.: 5946685 **Client No.:** 23	**Description:** White/Tan Ceiling Tile; 2x2 **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 60 Fibrous Glass 30 Cellulose	Percent Non-Fibrous Material: 10
Lab No.: 5946686 **Client No.:** 24	**Description:** White Caulk **Facility:**	**Location:** Rm 4
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Laboratory Director

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Client: HUB949

Report Date: 6/9/2016
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Project No.: 26280

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946687 **Client No.:** 25	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 44
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5946688 **Client No.:** 26	**Description:** Sample Not Received **Facility:**	**Location:** Not Sampled
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5946689 **Client No.:** 27	**Description:** Sample Not Received **Facility:**	**Location:** Not Sampled
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5946690 **Client No.:** 28	**Description:** Dk Brown Mastic **Facility:**	**Location:** Rm 21
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5946691 **Client No.:** 29	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 16
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5946692 **Client No.:** 30	**Description:** White Grout **Facility:**	**Location:** Rm 51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Project No.: 26280

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946693 **Client No.:** 31	**Description:** White Grout **Facility:**	**Location:** Rm 52
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946694 **Client No.:** 32	**Description:** Lt Tan Mastic **Facility:**	**Location:** Rm 51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946695 **Client No.:** 33	**Description:** Lt Tan Mastic **Facility:**	**Location:** Rm 52
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946696 **Client No.:** 34	**Description:** Grey Insulation **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass	Percent Non-Fibrous Material: 10
Lab No.: 5946697 **Client No.:** 35	**Description:** Grey Insulation **Facility:**	**Location:** Rm 28
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass	Percent Non-Fibrous Material: 10
Lab No.: 5946698 **Client No.:** 36	**Description:** Grey Insulation **Facility:**	**Location:** Rm 39
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass	Percent Non-Fibrous Material: 10

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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CERTIFICATE OF ANALYSIS

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511308 - PLM
Project: Bldg 103
Project No.: 26280

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946699 **Client No.:** 37	**Description:** Grey Insulation **Facility:**	**Location:** Rm 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass	Percent Non-Fibrous Material: 10
Lab No.: 5946700 **Client No.:** 38	**Description:** Grey Insulation **Facility:**	**Location:** Rm 8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass	Percent Non-Fibrous Material: 10
Lab No.: 5946701 **Client No.:** 39	**Description:** Grey Insulation **Facility:**	**Location:** Rm 26
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass	Percent Non-Fibrous Material: 10
Lab No.: 5946702 **Client No.:** 40	**Description:** Beige Glazing **Facility:**	**Location:** Rm 31
Percent Asbestos: *3 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 97
Lab No.: 5946703 **Client No.:** 41	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 41
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5946704 **Client No.:** 42	**Description:** White Texture **Facility:**	**Location:** Right Rm 7
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
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Signature: Rebecca Reed
Analyst: Rebecca Reed

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 3:02:03 PM

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ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511308 - PLM
Project: Bldg 103
Project No.: 26280

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946705 **Client No.:** 43	**Description:** White Texture **Facility:**	**Location:** Center Rm 7
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946706 **Client No.:** 44	**Description:** White Texture **Facility:**	**Location:** Left Rm 7
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946707 **Client No.:** 45	**Description:** Grey Insulation **Facility:**	**Location:** Rm 21 (Elbow)
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Fibrous Glass	Percent Non-Fibrous Material: 60
Lab No.: 5946708 **Client No.:** 46	**Description:** Grey Insulation **Facility:**	**Location:** Rm 21 By Rm 52 (Fitting)
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Fibrous Glass	Percent Non-Fibrous Material: 60

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 1:44:48 PM
Signature: Rebecca Reed
Analyst: Rebecca Reed

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 3:02:03 PM

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Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

HUB TESTING LABORATORY, INC.

Environmental Testing and Consulting Service

Certified Woman-owned Business Enterprise (WBE)

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July 19, 2016

Report For: City of Waltham-Building Department
Attn: Don Cusano, Clerk of the Works
119 School Street
Waltham, MA 02453

Hub ID: 26280

Project ID: Fernald Center-Cottages
Building 103

Scope: Samples of the tar paper below the brick façade were collected by Hub Testing Laboratory from building 103. Samples were analyzed for the presence of asbestos.

Methodology: Analysis for the presence of asbestos was performed using Polarized Light Microscopy EPA/600/R-93/116, July 1993.

Notes: Samples were collected from behind the brick façade in two random locations.

Results:

Sample ID	Material/Location	Composition	%
26280-26	Tar paper	Cellulose	60
	Color: Black	Mineral chip	20
		Organic Binder	**
26280-27	Tar paper	Cellulose	50
	Color: Black	Mineral chip	30
		Organic Binder	**

**Cannot quantify due to use of organic solvent to break down the organic binder.

Condition: The sample was received in good condition.

Comment: Asbestos was not detected in the samples of tar paper. This analysis pertains only to the samples submitted. This report shall not be reproduced except in full, without the written approval of the laboratory.

Susan Boyle, President
MA Analytical Lab #AA000013

Attachment B: The Cottages

Section 2, Cottage 104

- Homogenous Materials Chart
  - Asbestos PLM Results

HA Description	Sample ID 26281	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Sheetrock	1	Wall	Walls & Ceilings Throughout		No
	2	Ceiling			
Skim coat associated with sheetrock	3	Room 41 wall	Same		No
	4	Room 45 ceiling			
	5	Room 11 wall			
	6	Room 38 wall			
	7	Room 2 wall			
	8	Room 51 ceiling			
	9	Room 2 ceiling			
2'x2' Small fissure ceiling tile (thin fissure with dots)	14	Room 8	Throughout except 43,37,36,32,45, slop sink rooms, 22, 51, 52, 20, 29, closets, 15, 2, 4, 9, 12		No
	15	Room 34			
12"x12" Floor tile			All floors throughout except in rooms 4, 15, 20, 18, 51, 52, 51A, 2A, 24, 26, 22, 43, 32, 30, 29; Also in rooms 9, 12, 36, and 37 below thinset	Approximately 5,000 square feet (SF)	Yes*
Associated mastic	26291-7		Same	Same	Yes*
	*Associated mastic was sampled in multiple areas and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of floor tile and mastic was ceased. Mastic is considered to be asbestos containing and the floor tile is considered to be asbestos contaminated.				
Window glazing associated with wire re-enforced panels	51		Panes in doors or windows in rooms 1, 49, 50, 6, 14, 17, 19, 21, 25, 22, 26, 27, 41, 46, 47, 30, 31, 48	18 - 8" windows, 275 linear feet (LF) of glazing on doors and windows in rooms and 8 entry doors at approximately 20 LF each	Yes*
	52				
	*Glazing associated with wire re-enforced windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of wire re-enforced windows was ceased. The glazing is considered to be asbestos containing.				
Caulking associated with wooden panels on three panel windows			Exterior on the wooden panels of the three panel windows at Rooms 21, 6, and 41	Approximately 150 LF	Yes*
	*Caulking associated with the wooden panels below the three panel windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of this caulking was ceased. The caulking is considered to be asbestos containing.				

HA Description	Sample ID 26281	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Window and door caulking	47	Room 47	All window and door caulking other than at wooden panels in rooms 21, 6 and 41 is silicone		No
	48	Room 11			
1"x1" Ceramic floor tile grout	29	Room 12	Tile Color: Gray Rooms 37, 36, 9, 12	Approximately 1000 SF of floor tile plus additional wall tile	No
	30	Room 37			
1"x1" Ceramic floor tile adhesive	31	Room 12			Yes[1]
	32	Room 37			
1"x 1" Ceramic floor tile grout	21	Room 15	Tile Color: Gray. Lt Gray, Pink Rooms 43, 15, 32, 4, 51, & 52		No
	22	Room 43			
1"x 1" Ceramic floor tile adhesive	23	Room 15			Yes[1]
	24	Room 43			
2"x2" Ceramic wall tile grout	37	Room 15	Tile Color: Beige Rooms 15 and 32		No
	38	Room 32			
2"x2" Ceramic wall tile adhesive	39	Room 15			Yes[1]
	40	Room 32			
1"x4" Ceramic wall tile grout	25	Room 51	Tile Color: Off White Rooms 43, 25, 51, and 52		No
	26	Room 43			
1"x4" Ceramic wall tile adhesive	27	Room 51			Yes[1]
	28	Room 43			
[1]Adhesive associated with ceramic tile	The adhesive associated with the ceramic tile was found to be asbestos containing with some inconsistency. Most adhesive was brown. It was found below 1", 2" and 1x4" ceramic tile both on the walls and floor. In rooms 9, 12, 36 and 37 the ceramic floor was applied over the old asbestos containing black mastic. For this reason all adhesive associated with ceramic tile is considered to be asbestos containing other than the 4"ceramic tile consistently was analyzed and no asbestos was detected.				
4"x4" Ceramic wall tile grout	33	Room 12	Tile Color: Gray & Red Rooms 37,36, Slop Sink Room		No
	34	Room 37			
4"x4" Ceramic wall tile adhesive	35	Room 12	Mainly used in shower stalls		No
	36	Room 37			
Mastic associated with vinyl cove base	10	Room 11	Randomly throughout		No
	11	Room 42			
	12	Room 50			
	13	Room 47			
Brick	43	Front	Exterior façade		No
	44	Rear			
Associated mortar	45	Front	Exterior façade		No
	46	Rear			
Tar paper moisture barrier, below exterior brick façade and shingles	2639811	Exterior	Exterior façade		No
	26398-12	Exterior			
Wall heating unit caulk	26398-7	Room 38		40 Units; 14 LF each	No
	26398-8	Room 17			

HA Description	Sample ID 26281	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Gasket of flanges of large diameter piping			Mechanical room		Yes*
	*Where visible gasket materials was visually identified as asbestos containing.				
Built up Roof		Roof	Roof		Yes*
Flashing mastic		Roof	Roof at HVAC and mushroom caps		Yes*
	*Flashing mastic and BUR felts were sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of these materials was ceased. The roofing is considered to be asbestos containing.				
Spray-on fireproofing	16	Room 11	Sporadic throughout (majority around perimeter)	< 5000 SF	No
	17	Room 21			
	18	Room 45			
	19	Room 40			
	20	Room 2			
Hard packed fittings	49	Elbow	HW Lines & valves Room 21		No
	50	Fitting (valve 15)			
Faux wood linoleum	41	Room 11	Room 11	Approximately 170 SF	No
	42	Room 11			

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/7/2016
Report No.: 511302 - PLM
Project:
Project No.: 26281

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946611 **Client No.:** 1	**Description:** Tan/White Sheetrock **Facility:**	**Location:** Wall, Throughout
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 96
Lab No.: 5946612 **Client No.:** 2	**Description:** White Sheetrock **Facility:**	**Location:** Ceilings, Throughout
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 98
Lab No.: 5946613 **Client No.:** 3	**Description:** White Texture/Plaster **Facility:**	**Location:** Rm 41, Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946614 **Client No.:** 4	**Description:** White Texture/Plaster **Facility:**	**Location:** Rm 45, Ceiling
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946615 **Client No.:** 5	**Description:** White Texture/Plaster **Facility:**	**Location:** Rm 11, Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946616 **Client No.:** 6	**Description:** White Texture/Plaster **Facility:**	**Location:** Rm 38, Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/7/2016 6:45:50 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/8/2016 10:03:22 AM

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946617 **Client No.:** 7	**Description:** White Texture/Plaster **Facility:**	**Location:** Rm 2, Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946618 **Client No.:** 8	**Description:** White Texture/Plaster **Facility:**	**Location:** Rm 51, Ceiling
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946619 **Client No.:** 9	**Description:** White Texture/Plaster **Facility:**	**Location:** Rm 2, Ceiling
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946620 **Client No.:** 10	**Description:** Dk Brown Mastic **Facility:**	**Location:** Rm 11
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946621 **Client No.:** 11	**Description:** Dk Brown Mastic **Facility:**	**Location:** Rm 42
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946622 **Client No.:** 12	**Description:** Tan Mastic **Facility:**	**Location:** Rm 50
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
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Signature:
Analyst: Muhammad Mirza

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Laboratory Director

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946623 **Client No.:** 13	**Description:** Tan Mastic **Facility:**	**Location:** Rm 47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946624 **Client No.:** 14	**Description:** White/Tan Ceiling Tile; 2x2 **Facility:**	**Location:** Rm 8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 65 Cellulose 5 Mineral Wool	Percent Non-Fibrous Material: 30
Lab No.: 5946625 **Client No.:** 15	**Description:** White/Tan Ceiling Tile; 2x2 **Facility:**	**Location:** Rm 34
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 65 Cellulose 5 Mineral Wool	Percent Non-Fibrous Material: 30
Lab No.: 5946626 **Client No.:** 16	**Description:** Grey Insulation **Facility:**	**Location:** Rm 11
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 95 Mineral Wool	Percent Non-Fibrous Material: 5
Lab No.: 5946627 **Client No.:** 17	**Description:** Grey Insulation **Facility:**	**Location:** Rm 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 95 Mineral Wool	Percent Non-Fibrous Material: 5
Lab No.: 5946628 **Client No.:** 18	**Description:** Grey Insulation **Facility:**	**Location:** Rm 45
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 95 Mineral Wool	Percent Non-Fibrous Material: 5

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
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Analyst: Muhammad Mirza

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Laboratory Director

Dated : 6/8/2016 10:03:22 AM

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946629 **Client No.:** 19	**Description:** Grey Insulation **Facility:**	**Location:** Rm 40
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 95 Mineral Wool	Percent Non-Fibrous Material: 5
Lab No.: 5946630 **Client No.:** 20	**Description:** Grey Insulation **Facility:**	**Location:** Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 95 Mineral Wool	Percent Non-Fibrous Material: 5
Lab No.: 5946631 **Client No.:** 21	**Description:** Grey Grout **Facility:**	**Location:** Rm 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946632 **Client No.:** 22	**Description:** Grey Grout **Facility:**	**Location:** Rm 43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946633 **Client No.:** 23	**Description:** Dk Grey Cementitious **Facility:**	**Location:** Rm 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946634 **Client No.:** 24	**Description:** Dk Grey Cementitious **Facility:**	**Location:** Rm 43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/7/2016 6:45:50 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946635 **Client No.:** 25	**Description:** White Grout **Facility:**	**Location:** Rm 51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946636 **Client No.:** 26	**Description:** White Grout **Facility:**	**Location:** Rm 43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946637 **Client No.:** 27	**Description:** Tan Mastic **Facility:**	**Location:** Rm 51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946638 **Client No.:** 28	**Description:** Tan Mastic **Facility:**	**Location:** Rm 43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946639 **Client No.:** 29	**Description:** Grey Grout **Facility:**	**Location:** Rm 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946640 **Client No.:** 30	**Description:** Grey Grout **Facility:**	**Location:** Rm 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/7/2016 6:45:50 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/7/2016
Report No.: 511302 - PLM
Project:
Project No.: 26281

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946641 **Client No.:** 31	**Description:** Tan Mortar **Facility:**	**Location:** Rm 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946642 **Client No.:** 32	**Description:** Tan Mortar **Facility:**	**Location:** Rm 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946643 **Client No.:** 33	**Description:** White Grout **Facility:**	**Location:** Rm 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946644 **Client No.:** 34	**Description:** White Grout **Facility:**	**Location:** Rm 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946645 **Client No.:** 35	**Description:** Off-White Mastic **Facility:**	**Location:** Rm 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946646 **Client No.:** 36	**Description:** Off-White Mastic **Facility:**	**Location:** Rm 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/7/2016 6:45:50 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/7/2016
Report No.: 511302 - PLM
Project:
Project No.: 26281

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946647 **Client No.:** 37	**Description:** White Grout **Facility:**	**Location:** Rm 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946648 **Client No.:** 38	**Description:** White Grout **Facility:**	**Location:** Rm 32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946649 **Client No.:** 39	**Description:** Tan Mastic **Facility:**	**Location:** Rm 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946650 **Client No.:** 40	**Description:** Tan Mastic **Facility:**	**Location:** Rm 32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946651 **Client No.:** 41	**Description:** Brown Vinyl Sheet Flooring **Facility:**	**Location:** Rm 11
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 88
Lab No.: 5946652 **Client No.:** 42	**Description:** Brown Vinyl Sheet Flooring **Facility:**	**Location:** Rm 11
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 88

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/7/2016 6:45:50 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/7/2016
Report No.: 511302 - PLM
Project:
Project No.: 26281

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946653 **Client No.:** 43	**Description:** Red Brick **Facility:**	**Location:** Front
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946654 **Client No.:** 44	**Description:** Red Brick **Facility:**	**Location:** Rear
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946655 **Client No.:** 45	**Description:** Brown Mortar **Facility:**	**Location:** Front
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Mineral Wool	Percent Non-Fibrous Material: 100
Lab No.: 5946656 **Client No.:** 46	**Description:** Brown Mortar **Facility:**	**Location:** Rear
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946657 **Client No.:** 47	**Description:** White Caulk **Facility:**	**Location:** Door Rm 47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946658 **Client No.:** 48	**Description:** White Caulk **Facility:**	**Location:** Window Rm 11
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/7/2016 6:45:50 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/7/2016
Report No.: 511302 - PLM
Project:
Project No.: 26281

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946659 **Client No.:** 49	**Description:** Lt Grey Insulation **Facility:**	**Location:** Elbow
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Mineral Wool	Percent Non-Fibrous Material: 80
Lab No.: 5946660 **Client No.:** 50	**Description:** Lt Grey Insulation **Facility:**	**Location:** Fitting (Valve 15)
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Mineral Wool	Percent Non-Fibrous Material: 80
Lab No.: 5946661 **Client No.:** 51	**Description:** Tan Glazing **Facility:**	**Location:** Wired Window
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946662 **Client No.:** 52	**Description:** Tan Glazing **Facility:**	**Location:** Wired Window
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/7/2016 6:45:50 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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95 Beaver Street
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Client: HUB949

Report Date: 6/7/2016
Report No.: 511302 - PLM
Project:
Project No.: 26281

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instruetions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Waltham MA 02453

Client: HUB949

Report Date: 6/7/2016
Report No.: 511302 - PLM
Project:
Project No.: 26281

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment B: The Cottages

Section 3, Cottage 105

- Homogenous Materials Chart
  - Asbestos PLM Results

HA Description	Sample ID 26284	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Sheetrock	1	Room 47	Walls throughout and ceilings in bathrooms and mechanical rooms		No
	2	Room 38			
Joint compound	3	Room 47	Same		No
	4	Room 38			
Skim coat	5	Room 47	Throughout		No
	6	Room 38			
	7	Room 41			
	8	Room 21			
	9	Room 22			
	10	Room 2			
	11	Room 16			
2'x2' Small fissure ceiling tile (thin fissure with dots)	12	Room 28	Throughout except bathrooms, mechanical and electric rooms		No
	13	Room 38			
12"x12" Floor tile			All floors throughout except in rooms 4, 15, 20, 18, 51, 52, 51A, 2A, 24, 26, 22, 43, 32, 30, 29; Also in rooms 9, 12, 36, and 37 below thinset	Approximately 5,000 square feet (SF)	Yes*
Associated mastic	26291-8		Same	Same	Yes*
	*Associated mastic was sampled in multiple areas and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of floor tile and mastic was ceased. Mastic is considered to be asbestos containing and the floor tile is considered to be asbestos contaminated.				
Window glazing associated with wire re-enforced panels	14	Room 19	Panes in doors or windows in rooms 1, 49, 50, 6, 14, 17, 19, 21, 25, 22, 26, 27, 41, 46, 47, 30, 31, 48	18 - 8" windows, 275 linear feet (LF) of glazing on doors and windows in rooms and 8 entry doors at approximately 20 LF each	Yes*
	15	Room 6			
	*Glazing associated with wire re-enforced windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of wire re-enforced windows was ceased. The glazing is considered to be asbestos containing.				
Caulking associated with wooden panels on three panel windows	16	Room 41	Exterior on the wooden panels of the three panel windows at Rooms 21, 6, and 41	Approximately 150 linear feet	Yes*
	17	Room 6			
	*Caulking associated with the wooden panels below the three panel windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of this caulking was ceased. The caulking is considered to be asbestos containing.				

HA Description	Sample ID 26284	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Window and door caulking			All window and door caulking other than at wooden panels in rooms 21, 6 and 41 is silicone		No
1"x1" Ceramic floor tile grout	18	Room 32	Tile Color: Multiple Browns Rooms 32 and 15	Approximately 1000 SF of floor tile plus additional wall tile	No
	19	Room 15			
1"x1" Ceramic floor tile adhesive	20	Room 32			Yes[1]
	21	Room 15			
2"x2" Ceramic floor tile grout	26	Room 12	Tile Color: Gray Rooms 9, 12, 37, 36, 51 and 52		No
	27	Room 37			
2"x2" Ceramic floor tile adhesive	28	Room 12			Yes[1]
	29	Room 37			
2"x2" Ceramic wall tile grout	30	Room 32	Tile Color: Tan Rooms 15 and 32		No
	31	Room 15			
2"x2" Ceramic wall tile adhesive	32	Room 32			Yes[1]
	33	Room 15			
1"x4" Ceramic wall tile grout	34	Room 43	Tile Color: Tan Rooms 43, 4, 51, and 52		No
	35	Room 51			
1"x4" Ceramic wall tile adhesive	36	Room 43			Yes[1]
	37	Room 51			
[1]Adhesive associated with ceramic tile	The adhesive associated with the ceramic tile was found to be asbestos containing with some inconsistency. Most adhesive was brown. It was found below 1", 2" and 1x4" ceramic tile both on the walls and floor. In rooms 9, 12, 36 and 37 the ceramic floor was applied over the old asbestos containing black mastic. For this reason all adhesive associated with ceramic tile is considered to be asbestos containing other than the 4"ceramic tile consistently was analyzed and no asbestos was detected.				
4"x4" Ceramic wall tile grout	22	Room 12	Tile Color: White Rooms 9, 12, 37 and 36		No
	23	Room 37			
4"x4" Ceramic wall tile adhesive	24	Room 12	Mainly used in shower stalls		No
	25	Room 37			
Mastic associated with 4" cove base	38	Room 38	Randomly throughout		No
	39	Room 21			
Brick	40	By Room 47	Exterior façade		No
	41	By Room 49			
Associated mortar	42	By Room 47	Exterior façade		No
	43	By Room 49			
Tar paper moisture barrier, below exterior brick façade and shingles	26398-15		Exterior façade		No
	26398-16				
Wall heating unit caulk	26398-13	Room 21		40 Units; 14 LF each	No
	26398-14	Room 42			
Gasket of flanges of large diameter piping			Mechanical room		Yes*
	*Where visible gasket materials was visually identified as asbestos containing.				

HA Description	Sample ID 26284	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Built up Roof		Roof	Roof		Yes*
Flashing mastic		Roof	Roof at HVAC and mushroom caps		Yes*
	*Flashing mastic and BUR felts were sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of these materials was ceased. The roofing is considered to be asbestos containing.				

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511307 - PLM
Project: Bldg 105
Project No.: 26284

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946709 **Client No.:** 1	**Description:** Lt Tan Sheetrock **Facility:**	**Location:** Throughout #47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 8 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 90
Lab No.: 5946710 **Client No.:** 2	**Description:** Lt Tan Sheetrock **Facility:**	**Location:** Throughout #38
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 13 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 85
Lab No.: 5946711 **Client No.:** 3	**Description:** White Joint Compound **Facility:**	**Location:** Throughout #47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946712 **Client No.:** 4	**Description:** White Joint Compound **Facility:**	**Location:** Throughout #38
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946713 **Client No.:** 5	**Description:** Off-White Plaster **Facility:**	**Location:** Throughout #47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946714 **Client No.:** 6	**Description:** White Plaster **Facility:**	**Location:** Throughout #38
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 11:33:22 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 2:26:06 PM

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CERTIFICATE OF ANALYSIS

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Client: HUB949

Report Date: 6/9/2016
Report No.: 511307 - PLM
Project: Bldg 105
Project No.: 26284

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946715 **Client No.:** 7	**Description:** White Plaster **Facility:**	**Location:** Throughout #41
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946716 **Client No.:** 8	**Description:** White Plaster **Facility:**	**Location:** Throughout #21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946717 **Client No.:** 9	**Description:** White Plaster **Facility:**	**Location:** Throughout #22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946718 **Client No.:** 10	**Description:** White Plaster **Facility:**	**Location:** Throughout #2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946719 **Client No.:** 11	**Description:** White Plaster **Facility:**	**Location:** Throughout #16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946720 **Client No.:** 12	**Description:** Tan Ceiling Tile; 2x2 **Facility:**	**Location:** Throughout #28
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 35 Cellulose 20 Fibrous Glass	Percent Non-Fibrous Material: 45

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 11:33:22 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 2:26:07 PM

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511307 - PLM
Project: Bldg 105
Project No.: 26284

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946721
Client No.: 13
Description: Tan Ceiling Tile; 2x2
Facility:
Location: Throughout #38

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
35 Cellulose
20 Fibrous Glass

Percent Non-Fibrous Material:
45

Lab No.: 5946722
Client No.: 30
Description: White Grout
Facility:
Location: Rm 32

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 5946723
Client No.: 31
Description: White Grout
Facility:
Location: #40

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 5946724
Client No.: 32
Description: Tan Mastic
Facility:
Location: Rm 32

Percent Asbestos:
2 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
98

Lab No.: 5946725
Client No.: 33
Description: Sample Not Analyzed
Facility:
Location: #40

Percent Asbestos:
Sample Not Analyzed

Percent Non-Asbestos Fibrous Material:
Sample Not Analyzed

Percent Non-Fibrous Material:

Lab No.: 5946726
Client No.: 34
Description: White Grout
Facility:
Location: #43

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 11:33:22 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 2:26:07 PM

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511307 - PLM
Project: Bldg 105
Project No.: 26284

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946727 **Client No.:** 35	**Description:** White Grout **Facility:**	**Location:** #51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946728 **Client No.:** 36	**Description:** Tan Mastic **Facility:**	**Location:** #43
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5946729 **Client No.:** 37	**Description:** Sample Not Analyzed **Facility:**	**Location:** #51
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5946730 **Client No.:** 38	**Description:** Tan Mastic **Facility:**	**Location:** Throughout Interior #38
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946731 **Client No.:** 39	**Description:** Tan Mastic **Facility:**	**Location:** Throughout Interior #21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946732 **Client No.:** 40	**Description:** Orange Brick **Facility:**	**Location:** Exterior By Rm 47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
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Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 2:26:07 PM

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Report Date: 6/9/2016
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Project: Bldg 105
Project No.: 26284

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946733 **Client No.:** 41	**Description:** Orange Brick **Facility:**	**Location:** Exterior By Rm 49
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946734 **Client No.:** 42	**Description:** Brown Mortar **Facility:**	**Location:** Exterior By Rm 47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946735 **Client No.:** 43	**Description:** Brown Mortar **Facility:**	**Location:** Exterior By Rm 49
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946736 **Client No.:** 44	**Description:** Sample Not Received **Facility:**	**Location:**
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5946737 **Client No.:** 14	**Description:** Lt Tan Caulk **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5946738 **Client No.:** 15	**Description:** Sample Not Analyzed **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
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Client: HUB949

Report Date: 6/9/2016
Report No.: 511307 - PLM
Project: Bldg 105
Project No.: 26284

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946739
Client No.: 16
Description: White Caulk
Facility:
Location: Additional Sample Received

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5946740
Client No.: 17
Description: White Caulk
Facility:
Location: Additional Sample Received

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5946741
Client No.: 18
Description: Grey Ceramic
Facility:
Location: Additional Sample Received

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5946741(L2)
Client No.: 18
Description: Grey Grout
Facility:
Location: Additional Sample Received

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: 3 Cellulose
Percent Non-Fibrous Material: 97

Lab No.: 5946742
Client No.: 19
Description: Grey Ceramic
Facility:
Location: Additional Sample Received

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Lab No.: 5946742(L2)
Client No.: 19
Description: Grey Grout
Facility:
Location: Additional Sample Received

Percent Asbestos: *None Detected*
Percent Non-Asbestos Fibrous Material: None Detected
Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 11:33:22 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Client: HUB949

Report Date: 6/9/2016
Report No.: 511307 - PLM
Project: Bldg 105
Project No.: 26284

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946742(L3) **Client No.:** 19	**Description:** Tan Mastic **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5946743 **Client No.:** 20	**Description:** Lt Tan Ceramic **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946743(L2) **Client No.:** 20	**Description:** Tan Mastic **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5946743(L3) **Client No.:** 20	**Description:** Dk Tan Caulk **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946744 **Client No.:** 21	**Description:** Lt Tan Ceramic **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946745 **Client No.:** 22	**Description:** White Mortar **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Date Analyzed: 6/9/2016 11:33:22 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511307 - PLM
Project: Bldg 105
Project No.: 26284

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946746 **Client No.:** 23	**Description:** White Mortar **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946747 **Client No.:** 24	**Description:** White Ceramic **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946747(L2) **Client No.:** 24	**Description:** White Mastic **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946747(L3) **Client No.:** 24	**Description:** White Mortar **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946748 **Client No.:** 25	**Description:** White Ceramic **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946748(L2) **Client No.:** 25	**Description:** White Mortar **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 11:33:22 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 2:26:07 PM

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Client: HUB949

Report Date: 6/9/2016
Report No.: 511307 - PLM
Project: Bldg 105
Project No.: 26284

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946749 **Client No.:** 26	**Description:** Grey Grout **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946749(L2) **Client No.:** 26	**Description:** Tan Grout **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946750 **Client No.:** 27	**Description:** Grey Grout **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946751 **Client No.:** 28	**Description:** Lt Blue Ceramic **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946751(L2) **Client No.:** 28	**Description:** Off-White/Black/Tan Mastic/ Grout **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: ***Trace** Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946751(L3) **Client No.:** 28	**Description:** Off-White Mastic **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 11:33:22 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Client: HUB949

Report Date: 6/9/2016
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Project: Bldg 105
Project No.: 26284

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946752
Client No.: 29
Description: Grey Grout
Facility:
Location: Additional Sample Received

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 5946752(L2)
Client No.: 29
Description: Black Mastic
Facility:
Location: Additional Sample Received

Percent Asbestos:
2 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
98

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 11:33:22 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 2:26:07 PM

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Client: HUB949

Report Date: 6/9/2016
Report No.: 511307 - PLM
Project: Bldg 105
Project No.: 26284

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment B: The Cottages

Section 4, Cottage 106

- Homogenous Materials Chart
  - Asbestos PLM Results

HA Description	Sample ID 26286	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Sheetrock	1	Room 2	Walls throughout and ceilings in bathrooms and mechanical rooms		No
	2	Room 27			
Joint compound	3	Room 49	Same		No
	4	Room 27			
Skim coat	5	Room 2	Throughout		No
	6	Room 5			
	7	Room 21			
	8	Room 29			
	9	Room 28			
	10	Room 45			
	11	Room 51			
2'x2' Small fissure ceiling tile (thin fissure with dots)	12	Room 8	Throughout except bathrooms, mechanical and electric rooms		No
	13	Room 28			
12"x12" Floor tile			All floors throughout except in rooms 4, 15, 20, 18, 51, 52, 51A, 2A, 24, 26, 22, 43, 32, 30, 29; Also in rooms 9, 12, 36, and 37 below thinset	Approximately 5,000 square feet (SF)	Yes*
Associated mastic			Same	Same	Yes*
	*Associated mastic was sampled in multiple areas and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of floor tile and mastic was ceased. Mastic is considered to be asbestos containing and the floor tile is considered to be asbestos contaminated.				
Window glazing associated with wire re-enforced panels	14	Room 6	Panes in doors or windows in rooms 1, 49, 50, 6, 14, 17, 19, 21, 25, 22, 26, 27, 41, 46, 47, 30, 31, 48	18 - 8" windows, 275 linear feet (LF) of glazing on doors and windows in rooms and 8 entry doors at approximately 20 LF each	Yes*
	15	Room 41			
	*Glazing associated with wire re-enforced windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of wire re-enforced windows was ceased. The glazing is considered to be asbestos containing.				
Caulking associated with wooden panels on three panel windows	16	Room 6	Exterior on the wooden panels of the three panel windows at Rooms 21, 6, and 41	Approximately 150 LF	Yes*
	17	Room 41			
	*Caulking associated with the wooden panels below the three panel windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of this caulking was ceased. The caulking is considered to be asbestos containing.				

HA Description	Sample ID 26286	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Window and door caulking			All window and door caulking other than at wooden panels in rooms 21, 6 and 41 is silicone		No
1"x1" Ceramic floor tile grout	18	Room 15	Tile Color: Brown Rooms 15 and 32	Approximately 1000 SF of floor tile plus additional wall tile	No
	19	Room 32			
1"x1" Ceramic floor tile adhesive	20	Room 15	same		Yes[1]
	21	Room 32			
2"x2" Ceramic floor tile grout	26	Room 51	Tile Color: Gray 51 and 52		No
	27	Room 52			
2"x2" Ceramic floor tile adhesive	28	Room 51	same		Yes[1]
	29	Room 52			
2"x2" Ceramic wall tile grout	30	Room 15	Tile Color: Gray 51, 52, 4, 43		No
	31	Room 32			
2"x2" Ceramic wall tile adhesive	32	Room 15	same		Yes[1]
	33	Room 32			
1"x4" Ceramic wall tile grout	34	Room51	Tile Color: Tan Rooms 43, 4, 51, and 52		No
	35	Room52			
1"x4" Ceramic wall tile adhesive	36	Room 51			Yes[1]
	37	Room 52			
[1]Adhesive associated with ceramic tile	The adhesive associated with the ceramic tile was found to be asbestos containing with some inconsistency. Most adhesive was brown. It was found below 1", 2" and 1x4" ceramic tile both on the walls and floor. In rooms 9, 12, 36 and 37 the ceramic floor was applied over the old asbestos containing black mastic. For this reason all adhesive associated with ceramic tile is considered to be asbestos containing other than the 4"ceramic tile consistently was analyzed and no asbestos was detected.				
4"x4" Ceramic wall tile grout	22	Room 36	Tile Color: Rooms 9, 12, 37 and 36 Mainly used in shower stalls		No
	23	Room 12			
4"x4" Ceramic wall tile adhesive	24	Room 36			No
	25	Room 12			
Mastic associated with 4" cove base	38	Room 49	Randomly throughout		No
	39	Room 39			
Brick	40	Room 49	Exterior façade		No
	41	Room 47			
Associated mortar	42	Room 49	Exterior façade		No
	43	Room 47			
Tar paper moisture barrier, below exterior brick façade and shingles	44	Room 6	Exterior façade		No
	45	Room 41			
Newer 2"x2" Ceramic floor tile grout	48	Room 4	Tile Color: Multi Rooms 4 and 43		No
	49	Room 43			
Newer 2"x2" Ceramic floor tile adhesive	50	Room 4			No
	51	Room 43			
Wall heating unit caulk	26398-17	Room 35		40 Units; 14 LF each	No
	26398-18	Room 13			
Gasket of flanges of large diameter piping			Mechanical room		Yes*
	*Where visible gasket materials was visually identified as asbestos containing.				

HA Description	Sample ID 26286	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Built up Roof		Roof	Roof		Yes*
Flashing mastic		Roof	Roof at HVAC and mushroom caps		Yes*
	*Flashing mastic and BUR felts were sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of these materials was ceased. The roofing is considered to be asbestos containing.				

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ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511306 - PLM
Project:
Project No.: 26286

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946753 **Client No.:** 1	**Description:** Brown Sheetrock **Facility:**	**Location:** 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose	Percent Non-Fibrous Material: 90
Lab No.: 5946754 **Client No.:** 2	**Description:** White Sheetrock **Facility:**	**Location:** 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 95
Lab No.: 5946755 **Client No.:** 3	**Description:** White Joint Compound **Facility:**	**Location:** 47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946756 **Client No.:** 4	**Description:** White Joint Compound **Facility:**	**Location:** 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946757 **Client No.:** 5	**Description:** White Joint Compound **Facility:**	**Location:** 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946758 **Client No.:** 6	**Description:** White/Lt Pink Joint Compound Paint **Facility:**	**Location:** 5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 12:00:00 AM
Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 4:20:40 PM

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Client: HUB949

Report Date: 6/9/2016
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Project No.: 26286

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946759 **Client No.:** 7	**Description:** White Joint Compound **Facility:**	**Location:** 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946760 **Client No.:** 8	**Description:** White Joint Compound **Facility:**	**Location:** 29
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946761 **Client No.:** 9	**Description:** White Joint Compound **Facility:**	**Location:** 28
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946762 **Client No.:** 10	**Description:** White Joint Compound **Facility:**	**Location:** 45
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946763 **Client No.:** 11	**Description:** White Joint Compound **Facility:**	**Location:** 84 51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946764 **Client No.:** 12	**Description:** White/Grey Ceiling Tile; 2x2 **Facility:**	**Location:** 8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Cellulose 30 Fibrous Glass	Percent Non-Fibrous Material: 40

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 4:20:41 PM

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Client: HUB949

Report Date: 6/9/2016
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Project:
Project No.: 26286

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946765 **Client No.:** 13	**Description:** White/Grey Ceiling Tile; 2x2 **Facility:**	**Location:** 28
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Cellulose 30 Fibrous Glass	Percent Non-Fibrous Material: 40
Lab No.: 5946766 **Client No.:** 14	**Description:** Tan Glazing **Facility:**	**Location:** 6
Percent Asbestos: ***PC 2 Chrysotile***	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5946767 **Client No.:** 15	**Description:** Sample Not Analyzed **Facility:**	**Location:** 41
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5946768 **Client No.:** 16	**Description:** Red/White Caulk **Facility:**	**Location:** 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946769 **Client No.:** 17	**Description:** Red/White Caulk **Facility:**	**Location:** 41
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946770 **Client No.:** 18	**Description:** Grey Grout **Facility:**	**Location:** 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 12:00:00 AM
Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 4:20:41 PM

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Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511306 - PLM
Project:
Project No.: 26286

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946771
Client No.: 19

Description: Grey Grout
Facility:

Location: 32

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 12:00:00 AM
Signature: Rachel McQuiggan
Analyst: Rachel McQuiggan

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511306 - PLM
Project:
Project No.: 26286

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946772 **Client No.:** 20	**Description:** Tan Mastic **Facility:**	**Location:** 15
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5946773 **Client No.:** 21	**Description:** Sample Not Analyzed **Facility:**	**Location:** 32
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5946774 **Client No.:** 22	**Description:** White Grout **Facility:**	**Location:** 36
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946775 **Client No.:** 23	**Description:** White Grout **Facility:**	**Location:** 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946776 **Client No.:** 24	**Description:** White Mastic **Facility:**	**Location:** 36
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946777 **Client No.:** 25	**Description:** White Mastic **Facility:**	**Location:** 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 12:00:00 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 4:20:41 PM

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511306 - PLM
Project:
Project No.: 26286

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946778 **Client No.:** 26	**Description:** Grey Grout **Facility:**	**Location:** 51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946779 **Client No.:** 27	**Description:** Grey Grout **Facility:**	**Location:** 52
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946780 **Client No.:** 28	**Description:** Tan Mastic **Facility:**	**Location:** 51
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5946781 **Client No.:** 29	**Description:** Sample Not Analyzed **Facility:**	**Location:** 52
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5946782 **Client No.:** 30	**Description:** White Grout **Facility:**	**Location:** 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946783 **Client No.:** 31	**Description:** White Grout **Facility:**	**Location:** 32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 12:00:00 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/9/2016 4:20:41 PM

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511306 - PLM
Project:
Project No.: 26286

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946784 **Client No.:** 32	**Description:** Tan Mastic **Facility:**	**Location:** 15
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5946785 **Client No.:** 33	**Description:** Sample Not Analyzed **Facility:**	**Location:** 32
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5946786 **Client No.:** 34	**Description:** White Grout **Facility:**	**Location:** 51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946787 **Client No.:** 35	**Description:** White Grout **Facility:**	**Location:** 52
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946788 **Client No.:** 36	**Description:** Tan Mastic **Facility:**	**Location:** 51
Percent Asbestos: *3 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 97
Lab No.: 5946789 **Client No.:** 37	**Description:** Sample Not Analyzed **Facility:**	**Location:** 52
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 12:00:00 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511306 - PLM
Project:
Project No.: 26286

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946790 **Client No.:** 38	**Description:** Brown Mastic **Facility:**	**Location:** 44
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946791 **Client No.:** 39	**Description:** Brown Mastic **Facility:**	**Location:** 39
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946792 **Client No.:** 40	**Description:** Red Brick **Facility:**	**Location:** 49
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946793 **Client No.:** 41	**Description:** Red Brick **Facility:**	**Location:** 43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946794 **Client No.:** 42	**Description:** Lt Brown Mortar **Facility:**	**Location:** 49
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946795 **Client No.:** 43	**Description:** Lt Brown Mortar **Facility:**	**Location:** 47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 12:00:00 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/9/2016
Report No.: 511306 - PLM
Project:
Project No.: 26286

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5946796 **Client No.:** 44	**Description:** Black Tar Paper **Facility:**	**Location:** 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 75 Cellulose	Percent Non-Fibrous Material: 25
Lab No.: 5946797 **Client No.:** 45	**Description:** Black Tar Paper **Facility:**	**Location:** 41
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 75 Cellulose	Percent Non-Fibrous Material: 25
Lab No.: 5946798 **Client No.:** 48	**Description:** Grey Grout **Facility:**	**Location:** 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946799 **Client No.:** 49	**Description:** Grey Grout **Facility:**	**Location:** 43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946800 **Client No.:** 50	**Description:** Tan Mastic **Facility:**	**Location:** 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5946801 **Client No.:** 51	**Description:** Tan Mastic **Facility:**	**Location:** 43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/6/2016
Date Analyzed: 6/9/2016 12:00:00 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Client: HUB949

Report Date: 6/9/2016
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Project:
Project No.: 26286

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

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Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment B: The Cottages

Section 5, Cottage 107

- Homogenous Materials Chart
  - Asbestos PLM Results

HA Description	Sample ID 26294	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Sheetrock	1	Room 45	Walls throughout and ceilings in bathrooms and mechanical rooms		No
	2	Room 49			
Joint compound	3	Room 47	Same		No
	4	Room 49			
Skim coat	5	Room 45	Throughout		No
	6	Room 49			
	7	Room 21 right side			
	8	Room 21 left side			
	9	Room 40			
	10	Room 42			
	11	Room 5			
2'x2' Small fissure ceiling tile (thin fissure with dots)	12	Room 39	Throughout except bathrooms, mechanical and electric rooms		No
	13	Room 21			
12"x12" Floor tile			All floors throughout except in rooms 4, 15, 20, 18, 51, 52, 51A, 2A, 24, 26, 22, 43, 32, 30, 29; Also in rooms 9, 12, 36, and 37 below thinset	Approximately 5,000 square feet (SF)	Yes*
Associated mastic	26291-4		Same	Same	Yes*
	26291-5				
	26291-6				
	*Associated mastic was sampled in multiple areas and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of floor tile and mastic was ceased. Mastic is considered to be asbestos containing and the floor tile is considered to be asbestos contaminated.				
Window glazing associated with wire re-enforced panels	14	Room 19	Panes in doors or windows in rooms 1, 49, 50, 6, 14, 17, 19, 21, 25, 22, 26, 27, 41, 46, 47, 30, 31, 48	18 - 8" windows, 275 linear feet (LF) of glazing on doors and windows in rooms and 8 entry doors at approximately 20 LF each	Yes*
	15	Room 6			
	*Glazing associated with wire re-enforced windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of wire re-enforced windows was ceased. The glazing is considered to be asbestos containing.				
Caulking associated with wooden panels on three panel windows	16	Room 41	Exterior on the wooden panels of the three panel windows at Rooms 21, 6, and 41	Approximately 150 LF	Yes*
	17	Room 6			
	*Caulking associated with the wooden panels below the three panel windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of this caulking was ceased. The caulking is considered to be asbestos containing.				

HA Description	Sample ID 26294	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Window and door caulking			All window and door caulking other than at wooden panels in rooms 21, 6 and 41 is silicone		No
1"x1" Ceramic floor tile grout	18	Room 15	Tile Color: Brown Rooms 15 and 32	Approximately 1000 square feet of floor tile ad additional wall tile	No
	19	Room 32			
1"x1" Ceramic floor tile adhesive	20	Room 15			Yes[1]
	21	Room 32			
2"x2" Ceramic floor tile grout	26	Room 9	Tile Color: Gray Rooms 9, 12, 37, 36, 51 and 52		No
	27	Room 37			
2"x2" Ceramic floor tile adhesive	28	Room 9			Yes[1]
	29	Room 37			
2"x2" Ceramic wall tile grout	30	Room 15	Tile Color: Tan Rooms 15 and 32		No
	31	Room 32			
2"x2" Ceramic wall tile adhesive	32	Room 5			Yes[1]
	33	Room 32			
1"x4" Ceramic wall tile grout	34	Room 43	Tile Color: Tan Rooms 43, 4, 51, and 52		No
	35	Room 4			
1"x4" Ceramic wall tile adhesive	36	Room 43			Yes[1]
	37	Room 4			
[1]Adhesive associated with ceramic tile	The adhesive associated with the ceramic tile was found to be asbestos containing with some inconsistency. Most adhesive was brown. It was found below 1", 2" and 1x4" ceramic tile both on the walls and floor. In rooms 9, 12, 36 and 37 the ceramic floor was applied over the old asbestos containing black mastic. For this reason all adhesive associated with ceramic tile is considered to be asbestos containing other than the 4"ceramic tile consistently was analyzed and no asbestos was detected.				
4"x4" Ceramic wall tile grout	22	Room 9	Tile Color: White Rooms 9, 12, 37 and 36		No
	23	Room 37			
4"x4" Ceramic wall tile adhesive	24	Room 9	Mainly used in shower stalls		No
	25	Room 37			
Mastic associated with 4" cove base	38	Room 47	Randomly throughout		No
	39	Room 40			
Brick	40	Room 47	Exterior façade		No
	41	Room 2			
Associated mortar	42	Room 47	Exterior façade		No
	43	Room 2			
Tar paper moisture barrier, below exterior brick façade and shingles	44	Room 41	Under brick facade		No
	45	Room 6			
Newer 2"x2" ceramic floor tile grout	47	Room 4	Tile Color: Multi Rooms 4 and 43		No
	48	Room 43			
Newer 2"x2" ceramic floor tile adhesive	49	Room 4			No
	50	Room 43			
Wall heating unit caulk	51	Room 41		40 Units; 14 LF each	No
	52	Room 30			
Gasket of flanges of large diameter piping			Mechanical room		Yes*
	*Where visible gasket materials was visually identified as asbestos containing.				

HA Description	Sample ID 26294	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Built up Roof		Roof	Roof		Yes*
Flashing mastic		Roof	Roof at HVAC and mushroom caps		Yes*
	*Flashing mastic and BUR felts were sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of these materials was ceased. The roofing is considered to be asbestos containing.				

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/17/2016
Report No.: 512337 - PLM
Project:
Project No.: 26294

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956567 **Client No.:** 1	**Description:** Tan Sheetrock **Facility:**	**Location:** #45
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 93
Lab No.: 5956568 **Client No.:** 2	**Description:** Tan Sheetrock **Facility:**	**Location:** #49
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 93
Lab No.: 5956569 **Client No.:** 3	**Description:** White Joint Compound **Facility:**	**Location:** #47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956570 **Client No.:** 4	**Description:** White Joint Compound **Facility:**	**Location:** #49
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956571 **Client No.:** 5	**Description:** White Texture/Plaster **Facility:**	**Location:** Throughout #45
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956572 **Client No.:** 6	**Description:** White Texture/Plaster **Facility:**	**Location:** Throughout #49
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/16/2016
Date Analyzed: 6/17/2016 11:24:59 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/22/2016 10:40:48 AM

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Project No.: 26294

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956573 **Client No.:** 7	**Description:** White Texture/Plaster **Facility:**	**Location:** Throughout Right 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956574 **Client No.:** 8	**Description:** White Texture/Plaster **Facility:**	**Location:** Throughout Left 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956575 **Client No.:** 9	**Description:** White Texture/Plaster **Facility:**	**Location:** Throughout #40
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956576 **Client No.:** 10	**Description:** White Texture/Plaster **Facility:**	**Location:** Throughout #42
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956577 **Client No.:** 11	**Description:** White Texture/Plaster **Facility:**	**Location:** Throughout #5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956578 **Client No.:** 12	**Description:** White/Tan Ceiling Tile; 2x2 **Facility:**	**Location:** #39
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 60 Cellulose 10 Mineral Wool	Percent Non-Fibrous Material: 30

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956579 **Client No.:** 13	**Description:** White/Lt Tan Ceiling Tile; 2x2 **Facility:**	**Location:** #21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 60 Cellulose 10 Mineral Wool	Percent Non-Fibrous Material: 30
Lab No.: 5956580 **Client No.:** 14	**Description:** Tan Glazing **Facility:**	**Location:** #19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956581 **Client No.:** 15	**Description:** Tan Glazing **Facility:**	**Location:** #6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956582 **Client No.:** 16	**Description:** Brown/Off-White Paint/Glazing **Facility:**	**Location:** Exterior #41
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956583 **Client No.:** 17	**Description:** Off-White Caulk **Facility:**	**Location:** Exterior #6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956583(L2) **Client No.:** 17	**Description:** White Putty **Facility:**	**Location:** Exterior #6
Percent Asbestos: *1 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99

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Client: HUB949

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956584 **Client No.:** 18	**Description:** Grey Grout **Facility:**	**Location:** #15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956585 **Client No.:** 19	**Description:** Grey Grout **Facility:**	**Location:** #32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956586 **Client No.:** 20	**Description:** Tan Mastic **Facility:**	**Location:** #5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956587 **Client No.:** 21	**Description:** Tan Mastic **Facility:**	**Location:** #32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956588 **Client No.:** 22	**Description:** White Grout **Facility:**	**Location:** #9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956589 **Client No.:** 23	**Description:** White Grout **Facility:**	**Location:** #37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956590 **Client No.:** 24	**Description:** Lt Tan Mastic **Facility:**	**Location:** #9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956591 **Client No.:** 25	**Description:** Lt Tan Mastic **Facility:**	**Location:** #37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956592 **Client No.:** 26	**Description:** Grey Grout **Facility:**	**Location:** #9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956593 **Client No.:** 27	**Description:** Grey Grout **Facility:**	**Location:** #37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956594 **Client No.:** 28	**Description:** Yellow Mastic **Facility:**	**Location:** #9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956595 **Client No.:** 29	**Description:** Yellow Mastic **Facility:**	**Location:** #37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956596 **Client No.:** 30	**Description:** White Grout **Facility:**	**Location:** #15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956597 **Client No.:** 31	**Description:** White Grout **Facility:**	**Location:** #32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956598 **Client No.:** 32	**Description:** Tan Mastic **Facility:**	**Location:** #5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956599 **Client No.:** 33	**Description:** Tan Mastic **Facility:**	**Location:** #32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956600 **Client No.:** 34	**Description:** White Grout **Facility:**	**Location:** #43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956601 **Client No.:** 35	**Description:** White Grout **Facility:**	**Location:** #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Client: HUB949

Report Date: 6/17/2016
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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956602 **Client No.:** 36	**Description:** Tan Mastic **Facility:**	**Location:** #43
Percent Asbestos: *1 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99
Lab No.: 5956603 **Client No.:** 37	**Description:** Sample Not Analyzed **Facility:**	**Location:** #4
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5956604 **Client No.:** 38	**Description:** Dk Brown Mastic **Facility:**	**Location:** #47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956605 **Client No.:** 39	**Description:** Dk Brown Mastic **Facility:**	**Location:** #40
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956606 **Client No.:** 40	**Description:** Red/Brown Brick **Facility:**	**Location:** #47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956607 **Client No.:** 41	**Description:** Red/Brown Brick **Facility:**	**Location:** #2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method **-US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Client: HUB949

Report Date: 6/17/2016
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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956608 **Client No.:** 42	**Description:** Dk Brown Mortar **Facility:**	**Location:** #47
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956609 **Client No.:** 43	**Description:** Dk Brown Mortar **Facility:**	**Location:** #2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956610 **Client No.:** 44	**Description:** Black Tar Paper **Facility:**	**Location:** #41
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 80 Cellulose	Percent Non-Fibrous Material: 20
Lab No.: 5956611 **Client No.:** 45	**Description:** Black Tar Paper **Facility:**	**Location:** #6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 80 Cellulose	Percent Non-Fibrous Material: 20
Lab No.: 5956612 **Client No.:** 47	**Description:** Grey Grout **Facility:**	**Location:** #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956613 **Client No.:** 48	**Description:** Grey Grout **Facility:**	**Location:** #43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/16/2016
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Laboratory Director

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Client: HUB949

Report Date: 6/17/2016
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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956614 **Client No.:** 49	**Description:** Lt Tan Mastic **Facility:**	**Location:** #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956615 **Client No.:** 50	**Description:** Lt Tan Mastic **Facility:**	**Location:** #43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956616 **Client No.:** 51	**Description:** Off-White Caulk **Facility:**	**Location:** #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956617 **Client No.:** 52	**Description:** Off-White Caulk **Facility:**	**Location:** #30
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Report Date: 6/17/2016
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Project:
Project No.: 26294

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/17/2016
Report No.: 512337 - PLM
Project:
Project No.: 26294

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment B: The Cottages

Section 6, Cottage 108

- Homogenous Materials Chart
  - Asbestos PLM Results

HA Description	Sample ID 26330	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Sheetrock	1	Room 45	Walls throughout and ceilings in bathrooms and mechanical rooms		No
	2	Room 16			
Joint compound	3	Room 49	Same		No
	4	Adjacent to Room 51			
Skim coat	5	Room 45	Throughout		No
	6	Room 16			
	7	Room 25			
	8	Room 27			
	9	Room 38			
	10	Room 42			
	11	Room 21			
2'x2' Small fissure ceiling tile (thin fissure with dots)	12	Room 8	Throughout except bathrooms, mechanical and electric rooms		No
	13	Room 39			
12"x12" Floor tile			All floors throughout except in rooms 4, 15, 20, 18, 51, 52, 51A, 2A, 24, 26, 22, 43, 32, 30, 29; Also in rooms 9, 12, 36, and 37 below thinset	Approximately 5,000 square feet (SF)	Yes*
Associated mastic	26291-1		Same	Same	Yes*
	26291-2				
	26291-3				
	*Associated mastic was sampled in multiple areas and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of floor tile and mastic was ceased. Mastic is considered to be asbestos containing and the floor tile is considered to be asbestos contaminated.				
Window glazing associated with wire re-enforced panels	14	Room 33	Panes in doors or windows in rooms 1, 49, 50, 6, 14, 17, 19, 21, 25, 22, 26, 27, 41, 46, 47, 30, 31, 48, 33	18 - 8" windows, 275 linear feet (LF) of glazing on doors and windows in rooms and 8 entry doors at approximately 20 LF each	Yes*
	15	Room 27			
	*Glazing associated with wire re-enforced windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of wire re-enforced windows was ceased. The glazing is considered to be asbestos containing.				
Caulking associated with wooden panels on three panel windows			Exterior on the wooden panels of the three panel windows at Rooms 21, 6, and 41	Approximately 150 LF	Yes*
	*Caulking associated with the wooden panels below the three panel windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of this caulking was ceased. The caulking is considered to be asbestos containing.				

HA Description	Sample ID 26330	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Window and door caulking	16	Room 4	All window and door caulking other than at wooden panels in rooms 21, 6 and 41 is silicone		No
	17	Room 41			
1"x1" Ceramic floor tile grout	18	The material was not identified in this building		Approximately 1000 SF of floor tile plus additional wall tile	No
	19				
1"x1" Ceramic floor tile adhesive	20	The material was not identified in this building			Yes[1]
	21				
2"x2" Ceramic floor tile grout	26	Room 12	Tile Color: Gray		No
	27	Room 9			
2"x2" Ceramic floor tile adhesive	28	Room 12			Yes[1]
	29	Room 9			
2"x2" Ceramic wall tile grout	30	Room 32	Tile Color: Tan		No
	31	Room 5			
2"x2" Ceramic wall tile adhesive	32	Room 32			Yes[1]
	33	Room 5			
1"x4" (1"x3") Ceramic wall tile grout	34	Room 43	Tile Color: Tan Rooms 43, 4, 51, and 52		No
	35	Room 52			
1"x4" (1"x3") Ceramic wall tile adhesive	36	Room 43			Yes[1]
	37	Room 52			
[1]Adhesive associated with ceramic tile	The adhesive associated with the ceramic tile was found to be asbestos containing with some inconsistency. Most adhesive was brown. It was found below 1", 2" and 1x4" ceramic tile both on the walls and floor. In rooms 9, 12, 36 and 37 the ceramic floor was applied over the old asbestos containing black mastic. For this reason all adhesive associated with ceramic tile is considered to be asbestos containing other than the 4"ceramic tile consistently was analyzed and no asbestos was detected.				
4"x4" Ceramic wall tile grout	22	Room 36	Tile Color: White Rooms 37 and 36		No
	23	Room 37			
4"x4" Ceramic wall tile adhesive	24	Room 36	Mainly used in shower stalls		No
	25	Room 37			
Mastic associated with 4" cove base	38	Room 16	Randomly throughout		No
	39	Room 28			
Brick	40	Room 49	Exterior façade		No
	41	Room 50			
Associated mortar	42	Room 49	Exterior façade		No
	43	Room 50			
Tar paper moisture barrier, below exterior brick façade and shingles	44	Room 4	Under brick facade		No
	45	Room 41			
Wall heating unit caulk	46	Room 31		40 Units; 14 LF each	No
	47	Room 49			
Gasket of flanges of large diameter piping			Mechanical room		Yes*
	*Where visible gasket materials was visually identified as asbestos containing.				

HA Description	Sample ID 26330	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Built up Roof	26427-6A	Top layer	Roof		Yes*
	26427-6B	Felt/tar layer			
	26427-6C	Felt/tar layer			
	26427-6D	Felt/tar layer			
	26427-6E	Felt/tar layer			
	26427-6F	Felt/tar layer			
	26427-6G	Insulation layer			
	26427-7A	Top layer			
	26427-7B	Felt/tar layer			
	26427-7C	Felt/tar layer			
	26427-7D	Felt/tar layer			
	26427-7E	Felt/tar layer			
	26427-7F	Felt/tar layer			
	26427-7G	Insulation layer			
Flashing mastic	26427-1	Lg. AHU	Roof at HVAC and mushroom caps		Yes*
	26427-2	Lg. AHU			
	26427-3	Sm. mushroom			
	26427-4	Sm. mushroom			
	26427-5	Lg. mushroom			
	*Flashing mastic and BUR felts were sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of these materials was ceased. The roofing is considered to be asbestos containing.				

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Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/20/2016
Report No.: 512336 - PLM
Project:
Project No.: 26330

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956618 **Client No.:** 1	**Description:** Tan Sheetrock **Facility:**	**Location:** #45
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 25 Cellulose Trace Fibrous Glass	Percent Non-Fibrous Material: 75
Lab No.: 5956619 **Client No.:** 2	**Description:** Grey/Tan Sheetrock **Facility:**	**Location:** #16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 35 Cellulose	Percent Non-Fibrous Material: 65
Lab No.: 5956620 **Client No.:** 3	**Description:** White Joint Compound **Facility:**	**Location:** #49
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956621 **Client No.:** 4	**Description:** White Joint Compound **Facility:**	**Location:** Adj To 51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956622 **Client No.:** 5	**Description:** White Skim Coat **Facility:**	**Location:** #45
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956623 **Client No.:** 6	**Description:** White Skim Coat **Facility:**	**Location:** #16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/16/2016
Date Analyzed: 6/20/2016 11:12:42 AM
Signature: Becky Hargrove
Analyst: Rebecca Hargrove

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/21/2016 3:51:57 PM

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956624 **Client No.:** 7	**Description:** White Skim Coat **Facility:**	**Location:** #25
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956625 **Client No.:** 8	**Description:** White Skim Coat **Facility:**	**Location:** #27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956626 **Client No.:** 9	**Description:** White Skim Coat **Facility:**	**Location:** #38
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956627 **Client No.:** 10	**Description:** White Skim Coat **Facility:**	**Location:** #42
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956628 **Client No.:** 11	**Description:** White Skim Coat **Facility:**	**Location:** #21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956629 **Client No.:** 12	**Description:** Grey/White Ceiling Tile; 2x2 **Facility:**	**Location:** #8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 45 Fibrous Glass 40 Cellulose	Percent Non-Fibrous Material: 15

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Analyst: Rebecca Hargrove

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Waltham MA 02453

Client: HUB949

Report Date: 6/20/2016
Report No.: 512336 - PLM
Project:
Project No.: 26330

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956630 **Client No.:** 13	**Description:** Grey/White Ceiling Tile; 2x2 **Facility:**	**Location:** #39
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 50 Cellulose 30 Fibrous Glass	Percent Non-Fibrous Material: 20
Lab No.: 5956631 **Client No.:** 14	**Description:** Tan Glazing **Facility:**	**Location:** #33
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5956632 **Client No.:** 15	**Description:** Sample Not Analyzed **Facility:**	**Location:** #27
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5956633 **Client No.:** 16	**Description:** White/Tan Caulk **Facility:**	**Location:** #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956634 **Client No.:** 17	**Description:** White Caulk **Facility:**	**Location:** #41
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956635 **Client No.:** 18	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956636 **Client No.:** 19	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956637 **Client No.:** 20	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956638 **Client No.:** 21	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956639 **Client No.:** 22	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956640 **Client No.:** 23	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956641 **Client No.:** 24	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956642 **Client No.:** 25	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956643 **Client No.:** 26	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956644 **Client No.:** 27	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956645 **Client No.:** 28	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956646 **Client No.:** 29	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956647 **Client No.:** 30	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Analyst: Rebecca Hargrove

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956648 **Client No.:** 31	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956649 **Client No.:** 32	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956650 **Client No.:** 33	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956651 **Client No.:** 34	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956652 **Client No.:** 35	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956653 **Client No.:** 36	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956654 **Client No.:** 37	**Description:** Sample Not Received **Facility:**	**Location:** Sample Not Received
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5956655 **Client No.:** 38	**Description:** Brown Mastic **Facility:**	**Location:** #16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956656 **Client No.:** 39	**Description:** Brown Mastic **Facility:**	**Location:** #28
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956657 **Client No.:** 40	**Description:** Red Brick **Facility:**	**Location:** #49
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956658 **Client No.:** 41	**Description:** Red Brick **Facility:**	**Location:** #50
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956659 **Client No.:** 42	**Description:** Red/Brown Mortar **Facility:**	**Location:** #49
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/16/2016
Date Analyzed: 6/20/2016 11:12:42 AM
Signature: Becky Hargrove
Analyst: Rebecca Hargrove

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/20/2016
Report No.: 512336 - PLM
Project:
Project No.: 26330

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5956660 **Client No.:** 43	**Description:** Red/Brown Mortar **Facility:**	**Location:** #50
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956661 **Client No.:** 44	**Description:** Black Tar Paper **Facility:**	**Location:** #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 50 Cellulose	Percent Non-Fibrous Material: 50
Lab No.: 5956662 **Client No.:** 45	**Description:** Black Tar Paper **Facility:**	**Location:** #41
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 50 Cellulose	Percent Non-Fibrous Material: 50
Lab No.: 5956663 **Client No.:** 46	**Description:** White Caulk **Facility:**	**Location:** #31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5956664 **Client No.:** 47	**Description:** White Caulk **Facility:**	**Location:** #49
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/16/2016
Date Analyzed: 6/20/2016 11:12:42 AM
Signature:
Analyst: Rebecca Hargrove

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/20/2016
Report No.: 512336 - PLM
Project:
Project No.: 26330

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Bateh Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/20/2016
Report No.: 512336 - PLM
Project:
Project No.: 26330

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514156 - PLM
Project: Bldg 108
Project No.: 26330 (cont.)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973319 **Client No.:** 22	**Description:** White Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973320 **Client No.:** 23	**Description:** White Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973321 **Client No.:** 24	**Description:** Grey Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973322 **Client No.:** 25	**Description:** Grey Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973323 **Client No.:** 26	**Description:** White Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973324 **Client No.:** 27	**Description:** White Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Shane Cone

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 4:14:05 PM

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514156 - PLM
Project: Bldg 108
Project No.: 26330 (cont.)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973325 **Client No.:** 28	**Description:** Tan Mastic **Facility:**	**Location:**
Percent Asbestos: *2.0 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5973326 **Client No.:** 29	**Description:** Sample Not Analyzed **Facility:**	**Location:**
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5973327 **Client No.:** 30	**Description:** White Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973328 **Client No.:** 31	**Description:** White Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973329 **Client No.:** 32	**Description:** Tan Mastic **Facility:**	**Location:**
Percent Asbestos: *1.0 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99
Lab No.: 5973330 **Client No.:** 33	**Description:** Sample Not Analyzed **Facility:**	**Location:**
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Shane Cone

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 4:14:05 PM

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514156 - PLM
Project: Bldg 108
Project No.: 26330 (cont.)

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973331 **Client No.:** 34	**Description:** White Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973332 **Client No.:** 35	**Description:** White Cementitious **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973333 **Client No.:** 36	**Description:** Tan Mastic **Facility:**	**Location:**
Percent Asbestos: ***2.0*** *Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5973334 **Client No.:** 37	**Description:** Sample Not Analyzed **Facility:**	**Location:**
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Shane Cone

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 4:14:05 PM

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Client: HUB949

Report Date: 7/11/2016
Report No.: 514156 - PLM
Project: Bldg 108
Project No.: 26330 (cont.)

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

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iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

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Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

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Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Client: HUB949

Report Date: 7/11/2016
Report No.: 514156 - PLM
Project: Bldg 108
Project No.: 26330 (cont.)

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be ineonclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment B: The Cottages

Section 7, Cottage 109

- Homogenous Materials Chart
  - Asbestos PLM Results

HA Description	Sample ID 26394	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Sheetrock	1	Room 21	Walls throughout and ceilings in bathrooms and mechanical rooms		No
	2	Room 45			
Joint compound	3	Room 21	Same		No
	4	Room 45			
2'x2' Small fissure ceiling tile (thin fissure with dots)	5	Room 21	Throughout except bathrooms, mechanical and electric rooms		No
	6	Room 1			
12"x12" Floor tile			All floors throughout except in rooms 4, 15, 20, 18, 51, 52, 51A, 2A, 24, 26, 22, 43, 32, 30, 29; Also in rooms 9, 12, 36, and 37 below thinset	Approximately 5,000 square feet (SF)	Yes*
Associated mastic			Same	Same	Yes*
	*Associated mastic was sampled in multiple areas and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of floor tile and mastic was ceased. Mastic is considered to be asbestos containing and the floor tile is considered to be asbestos contaminated.				
Window glazing associated with wire re-enforced panels			Panes in doors or windows in rooms 1, 49, 50, 6, 14, 17, 19, 21, 25, 22, 26, 27, 41, 46, 47, 30, 31, 48	18 - 8" windows, 275 linear feet (LF) of glazing on doors and windows in rooms and 8 entry doors at approximately 20 LF each	Yes*
	*Glazing associated with wire re-enforced windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of wire re-enforced windows was ceased. The glazing is considered to be asbestos containing.				
Caulking associated with wooden panels on three panel windows			Exterior on the wooden panels of the three panel windows at Rooms 21, 6, and 41	Approximately 150 linear feet	Yes*
	*Caulking associated with the wooden panels below the three panel windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of this caulking was ceased. The caulking is considered to be asbestos containing.				
Window and door caulking			All window and door caulking other than at wooden panels in rooms 21, 6 and 41 is silicone		No

HA Description	Sample ID 26394	Sample Location	Location of HA	Quantity	Asbestos Yes/No
1"x1" Ceramic floor tile grout	This material was not identified in this building			Approximately 1000 SF of floor tile plus additional wall tile	
1"x1" Ceramic floor tile adhesive	This material was not identified in this building				
2"x2" Ceramic floor tile grout	This material was not identified in this building				
2"x2" Ceramic floor tile adhesive	This material was not identified in this building				
2"x2" Ceramic wall tile grout	11	Room 5	Tile Color: Tan Rooms 5 and 32		No
	13	Room 32			
2"x2" Ceramic wall tile adhesive	12	Room 5			Yes[1]
	14	Room 32			
1"x4" Ceramic wall tile grout	15	Room 51	Tile Color: Tan		No
	17	Room 52			
1"x4" Ceramic wall tile adhesive	16	Room 51			Yes[1]
	18	Room 52			
[1]Adhesive associated with ceramic tile	The adhesive associated with the ceramic tile was found to be asbestos containing with some inconsistency. Most adhesive was brown. It was found below 1", 2" and 1x4" ceramic tile both on the walls and floor. In rooms 9, 12, 36 and 37 the ceramic floor was applied over the old asbestos containing black mastic. For this reason all adhesive associated with ceramic tile is considered to be asbestos containing other than the 4"ceramic tile consistently was analyzed and no asbestos was detected.				
4"x4" Ceramic wall tile grout	7	Room 36	Tile Color: White		No
	8	Room 37			
4"x4" Ceramic wall tile adhesive	9	Room 36	Mainly used in shower stalls		No
	10	Room 37			
Dark brown mastic associated with 6" cove base	19	By Room 29	All walls except kitchen and shops		No
	20	By Room 8			
Beige mastic associated with 6" cove base	19A	By Room 29	All walls except kitchen and shops		
	20A	By Room 8			
Brick	21	Room 46	Exterior façade		No
	22	Room 26			
Associated mortar	23	Room 46	Exterior façade		No
	24	Room 26			
Tar paper moisture barrier, below exterior brick façade and shingles	25	Room 5	Under brick facade		No
	26	Room 42			
2"x2" Ceramic wall tile grout	29	Room 9	Rooms 9 and 12		No
	30	Room 12			
2"x2" Ceramic wall tile adhesive	31	Room 9	Rooms 9 and 12		Yes
	32	Room 12			
Wall heating unit caulk	27	Room 52		40 Units; 14 LF each	No
	28	Room 21			
Gasket of flanges of large diameter piping			Mechanical room		Yes*
	*Where visible gasket materials was visually identified as asbestos containing.				
Built up Roof			Roof		Yes*
Flashing mastic			Roof at HVAC and mushroom caps		Yes*
	*Flashing mastic and BUR felts were sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of these materials was ceased. The roofing is considered to be asbestos containing.				

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ASBESTOS TESTING LABORATORIES

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Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/12/2016
Report No.: 514154 - PLM
Project: Bldg 109
Project No.: 26394

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973256 **Client No.:** 1	**Description:** White Sheetrock **Facility:**	**Location:** #21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 3 Fibrous Glass	Percent Non-Fibrous Material: 92
Lab No.: 5973257 **Client No.:** 2	**Description:** White Sheetrock **Facility:**	**Location:** #45
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 3 Fibrous Glass	Percent Non-Fibrous Material: 92
Lab No.: 5973258 **Client No.:** 3	**Description:** White Joint Compound **Facility:**	**Location:** #21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973259 **Client No.:** 4	**Description:** White Joint Compound **Facility:**	**Location:** #45
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973260 **Client No.:** 5	**Description:** White Ceiling Tile; 2x2 **Facility:**	**Location:** #21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose 40 Fibrous Glass	Percent Non-Fibrous Material: 20
Lab No.: 5973261 **Client No.:** 6	**Description:** White Ceiling Tile; 2x2 **Facility:**	**Location:** #1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose 40 Fibrous Glass	Percent Non-Fibrous Material: 20

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld
Frank E. Ehrenfeld, III
Laboratory Director

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Client: HUB949

Report Date: 7/12/2016
Report No.: 514154 - PLM
Project: Bldg 109
Project No.: 26394

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973262 **Client No.:** 7	**Description:** White Grout **Facility:**	**Location:** #36
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973263 **Client No.:** 8	**Description:** White Grout **Facility:**	**Location:** #37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973264 **Client No.:** 9	**Description:** White Mastic **Facility:**	**Location:** #36
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973265 **Client No.:** 10	**Description:** White Mastic **Facility:**	**Location:** #37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973266 **Client No.:** 11	**Description:** White Grout **Facility:**	**Location:** #5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973267 **Client No.:** 13	**Description:** White Grout **Facility:**	**Location:** #32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

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Waltham MA 02453

Client: HUB949

Report Date: 7/12/2016
Report No.: 514154 - PLM
Project: Bldg 109
Project No.: 26394

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973268 **Client No.:** 12	**Description:** Tan Mastic **Facility:**	**Location:** #5
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5973269 **Client No.:** 14	**Description:** Sample Not Analyzed **Facility:**	**Location:** #32
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5973270 **Client No.:** 15	**Description:** White Grout **Facility:**	**Location:** #51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973271 **Client No.:** 17	**Description:** White Grout **Facility:**	**Location:** #52
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973272 **Client No.:** 16	**Description:** Tan Mastic **Facility:**	**Location:** #51
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5973273 **Client No.:** 18	**Description:** Sample Not Analyzed **Facility:**	**Location:** #52
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/13/2016 2:01:12 PM

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Client: HUB949

Report Date: 7/12/2016
Report No.: 514154 - PLM
Project: Bldg 109
Project No.: 26394

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973274 **Client No.:** 19	**Description:** Dk Brown Mastic **Facility:**	**Location:** By #29
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973275 **Client No.:** 20	**Description:** Tan Mastic **Facility:**	**Location:** By #8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973276 **Client No.:** 19A	**Description:** Dk Brown Mastic **Facility:**	**Location:** By #29
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973277 **Client No.:** 20A	**Description:** Tan Mastic **Facility:**	**Location:** By #8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973278 **Client No.:** 21	**Description:** Red Brick **Facility:**	**Location:** #46
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973279 **Client No.:** 22	**Description:** Red Brick **Facility:**	**Location:** #26
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
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Client: HUB949

Report Date: 7/12/2016
Report No.: 514154 - PLM
Project: Bldg 109
Project No.: 26394

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973280 **Client No.:** 23	**Description:** Brown Mortar **Facility:**	**Location:** #46
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973281 **Client No.:** 24	**Description:** Brown Mortar **Facility:**	**Location:** #26
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973282 **Client No.:** 25	**Description:** Black Tar Paper **Facility:**	**Location:** #5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 70 Cellulose	Percent Non-Fibrous Material: 30
Lab No.: 5973283 **Client No.:** 26	**Description:** Black Tar Paper **Facility:**	**Location:** #42
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 70 Cellulose	Percent Non-Fibrous Material: 30
Lab No.: 5973284 **Client No.:** 27	**Description:** Off-White Caulk **Facility:**	**Location:** #52
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973284(L2) **Client No.:** 27	**Description:** Tan Caulk **Facility:**	**Location:** #52
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
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Client: Hub Testing Laboratory, Inc.
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Waltham MA 02453

Client: HUB949

Report Date: 7/12/2016
Report No.: 514154 - PLM
Project: Bldg 109
Project No.: 26394

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973285 **Client No.:** 28	**Description:** Off-White Caulk **Facility:**	**Location:** #21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973286 **Client No.:** 29	**Description:** White Grout **Facility:**	**Location:** #9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973287 **Client No.:** 30	**Description:** White Grout **Facility:**	**Location:** #12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973288 **Client No.:** 31	**Description:** Tan Mastic **Facility:**	**Location:** #9
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5973289 **Client No.:** 32	**Description:** Sample Not Received **Facility:**	**Location:** #12
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5973290 **Client No.:** 26394_31	**Description:** Sample Not Analyzed **Facility:**	**Location:** Duplicate Sample Received
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
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Client: HUB949

Report Date: 7/12/2016
Report No.: 514154 - PLM
Project: Bldg 109
Project No.: 26394

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment B: The Cottages

Section 8, Cottage 110

- Homogenous Materials Chart
  - Asbestos PLM Results

HA Description	Sample ID 26395	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Sheetrock	1	Room 36	Walls throughout and ceilings in bathrooms and mechanical rooms		No
	2	Room 30			
Joint compound	3	Room 31	Same		No
	4	Room 1			
2'x2' Small fissure ceiling tile (thin fissure with dots)	5	Room 16	Throughout except bathrooms, mechanical and electric rooms		No
	6	Room 28			
12"x12" Floor tile			All floors throughout except in rooms 4, 15, 20, 18, 51, 52, 51A, 2A, 24, 26, 22, 43, 32, 30, 29; Also in rooms 9, 12, 36, and 37 below thinset	Approximately 5,000 square feet (SF)	Yes*
Associated mastic	26291-9		Same	Same	Yes*
	*Associated mastic was sampled in multiple areas and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of floor tile and mastic was ceased. Mastic is considered to be asbestos containing and the floor tile is considered to be asbestos contaminated.				
Window glazing associated with wire re-enforced panels			Panes in doors or windows in rooms 1, 49, 50, 6, 14, 17, 19, 21, 25, 22, 26, 27, 41, 46, 47, 30, 31, 48	18 - 8" windows, 275 linear feet (LF) of glazing on doors and windows in rooms and 8 entry doors at approximately 20 LF each	Yes*
	*Glazing associated with wire re-enforced windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of wire re-enforced windows was ceased. The glazing is considered to be asbestos containing.				
Caulking associated with wooden panels on three panel windows			Exterior on the wooden panels of the three panel windows at Rooms 21, 6, and 41	Approximately 150 LF	Yes*
	*Caulking associated with the wooden panels below the three panel windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of this caulking was ceased. The caulking is considered to be asbestos containing.				
Window and door caulking			All window and door caulking other than at wooden panels in rooms 21, 6 and 41 is silicone		No

HA Description	Sample ID 26395	Sample Location	Location of HA	Quantity	Asbestos Yes/No
1"x1" Ceramic floor tile grout	This material was not identified in this building			Approximately 1000 SF of floor tile plus additional wall tile	
1"x1" Ceramic floor tile adhesive	This material was not identified in this building				
2"x2" Ceramic floor tile grout	This material was not identified in this building				
2"x2" Ceramic floor tile adhesive	This material was not identified in this building				
2"x2" Ceramic wall tile grout	11	Room 15	Tile Color: Tan Rooms 15 and 32		No
	12	Room 32			
2"x2" Ceramic wall tile adhesive	13	Room 15			Yes[1]
	14	Room 32			
1"x4" Ceramic wall tile grout	15	Room 43	Tile Color: Tan		No
	16	Room 51			
1"x4" Ceramic wall tile adhesive	17	Room 43			Yes[1]
	18	Room 51			
[1]Adhesive associated with ceramic tile	The adhesive associated with the ceramic tile was found to be asbestos containing with some inconsistency. Most adhesive was brown. It was found below 1", 2" and 1x4" ceramic tile both on the walls and floor. In rooms 9, 12, 36 and 37 the ceramic floor was applied over the old asbestos containing black mastic. For this reason all adhesive associated with ceramic tile is considered to be asbestos containing other than the 4"ceramic tile consistently was analyzed and no asbestos was detected.				
4"x4" Ceramic wall tile grout	7	Room 37	Tile Color: White		No
	8	Room 9			
4"x4" Ceramic wall tile adhesive	9	Room 37	Mainly used in shower stalls		No
	10	Room 9			
Mastic associated with 4" cove base	19	Room 28	Randomly throughout		No
	20	Room 16			
Brick	21	Room 25	Exterior façade		No
	22	Room 26			
Associated mortar	23	Room 25	Exterior façade		No
	24	Room 26			
Tar paper moisture barrier, below exterior brick façade and shingles	25	Room 5	Under brick facade		No
	26	Room 42			
Wall heating unit caulk	27			40 Units; 14 LF each	No
	28				
Gasket of flanges of large diameter piping			Mechanical room		Yes*
	*Where visible gasket materials was visually identified as asbestos containing.				

HA Description	Sample ID 26395	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Built up Roof	26427-25	Top layer tar and rock	Roof		Yes*
	26427-26	Felt/tar layer, random			
	26427-27	Insulation layer			
	26427-28	Top layer tar and rock			
	26427-29	Felt/tar layer, random			
	26427-30	Insulation layer			
Flashing mastic	26427-19	Lg. AHU	Roof at HVAC and mushroom caps		Yes*
	26427-20	Lg. AHU			
	26427-21	Sm. mushroom vent			
	26427-22	Sm. mushroom vent			
	26427-23	Lg. mushroom vent			
	26247-24	Lg. mushroom vent			
	*Flashing mastic and BUR felts were sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of these materials was ceased. The roofing is considered to be asbestos containing.				

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Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/12/2016
Report No.: 514155 - PLM
Project: Bldg 110
Project No.: 26395

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973291 **Client No.:** 1	**Description:** White Sheetrock **Facility:**	**Location:** #36
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 3 Fibrous Glass	Percent Non-Fibrous Material: 92
Lab No.: 5973292 **Client No.:** 2	**Description:** White Sheetrock **Facility:**	**Location:** #30
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 3 Fibrous Glass	Percent Non-Fibrous Material: 92
Lab No.: 5973293 **Client No.:** 3	**Description:** White Joint Compound **Facility:**	**Location:** #31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973294 **Client No.:** 4	**Description:** White Joint Compound **Facility:**	**Location:** #1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973295 **Client No.:** 5	**Description:** White Ceiling Tile; 2x2 **Facility:**	**Location:** #16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose 40 Fibrous Glass	Percent Non-Fibrous Material: 20
Lab No.: 5973296 **Client No.:** 6	**Description:** White Ceiling Tile; 2x2 **Facility:**	**Location:** #28
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose 40 Fibrous Glass	Percent Non-Fibrous Material: 20

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 4:32:45 PM

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/12/2016
Report No.: 514155 - PLM
Project: Bldg 110
Project No.: 26395

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973297 **Client No.:** 7	**Description:** White Grout **Facility:**	**Location:** #37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973298 **Client No.:** 8	**Description:** White Grout **Facility:**	**Location:** #9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973299 **Client No.:** 9	**Description:** White Mastic **Facility:**	**Location:** #37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973300 **Client No.:** 10	**Description:** White Mastic **Facility:**	**Location:** #9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973301 **Client No.:** 11	**Description:** White Grout **Facility:**	**Location:** #5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973302 **Client No.:** 12	**Description:** White Grout **Facility:**	**Location:** #32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/12/2016
Report No.: 514155 - PLM
Project: Bldg 110
Project No.: 26395

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973303 **Client No.:** 13	**Description:** Tan Mastic **Facility:**	**Location:** #15
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5973304 **Client No.:** 14	**Description:** Sample Not Analyzed **Facility:**	**Location:** #32
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5973305 **Client No.:** 15	**Description:** White Grout **Facility:**	**Location:** #43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973306 **Client No.:** 16	**Description:** White Grout **Facility:**	**Location:** #51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973307 **Client No.:** 17	**Description:** Tan Mastic **Facility:**	**Location:** #43
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5973308 **Client No.:** 18	**Description:** Sample Not Analyzed **Facility:**	**Location:** #51
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/12/2016
Report No.: 514155 - PLM
Project: Bldg 110
Project No.: 26395

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973309 **Client No.:** 19	**Description:** Tan Mastic **Facility:**	**Location:** #28
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973310 **Client No.:** 20	**Description:** Tan Mastic **Facility:**	**Location:** #16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973311 **Client No.:** 21	**Description:** Red Brick **Facility:**	**Location:** #25
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973312 **Client No.:** 22	**Description:** Red Brick **Facility:**	**Location:** #26
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973313 **Client No.:** 23	**Description:** Brown Mortar **Facility:**	**Location:** #25
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973314 **Client No.:** 24	**Description:** Brown Mortar **Facility:**	**Location:** #26
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld
Frank E. Ehrenfeld, III
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Client: HUB949

Report Date: 7/12/2016
Report No.: 514155 - PLM
Project: Bldg 110
Project No.: 26395

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973315 **Client No.:** 25	**Description:** Black Tar Paper **Facility:**	**Location:** #5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 70 Cellulose	Percent Non-Fibrous Material: 30
Lab No.: 5973316 **Client No.:** 26	**Description:** Black Tar Paper **Facility:**	**Location:** #42
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 70 Cellulose	Percent Non-Fibrous Material: 30
Lab No.: 5973317 **Client No.:** 27	**Description:** White Caulk **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973318 **Client No.:** 28	**Description:** White Caulk **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 4:32:45 PM

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Client: HUB949

Report Date: 7/12/2016
Report No.: 514155 - PLM
Project: Bldg 110
Project No.: 26395

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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CERTIFICATE OF ANALYSIS

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Client: HUB949

Report Date: 7/12/2016
Report No.: 514155 - PLM
Project: Bldg 110
Project No.: 26395

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment B: The Cottages

Section 9, Cottage 111

- Homogenous Materials Chart
  - Asbestos PLM Results

HA Description	Sample ID 26396	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Sheetrock	1	Kitchen	Walls throughout and ceilings in bathrooms and mechanical rooms		No
	2	Room 31			
Joint compound	3	Room 27	Same		No
	4	Room 31			
2'x2' Small fissure ceiling tile (thin fissure with dots)	5	Room 8	Throughout except bathrooms, mechanical and electric rooms		No
	6	Room 39			
12"x12" Floor tile			All floors throughout except in rooms 4, 15, 20, 18, 51, 52, 51A, 2A, 24, 26, 22, 43, 32, 30, 29; Also in rooms 9, 12, 36, and 37 below thinset	Approximately 5,000 square feet (SF)	Yes*
Associated mastic			Same	Same	Yes*
	*Associated mastic was sampled in multiple areas and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of floor tile and mastic was ceased. Mastic is considered to be asbestos containing and the floor tile is considered to be asbestos contaminated.				
Window glazing associated with wire re-enforced panels			Panes in doors or windows in rooms 1, 49, 50, 6, 14, 17, 19, 21, 25, 22, 26, 27, 41, 46, 47, 30, 31, 48	18 - 8" windows, 275 linear feet (LF) of glazing on doors and windows in rooms and 8 entry doors at approximately 20 LF each	Yes*
	*Glazing associated with wire re-enforced windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of wire re-enforced windows was ceased. The glazing is considered to be asbestos containing.				
Caulking associated with wooden panels on three panel windows			Exterior on the wooden panels of the three panel windows at Rooms 21, 6, and 41	Approximately 150 LF	Yes*
	*Caulking associated with the wooden panels below the three panel windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of this caulking was ceased. The caulking is considered to be asbestos containing.				
Window and door caulking			All window and door caulking other than at wooden panels in rooms 21, 6 and 41 is silicone		No

HA Description	Sample ID 26396	Sample Location	Location of HA	Quantity	Asbestos Yes/No
1"x1" Ceramic floor tile grout	This material was not identified in this building			Approximately 1000 SF of floor tile plus additional wall tile	
1"x1" Ceramic floor tile adhesive	This material was not identified in this building				
2"x2" Ceramic floor tile grout	This material was not identified in this building				
2"x2" Ceramic floor tile adhesive	This material was not identified in this building				
2"x2" Ceramic wall tile grout	11	Room 32	Tile Color: Tan Rooms 15 and 32		No
	12	Room 15			
2"x2" Ceramic wall tile adhesive	13	Room 32			Yes[1]
	14	Room 15			
1"x4" Ceramic wall tile grout	15	Room 51	Tile Color: Tan		No
	16	Room 52			
1"x4" Ceramic wall tile adhesive	17	Room 51			Yes[1]
	18	Room 52			
[1]Adhesive associated with ceramic tile	The adhesive associated with the ceramic tile was found to be asbestos containing with some inconsistency. Most adhesive was brown. It was found below 1", 2" and 1x4" ceramic tile both on the walls and floor. In rooms 9, 12, 36 and 37 the ceramic floor was applied over the old asbestos containing black mastic. For this reason all adhesive associated with ceramic tile is considered to be asbestos containing other than the 4"ceramic tile consistently was analyzed and no asbestos was detected.				
4"x4" Ceramic wall tile grout	7	Room 36	Tile Color: White		No
	8	Room 37			
4"x4" Ceramic wall tile adhesive	9	Room 36			No
	10	Room 37			
Mastic associated with 4" cove base	19	Room 8	All walls except kitchen and shops		No
	20	Room 28			
Brick	21	Room 50	Exterior façade		No
	22	Room 46			
Associated mortar	23	Room 50	Exterior façade		No
	24	Room 46			
Tar paper moisture barrier, below exterior brick façade and shingles	25	Room 5	Exterior façade-Under shingles behind brick		No
	26	Room 42			
2"x2" Ceramic wall tile grout	29	Room 9	Rooms 9 and 12		No
	30	Room 12			
2"x2" Ceramic floor tile adhesive	31	Room 9	Rooms 9 and 12		Yes[1]
	32	Room 12			
Wall heating unit caulk	27	Room 26		40 Units; 14 LF each	No
	28	Room 41			
Gasket of flanges of large diameter piping			Mechanical room		Yes*
	*Where visible gasket materials was visually identified as asbestos containing.				

HA Description	Sample ID 26396	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Built up Roof	26427-13	Top layer tar and rock	Roof		Yes*
	26427-14	Felt/tar layer, random			
	26427-15	Insulation layer			
	26427-16	Top layer tar and rock			
	26427-17	Felt/tar layer, random			
	26427-18	Insulation layer			
Flashing mastic	26427-7	Lg. AHU	Roof at HVAC and mushroom caps		Yes*
	26427-8	Lg. AHU			
	26427-9	Sm. mushroom vent			
	26427-10	Sm. mushroom vent			
	26427-11	Lg. mushroom vent			
	26247-12	Lg. mushroom vent			
	*Flashing mastic and BUR felts were sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of these materials was ceased. The roofing is considered to be asbestos containing.				

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/12/2016
Report No.: 514153 - PLM
Project: Bldg 111
Project No.: 26396

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973224 **Client No.:** 1	**Description:** White Sheetrock **Facility:**	**Location:** Kitchen
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 3 Fibrous Glass	Percent Non-Fibrous Material: 92
Lab No.: 5973225 **Client No.:** 2	**Description:** White Sheetrock **Facility:**	**Location:** 31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 3 Fibrous Glass	Percent Non-Fibrous Material: 92
Lab No.: 5973226 **Client No.:** 3	**Description:** White Joint Compound **Facility:**	**Location:** #27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973227 **Client No.:** 4	**Description:** White Joint Compound **Facility:**	**Location:** #31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973228 **Client No.:** 5	**Description:** White Ceiling Tile; 2x2 **Facility:**	**Location:** #8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose 40 Fibrous Glass	Percent Non-Fibrous Material: 20
Lab No.: 5973229 **Client No.:** 6	**Description:** White Ceiling Tile; 2x2 **Facility:**	**Location:** #39
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose 40 Fibrous Glass	Percent Non-Fibrous Material: 20

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 5:44:07 PM

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Client: HUB949

Report Date: 7/12/2016
Report No.: 514153 - PLM
Project: Bldg 111
Project No.: 26396

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973230 **Client No.:** 7	**Description:** White Grout **Facility:**	**Location:** #36
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973231 **Client No.:** 8	**Description:** White Grout **Facility:**	**Location:** #37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973232 **Client No.:** 9	**Description:** Grey Mastic **Facility:**	**Location:** #36
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973233 **Client No.:** 10	**Description:** Grey Mastic **Facility:**	**Location:** #37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973234 **Client No.:** 11	**Description:** White Grout **Facility:**	**Location:** #32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973235 **Client No.:** 12	**Description:** White Grout **Facility:**	**Location:** #15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/12/2016
Report No.: 514153 - PLM
Project: Bldg 111
Project No.: 26396

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973236 **Client No.:** 13	**Description:** Tan Mastic **Facility:**	**Location:** #32
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5973237 **Client No.:** 14	**Description:** Sample Not Analyzed **Facility:**	**Location:** #15
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5973238 **Client No.:** 15	**Description:** White Grout **Facility:**	**Location:** #51
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973239 **Client No.:** 16	**Description:** White Grout **Facility:**	**Location:** #52
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973240 **Client No.:** 17	**Description:** Tan Mastic **Facility:**	**Location:** #51
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5973241 **Client No.:** 18	**Description:** Sample Not Analyzed **Facility:**	**Location:** #52
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 5:44:07 PM

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/12/2016
Report No.: 514153 - PLM
Project: Bldg 111
Project No.: 26396

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973242 **Client No.:** 19	**Description:** Tan Mastic **Facility:**	**Location:** #8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973243 **Client No.:** 20	**Description:** Tan Mastic **Facility:**	**Location:** #28
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973244 **Client No.:** 21	**Description:** Red Brick **Facility:**	**Location:** #50
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973245 **Client No.:** 22	**Description:** Red Brick **Facility:**	**Location:** #46
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973246 **Client No.:** 23	**Description:** Brown Mortar **Facility:**	**Location:** #50
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973247 **Client No.:** 24	**Description:** Brown Mortar **Facility:**	**Location:** #46
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

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Waltham MA 02453

Client: HUB949

Report Date: 7/12/2016
Report No.: 514153 - PLM
Project: Bldg 111
Project No.: 26396

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973248 **Client No.:** 25	**Description:** Black Tar Paper **Facility:**	**Location:** #5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 70 Cellulose	Percent Non-Fibrous Material: 30
Lab No.: 5973249 **Client No.:** 26	**Description:** Black Tar Paper **Facility:**	**Location:** #42
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 70 Cellulose	Percent Non-Fibrous Material: 30
Lab No.: 5973250 **Client No.:** 27	**Description:** Off-White Caulk **Facility:**	**Location:** #26
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973251 **Client No.:** 28	**Description:** Off-White Caulk **Facility:**	**Location:** #41
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973252 **Client No.:** 29	**Description:** White Grout **Facility:**	**Location:** #9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973253 **Client No.:** 30	**Description:** White Grout **Facility:**	**Location:** #12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

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Client: HUB949

Report Date: 7/12/2016
Report No.: 514153 - PLM
Project: Bldg 111
Project No.: 26396

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973254
Client No.: 31
Description: Tan Mastic
Facility:
Location: #9

Percent Asbestos:
2 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
98

Lab No.: 5973255
Client No.: 32
Description: Sample Not Analyzed
Facility:
Location: #12

Percent Asbestos:
Sample Not Analyzed

Percent Non-Asbestos Fibrous Material:
Sample Not Analyzed

Percent Non-Fibrous Material:

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/12/2016
Signature: Tiffany Lowe
Analyst: Tiffany Lowe

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

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Report Date: 7/12/2016
Report No.: 514153 - PLM
Project: Bldg 111
Project No.: 26396

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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Client: HUB949

Report Date: 7/12/2016
Report No.: 514153 - PLM
Project: Bldg 111
Project No.: 26396

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment B: The Cottages

Section 10, Cottage 112

- Homogenous Materials Chart
  - Asbestos PLM Results

HA Description	Sample ID 26397	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Sheetrock	1	Room 21	Walls throughout and ceilings in bathrooms and mechanical rooms		No
	2	Room 8			
Joint compound	3	Room 1	Same		No
	4	Room 27			
Textured ceiling plaster	5	Front of Room 13	Rooms 11 and 13	Approximately 300 square feet (SF)	No
	6	Center of Room 13			
	7	Front of Room 11			
2'x2' Small fissure ceiling tile (thin fissure with dots)	8	Room 8	Throughout except bathrooms, mechanical and electric rooms		No
	9	Room 12			
12"x12" Floor tile			All floors throughout except in rooms 4, 15, 20, 18, 51, 52, 51A, 2A, 24, 26, 22, 43, 32, 30, 29; Also in rooms 9, 12, 36, and 37 below thinset	Approximately 5,000 SF	Yes*
Associated mastic			Same	Same	Yes*
	*Associated mastic was sampled in multiple areas and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of floor tile and mastic was ceased. Mastic is considered to be asbestos containing and the floor tile is considered to be asbestos contaminated.				
Window glazing associated with wire re-enforced panels			Panes in doors or windows in rooms 1, 49, 50, 6, 14, 17, 19, 21, 25, 22, 26, 27, 41, 46, 47, 30, 31, 48	18 - 8" windows, 275 linear feet of glazing on doors and windows in room and 8 entry doors at approximately 20 linear feet each	Yes*
	*Glazing associated with wire re-enforced windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of wire re-enforced windows was ceased. The glazing is considered to be asbestos containing.				
Caulking associated with wooden panels on three panel windows			Exterior on the wooden panels of the three panel windows at Rooms 21, 6, and 41	Approximately 150 linear feet	Yes*
	*Caulking associated with the wooden panels below the three panel windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of this caulking was ceased. The caulking is considered to be asbestos containing.				
Window and door caulking			All window and door caulking other than at wooden panels in rooms 21, 6 and 41 is silicone		No

HA Description	Sample ID 26397	Sample Location	Location of HA	Quantity	Asbestos Yes/No
1"x1" Ceramic floor tile grout	This material was not identified in this building			Approximately 1000 SF of floor tile plus additional wall tile	
1"x1" Ceramic floor tile adhesive	This material was not identified in this building				
2"x2" Ceramic floor tile grout	This material was not identified in this building				
2"x2" Ceramic floor tile adhesive	This material was not identified in this building				
2"x2" Ceramic wall tile grout	14	Room 5	Tile Color: Tan Rooms 5 and 32		No
	15	Room 32			
2"x2" Ceramic wall tile adhesive	16	Room 5			Yes[1]
	17	Room 32			
1"x4" Ceramic wall tile grout	18	Room 52	Tile Color: Tan		No
	19	Room 43			
1"x4" Ceramic wall tile adhesive	20	Room 52			Yes[1]
	21	Room 43			
[1]Adhesive associated with ceramic tile	The adhesive associated with the ceramic tile was found to be asbestos containing with some inconsistency. Most adhesive was brown. It was found below 1", 2" and 1x4" ceramic tile both on the walls and floor. In rooms 9, 12, 36 and 37 the ceramic floor was applied over the old asbestos containing black mastic. For this reason all adhesive associated with ceramic tile is considered to be asbestos containing other than the 4"ceramic tile consistently was analyzed and no asbestos was detected.				
4"x4" Ceramic wall tile grout	10	Room 12	Tile Color: White Rooms 9, 12, 37 and 36		No
	11	Room 37			
4"x4" Ceramic wall tile adhesive	12	Room 12	Mainly used in shower stalls-Beige layer between ceramic and gray wall material		No
	13	Room 37			
Mastic associated with 6" cove base	22	Room 8	Randomly throughout		No
	23	Room 39			
Brick	24	Room 50	Exterior façade		No
	25	Room 46			
Associated mortar	26	Room 50	Exterior façade		No
	27	Room 46			
Tar paper moisture barrier, below exterior brick façade and shingles	28	Room 5	Under brick facade		No
	29	Room 42			
Wall heating unit caulk	30	Room 26		40 Units; 14 LF each	No
	31	Room 42			
Gasket of flanges of large diameter piping			Mechanical room		Yes*
	*Where visible gasket materials was visually identified as asbestos containing.				
Built up Roof			Roof		Yes*
Flashing mastic			Roof at HVAC and mushroom caps		Yes*
	*Flashing mastic and BUR felts were sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of these materials was ceased. The roofing is considered to be asbestos containing.				

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514152 - PLM
Project: 112
Project No.: 26397

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973193
Client No.: 1
Description: White Sheetrock
Facility:
Location: #21

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
10 Cellulose

Percent Non-Fibrous Material:
90

Lab No.: 5973194
Client No.: 2
Description: White Sheetrock
Facility:
Location: #8

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
10 Cellulose

Percent Non-Fibrous Material:
90

Lab No.: 5973195
Client No.: 3
Description: White Joint Compound
Facility:
Location: #1

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 5973196
Client No.: 4
Description: White Joint Compound
Facility:
Location: #27

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 5973197
Client No.: 5
Description: White Ceiling Texture
Facility:
Location: Front #13

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
5 Cellulose

Percent Non-Fibrous Material:
95

Lab No.: 5973198
Client No.: 6
Description: White Ceiling Texture
Facility:
Location: CTR #13

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
5 Cellulose

Percent Non-Fibrous Material:
95

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Shane Cone

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 5:54:47 PM

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Client: Hub Testing Laboratory, Inc.
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Client: HUB949

Report Date: 7/11/2016
Report No.: 514152 - PLM
Project: 112
Project No.: 26397

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973199 **Client No.:** 7	**Description:** White Ceiling Texture **Facility:**	**Location:** Front #11
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 95
Lab No.: 5973200 **Client No.:** 8	**Description:** Off-White Ceiling Tile; 2x2 **Facility:**	**Location:** #8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose 30 Fibrous Glass	Percent Non-Fibrous Material: 30
Lab No.: 5973201 **Client No.:** 9	**Description:** Off-White Ceiling Tile; 2x2 **Facility:**	**Location:** #12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose 30 Fibrous Glass	Percent Non-Fibrous Material: 30
Lab No.: 5973202 **Client No.:** 10	**Description:** White Cementitious **Facility:**	**Location:** #12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973203 **Client No.:** 11	**Description:** White Cementitious **Facility:**	**Location:** #37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973204 **Client No.:** 12	**Description:** Off-White Cementitious **Facility:**	**Location:** #12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Shane Cone

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Client: HUB949

Report Date: 7/11/2016
Report No.: 514152 - PLM
Project: 112
Project No.: 26397

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973205 **Client No.:** 13	**Description:** Off-White Cementitious **Facility:**	**Location:** #37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973206 **Client No.:** 14	**Description:** White Cementitious **Facility:**	**Location:** #5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973207 **Client No.:** 15	**Description:** White Cementitious **Facility:**	**Location:** #32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973208 **Client No.:** 16	**Description:** Tan Mastic **Facility:**	**Location:** #5
Percent Asbestos: ***2.0 Chrysotile***	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5973209 **Client No.:** 17	**Description:** Sample Not Analyzed **Facility:**	**Location:** #32
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5973210 **Client No.:** 18	**Description:** White Cementitious **Facility:**	**Location:** #52
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Shane Cone

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514152 - PLM
Project: 112
Project No.: 26397

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973211 **Client No.:** 19	**Description:** White Cementitious **Facility:**	**Location:** #43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973212 **Client No.:** 20	**Description:** Tan Mastic **Facility:**	**Location:** #52
Percent Asbestos: *2.0 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5973213 **Client No.:** 21	**Description:** Sample Not Analyzed **Facility:**	**Location:** #43
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5973214 **Client No.:** 22	**Description:** Grey Mastic **Facility:**	**Location:** #8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973215 **Client No.:** 23	**Description:** Grey Mastic **Facility:**	**Location:** #39
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973216 **Client No.:** 24	**Description:** Red Brick **Facility:**	**Location:** #50
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Shane Cone

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514152 - PLM
Project: 112
Project No.: 26397

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973217 **Description:** Red Brick **Location:** #46
Client No.: 25 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 5973218 **Description:** Brown Caulk **Location:** #50
Client No.: 26 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 5973219 **Description:** Red Brick **Location:** #46
Client No.: 27 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Different Material analyzed than listed on the sample log.

Lab No.: 5973220 **Description:** Black Tar Paper **Location:** #5
Client No.: 28 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	60 Cellulose	40

Lab No.: 5973221 **Description:** Black Tar Paper **Location:** #42
Client No.: 29 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	60 Cellulose	40

Lab No.: 5973222 **Description:** Off-White Caulk **Location:** #26
Client No.: 30 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Shane Cone

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 5:54:47 PM

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514152 - PLM
Project: 112
Project No.: 26397

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973223
Client No.: 31

Description: Off-White Caulk
Facility:

Location: #42

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Shane Cone

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
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Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514152 - PLM
Project: 112
Project No.: 26397

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

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This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514152 - PLM
Project: 112
Project No.: 26397

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment B: The Cottages

Section 11, Cottage 113

- Homogenous Materials Chart
  - Asbestos PLM Results

HA Description	Sample ID 26285	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Sheetrock	1	Room 22	Walls throughout and ceilings in bathrooms and mechanical rooms		No
	2	Room 21			
Joint compound	3	Room 22	Same		No
	4	Room 27			
	5	Room 45			
2'x2' Small fissure ceiling tile (thin fissure with dots)	6	Room 52	Throughout except bathrooms, mechanical and electric rooms		No
	7	Room 41			
12"x12" Floor tile			All floors throughout except in rooms 4, 15, 20, 18, 51, 52, 51A, 2A, 24, 26, 22, 43, 32, 30, 29; Also in rooms 9, 12, 36, and 37 below thinset	Approximately 5,000 square feet (SF)	Yes*
Associated mastic	26291-10		Same	Same	Yes*
	*Associated mastic was sampled in multiple areas and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of floor tile and mastic was ceased. Mastic is considered to be asbestos containing and the floor tile is considered to be asbestos contaminated.				
Window glazing associated with wire re-enforced panels	8	Room 48	Panes in doors or windows in rooms 1, 49, 50, 6, 14, 17, 19, 21, 25, 22, 26, 27, 41, 46, 47, 30, 31, 48	18 - 8" windows, 275 linear feet (LF) of glazing on doors and windows in rooms and 8 entry doors at approximately 20 LF each	Yes*
	9	Room 33			
	*Glazing associated with wire re-enforced windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of wire re-enforced windows was ceased. The glazing is considered to be asbestos containing.				
Caulking associated with wooden panels on three panel windows	10	Room 6	Exterior on the wooden panels of the three panel windows at Rooms 21, 6, and 41	Approximately 150 LF	Yes*
	11	Room 41			
	*Caulking associated with the wooden panels below the three panel windows was sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of this caulking was ceased. The caulking is considered to be asbestos containing.				
Window and door caulking	43	Room 2 window	All window and door caulking other than at wooden panels in rooms 21, 6 and 41 is silicone		No
	44	Door at Room 26			
	45	Room 3 window			

HA Description	Sample ID 26285	Sample Location	Location of HA	Quantity	Asbestos Yes/No
1"x1" Ceramic floor tile grout	12	Room 15	Tile Color: Beige Rooms 15 and 32	Approximately 1000 SF of floor tile plus additional wall tile	No
	13	Room 32			
1"x1" Ceramic floor tile adhesive	14	Room 32			Yes[1]
	15	Room 15			
2"x2" Ceramic floor tile grout			Tile Color: Gray Rooms 9, 12, 37, 36, 51 and 52		No
2"x2" Ceramic floor tile adhesive					Yes[1]
2"x2" Ceramic wall tile grout	20	Room 15	Tile Color: Tan Rooms 32, 15		No
	21	Room 32			
2"x2" Ceramic wall tile adhesive	22	Room 15			Yes[1]
	23	Room 32			
1"x4" Ceramic wall tile grout	24	Room 4	Tile Color: Beige, Dark Tan Rooms 43, 4, 51, and 52		No
	25	Room 43			
1"x4" Ceramic wall tile adhesive	26	Room 4			Yes[1]
	27	Room 43			
[1]Adhesive associated with ceramic tile	The adhesive associated with the ceramic tile was found to be asbestos containing with some inconsistency. Most adhesive was brown. It was found below 1", 2" and 1x4" ceramic tile both on the walls and floor. In rooms 9, 12, 36 and 37 the ceramic floor was applied over the old asbestos containing black mastic. For this reason all adhesive associated with ceramic tile is considered to be asbestos containing other than the 4"ceramic tile consistently was analyzed and no asbestos was detected.				
4"x4" Ceramic wall tile grout	16	Room 37	Tile Color: Gray Rooms 9, 12, 37 and 36		No
	17	Room 9			
4"x4" Ceramic wall tile adhesive	18	Room 37			No
	19	Room 9			
Mastic associated with 4" cove base	31	Room 42	Randomly throughout		No
	32	Room 3			
Mastic associated with 6" cove base	28	Room 16	Rooms 16 & 21 (three colors; gray, brown & beige)	Room 16 approximately 37 LF Room 21 approximately 12 LF	No
	29	Room 16			
	30	Room 16			
Brick	33	Outside Room 26	Exterior façade		No
	34	Outside Room 48			
Associated mortar	35	Outside Room 26	Exterior façade		No
	36	Outside Room 48			
Tar paper moisture barrier, below exterior brick façade and shingles	37	Outside Room 4	Exterior façade		No
	38	Outside Room 13			
Newer 2"x2" ceramic floor tile grout	39	Room 4	Tile Color: Multi Rooms 4,43, 51 & 52		No
	40	Room 43			
Newer 2"x2" ceramic floor tile adhesive	41	Room 4	4,43,51, & 52		Yes
	42	Room 43			

HA Description	Sample ID 26285	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Wall heating unit caulk	26398-19	Room 40		40 Units; 14 LF each	No
	26398-20	Room 17			
Gasket of flanges of large diameter piping			Mechanical room		Yes*
	*Where visible gasket materials was visually identified as asbestos containing.				
Built up Roof		Roof	Roof		Yes*
Flashing mastic		Roof	Roof at HVAC and mushroom caps		Yes*
	*Flashing mastic and BUR felts were sampled in multiple locations and in multiple buildings and consistently found to be asbestos containing; therefore, sampling of these materials was ceased. The roofing is considered to be asbestos containing.				

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/10/2016
Report No.: 511315 - PLM
Project: Bldg 113
Project No.: 26285

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5948231 **Client No.:** 1	**Description:** White Sheetrock **Facility:**	**Location:** Walls Throughout And Ceilings In Baths + Mech And Elec - 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 95
Lab No.: 5948232 **Client No.:** 2	**Description:** White Sheetrock **Facility:**	**Location:** Walls Throughout And Ceilings In Baths + Mech And Elec - 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 95
Lab No.: 5948233 **Client No.:** 3	**Description:** White Joint Compound **Facility:**	**Location:** Assoc W/ SR - 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948234 **Client No.:** 4	**Description:** White Joint Compound **Facility:**	**Location:** Assoc W/ SR - 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948235 **Client No.:** 5	**Description:** White Joint Compound **Facility:**	**Location:** Assoc W/ SR - 45
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948236 **Client No.:** 6	**Description:** Tan Ceiling Tile; 2x2 **Facility:**	**Location:** 52
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 60 Cellulose 20 Fibrous Glass	Percent Non-Fibrous Material: 20

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2016
Date Analyzed: 6/9/2016 11:44:15 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/10/2016 11:03:00 AM

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CERTIFICATE OF ANALYSIS

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/10/2016
Report No.: 511315 - PLM
Project: Bldg 113
Project No.: 26285

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5948237 **Client No.:** 7	**Description:** Tan Ceiling Tile; 2x2 **Facility:**	**Location:** 41
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 60 Cellulose 20 Fibrous Glass	Percent Non-Fibrous Material: 20
Lab No.: 5948238 **Client No.:** 8	**Description:** Off-White Glazing **Facility:**	**Location:** On Doors + Windows - 48
Percent Asbestos: *2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5948239 **Client No.:** 9	**Description:** Sample Not Analyzed **Facility:**	**Location:** On Doors + Windows - 33
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5948240 **Client No.:** 10	**Description:** White Caulk **Facility:**	**Location:** Exterior At 3 Panel Windows - 6
Percent Asbestos: *1.5 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.5
Lab No.: 5948241 **Client No.:** 11	**Description:** White Caulk **Facility:**	**Location:** Exterior At 3 Panel Windows - 41
Percent Asbestos: *1.5 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.5
Lab No.: 5948242 **Client No.:** 43	**Description:** Tan Caulk **Facility:**	**Location:** Exterior At 3 Panel Windows
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2016
Date Analyzed: 6/9/2016 11:44:15 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/10/2016 11:03:00 AM

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/10/2016
Report No.: 511315 - PLM
Project: Bldg 113
Project No.: 26285

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5948243 **Description:** Brown Caulk **Location:** Exterior At 3 Panel Windows - Door At 26
Client No.: 44 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 5948244 **Description:** White Caulk **Location:** Exterior At 3 Panel Windows
Client No.: 45 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 5948245 **Description:** Grey Grout **Location:** 15
Client No.: 12 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 5948246 **Description:** Grey Grout **Location:** 32
Client No.: 13 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
None Detected	None Detected	100

Lab No.: 5948247 **Description:** Tan Mastic **Location:** 32
Client No.: 14 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
2 Chrysotile	None Detected	98

Amended COA. Result change from report dated 6/9/2016. See the attached QC report. Sample Analyzed By W. Rodney Redman, 6-9-2016.

Lab No.: 5948248 **Description:** Tan Mastic **Location:** 15
Client No.: 15 **Facility:**

Percent Asbestos:	Percent Non-Asbestos Fibrous Material:	Percent Non-Fibrous Material:
2 Chrysotile	None Detected	98

Amended COA. Result change from report dated 6/9/2016. See the attached QC report. Sample Analyzed By Thomas Barkley, 6-9-2016.

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2016
Date Analyzed: 6/9/2016 11:44:15 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/10/2016
Report No.: 511315 - PLM
Project: Bldg 113
Project No.: 26285

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5948249 **Client No.:** 16	**Description:** Grey Grout **Facility:**	**Location:** 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948250 **Client No.:** 17	**Description:** Grey Grout **Facility:**	**Location:** 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948251 **Client No.:** 18	**Description:** White Non-Fibrous **Facility:**	**Location:** 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948252 **Client No.:** 19	**Description:** White Non-Fibrous **Facility:**	**Location:** 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948253 **Client No.:** 20	**Description:** White Grout **Facility:**	**Location:** 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948254 **Client No.:** 21	**Description:** White Grout **Facility:**	**Location:** 32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2016
Date Analyzed: 6/9/2016 11:44:15 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/10/2016 11:03:00 AM

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/10/2016
Report No.: 511315 - PLM
Project: Bldg 113
Project No.: 26285

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5948255 **Client No.:** 22	**Description:** Tan Mastic **Facility:**	**Location:** 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948256 **Client No.:** 23	**Description:** Tan Mastic **Facility:**	**Location:** 32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948257 **Client No.:** 24	**Description:** Tan Grout **Facility:**	**Location:** 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948258 **Client No.:** 25	**Description:** Tan Grout **Facility:**	**Location:** 43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948259 **Client No.:** 26	**Description:** Tan Mastic **Facility:**	**Location:** 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948260 **Client No.:** 27	**Description:** Tan Mastic **Facility:**	**Location:** 43
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2016
Date Analyzed: 6/9/2016 11:44:15 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/10/2016 11:03:00 AM

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/10/2016
Report No.: 511315 - PLM
Projeet: Bldg 113
Project No.: 26285

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5948261 **Client No.:** 31	**Description:** Tan Mastic **Facility:**	**Location:** Everywhere Except Bathrooms Mech Rms Kitch 42
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948262 **Client No.:** 32	**Description:** Brown Mastic **Facility:**	**Location:** Everywhere Except Bathrooms Mech Rms Kitch 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948263 **Client No.:** 28	**Description:** Brown Mastic **Facility:**	**Location:** 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948264 **Client No.:** 29	**Description:** Tan Mastic **Facility:**	**Location:** 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948265 **Client No.:** 30	**Description:** Grey Mastic **Facility:**	**Location:** 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948266 **Client No.:** 33	**Description:** Red Brick **Facility:**	**Location:** Outside 26
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2016
Date Analyzed: 6/9/2016 11:44:15 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/10/2016
Report No.: 511315 - PLM
Project: Bldg 113
Project No.: 26285

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5948267 **Client No.:** 34	**Description:** Red Brick **Facility:**	**Location:** Outside 48
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948268 **Client No.:** 35	**Description:** Brown Mortar **Facility:**	**Location:** Outside 26
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948269 **Client No.:** 36	**Description:** Brown Mortar **Facility:**	**Location:** Outside 48
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5948270 **Client No.:** 37	**Description:** Black Tar Paper **Facility:**	**Location:** Outside 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose	Percent Non-Fibrous Material: 60
Lab No.: 5948271 **Client No.:** 38	**Description:** Black Tar Paper **Facility:**	**Location:** Outside 13
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose	Percent Non-Fibrous Material: 60
Lab No.: 5948272 **Client No.:** 39	**Description:** Grey Grout **Facility:**	**Location:** 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2016
Date Analyzed: 6/9/2016 11:44:15 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/10/2016 11:03:01 AM

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ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/10/2016
Report No.: 511315 - PLM
Project: Bldg 113
Project No.: 26285

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5948273
Client No.: 40
Description: Grey Grout
Facility:
Location: 43

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 5948274
Client No.: 41
Description: Tan Mastic
Facility:
Location: 4

Percent Asbestos:
3 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
97

Amended COA. Result change from report dated 6/9/2016. See the attached QC report. Sample Analyzed By W. Rodney Redman, 6-9-2016.

Lab No.: 5948275
Client No.: 42
Description: Tan Mastic
Facility:
Location: 43

Percent Asbestos:
2 Chrysotile

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
98

Amended COA. Result change from report dated 6/9/2016. See the attached QC report. Sample Analyzed By W. Rodney Redman, 6-9-2016.

Lab No.: 5948276
Client No.: 26285-21
Description: Grey Grout
Facility:
Location: Additional Sample Received

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 6/7/2016
Date Analyzed: 6/9/2016 11:44:15 AM
Signature:
Analyst: Toni Fisher

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 6/10/2016 11:03:01 AM

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client:	Hub Testing Laboratory, Inc.	**Report Date:**	6/10/2016
	95 Beaver Street	**Report No.:**	511315 - PLM
	Waltham MA 02453	**Project:**	Bldg 113
Client:	HUB949	**Project No.:**	26285

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 6/10/2016
Report No.: 511315 - PLM
Project: Bldg 113
Project No.: 26285

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

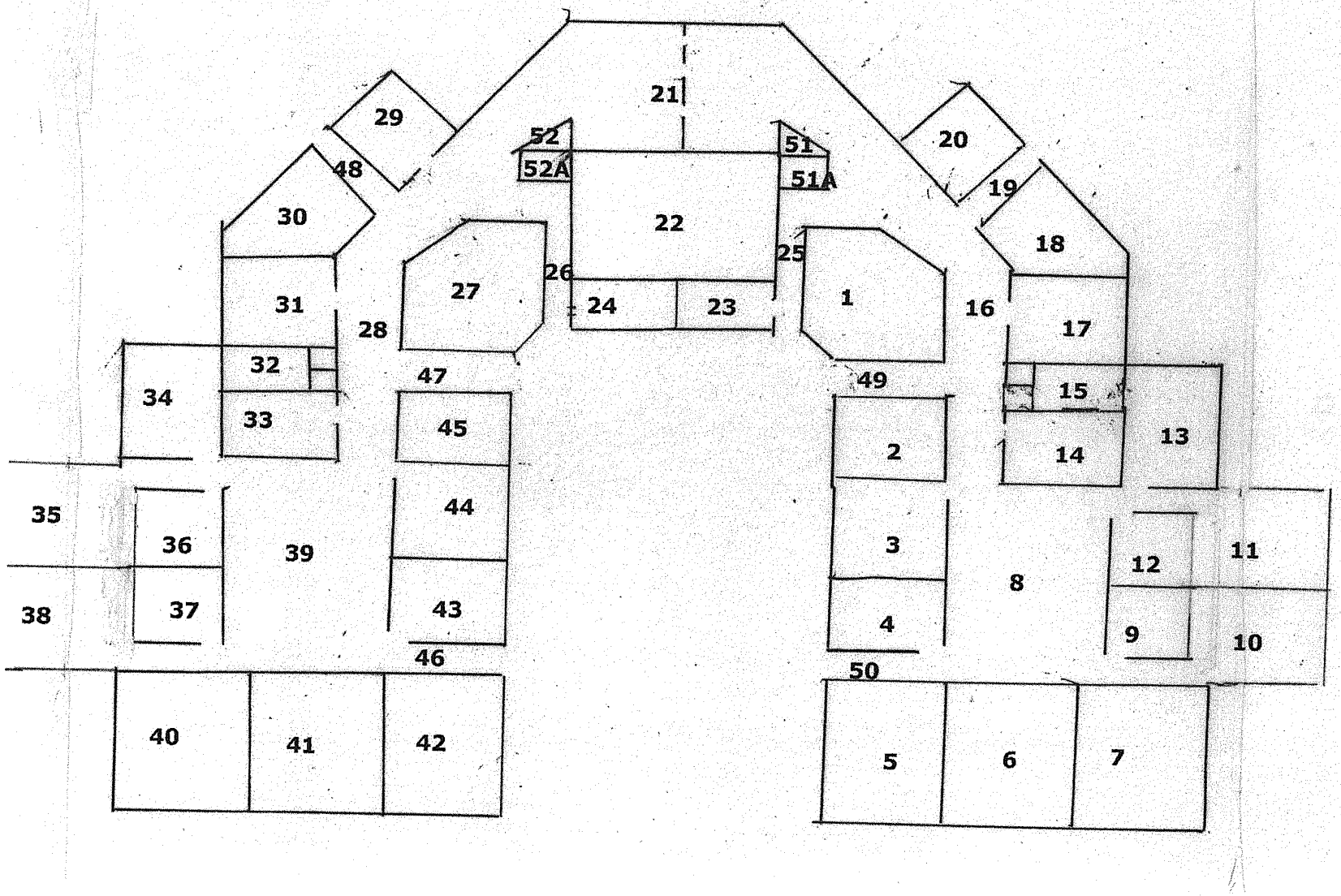
5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

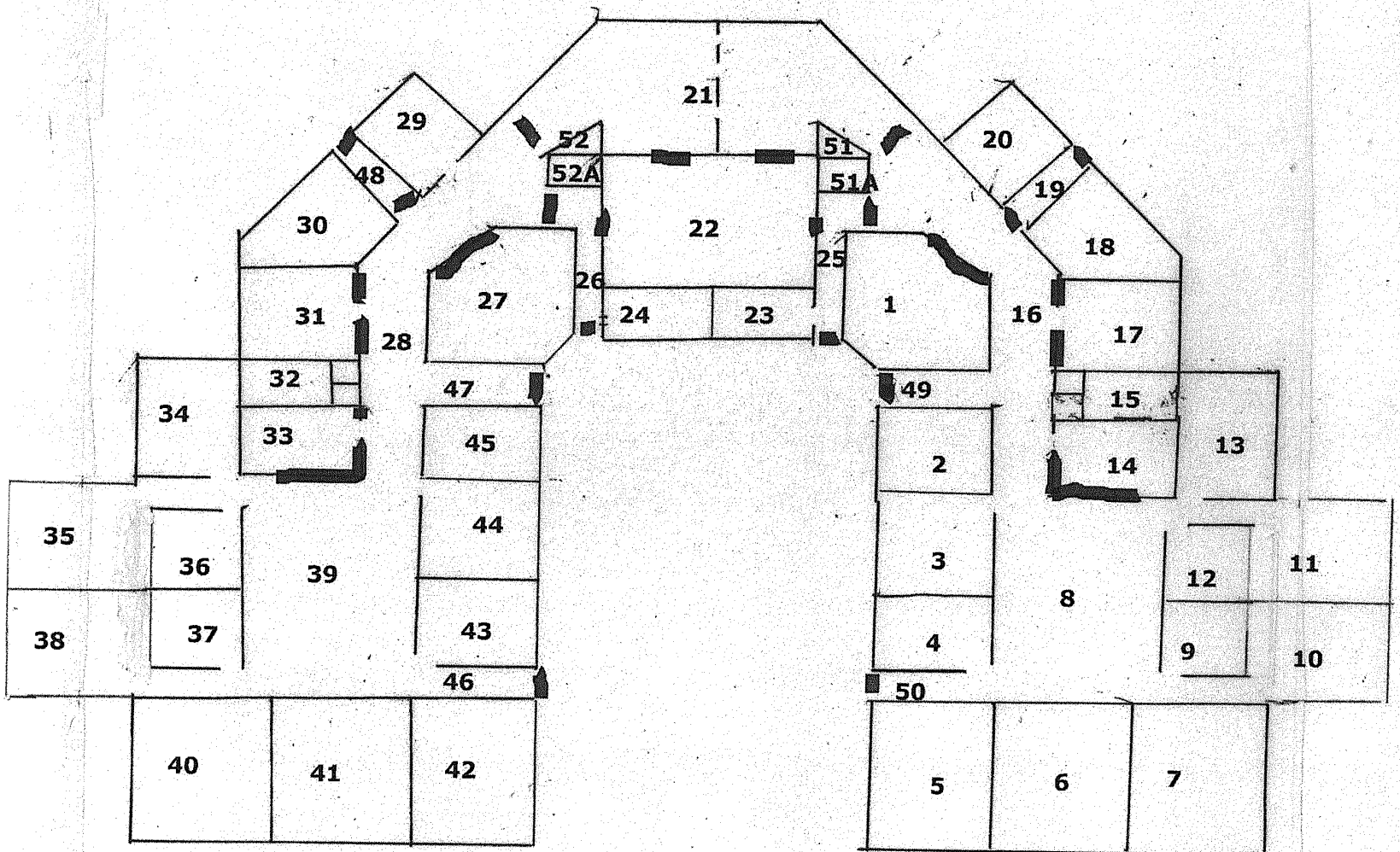
Attachment B: The Cottages

Section 12, Drawings

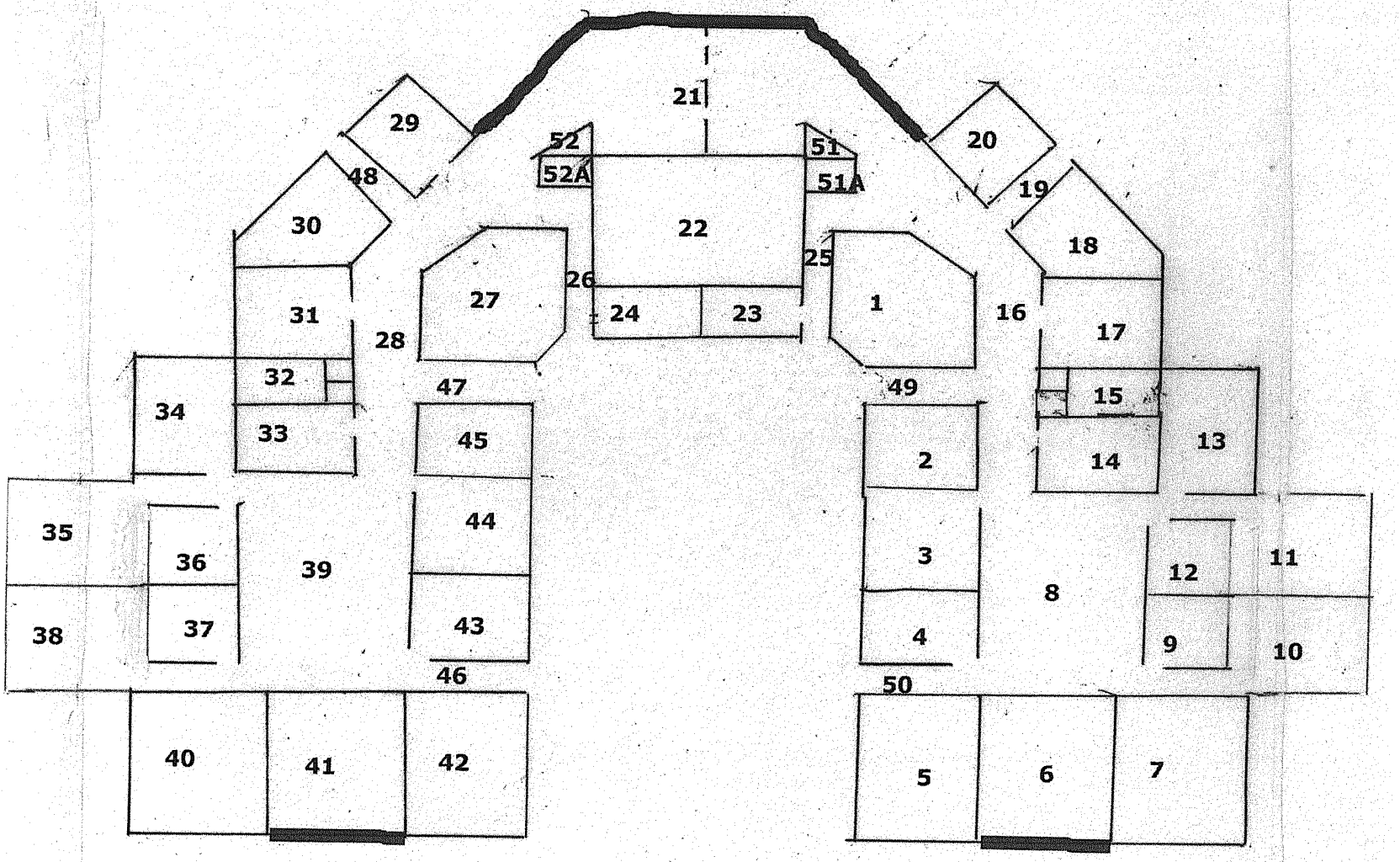
Cottage - Room Identification



Approximate Locations of Wire Re-enforced Windows with Asbestos Containing Glazing

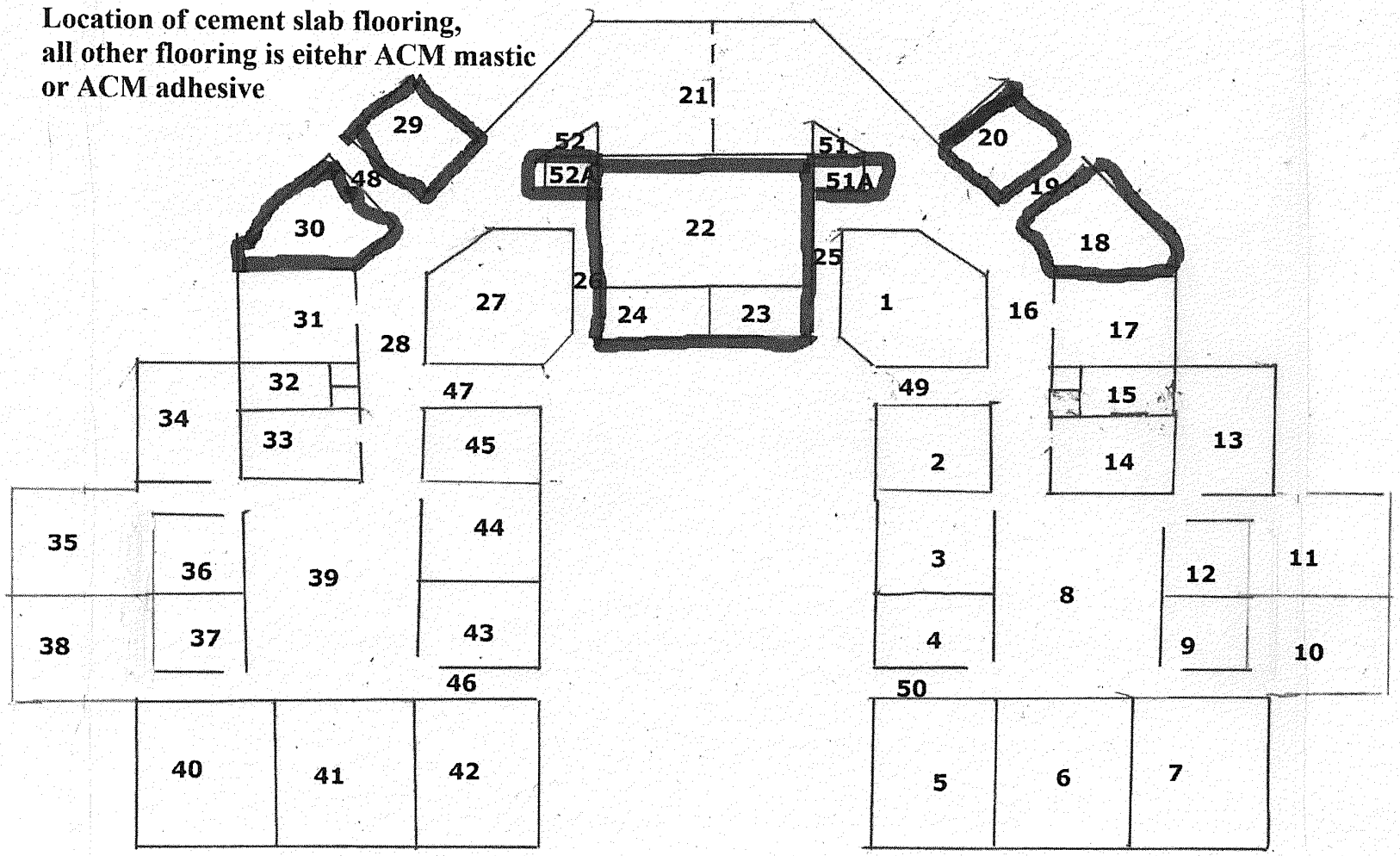


Approximate Location of Asbestos Containing Caulking on Wood Panels



Approximate Location of Cement Slab Floor

Location of cement slab flooring, all other flooring is eitehr ACM mastic or ACM adhesive



Attachment B: The Cottages

Section 13

- Roof sample report
- Mastic sample report
- Miscellaneous sample report

HUB TESTING LABORATORY, INC.

Environmental Testing and Consulting Service

Certified Woman-owned Business Enterprise (WBE)

95 Beaver Street
Waltham, MA 02453

(781) 893-8330
FAX (781) 893-4414
www.hubtesting.net

July 19, 2016

Report For: City of Waltham-Building Department
Attn: Don Cusano, Clerk of the Works
119 School Street
Waltham, MA 02453

Hub ID: 26427

Project ID: Fernald Center-Cottages
Buildings 103 through 113

Scope: Samples of roofing were collected by Hub Testing Laboratory from the Built Up Roofs (BUR) of the cottages. Samples were collected from building 108, 110 and 111. It was discussed with Mr. Cusano that if a pattern developed where materials were found to be positive for asbestos then sampling could be ceased and the remaining roofs would be assumed to be positive for the presence of asbestos. Samples were analyzed for the presence of asbestos.

Methodology: Analysis for the presence of asbestos was performed using Polarized Light Microscopy EPA/600/R-93/116, July 1993.

Notes: Samples were collected of the flashing mastic associated with the HVAC system penetrations, the mushroom vents and the BUR. Two hole cuts were made per building.

Results:

Sample ID	Material/Location	Composition	%
26427-1	Bldg 108, Large AHU Flashing Mastic	Mineral chip	30
	Color: Black	Organic Binder	**
26427-2	Bldg 108, Large AHU Flashing Mastic	Mineral chip	30
	Color: Black	Organic Binder	**
26427-3	Bldg 108, Sm. mushroom vent Flashing Mastic	*Chrysotile	25
	Color: Black	Cellulose	10
		Mineral chip	30
		Organic Binder	**
26427-4	Bldg 108, Lg. mushroom vent Flashing Mastic	1st Positive Stop	
	Color: Black		
26427-5	Bldg 108, Lg. mushroom vent Flashing Mastic	1st Positive Stop	
	Color: Black		

Results:

Sample ID	Material/Location	Composition	%
26427-6A	Bldg 108, BUR Top layer tar and rocks Color: Black	1st Positive Stop	
26427-6B	Bldg 108, BUR Felt and tar layer Color: Black	1st Positive Stop	
26427-6C	Bldg 108, BUR Felt and tar layer Color: Black	1st Positive Stop	
26427-6D	Bldg 108, BUR Felt and tar layer Color: Black	1st Positive Stop	
26427-6E	Bldg 108, BUR Felt and tar layer Color: Black	1st Positive Stop	
26427-6F	Bldg 108, BUR Felt and tar layer Color: Black	1st Positive Stop	
26427-6G	Bldg 108, Insulation Color: Black	Mineral Chip	100
26427-7A	Bldg 108, BUR Top layer tar and rocks Color: Black	Cellulose Mineral Chip Organic binder	10 30 **
26427-7B	Bldg 108, BUR Felt and tar layer Color: Black	*Chrysotile Mineral chip Organic Binder	25 30 **
26427-7C	Bldg 108, BUR Felt and tar layer Color: Black	1st Positive Stop	
26427-7D	Bldg 108, BUR Felt and tar layer Color: Black	1st Positive Stop	
26427-7E	Bldg 108, BUR Felt and tar layer Color: Black	1st Positive Stop	
26427-7F	Bldg 108, BUR Felt and tar layer Color: Black	1st Positive Stop	

Results:

Sample ID		Material/Location	Composition	%
26427-7G		Bldg 108, Insulation	Mineral Chip	100
	Color:	Black		
26427-7		Bldg 111, Large AHU Left, Flashing Mastic	1st Positive Stop	
	Color:	Black		
26427-8		Bldg 111, Large AHU Right, Flashing Mastic	1st Positive stop	
	Color:	Black		
26427-9		Bldg 111, Sm. mushroom vent Left, Flashing Mastic	*Chrysotile	15
			Cellulose	10
	Color:	Black	Mineral chip	15
			Organic Binder	**
26427-10		Bldg 111, Sm. mushroom vent Right, Flashing Mastic	1st Positive Stop	
	Color:	Black		
26427-11		Bldg 111, Lg. mushroom vent Center, Flashing Mastic	1st Positive Stop	
	Color:	Black		
26427-12		Bldg 111, Lg. mushroom vent Right, Flashing Mastic	1st Positive Stop	
	Color:	Black		
26427-13		Bldg 111, BUR Top layer tar and rocks	1st Positive Stop	
	Color:	Black		
26427-14		Bldg 111, BUR Felt and tar layer, random layer	*Chrysotile	15
			Cellulose	10
	Color:	Black	Mineral chip	30
			Organic Binder	**
26427-15		Bldg 111, Insulation	Mineral chip	100
	Color:	Black		
26427-16		Bldg 111, BUR Top layer tar and rocks	1st Positive Stop	
	Color:	Black		
26427-17		Bldg 111, BUR Felt and tar layer, random layer	1st Positive stop	
	Color:	Black		

Results:

Sample ID		Material/Location	Composition	%
26427-18		Bldg 111, Insulation	Mineral chip	100
	Color:	Black		
26427-19		Bldg 110, Large AHU Left, Flashing Mastic	1st Positive Stop	
	Color:	Black		
26427-20		Bldg 110, Large AHU Right, Flashing Mastic	1st Positive stop	
	Color:	Black		
26427-21		Bldg 110, Sm. mushroom vent Right, Flashing Mastic	1st Positive Stop	
	Color:	Black		
26427-22		Bldg 110, Sm. mushroom vent Left, Flashing Mastic	*Chrysotile	15
			Cellulose	10
	Color:	Black	Mineral chip	15
			Organic Binder	**
26427-23		Bldg 110, Lg. mushroom vent Left, Flashing Mastic	1st Positive Stop	
	Color:	Black		
26427-24		Bldg 110, Lg. mushroom vent Right, Flashing Mastic	1st Positive Stop	
	Color:	Black		
26427-25		Bldg 110, BUR Top layer tar and rocks	1st Positive Stop	
	Color:	Black		
26427-26		Bldg 110, BUR Felt and tar layer, random layer	1st Positive stop	
	Color:	Black		
26427-27		Bldg 110, Insulation	Mineral chip	100
	Color:	Black		
26427-28		Bldg 110, BUR Top layer tar and rocks	1st Positive Stop	
	Color:	Black		
26427-29		Bldg 110, BUR Felt and tar layer, random layer	*Chrysotile	15
			Cellulose	10
	Color:	Black	Mineral chip	30
			Organic Binder	**

Results:	Sample ID	Material/Location	Composition	%
	26427-30	Bldg 110, Insulation	Mineral chip	100
		Color: Black		

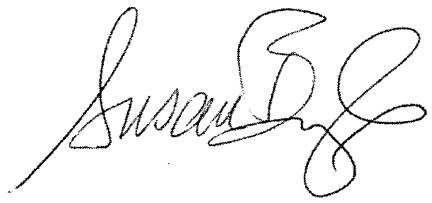
**Cannot quantify due to use of organic solvent to break down the organic binder.

Condition: The sample was received in good condition.

Comment: Asbestos was consistently detected in the felt and tar layer of the BUR as well as in the flashing mastic. Therefore all BUR and flashing mastic should be considered positive for the presence of asbestos.

Asbestos-containing materials must be removed prior to demolition. All asbestos abatement activities must be performed by Massachusetts licensed asbestos abatement contractors having submitted the appropriate notification to the regulatory agencies. At the completion of abatement activities, a final clearance inspection and air sampling must be performed by a licensed asbestos abatement Project Monitor who is an independent third party.

This analysis pertains only to the samples submitted.



Susan Boyle, President
MA Analytical Lab #AA000013

HUB TESTING LABORATORY, INC.

Environmental Testing and Consulting Service

Certified Woman-owned Business Enterprise (WBE)

95 Beaver Street
Waltham, MA 02453

(781) 893-8330
FAX (781) 893-4414
www.hubtesting.net

June 6, 2016

Report For: City of Waltham Building Department
Attn: Donald Casano
119 School Street
Waltham, MA 02451

Hub ID: 26291

Project: Fernald Center,
Cottages 103- 113

Date Sampled: May 24, 2016
June 1, 2016

Scope and Discussion:

Hub Testing Laboratory is conducting demolition inspections of the above noted buildings for the purposes of identifying asbestos containing materials. In discussion with Mr. Cusano it was reviewed that there are numerous different types of 12"x12" floor tile with black mastic. It was explained that if the mastic is positive for the presence of asbestos then because the mastic it on both the concrete slab as well as the backside of the tile the tile must be treated as asbestos contaminated. For this reason it was suggested that samples be collected solely of the mastic and if a pattern developed indicating the mastic to be positive it would eliminate the necessity to sample the flooring.

Two buildings were chosen to begin the review of the flooring; Building 107 and 108. Three random samples were collected of mastic from different types of 12"x12" floor tile in each of the buildings. All six samples were analyzed and identified as positive for the presence of asbestos. Therefore an additional four buildings were chosen and one sample of mastic was collected from each building (Buildings 104, 105, 110 and 113). Likewise these four samples also were positive for the presence of asbestos. Therefore no additional sampling will be conducted of floor tile or mastic in the Cottages and all floor tile mastic will be considered asbestos containing and all floor tile will be considered asbestos contaminated.

Methodology: Analysis for the presence of asbestos was performed using Polarized Light Microscopy EPA/600/R-93/116, July 1993.

Results:

Sample ID	Material/Location	Composition	%
26291-1	Black mastic, Building 108	*Chrysotile	10
	Color: Black	Mineral Chip	10
		Organic Binder**	
26291-2	Black mastic, Building 108	*Chrysotile	15
	Color: Black	Mineral Chip	10
		Organic Binder**	
26291-3	Black mastic, Building 108	*Chrysotile	10
	Color: Black	Mineral Chip	10
		Organic Binder**	
26291-4	Black mastic, Building 107	*Chrysotile	8
	Color: Black	Mineral Chip	10
		Organic Binder**	
26291-5	Black mastic, Building 107	*Chrysotile	8
	Color: Black	Mineral Chip	10
		Organic Binder**	
26291-6	Black mastic, Building 107	*Chrysotile	15
	Color: Black	Mineral Chip	10
		Organic Binder**	
26291-7	Black mastic, Building 104	*Chrysotile	8
	Color: Black	Mineral Chip	20
		Organic Binder**	
26291-8	Black mastic, Building 105	*Chrysotile	7
	Color: Black	Mineral Chip	20
		Organic Binder**	
26291-9	Black mastic, Building 110	*Chrysotile	10
	Color: Black	Mineral Chip	20
		Organic Binder**	
26291-10	Black mastic, Building 113	*Chrysotile	9
	Color: Black	Mineral Chip	10
		Organic Binder**	

**Cannot quantify due to use of organic solvent to break down the organic binder.

Condition: The samples were received in good condition.

Comment: All ten samples of black mastic are asbestos containing. This analysis pertains only to the sample submitted. This report shall not be reproduced except in full, without the written approval of the laboratory.

Susan Boyle, President
MA Analytical Lab #AA000013

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514151 - PLM
Project: Misc. Ferrald Cottage
Project No.: 26398

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973173 **Client No.:** 1	**Description:** White Caulk **Facility:**	**Location:** Bldg 103, 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973174 **Client No.:** 2	**Description:** White Caulk **Facility:**	**Location:** Bldg 103, 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973175 **Client No.:** 3	**Description:** Red Brick **Facility:**	**Location:** Bldg 103
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973176 **Client No.:** 4	**Description:** Red Mortar **Facility:**	**Location:** Bldg 103
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973177 **Client No.:** 5	**Description:** Red Mortar **Facility:**	**Location:** Bldg 103
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973178 **Client No.:** 6	**Description:** Red Mortar **Facility:**	**Location:** Bldg 103
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Alex Wright

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 4:16:32 PM

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514151 - PLM
Project: Misc. Ferrald Cottage
Project No.: 26398

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973179 **Client No.:** 7	**Description:** White Caulk **Facility:**	**Location:** Bldg 104, 38
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973180 **Client No.:** 8	**Description:** White Caulk **Facility:**	**Location:** Bldg 104, 17
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973181 **Client No.:** 9	**Description:** White Caulk **Facility:**	**Location:** Bldg 104, 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973182 **Client No.:** 10	**Description:** White Caulk **Facility:**	**Location:** Bldg 104, 41
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973183 **Client No.:** 11	**Description:** Black Fibrous **Facility:**	**Location:** Bldg 104, Exterior
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 5 Synthetic	Percent Non-Fibrous Material: 90
Lab No.: 5973184 **Client No.:** 12	**Description:** Black Fibrous **Facility:**	**Location:** Bldg 104, Exterior
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 5 Synthetic	Percent Non-Fibrous Material: 90

Analytical Method -**US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Alex Wright

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 4:16:32 PM

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514151 - PLM
Project: Misc. Ferrald Cottage
Project No.: 26398

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973185 **Client No.:** 13	**Description:** White Caulk **Facility:**	**Location:** Bldg 105, 21, Radiator
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973186 **Client No.:** 14	**Description:** White Caulk **Facility:**	**Location:** Bldg 105, 42, Radiator
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973187 **Client No.:** 15	**Description:** Black Fibrous **Facility:**	**Location:** Bldg 105, Exterior
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose 5 Synthetic	Percent Non-Fibrous Material: 85
Lab No.: 5973188 **Client No.:** 16	**Description:** Black Fibrous **Facility:**	**Location:** Bldg 105, Exterior
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose 5 Synthetic	Percent Non-Fibrous Material: 85
Lab No.: 5973189 **Client No.:** 17	**Description:** Tan Caulk **Facility:**	**Location:** Bldg 106, 35, Radiator
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5973190 **Client No.:** 18	**Description:** Tan Caulk **Facility:**	**Location:** Bldg 106, 13, Radiator
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Alex Wright

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 4:16:33 PM

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ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514151 - PLM
Project: Misc. Ferrald Cottage
Project No.: 26398

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5973191
Client No.: 19
Description: Tan Caulk
Facility:
Location: Bldg 113, 40, Radiator

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Lab No.: 5973192
Client No.: 20
Description: White Caulk
Facility:
Location: Bldg 113, 17, Radiator

Percent Asbestos:
None Detected

Percent Non-Asbestos Fibrous Material:
None Detected

Percent Non-Fibrous Material:
100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 7/7/2016
Date Analyzed: 07/11/2016
Signature:
Analyst: Alex Wright

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 7/12/2016 4:16:33 PM

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514151 - PLM
Project: Misc. Ferrald Cottage
Project No.: 26398

Appendix to Analytical Report

Customer Contact: Lynne Brimhall
Analysis: US EPA 600, R93-116

This appendix seeks to promote greater understanding of any observations, exceptions, special instructions, or circumstances that the laboratory needs to communicate to the client concerning the above samples. The information below is used to help promote your ability to make the most informed decisions for you and your customers. Please note the following points of contact for any questions you may have.

iATL Customer Service: customerservice@iatl.com
iATL Office Manager: cdavis@iatl.com
iATL Account Representative: Pete Lesniak
Sample Login Notes: See Batch Sheet Attached
Sample Matrix: Bulk Building Materials
Exceptions Noted: See Following Pages

General Terms, Warrants, Limits, Qualifiers:

General information about iATL capabilities and client/laboratory relationships and responsibilities are spelled out in iATL policies that are listed at www.iATL.com and in our Quality Assurance Manual per ISO 17025 standard requirements. The information therein is a representation of iATL definitions and policies for turnaround times, sample submittal, collection media, blank definitions, quantification issues and limit of detection, analytical methods and procedures, sub-contracting policies, results reporting options, fees, terms, and discounts, confidentiality, sample archival and disposal, and data interpretation.

iATL warrants the test results to be of a precision normal for the type and methodology employed for each sample submitted. iATL disclaims any other warrants, expressed or implied, including warranty of fitness for a particular purpose and warranty of merchantability. iATL accepts no legal responsibility for the purpose for which the client uses test results. Any analytical work performed must be governed by our Standard Terms and Conditions. Prices, methods and detection limits may be changed without notification. Please contact your Customer Service Representative for the most current information.

This confidential report relates only to those item(s) tested and does not represent an endorsement by NIST-NVLAP, AIHA LAP LLC, or any agency of local, state or province governments nor of any agency of the U.S. government.

This report shall not be reproduced except in full, without written approval of the laboratory.

Information Pertinent to this Report:

Analysis by US EPA 600 93-116: Determination of Asbestos in Bulk Building Materials by Polarized Light Microscopy (PLM).

Certifications:

- NIST-NVLAP No. 101165-0
- NY-DOH No. 11021
- AIHA-LAP, LLC No. 100188

Quantification at <0.25% by volume is possible with this method. (PC) Indicates Stratified Point Count Method performed. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed (ex. analyze until positive instructions). Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, PLM is not consistently reliable in detecting asbestos in non-friable organically bound (NOB) materials. Quantitative transmission electron microscopy (TEM) is currently the only method that can pronounce materials as non-asbestos containing.

Analytical Methodology Alternatives: Your initial request for analysis may not have accounted for recent advances in regulatory requirements or advances in technology that are routinely used in similar situations for other qualified projects. You may have the option to explore additional analysis for further information. Below are a few options, listed as the matrix followed by the appropriate methodology. Also included are links to more information on our website.

Bulk Building Materials that are Non-Friable Organically Bound (NOB) by Gravimetric Reduction techniques employing PLM and TEM: ELAP 198.6 (PLM-NOB), ELAP 198.4 (TEM-NOB)

Loose Fill Vermiculite Insulation, Attic Insulation, Zonolite (copyright), etc.: US EPA 600 R-4/004 (multi-tiered analytical process)
Sprayed On Insulation/Fireproofing with Vermiculite (SOF-V): ELAP 198.8 (PLM-SOF-V)>

Soil, sludge, sediment, aggregate, and like materials analyzed for asbestos or other elongated mineral particles (ex. erionite, etc.): ASTM D7521, CARB 435, and other options available

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ASBESTOS TESTING LABORATORIES

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Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 7/11/2016
Report No.: 514151 - PLM
Project: Misc. Ferrald Cottage
Project No.: 26398

Asbestos in Surface Dust according to one of ASTM's Methods (very dependent on sampling collection technique – by TEM): ASTM D 5755, D5756, or D6480

Various other asbestos matrices (air, water, etc.) and analytical methods are available.

Disclaimers / Qualifiers:

There may be some samples in this project that have a "NOTE:" associated with a sample result. We use added disclaimers or qualifiers to inform the client about something that requires further explanation. Here is a list with highlighted disclaimers that may be pertinent to this project. For a full explanation of these and other disclaimers, please inquire at **customerservice@iatl.com**.

1) Note: No mastic provided for analysis.
2) Note: Insufficient mastic provided for analysis.
3) Note: Insufficient material provided for analysis.
4) Note: Insufficient sample provided for QC reanalysis.
5) Note: Different material than indicated on Sample Log / Description.
6) Note: Sample not submitted.
7) Note: Attached to asbestos containing material.
8) Note: Received wet.
9) Note: Possible surface contamination.
10) Note: Not building material. 1% threshold may not apply.
11) Note: Recommend TEM-NOB analysis as per EPA recommendations.
12) Note: Asbestos detected but not quantifiable.
13) Note: Multiple identical samples submitted, only one analyzed.
14) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.080%.
15) Note: Analyzed by EPA 600/R-93/116. Point Counting detection limit at 0.125%.

Recommendations for Vermiculite Analysis:

Several analytical protocols exist for the analysis of asbestos in vermiculite. These analytical approaches vary depending upon the nature of the vermiculite mineral being tested (e.g. un-processed gange, homogeneous exfoliated books of mica, or mixed mineral composites).Please contact your client representative for pricing and turnaround time options available.

iATL recommends initial testing using the EPA 600/R-93/116 method. This method is specifically designed for the analysis of asbestos in bulk building materials. It provides an acceptable starting point for primary screening of vermiculite for possible asbestos.

Results from this testing may be inconclusive. EPA suggests proceeding to a multi-tiered analysis involving wet separation techniques in conjunction with PLM and TEM gravimetric analysis (EPA 600/R-04/004).

Further information on this method and other vermiculite and asbestos issues can be found at the following: Agency for Toxic Substances and Disease Registry (ATSDR) www.atsdr.cdc.gov, United States Geological Survey (USGS) www.minerals.usgs.gov/minerals/, US EPA www.epa.gov/asbestos. The USEPA also has an informative brochure "Current Best Practices for Vermiculite Attic Insulation" EPA 747F03001 May 2003, that may assist the health and remediation professional.

The following is a summary of the analytical process outlines in the EPA 600/R-04/004 Method:

1)**Analytical Step/Method:** Initial Screening by PLM, EPA 600R-93/116
Requirements/Comments: Minimum of 0.1 g of sample. ~0.25% LOQ for most samples.

2)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

3)**Analytical Step/Method:** Wet Separation by PLM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Floats" only.

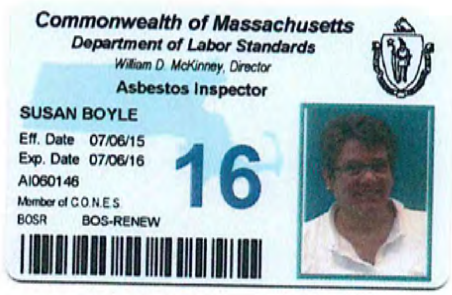
4)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Sinks" only.

5)**Analytical Step/Method:** Wet Separation by TEM Gravimetric Technique, EPA R-04/004
Requirements/Comments: Minimum 50g** of dry sample. Analysis of "Suspension" only.

LOQ, Limit of Quantitation estimates for mass and volume analyses.
*With advance notice and confirmation by the laboratory.
**Approximately 1 Liter of sample in double-bagged container (~9x6 inch bag of sample).

Attachment C

Hub Licenses & Certifications


Commonwealth of Massachusetts
Department of Labor Standards
William D. McKinney, Director
Asbestos Inspector
SUSAN BOYLE
Eff. Date 07/06/15
Exp. Date 07/06/16
AI060146
Member of C.O.N.E.S.
BOSR BOS-RENEW
16

This is to certify that

Susan Boyle

has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

Course Location
Institute for Environmental Education, Inc.
16 Upton Drive Wilmington, MA 01887

June 19, 2015
Course Dates

15-0262-106-202989
Certificate Number

June 19, 2015
Examination Date

June 19, 2016
Expiration Date

Training Director

16 Upton Drive, Wilmington, MA 01887 Telephone 978.658.5272 www.ieetrains.com

INSTITUTE FOR ENVIRONMENTAL EDUCATION

Attachment F
Page 4 of 7

This is to certify that

Jim G. Brimhall

has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

Course Location
Institute for Environmental Education, Inc.
16 Upton Drive Wilmington, MA 01887

January 21, 2016
Course Dates

16-0244-106-203210
Certificate Number

January 21, 2016
Examination Date

January 21, 2017
Expiration Date

Training Director

16 Upton Drive, Wilmington, MA 01887 Telephone 978.658.5272 www.ieetrains.com

INSTITUTE FOR ENVIRONMENTAL EDUCATION


Commonwealth of Massachusetts
Department of Labor Standards
William D. McKinney, Director
Asbestos Inspector
LYNNE BRIMHALL
Eff. Date 12/21/15
Exp. Date 12/21/16
16
AI061691
Member of C.O.N.E.S
BOSR BOS-RENEW

This is to certify that

Lynne G. Brimhall

has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

Course Location
Institute for Environmental Education, Inc.
16 Upton Drive Wilmington, MA 01887

November 24, 2015
Course Dates

15-0489-106-231902
Certificate Number

November 24, 2015
Examination Date

November 24, 2016
Expiration Date

Training Director

16 Upton Drive, Wilmington, MA 01887 Telephone 978.658.5272 www.ieetrains.com

INSTITUTE FOR ENVIRONMENTAL EDUCATION

Attachment D

Laboratory Licenses & Certifications

Certificate No: **A044430**

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS
19 STANIFORD STREET, BOSTON, MASSACHUSETTS 02114

CERTIFICATION FOR ASBESTOS ANALYTICAL SERVICES

HUB TESTING LABORATORY, INC.
95 BEAVER STREET
WALTHAM MA 02154-

LICENSE: **AA000013** EXPIRES: **Sunday, July 24, 2016**

IN ACCORDANCE WITH MGL CH. 149 § 6B AND 453 CMR 6.08 THIS CERTIFICATE IS ISSUED BY THE DEPARTMENT OF LABOR STANDARDS TO THE ABOVE NAMED ENTITIY TO PROVIDE THE ASBESTOS ANALYTICAL SERVICES SPECIFICALLY LISTED BELOW.

CLASS B CERTIFICATE
CLASS C CERTIFICATE

William D. McKinney

WILLIAM D. MCKINNEY, DIRECTOR

Mailing Address:

HUB TESTING LABORATORY, INC.
95 BEAVER STREET
WALTHAM, MA 02154-

Certificate No: **A045310**

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS
19 STANIFORD STREET, BOSTON, MASSACHUSETTS 02114

CERTIFICATION FOR ASBESTOS ANALYTICAL SERVICES

INTERNATIONAL ASBESTOS TESTING LABORATORY, INC.
9000 COMMERCE PARKWAY
SUITE B
MT. LAUREL NJ 08054-

LICENSE: **AA000092** EXPIRES: **Saturday, April 08, 2017**

IN ACCORDANCE WITH MGL CH. 149 § 6B AND 453 CMR 6.08 THIS CERTIFICATE IS ISSUED BY THE DEPARTMENT OF LABOR STANDARDS TO THE ABOVE NAMED ENTITIY TO PROVIDE THE ASBESTOS ANALYTICAL SERVICES SPECIFICALLY LISTED BELOW.

CLASS A CERTIFICATE
CLASS C CERTIFICATE
CLASS D CERTIFICATE

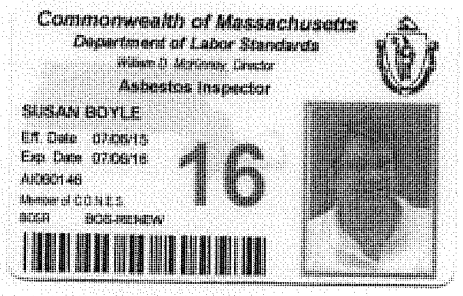
William D. McKinney

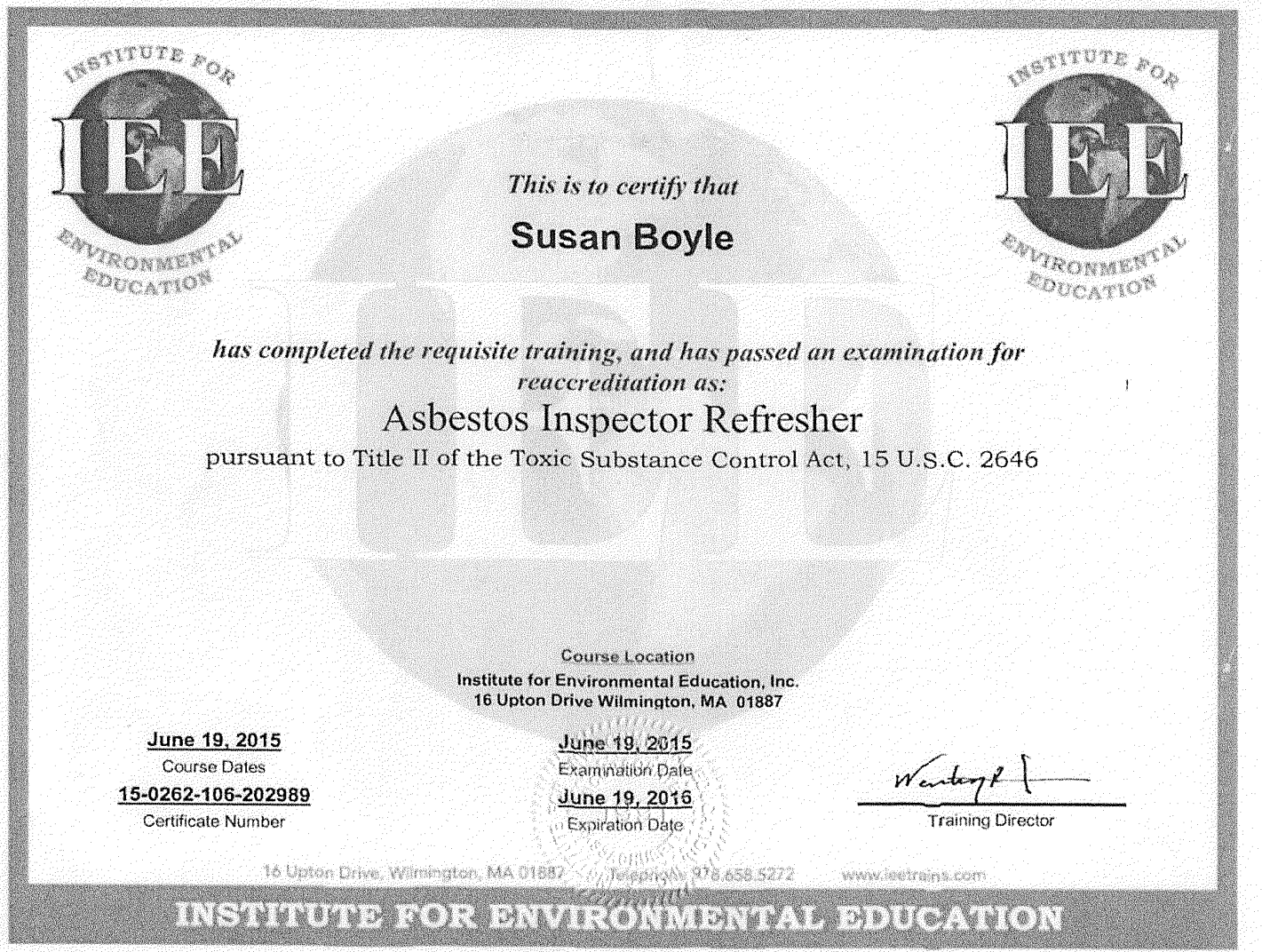
WILLIAM D. MCKINNEY, DIRECTOR

Mailing Address:

INTERNATIONAL ASBESTOS TESTING LABORATORY, INC.
9000 COMMERCE PARKWAY
SUITE B
MT. LAUREL, NJ 08054-

EXHIBIT G


Commonwealth of Massachusetts
Department of Labor Standards
William D. Mahoney, Director
Asbestos Inspector
SUSAN BOYLE
Eff. Date 07/06/15
Exp. Date 07/06/16
AI0901 48
16
BOS-RENEW



This is to certify that

Susan Boyle

has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

Course Location
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June 19, 2015
Course Dates

15-0262-106-202989
Certificate Number

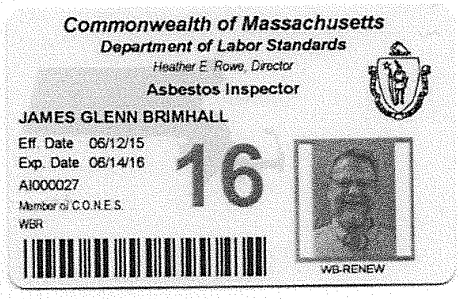
June 19, 2015
Examination Date

June 19, 2016
Expiration Date

Training Director

16 Upton Drive, Wilmington, MA 01887 Telephone: 978.658.5272 www.ieetrains.com

INSTITUTE FOR ENVIRONMENTAL EDUCATION


Commonwealth of Massachusetts
Department of Labor Standards
Heather E. Rowe, Director
Asbestos Inspector
JAMES GLENN BRIMHALL
Eff. Date 06/12/15
Exp. Date 06/14/16
AI000027
Member of C.O.N.E.S.
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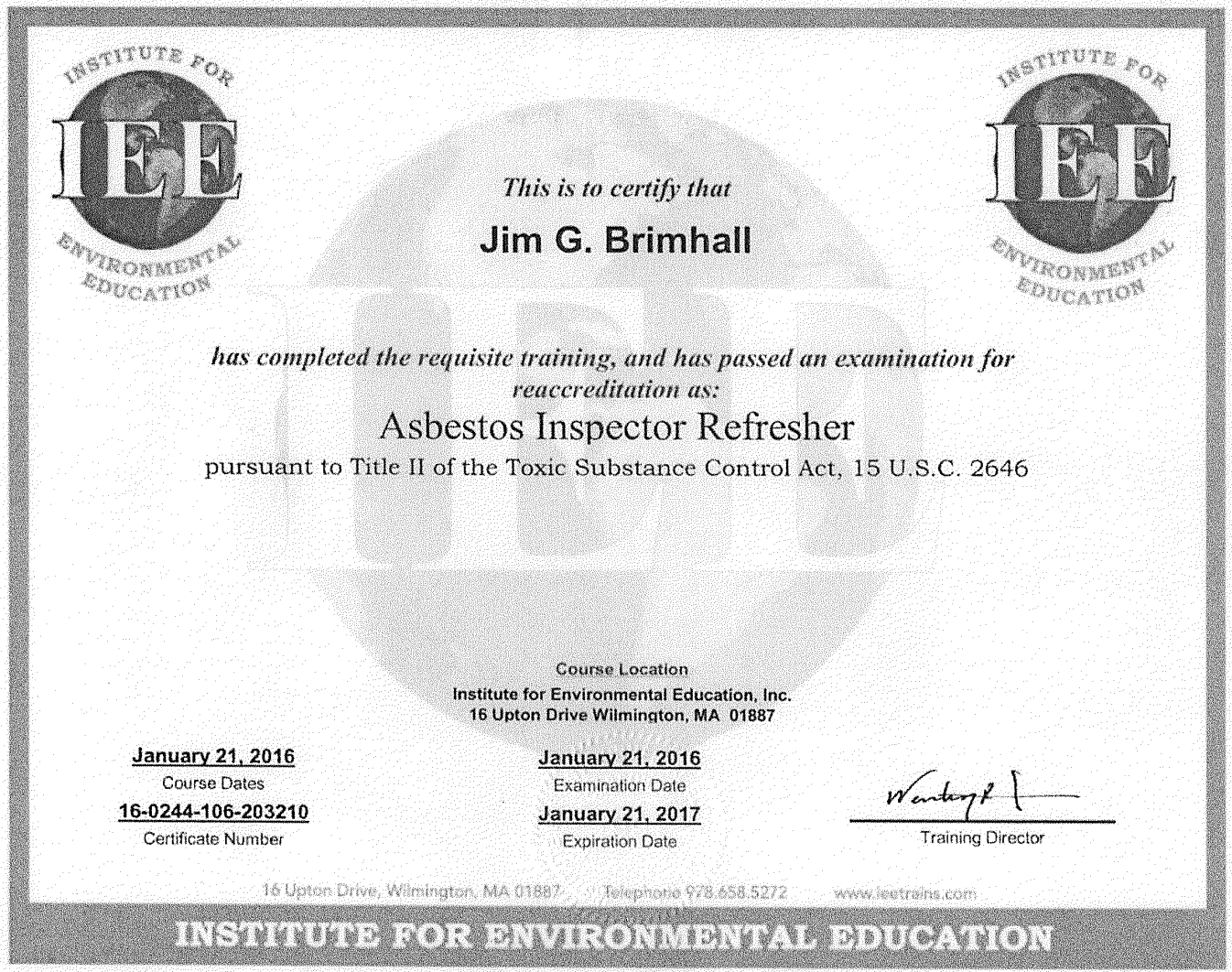

This is to certify that

Jim G. Brimhall

has completed the requisite training, and has passed an examination for reaccreditation as:

Asbestos Inspector Refresher

pursuant to Title II of the Toxic Substance Control Act, 15 U.S.C. 2646

Course Location
Institute for Environmental Education, Inc.
16 Upton Drive Wilmington, MA 01887

January 21, 2016	**January 21, 2016**	
Course Dates	Examination Date	
16-0244-106-203210	**January 21, 2017**	
Certificate Number	Expiration Date	Training Director

16 Upton Drive, Wilmington, MA 01887 Telephone 978.658.5272 www.ieetrains.com

INSTITUTE FOR ENVIRONMENTAL EDUCATION

Attachment G

Laboratory Licenses & Certifications

Certificate No: A043789

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS
19 STANIFORD STREET, BOSTON, MASSACHUSETTS 02114

CERTIFICATION FOR ASBESTOS ANALYTICAL SERVICES

INTERNATIONAL ASBESTOS TESTING LABORATORY, INC.
9000 COMMERCE PARKWAY
SUITE B
MT. LAUREL NJ 08054-

LICENSE: **AA000092** EXPIRES: **Friday, April 08, 2016**

IN ACCORDANCE WITH MGL CH. 149 § 6B AND 453 CMR 6.08 THIS CERTIFICATE IS ISSUED BY THE DEPARTMENT OF LABOR STANDARDS TO THE ABOVE NAMED ENTITIY TO PROVIDE THE ASBESTOS ANALYTICAL SERVICES SPECIFICALLY LISTED BELOW.

CLASS A CERTIFICATE
CLASS C CERTIFICATE
CLASS D CERTIFICATE

JEAN ZEILER, ACTING DIRECTOR

Mailing Address:

INTERNATIONAL ASBESTOS TESTING LABORATORY, INC.
9000 COMMERCE PARKWAY
SUITE B
MT. LAUREL, NJ 08054-

NVLAP® National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

International Asbestos Testing Laboratories
9000 Commerce Parkway
Suite B
Mt. Laurel, NJ 08054
Mr. Frank E. Ehrenfeld III
Phone: 856-231-9449 Fax: 856-231-9818
Email: frankehrenfeld@iatl.com
http://www.iatl.com

ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 101165-0**

Bulk Asbestos Analysis

Code	*Description*
18/A01	EPA 600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

Effective 2015-06-16 through 2016-06-30

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 101165-0

International Asbestos Testing Laboratories

Mt. Laurel, NJ

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Asbestos Fiber Analysis

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2015-06-16 through 2016-06-30
Effective Dates

For the National Voluntary Laboratory Accreditation Program

HUB TESTING LABORATORY, INC.

Environmental Testing and Consulting Service

Certified Woman-owned Business Enterprise (WBE)

95 Beaver Street
Waltham, MA 02453

(781) 893-8330
FAX (781) 893-4414
www.hubtesting.net

Report For: [illegible]
45 Kings Highway
West Wareham, MA 02576

Project: The Former Fernald School
200 Trapelo Road
Waltham, MA

Community Activities Building
Brookside
Woodside
Site 5
Site 7

Scope: Inspection for Asbestos Containing Materials at the Above Noted Buildings

Date: April 7, 2016

Submitted By: Hub Testing Laboratory
95 Beaver Street
Waltham, MA 02453

Susan Boyle
President

Table of Contents

Building Materials Survey Report
5 Identified Buildings
Fernald Project, Waltham, MA
[illegible]

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1 Introduction

Starting on March 18, 2016, Hub Testing Laboratory, Inc. representatives, Mr. James Brimhall and Ms. Susan Boyle, performed a building materials survey associated with the planned demolition of the five identified buildings at the former Fernald School in Waltham, Massachusetts. Refer to Attachment F for a copy of the licenses and certifications of the inspectors.

During the site visit, a walk-through investigation was conducted to identify material that would be impacted by the planned demolition project and are suspect of containing asbestos. The Hub Testing Laboratory inspectors returned after the walk through investigation to conducted sampling of these suspect asbestos containing materials (ACM).

Under EPA's NESHAPs regulation as well as the Commonwealth of Massachusetts Department of Environmental Protect regulation 310 CMR 7.15 facilities or facility components that will be impacted by demolition or renovation must first be inspected for asbestos containing materials.

NESHAPS indicates that "Prior to the commencement of the demolition or renovation, thoroughly inspect the effected facility, or part of the facility where the demolition or renovation operation will occur, for the presence of asbestos including category I and category II non-friable ACM." The MA DEP requires that the owner/operator of a facility "employ or engage an asbestos inspector to thoroughly inspect the facility or facility component, or those parts thereof where the demolition or renovation will occur, to identify the presence, location and quantity of any ACM or suspect ACM and to prepare a written asbestos survey report."

The five structures identified by [redacted] for inspection were the Community Activities Building, Brookside, Woodside, Site 5 and Site 7. All five structures other than the Community Activities Building were single story masonry buildings with rubber membrane roofs. The Community Activities Building was a single story masonry building; however, it appeared to have two generations of construction.

The inspection project consisted of the inspection of the five structures and did not include any tunnels or connection to the power plant.

The report is created to supply information by building. Each Attachment is dedicated to a specific building and consist of three sections: the Homogeneous Materials Charts, which is the chart of all the material identified as suspect asbestos containing; the Floor and/or Roof Plan that has each room on the plans numbered to identify the locations and supply further information as to the specific location of the suspect asbestos containing material; and the Asbestos PLM Sample Results.

2 Asbestos Inspection

A property owner must ensure that a thorough ACM inspection is performed prior to possible disturbance of suspect ACM during renovation or demolition activities. This is a requirement of the United States Environmental Protection Agency (EPA) National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation located at Title 40 CFR, Part 61, Subpart M.

An inspection is conducted by a licensed asbestos inspector who performs a walk-through investigation to visually identify suspect ACM. Once the suspect materials are identified, samples are collected to satisfy current regulations.

A licensed and experienced asbestos inspector must identify any and all materials that are suspect of containing asbestos and sample according to regulation.

Asbestos was added to materials to enhance their thermal properties, for fire protection, to add flexibility or tensile strength and reduce impact from acidity. Therefore materials which may have been used for insulation, fire retardency, acid resistance or require flexibility, at a minimum may have had asbestos added to them. This would include materials such as wall and ceiling materials; sheetrock, joint compound, brown coat or skim coat plasters, cement or brick mortars, ceiling tiles and floor tiles, sheet flooring, adhesives for floor tiles, to hold bulletin boards to the wall, or glue daubs; other materials such as insulations or packing around insulation such as pipe or boiler insulation or rope gaskets or vibrations dampers. Other miscellaneous materials such as window caulking or glazing, roofing materials such as caulking, felts, shingles and tar may also have had asbestos as an additive. In addition, materials such as the textured underside coating on stainless steel sinks were known to be asbestos containing. Asbestos is still used and there is no total ban of its use. Specific materials and types of materials have been banned from the use of asbestos; however, materials manufactured well into the 80's and beyond can contain asbestos.

2.1 Discussion

The majority of the buildings construction is of similar age and material.

The roofing systems were all inspected and cuts made through the rubber membranes. Two different types of insulation were noted below the rubber membrane; rigid foam board and fiber board, neither of which is a suspect asbestos containing material. However, other materials such as the caulking at seams and at edges and the flashing mastics are suspect materials. Samples were collected of those materials. In addition, the Community Activities Building also had architectural peaks on the roof. These peaks were covered with two different types of asphalt shingles.

The Woodside and Brookside buildings were connected to the main power plant and did not have boilers in the mechanical rooms. The boilers in the Community Activities building as well as Site 5 and Site 7 were inspected and samples collected from the rib gasket material and interior insulations.

Interior as well as exterior windows were inspected and where caulking was present it was sampled. Some buildings had interior windows, wire reinforced windows and/or hallways lights. Again where these were present they were inspected, the keeper strips was removed in several locations to verify the absence or presence of glazing and where present was sampled.

Interior walls within the building mainly consisted of sheetrock or a few areas of plaster walls. The majority of the ceilings were suspended tiles with exposed metal roof structure above them. Floors throughout were different floor tiles with ceramic tiles in the bathrooms. The ceramic tile and grout were sampled as well as the mastic and floor tiles.

Under regulations, wood, rubber and pink & yellow fiberglass are not considered suspect asbestos containing materials. However, samples were collected of all other materials on the interior and exterior that would be impacted by the demolition project and returned to the laboratory. These samples were received within the laboratory and analyzed for asbestos. A best attempt was made to sample all layers.

Refer to the Attachments for a chart with the homogenous materials identified.

2.2 Methodology

The inspection was conducted by visually inspecting for suspect ACM and touching each of the suspect materials. Since the project consists of the demolition of the building an identification of the materials as friable or non-friable was not made as they will be required to be removed prior to demolition.

However, the inspector in the field identified materials under three groups; Surfacing material, thermal systems insulation or miscellaneous material. Under state-of-the-art methods for inspections, sampling of the different groups is conducted with varying number of samples in order to prove a material is non-asbestos containing.

1. Surfacing Materials (i.e., plasters, spray-applied fireproofings, etc.) must be collected in a randomly distributed manner representing each homogenous area based on the overall quantity represented by the sampling as follows:

a) Three (3) samples collected from each homogenous area that is less than or equal to 1,000 square feet.
b) Five (5) samples collected from each homogenous area that is greater than 1,000 square feet but less than or equal to 5,000 square feet.
c) Seven (7) samples collected from each homogenous area that is greater than 5,000 square feet.

2. Thermal System Insulation (i.e., pipe insulations, tank insulations, etc.) must be collected in a randomly distributed manner representing each homogenous area. Three (3) samples must be collected from each material. Also, a minimum of one (1) sample of any patching materials applied to TSI presuming the patched area is less than 6 linear or square feet should be collected.

3. Miscellaneous materials (i.e., floor tile, gaskets, construction mastics, etc.) should have a minimum of two (2) samples collected for each type of homogenous material. Sample collection was conducted in a manner sufficient to determine asbestos content of the homogenous material as determined by the inspector.

Refer to the Attachment G for the asbestos laboratory licenses and certifications.

2.3 Results

The US EPA defines any material that contains greater than one percent (>1%) asbestos, utilizing PLM, as being an ACM. The Commonwealth of Massachusetts Department of Environmental Protection (DEP) definition of an asbestos containing material is a material that contains equal to or greater than one percent (1%) asbestos however, the MA DEP also considers any material that contains asbestos to fall under their jurisdiction.

Samples were analyzed using EPA 600 R-93/116, 1993.

Community Activities Building:

Homogeneous Area description	HA location	Quantity	Asbestos Yes/No
*Mastic associated with 12x12 beige (light) FT	Area 2, Area 4, Area 5, Area 13 through Area 18	≈2,800	Yes
*Mastic associated with 12x12 tan (dark) FT			Yes
*Mastic associated with 12x12 black FT	Checkered with 12x12 white Area 22, Area 31, Area 37	≈1,400	Yes
*Mastic associated with 12x12 white FT	Checkered with 12x12 black and Area 24, Area 28, Area 29, Area 30, Area 38	≈3,700	Yes
Sink insulation, White	#15 @ wall with #14, Kitchen 1	≈ 5 SF /per	Yes
Sink insulation, Black	Kitchen 2	≈ 5 SF /per	Yes
Glazing	Window walls under metal keeper strips, wire mesh windows	25 windows ≈22 ft ea.	Yes
TSI Pipe end seals	Boiler room	≈ 2 SF	Yes
Rib gasket, upper	Boiler	≈ 100 LF	Yes
Ignition box gasket, lower	Boiler	≈ 10 SF	Yes
Underlayment mastic	Noted on Peak 5 and 6, assume on all other peaks		Yes
Exterior window glazing	Windows accessible on roof		Yes

*The flooring is adhered to the floor with black mastic which is asbestos containing. These materials cannot be separated for removal purposes. Flooring and mastic must be abated together.

Brookside:

Homogeneous Area description	HA location	Quantity	Asbestos Yes/No
*Mastic associated with 12x12 Tan floor tile with beige streaks	Area 1,4,6,17,18,22	≈ 3000 SF	Yes
*Mastic associated with 12x12 Red floor tile associated mastic	Areas 19,20,5, 7,21,12	≈ 3700 SF	Yes
12x12 Light mottled tan floor tile	Areas 15,14,13,29	≈ 2400 SF	<1%
Mastic associated with 12x12 Light mottled tan floor tile			<1%
12x12 Dark mottled tan floor tile	Areas 27,8	≈ 2000 SF	<1%
Mastic associated with 12x12 Dark mottled tan floor tile			<1%
Window/door frame caulk (gray)	Exterior all window and door frames	≈ 43, 4'x 5' Windows and 4 doors	Yes
Window caulk (brown)	Exterior all prefabricated windows	≈ 43, 4'x 5' Windows and 4 doors	Yes
Frosted window glaze (beige)	Frosted windows exterior	≈ 16 LF	Yes
Sill joint caulking	All slate window sills	≈ 60 LF	Yes

*The flooring is adhered to the floor with black mastic which is asbestos containing. These materials cannot be separated for removal purposes. Flooring and mastic must be abated together.

Woodside:

Homogeneous Area description	HA location	Quantity	Asbestos Yes/No
*Mastic associated with 12x12 White vinyl composite floor tile	Areas 1,6,6A,8,13,14,15, 17,18,33	≈ 11,000 SF	Yes
*Mastic associated with 12x12 Red vinyl composite floor tile	Areas 5,7,12,19,20,21		Yes
*Mastic associated with 12x12 Tan vinyl composite floor tile	Area 27,34, 35		Yes
*Adhesive associated with Blue sheet vinyl flooring	Areas 3,4	≈ 1000 SF	< 1%
**Side door caulking	Side door frames	≈ 24 LF	Yes
Front door caulk	Front entrance door	≈ 24 LF	Yes
Exterior window caulk	Exterior at window perimeter	≈ 800 LF	Yes

*The flooring is adhered to the floor with black mastic which is asbestos containing. These materials cannot be separated for removal purposes. Flooring and mastic must be abated together.

**An attempt was made to collect samples of what appeared to be the older or most prevalent caulking however caulking has been repaired and overlaid in locations. As other caulking were identified as being asbestos containing it is reasonable to assume this materials has been diluted or over laid onto another caulking and should be treated as the same material.

Site 5:

Homogeneous Area description	HA location	Quantity	Asbestos Yes/No
*Mastic associated with 12x12 Tan vinyl composite floor tile	Throughout except for Rms 3, 8, 23, 24, 25, 26, 29 , 31, 32, 33	-----	Yes
Boiler rope on doors	Boiler Rm, boilers 1 and 2	-----	Yes
Rope gasket between ribs	Boiler Rm	-----	Yes
Under sink coating on stainless steel sinks	Rm 8, 2 sinks	≈10 SF	Yes
Window caulking	Re-enforced windows, Rm 7, 16, 17, 18, entrance windows and door	5 ≈ 2x4 windows and 160 LF @ entrance	Yes

*The flooring is adhered to the floor with black mastic which is asbestos containing. These materials cannot be separated for removal purposes. Flooring and mastic must be abated together.

Site 7:

Homogeneous Area description	HA location	Quantity	Asbestos Yes/No
Boiler rib insulation	Boiler #2 - C82, Area 37	≈ 120 LF	Yes
Plaster on boiler ribs	Boiler #2 - C82, Area 37	≈ 4 SF	Yes
Reinforced wire window glaze	Break rooms and Areas 5,12,30	≈ 250 LF	Yes

2.4 Conclusion

Prior to disturbance, materials determined to contain asbestos that will be impacted by any proposed renovation and selective demolition work must be abated. All asbestos abatement activities must be performed by Massachusetts licensed asbestos abatement contractors having submitted the appropriate notification to the regulatory agencies. At the completion of abatement activities, a final clearance inspection and air sampling must be performed by a licensed asbestos abatement Project Monitor who is an independent third party. This is a requirement of the Commonwealth of Massachusetts DLS & DEP as well as under the US EPA NESHAP standard for asbestos abatement.

Any suspect material encountered during renovation/demolition that is not identified in this report, as being non-ACM should be assumed to be ACM unless sample results prove otherwise.

This report is not intended to be utilized as a bidding document or as a project specification document. The report is designed to aid the building owner, architect, construction manager, general contractors, and asbestos abatement contractors in locating ACM. Quantities and locations of identified ACMs should be confirmed and observed by the abatement contractors during the bidding process.

All asbestos abatement plans or specifications should be designed by qualified, licensed and accredited asbestos abatement designers.

Attachment A

Community Activities Building

HA description	Sample ID 26053	Sample location	Location of HA	Quantity	Asbestos Yes/No
Top coat plaster	1	Area 1 – ceiling	Walls throughout building, ceilings of greenhouse wing to vestibule and bathrooms of the other wing		No
	2	Area 3 – ceiling			
	3	Area 4-wall			
	4	Area 13 wall			
	5	Area 19 wall			
	6	Area 30 wall			
	7	Area 28 wall			
Brown coat plaster	8	Area 1 – ceiling	Same as above		No
	9	Area 3 – ceiling			
	10	Area 4-wall			
	11	Area 13 wall			
	12	Area 19 wall			
	13	Area 30 wall			
	14	Area 28 wall			
SR abutting brown coat	15	Area 4-wall	Same as above		No
	16	Area 13 ceiling			
	17	Area 28 wall			
SR bottom layer	18	Area 4-wall	Same as above		No
	19	Area 13 ceiling			
	20	Area 28 wall			
Tektum ceiling tile	21	Area 31	Areas 21 through 34		No
	22	Area 22			
2'x2' Fissured and dotted ceiling tile	23	Area 17	Area 17		No
	24	Area 17			
Gray cove base mastic	25	Area 1	Areas 1 through 3	≈ 350 LF	No
	26	Area 3			
Tan cove base mastic	27	Area 13	Areas 13 through 19	≈ 800 LF	No
	28	Area 19			
Black cove base mastic	29	Area 22	Areas 22 through 37	≈ 1200 LF	No
	30	Area 24			
CMU	31	Greenhouse 2	Presumed walls behind brick, exposed in green houses and Area 1		No
	32	Area 1			
CMU grout	33	Greenhouse 2	Same as above		No
	34	Area 1			
Brick	35	Greenhouse 2	Exterior of building perimeter walls, interior walls in greenhouse 2 and Area 21, exterior of gardening shed		No
	36	Area 21 interior			
	37	Exterior of bldg. at Area 31			
Brick mortar	38	Greenhouse 2	Same as above		No
	39	Area 21			
	40	Exterior of bldg. at Area 31			

Homogeneous Area description	Sample ID 25063	Sample location	HA location	Quantity	Asbestos Yes/No
*12"x12" Beige (light) FT	1A	Area 18	Area 2, Area 4, Area 5, Area 13 through Area 18		No
	3A	Area 14			
Associated mastic	2A	Area 18	Area 2, Area 4, Area 5, Area 13 through Area 18		Yes
	4A	Area 14			
*12"x12" Tan (dark) FT	5A	Area 13 far end	Area 2, Area 4, Area 5, Area 13 through Area 18		No
	7A	Area 13 near end			
Associated mastic	6A	Area 13 far end	Area 2, Area 4, Area 5, Area 13 through Area 18		Yes
	8A	Area 13 near end			
1"x1" Tan ceramic FT grout	9A	Area 12	Area 9, Area 10, Area 11, Area 12		No
	11A	Area 9			
1"x1" Tan ceramic FT adhesive/thin set	10A	Area 12	Area 9, Area 10, Area 11, Area 12		No
	12A	Area 9			
5"x5" Red ceramic FT grout	13A	Area 25	Area 21, Area 25, Area 36, Kitchen 1, Kitchen 2		No
	15A	Area 36			
5"x5" Red ceramic FT adhesive/thin set	14A	Area 21	Area 21, Area 25, Kitchen 1, Kitchen 2		No
	16A	Area 25			
*12"x12" Black FT	17A		Checkered with 12x12 white Area 22, Area 31, Area 37		No
	19A				
Associated mastic	18A		Checkered with 12x12 white Area 22, Area 31, Area 37		Yes
	20A				
*12"x12" White FT	21A		Checkered with 12x12 black and Area 24, Area 28, Area 29, Area 30, Area 38		No
	23A				
Associated mastic	22A		Checkered with 12x12 black and Area 24, Area 28, Area 29, Area 30, Area 38		Yes
	24A				
1"x1" Gray ceramic FT grout	25A	Area 33	Area 34, Area 35, Area 39, Area 40		No
	27A	Area 40			
1"x1" Gray ceramic FT adhesive/thin set	26A	Area 33	Area 34, Area 35, Area 39, Area 40		No
	28A	Area 40			
1"x1" Beige ceramic wall tile grout	29A	Area 34	Area 34, Area 35, Area 39, Area 40		No
	31A	Area 35			
1"x1" Beige ceramic wall tile adhesive/ thin set	30A	Area 34	Area 34, Area 35, Area 39, Area 40		No
	32A	Area 35			
1"x1" Light tan ceramic wall tile grout	33A	Area 12	Area 9, Area 10, Area 11, Area 12		No
	35A	Area 9			
1"x1" Light tan ceramic wall tile adhesive/thin set	34A	Area 12	Area 9, Area 10, Area 11, Area 12		No
	36A	Area 9			
Carpet adhesive	37A	Area 24	Area 26, Area 27, Area 23, a section of Area 24		No
	38A	Area 27			

HA description	Sample ID 26053	Sample location	Location of HA	Quantity	Asbestos Yes/No
Duct seal	1J	Left Area #7	# 7 HVAC duct	≈ 3 SF	No
	2J	Right #7			
Sink insulation, White	3J	Left	#15 @ wall with #14, Kitchen 1	≈ 5 SF /per	Yes
	4J	Right			
Sink insulation, Black	5J	Right sink	Kitchen 2	≈ 5 SF /per	Yes
	6J	Left sink			
4" Black cove base mastic	7J	Rm 37, left	Rm 37	≈ 100 LF	No
	8J	Rm 37 right			
Glue daub	9J	Right wall	Rm 25@ Common wall with Rm 24	≈ 20 SF	No
	10J	Left wall			
Door and window frame caulk	11J	@ exit boiler doors	Exterior between brick and frames		No
	12J	Ext 37			
Window sill caulking	13J	Left window	2 front 4'x4' #1 windows	≈ 8 LF	No
	14J	Right window			
Chimney brick interior	15J	Left	Large chimney front of building		No
	16J	Right			
Chimney brick, mortar	17J	Left	Large chimney front of building		No
	18J	Right			
Glazing	19J	Window @22	Window walls under metal keeper strips, wire mesh windows		Yes
	20J	Window @28			

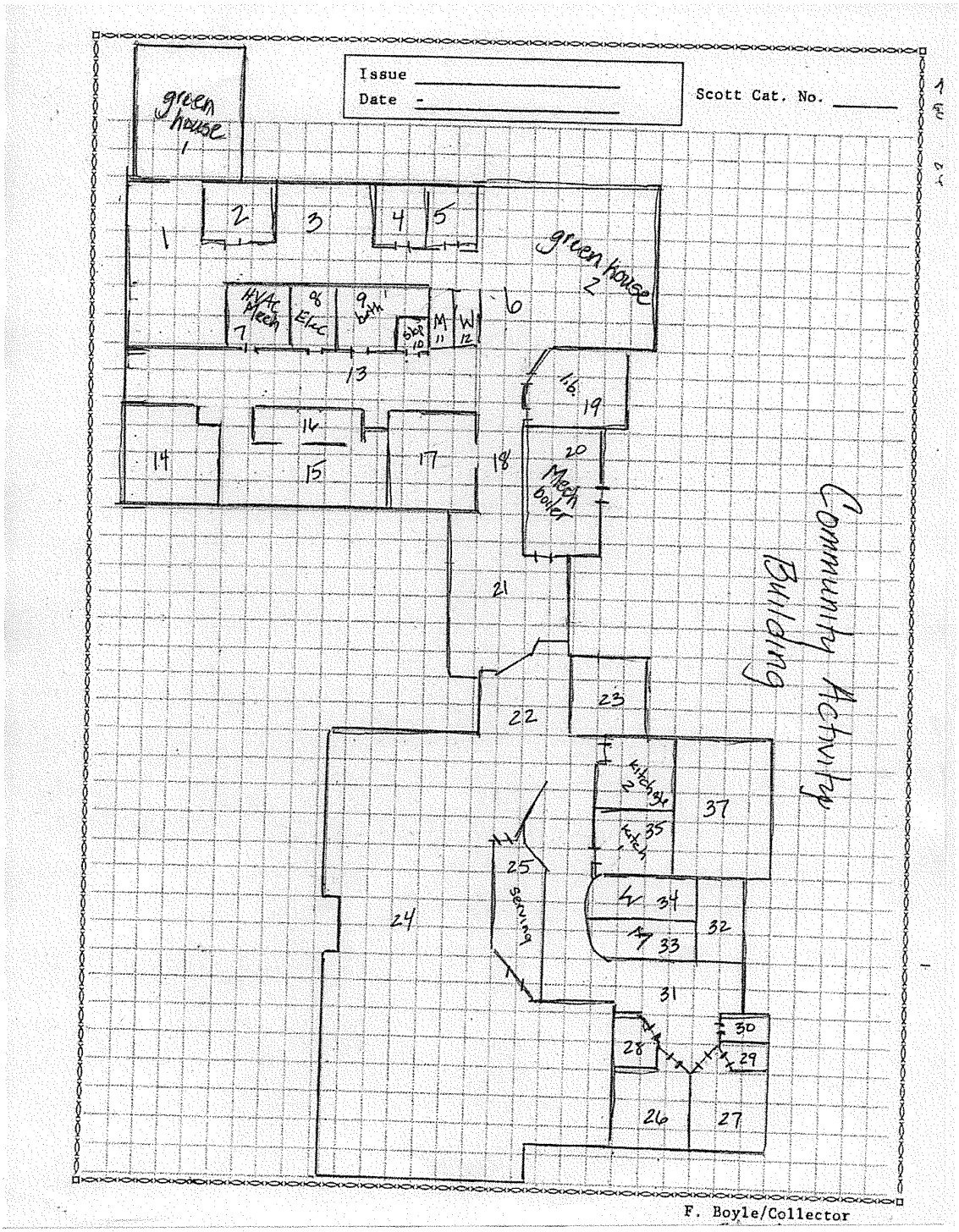
HA description	Sample ID 26053	Sample location	Location of HA	Quantity	Asbestos Yes/No
TSI Pipe end seals	1	Boiler room	Boiler room	≈ 2 SF	Yes
	2	Boiler room			
	3	Boiler room			
Exhaust TSI (Cal-Sil)	4	Boiler room	Boiler room	≈ 25 LF	No
	5	Boiler room			
	6	Boiler room			
Rib gasket, upper	7	Boiler room	Boiler	≈ 100 LF	Yes
	8	Boiler room			
	9	Boiler room			
Ignition box gasket, lower	10	Boiler room	Boiler	≈ 10 SF	Yes
	11	Boiler room			
	12	Boiler room			
Vent sleeve insulation	13	Boiler room	Exhaust above boiler	≈ 2 SF	No
	14	Boiler room			
	15	Boiler room			

HA description	Sample ID 26053-Roof	Sample location	Location of HA	Quantity	Asbestos Yes/No
Small aggregate shingle	1R	Peak 6	Peak 6, Peak 7		No
	6R	Peak 7			
Large aggregate shingle	4R	Peak 1	Observed on Peak 1, 4, 5, below the small aggregate shingle on Peak 6 and assumed on Peak 2 and 3		No
	8R	Peak 5			
Underlayment	2R	Peak 6	Noted on Peak 5 and 6, assume on all other peaks		No
	9R	Peak 5			
Mastic	3R	Peak 6	Noted on Peak 5 and 6, assume on all other peaks		Yes
	10R	Peak 5			
Tar paper	5R	Peak 1	Noted below shingles on Peak 1 and 6, assume below all peaks		No
	7R	Peak 6			
Top asphaltic layer of fiberboard under rubber membrane	11R	Flat roof field above Areas 21-34	Fiberboard below flat rubber membrane roof. Above areas 21-34		No
	21R	Flat roof field above Areas 21-34			
Bottom tar paper layer below fiberboard under rubber membrane	12R	Flat roof field above Areas 21-34	Below fiberboard below flat rubber membrane roof. Above areas 21-34		No
	22R	Flat roof field above Areas 21-34			
Window glazing	13R	Windows, Peak 6	Windows accessible on roof		Yes
	14R	Windows, Peak 5			
Window frame caulking	15R	Windows, Peak 6			No
	16R	Windows, Peak 5			
Caulking between roof and brick	17R	Peak 7	Roof		No
	18R	At flat roof @ Peak 3			
Flashing mastic	19R	Peak 2	Roof		No
	20R	Peak 3			

*The flooring is adhered to the floor with black mastic which is asbestos containing. These materials cannot be separated for removal purposes. Flooring and mastic must be abated together.

Gardening shed-brick exterior, CMU interior

Storage shed outside rear of building at Area 31-wood interior, vinyl siding exterior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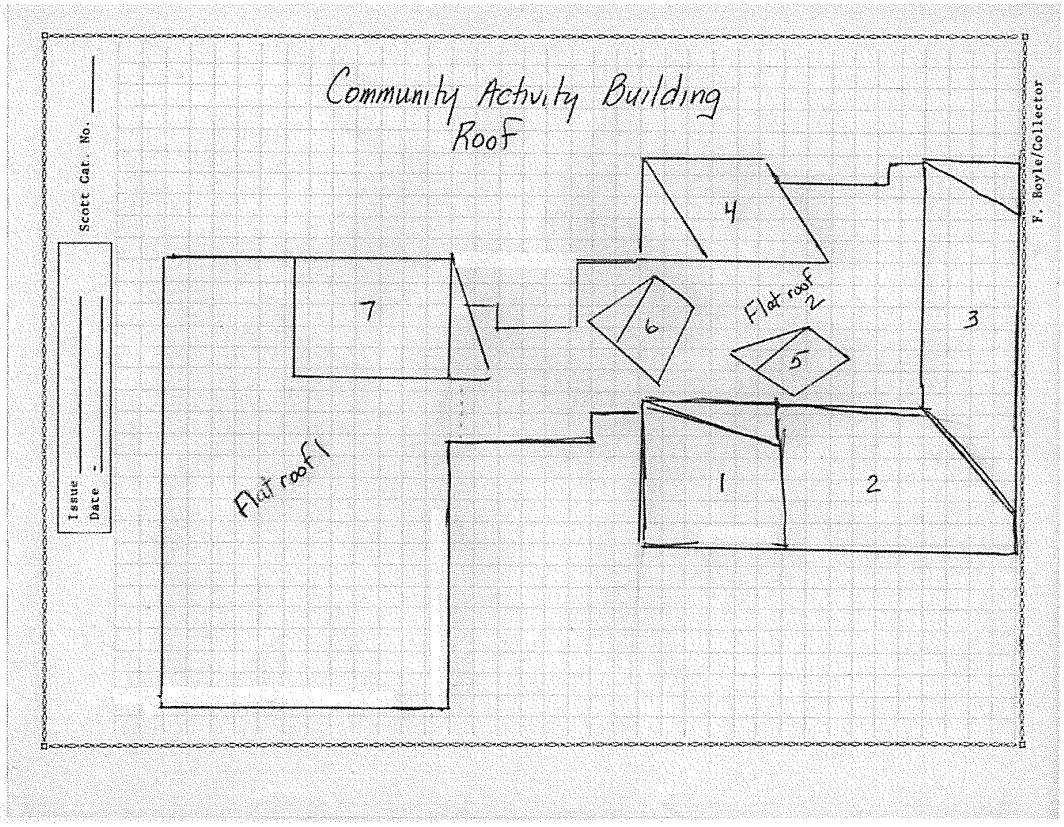
F. Boyle/Collector


Community Activity Building
Roof
Scott Cat. No.
Issue
Date
F. Boyle/Collector
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Flat roof 2
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Flat roof 1
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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/28/2016
Report No.: 505712 - PLM
Project:
Project No.: 26053

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884455 **Client No.:** 26053-1	**Description:** White Plaster **Facility:**	**Location:** Area 1-Ceiling, Greenhouse Wing To Vestibule And Bathrooms Of The Other Wing
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884456 **Client No.:** 26053-2	**Description:** White Plaster **Facility:**	**Location:** Area 3-Ceiling, Greenhouse Wing To Vestibule And Bathrooms Of The Other Wing
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884457 **Client No.:** 26053-3	**Description:** White Plaster **Facility:**	**Location:** Area 4-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884458 **Client No.:** 26053-4	**Description:** White Plaster **Facility:**	**Location:** Area 13-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884459 **Client No.:** 26053-5	**Description:** White Plaster **Facility:**	**Location:** Area 19-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884460 **Client No.:** 26053-6	**Description:** White Plaster **Facility:**	**Location:** Area 30-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

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Analyst: Muhammad Mirza

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Frank E. Ehrenfeld, III
Laboratory Director

Dated : 3/28/2016 4:20:48 PM

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Client: HUB949

Report Date: 3/28/2016
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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884461 **Client No.:** 26053-7	**Description:** White Plaster **Facility:**	**Location:** Area 28-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884462 **Client No.:** 26053-8	**Description:** Brown Plaster **Facility:**	**Location:** Area 1-Ceiling, Greenhouse Wing To Vestibule And Bathrooms Of The Other Wing
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884463 **Client No.:** 26053-9	**Description:** Purple/Tan/White Paper/Plaster **Facility:**	**Location:** Area 3-Ceiling, Greenhouse Wing To Vestibule And Bathrooms Of The Other Wing
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 95
Lab No.: 5884464 **Client No.:** 26053-10	**Description:** Purple/Tan/White Paper/Plaster **Facility:**	**Location:** Area 4-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 95
Lab No.: 5884465 **Client No.:** 26053-11	**Description:** Tan/White Paper/Plaster **Facility:**	**Location:** Area 13-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose	Percent Non-Fibrous Material: 98
Lab No.: 5884466 **Client No.:** 26053-12	**Description:** Tan/White Paper/Plaster **Facility:**	**Location:** Area 19-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose	Percent Non-Fibrous Material: 98

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Client: HUB949

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884467 **Client No.:** 26053-13	**Description:** White Plaster **Facility:**	**Location:** Area 30-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Cellulose	Percent Non-Fibrous Material: 100
Lab No.: 5884468 **Client No.:** 26053-14	**Description:** Grey/Off-White Paper/Plaster **Facility:**	**Location:** Area 28-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose	Percent Non-Fibrous Material: 98
Lab No.: 5884469 **Client No.:** 26053-15	**Description:** Tan/White Sheetrock **Facility:**	**Location:** Area 4-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 93
Lab No.: 5884470 **Client No.:** 26053-16	**Description:** Tan/White Sheetrock **Facility:**	**Location:** Area 13-Ceiling, Greenhouse Wing To Vestibule And Bathrooms Of The Other Wing
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 93
Lab No.: 5884471 **Client No.:** 26053-17	**Description:** White Sheetrock **Facility:**	**Location:** Area 28-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 98
Lab No.: 5884472 **Client No.:** 26053-18	**Description:** Tan/White Sheetrock **Facility:**	**Location:** Area 4-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 93

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Client: HUB949

Report Date: 3/28/2016
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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884473 **Client No.:** 26053-19	**Description:** Tan/White Sheetrock **Facility:**	**Location:** Area 13-Ceiling, Greenhouse Wing To Vestibule And Bathrooms Of The Other Wing
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 93
Lab No.: 5884474 **Client No.:** 26053-20	**Description:** White Sheetrock **Facility:**	**Location:** Area 28-Wall, Throughout Building
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Cellulose	Percent Non-Fibrous Material: 100
Lab No.: 5884475 **Client No.:** 26053-21	**Description:** Tan Ceiling Tile **Facility:**	**Location:** Area 31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 95 Cellulose	Percent Non-Fibrous Material: 5
Lab No.: 5884476 **Client No.:** 26053-22	**Description:** Tan Ceiling Tile **Facility:**	**Location:** Area 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 95 Cellulose	Percent Non-Fibrous Material: 5
Lab No.: 5884477 **Client No.:** 26053-23	**Description:** White/Tan Ceiling Tile **Facility:**	**Location:** Area 17
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 60 Cellulose 10 Mineral Wool	Percent Non-Fibrous Material: 30
Lab No.: 5884478 **Client No.:** 26053-24	**Description:** White/Tan Ceiling Tile **Facility:**	**Location:** Area 17
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 60 Cellulose 10 Mineral Wool	Percent Non-Fibrous Material: 30

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Client: HUB949

Report Date: 3/28/2016
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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884479 **Client No.:** 26053-25	**Description:** Tan Mastic **Facility:**	**Location:** Area 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884480 **Client No.:** 26053-26	**Description:** Tan Mastic **Facility:**	**Location:** Area 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884481 **Client No.:** 26053-27	**Description:** Tan Mastic **Facility:**	**Location:** Area 13
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884482 **Client No.:** 26053-28	**Description:** Tan Mastic **Facility:**	**Location:** Area 19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884483 **Client No.:** 26053-29	**Description:** Tan Mastic **Facility:**	**Location:** Area 22
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884484 **Client No.:** 26053-30	**Description:** Tan Mastic **Facility:**	**Location:** Area 24
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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Client: HUB949

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884485 **Client No.:** 26053-31	**Description:** Grey Cementitious **Facility:**	**Location:** Greenhouse 2, Presumed Walls Behind Brick, Exposed In Greenhouses And Area 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884486 **Client No.:** 26053-32	**Description:** Grey Cementitious **Facility:**	**Location:** Area 2, Presumed Walls Behind Brick, Exposed In Greenhouses And Area 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884487 **Client No.:** 26053-33	**Description:** Grey Grout **Facility:**	**Location:** Greenhouse 2, Presumed Walls Behind Brick, Exposed In Greenhouses And Area 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884488 **Client No.:** 26053-34	**Description:** Grey Grout **Facility:**	**Location:** Area 2, Presumed Walls Behind Brick, Exposed In Greenhouses And Area 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884489 **Client No.:** 26053-35	**Description:** Red Brick **Facility:**	**Location:** Greenhouse 2, Exterior Of Building Perimeter Walls, Interior Walls
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884490 **Client No.:** 26053-36	**Description:** Red Brick **Facility:**	**Location:** Area 21, Exterior Of Building Perimeter Walls, Interior Walls
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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Client: HUB949

Report Date: 3/28/2016
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Project No.: 26053

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884491 **Client No.:** 26053-37	**Description:** Red Brick **Facility:**	**Location:** Exterior Of Bldg. At Area 31, Exterior Of Building Perimeter Walls, Interior Walls
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884492 **Client No.:** 26053-38	**Description:** Red/Brown Mortar **Facility:**	**Location:** Greenhouse 2, Exterior Of Building Perimeter Walls, Interior Walls
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884493 **Client No.:** 26053-39	**Description:** Red/Brown Mortar **Facility:**	**Location:** Area 21, Exterior Of Building Perimeter Walls, Interior Walls
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884494 **Client No.:** 26053-40	**Description:** Red/Brown Mortar **Facility:**	**Location:** Exterior Of Bldg. At Area 31, Exterior Of Building Perimeter Walls, Interior Walls
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884495 **Client No.:** 26053-1A	**Description:** Beige Floor Tile: 12x12 **Facility:**	**Location:** Area 18
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884496 **Client No.:** 26053-3A	**Description:** Beige Floor Tile: 12x12 **Facility:**	**Location:** Area 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884497 **Client No.:** 26053-2A	**Description:** Black Mastic **Facility:**	**Location:** Area 18
Percent Asbestos: *PC 1.4 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.6
Lab No.: 5884498 **Client No.:** 26053-4A	**Description:** Sample Not Analyzed **Facility:**	**Location:** Area 14
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5884499 **Client No.:** 26053-5A	**Description:** Tan Floor Tile: 12x12 **Facility:**	**Location:** Area 13 Far End
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884500 **Client No.:** 26053-7A	**Description:** Tan Floor Tile: 12x12 **Facility:**	**Location:** Area 13 Near End
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884501 **Client No.:** 26053-6A	**Description:** Black Mastic **Facility:**	**Location:** Area 13 Far End
Percent Asbestos: *PC 1.6 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.4
Lab No.: 5884502 **Client No.:** 26053-8A	**Description:** Sample Not Analyzed **Facility:**	**Location:** Area 13 Near End
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884503 **Client No.:** 26053-9A	**Description:** Grey Grout **Facility:**	**Location:** Area 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884504 **Client No.:** 26053-11A	**Description:** Grey Grout **Facility:**	**Location:** Area 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884505 **Client No.:** 26053-10A	**Description:** Grey Cementitious **Facility:**	**Location:** Area 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884506 **Client No.:** 26053-12A	**Description:** Grey Cementitious **Facility:**	**Location:** Area 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884507 **Client No.:** 26053-13A	**Description:** Red Grout **Facility:**	**Location:** Area 25
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884508 **Client No.:** 26053-15A	**Description:** Red/Grey Grout **Facility:**	**Location:** Area 21
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884509 **Client No.:** 26053-14A	**Description:** Tan Mastic **Facility:**	**Location:** Area 36
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884510 **Client No.:** 26053-16A	**Description:** Grey/Tan Mastic/Cementitious **Facility:**	**Location:** Area 25
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884511 **Client No.:** 26053-17A	**Description:** Black Floor Tile; 12x12 **Facility:**	**Location:** Area 22, Area 31, Area 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884512 **Client No.:** 26053-19A	**Description:** Black Floor Tile; 12x12 **Facility:**	**Location:** Area 22, Area 31, Area 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884513 **Client No.:** 26053-18A	**Description:** Black Mastic **Facility:**	**Location:** Area 22, Area 31, Area 37
Percent Asbestos: ***PC 2.3** Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 97.3
Lab No.: 5884514 **Client No.:** 26053-20A	**Description:** Sample Not Analyzed **Facility:**	**Location:** Area 22, Area 31, Area 37
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884515 **Client No.:** 26053-21A	**Description:** White/Black Floor Tile; 12x12 **Facility:**	**Location:** Area 24 Area 28, Area 29, Area 30, Area 38
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884516 **Client No.:** 26053-23A	**Description:** White/Black Floor Tile; 12x12 **Facility:**	**Location:** Area 24 Area 28, Area 29, Area 30, Area 38
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884517 **Client No.:** 26053-22A	**Description:** Black Mastic **Facility:**	**Location:** Area 24 Area 28, Area 29, Area 30, Area 38
Percent Asbestos: *PC 3.2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 96.8
Lab No.: 5884518 **Client No.:** 26053-24A	**Description:** Sample Not Analyzed **Facility:**	**Location:** Area 24 Area 28, Area 29, Area 30, Area 38
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5884519 **Client No.:** 26053-25A	**Description:** Grey Grout **Facility:**	**Location:** Area 33
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884520 **Client No.:** 26053-27A	**Description:** Grey Grout **Facility:**	**Location:** Area 40
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/28/2016
Report No.: 505712 - PLM
Project:
Project No.: 26053

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884521 **Client No.:** 26053-26A	**Description:** Grey Mortar **Facility:**	**Location:** Area 33
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884522 **Client No.:** 26053-28A	**Description:** Grey Mortar **Facility:**	**Location:** Area 40
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884523 **Client No.:** 26053-29A	**Description:** Grey Grout **Facility:**	**Location:** Area 34
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884524 **Client No.:** 26053-31A	**Description:** Grey Grout **Facility:**	**Location:** Area 35
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884525 **Client No.:** 26053-30A	**Description:** White Mortar **Facility:**	**Location:** Area 34
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884526 **Client No.:** 26053-32A	**Description:** White/Lt.Grey Mortar **Facility:**	**Location:** Area 35
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/21/2016
Date Analyzed: 3/23/2016 10:58:29 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/28/2016
Report No.: 505712 - PLM
Project:
Project No.: 26053

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884527 **Client No.:** 26053-33A	**Description:** White Grout **Facility:**	**Location:** Area 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884528 **Client No.:** 26053-35A	**Description:** White Grout **Facility:**	**Location:** Area 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884529 **Client No.:** 26053-34A	**Description:** White/Lt.Tan Mastic/ Mortar **Facility:**	**Location:** Area 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884530 **Client No.:** 26053-36A	**Description:** Lt.Tan Mortar **Facility:**	**Location:** Area 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884531 **Client No.:** 26053-37A	**Description:** Tan Mastic **Facility:**	**Location:** Area 24
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884532 **Client No.:** 26053-38A	**Description:** Tan Mastic **Facility:**	**Location:** Area 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/21/2016
Date Analyzed: 3/23/2016 10:58:29 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/28/2016
Report No.: 505712 - PLM
Project:
Project No.: 26053

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884533 **Client No.:** 26053-1J	**Description:** Brown Sealant **Facility:**	**Location:** #7 HVAC, Left
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884534 **Client No.:** 26053-2J	**Description:** Brown Sealant **Facility:**	**Location:** #7 HVAC, Right
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884535 **Client No.:** 26053-3J	**Description:** Lt.Purple Insulation **Facility:**	**Location:** #15 At Kitchen W 14 Kitchen 1, Left
Percent Asbestos: *PC 1.5 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.5
Lab No.: 5884536 **Client No.:** 26053-4J	**Description:** Sample Not Analyzed **Facility:**	**Location:** #15 At Kitchen W 14 Kitchen 1, Right
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5884537 **Client No.:** 26053-5J	**Description:** Black Mastic **Facility:**	**Location:** Kitchen 2, Right Sink
Percent Asbestos: *PC 6.8 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 93.2
Lab No.: 5884538 **Client No.:** 26053-6J	**Description:** Sample Not Analyzed **Facility:**	**Location:** Kitchen 2, Left Sink
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/21/2016
Date Analyzed: 3/23/2016 10:58:29 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/28/2016
Report No.: 505712 - PLM
Project:
Project No.: 26053

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884539 **Client No.:** 26053-7J	**Description:** Lt.Tan Mastic **Facility:**	**Location:** Left 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884540 **Client No.:** 26053-8J	**Description:** Lt.Tan Mastic **Facility:**	**Location:** Right 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884541 **Client No.:** 26053-9J	**Description:** Brown Mastic **Facility:**	**Location:** Room 25 At Common Wall W/24. Right Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884542 **Client No.:** 26053-10J	**Description:** Brown Mastic **Facility:**	**Location:** Room 25 At Common Wall W/24. Left Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884543 **Client No.:** 26053-11J	**Description:** Brown Caulk **Facility:**	**Location:** Exterior Between Brick & Frames, At Ext. Boiler Door
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884544 **Client No.:** 26053-12J	**Description:** Brown Caulk **Facility:**	**Location:** Exterior Between Brick & Frames, At Ext.37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/21/2016
Date Analyzed: 3/23/2016 10:58:29 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/28/2016
Report No.: 505712 - PLM
Project:
Project No.: 26053

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884545 **Client No.:** 26053-13J	**Description:** White Caulk **Facility:**	**Location:** 2 Front #1 Windows, Left
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884546 **Client No.:** 26053-14J	**Description:** White Caulk **Facility:**	**Location:** 2 Front #1 Windows, Right
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884547 **Client No.:** 26053-15J	**Description:** Tan Brick **Facility:**	**Location:** L6 Chimney Front Of Bldg. Left
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884548 **Client No.:** 26053-16J	**Description:** Tan Brick **Facility:**	**Location:** L6 Chimney Front Of Bldg. Right
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884549 **Client No.:** 26053-17J	**Description:** Red Mortar **Facility:**	**Location:** L6 Chimney Front Of Bldg. Left
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884550 **Client No.:** 26053-18J	**Description:** Red Mortar **Facility:**	**Location:** L6 Chimney Front Of Bldg. Right
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/21/2016
Date Analyzed: 3/23/2016 10:58:29 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/28/2016
Report No.: 505712 - PLM
Project:
Project No.: 26053

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884551 **Client No.:** 26053-19J	**Description:** Grey Glazing **Facility:**	**Location:** Window Walls Under Metal Keeper Strips Wire Mesh Windows, WW At 22
Percent Asbestos: *PC 1.2 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.8
Lab No.: 5884552 **Client No.:** 26053-20J	**Description:** Sample Not Analyzed **Facility:**	**Location:** Window Walls Under Metal Keeper Strips Wire Mesh Windows, WW At 28
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/21/2016
Date Analyzed: 3/23/2016 10:58:29 PM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

–Bulk Asbestos –

Contact Information

Client Company:	Hub Testing lab	**Project Number:**	26053-BR
Office Address:	95 Beaver St	**Project Name:**	Fernald
City, State, Zip:	Waltham MA 02453	**Primary Contact:**	S Boyle
Fax Number:	781 893 4414	**Office Phone:**	781 893 8330
Email Address:	SBoyle@Hubtesting.net	**Cell Phone:**	781 389 2181

PLM Instructions:

- [X] PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- [ ] PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- [ ] PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- [ ] PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- [ ] PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- [ ] TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

E-MAILED

- [ ] PLM: Point Counting
  - [ ] PC: via ELAP 198.1
  - [ ] PC: 400 Points
  - [ ] PC: 800 Points *
  - [ ] PC: 1600 Points *
- [ ] PLM: Instructions for Multi-Layered Samples
  - [ ] Analyze and Report All Separable Layers per EPA 600
  - [ ] Report Composite for Drywall Systems per NESHAP
  - [ ] Report All Layers and Composite Where Applicable
  - [ ] Only Analyze and Report Specifically Noted Layer
- [X] PLM: Analyze Until Positive (Positive Stop)
  - [ ] AUP: by Homogenous Area as Noted
  - [X] AUP: by Material Type as Noted
- [ ] PLM: NOB via 198.6
  - [ ] PLM: Friable via EPA 600 2.3
  - [ ] If <1% by PLM, to TEM via 198.4 *
  - [ ] If <1% by PLM, Hold for Instructions
- [ ] PLM: Non-Building Material*,** (Dust, Wipe, Tape)
  - [ ] Soil or Vermiculite Analysis*
  - [ ] CARB 435

Special Instructions: _____

** Additional charge and turnaround may be required* *** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory*

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time) ☐ Verbal ☐ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☒ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

RECEIVED

Chain of Custody

Relinquished (Name/Organization):	[signature]	Date:	3/28/16	Time:	5:00 pm
Received (Name / iATL):		Date:		Time:	MAR 29 2016
Sample Login (Name / iATL):	[signature]	Date:		Time:	
Analysis(Name(s) / iATL):	[signature]	Date:	3/29/16	Time:	
QA/QC Review (Name / iATL):	[signature]	Date:	033016	Time:	IATL - By [signature]
Archived / Released:	QA/QC InterLAB Use:	Date:		Time:	

Hub ID 26053- BR-#

181

HA description	Sample ID 26053	Sample location	Location of HA	Qty	Asbestos Yes/No
TSI Pipe end seals	5892201 1.	Boiler room	Boiler room	2 SF	
	5892202 2.	Boiler room			
	5892203 3.	Boiler room			
Exhaust TSI (CalSil)	5892204 4.	Boiler room	Boiler room	25 SF	
	5892205 5.	Boiler room			
	5892206 6.	Boiler room			
Rib gasket, upper	5892207 7.	Boiler room	Boiler room	100 LF	
	5892208 8.	Boiler room			
	5892209 9.	Boiler room			
Ignition box Gasket, lower	5892210 10.	Boiler room	Boiler room	10 SF	
	5892211 11.	Boiler room			
	5892212 12.	Boiler room			
Vent sleeve insulation	5892213 13.	Boiler room	Boiler room		
	5892214 14.	Boiler room			
	5892215 15.	Boiler room			

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506306 - PLM
Project: Fernald
Project No.: 26053-BR

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892201 **Client No.:** 26053-1	**Description:** White/Grey Insulation **Facility:**	**Location:** Boiler Room
Percent Asbestos: *PC 6.1 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 93.9
Lab No.: 5892202 **Client No.:** 26053-2	**Description:** Sample Not Analyzed **Facility:**	**Location:** Boiler Room
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5892203 **Client No.:** 26053-3	**Description:** Sample Not Analyzed **Facility:**	**Location:** Boiler Room
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5892204 **Client No.:** 26053-4	**Description:** White Insulation **Facility:**	**Location:** Boiler Room
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 4 Synthetic 1 Fibrous Glass	Percent Non-Fibrous Material: 95
Lab No.: 5892205 **Client No.:** 26053-5	**Description:** White Insulation **Facility:**	**Location:** Boiler Room
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 4 Synthetic 1 Fibrous Glass	Percent Non-Fibrous Material: 95
Lab No.: 5892206 **Client No.:** 26053-6	**Description:** White Insulation **Facility:**	**Location:** Boiler Room
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 4 Synthetic 1 Fibrous Glass	Percent Non-Fibrous Material: 95

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/29/2016 12:00:00 AM
Signature:
Analyst: Randy Caran

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506306 - PLM
Project: Fenald
Project No.: 26053-BR

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892207 **Client No.:** 26053-7	**Description:** Black Gasket **Facility:**	**Location:** Boiler Room
Percent Asbestos: *12 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 88
Lab No.: 5892208 **Client No.:** 26053-8	**Description:** Sample Not Analyzed **Facility:**	**Location:** Boiler Room
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5892209 **Client No.:** 26053-9	**Description:** Sample Not Analyzed **Facility:**	**Location:** Boiler Room
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5892210 **Client No.:** 26053-10	**Description:** Tan Gasket **Facility:**	**Location:** Boiler Room
Percent Asbestos: *PC 3.5 Chrysotile*	Percent Non-Asbestos Fibrous Material: 1 Fibrous Glass	Percent Non-Fibrous Material: 95.5
Lab No.: 5892211 **Client No.:** 26053-11	**Description:** Sample Not Analyzed **Facility:**	**Location:** Boiler Room
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5892212 **Client No.:** 26053-12	**Description:** Sample Not Analyzed **Facility:**	**Location:** Boiler Room
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/29/2016 12:00:00 AM
Signature:
Analyst: Randy Caran

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506306 - PLM
Project: Fernald
Project No.: 26053-BR

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892213 **Client No.:** 26053-13	**Description:** Brown Insulation **Facility:**	**Location:** Boiler Room
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892214 **Client No.:** 26053-14	**Description:** Brown Insulation **Facility:**	**Location:** Boiler Room
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892215 **Client No.:** 26053-15	**Description:** Tan Insulation **Facility:**	**Location:** Boiler Room
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/29/2016 12:00:00 AM
Signature:
Analyst: Randy Caran

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

–Bulk Asbestos –

Contact Information

Client Company:	Hub Testing lab	**Project Number:**	26053-R
Office Address:	95 Beaver St	**Project Name:**	Fernald
City, State, Zip:	Waltham MA 02453	**Primary Contact:**	S Boyle
Fax Number:	781 893 4414	**Office Phone:**	781 893 8330
Email Address:	SBoyle@Hubtesting.net	**Cell Phone:**	781 389 2181

PLM Instructions:

- ☒ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- ☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- ☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- ☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

EMAILED 3/30

- ☐ PLM: Point Counting
  - ☐ PC: via ELAP 198.1
  - ☐ PC: 400 Points
  - ☐ PC: 800 Points *
  - ☐ PC: 1600 Points *
- ☐ PLM: Instructions for Multi-Layered Samples
  - ☐ Analyze and Report All Separable Layers per EPA 600
  - ☐ Report Composite for Drywall Systems per NESHAP
  - ☐ Report All Layers and Composite Where Applicable
  - ☐ Only Analyze and Report Specifically Noted Layer
- ☒ PLM: Analyze Until Positive (Positive Stop)
  - ☐ AUP: by Homogenous Area as Noted
  - ☒ AUP: by Material Type as Noted
- ☐ PLM: NOB via 198.6
  - ☐ PLM: Friable via EPA 600 2.3
  - ☐ If <1% by PLM, to TEM via 198.4 *
  - ☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material*,** (Dust, Wipe, Tape)
  - ☐ Soil or Vermiculite Analysis*
  - ☐ CARB 435

Special Instructions: see attached sample ID and material

** Additional charge and turnaround may be required* *** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory*

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time) ☐ Verbal ☐ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☒ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

RECEIVED MAR 29 2016

Chain of Custody

Relinquished (Name/Organization):	[signature]	Date:	3/28/16	Time:	1500 pm
Received (Name / iATL):		Date:		Time:	
Sample Login (Name / iATL):	Un032916	Date:		Time:	
Analysis(Name(s) / iATL):	mm	Date:	3/29/16	Time:	
QA/QC Review (Name / iATL):		Date:	033016	Time:	iATL - By
Archived / Released:	QA/QC InterLAB Use:	Date:		Time:	

Hub ID 26053- R-#

1 of 2

HA description	Sample ID 26053	Sample location	Location of HA	Qty	Asbestos Yes/No
Small aggregate shingle	5892216 1	Peak 6	Peak 6, Peak 7		
	5892217 6	Peak 7			
Large aggregate shingle	5892218 4	Peak 1	Observed on Peak 1, 4, 5, below the small aggregate shingle on Peak 6 and assumed on Peak 2 and 3		
	5892219 8	Peak 5			
Underlayment	5892220 2	Peak 6	Noted on Peak 5 and 6, assume on all other peaks		
		Peak 5			
Mastic	5892221 3	Peak 6	Noted on Peak 5 and 6, assume on all other peaks		
	5892222 10	Peak 5			
Tar paper	5892223 5	Peak 1	Noted below shingles on Peak 1 and 6, assume below all peaks		
	5892224 7	Peak 6			
Top asphaltic layer of fiberboard under rubber membrane	5892225 11	Flat roof field above Areas 21-34	Fiberboard below flat rubber membrane roof. Above areas 21-34		
	21 5892226	Flat roof field above Areas 21-34			
Bottom tar paper layer below fiberboard under rubber membrane	12 5892227	Flat roof field above Areas 21-34	Below fiberboard below flat rubber membrane roof. Above areas 21-34		
	22 5892228	Flat roof field above Areas 21-34			

282

Window glazing	13 [illegible]	Windows, Peak 6	Windows accessible on roof		
	14 5892230	Windows, Peak 5			
Window frame caulking	15 5892231	Windows, Peak 6			
	16 5892232	Windows, Peak 5			
Caulking between roof and brick	17 5892233	Peak 7	Roof		
	18 5892234	At flat roof @ Peak 3			
Flashing mastic	19 5892235	Peak 2	Roof		
	20 5892236	Peak 3			

Additional sample received 26053-R-9 5892237

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506307 - PLM
Project: Femald
Project No.: 26053-R

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892216 **Client No.:** 1	**Description:** Lt.Grey/Black Shingle **Facility:**	**Location:** Peak 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: 95
Lab No.: 5892217 **Client No.:** 6	**Description:** Lt.Grey/Black Shingle **Facility:**	**Location:** Peak 7
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass	Percent Non-Fibrous Material: 95
Lab No.: 5892218 **Client No.:** 4	**Description:** Black Shingle **Facility:**	**Location:** Peak 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose	Percent Non-Fibrous Material: 90
Lab No.: 5892219 **Client No.:** 8	**Description:** Black Shingle **Facility:**	**Location:** Peak 5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose	Percent Non-Fibrous Material: 90
Lab No.: 5892220 **Client No.:** 2	**Description:** Black Roof Material **Facility:**	**Location:** Peak 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Cellulose	Percent Non-Fibrous Material: 70
Lab No.: 5892221 **Client No.:** 3	**Description:** Black Mastic **Facility:**	**Location:** Peak 6
Percent Asbestos: *PC 6.8 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 93.2

Analytical Method - US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/29/2016 12:53:11 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Dated : 4/7/2016 2:04:55 PM

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ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506307 - PLM
Project: Fernald
Project No.: 26053-R

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892222 **Client No.:** 10	**Description:** Sample Not Analyzed **Facility:**	**Location:** Peak 5
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material: Sample Not Analyzed
Lab No.: 5892223 **Client No.:** 5	**Description:** Black Tar Paper **Facility:**	**Location:** Peak 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 80 Cellulose	Percent Non-Fibrous Material: 20
Lab No.: 5892224 **Client No.:** 7	**Description:** Black Tar Paper **Facility:**	**Location:** Peak 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 80 Cellulose	Percent Non-Fibrous Material: 20
Lab No.: 5892225 **Client No.:** 11	**Description:** Black/Tan Roof Material / Foam **Facility:**	**Location:** Flat Roof Field Above Areas 21-34
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Fibrous Glass	Percent Non-Fibrous Material: 90
Lab No.: 5892226 **Client No.:** 21	**Description:** Black/Tan Roof Material **Facility:**	**Location:** Flat Roof Field Above Areas 21-34
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Fibrous Glass	Percent Non-Fibrous Material: 90
Lab No.: 5892227 **Client No.:** 12	**Description:** Black Tar Paper **Facility:**	**Location:** Flat Roof Field Above Areas 21-34
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 60 Fibrous Glass	Percent Non-Fibrous Material: 40

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/29/2016 12:53:11 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506307 - PLM
Project: Fernald
Project No.: 26053-R

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892228 **Client No.:** 22	**Description:** Black Tar Paper **Facility:**	**Location:** Flat Roof Field Above Areas 21-34
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 60 Fibrous Glass	Percent Non-Fibrous Material: 40
Lab No.: 5892229 **Client No.:** 13	**Description:** Lt.Grey Glazing **Facility:**	**Location:** Windows, Peak 6
Percent Asbestos: *PC 1.3 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.7
Lab No.: 5892230 **Client No.:** 14	**Description:** Sample Not Analyzed **Facility:**	**Location:** Windows, Peak 5
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5892231 **Client No.:** 15	**Description:** Brown Caulk **Facility:**	**Location:** Windows, Peak 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Fibrous Glass	Percent Non-Fibrous Material: 98
Lab No.: 5892232 **Client No.:** 16	**Description:** Brown Caulk **Facility:**	**Location:** Windows, Peak 5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Fibrous Glass	Percent Non-Fibrous Material: 98
Lab No.: 5892233 **Client No.:** 17	**Description:** Black/Dk.Brown: Tar Caulk **Facility:**	**Location:** Peak 7
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose	Percent Non-Fibrous Material: 98

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/29/2016 12:53:11 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506307 - PLM
Project: Fernald
Project No.: 26053-R

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892234 **Client No.:** 18	**Description:** Black Caulk **Facility:**	**Location:** At Flat Roof @ Peak 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892235 **Client No.:** 19	**Description:** Black/Brown; Rubber Mastic **Facility:**	**Location:** Peak 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892236 **Client No.:** 20	**Description:** Black/Clear; Rubber Mastic **Facility:**	**Location:** Peak 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892237 **Client No.:** 26053-R-9	**Description:** Black Roof Material **Facility:**	**Location:** Additional Sample Received
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Cellulose	Percent Non-Fibrous Material: 70

Analytical Method - US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/29/2016 12:53:11 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Attachment B

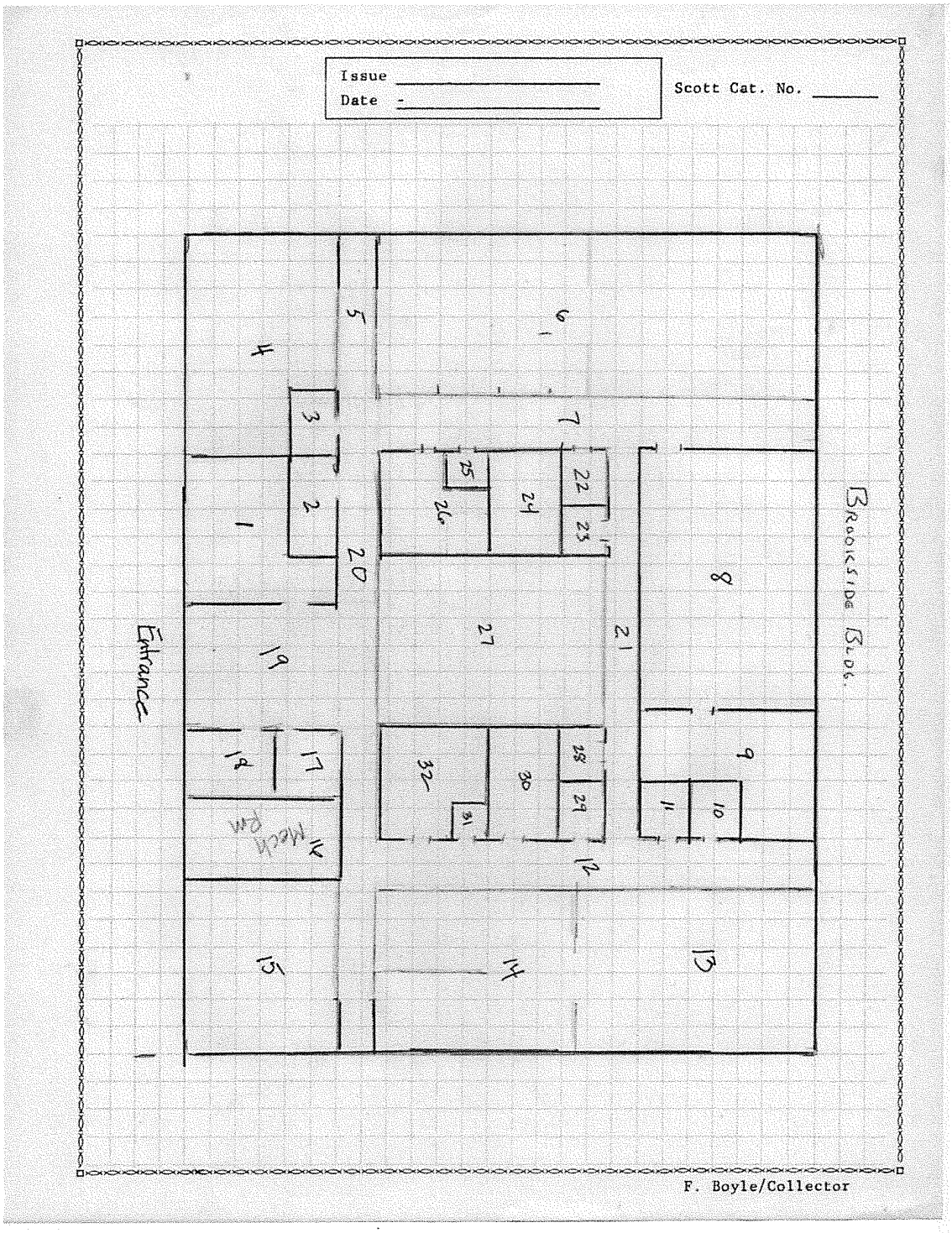
Brookside

HA Description	Sample ID 26056-	Sample Location	Location of HA	Quantity	Asbestos Yes/No
*12"x12" Tan floor tile with beige streaks	1	Area 1	Area 1,4,6,17,18,22	≈ 3000 SF	Yes
	2	Area 6			
Associated mastic	3	Area 1	Areas 1,4,6,17,18,22	≈ 3000 SF	Yes
	4	Area 6			
*12x12 Red floor tile	5	Area 5	Areas 19,20,5, 7,21,12	≈ 3700 SF	Yes
	6	Area 20 far end			
Associated mastic	7	Area 5	Areas 19,20,7,5, 21,12	≈ 3700 SF	Yes
	8	Area 20 far end			
12"x12" Light mottled tan floor tile	9	Area 15	Areas 15,14,13,29	≈ 2400 SF	<1%
	10	Area 13			
Associated mastic	11	Area 15	Areas 15,14,13,29	≈ 2400 SF	<1%
	12	Area 13			
12"x12" Dark mottled tan floor tile	13	Area 27	Areas 27,8	≈ 2000 SF	<1%
	14	Area 8			
Associated mastic	15	Area 27	Areas 27,8	≈ 2000 SF	<1%
	16	Area 8			
5"x5" Red ceramic tile grout	17	Area 9	Areas 2,3,9,10,11		No
	18	Area 10			
5"x5" Red ceramic tile thin set/adhesive	19	Area 9	Areas 2,3,9,10,11		No
	20	Area 10			
1"x1" Gray ceramic floor tile grout	21	Area 31	Areas 31,24		No
	22	Area 34			
1"x1" Gray ceramic floor tile think set/adhesive	23	Area 31	Areas 31,24		No
	24	Area 34			
1"x1" Green ceramic floor tile grout	25	Area 32	Areas 30,32		No
	26	Area 30			
1"x1" Green ceramic floor tile thin set/adhesive	27	Area 32	Areas 30,32		No
	27A	Area 30			
1"x1" Orange ceramic floor tile grout	28	Area 26	Area 26		No
	29	Area 26			
1"x1" Orange ceramic floor tile thin set/adhesive	30	Area 26	Area 26		No
	31	Area 26			
4"x4" Blue ceramic wall tile grout	32	Area 26	Areas 26,22		No
	33	Area 22			
4"x4" Blue ceramic wall tile thin set/adhesive	34	Area 26	Areas 26,22		No
	35	Area 22			
4"x4" Tan ceramic wall tile grout	36	Area 30	Areas, 28,30		No
	37	Area 28			
4"x4" Tan ceramic wall tile thin set/adhesive	38	Area 30	Areas, 28,30		No
	39	Area 28			

HA Description	Sample ID 26056-	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Window/door frame caulk (gray)	1J	Front door Area 19	Exterior all window and door frames	≈ 43, 4'x 5' Windows and 4 doors	Yes
	2J	Left rear Area 6			
Window caulk (brown)	3J	Right rear corner Area 13	Exterior all prefabricated windows	≈ 43, 4'x 5' Windows and 4 doors	Yes
	4J	Right front corner Area 15			
Frosted window glaze (beige)	5J	Right rear Area 14	Frosted windows exterior	≈ 16 LF	Yes
	6J	Right rear Area 14			
Top coat plaster	1JB	Rear Area 4	All partial walls		No
	2JB	Rear Area 27			
	3JB	Front Area 14			
Brown coat plaster	4JB	Rear Area 4	All partial walls		No
	5JB	Rear Area 27			
	6JB	Front Area 14			
Sheet rock	7JB	Rear Area 4	All partial walls		No
	8JB	Rear Area 27			
Joint compound	9JB	Rear Area 4	All partial walls		No
	10JB	Rear Area 27			
Adhesive	11JB	Rear Area 4	All partial walls under 3" wood trim	≈ 400 LF	No
	12JB	Rear Area 27			
6"x12" Ceramic wall tile grout	13JB	Left Area 1	Base of full walls	≈ 500 LF	No
	14JB	Front Area 8			
6" Gray cove base mastic	15JB	Rear Area 4	Base of partial walls and sporadic areas of perimeter walls	≈ 250 LF	No
	16JB	Front Area 8			
Troweled on ceiling plaster over metal lathe	17JB	Front Area 8	Entire ceiling area under roof deck	≈ 13,000 SF	No
	18JB	Center Area 8			
	19JB	Left Area 13			
	20JB	Center Area 14			
	21JB	Right Area 4			
	22JB	Front Area 6			
	23JB	Center Area 27			
	24JB	Rear Area 19			
	25JB	Right Area 16			
2'x2' Small fissured suspended ceiling tile	26JB	Right Area 9	Kitchen (Area 9)	≈ 320 SF	No
	27JB	Center Area 9			
Wood from adhesive	28JB	Partition wall	Partition wall		No
	29JB	Partition wall			
12"x12" Rough ceiling tile on spline	1S	Center Area 1	Areas 1,17,18,20,27		No
	2S	Center Area 27			
2'x2' Rough suspended ceiling tile	3S	Right Area 4	All Areas except bath areas, kitchen and mechanical area	≈ 8,000 SF	No
	4S	Rear Area 13			

HA Description	Sample ID 26056-	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Brown coat	5S	Rear Area 13	All full walls		No
	6S	Left Area 4			
	7S	Area 6			
	8S	Area 4			
	9S	Right Area 27			
	10S	Right Area 18			
	11S	Front Area 8			
Top coat	12S	Rear Area 13	All full walls		No
	13S	Left Area 4			
	14S	Area 6			
	15S	Area 4			
	16S	Right Area 27			
	17S	Right Area 18			
	18S	Front Area 8			
Joint compound	19S	Rear Area 13	All full walls		No
	20S	Left Area 4			
Sheet rock associated w/plaster walls	21S	Rear Area 13	All full walls		No
	22S	Left Area 4			
Sill joint caulking	23S	Area 1	All slate window sills	≈ 60 LF	Yes
	24S	Area 13			
Caulking under sills	25S	Area 1	All slate window sills		No
	26S	Area 13			

*The flooring is adhered to the floor with black mastic which is asbestos containing. These materials cannot be separated for removal purposes. Flooring and mastic must be abated together.


Issue
Date
Scott Cat. No.
Brookside Bldg.
Entrance
F. Boyle/Collector

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

–Bulk Asbestos –

Contact Information

Client Company:	Hub Testing	**Project Number:**	26056
Office Address:	95 Beaver Street	**Project Name:**	Brookside
City, State, Zip:	Waltham, MA 02453	**Primary Contact:**	Attn Lynne
Fax Number:	781-893-4414	**Office Phone:**	781-893-8330
Email Address:	LBrimhall@Hubtesting.net	**Cell Phone:**	

PLM Instructions:

- ☒ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- ☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- ☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- ☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

E-MAILED 3/23

- ☐ PLM: Point Counting
  - ☐ PC: via ELAP 198.1
  - ☐ PC: 400 Points
  - ☐ PC: 800 Points *
  - ☐ PC: 1600 Points *
- ☐ PLM: Instructions for Multi-Layered Samples
  - ☐ Analyze and Report All Separable Layers per EPA 600
  - ☐ Report Composite for Drywall Systems per NESHAP
  - ☐ Report All Layers and Composite Where Applicable
  - ☒ Only Analyze and Report Specifically Noted Layer
- ☒ PLM: Analyze Until Positive (Positive Stop)
  - ☒ AUP: by Homogenous Area as Noted
  - ☐ AUP: by Material Type as Noted
- ☐ PLM: NOB via 198.6
  - ☐ PLM: Friable via EPA 600 2.3
  - ☐ If <1% by PLM, to TEM via 198.4 *
  - ☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material *,** (Dust, Wipe, Tape)
  - ☐ Soil or Vermiculite Analysis *
  - ☐ CARB 435

Special Instructions: Stop @ 1st positive for each homogeneous layer

** Additional charge and turnaround may be required* *** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory*

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time) ☐ Verbal ☐ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☒ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	Lynne Brimhall	Date: 3/23/16	Time: 10:00 AM
Received (Name / iATL):		Date:	Time:
Sample Login (Name / iATL):		Date: 3/28/16	Time:
Analysis(Name(s) / iATL):		Date: 3/28/16	Time: MAR 24 2016
QA/QC Review (Name / iATL):		Date: 3-29-16	Time:
Archived / Released: _____ QA/QC InterLAB Use: _____		Date:	Time:

RECEIVED IATL-BY

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Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

–Bulk Asbestos –

Contact Information

Client Company:	Hub Testing	**Project Number:**	26056
Office Address:	95 Beaver Street	**Project Name:**	Brookside
City, State, Zip:	Waltham, MA 02453	**Primary Contact:**	Attn Lynne
Fax Number:	781-893-4414	**Office Phone:**	781-893-8330
Email Address:	LBrimhall@Hubtesting.net	**Cell Phone:**	

PLM Instructions:

- ☒ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- ☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- ☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- ☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

- ☐ PLM: Point Counting
  - ☐ PC: via ELAP 198.1
  - ☐ PC: 400 Points
  - ☐ PC: 800 Points *
  - ☐ PC: 1600 Points *
- ☐ PLM: Instructions for Multi-Layered Samples
  - ☐ Analyze and Report All Separable Layers per EPA 600
  - ☐ Report Composite for Drywall Systems per NESHAP
  - ☐ Report All Layers and Composite Where Applicable
  - ☒ Only Analyze and Report Specifically Noted Layer
- ☒ PLM: Analyze Until Positive (Positive Stop)
  - ☒ AUP: by Homogenous Area as Noted
  - ☐ AUP: by Material Type as Noted
- ☐ PLM: NOB via 198.6
  - ☐ PLM: Friable via EPA 600 2.3
  - ☐ If <1% by PLM, to TEM via 198.4 *
  - ☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material*,** (Dust, Wipe, Tape)
  - ☐ Soil or Vermiculite Analysis*
  - ☐ CARB 435

Special Instructions: Stop @ 1st positive for each homogeneous layer

* Additional charge and turnaround may be required ** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time) ☐ Verbal ☐ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☒ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	Lynne Brimhall	Date: 3/23/16	Time:	RECEIVED
Received (Name / iATL):		Date:	Time:	
Sample Login (Name / iATL):	RM 3/25/16	Date: 3/25/16	Time:	
Analysis(Name(s) / iATL):		Date:	Time:	MAR 24 2016
QA/QC Review (Name / iATL):		Date: 3-29-16	Time:	
Archived / Released: _____ QA/QC InterLAB Use: _____		Date:	Time:	IATL BY

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Sample Log

–Bulk Asbestos –

Client: Hub Testing Project: 26056 - Brookside

Sampling Date/Time: 3/18 & 3/21

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
See attached paperwork for sample ID & location			

Hub Testing Laboratory, Inc. Page 1 of 7

95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: Brookside Blvd Inspector: HS Date: 3-18-16

Building description:

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	12X12 FT tan w/ beige streaks			Rm 1, 4, 6, 17, 18 22		1 2	1. Rm 1 2 Rm 6	5889444 5889445
	Assoc. mastic					3 4	3 Rm 1 4 Rm 6	5889446 5889447
	12X12 Red FT			Area 19, 20, 7, 21 12		5 6	5 Area 5 6 Area 20 far end	5889448 5889449
	Assoc mastic					7 8	7 ~~Area~~ 5 8 Area 20 far end	5889450 5889451
	12X12 light Mottled tan			Area 15, 14, 13 29		9 10	9 Area 15 10 Area 13	5889452 5889453
	Assoc mastic					11 12	11 Area 15 12 Area 13	5889454 5889455
	12X12 dark mottled tan			Area 27, 8		13 14	13 Rm 27 14 Rm 8	5889456 5889457

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Example 001-1-A

Please perform a first positive stop on analysis.

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

Hub Testing Laboratory, Inc.

95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: Brookside Bldg Inspector: JB SB Date:

Building description:

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	ABSOC mastic					•	15 Rm 27	5889458
						•	16 Rm 8	5889459
	5"X5" red ceramic tile grout			Rm 2, 3, 9, 10, 11		•	17 Rm 9	5889460
						•	18 Rm 10	5889461
	" thin set/adhesive					•	19 Rm 9	5889462
						•	20 Rm 10	5889463
	1"X1" gray ceramic FT grout			Rm 31 Rm 24		•	21 Rm 31	5889464
						•	22 Rm 24	5889465
	" thinset/adhesive			"		•	23 Rm 31	5889466
						•	24 Rm 24	5889467
	1"X1" ~~green~~ ceramic FT grout dark + light			dark Rm 32 light Rm 30		•	25. Rm 32	5889468
						•	26. Rm 30	5889469
	" adhesive, thinset			"		•	27. Rm 32	5889470
						•	27A Rm 30	5889471

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Example 001-1-A
Please perform a first positive stop on analysis.

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

26056

Hub Testing Laboratory, Inc.
95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: Brookside Bldg **Inspector:** JBS SB **Date:**
Building description:

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	1"X1" orange ceramic FT grout			Rm 26		•	28 Rm 26 5889472	
						•	29 " 5889473	
	" adhesive			"		•	30 5889474	
						•	31 5889475	
	4" X4" blue ceramic wall tile grout			iATL 5889476 NOT			32 ★ 5889476	
							33 ★ 5889477	
	" adhesive			iATL 5889477 Received			34 ★ 5889478	
							35 ★ 5889479	
	4" X4" tan ceramic wall tile grout			iATL 5889478		•	36 Rm 36 5889480	
						•	37 Hall by 28 5889481	
	" adhesive			iATL 5889479		•	38 Rm 30 5889482	
						•	39 Hall by 28 5889483	

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. **Example 001-1-A**
Please perform a first positive stop on analysis.

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

26056

Hub Testing Laboratory, Inc.

95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Page 4 of 7

Building Number: Brookside **Inspector:** JB SB AN **Date:** 3-18-16

Building description:

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	Window/Door Frame Caulk	Gray	NF	Exterior all window & door frames	≈ 43 windows 4 doors		1J Front door exterior 2J Left rear bldg.	5889484 5889485
	Window Caulk	Brown	NF	Ext. All pre fab windows	≈ 43 windows e 4		3J Rt rear corner #13 4J Rt front corner	5889486 5889487
	Frosted Window Glaze	Beige	NF	(1) Frosted window ext.	76 LF		5J Rt rear 14 6J " " "	5889488 5889489

Note: Sample identification is Building number – Homogeneous Material number - A,B,C, etc. **Example 001-1-A**
Please perform a first positive stop on analysis.

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: ______ Date: ______ Time: ______

Received By: ______ Date: ______ Time: ______

Attachment B
Page 12 of 35

26056

Hub Testing Laboratory, Inc.
95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Page 5 of 7

Building Number: BROCKTON BLDG **Inspector:** JFS **Date:** 8-29-16

Building description: _____

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples
	TOP COAT SAME AS FLR TO CLNG	WHITE		PARTIAL WALLS			1JB REAR Rm 4 5889490 2JB REAR 27 5889491 3JB FRONT 14 5889492
	BRONZE COAT	GRAY		" "			4JB REAR Rm 4 5889493 5JB REAR 27 5889494 6JB FRONT 14 5889495
	SR	GRAY		" "			7JB REAR Rm 4 5889496 8JB REAR 27 5889497
	JC	WHITE					9JB REAR Rm 4 5889498 10JB REAR 27 5889499
	ADHESIVE	TAN		GLUE FOR WOOD TRIM ON PARTIAL WALLS			11JB REAR 4 5889500 12JB REAR 27 5889501
	12x6" COVE	GRAY		BASE OF FULL WALLS		≈ 40 LF	13JB LEFT 1 5889502 14JB FRONT 8 5889503
	6" GRAY COVE BASE MASTIC	GRAY		BASE OF PARTIAL WALLS - SPORADIC PRESENCE		≈ 25 LF	15JB REAR 4 5889504 16JB FRONT 8 5889505

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Example 001-1-A
Please perform a first positive stop on analysis.

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

26056

Hub Testing Laboratory, Inc.
95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: BROOKSIDE Inspector: JB Date: 3/21/16

Building description: _____

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples
	TROWELED ON CEILING PLASTER OVER METAL LATH	LT GRAY	NF	THROUGHOUT	≈130 SQ YD	• 17 SB FRONT 8 • 18 SB CTR 8 • 19 SB WEST 13 • 20 SB CTR 14 • 21 SB RT 4 • 22 SB FRONT 6	5889506 5889507 5889508 5889509 5889510 5889511
						• 23 SB CTR 27 • 24 SB REAR 19 25 SB RIGHT 16	5889512 5889513 5889514
	2'x2' Sm. Fissured Susp Ct	GRAY	F	KITCHEN	≈320 SF	• 26 SB RT 9 KITCHEN • 27 SB CTR 9 "	5889515 5889516

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Example 001-1-A
Please perform a first positive stop on analysis.

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

26056

Issue _____
Date _____

Scott Cat. No. _____

p 7 of 7

1S	12" rough CT	Rm 1	center	5889517
2S	↓	Rm 27	"	5889518
3S	2x2 heavy fissured	Rm 4	right	5889519
4S	↓	Rm 13	rear	5889520
5S	Brown coat	Rm 13	rear	5889521
6S		Rm 4	left	5889522
7S		Rm 6		5889523
8S		Rm 4		5889524
9S		Rm 27	right	5889525
10S		Rm 18	right	5889526
11S	↓	Rm 8	front	5889527
12S	Top coat	Rm 13		5889528
13S		Rm 4	left	5889529
14S		Rm 6		5889530
15S		Rm 4		5889531
16S		Rm 27	right	5889532
17S		Rm 18	right	5889533
18S	↓	Rm 8	front	5889534
19S	J.C	Rm 13	rear	5889535
20S	↓	Rm 4	left	5889536
21S	SR Assoc. w/plaster	Rm 13	rear	5889537
22S	↓	Rm L	Left	5889538
23S	sill joint calking	Rm 1		5889539
24S	↓	Rm 13		5889540
25S	caulking below sill	Rm 1		5889541
26S	↓	Rm 13		5889542

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9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889444 **Client No.:** 26056-1	**Description:** Lt.Tan Floor Tile: 12x12 **Facility:**	**Location:** Rm 1
Percent Asbestos: *PC 0.25 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.75
Lab No.: 5889445 **Client No.:** 26056-2	**Description:** Lt.Tan Floor Tile: 12x12 **Facility:**	**Location:** Rm 6
Percent Asbestos: *PC 0.5 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.5
Lab No.: 5889446 **Client No.:** 26056-3	**Description:** Black Mastic **Facility:**	**Location:** Rm 1
Percent Asbestos: *PC 1.5 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.5
Lab No.: 5889447 **Client No.:** 26056-4	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 6
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5889448 **Client No.:** 26056-5	**Description:** Red Floor Tile: 12x12 **Facility:**	**Location:** Area 5
Percent Asbestos: *PC 0.25 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.75
Lab No.: 5889449 **Client No.:** 26056-6	**Description:** Red Floor Tile: 12x12 **Facility:**	**Location:** Area 20 Far End
Percent Asbestos: *PC 0.25 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.75

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889450 **Client No.:** 26056-7	**Description:** Black Mastic **Facility:**	**Location:** Area 5
Percent Asbestos: *PC 1.3 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.7
Lab No.: 5889451 **Client No.:** 26056-8	**Description:** Sample Not Analyzed **Facility:**	**Location:** Area 20 Far End
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5889452 **Client No.:** 26056-9	**Description:** Off-White Floor Tile: 12x12 **Facility:**	**Location:** Area 15
Percent Asbestos: *PC 0.25 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.75
Lab No.: 5889453 **Client No.:** 26056-10	**Description:** Off-White Floor Tile: 12x12 **Facility:**	**Location:** Area 13
Percent Asbestos: *PC 0.25 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.75
Lab No.: 5889454 **Client No.:** 26056-11	**Description:** Black Mastic **Facility:**	**Location:** Area 15
Percent Asbestos: *PC 0.25 Chrysotile*	Percent Non-Asbestos Fibrous Material: 3 Cellulose	Percent Non-Fibrous Material: 96.75
Lab No.: 5889455 **Client No.:** 26056-12	**Description:** Black Mastic **Facility:**	**Location:** Area 13
Percent Asbestos: *PC 0.25 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.75

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
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Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory. Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889456 **Client No.:** 26056-13	**Description:** Off-White Floor Tile: 12x12 **Facility:**	**Location:** Rm 27
Percent Asbestos: *PC 0.25 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.75
Lab No.: 5889457 **Client No.:** 26056-14	**Description:** Off-White Floor Tile: 12x12 **Facility:**	**Location:** Rm 8
Percent Asbestos: *PC 0.25 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.75
Lab No.: 5889458 **Client No.:** 26056-15	**Description:** Black Mastic **Facility:**	**Location:** Rm 27
Percent Asbestos: *PC 0.25 Chrysotile*	Percent Non-Asbestos Fibrous Material: 2 Cellulose	Percent Non-Fibrous Material: 97.75
Lab No.: 5889459 **Client No.:** 26056-16	**Description:** Black Mastic **Facility:**	**Location:** Rm 8
Percent Asbestos: *PC 0.25 Chrysotile*	Percent Non-Asbestos Fibrous Material: 1 Cellulose	Percent Non-Fibrous Material: 98.75
Lab No.: 5889460 **Client No.:** 26056-17	**Description:** Lt.Tan Grout **Facility:**	**Location:** Rm 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889461 **Client No.:** 26056-18	**Description:** Lt.Tan Grout **Facility:**	**Location:** Rm 10
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

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Analyst: Ellen Smith

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Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889462 **Client No.:** 26056-19	**Description:** Red Ceramic Tile **Facility:**	**Location:** Rm 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889463 **Client No.:** 26056-20	**Description:** Red Ceramic Tile **Facility:**	**Location:** Rm 10
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889464 **Client No.:** 26056-21	**Description:** Lt.Grey Ceramic Tile **Facility:**	**Location:** Rm 31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889465 **Client No.:** 26056-22	**Description:** Lt.Tan Grout **Facility:**	**Location:** Rm 24
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889466 **Client No.:** 26056-23	**Description:** Lt.Tan Mastic **Facility:**	**Location:** Rm 31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889467 **Client No.:** 26056-24	**Description:** Lt.Tan Grout **Facility:**	**Location:** Rm 24
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

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Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889468 **Client No.:** 26056-25	**Description:** Lt Grey Grout **Facility:**	**Location:** Rm 32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889469 **Client No.:** 26056-26	**Description:** Lt.Grey Grout **Facility:**	**Location:** Rm 30
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889470 **Client No.:** 26056-27	**Description:** Grey Grout **Facility:**	**Location:** Rm 32
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889471 **Client No.:** 26056-27A	**Description:** Lt Grey Grout **Facility:**	**Location:** Rm 30
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889472 **Client No.:** 26056-28	**Description:** Lt Tan Mastic **Facility:**	**Location:** Rm 26
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889473 **Client No.:** 26056-29	**Description:** Lt Tan Grout **Facility:**	**Location:** Rm 26
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889474 **Client No.:** 26056-30	**Description:** Lt.Grey Grout **Facility:**	**Location:** Rm 26
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889475 **Client No.:** 26056-31	**Description:** Lt.Grey Grout **Facility:**	**Location:** Rm 26
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889476 **Client No.:** 26056-32	**Description:** Sample Not Received **Facility:**	**Location:** Rm 32
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5889477 **Client No.:** 26056-33	**Description:** Sample Not Received **Facility:**	**Location:** Rm 33
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5889478 **Client No.:** 26056-34	**Description:** Sample Not Received **Facility:**	**Location:** Rm 34
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:
Lab No.: 5889479 **Client No.:** 26056-35	**Description:** Sample Not Received **Facility:**	**Location:** Rm 35
Percent Asbestos: *Sample Not Received*	Percent Non-Asbestos Fibrous Material: Sample Not Received	Percent Non-Fibrous Material:

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
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Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889480 **Client No.:** 26056-36	**Description:** White Grout **Facility:**	**Location:** Rm 30
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889481 **Client No.:** 26056-37	**Description:** White Grout **Facility:**	**Location:** Hall By 28
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889482 **Client No.:** 26056-38	**Description:** White Grout **Facility:**	**Location:** Rm 30
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889483 **Client No.:** 26056-39	**Description:** White Grout **Facility:**	**Location:** Hall By 28
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889484 **Client No.:** 26056-1J	**Description:** Brown Caulk **Facility:**	**Location:** Front Door Exterior #19
Percent Asbestos: *PC 1.3 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.7
Lab No.: 5889485 **Client No.:** 26056-2J	**Description:** Sample Not Analyzed **Facility:**	**Location:** Left Rear Bldg #8
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889486 **Client No.:** 26056-3J	**Description:** Brown Caulk **Facility:**	**Location:** Right Rear Corner #13
Percent Asbestos: *PC 2.0 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98
Lab No.: 5889487 **Client No.:** 26056-4J	**Description:** Sample Not Analyzed **Facility:**	**Location:** Right Front Corner #8
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5889488 **Client No.:** 26056-5J	**Description:** Lt.Tan Glazing **Facility:**	**Location:** Right Rear #14
Percent Asbestos: *PC 1.3 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.7
Lab No.: 5889489 **Client No.:** 26056-6J	**Description:** Sample Not Analyzed **Facility:**	**Location:** Right Rear #14
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Ellen Smith

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889490 **Client No.:** 26056-1JB	**Description:** White Plaster **Facility:**	**Location:** Rear Rm 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889491 **Client No.:** 26056-2JB	**Description:** White Plaster **Facility:**	**Location:** Rear Rm 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889492 **Client No.:** 26056-3JB	**Description:** White Plaster **Facility:**	**Location:** Front Rm 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889493 **Client No.:** 26056-4JB	**Description:** Grey Plaster **Facility:**	**Location:** Rear Rm 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889494 **Client No.:** 26056-5JB	**Description:** White Plaster **Facility:**	**Location:** Rear Rm 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889495 **Client No.:** 26056-6JB	**Description:** Sample Not Analyzed **Facility:**	**Location:** Front Rm 14
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Not Analyzed, Insufficient Sample

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889496 **Client No.:** 26056-7JB	**Description:** Grey Sheetrock **Facility:**	**Location:** Rear Rm 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 95
Lab No.: 5889497 **Client No.:** 26056-8JB	**Description:** Grey Sheetrock **Facility:**	**Location:** Rear Rm 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 95
Lab No.: 5889498 **Client No.:** 26056-9JB	**Description:** White Joint Compound **Facility:**	**Location:** Rear Rm 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889499 **Client No.:** 26056-10JB	**Description:** White Joint Compound **Facility:**	**Location:** Rear Rm 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889500 **Client No.:** 26056-11JB	**Description:** Tan Mastic **Facility:**	**Location:** Rear Rm 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889501 **Client No.:** 26056-12JB	**Description:** Tan Mastic **Facility:**	**Location:** Rear Rm 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

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Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889502 **Client No.:** 26056-13JB	**Description:** Grey Cementitious **Facility:**	**Location:** Left Rm 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889503 **Client No.:** 26056-14JB	**Description:** Grey Cementitious **Facility:**	**Location:** Front Rm 8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889504 **Client No.:** 26056-15JB	**Description:** Brown Mastic **Facility:**	**Location:** Rear Rm 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889505 **Client No.:** 26056-16JB	**Description:** Brown Mastic **Facility:**	**Location:** Front Rm 8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889506 **Client No.:** 26056-17JB	**Description:** Lt.Grey Plaster **Facility:**	**Location:** Front Rm 8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889507 **Client No.:** 26056-18JB	**Description:** Lt.Grey Plaster **Facility:**	**Location:** Ctr Rm 8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889508 **Client No.:** 26056-19JB	**Description:** Lt.Grey Plaster **Facility:**	**Location:** Left Rm 13
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889509 **Client No.:** 26056-20JB	**Description:** Lt.Grey Plaster **Facility:**	**Location:** Ctr Rm 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889510 **Client No.:** 26056-21JB	**Description:** Lt.Grey Plaster **Facility:**	**Location:** Rt Rm 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889511 **Client No.:** 26056-22JB	**Description:** Lt.Grey Plaster **Facility:**	**Location:** Front Rm 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889512 **Client No.:** 26056-23JB	**Description:** Lt.Grey Plaster **Facility:**	**Location:** Ctr Rm 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889513 **Client No.:** 26056-24JB	**Description:** Lt.Grey Plaster **Facility:**	**Location:** Rear Rm 19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory. Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889514 **Client No.:** 26056-25JB	**Description:** Lt.Grey Plaster **Facility:**	**Location:** Right Rm 16
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889515 **Client No.:** 26056-26JB	**Description:** Grey Ceiling Tile: 2x2 **Facility:**	**Location:** Right Rm 9 Kitchen
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Cellulose 60 Fibrous Glass	Percent Non-Fibrous Material: 40
Lab No.: 5889516 **Client No.:** 26056-27JB	**Description:** Grey Ceiling Tile: 2x2 **Facility:**	**Location:** Ctr Rm 9 Kitchen
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Cellulose 60 Fibrous Glass	Percent Non-Fibrous Material: 40
Lab No.: 5889517 **Client No.:** 26056-1S	**Description:** White Ceiling Tile: 12" **Facility:**	**Location:** Rm 1 Center
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 70 Fibrous Glass	Percent Non-Fibrous Material: 30
Lab No.: 5889518 **Client No.:** 26056-2S	**Description:** White Ceiling Tile: 12" **Facility:**	**Location:** Rm 27 Center
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 70 Fibrous Glass	Percent Non-Fibrous Material: 30
Lab No.: 5889519 **Client No.:** 26056-3S	**Description:** White Ceiling Tile: 2x2 **Facility:**	**Location:** Rm 4 Right
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Cellulose 60 Fibrous Glass	Percent Non-Fibrous Material: 40

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld. III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889520 **Client No.:** 26056-4S	**Description:** White Ceiling Tile: 2x2 **Facility:**	**Location:** Rm 13 Rear
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Cellulose 60 Fibrous Glass	Percent Non-Fibrous Material: 40
Lab No.: 5889521 **Client No.:** 26056-5S	**Description:** Grey Plaster **Facility:**	**Location:** Rm 13 Rear
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889522 **Client No.:** 26056-6S	**Description:** Grey Plaster **Facility:**	**Location:** Rm 4 Left
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889523 **Client No.:** 26056-7S	**Description:** Grey Plaster **Facility:**	**Location:** Rm 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889524 **Client No.:** 26056-8S	**Description:** Grey Plaster **Facility:**	**Location:** Rm 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Cellulose	Percent Non-Fibrous Material: 70
Lab No.: 5889525 **Client No.:** 26056-9S	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 27 Right
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Not Analyzed, Insufficient Sample

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Mt. Laurel, New Jersey 08054
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Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889526 **Client No.:** 26056-10S	**Description:** White Plaster **Facility:**	**Location:** Rm 18 Right
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889527 **Client No.:** 26056-11S	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 8 Front
Percent Asbestos: *Sample Not Analyzed* Not Analyzed, Insufficient Sample	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5889528 **Client No.:** 26056-12S	**Description:** White Plaster **Facility:**	**Location:** Rm 13
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889529 **Client No.:** 26056-13S	**Description:** White Plaster **Facility:**	**Location:** Rm 4 Left
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889530 **Client No.:** 26056-14S	**Description:** White Plaster **Facility:**	**Location:** Rm 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889531 **Client No.:** 26056-15S	**Description:** White Plaster **Facility:**	**Location:** Rm 4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889532 **Client No.:** 26056-16S	**Description:** White Plaster **Facility:**	**Location:** Rm 27 Right
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889533 **Client No.:** 26056-17S	**Description:** White Plaster **Facility:**	**Location:** Rm 18 Right
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889534 **Client No.:** 26056-18S	**Description:** White Plaster **Facility:**	**Location:** Rm 8 Front
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889535 **Client No.:** 26056-19S	**Description:** White Joint Compound **Facility:**	**Location:** Rm 13 Rear
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889536 **Client No.:** 26056-20S	**Description:** White Joint Compound **Facility:**	**Location:** Rm 4 Left
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889537 **Client No.:** 26056-21S	**Description:** Grey Sheetrock **Facility:**	**Location:** Rm 13 Rear
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose Trace Fibrous Glass	Percent Non-Fibrous Material: 95

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

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Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506044 - PLM
Project: Brookside
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5889538 **Client No.:** 26056-22S	**Description:** Grey Sheetrock **Facility:**	**Location:** Rm L Left
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 93
Lab No.: 5889539 **Client No.:** 26056-23S	**Description:** Grey Caulk **Facility:**	**Location:** Rm 1
Percent Asbestos: ***PC 1.7 Chrysotile***	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.3
Lab No.: 5889540 **Client No.:** 26056-24S	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 13
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5889541 **Client No.:** 26056-25S	**Description:** White Caulk **Facility:**	**Location:** Rm 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5889542 **Client No.:** 26056-26S	**Description:** White Caulk **Facility:**	**Location:** Rm 13
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/24/2016
Date Analyzed: 3/28/2016 12:00:00 AM
Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

–Bulk Asbestos –

Contact Information

Client Company:	Hub Testing Lab	**Project Number:**	26056
Office Address:	95 Bearer St	**Project Name:**	Fernald
City, State, Zip:	Waltham MA 02453	**Primary Contact:**	S Boyle
Fax Number:	781 893 4414	**Office Phone:**	781 893 8330
Email Address:	SBoyle@Hubtesting.net	**Cell Phone:**	781 389 2181

PLM Instructions:

- [X] PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- [ ] PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- [ ] PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- [ ] PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- [ ] PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- [ ] TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

EMAILED 3/28

- [ ] PLM: Point Counting
  - [ ] PC: via ELAP 198.1
  - [ ] PC: 400 Points
  - [ ] PC: 800 Points *
  - [ ] PC: 1600 Points *
- [ ] PLM: Instructions for Multi-Layered Samples
  - [ ] Analyze and Report All Separable Layers per EPA 600
  - [ ] Report Composite for Drywall Systems per NESHAP
  - [ ] Report All Layers and Composite Where Applicable
  - [ ] Only Analyze and Report Specifically Noted Layer
- [X] PLM: Analyze Until Positive (Positive Stop)
  - [ ] AUP: by Homogenous Area as Noted
  - [X] AUP: by Material Type as Noted
- [ ] PLM: NOB via 198.6
  - [ ] PLM: Friable via EPA 600 2.3
  - [ ] If <1% by PLM, to TEM via 198.4 *
  - [ ] If <1% by PLM, Hold for Instructions
- [ ] PLM: Non-Building Material*,** (Dust, Wipe, Tape)
  - [ ] Soil or Vermiculite Analysis*
  - [ ] CARB 435

Special Instructions: _____

** Additional charge and turnaround may be required* *** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory*

Turnaround Time

Preliminary Results Requested Date: _____ Specific date / time

☐ Verbal ☐ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☒ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	[signature]	Date:	3/28/16	Time:	5:00 pm
Received (Name / iATL):		Date:		Time:	
Sample Login (Name / iATL):	Lev 032916	Date:		Time:	MAR 29 2016
Analysis(Name(s) / iATL):	RM Hamm	Date:		Time:	
QA/QC Review (Name / iATL):		Date:	03 30 16	Time:	
Archived / Released:	QA/QC InterLAB Use	Date:		Time:	IATL - BV

RECEIVED

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ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Sample Log

–Bulk Asbestos –

Client: Hub Testing Project: Fernald 26056

Sampling Date/Time: _____

Bulk Asbestos Sample Log			
Client Sample #	iATL #	Location/Description	Notes
26056-32	5892238	4"x4" blue ceramic tile grout	
-33	5892239	" grout	
-34	5892240	" adhesiv	
-35	5892241	adhesive	
-28JB	5892242	Partition wall, wood frame adhesive	
-29JB	5892243	"	

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506308 - PLM
Project: Fernald
Project No.: 26056

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892238 **Client No.:** 26056-32	**Description:** White Grout **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892239 **Client No.:** 26056-33	**Description:** White Grout **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892240 **Client No.:** 26056-34	**Description:** White Mortar **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892241 **Client No.:** 26056-35	**Description:** White Mortar **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892242 **Client No.:** 26056-28JB	**Description:** Tan Mastic **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892243 **Client No.:** 26056-29JB	**Description:** Tan Mastic **Facility:**	**Location:**
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/29/2016 4:01:00 PM
Signature:
Analyst: Rachel McQuiggan

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

Attachment C

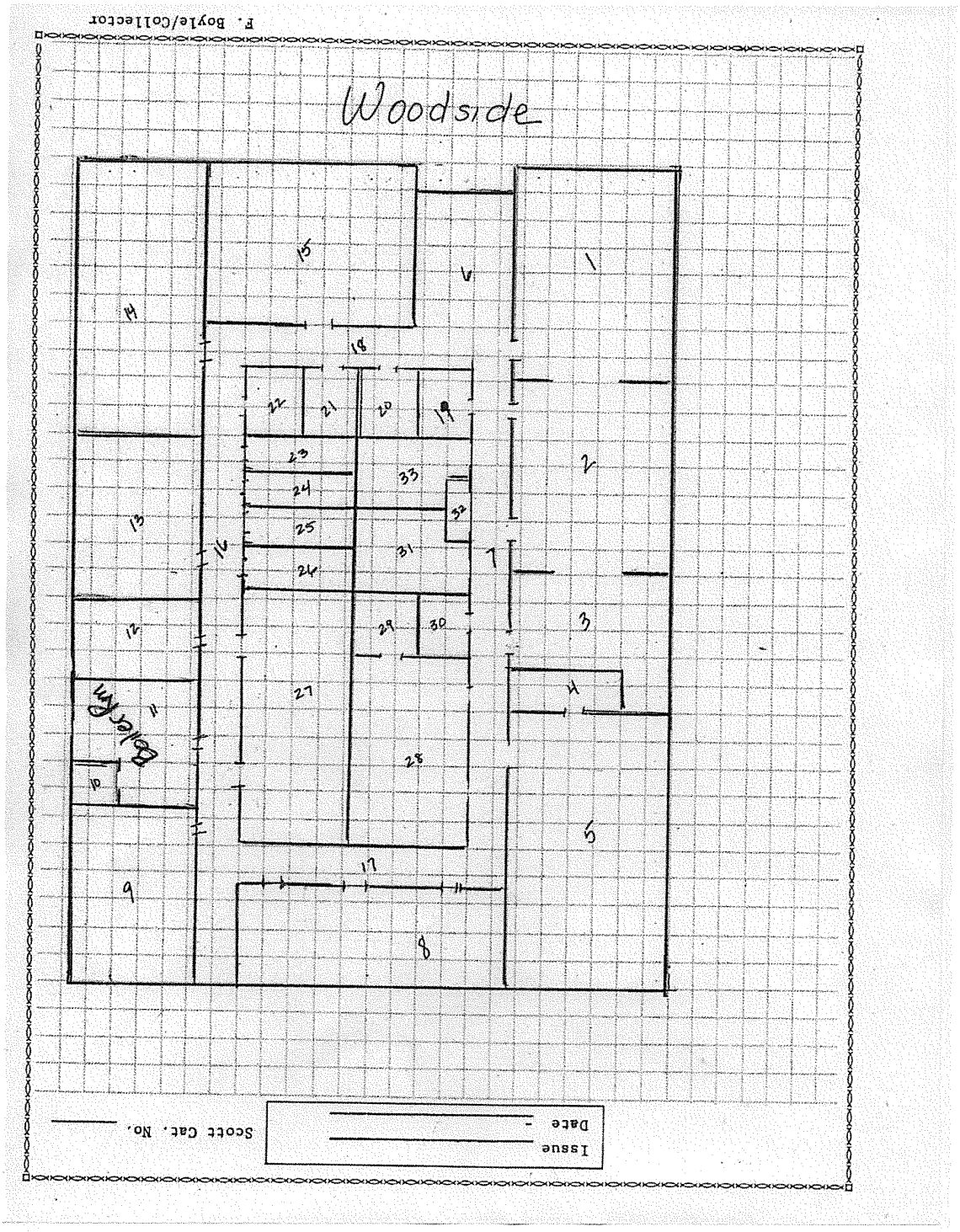
Woodside

HA Description	Sample ID-26061	Sample Location	Location of HA	Quantity	Asbestos Yes/No
*12"x 12" White vinyl composite floor tile	1	Center area 1	Areas 1,6,6A,8,13,14,15, 17,18,33	≈ 11,000 SF	No
	2	Center area 13			
Associated mastic	3	Center area 1	Same		Yes
	4	Center area 13			
*12"x 12" Red vinyl composite floor tile	5	Center area 19	Areas 5,7,12,19,20,21		No
	6	Center area 5			
Associated mastic	7	Center area 19	Same		Yes
	8	Center area5			
*12"x 12" Tan vinyl composite floor tile	9	Center area 27	Area 27,34, 35		No
	10	Center area 6A			
Associated mastic	11	Center area 27	Same		Yes
	12	Center area 6A			
6"x6" Red ceramic floor tile grout	13	Area 2	Areas 2,9,10,11		No
	14	Area 9			
12"x 12" Heavy fissured spline ceiling tile	15	Center area 1	Areas 1,17,18,19,27		No
	16	Center area 27			
2'x 2' Heavy fissured suspended ceiling tile	17	Area 6	Remaining ceilings except for bathrooms and custodial closets		No
	18	Area 14			
*Blue sheet vinyl flooring	19	Center area 4	Areas 3,4	≈ 800 SF	No
	20	Center area 3			
Associated adhesive	21	Center area 4	Same	≈ 1000 SF	< 1%
	22	Center area 3			
1"x1" Ceramic floor tile grout	23	Area 23	Areas 22,23,24,25,26,28,29,30, 31,32	≈ 1000 SF	No
	24				
1"x1" Ceramic floor tile adhesive	23A	Area 23	Same		No
	24A				
4"x4" Ceramic wall tile grout	25	Area 23	Rm 23-26 and 29, 31, 32 and 33	≈ 8000 SF	No
	26	Area 30			
4"x4" Ceramic wall tile adhesive	25A	Area 23	Rm 23-26 and 29, 31, 32 and 33	≈ 8000 SF	No
	26A	Area 30			
6" Cove base mastic	29	Area 6	Partial walls and select perimeter		No
	30	Area 13			
Troweled on plaster	33	Area 1	Throughout the building below the roof deck on metal lath	≈ 14000 SF	No
	34	Area 4			
	35	Area 6			
	36	Area 27			
	37	Area 8			
	38	Area 9			
	39	Area 13			
	40	Area 14			
	41	Area 15			
Skim coat (top)	42	Area 19	Throughout the building		No
	43	Area 4			
	44	Area 27			

HA Description	Sample ID-26061	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Skim coat (top)	45	Area 6	Throughout the building		No
	46	Area 15			
	47	Area 14			
	48	Area 8			
Brown coat-plaster	49	Area 19	Throughout the building		No
	50	Area 4			
	51	Area 27			
	52	Area 6			
	53	Area 15			
	54	Area 14			
	55	Area 8			
Sheetrock	56	Area 19	Throughout the building		No
	57	Area 4			
Drywall joint compound	58	Area 19	Throughout the building		No
	59	Area 4			
FG TSI (pipe) end seal	60	Hot supply from power plant	Mechanical room on hot supply/return	≈ 1 SF	No
	61	Hot return from power plant			
2'x2' small fissured suspended ceiling tiles	62	Front of Area 9	Kitchen	≈ 300 SF	No
	63	Center of Area 9			
12"x6" Ceramic wall tile block grout	64	Area 8	Bottom of walls	≈ 400 LF	No
	65	Area 12			
Wood trim adhesive	66	Area 14	Under wood trim on partition walls	≈ 400 LF	No
	67	Area 4			
**Side door caulking	68	Area 5 Exit	Side door frames	≈ 24 LF	< 1%
	69	Area 20 Exit (side)			
Front door caulk	70	Right door	Front entrance door	≈ 24 LF	Yes
	71	Left door			
Exterior window caulk	72	Area 4 exterior	Exterior at window perimeter	≈ 800 LF	Yes
	73	Area 18 exterior			

*The flooring is adhered to the floor with black mastic which is asbestos containing. These materials cannot be separated for removal purposes. Flooring and mastic must be abated together.

**An attempt was made to collect samples of what appeared to be the older or most prevalent caulking however caulking has been repaired and overlaid in locations. As other caulking were identified as being asbestos containing it is reasonable to assume this materials has been diluted or over laid onto another caulking and should be treated as the same material.


F. Boyle/Collector
Woodside
Issue
Date
Scott Cat. No.

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

–Bulk Asbestos –

Contact Information

Client Company:	Hub Testing Lab	**Project Number:**	260161
Office Address:	95 Beaver St	**Project Name:**	Fernald Woodside
City, State, Zip:	Waltham MA 02453	**Primary Contact:**	S. Boyle
Fax Number:	781 893 4414	**Office Phone:**	781 893 8330
Email Address:	SBoyle@hubtesting.net	**Cell Phone:**	781 389 2181

PLM Instructions:

- ☒ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- ☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- ☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- ☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

E-MAILED

- ☐ PLM: Point Counting
  - ☐ PC: via ELAP 198.1
  - ☐ PC: 400 Points
  - ☐ PC: 800 Points *
  - ☐ PC: 1600 Points *
- ☐ PLM: Instructions for Multi-Layered Samples
  - ☐ Analyze and Report All Separable Layers per EPA 600
  - ☐ Report Composite for Drywall Systems per NESHAP
  - ☐ Report All Layers and Composite Where Applicable
  - ☐ Only Analyze and Report Specifically Noted Layer
- ☒ PLM: Analyze Until Positive (Positive Stop)
  - ☒ ~~AUP: by Homogenous Area as Noted~~
  - ☒ AUP: by Material Type as Noted
- ☐ PLM: NOB via 198.6
  - ☐ PLM: Friable via EPA 600 2.3
  - ☐ If <1% by PLM, to TEM via 198.4 *
  - ☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material*,** (Dust, Wipe, Tape)
  - ☐ Soil or Vermiculite Analysis*
  - ☐ CARB 435

Special Instructions: See attached for sample ID, material + [illegible]

** Additional charge and turnaround may be required* *** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory*

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time)

☐ Verbal ☒ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☐ 3 Day ☐ 2 Day ☒ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	Susan Boyle	Date: 3/28/16	Time:
Received (Name / iATL):		Date:	Time:
Sample Login (Name / iATL):	lev 032916	Date:	Time:
Analysis(Name(s) / iATL):	MM	Date: 3/29/16	Time:
QA/QC Review (Name / iATL):		Date: 03/30/16	Time:
Archived / Released: _____ QA/QC InterLAB Use:		Date:	Time:

RECEIVED MAR 29 2016 iATL - By

26061

Hub Testing Laboratory, Inc.
95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: Woodside **Inspector:** JB **Date:** 5-22

Building description: TS1 = F6

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples
	12x12 WHITE VCT	WHITE			5892128		1 CTR #1
					5892129		2 " #13
	ASSOC MASTIC	BLACK			5892130		3 CTR #1
					5892131		4 " #13
	12" RED VCT	RED			5892132		5 CTR #19
					5892133		6 CTR #5
	ASSOC MASTIC	BLACK			5892134		7 CTR #19
					5892135		8 CTR #5
	12" TAN VCT	TAN			5892136		9 CTR #27
					5892137		10 " GA
	ASSOC MASTIC	BLACK			5892138		11 CTR #27
					5892139		12 " GA
	6" RED CFT GROUT	GRAY			5892140		13 Room 2
					5892141		14 #9

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Example 001-1-A
Please perform a first positive stop on analysis.

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

Z6061

Hub Testing Laboratory, Inc.
95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: WOODSIDE **Inspector:** ______ **Date:** 3-22-16

Building description: ______

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples
	12" ~~HEAVY~~ FISS HEAVY FISS CT SPLINE	GRAY				5892142 5892143	15 CTR #1 16 CTR #27
	2x2 HEAVY FISS SUSP CT	GRAY				5892144 5892145	17 Room 6 18 #14
	BLUE SHEET VINYL	BLUE		Room 4 & 3	NEGOO	5892146 5892147	19 CTR #4 20 " #3
	ABGOC ADHESIVE	TAN/BLACK		" "		5892148 5892149	21 CTR #4 22 " #3
	1"x1" CFT GROUT/ADHES	IVO GRAY				5892150 ~~Adhesive~~ 5892152	grout 5892151 Adhesive 23 #23 23A #23 24 5892153 24A ✓
	4"x4" CWT GROUT/ADHESIVE	WHITE				5892154 5892156	5892155 25 #23 5892157 #23 26 #30 26A - #30
	6"x12" CWT	GRAY		FOOTERS OF WALLS			~~27~~ SCE 34, 65 ~~28~~

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Example 001-1-A
Please perform a first positive stop on analysis.

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: ______ Date: ______ Time: ______

Received By: ______ Date: ______ Time: ______

260061

Hub Testing Laboratory, Inc.
95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Page 3 of 5

Building Number: Woodside 3 **Inspector:** _____ **Date:** _____

Building description: _____

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples
	6" COVE BASE MASTIC	BRO		PARTIAL WALLS & SELECT PERIMETER		5892158 29 5892153 30	#6 #13
	REINFORCED WINDOW GRAZE			UNDER KICKER STRIPS ON REINFORCED WINDOW WALLS RM 8	460 LF	~~31~~ ~~32~~	FOAM
	TROWELED ON PLASTER	LT GRAY		THROUGHOUT G1	24000 SF	5892160 33 5892161 34 5892162 35	#1 #4 #6
						5892163 36 5892164 37 5892165 38	#27 #8 #9
						5892166 39 5892167 40 5892168 41	#13 #14 #15
	SKIM (TOP) COAT	WHITE				5892169 42 5892170 43 5892171 44	#19 #4 #27
	BROWN COAT					5892172 45 5892173 46 5892174 47	#6 #15 #14

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Example 001-1-A
Please perform a first positive stop on analysis.

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

260061

Hub Testing Laboratory, Inc.
95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: WOODSIDE **Inspector:** _____ **Date:** 3-22-16

Building description: _____

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples
	SKIM				5892175	48	#8
	BROWN COAT				5892176	49	#19
					5892177	50	#4
					5892178	51	#27
					5892179	52	#6
					5892180	53	#15
					5892181	54	#14
					5892182	55	#8
	SR				5892183	56	#19
					5892184	57	#4
	SL				5892185	58	#19
					5892186	59	#4
	FG TSI END SEAL (PIPE)			MECH ROOM ON HOT SUPPLY/RETURN	1 ea 5892187	60	HOT SUPPLY FROM POWER DUCT
					5892188	61	" RETURN " " "

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Example 001-1-A
Please perform a first positive stop on analysis.

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

26061

Hub Testing Laboratory, Inc.

95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: _____ **Inspector:** _____ **Date:** _____

Building description: WOODSIDE

HM#	Homogeneous Area of Suspect Material Description	Photo	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	2x2 SM FISSURED SURF CT	GRAY		KITCHEN		5992189 5992190	62 FRONT 9 63 CTR 9	
	12"X6" CWT BLOCK GROUT	GRAY		BOTTOM OF WALLS		5992191 5992192	64 #8 65 #12	
	WOOD TRIM ADHESIVE	BROWN TAN		UNDER WOOD TRIM ON PARTITION WALLS	≈ 400 L.F.	5892193 5892194	66 #14 67 #4	
	SIDE DOOR CAULKING	BLACK		SIDE DOOR FRAMES	≈ 40 L.F.	~~5892195~~ 5892196	68 #5 GRAY 69 #20 EXT (SIDE)	
	FRONT DOOR CAULK	BEIGE		FRONT ENTRANCE DOOR.	≈ 24 L.F.	5892197 5892198	70 RIGHT DOOR 71 LEFT DOOR	
	EXTERIOR WINDOW CAULK	DK BROWN		EXTERIOR C WINDOW PERIMETER	- - - -	5892199 5892200	72 #4 CONT. 73 #18 "	

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. **Example 001-1-A**
Please perform a first positive stop on analysis.

Sample Custody

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892128 **Client No.:** 1	**Description:** Lt.Tan/Lt.Green Floor Tile; 12x12 **Facility:**	**Location:** Ctr #1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892129 **Client No.:** 2	**Description:** Lt.Tan/Lt.Green Floor Tile; 12x12 **Facility:**	**Location:** Ctr #13
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892130 **Client No.:** 3	**Description:** Black Mastic **Facility:**	**Location:** Ctr #1
Percent Asbestos: *PC 1.6 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.4
Lab No.: 5892131 **Client No.:** 4	**Description:** Sample Not Analyzed **Facility:**	**Location:** Ctr #13
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5892132 **Client No.:** 5	**Description:** Red/Brown/Orange Floor Tile; 12" **Facility:**	**Location:** Ctr #19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892133 **Client No.:** 6	**Description:** Red/Brown/Orange Floor Tile; 12" **Facility:**	**Location:** Ctr #5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892134 **Client No.:** 7	**Description:** Black Mastic **Facility:**	**Location:** Ctr #19
Percent Asbestos: *PC 1.4 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892135 **Client No.:** 8	**Description:** Sample Not Analyzed **Facility:**	**Location:** Ctr #5
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5892136 **Client No.:** 9	**Description:** Black Floor Tile; 12" **Facility:**	**Location:** Ctr #27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892137 **Client No.:** 10	**Description:** Tan Floor Tile; 12" **Facility:**	**Location:** Ctr #GA
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892138 **Client No.:** 11	**Description:** Black Mastic **Facility:**	**Location:** Ctr #27
Percent Asbestos: *PC 1.8 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.2
Lab No.: 5892139 **Client No.:** 12	**Description:** Sample Not Analyzed **Facility:**	**Location:** Ctr #6A
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892140 **Client No.:** 13	**Description:** Lt.Grey Grout **Facility:**	**Location:** Ctr Room 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892141 **Client No.:** 14	**Description:** Lt.Grey Grout **Facility:**	**Location:** Ctr #9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892142 **Client No.:** 15	**Description:** White/Lt.Tan Ceiling Tile: 12" **Facility:**	**Location:** Ctr #1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Mineral Wool	Percent Non-Fibrous Material: 10
Lab No.: 5892143 **Client No.:** 16	**Description:** White/Lt.Tan Ceiling Tile: 12" **Facility:**	**Location:** Ctr #27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Mineral Wool	Percent Non-Fibrous Material: 10
Lab No.: 5892144 **Client No.:** 17	**Description:** Lt.Grey/Tan/Silver Ceiling Tile; 12" **Facility:**	**Location:** Ctr Roger 6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Cellulose 80 Mineral Wool	Percent Non-Fibrous Material: 20
Lab No.: 5892145 **Client No.:** 18	**Description:** Lt.Grey/Tan/Silver Ceiling Tile; 12" **Facility:**	**Location:** Ctr #14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Cellulose 80 Mineral Wool	Percent Non-Fibrous Material: 20

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892146 **Client No.:** 19	**Description:** Lt.Blue Vinyl Sheet Flooring **Facility:**	**Location:** Ctr #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 15 Cellulose	Percent Non-Fibrous Material: 85
Lab No.: 5892147 **Client No.:** 20	**Description:** Lt.Blue Vinyl Sheet Flooring **Facility:**	**Location:** Ctr #3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 15 Cellulose	Percent Non-Fibrous Material: 85
Lab No.: 5892148 **Client No.:** 21	**Description:** Tan/Black Mastic **Facility:**	**Location:** Ctr #4
Percent Asbestos: ***PC 0.5 Chrysotile***	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.5
Lab No.: 5892149 **Client No.:** 22	**Description:** Tan/Black Mastic **Facility:**	**Location:** Ctr #3
Percent Asbestos: ***PC 0.3 Chrysotile***	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.7
Lab No.: 5892150 **Client No.:** 23	**Description:** Lt.Grey Grout **Facility:**	**Location:** Ctr #23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892151 **Client No.:** 23A	**Description:** Off-White Mastic **Facility:**	**Location:** Ctr #23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892152 **Client No.:** 24	**Description:** Lt.Grey Grout **Facility:**	**Location:** Ctr #23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892153 **Client No.:** 24A	**Description:** Lt.Grey Cementitious **Facility:**	**Location:** Ctr #23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892154 **Client No.:** 25	**Description:** White Grout **Facility:**	**Location:** Ctr #23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892155 **Client No.:** 25A	**Description:** Off-White Mortar **Facility:**	**Location:** Ctr #23
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892156 **Client No.:** 26	**Description:** Brown Mastic **Facility:**	**Location:** Ctr #30
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892157 **Client No.:** 26A	**Description:** Off-White Mortar **Facility:**	**Location:** Ctr #30
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
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Telephone: 856-231-9449
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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory. Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892158 **Client No.:** 29	**Description:** Brown Mastic **Facility:**	**Location:** Ctr #6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892159 **Client No.:** 30	**Description:** Brown Mastic **Facility:**	**Location:** Ctr #13
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892160 **Client No.:** 33	**Description:** Lt.Grey Texture/Plaster **Facility:**	**Location:** Ctr #1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892161 **Client No.:** 34	**Description:** Lt.Grey Texture/Plaster **Facility:**	**Location:** Ctr #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892162 **Client No.:** 35	**Description:** Lt.Grey Texture/Plaster **Facility:**	**Location:** Ctr #6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892163 **Client No.:** 36	**Description:** Lt.Grey Texture/Plaster **Facility:**	**Location:** Ctr #27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892164 **Client No.:** 37	**Description:** Lt.Grey Texture/Plaster **Facility:**	**Location:** Ctr #8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892165 **Client No.:** 38	**Description:** Lt.Grey Texture/Plaster **Facility:**	**Location:** Ctr #9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892166 **Client No.:** 39	**Description:** Lt.Grey Texture/Plaster **Facility:**	**Location:** Ctr #13
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892167 **Client No.:** 40	**Description:** Lt.Grey Texture/Plaster **Facility:**	**Location:** Ctr #14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892168 **Client No.:** 41	**Description:** Lt.Grey Texture/Plaster **Facility:**	**Location:** Ctr #15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892169 **Client No.:** 42	**Description:** White Plaster **Facility:**	**Location:** Ctr #19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892170 **Client No.:** 43	**Description:** White Plaster **Facility:**	**Location:** Ctr #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892171 **Client No.:** 44	**Description:** White Plaster **Facility:**	**Location:** Ctr #27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892172 **Client No.:** 45	**Description:** White Plaster **Facility:**	**Location:** Ctr #6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892173 **Client No.:** 46	**Description:** White Plaster **Facility:**	**Location:** Ctr #15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892174 **Client No.:** 47	**Description:** White Plaster **Facility:**	**Location:** Ctr #14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892175 **Client No.:** 48	**Description:** White Plaster **Facility:**	**Location:** Ctr #8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892176 **Client No.:** 49	**Description:** Tan Plaster **Facility:**	**Location:** Ctr #19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892177 **Client No.:** 50	**Description:** Tan Plaster **Facility:**	**Location:** Ctr #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892178 **Client No.:** 51	**Description:** Tan Plaster **Facility:**	**Location:** Ctr #27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892179 **Client No.:** 52	**Description:** Tan Plaster **Facility:**	**Location:** Ctr #6
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892180 **Client No.:** 53	**Description:** Tan Plaster **Facility:**	**Location:** Ctr #15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892181 **Client No.:** 54	**Description:** Tan Plaster **Facility:**	**Location:** Ctr #14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892182 **Client No.:** 55	**Description:** Tan Plaster **Facility:**	**Location:** Ctr #8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892183 **Client No.:** 56	**Description:** Tan Sheetrock **Facility:**	**Location:** Ctr #19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 93
Lab No.: 5892184 **Client No.:** 57	**Description:** Tan Sheetrock **Facility:**	**Location:** Ctr #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Cellulose Trace Fibrous Glass	Percent Non-Fibrous Material: 98
Lab No.: 5892185 **Client No.:** 58	**Description:** White Plaster **Facility:**	**Location:** Ctr #19
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892186 **Client No.:** 59	**Description:** White Joint Compound **Facility:**	**Location:** Ctr #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892187 **Client No.:** 60	**Description:** Tan/White Mastic **Facility:**	**Location:** Hot Supply From Power Plant
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Mineral Wool	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892188 **Client No.:** 61	**Description:** Tan/White Mastic **Facility:**	**Location:** Hot Return From Power Plant
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Mineral Wool	Percent Non-Fibrous Material: 100
Lab No.: 5892189 **Client No.:** 62	**Description:** White/Grey Ceiling Tile: 2x2 **Facility:**	**Location:** Front 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 80 Mineral Wool	Percent Non-Fibrous Material: 20
Lab No.: 5892190 **Client No.:** 63	**Description:** White/Grey Ceiling Tile: 2x2 **Facility:**	**Location:** Ctr #9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 65 Cellulose 5 Mineral Wool	Percent Non-Fibrous Material: 30
Lab No.: 5892191 **Client No.:** 64	**Description:** Lt.Tan Grout **Facility:**	**Location:** Ctr #8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892192 **Client No.:** 65	**Description:** Tan Mastic **Facility:**	**Location:** Ctr #12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892193 **Client No.:** 66	**Description:** Tan Mastic **Facility:**	**Location:** Ctr #14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892194 **Client No.:** 67	**Description:** Tan Mastic **Facility:**	**Location:** Ctr #4
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892195 **Client No.:** 68	**Description:** Dk.Brown Caulk **Facility:**	**Location:** Ctr #5 Exit
Percent Asbestos: ***PC 0.5** Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.5
Lab No.: 5892196 **Client No.:** 69	**Description:** Dk.Brown Caulk **Facility:**	**Location:** Ctr #20 Exit (Side)
Percent Asbestos: ***PC 0.75** Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 99.25
Lab No.: 5892197 **Client No.:** 70	**Description:** Lt.Grey Caulk **Facility:**	**Location:** Right Door
Percent Asbestos: ***PC 1.2** Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.8
Lab No.: 5892198 **Client No.:** 71	**Description:** Sample Not Analyzed **Facility:**	**Location:** Left Door
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5892199 **Client No.:** 72	**Description:** Dk.Grey Caulk **Facility:**	**Location:** Ctr #4 Exit
Percent Asbestos: ***PC 1.8** Chrysotile*	Percent Non-Asbestos Fibrous Material: 3 Synthetic	Percent Non-Fibrous Material: 95.2

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 3/30/2016
Report No.: 506305 - PLM
Project: Fernald Woodside
Project No.: 26061

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892200
Client No.: 73

Description: Sample Not Analyzed
Facility:

Location: Ctr #18

Percent Asbestos:
Sample Not Analyzed

Percent Non-Asbestos Fibrous Material:
Sample Not Analyzed

Percent Non-Fibrous Material:

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/30/2016 12:53:34 AM
Signature:
Analyst: Muhammad Mirza

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

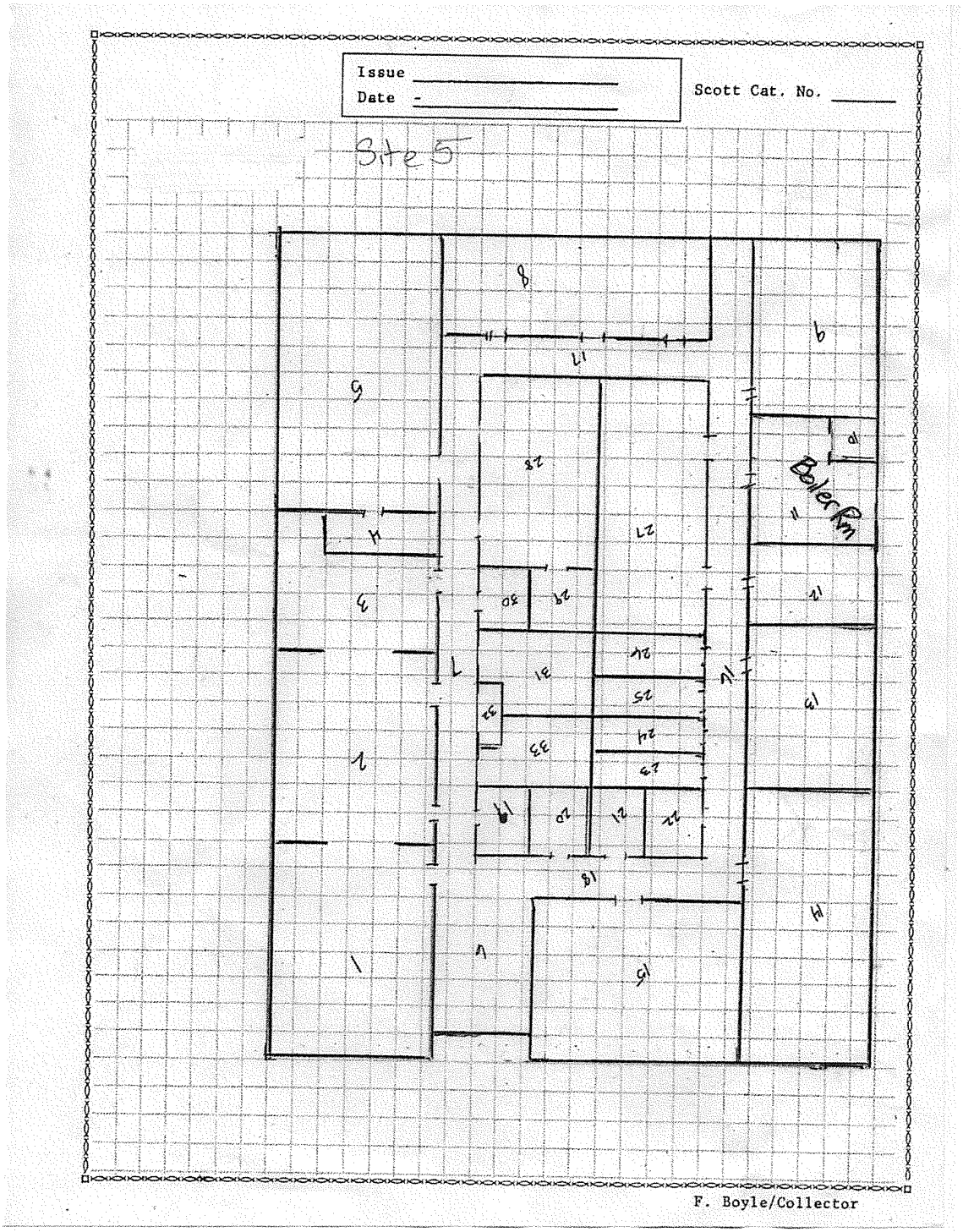
Attachment D

Site 5

HA Description	Sample ID - 26055	Sample Location	Location of HA	Quantity	Asbestos Yes/No
*12"x12" Tan vinyl composite floor tile with black accent	1	Right center Rm 2	Throughout except for Rms 3, 8, 23, 24, 25, 26, 29 , 31, 32, 33	≈ 10,000 SF	No
	2	Front Rm 9			
Associated mastic	3	Right center Rm 2	Throughout except for Rms 3, 8, 23, 24, 25, 26, 29 , 31, 32, 33		Yes
	4	Front Rm 9			
6"x6" Red ceramic floor tile grout	5	Left, Rm 8	Rms 3, 8	≈ 800 SF	No
	6	Center Rm 3			
2'x2' Fissured suspended ceiling tile	7	Right, Rm 2	Throughout except Rm 3 and the ends of Room 8	≈ 10,000 SF	No
	8	Front, Rm 9			
2'x2' Pin hole suspended ceiling tile	9	Right Rm 8	Rm 3 and the ends of Rm 8	≈ 700 SF	No
	10	Center, Rm 3			
1"x1" Ceramic floor tile grout	11A	Rm 25	Rm 23-26 and 29, 31, 32 and 33	≈ 1000 SF	No
	12A	Rm 31			
1"x1" Ceramic floor tile adhesive	11B	Rm 25	Rm 23-26 and 29, 31, 32 and 33	≈ 1000 SF	No
	12B	Rm 31			
4"x4" Ceramic wall tile grout	13A	Rm 25	Rm 23-26 and 29, 31, 32 and 33	≈ 8000 SF	No
	14A	Rm 31			
4"x4" Ceramic wall tile adhesive	13B	Rm 25	Rm 23-26 and 29, 31, 32 and 33	≈ 8000 SF	No
	14B	Rm 31			
4" Gray cove base mastic	15	Front Rm 9	Throughout except for Rms 3, 8,23, 24, 25, 26, 29, 31, 32, 33		No
	16	Left Rm 2			
Sheetrock	17	Right center Rm 2	Throughout		No
	18	Front right, Rm 14			
Drywall joint compound	19	Front Rm 2	Throughout		No
	20	Front right, Rm 14			
Exterior window and door caulking	21	Exterior door Rm 2	All windows and door frames		No
	22	Right entry door			
Textured ceiling plaster	23	Right entry	"Front exterior ceiling entry" Outside of area 6		No
	24	Center entry			
	25	Left entry			
Top skim coat plaster	26	Rt center Rm 2	Throughout	>10,000 SF	No
	27	Center Rm 3			
	28	Front right Rm 14			
	29	Rear Rm 5			
	30	Left Rm 28			
	31	Front Rm 12			
	32	Left Boiler Rm			
	33	Right Rm 27			
	34	Left Rm 15			
Brown coat plaster	35	Right center Rm 2	Throughout		No
	36	Front right Rm 14			
	59	Area 1 stub wall			
	60	Area 28 perimeter wall			
	61	Area 9 perimeter wall			
	62	Rm 5			
	63	Rm 14			

HA Description	Sample ID - 26055	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Boiler exhaust insulation	37	Vent	Boiler room	≈ 40 LF, 1-2" diameter	No
	38	Tank			
	39	Exhaust			
Boiler insulation, packing, outer coat	40	Vent	Boiler room	≈ 40 LF, 1-2" diameter	No
	41	Tank			
	42	Exhaust			
Fiberboard under sheetrock	43	Front Rm 2	Throughout		No
	44	Right Rm 14			
Duct Seal, Red	45	Center boiler Rm	Boiler Rm	≈ 30 SF	No
	46	Left boiler Rm			
Boiler rope	47	Boiler 1	Boiler Rm		Yes
	48	Boiler 2			
Mud on ribs	49	Boiler	Boiler Rm		No
	50	Boiler			
Rope gasket between ribs	51	Boiler	Boiler Rm		Yes
	52	Boiler			
Duct seal, Gray	53	Right Rm 3	Outer 1.5ft duct		No
	54	Rm 14			
Slate sill joint caulk	55	Right Rm 14	Slate window sills	≈ 35 LF	No
	56	Left Rm 2			
Slate sill under caulk	57	Right Rm 14	Slate window sills	≈ 200 LF	No
	58	Left Rm 5			
Under sink coating on stainless steel sinks	64	Rm 8, right sink	Rm 8, 2 sinks	≈10 SF	Yes
	65	Rm 8, left sink			
Window caulking	66	Rm 15 @ hall	Re-enforced windows, Rm 7, 16, 17, 18, entrance windows and door	5 ≈ 2x4 windows and 160 LF @ entrance	Yes
	67	Rm 2			

*The flooring is adhered to the floor with black mastic which is asbestos containing. These materials cannot be separated for removal purposes. Flooring and mastic must be abated together.


Issue
Date
Scott Cat. No.
Site 5
Boiler Rm
F. Boyle/Collector

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Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

–Bulk Asbestos –

Contact Information

Client Company:	Hub Testing	**Project Number:**	26055
Office Address:	95 Beaver Street	**Project Name:**	
City, State, Zip:	Waltham, MA 02453	**Primary Contact:**	Susan Boyle
Fax Number:	781-893-8330 x 4414	**Office Phone:**	781-893-8330
Email Address:	LBrimhall@Hubtesting.net	**Cell Phone:**	

PLM Instructions:

- ☒ PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- ☐ PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- ☐ PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- ☐ PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- ☐ TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

E-MAILED 3/21

- ☐ PLM: Point Counting
  - ☐ PC: via ELAP 198.1
  - ☐ PC: 400 Points
  - ☐ PC: 800 Points *
  - ☐ PC: 1600 Points *
- ☐ PLM: Instructions for Multi-Layered Samples
  - ☐ Analyze and Report All Separable Layers per EPA 600
  - ☐ Report Composite for Drywall Systems per NESHAP
  - ☐ Report All Layers and Composite Where Applicable
  - ☒ Only Analyze and Report Specifically Noted Layer
- ☒ PLM: Analyze Until Positive (Positive Stop)
  - ☒ AUP: by Homogenous Area as Noted
  - ☐ AUP: by Material Type as Noted
- ☐ PLM: NOB via 198.6
  - ☐ PLM: Friable via EPA 600 2.3
  - ☐ If <1% by PLM, to TEM via 198.4 *
  - ☐ If <1% by PLM, Hold for Instructions
- ☐ PLM: Non-Building Material*,** (Dust, Wipe, Tape)
  - ☐ Soil or Vermiculite Analysis*
  - ☐ CARB 435

Special Instructions: Stop @ 1st positive for each homogeneous group.

** Additional charge and turnaround may be required* *** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory*

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date / time) ☐ Verbal ☒ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☒ 3 Day ☐ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	Lynne Brimhall	Date:	3/18/16	Time:	RECEIVED
Received (Name / iATL):		Date:		Time:	
Sample Login (Name / iATL):		Date:	3/22/16	Time:	
Analysis(Name(s) / iATL):	WRK	Date:	3-23-16	Time:	MAR 21 2016
QA/QC Review (Name / iATL):	dbe	Date:	3-24-16	Time:	
Archived / Released: _____	QA/QC InterLAB Use: _____	Date:		Time:	IATL-BY

1K03

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9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Sample Log

–Bulk Asbestos –

Client: Hub Testing Project: 26055

Sampling Date/Time: 3/18/16

Bulk Asbestos Sample Log			
Client Sample #	**iATL #**	**Location/Description**	**Notes**
Please see attached field sheets for sampling info. Please stop @ 1st ⊕ for each homogeneous grouping.			

Costello Dismantling

26055 Site 5

Hub Testing Laboratory, Inc.

95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Page 1 of 5

Building Number: Site 5D1 **Inspector:** J Branham SB AD1 **Date:** 3-18-16

Building description: Single Story, Flat Roof

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	12x12 Tan w/Black VCT w/Glue	Tan	NF	Throughout – Except 3, 8, 23, 24, 25, 26, 29, 31, 32, 33	≈ 10,000		1 RT CTR Rm 2 2 Front Rm 9	5884574 5884575
	6"x6" Red Ceramic Floor Tile w/Grout	Red	NF	3, 8	800 sf		5 Left Rm 8 6 CTR Rm 3	5884576 5884577
	2'x2' Fissured Susp. CT	Gray	F		≈ 10,000		7 RT Rm 2 8 Front Rm 9	5884578 5884579
	2'x2' Pinhole Susp. CT	Gray	F	3 and ends of 8	≈ 700		9 Right Rm 8 10 CTR Rm 3	5884580 5884581
	1"x1" Ceramic Floor Tile Grout (A)	Gray Adhesive (B)	NF	Bathrooms 8, 23, 24, 25, 26, 29, 31, 32, 33	≈ 1000 sf		11A, B Room 25 12A, B Rm 31	5884582 5884583 5884584 5884585
	4"x4" Ceramic Wall Tile Grout (A)	White Adhesive (B)	NF	" "	≈ 8000 sf		13 A, B Rm 25 14 A, B Rm 31	5884586 5884587 5884588 5884589
	4" Gray Cove Mastic	Tan	NF	Throughout			15 Front Rm 9 16 Left Rm 2	5884590 5884591

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. **Example 001-1-A**
Please perform a first positive stop on analysis.

1300

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: ______________ Date: ________ Time: ________

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26055 Site 5

Hub Testing Laboratory, Inc.
95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Page 2 of 5

Building Number: _____ **Inspector:** _____ **Date:** _____
Building description: _____

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	SHEET ROCK	GRAY	NF	THROUGHOUT	— — —		17- RT CTR RM 2	5884592
							18- FRONT RIGHT RM 14	5884593
	DRYWALL JOINT COMPOUND	WHITE	NF	" "	— — —		19- FRONT RM 2	5884594
							30- FRONT RT RM 14	5884595
	EXT WINDOW & DOOR CAULK	BROWN	NF	ALL WINDOWS & DOOR FRAMES	— — —		21- EXT DOOR RM 2	5884596
							22- RT ENTRY DOOR	5884597
	TEXTURED CEILING PLASTER	WHITE	NF	FRONT EXTERIOR CEILING ENTRY	≈50 ft		23- RIGHT ENTRY	5884598
							24- CENTER	5884599
							25- LEFT	5884600
	12"x12" TAN FT ASSOC. MASTIC	BLACK					3 RT CTR RM 2	5884601
							4 FRONT RM 9	5884602
	SKIM OVER SHEET ROCK (Top coat)				> 10,000		26- RT CTR RM 2	5884603
							27 CTR RM 3	5884604
							28 FRONT RT RM 14	5884605
							29 REAR RM 5	5884606
							30 LEFT RM 28	5884607
							31 FRONT RM 12	5884608

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Example 001-1-A
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F Friable
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SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

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26055 Site 5

Hub Testing Laboratory, Inc.

95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: SITE 501 **Inspector:** JB SB ABI **Date:** 3-18-16

Building description:

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
							32 LEFT Boiler Rm	5884608
							33 RT Rm 27	5884610
							34 LEFT Rm 15	5884611
	PLASTER BETWEEN SR & SKIM COAT (Brown coat)			THROUGHOUT			35 RT CTR Rm 2	5884612
							36 FRONT RT Rm 14	5884613
	BOILER EXHAUST INSULATION	WHITE		BOILER ROOM	≈ 40 LF 1-2" DIA		37 VENT	5884614
							38 TANK	5884615
							39 EXHAUST	5884616
	BOILER INSUL PATCHING OVER COM	GRAY		"	"		40 VENT	5884617
							41 TANK	5884618
							42 EXHAUST	5884619
	FIBER BOARD UNDER SHEETROCK	BROWN		THROUGHOUT	— — —		43 FRONT Rm 2	5884620
							44 RT Rm 14	5884621
	DUCT SEAL	RED		BOILER ROOM	≈ 30 LB		45 CTR BR	5884622
							46 LEFT BR	5884623
	boiler rope			"			47 Boiler 1.	5884624
							48 " 2.	5884625

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. **Example 001-1-A**
Please perform a first positive stop on analysis.

F Friable
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Sample Custody

Relinquished By: _____ Date: _____ Time: _____

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Z6055 Site 5

Hub Testing Laboratory, Inc.
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Page 4 of 5

Building Number: SITE 501 **Inspector:** JB SB AD **Date:** 3-18-16
Building description:

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	mud on ribs			boiler Rm			49 boiler 1	5884626
							50 " 2	5884627
	rope gasket between ribs			"			51 boiler 1	5884628
							52 " 2	5884629
	DUCT SEAL	GRAY		ON 1 1/2 FOOT DUCT	≈ 20 ft		53 ~~Area~~ RT Rm 3	5884630
							54 Rm 14	5884631
	SLATE SILL JOINT CAULK	BLACK		SLATE WINDOW SILLS	≈ 35 L.F.		55 ~~Rm~~ RT Rm 14	5884632
							56 LEFT Rm 2	5884633
	SLATE SILL UNDER CAULK	BLACK		UNDER SLATE SILLS	≈ 200 LF		57 RT ROOM 14	5884634
							58 LEFT Rm 5	5884635
	Brown coat						59 area 1 stub wall	5884636
							60 Area 28 perimeter wall	5884637
							61 Area 9 perimeter wall	5884638
	~~Under sink~~ Coating			~~Stainless steel sinks Rm 8~~		10ft	62 Rm 5	5884639
							63 Rm 14	5884640

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Please perform a first positive stop on analysis. **Example 001-1-A**

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Sample Custody

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26055 Site 5

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Page 5 of 5

Building Number: ______________ Inspector: ______________ Date: ______________

Building description: ______________

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	Under sink coating, stainless steel sinks			Rm 8. 2 stainless steel sinks	10 ⌀		64 Rm 8 - right 65 " - left	5884641 5884642
	Window caulking			re-inforced windows 7, 16, 17, 18 entrance window/door assembly	~~7, 16,~~ 16 [illegible] 6 2x4 window 5 window + ~~[illegible]~~		66 Rm 15 @ hall 67 Rm 2	5884643 5884644

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. **Example 001-1-A**

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Sample Custody

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Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 505711 - PLM
Project: Site 5
Project No.: 26055

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884574 **Client No.:** 1	**Description:** Off-White Floor Tile: 12x12 **Facility:**	**Location:** Rt Ctr Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884575 **Client No.:** 2	**Description:** Off-White Floor Tile: 12x12 **Facility:**	**Location:** Front Rm 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884576 **Client No.:** 5	**Description:** Grey Grout **Facility:**	**Location:** Left Rm 8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 3 Cellulose	Percent Non-Fibrous Material: 97
Lab No.: 5884577 **Client No.:** 6	**Description:** Grey Grout **Facility:**	**Location:** Ctr Rm 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884578 **Client No.:** 7	**Description:** White/Tan Ceiling Tile: 2x2 **Facility:**	**Location:** Rt Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Cellulose	Percent Non-Fibrous Material: 70
Lab No.: 5884579 **Client No.:** 8	**Description:** White/Tan Ceiling Tile: 2x2 **Facility:**	**Location:** Front Rm 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Mineral Wool 30 Cellulose	Percent Non-Fibrous Material: 40

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/21/2016
Date Analyzed: 3/23/2016 12:00:00 AM
Signature:
Analyst: Rodney Redman

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Telephone: 856-231-9449
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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 505711 - PLM
Project: Site 5
Project No.: 26055

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884580 **Client No.:** 9	**Description:** White/Tan Ceiling Tile; 2x2 **Facility:**	**Location:** Right Rm 8
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Mineral Wool 30 Cellulose	Percent Non-Fibrous Material: 40
Lab No.: 5884581 **Client No.:** 10	**Description:** White/Tan Ceiling Tile; 2x2 **Facility:**	**Location:** Ctr Rm 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Mineral Wool 30 Cellulose	Percent Non-Fibrous Material: 40
Lab No.: 5884582 **Client No.:** 11A	**Description:** Grey Grout **Facility:**	**Location:** Room 25
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884583 **Client No.:** 11B	**Description:** Off-White Mastic **Facility:**	**Location:** Room 25
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 50 Cellulose	Percent Non-Fibrous Material: 50
Lab No.: 5884584 **Client No.:** 12A	**Description:** Grey Grout **Facility:**	**Location:** Rm 31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884585 **Client No.:** 12B	**Description:** Off-White Mastic **Facility:**	**Location:** Rm 31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 50 Cellulose	Percent Non-Fibrous Material: 50

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Laboratory Director

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 505711 - PLM
Project: Site 5
Project No.: 26055

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884586 **Client No.:** 13A	**Description:** Pink Grout **Facility:**	**Location:** Rm 25
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884587 **Client No.:** 13B	**Description:** White Grout **Facility:**	**Location:** Rm 25
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884588 **Client No.:** 14A	**Description:** White Powder **Facility:**	**Location:** Rm 31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884589 **Client No.:** 14B	**Description:** Off-White Grout **Facility:**	**Location:** Rm 31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884590 **Client No.:** 15	**Description:** Tan Mastic **Facility:**	**Location:** Front Rm 9
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884591 **Client No.:** 16	**Description:** Tan Mastic **Facility:**	**Location:** Left Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - **US EPA 600, R93-116**. Please refer to the Appendix of this report for further information regarding your analysis.

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Laboratory Director

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Client: HUB949

Report Date: 4/7/2016
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Project No.: 26055

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884592 **Client No.:** 17	**Description:** Off-White Sheetrock **Facility:**	**Location:** Rt Ctr RM 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Fibrous Glass 2 Cellulose	Percent Non-Fibrous Material: 93
Lab No.: 5884593 **Client No.:** 18	**Description:** Off-White Sheetrock **Facility:**	**Location:** Front Right Rm 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 3 Fibrous Glass 2 Cellulose	Percent Non-Fibrous Material: 95
Lab No.: 5884594 **Client No.:** 19	**Description:** White Joint Compound **Facility:**	**Location:** Front RM 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884595 **Client No.:** 20	**Description:** White Joint Compound **Facility:**	**Location:** Front Rt Rm 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884596 **Client No.:** 21	**Description:** Brown Caulk **Facility:**	**Location:** Exit Door Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884597 **Client No.:** 22	**Description:** Brown Caulk **Facility:**	**Location:** Rt Entry Door
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

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Client: HUB949

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Report No.: 505711 - PLM
Project: Site 5
Project No.: 26055

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884598 **Client No.:** 23	**Description:** White Plaster **Facility:**	**Location:** Right Entry
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884599 **Client No.:** 24	**Description:** White Plaster **Facility:**	**Location:** Center Entry
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884600 **Client No.:** 25	**Description:** White Plaster **Facility:**	**Location:** Left Entry
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884601 **Client No.:** 3	**Description:** Black Mastic **Facility:**	**Location:** Rt Ctr Rm 2
Percent Asbestos: ***PC 1.9** Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.1
Lab No.: 5884602 **Client No.:** 4	**Description:** Sample Not Analyzed **Facility:**	**Location:** Front Rm 9
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5884603 **Client No.:** 26	**Description:** White Plaster **Facility:**	**Location:** Rt Ctr Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method - US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

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Client: HUB949

Report Date: 4/7/2016
Report No.: 505711 - PLM
Project: Site 5
Project No.: 26055

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884604 **Client No.:** 27	**Description:** White Plaster **Facility:**	**Location:** Ctr Rm 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884605 **Client No.:** 28	**Description:** White Plaster **Facility:**	**Location:** Front Rt Rm 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884606 **Client No.:** 29	**Description:** White Plaster **Facility:**	**Location:** Rear Rm 5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884607 **Client No.:** 30	**Description:** White Plaster **Facility:**	**Location:** Left Rm 28
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884608 **Client No.:** 31	**Description:** White Plaster **Facility:**	**Location:** Front Rm 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884609 **Client No.:** 32	**Description:** White Plaster **Facility:**	**Location:** Left Boiler Rm
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

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95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 505711 - PLM
Project: Site 5
Project No.: 26055

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884610 **Client No.:** 33	**Description:** White Plaster **Facility:**	**Location:** Rt Rm 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884611 **Client No.:** 34	**Description:** White Plaster **Facility:**	**Location:** Left Rm 15
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884612 **Client No.:** 35	**Description:** Tan Plaster **Facility:**	**Location:** Rt Ctr Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884613 **Client No.:** 36	**Description:** Tan Plaster **Facility:**	**Location:** Front Rt Rm 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884614 **Client No.:** 37	**Description:** White Insulation **Facility:**	**Location:** Vent
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Cellulose	Percent Non-Fibrous Material: 80
Lab No.: 5884615 **Client No.:** 38	**Description:** White Insulation **Facility:**	**Location:** Tank
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Cellulose	Percent Non-Fibrous Material: 80

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 505711 - PLM
Project: Site 5
Project No.: 26055

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884616 **Client No.:** 39	**Description:** White Insulation **Facility:**	**Location:** Exhaust
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Cellulose	Percent Non-Fibrous Material: 80
Lab No.: 5884617 **Client No.:** 40	**Description:** Tan Insulation **Facility:**	**Location:** Vent
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose 10 Mineral Wool	Percent Non-Fibrous Material: 80
Lab No.: 5884618 **Client No.:** 41	**Description:** Tan Insulation **Facility:**	**Location:** Tank
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Mineral Wool 10 Cellulose	Percent Non-Fibrous Material: 80
Lab No.: 5884619 **Client No.:** 42	**Description:** Tan Insulation **Facility:**	**Location:** Exhaust
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Mineral Wool 10 Cellulose	Percent Non-Fibrous Material: 80
Lab No.: 5884620 **Client No.:** 43	**Description:** Tan Fiberboard **Facility:**	**Location:** Front Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 95 Cellulose	Percent Non-Fibrous Material: 5
Lab No.: 5884621 **Client No.:** 44	**Description:** Tan Fiberboard **Facility:**	**Location:** Rt Rm 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 95 Cellulose	Percent Non-Fibrous Material: 5

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

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CERTIFICATE OF ANALYSIS

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Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 505711 - PLM
Project: Site 5
Project No.: 26055

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884622 **Client No.:** 45	**Description:** Red Mastic **Facility:**	**Location:** Ctr BR
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884623 **Client No.:** 46	**Description:** Red Mastic **Facility:**	**Location:** Left BR
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884624 **Client No.:** 47	**Description:** Off-White Fibrous **Facility:**	**Location:** Boiler 1
Percent Asbestos: *50 Chrysotile*	Percent Non-Asbestos Fibrous Material: 40 Synthetic	Percent Non-Fibrous Material: 10
Lab No.: 5884625 **Client No.:** 48	**Description:** Sample Not Analyzed **Facility:**	**Location:** Boiler 2
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5884626 **Client No.:** 49	**Description:** Grey Cementitious **Facility:**	**Location:** Boiler 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884627 **Client No.:** 50	**Description:** Grey Cementitious **Facility:**	**Location:** Boiler 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Mineral Wool	Percent Non-Fibrous Material: 98

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/21/2016
Date Analyzed: 3/23/2016 12:00:00 AM
Signature:
Analyst: Rodney Redman

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 505711 - PLM
Project: Site 5
Project No.: 26055

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884628 **Client No.:** 51	**Description:** Off-White Fibrous **Facility:**	**Location:** Boiler 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 98 Fibrous Glass	Percent Non-Fibrous Material: 2
Lab No.: 5884629 **Client No.:** 52	**Description:** Tan Fibrous **Facility:**	**Location:** Boiler 2
Percent Asbestos: ***50** Chrysotile*	Percent Non-Asbestos Fibrous Material: 40 Cellulose	Percent Non-Fibrous Material: 10
Lab No.: 5884630 **Client No.:** 53	**Description:** Grey Mastic **Facility:**	**Location:** Rt Rm 3
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884631 **Client No.:** 54	**Description:** Grey Mastic **Facility:**	**Location:** Rm 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884632 **Client No.:** 55	**Description:** Black Putty **Facility:**	**Location:** Rt Rm 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884633 **Client No.:** 56	**Description:** Black Putty **Facility:**	**Location:** Left Rm 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/21/2016
Date Analyzed: 3/23/2016 12:00:00 AM
Signature:
Analyst: Rodney Redman

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
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Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 505711 - PLM
Project: Site 5
Project No.: 26055

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884634 **Client No.:** 57	**Description:** Tan Putty **Facility:**	**Location:** Rt Room 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884635 **Client No.:** 58	**Description:** Tan Putty **Facility:**	**Location:** Left Rm 5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884636 **Client No.:** 59	**Description:** Tan/Grey Fibrous **Facility:**	**Location:** Area 1 Stub Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 95 Cellulose	Percent Non-Fibrous Material: 5
Lab No.: 5884637 **Client No.:** 60	**Description:** Tan Fibrous **Facility:**	**Location:** Area 28 Perimeter Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 95 Cellulose	Percent Non-Fibrous Material: 5
Lab No.: 5884638 **Client No.:** 61	**Description:** Tan/Grey Fibrous **Facility:**	**Location:** Area 9 Perimeter Wall
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 95 Cellulose	Percent Non-Fibrous Material: 5
Lab No.: 5884639 **Client No.:** 62	**Description:** White Plaster **Facility:**	**Location:** Rm 5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/21/2016
Date Analyzed: 3/23/2016 12:00:00 AM
Signature:
Analyst: Rodney Redman

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 505711 - PLM
Project: Site 5
Project No.: 26055

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5884640 **Client No.:** 63	**Description:** White Plaster **Facility:**	**Location:** Rm 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5884641 **Client No.:** 64	**Description:** Tan Undercoating **Facility:**	**Location:** Rm 8 Right
Percent Asbestos: ***PC 3.1*** *Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 96.9
Lab No.: 5884642 **Client No.:** 65	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 8 Left
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5884643 **Client No.:** 66	**Description:** Clear Glazing **Facility:**	**Location:** Rm 15 @ Hall
Percent Asbestos: ***PC 1.9*** *Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.1
Lab No.: 5884644 **Client No.:** 67	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rm 2
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/21/2016
Date Analyzed: 3/23/2016 12:00:00 AM
Signature:
Analyst: Rodney Redman

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

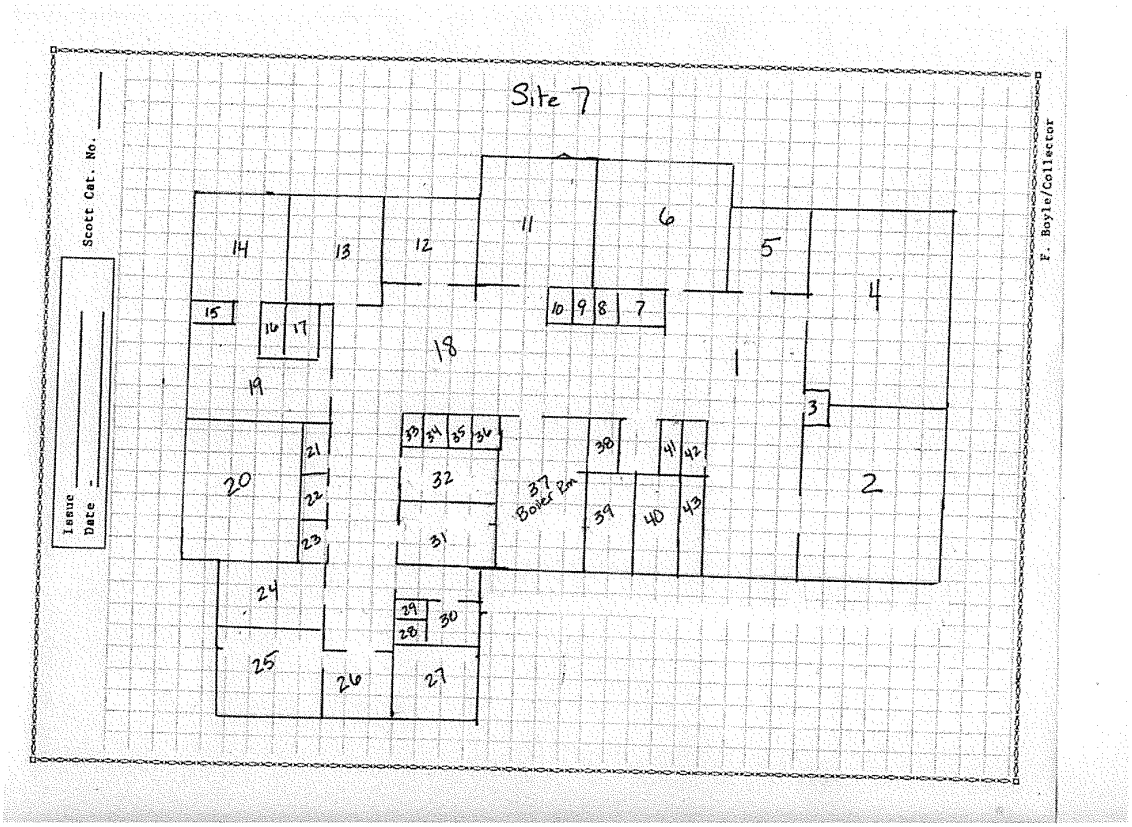
Attachment E

Site 7

HA Description	Sample ID-26073	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Epoxy flooring	1	Center area 2	Areas 1,2,4,6,11,13,14,18, 19,20,24,25,26,27	≈ 15,000 SF	No
	2	Center area 14			
12"x 12" Light tan vinyl composite floor tile	3	Center area 40	Areas 5,7,8,9,10,12,16,17,21, 22,23,28,29,30,38,39,40,41, 42,43	≈ 1,200 SF	No
	4	Center area 12			
Associated black mastic	5	Center area 40	Areas 5,7,8,9,10,12,16,17,21, 22,23,28,29,30,38,39,40,41, 42,43	≈ 1,200 SF	No
	6	Center area 12			
1"x 1" Multicolor ceramic floor tile grout	7	Front of area 35	Areas 31,32,33,34,35,36	≈ 350 SF	No
	8	Front of area 31			
1"x 1" Multicolor ceramic floor tile adhesive	9	Front of area 35	Areas 31,32,33,34,35,36	≈ 350 SF	No
	10	Front of area 31			
4"x4" Ceramic wall tile grout	11	Left area 35	Areas 31,32,33,34,35,36	≈ 1,000 SF	No
	12	Right area 31			
4"x4" Ceramic wall tile adhesive	13	Left area 35	Areas 31,32,33,34,35,36	≈ 1,000 SF	No
	14	Right area 31			
CMU grout	15	Corridor @ area 7	Corridors	≈ 4000 SF	No
	16	Corridor @ area 33			
Top coat white plaster over brown coat and sheetrock	17	Area 2	Throughout		No
	18	Area 27			
	19	Area 12			
	20	Area 14			
	21	Area 24			
	22	Area 25			
	23	Area 30			
Brown coat gray plaster over sheetrock	24	Area 2	Throughout		No
	25	Area 27			
	26	Area 12			
	27	Area 14			
	28	Area 24			
	29	Area 25			
	30	Area 30			
Glue daubs	31	Area 27	Behind the 4'x 12' bulletin boards in the classrooms. ≈ 18 bulletin boards	≈1,000 SF	No
	32	Area 24			
Sheetrock	33	Area 2	Throughout		No
	34	Area 27			
Associated drywall joint compound	35	Area 2	Throughout		No
	36	Area 27			
Slate window sill adhesive	37	Area 2	Classroom windows	≈ 500 LF	No
	38	Area 12			

HA Description	Sample ID-26073	Sample Location	Location of HA	Quantity	Asbestos Yes/No
2'x 2' Small fissured suspended ceiling tile	39	Area 1	Throughout except bathrooms and custodial closets	≈ 15,000 SF	No
	40	Area 27			
Textured plaster	41	Skylight by area 33	At skylights and the exterior portico at main entrance	≈ 600 SF	No
	42	Skylight by area 5			
	43	Portico at main entrance			
4" Tan cove base mastic	44	Area 42	Classrooms and offices		No
	45	Area 12			
Fiberglass thermal system insulation (TSI) pipe end cap material	46	Hot water supply in Area 37	Ends and fittings on pipe insulation in area 37	≈ 4 SF	No
	47	Hot water return in Area 37			
White (TSI). "Mag" type	48	Exhaust on boiler #1 in Area 37	Boiler room tank, breeching and exhaust in Area 37	≈ 200 SF	No
	49	Exhaust on boiler #1 in Area 37			
	50	Exhaust on boiler #2 in Area 37			
Duct sealant	51	Front Area 37	On large duct in boiler room Area 37	≈ 20 SF	No
	52	Center Area 37			
TSI (Pipe) solid hanger saddle insulation	53	Hot water supply right Area 37	On support hanger saddles for pipe runs	≈ 40 SF	No
	54	Hot water supply left Area 37			
Boiler rib insulation	55	Front of Boiler #1, Area 37	Boiler # 1 F96-204, Area 37	≈ 100 LF	No
	56	Center of Boiler #1, Area 37			
Door/access hatch insulation	57	Left front of Boiler #1, Area 37	Boiler # 1 F96-204, Area 37	≈ 2 SF	No
	58	Right front of Boiler #1, Area 37			
Boiler rib insulation	59	Front of Boiler #2	Boiler #2 - C82, Area 37	≈ 120 LF	Yes
	60	Rear of Boiler #2			
Plaster on boiler ribs	61	Front of Boiler #2	Boiler #2 - C82, Area 37	≈ 4 SF	Yes
	62	Rear of Boiler #2			
Access hatch rope gasket	63	Right front Boiler #2	Boiler #2 - C82, Area 37	≈ 7 LF	No
	64	Left front Boiler #2			
Exterior expansion joint caulking	65	Exterior, front center building	Exterior brick wall expansion joint at windows	≈ 50 LF	No
	66	Exterior, left rear building			

HA Description	Sample ID-26073	Sample Location	Location of HA	Quantity	Asbestos Yes/No
Exterior window caulk	67	Window by main entrance	Exterior windows, doors and vents		No
	68	Boiler room-Area 37 door			
Reinforced wire window glaze	69	Area 5 windows	Break rooms and Areas 5,12,30	≈ 250 LF	Yes
	70	Area 12 windows			
End packing on tanks	71	Center tank	Boiler room tanks, Area 37	≈ 10 SF	No
	72	Right tank			
Exterior skylight caulk	73	Roof skylights	Roof skylights	≈ 45 LF	No
	74	Roof skylights			



iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway, Suite B • Mount Laurel, NJ 08054
Phone: 877-428-4285/856-231-9449 • Fax: 856-231-9818

Chain of Custody

–Bulk Asbestos –

Contact Information

Client Company:	Hub Testing	**Project Number:**	26073
Office Address:	95 Beaver St	**Project Name:**	Fernald
City, State, Zip:	Waltham MA 02453	**Primary Contact:**	S Boyle
Fax Number:	781 893 4414	**Office Phone:**	781 893 8330
Email Address:	SBoyle@Hubtesting.net	**Cell Phone:**	781 389 2181

PLM Instructions:

- [X] PLM: Bulk Asbestos Building Materials EPA 600 R-93/116, 1993
- [ ] PLM: Bulk Asbestos Building Materials EPA 600 M-4/82-020, 1982
- [ ] PLM: Bulk Asbestos Building Materials NIOSH 9002, 1985
- [ ] PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.1, 2002
- [ ] PLM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.6, 2010
- [ ] TEM: Bulk Asbestos Building Materials NYSDOH-ELAP 198.4, 2009

E-MAILED

- [ ] PLM: Point Counting
  - [ ] PC: via ELAP 198.1
  - [ ] PC: 400 Points
  - [ ] PC: 800 Points *
  - [ ] PC: 1600 Points *
- [ ] PLM: Instructions for Multi-Layered Samples
  - [ ] Analyze and Report All Separable Layers per EPA 600
  - [ ] Report Composite for Drywall Systems per NESHAP
  - [ ] Report All Layers and Composite Where Applicable
  - [ ] Only Analyze and Report Specifically Noted Layer
- [X] PLM: Analyze Until Positive (Positive Stop)
  - [ ] AUP: by Homogenous Area as Noted
  - [X] AUP: by Material Type as Noted
- [ ] PLM: NOB via 198.6
  - [ ] PLM: Friable via EPA 600 2.3
  - [ ] If <1% by PLM, to TEM via 198.4 *
  - [ ] If <1% by PLM, Hold for Instructions
- [ ] PLM: Non-Building Material*,** (Dust, Wipe, Tape)
  - [ ] Soil or Vermiculite Analysis
  - [ ] CARB 435

Special Instructions: _____

** Additional charge and turnaround may be required* *** Alternative Method (ex: EPA 600/R-04/004) may be recommended by Laboratory*

Turnaround Time

Preliminary Results Requested Date: _____ (Specific date & time)

☐ Verbal ☒ Email ☐ Fax

☐ 10 Day ☐ 5 Day ☐ 3 Day ☒ 2 Day ☐ 1 Day* ☐ 12 Hour** ☐ 6 Hour** ☐ RUSH**

* End of next business day unless otherwise specified. ** Matrix Dependent. ***Please notify the lab before shipping***

Chain of Custody

Relinquished (Name/Organization):	[signature]	Date: 3/28/16	Time: 5:00 pm	
Received (Name / iATL):		Date:	Time:	
Sample Login (Name / iATL):		Date: 3/30/16	Time:	
Analysis(Name(s) / iATL):		Date: 3-31-16	Time:	
QA/QC Review (Name / iATL):	331.16	Date:	Time:	
Archived / Released: _____ QA/QC InterLAB Use: _____		Date:	Time:	

RECEIVED MAR 2 9 2016 ATL - By

26073

Hub Testing Laboratory, Inc.

95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building ~~Number~~: BLDG 7 **Inspector:** SB **Date:** 3-25-16

Building description: _____

HM#	Homogeneous Area of Suspect Material Description	~~Photo~~ Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	EPOXY FLOORING	GREEN	NF	CORRIDORS, SEE "X" ON DWG			1 #2 5892253 2 #14 5892254	
	12"x12" VCT	LT. TAN	"	SEE "□" ON DWG			3 #40 5892255 4 #12 5892256	
	ASSOC. MASTIC	BLACK		" "			5 #40 5892257 6 #12 5892258	
	1"x1" CFT GROUT	GRAY		SEE "●" ON DWG			7 #35 5892259 8 #31 5892260	
	" " ADHESIVE	GRAY		" "			9 #35 5892261 10 #31 5892262	
	4"x4" CWT GROUT	WHITE		ASSOC W/ "●" ON DWG			11 #35 5892263 12 #31 5892264	
	" " ADHESIVE	WHITE		" "			13 #35 5892265 14 #31 5892266	

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Example 001-1-A
Please perform a first positive stop on analysis.

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

26073

Hub Testing Laboratory, Inc.

95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: SITE 7 Inspector: JP Date: 3-25-16

Building description:

HM#	Homogeneous Area of Suspect Material Description	Photo	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	CMU GROUT	GRAY	NF	CORRIDORS			15 CORE B 7	5892267
							16 " #33	5892268
	SKIM COAT	WHITE		CLASSROOMS/OFFICES			17 #2	5892269
							18 #27	5892270
							19 #12	5892271
							20 #14	5892272
							21 #24	5892273
							22 #25	5892274
							23 #30	5892275
	BROWN COAT	GRAY		"			24 #2	5892276
							25 #17	5892277
							26 #12	5892278
							27 #14	5892279
							28 #24	5892280
							29 #25	5892281
							30 #30	5892282

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Please perform a first positive stop on analysis. Example 001-1-A

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

GLAZING IN DOOR WINDOWS IS SILAZONE

26075

Hub Testing Laboratory, Inc.

95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: SITE 7 **Inspector:** JB **Date:** 3-25-16

Building description:

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	GLUE DAUBS	BROWN	NF	5X10 CLASSROOM BULLITEN BOARDS W/ACOUSTICAL FINISH	≈ 18		31 #27 5892283 32 #24 5892284	
	SR	GRAY		CLASSROOMS, OFFICES			33 #2 5892285 34 #27 5892286	
	JC	WHITE		" "			36 #2 5892287 36 #27 5892288	
	SLATE WINDOW SILL ~~JOINT~~ AD-MASTIC *	BEIGE BLACK		CLASSROOM WINDOWS			37 #2 5892289 38 #12 5892290	
	2'x2' SMALL FISSURE SUSP CT	GRAY		ALL CEILING EXCEPT BATHS, CUST, CLOSETS & MAIN ENTRY HALL			39 #1 5892291 40 #27 5892292	
	TEXTURED PLASTER	WHITE		@ SKYLIGHTS (2) + EXT CEILING AT MAIN ENTRY	≈ 400 ft		5892293 41 SKYLIGHT B4 & 3 5892294 42 " " #5 5892295 43 PORTICO MAIN ENTRY	
	4" TAN COVE BASE MASTIC	BROWN		CLASSROOMS OFFICES			44 #42 5892296 45 #12 5892297	

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Please perform a first positive stop on analysis. **Example 001-1-A**

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

* JOINT CAULK IS SILICONE

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

26073

Hub Testing Laboratory, Inc.

95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: Site 7 **Inspector:** JB **Date:** 3-25-16

Building description:

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	F.G TSI UND CBP MATERIAL	GRAY	NF	BOILER ROOM PIPE INSULATION	≈ 45 ft	5892298 5892299	46 HOT WATER SUPPLY 47 " " RETURN	#37
	"MAG" TSI INS	WHITE	F	BOILER Room TANKS E BREECHING, EXHAUST	≈ 300 ft	5892300 5892301 5892302	48 EXHAUST B1 49 " " 50 " " B2	#37
	DUCT SEALANT	GREEN	NF	AT SEAMS ON DUCT IN BOILER ROOM	≈ 20 ft	5892303 5892304	51 FRONT BOILER 52 CTR 37	#37
	TSI (PIPE) SADDLE INSULATION	WHITE	F	AT HANGERS/SADDLES ON FIBERGLASS TSI	≈ 40 ft	5892305 5892306	53 HW SUPPLY RIGHT 54 " " LEFT	#37
	RIB INSULATION	WHITE	F	BOILER F96-284 BETWEEN RIBS	≈ 100 LF	5892307 5892308	55 FRONT B1 56 CTR B1	
	DOOR/ACCESS HATCH INSUL	WHITE	F	BOILER " " E	≈ 24 ft	5892309 5892310	57 LEFT B1 58 RIGHT B1	
	RIB INSULATION	WHITE	F	BOILER CB2	≈ 120 LF	5892311 5892312	59 FRONT B2 60 REAR B2	

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Please perform a first positive stop on analysis. **Example 001-1-A**

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

26073

Hub Testing Laboratory, Inc.

95 Beaver Street, Waltham, MA 02453 781/893-8330 fax 781/893-4414

Building Number: SMS 7
Building description:
Inspector: JB
Date: 3-25-16

HM#	Homogeneous Area of Suspect Material Description	Color	F/NF	Location HB SMITH BOILER C82 #2	Quantity	Condition (G/D/SD)	Samples	Sample Photos
	PLASTER ON RIBS.	GRAY	NF	AT JOINTS ON TOP OF RIBS	≈ 4	5892313 5892314	61 FRONT B2 62 REAR B2	37
	ACCESS HATCH ROPE GASKET	WHITE	F	ON HATCH DOOR AND OPENING	≈ 7 L	5892315 5892316	63 LEFT B2 64 RIGHT B2	
	EXTERIOR EXPANSION JOINT CAULK	WHITE	NF	EXT BRICK WALLS AT EXPANSION JOINTS AT WINDOWS	≈ 50 L	5892317 5892318	65 CTR FRONT 66 LEFT REAR	
	EXTERIOR WINDOW CAULK	BRN	NF	EXTERIOR WINDOWS & VENTS & DOORS	–	5892319 5892320	67 WINDOW BY ENTRANCE 68 BOILER RM DOOR	
	REINFORCED WINDOW GLAZE	TAN	NF	BREAK ROOMS 5, 12, 30	≈ 250	5892321 5892322	69 #5 70 #12	
	END PACKING ON TANKS	WHITE	F	BOILER RM TANKS	≈ 10	5892323 5892324	71 CENTER TANK 72 RIGHT TANK	37
	SKYLIGHT EXT CAULK	BLACK	NF	SKYLIGHTS ROOF	≈ 40	5892325 5892326	73 SKYLIGHT 74 [illegible]	

Note: Sample identification is Building number - Homogeneous Material number - A,B,C, etc. Please perform a first positive stop on analysis. Example 001-1-A

F Friable
NF Non Friable

G Good
D Damaged
SD Significantly Damaged

Sample Custody

Relinquished By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
Telephone: 856-231-9449
Email: customerservice@iatl.com

CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory, Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506309 - PLM
Project: Fernald
Project No.: 26073

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892253 **Client No.:** 1	**Description:** Green Flooring **Facility:**	**Location:** 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892254 **Client No.:** 2	**Description:** Green Flooring **Facility:**	**Location:** 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892255 **Client No.:** 3	**Description:** Off-White Floor Tile; 12x12 **Facility:**	**Location:** 40
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892256 **Client No.:** 4	**Description:** Off-White Floor Tile; 12x12 **Facility:**	**Location:** 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892257 **Client No.:** 5	**Description:** Black Mastic **Facility:**	**Location:** 40
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Synthetic	Percent Non-Fibrous Material: 90
Lab No.: 5892258 **Client No.:** 6	**Description:** Black Mastic **Facility:**	**Location:** 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Synthetic	Percent Non-Fibrous Material: 90

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

Date Received: 3/29/2016
Date Analyzed: 3/31/2016 6:05:00 AM
Signature: Rebecca Hargrove
Analyst: Rebecca Hargrove

Approved By: Frank E. Ehrenfeld, III
Laboratory Director

iATL INTERNATIONAL
ASBESTOS TESTING LABORATORIES

9000 Commerce Parkway Suite B
Mt. Laurel, New Jersey 08054
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CERTIFICATE OF ANALYSIS

Client: Hub Testing Laboratory. Inc.
95 Beaver Street
Waltham MA 02453

Client: HUB949

Report Date: 4/7/2016
Report No.: 506309 - PLM
Project: Fernald
Project No.: 26073

PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892259 **Client No.:** 7	**Description:** Grey Grout **Facility:**	**Location:** 35
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892260 **Client No.:** 8	**Description:** Grey Grout **Facility:**	**Location:** 31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892261 **Client No.:** 9	**Description:** White Fibrous **Facility:**	**Location:** 35
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 40 Cellulose	Percent Non-Fibrous Material: 60
Lab No.: 5892262 **Client No.:** 10	**Description:** White Fibrous **Facility:**	**Location:** 31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 80 Cellulose	Percent Non-Fibrous Material: 20
Lab No.: 5892263 **Client No.:** 11	**Description:** White Grout **Facility:**	**Location:** 35
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892264 **Client No.:** 12	**Description:** White Grout **Facility:**	**Location:** 31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

Analytical Method -US EPA 600, R93-116. Please refer to the Appendix of this report for further information regarding your analysis.

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Date Analyzed: 3/31/2016 6:05:00 AM
Signature:
Analyst: Rebecca Hargrove

Approved By:
Frank E. Ehrenfeld, III
Laboratory Director

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Client: HUB949

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892265 **Client No.:** 13	**Description:** White Mortar **Facility:**	**Location:** 35
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892266 **Client No.:** 14	**Description:** Grey/White Mortar **Facility:**	**Location:** 31
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892267 **Client No.:** 15	**Description:** Grey Grout **Facility:**	**Location:** 7
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892268 **Client No.:** 16	**Description:** Grey/White Grout **Facility:**	**Location:** 33
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892269 **Client No.:** 17	**Description:** White Plaster **Facility:**	**Location:** 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892270 **Client No.:** 18	**Description:** White Plaster **Facility:**	**Location:** 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892271 **Client No.:** 19	**Description:** White Plaster **Facility:**	**Location:** 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892272 **Client No.:** 20	**Description:** White Plaster **Facility:**	**Location:** 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892273 **Client No.:** 21	**Description:** White Plaster **Facility:**	**Location:** 24
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892274 **Client No.:** 22	**Description:** White Plaster **Facility:**	**Location:** 25
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892275 **Client No.:** 23	**Description:** White Plaster **Facility:**	**Location:** 30
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892276 **Client No.:** 24	**Description:** Grey Plaster **Facility:**	**Location:** 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892277 **Client No.:** 25	**Description:** Grey Plaster **Facility:**	**Location:** 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892278 **Client No.:** 26	**Description:** Grey Plaster **Facility:**	**Location:** 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892279 **Client No.:** 27	**Description:** Grey Plaster **Facility:**	**Location:** 14
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892280 **Client No.:** 28	**Description:** Grey Plaster **Facility:**	**Location:** 24
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892281 **Client No.:** 29	**Description:** Grey Plaster **Facility:**	**Location:** 25
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892282 **Client No.:** 30	**Description:** Grey Plaster **Facility:**	**Location:** 30
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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Analyst: Rebecca Hargrove

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892283 **Client No.:** 31	**Description:** Brown Mastic **Facility:**	**Location:** 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Wollastonite	Percent Non-Fibrous Material: 95
Lab No.: 5892284 **Client No.:** 32	**Description:** Brown Mastic **Facility:**	**Location:** 24
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 5 Wollastonite	Percent Non-Fibrous Material: 95
Lab No.: 5892285 **Client No.:** 33	**Description:** Grey/Tan Sheetrock **Facility:**	**Location:** 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 25 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 73
Lab No.: 5892286 **Client No.:** 34	**Description:** Grey/Tan Sheetrock **Facility:**	**Location:** 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 20 Cellulose 1 Fibrous Glass	Percent Non-Fibrous Material: 79
Lab No.: 5892287 **Client No.:** 35	**Description:** White Joint Compound **Facility:**	**Location:** 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892288 **Client No.:** 36	**Description:** White Joint Compound **Facility:**	**Location:** 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892289 **Client No.:** 37	**Description:** Off-White Mastic **Facility:**	**Location:** 2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892290 **Client No.:** 38	**Description:** Off-White Mortar **Facility:**	**Location:** 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892291 **Client No.:** 39	**Description:** Grey/White Ceiling Tile; 2x2 **Facility:**	**Location:** 1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 50 Fibrous Glass 35 Cellulose	Percent Non-Fibrous Material: 15
Lab No.: 5892292 **Client No.:** 40	**Description:** Grey/White Ceiling Tile; 2x2 **Facility:**	**Location:** 27
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 50 Fibrous Glass 35 Cellulose	Percent Non-Fibrous Material: 15
Lab No.: 5892293 **Client No.:** 41	**Description:** White Plaster **Facility:**	**Location:** Skylight By 33
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892294 **Client No.:** 42	**Description:** White Plaster **Facility:**	**Location:** Skylight By 5
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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Analyst: Rebecca Hargrove

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892295 **Client No.:** 43	**Description:** White Plaster **Facility:**	**Location:** Main Entry
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892296 **Client No.:** 44	**Description:** Brown Mastic **Facility:**	**Location:** 42
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Talc	Percent Non-Fibrous Material: 98
Lab No.: 5892297 **Client No.:** 45	**Description:** Brown Mastic **Facility:**	**Location:** 12
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Talc	Percent Non-Fibrous Material: 98
Lab No.: 5892298 **Client No.:** 46	**Description:** White Wrap **Facility:**	**Location:** Hot Water Supply
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Synthetic	Percent Non-Fibrous Material: 98
Lab No.: 5892299 **Client No.:** 47	**Description:** White Wrap **Facility:**	**Location:** Hot Water Return
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Synthetic	Percent Non-Fibrous Material: 98
Lab No.: 5892300 **Client No.:** 48	**Description:** Grey Insulation **Facility:**	**Location:** Exhaust B1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 10 Cellulose 40 Fibrous Glass	Percent Non-Fibrous Material: 50

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892301 **Client No.:** 49	**Description:** White Insulation **Facility:**	**Location:** Exhaust B1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Fibrous Glass 2 Synthetic	Percent Non-Fibrous Material: 96
Lab No.: 5892302 **Client No.:** 50	**Description:** White/Grey Insulation **Facility:**	**Location:** Exhaust B2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 15 Fibrous Glass 2 Cellulose 1 Synthetic	Percent Non-Fibrous Material: 82
Lab No.: 5892303 **Client No.:** 51	**Description:** Grey/Green Sealant **Facility:**	**Location:** Front Boiler
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892304 **Client No.:** 52	**Description:** Grey/Green Sealant **Facility:**	**Location:** CTR 37
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892305 **Client No.:** 53	**Description:** White Insulation **Facility:**	**Location:** HW Supply Right
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 2 Fibrous Glass 2 Synthetic	Percent Non-Fibrous Material: 96
Lab No.: 5892306 **Client No.:** 54	**Description:** White Insulation **Facility:**	**Location:** HW Supply Left
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 25 Cellulose 2 Fibrous Glass	Percent Non-Fibrous Material: 73

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892307 **Client No.:** 55	**Description:** Grey Insulation **Facility:**	**Location:** Front B1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass 2 Cellulose	Percent Non-Fibrous Material: 8
Lab No.: 5892308 **Client No.:** 56	**Description:** Grey Insulation **Facility:**	**Location:** CTR B1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass Trace Cellulose	Percent Non-Fibrous Material: 10
Lab No.: 5892309 **Client No.:** 57	**Description:** White Insulation **Facility:**	**Location:** Left B1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 85 Fibrous Glass	Percent Non-Fibrous Material: 15
Lab No.: 5892310 **Client No.:** 58	**Description:** White/Grey Insulation **Facility:**	**Location:** Right B1
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 75 Fibrous Glass	Percent Non-Fibrous Material: 25
Lab No.: 5892311 **Client No.:** 59	**Description:** Grey/Off-White Insulation **Facility:**	**Location:** Front B2
Percent Asbestos: *50 Chrysotile*	Percent Non-Asbestos Fibrous Material: Trace Cellulose	Percent Non-Fibrous Material: 50
Lab No.: 5892312 **Client No.:** 60	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rear B2
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892313 **Client No.:** 61	**Description:** Grey Plaster **Facility:**	**Location:** Front B2
Percent Asbestos: *PC 5.8 Chrysotile*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 94.2
Lab No.: 5892314 **Client No.:** 62	**Description:** Sample Not Analyzed **Facility:**	**Location:** Rear B2
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5892315 **Client No.:** 63	**Description:** White/Grey Gasket **Facility:**	**Location:** Left B2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass 5 Cellulose	Percent Non-Fibrous Material: 5
Lab No.: 5892316 **Client No.:** 64	**Description:** White Gasket **Facility:**	**Location:** Right B2
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 90 Fibrous Glass 5 Cellulose	Percent Non-Fibrous Material: 5
Lab No.: 5892317 **Client No.:** 65	**Description:** Grey Caulk **Facility:**	**Location:** CTR Front
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Fibrous Glass	Percent Non-Fibrous Material: 100
Lab No.: 5892318 **Client No.:** 66	**Description:** Grey Caulk **Facility:**	**Location:** Left Rear
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: Trace Fibrous Glass	Percent Non-Fibrous Material: 100

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892319 **Client No.:** 67	**Description:** Brown Caulk **Facility:**	**Location:** Window By Entrance
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892320 **Client No.:** 68	**Description:** Brown Caulk **Facility:**	**Location:** Boiler Rm Door
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892321 **Client No.:** 69	**Description:** Grey/Tan Glazing **Facility:**	**Location:** 5
Percent Asbestos: ***PC 1.4 Chrysotile***	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 98.6
Lab No.: 5892322 **Client No.:** 70	**Description:** Sample Not Analyzed **Facility:**	**Location:** 12
Percent Asbestos: *Sample Not Analyzed*	Percent Non-Asbestos Fibrous Material: Sample Not Analyzed	Percent Non-Fibrous Material:
Lab No.: 5892323 **Client No.:** 71	**Description:** Grey Insulation **Facility:**	**Location:** Center Tank
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Fibrous Glass 15 Cellulose	Percent Non-Fibrous Material: 55
Lab No.: 5892324 **Client No.:** 72	**Description:** Grey Insulation **Facility:**	**Location:** Right Tank
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: 30 Fibrous Glass 15 Cellulose	Percent Non-Fibrous Material: 55

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PLM BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 5892325 **Client No.:** 73	**Description:** Black/Silver Caulk **Facility:**	**Location:** Skylight
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100
Lab No.: 5892326 **Client No.:** 74	**Description:** Black Caulk **Facility:**	**Location:** Skylight
Percent Asbestos: *None Detected*	Percent Non-Asbestos Fibrous Material: None Detected	Percent Non-Fibrous Material: 100

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Attachment F

Hub Licenses & Certifications