
HAZARDOUS BUILDING MATERIALS REPORT

Bristol City Hall

**111 North Main Street
Bristol, Connecticut**

June 21, 2016

Prepared for

**City of Bristol
Department of Public Works
c/o Dave Oakes
111 North Main Street
Bristol, Connecticut**

Prepared by

**LOUREIRO ENGINEERING ASSOCIATES, INC.
100 Northwest Drive
Plainville, Connecticut 06062**

An Employee Owned Company

Comm. No. 11CB6.04

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1. INTRODUCTION

1.1 Scope of Work

Loureiro Engineering Associates, Inc. (Loureiro) was retained by City of Bristol Department of Public Works to perform an comprehensive asbestos survey for the existing three story commercial building located at 111 North Main Street, Bristol, Connecticut known as the City Hall Building. The comprehensive survey included building materials that may be accessed routinely by in-house employees for maintenance purposes as well as subcontracted vendors.

In addition, Loureiro was requested to provide a limited Hazardous Building Materials (HBM) survey in April 2016 prior to the renovations of the accessible interior materials of the Gun Range. The gun range survey is included in this asbestos survey report. Loureiro also collected insulation samples on the air handlers and ducts in the Penthouse mechanical room.

1.2 Exceptions

This report is intended for the sole use of the Client, and may not be used or relied upon by others without the written consent of the Client. The scope of work conducted in performing this service for the Client may not be appropriate to satisfy the needs of other Parties, and the use or re-use of this document or the findings, conclusions, or recommendations is at the risk of said user.

Destructive testing was not performed during this baseline survey. This report does not satisfy all the requirements of NESHAPs.

The criteria used to evaluate the survey and observations includes, but is not limited to, guidelines recommended by the:

- American Conference of Governmental Industrial Hygienists (ACGIH);
- Asbestos Hazard Emergency Response Act (AHERA)
- National Emissions Standards for Hazardous Air Pollutants (NESHAPs)
- The U.S. Environmental Protection Agency (EPA);

Any comments and/or questions in regards this report should be directed to Loureiro Engineering.

2. BUILDING ASBESTOS MATERIALS

2.1 Investigative Survey

The pre-renovation survey was conducted on June 3, 2016 by Mr. Pavel Zayenchik. A total of 57 homogeneous building materials were sampled and the laboratory analyzed 107 samples. Detailed information relative to ACM descriptions and locations are presented in the appendices to this report.

As required by the U.S. Occupational Safety & Health Administration (OSHA), the U.S. Environmental Protection Agency (EPA), and the State of Connecticut Department of Public Health (DPH), the inspection was performed by an EPA AHERA-accredited and DPH-certified asbestos inspector (see Attachment D). The material sampling criteria follows the protocols established by the Asbestos Hazard Emergency Response Act (AHERA) 40 CFR Part 763 developed initially for schools in 1987.

Sampling was done in a manner to prevent airborne fiber release. Samples were placed in appropriately labeled containers that were sealed and submitted to the laboratory for analysis. The samples were submitted for petrographic analysis using the EPA-endorsed Polarized Light Microscopy with Dispersion Staining (PLM/DS) method. The percentage of asbestos present in each sample was determined by the visual area estimation technique.

2.1.1 Survey Results

Table 1 in Appendix A, presents a summary of the results of the sampling. Please refer to Attachment B. (Asbestos Bulk Sample Data Forms) for laboratory analysis results.

Appendix B. further illustrates each type of suspect asbestos-containing material identified, their location(s), and whether the materials are classified as ACM or not ACM based upon the analytical results.

As of the date of this survey the condition of all materials are noted as Good.

3. RECOMMENDATIONS

In accordance with the Asbestos Occupational Safety and Health Administration (OSHA) regulations (29 CFR Part 1926.1101 and 1910.1001), all potential contractors bidding on work must first be informed of the results of this survey.

In the State of Connecticut, a licensed asbestos abatement contractor must perform all asbestos-related activities, including the renovation/demolition portion of the work that includes asbestos. Disturbance of asbestos-containing material can only be done by trained and licensed individuals.

In accordance with EPA National Emissions Standards for Hazardous Air Pollutants (NESHAPS) regulations (40 CFR Part 61), building owners must remove all ACM from a facility (or area of a facility) before any activity begins that would break up, dislodge, or similarly disturb the ACM.

Loureiro did not inspect above ceilings and pipe systems are assumed to be insulated with asbestos.

Building materials such as floor tiles that have tested with “trace” or <1% asbestos and are likely to generate contamination and airborne fibers during renovation. Trace or <1% asbestos quantities are less than the EPA regulated threshold of 1.0% asbestos. During any renovation process it can be argued that all dust emissions are not controlled and that asbestos contamination may result throughout.

Loureiro Engineering recommends that the floor tile materials that are reported as “trace” or <1% asbestos concentration that may be disturbed or rendered friable during a renovation or demolition process should only be disturbed by a licensed and trained asbestos contractor under full containment conditions.

Appendix A

Asbestos Sample Summary Table

Table 1 –Asbestos Results Summary

| Sample No. | Material Description | Location(s) | Quantity | Analytical Result |
|-------------------|--|--|-----------------|--------------------------|
| 1a,b,c | 12" pipe wrap insulation | Penthouse | 320 LF + | 20% Amosite |
| 2a,b,c | 6" pipe wrap insulation | Penthouse | 220 LF + | 15% Amosite |
| 3a,b,c | 3" pipe wrap insulation | Penthouse | 160 LF + | 15% Amosite |
| 4a,b,c | 2" pipe wrap insulation | Penthouse | | None Detected |
| 5a,b,c | 2" pipe elbow insulation | Penthouse | 6 LF + | 45% Chrysotile |
| 6a,b,c | 3" pipe elbow insulation | Penthouse | 30 LF + | 60% Chrysotile |
| 7a,b,c | 6" pipe elbow insulation | Penthouse | 60 LF + | 60% Chrysotile |
| 8a,b,c | 12" pipe elbow insulation | Penthouse | 20 LF + | 65% Chrysotile |
| 9a,b,c | Air handler #2 wrap insulation | Penthouse | | None Detected |
| 10a,b,c | Black woven flex connector | Penthouse | | None Detected |
| 11a,b | Grey caulk on air handler | Penthouse | | None Detected |
| 12a,b | 12x12 beige w/brown specs floor tile | 3 rd Floor Hallway, Interior Throughout | | None Detected |
| 13a,b | Black Mastic for 12x12 beige, grey, black floor tile | 3 rd Floor Hallway, Interior Throughout | | None Detected |
| 14a,b | 12x12 grey floor tile | 3 rd Floor Hallway, Interior Throughout | | None Detected |
| 15a,b | 12x12 black floor tile | 3 rd Floor Hallway | | None Detected |
| 16a,b,c, d,e | Sheetrock joint compound | 3 rd Floor Hallway, Renaissance Office, Ground Floor, Interior Throughout | | None Detected |
| 17a,b | 2'x2' stucco suspended ceiling tiles | 3 rd Floor Hallway, Interior Throughout | | None Detected |
| 18a,b | 2'x2' white with fissures + pinholes SCT | 3 rd Floor Bathroom, Interior Throughout | | None Detected |
| 19a,b | 4" brown cove base | 3 rd Floor Hallway, Interior Throughout | | None Detected |
| 20a,b | Brown mastic for 4" brown cove base | 3 rd Floor Hallway, Interior Throughout | | None Detected |
| 21a,b | 4" grey cove base | 3 rd Floor Stairway, Interior Throughout | | None Detected |
| 25a,b | Brown carpet glue | Corporate Counsel, Interior Throughout | | None Detected |
| 26a,b | Grey Window Frame Caulking | Corporate Counsel, Interior Throughout | 2,600 LF | 3% Chrysotile |
| 27a,b | Sheetrock | 3 rd Floor Hallway, Ground Floor, Interior Throughout | | None Detected |

| Sample No. | Material Description | Location(s) | Quantity | Analytical Result |
|----------------|--|---|-----------------|--------------------------|
| 28a,b | 9x9 brown floor tile | Personnel and Building Vaults, Interior Throughout | 2,600 SF | 4% Chrysotile |
| 29a,b | 12x12 grey w/brown specs floor tile | 2 nd Floor Hallway, Interior Throughout | | None Detected |
| 30a,b | Linoleum | Building Department Kitchen | | None Detected |
| 31a,b | Tan Mastic for Linoleum | Building Department Kitchen | | None Detected |
| 32a,b | Sheetrock Tape | Renaissance Office, Ground Floor, Interior Throughout | | None Detected |
| 33a,b | 1'x1' white with pinholes + fissures SCT | 2 nd Floor Bathroom | | None Detected |
| 34a,b | 12x12 brown floor tile | 1st Floor Hallway | 7,500 SF | <1% Chrysotile |
| 35a,b | 4" black cove base | Deputy assessor | | None Detected |
| 36a,b | White mastic for 4" black cove base | Deputy assessor | | None Detected |
| 37a,b,c | Air handler #3 insulation | Penthouse | 160 SF | 40% Chrysotile |
| 38a,b | 9x9 brown w/white specs floor tile | Ground Floor Hallway | 700 SF | 5% Chrysotile |
| 39a,b,c | Air handler insulation | Maintenance | | None Detected |
| 40a,b,c | 4" pipe insulation | Maintenance | | None Detected |
| 41a,b,c | 2" pipe insulation | Maintenance | | None Detected |
| 42a,b,c | 10" pipe insulation | Maintenance | | None Detected |
| 43a,b | Air handler wall penetration caulk, tan | Maintenance | 25 LF | 2% Chrysotile |
| 44a,b,c | 2" pipe elbow insulation | Maintenance | 14 LF + | 65% Chrysotile |
| 45a,b,c | 4" pipe elbow insulation | Maintenance | 10 LF + | 60% Chrysotile |
| 46a,b,c | 10" pipe elbow insulation | Maintenance | 2 LF + | 45% Chrysotile |
| 47a,b,c | air duct insulation | Boiler Room | | None Detected |
| 48a,b,c | 24" pipe valve insulation | Boiler Room | 40 LF + | 60% Chrysotile |
| 49a,b,c | Boiler door gasket | Boiler Room | | None Detected |
| 50a,b | CP II (white Mastic) on Fiberglass | Boiler Room | | None Detected |
| 51a,b | 1x1 white SCT | Gun Range Bathroom | | None Detected |
| 52a,b | 2'x4' white with fissures SCT | Gun Range | | None Detected |
| 53a,b | 2x2 white SCT | Gun Range | | None Detected |
| 54a,b | 12x12 blue floor tile | Gun Range | | None Detected |
| 55a,b | Brown mastic for 12x12 blue floor tile | Gun Range | | None Detected |

| Sample No. | Material Description | Location(s) | Quantity | Analytical Result |
|---------------------------|---------------------------------|--|-----------------|--------------------------|
| 56a,b | 1x1 white SCT w/fissures | Gun Range | | None Detected |
| 57a,b | 9x9 floor tile | Gun Range | | None Detected |
| 58a,b | Brown mastic for 9x9 floor tile | Gun Range | | None Detected |
| Historical 1a,b | Dark Brown Glue Daubs | Gun Range | | None Detected |
| Historical 2a,b | Light Brown Glue Daubs | Gun Range | | None Detected |
| Historical 1a,b | Canvas Wrap on Duct | Air Handler 1 | | None Detected |
| Historical 2a,b | Canvas Wrap on Duct | Air Handler 2 | 700 SF | 35% Chrysotile |
| Historical 3a,b | Canvas Wrap on Duct | Air Handler 3 | 300 SF | 40% Chrysotile |
| Historical VT-1a,b | 9x9 Tan floor tile | Town Clerks Office, Interior Throughout | 900 SF | 5% Chrysotile |

Appendix B

PLM Laboratory Analysis Data (Bulk Sample Data Form)



EMSL Analytical, Inc.

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

EMSL Order: 041608634
Customer ID: LOUR62
Customer PO:
Project ID:

Attention: Jamie Roche
Loureiro Engineering Associates, Inc.
100 Northwest Drive
Plainville, CT 06062

Phone: (860) 747-6181
Fax: (860) 747-8822
Received Date: 04/06/2016 9:50 AM
Analysis Date: 04/06/2016
Collected Date: 04/05/2016

Project: Bristol City Hall 11CB6.02

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos | | Asbestos |
|-------------------------------------|-----------------------------------|--------------------------------------|--------------------------------|-------------------------|---------------|
| | | | % Fibrous | % Non-Fibrous | % Type |
| 1A <small>041608634-0001</small> | Shooting range - 1x1 ceiling tile | Gray/White Fibrous Homogeneous | 50% Cellulose 30% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 1B <small>041608634-0002</small> | Shooting range - 1x1 ceiling tile | Gray/White Fibrous Homogeneous | 50% Cellulose 30% Min. Wool | 20% Non-fibrous (Other) | None Detected |

Analyst(s)
Kelly Mulholland (2)


Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Initial Report From: 04/06/2016 11:14:38



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

041608634

EMSL ANALYTICAL, INC.
4 FAIRFIELD BLVD
WALLINGFORD, CT 06492
PHONE: (203) 284-5948
FAX: (203) 284-5978

| | | | |
|---|--------------------|---|-----------------|
| Company : Loureiro Engineering Associates, Inc | | EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to Is Different note instructions in Comments**</small> | |
| Street: 100 Northwest Dr | | <i>Third Party Billing requires written authorization from third party</i> | |
| City: Plainville | State/Province: CT | Zip/Postal Code: 06062 | Country: US |
| Report To (Name): Jamie Roche | | Telephone #: 860-410-2945 | |
| Email Address: jaroche@Loureiro.com | | Fax #: 860-747-8822 | Purchase Order: |
| Project Name/Number: Bristol City Hall 11CB6.D2 | | Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email | |
| U.S. State Samples Taken: CT | | CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt | |

Turnaround Time (TAT) Options* - Please Check

3 Hour
 6 Hour
 24 Hour
 48 Hour
 72 Hour
 96 Hour
 1 Week
 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

| PLM - Bulk (reporting limit) | TEM - Bulk |
|---|---|
| <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) | <input type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1 |
| <input type="checkbox"/> PLM EPA NOB (<1%) | <input type="checkbox"/> NY ELAP Method 198.4 (TEM) |
| Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) | <input type="checkbox"/> Chatfield Protocol (semi-quantitative) |
| Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) | <input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2 |
| <input type="checkbox"/> NIOSH 9002 (<1%) | <input type="checkbox"/> TEM Qualitative via Filtration Prep Technique |
| <input type="checkbox"/> NY ELAP Method 198.1 (friable in NY) | <input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique |
| <input type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY) | Other |
| <input type="checkbox"/> OSHA ID-191 Modified | <input type="checkbox"/> |
| <input type="checkbox"/> Standard Addition Method | |

Check For Positive Stop - Clearly Identify Homogenous Group Date Sampled:

Samplers Name: P. Zayenichuk Samplers Signature: P. Zayenichuk

| Sample # | HA # | Sample Location | Material Description |
|----------|------|-----------------|----------------------|
| 1A | | Shooting range | 1x1 ceiling tile |
| 1B | | ↓ | ↓ |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

RECEIVED
 EMSL
 CINNAMINSON, NJ
 16 APR -6 AM 9:57

Client Sample # (s): 1A - 1B Total # of Samples: 2

Relinquished (Client): P. Zayenichuk Date: 4-5-16 Time: 17:00

Received (Lab): VE-FF Date: 4-6-16 Time: 9:50

Comments/Special Instructions:

2



EMSL Analytical, Inc.

29 North Plains Highway, Unit # 4 Wallingford, CT 06492
Tel/Fax: (203) 284-5948 / (203) 284-5978
<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 241601694
Customer ID: LOUR62
Customer PO:
Project ID:

Attention: Jamie Roche
Loureiro Engineering Associates, Inc.
100 Northwest Drive
Plainville, CT 06062

Phone: (860) 747-6181
Fax: (860) 747-8822
Received Date: 04/29/2016 10:50 AM
Analysis Date: 04/29/2016
Collected Date: 04/28/2016

Project: CITY OF BRISTOL-GUN RANGE 11CB6.04

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos | | Asbestos |
|-------------------------------------|-------------------------------|-------------------------------------|----------------------------|--------------------------|---------------|
| | | | % Fibrous | % Non-Fibrous | % Type |
| 1A <small>241601694-0001</small> | DARK BROWN DECK GLUE DABS | Brown Non-Fibrous Homogeneous | <1% Cellulose | 100% Non-fibrous (Other) | None Detected |
| 1B <small>241601694-0002</small> | DARK BROWN DECK GLUE DABS | Brown Non-Fibrous Homogeneous | <1% Cellulose <1% Glass | 100% Non-fibrous (Other) | None Detected |
| 2A <small>241601694-0003</small> | LIGHT BROWN DECK GLUE DABS | Tan Non-Fibrous Homogeneous | <1% Cellulose | 100% Non-fibrous (Other) | None Detected |
| 2B <small>241601694-0004</small> | LIGHT BROWN DECK GLUE DABS | Brown Non-Fibrous Homogeneous | <1% Cellulose <1% Glass | 100% Non-fibrous (Other) | None Detected |

Analyst(s)
Kristin Lopez (2)
Lauren Brennan (2)

Lauren Brennan, Asbestos Lab Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Wallingford, CT NVLAP Lab Code 200700-0,

Initial Report From: 04/29/2016 15:57:25

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

241601694

EMSL ANALYTICAL INC.
 200 ROUTE 130 NORTH
 CINNAMINSON, NJ 08077
 PHONE: (856) 858-4800
 FAX: (856) 858-4960

EMSL ANALYTICAL, INC.
 LABORATORY PRODUCTS TRAINING

Company: Loureiro Engineering Associates #: LOUR62
 Street: 100 Northwest Drive
 City: Plainville State/Province: CT Zip/Postal Code: 06062 Country: USA
 Report To (Name): Jamie Roche Fax #: 860-747-8822
 Telephone #: 860-747-6181 Email Address: jaroche@loureiro.com
 Project Name/Number: City of Bristol-Gun Range 11CB6.04
 Please Provide Results: Fax Email Purchase Order: U.S. State Samples Taken: CT

Turnaround Time (TAT) Options* - Please Check
 3 Hours 6 Hours 24 Hrs 48 Hrs 3 Days 4 Days 5 Days 10 Days

*For TEM Air 3 hours/6 hours, please call ahead to schedule. *There is a premium charge for 3 Hour TEM: AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide

| | | |
|---|--|--|
| <p>PCM - Air</p> <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA <p>PLM - Bulk (reporting limit)</p> <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) <p>Point Count</p> <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <p>Point Count w/Gravimetric</p> <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%) | <p>TEM - Air</p> <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 <p>TEM - Bulk</p> <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 <p>TEM - Water: EPA 100.2</p> <p>Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking</p> | <p>TEM- Dust</p> <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167) <p>Soil/Rock/Vermiculite</p> <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> EPA Protocol (Semi-Quantitative) <input type="checkbox"/> EPA Protocol (Quantitative) <p>Other:</p> <input type="checkbox"/> |
|---|--|--|

Check For Positive Stop - Clearly Identify Homogenous Group

Samplers Name: P. Zayenichuk Samplers Signature: P. Zayenichuk

| Sample # | Sample Description | Volume/Area (Air) HA # (Bulk) | Date/Time Sampled |
|----------|----------------------------|----------------------------------|----------------------|
| 1A | DARK brown deck glue dabs | Bulk | 4-28-16 |
| 1B | ↓ | ↓ | ↓ |
| 2A | light brown deck glue dabs | ↓ | ↓ |
| 2B | ↓ | ↓ | ↓ |
| | | | |
| | | | |
| | | | |

Client Sample # (s): 1A 2B Total # of Samples: 4
 Relinquished (Client): P. Zayenichuk Date: 4-28-16 Time: 17:00
 Received (Lab): Date: Time:
 Comments/Special Instructions:

RECEIVED

APR 29 2016

By: [Signature] 10:50am
 407762 15876838



EMSL Analytical, Inc.

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

EMSL Order: 041611402
Customer ID: LOUR62
Customer PO:
Project ID:

Attention: Jamie Roche
Loureiro Engineering Associates, Inc.
100 Northwest Drive
Plainville, CT 06062

Phone: (860) 747-6181
Fax: (860) 747-8822
Received Date: 05/03/2016 9:40 AM
Analysis Date: 05/03/2016
Collected Date: 05/02/2016

Project: Bristol, 11CB602

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos | | Asbestos |
|--|--|--|--------------|-------------------------|------------------------------|
| | | | % Fibrous | % Non-Fibrous | % Type |
| 041611402-0001 VT-1A-Vinyl Floor Tile | Town Clerk Office - Tan 9x9 Vinyl Floor Tile | Tan Non-Fibrous Homogeneous | | 95% Non-fibrous (Other) | 5% Chrysotile |
| 041611402-0001A VT-1A-Mastic | Town Clerk Office - Tan 9x9 Vinyl Floor Tile | Brown/Yellow Non-Fibrous Homogeneous | | 98% Non-fibrous (Other) | 2% Chrysotile |
| 041611402-0002 VT-1B-Vinyl Floor Tile | Town Clerk Office - Tan 9x9 Vinyl Floor Tile | | | | Positive Stop (Not Analyzed) |
| 041611402-0002A VT-1B-Mastic | Town Clerk Office - Tan 9x9 Vinyl Floor Tile | | | | Positive Stop (Not Analyzed) |

Analyst(s)
Daniel Fricker (2)


Benjamin Ellis, Laboratory Manager
or Other Approved Signatory

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Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NVLAP Lab Code 101048-0, AIHA-LAP, LLC-IHLAP Lab 100194, NYS ELAP 10872, NJ DEP 03036, PA ID# 68-00367

Initial Report From: 05/03/2016 11:50:50



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

041611402

EMSL ANALYTICAL, INC.
29 NORTH PLAINS DR, #4
WALLINGFORD, CT 06492

PHONE: (203) 284-5948
FAX: (203) 284-5978

| | | | |
|---------------------------------------|--------------------|---|-----------------|
| Company : Loureiro Engineering | | EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small> | |
| Street: 100 Northwest Dr | | <i>Third Party Billing requires written authorization from third party</i> | |
| City: Plainville | State/Province: ct | Zip/Postal Code: 06062 | Country: |
| Report To (Name): Jamie Roche | | Telephone #: 860-747-6181 | |
| Email Address: jaroche@loureiro.com | | Fax #: 860-747-8822 | Purchase Order: |
| Project Name/Number: Bristol, 11C8602 | | Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email | |
| U.S. State Samples Taken: CT | | Connecticut Samples: <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Residential | |

Turnaround Time (TAT) Options* - Please Check

3 Hour
 6 Hour
 24 Hour
 48 Hour
 72 Hour
 96 Hour
 1 Week
 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

| | | |
|---|--|---|
| PCM - Air <input type="checkbox"/> Check if samples are from NY <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA PLM - Bulk (reporting limit) <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%) | TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking | TEM- Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167) Soil/Rock/Vermiculite <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> TEM Qual. via Filtration Technique <input type="checkbox"/> TEM Qual. via Drop-Mount Technique Other: <input type="checkbox"/> |
|---|--|---|

Check For Positive Stop - Clearly Identify Homogenous Group Filter Pore Size (Air Samples): 0.8µm 0.45µm

Samplers Name: J. Roche G. Mishler Samplers Signature: Gerald Mishler

| Sample # | Sample Description | Volume/Area (Air) HA # (Bulk) | Date/Time Sampled |
|----------|--|----------------------------------|----------------------|
| VT-1A | TAN 9x9 Vinyl Floor TILE (Town Clerk Office) | | 5/2/16 |
| VT-1B | TAN 9x9 Vinyl Floor TILE (Town Clerk Office) | | 5/2/16 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

RECEIVED
 EMSL
 CINNAMINSON
 16 MAY - 3 AM ID: 16

Client Sample # (s): _____ Total # of Samples: 2

Relinquished (Client): J. Roche Gerald Mishler Date: 5/2/16 Time: 3:12pm

Received (Lab): Beatty R Date: 5/3/16 Time: 9:40

Comments/Special Instructions: _____



EMSL Analytical, Inc.

29 North Plains Highway, Unit # 4 Wallingford, CT 06492
Tel/Fax: (203) 284-5948 / (203) 284-5978
<http://www.EMSL.com/wallingfordlab@emsl.com>

EMSL Order: 241601846
Customer ID: LOUR62
Customer PO:
Project ID:

Attention: Jamie Roche
Loureiro Engineering Associates, Inc.
100 Northwest Drive
Plainville, CT 06062
Phone: (860) 747-6181
Fax: (860) 747-8822
Received Date: 05/10/2016 10:25 AM
Analysis Date: 05/10/2016
Collected Date:
Project: 11CB604 1 BRISTOL HALL

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos | | Asbestos |
|---|---|----------------------------------|--------------------------------|-------------------------|------------------------------|
| | | | % Fibrous | % Non-Fibrous | % Type |
| 1a 241601846-0001 | AHU-1 - canvas coating on FG duct ins. | Gray/White Fibrous Homogeneous | 40% Cellulose 40% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 1b 241601846-0002 | AHU-1 - canvas coating on FG duct ins. | Gray/White Fibrous Homogeneous | 40% Cellulose 40% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 1c 241601846-0003 | AHU-1R - canvas coating on FG duct ins. | Black/Yellow Fibrous Homogeneous | 10% Min. Wool | 90% Non-fibrous (Other) | None Detected |
| 2a 241601846-0004 | AHU2 - canvas coating on FG duct ins. | Gray/White Fibrous Homogeneous | 40% Cellulose 40% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 2b 241601846-0005 <i>The sample group is not homogeneous.</i> | AHU2 - canvas coating on FG duct ins. | Gray/White Fibrous Homogeneous | 60% Cellulose | 5% Non-fibrous (Other) | 35% Chrysotile |
| 3a 241601846-0006 | AHU3 - canvas coating on FG duct ins. | Gray Fibrous Homogeneous | | 60% Non-fibrous (Other) | 40% Chrysotile |
| 3b 241601846-0007 | AHU3 - canvas coating on FG duct ins. | | | | Positive Stop (Not Analyzed) |

Analyst(s)
Jeremy Patino (4)
Kristin Lopez (2)

Lauren Brennan, Asbestos Lab Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%
Samples analyzed by EMSL Analytical, Inc. Wallingford, CT NVLAP Lab Code 200700-0,

Initial Report From: 05/10/2016 16:06:09



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

241601846

EMSL ANALYTICAL, INC.
29 NORTH PLAINS DR, #4
WALLINGFORD, CT 06492

PHONE: (203) 284-5948
FAX: (203) 284-5978

| | | | |
|--|--------------------|---|-----------------|
| Company : Loureiro Engineering | | EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small> | |
| Street: 100 Northwest Dr | | <i>Third Party Billing requires written authorization from third party</i> | |
| City: Plainville | State/Province: ct | Zip/Postal Code: 06062 | Country: |
| Report To (Name): Jamie Roche | | Telephone #: 860-747-6181 | |
| Email Address: jaroche@loureiro.com | | Fax #: 860-747-8822 | Purchase Order: |
| Project Name/Number: <u>11CB604 / Bristol Hall</u> | | Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email | |
| U.S. State Samples Taken: CT | | Connecticut Samples: <input checked="" type="checkbox"/> Commercial <input type="checkbox"/> Residential | |

Turnaround Time (TAT) Options* - Please Check

3 Hour
 6 Hour
 24 Hour
 48 Hour
 72 Hour
 96 Hour
 1 Week
 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

| | | |
|---|--|---|
| PCM - Air <input type="checkbox"/> Check if samples are from NY <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> w/ OSHA 8hr. TWA PLM - Bulk (reporting limit) <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NYS 198.1 (friable in NY) <input type="checkbox"/> NYS 198.6 NOB (non-friable-NY) <input type="checkbox"/> NIOSH 9002 (<1%) | TEM - Air <input type="checkbox"/> 4-4.5hr TAT (AHERA only) <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312 TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (non-friable-NY) <input type="checkbox"/> Chatfield SOP <input type="checkbox"/> TEM Mass Analysis-EPA 600 sec. 2.5 TEM - Water: EPA 100.2 Fibers >10µm <input type="checkbox"/> Waste <input type="checkbox"/> Drinking All Fiber Sizes <input type="checkbox"/> Waste <input type="checkbox"/> Drinking | TEM- Dust <input type="checkbox"/> Microvac - ASTM D 5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Carpet Sonication (EPA 600/J-93/167) Soil/Rock/Vermiculite <input type="checkbox"/> PLM CARB 435 - A (0.25% sensitivity) <input type="checkbox"/> PLM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - B (0.1% sensitivity) <input type="checkbox"/> TEM CARB 435 - C (0.01% sensitivity) <input type="checkbox"/> TEM Qual. via Filtration Technique <input type="checkbox"/> TEM Qual. via Drop-Mount Technique Other: <input type="checkbox"/> |
|---|--|---|

Check For Positive Stop - Clearly Identify Homogenous Group Filter Pore Size (Air Samples): 0.8µm 0.45µm

Samplers Name: JRoche Samplers Signature: *JRoche*

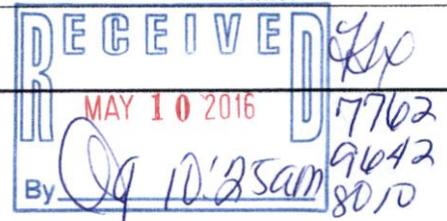
| Sample # | Sample Description | Volume/Area (Air) HA # (Bulk) | Date/Time Sampled |
|----------|--------------------------------------|----------------------------------|----------------------|
| 1a | Canvas Coating on FG Duct Ins. AHU-1 | | |
| 1b | ↓ | AHU-1 | |
| 1c | ↓ | AHU-1R | |
| 2a | Canvas Coating on FG Ducts Ins AHU 2 | | |
| 2b | " " | " | |
| 3a | Canvas Coating on FG Duct Ins AHU 3 | | |
| 3b | " " | " | |

Client Sample # (s): - Total # of Samples: 7

Relinquished (Client): JRoche *JRoche* Date: 5/19/16 Time:

Received (Lab): Date: Time:

Comments/Special Instructions: *No Tax*





EMSL Analytical, Inc.

29 North Plains Highway, Unit # 4 Wallingford, CT 06492
Tel/Fax: (203) 284-5948 / (203) 284-5978
<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 241602283
Customer ID: LOUR62
Customer PO:
Project ID:

Attention: Jamie Roche
Loureiro Engineering Associates, Inc.
100 Northwest Drive
Plainville, CT 06062
Project: CITY OF BRISTOL, 11CB6.04

Phone: (860) 747-6181
Fax: (860) 747-8822
Received Date: 06/07/2016 10:25 AM
Analysis Date: 06/09/2016
Collected Date: 06/03/2016

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos | | Asbestos |
|----------------------|--------------------------------------|------------------------------|---------------|-------------------------|------------------------------|
| | | | % Fibrous | % Non-Fibrous | % Type |
| 1a 241602283-0001 | Penthouse - 12" pipe wrap insulation | Gray Fibrous Homogeneous | | 80% Non-fibrous (Other) | 20% Amosite |
| 1b 241602283-0002 | Penthouse - 12" pipe wrap insulation | | | | Positive Stop (Not Analyzed) |
| 1c 241602283-0003 | Penthouse - 12" pipe wrap insulation | | | | Positive Stop (Not Analyzed) |
| 2a 241602283-0004 | Penthouse - 6" pipe wrap insulation | Gray Non-Fibrous Homogeneous | | 85% Non-fibrous (Other) | 15% Amosite |
| 2b 241602283-0005 | Penthouse - 6" pipe wrap insulation | | | | Positive Stop (Not Analyzed) |
| 2c 241602283-0006 | Penthouse - 6" pipe wrap insulation | | | | Positive Stop (Not Analyzed) |
| 3a 241602283-0007 | Penthouse - 3" pipe wrap insulation | Gray Fibrous Homogeneous | | 85% Non-fibrous (Other) | 15% Amosite |
| 3b 241602283-0008 | Penthouse - 3" pipe wrap insulation | | | | Positive Stop (Not Analyzed) |
| 3c 241602283-0009 | Penthouse - 3" pipe wrap insulation | | | | Positive Stop (Not Analyzed) |
| 4a 241602283-0010 | Penthouse - 2" pipe wrap insulation | Tan Fibrous Homogeneous | 80% Cellulose | 20% Non-fibrous (Other) | None Detected |
| 4b 241602283-0011 | Penthouse - 2" pipe wrap insulation | Tan Fibrous Homogeneous | 60% Cellulose | 40% Non-fibrous (Other) | None Detected |
| 4c 241602283-0012 | Penthouse - 2" pipe wrap insulation | Tan Fibrous Homogeneous | 70% Cellulose | 30% Non-fibrous (Other) | None Detected |
| 5a 241602283-0013 | Penthouse - 2" pipe elbow insulation | Gray Non-Fibrous Homogeneous | | 55% Non-fibrous (Other) | 45% Chrysotile |
| 5b 241602283-0014 | Penthouse - 2" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 5c 241602283-0015 | Penthouse - 2" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 6a 241602283-0016 | Penthouse - 3" pipe elbow insulation | Gray Fibrous Homogeneous | | 40% Non-fibrous (Other) | 60% Chrysotile |

Initial Report From: 06/09/2016 18:28:27



EMSL Analytical, Inc.

29 North Plains Highway, Unit # 4 Wallingford, CT 06492
Tel/Fax: (203) 284-5948 / (203) 284-5978
<http://www.EMSL.com/wallingfordlab@emsl.com>

EMSL Order: 241602283
Customer ID: LOUR62
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos | | Asbestos |
|-----------------------|--|-------------------------------|---------------------------|--------------------------|------------------------------|
| | | | % Fibrous | % Non-Fibrous | % Type |
| 6b 241602283-0017 | Penthouse - 3" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 6c 241602283-0018 | Penthouse - 3" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 7a 241602283-0019 | Penthouse - 6" pipe elbow insulation | Gray Fibrous Homogeneous | | 40% Non-fibrous (Other) | 60% Chrysotile |
| 7b 241602283-0020 | Penthouse - 6" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 7c 241602283-0021 | Penthouse - 6" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 8a 241602283-0022 | Penthouse - 12" pipe elbow insulation | Gray Fibrous Homogeneous | | 35% Non-fibrous (Other) | 65% Chrysotile |
| 8b 241602283-0023 | Penthouse - 12" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 8c 241602283-0024 | Penthouse - 12" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 9a 241602283-0025 | Penthouse - air handler 2 wrap insulation | Black Fibrous Homogeneous | 10% Cellulose 4% Glass | 86% Non-fibrous (Other) | None Detected |
| 9b 241602283-0026 | Penthouse - air handler 2 wrap insulation | Black Fibrous Homogeneous | 10% Cellulose | 90% Non-fibrous (Other) | None Detected |
| 9c 241602283-0027 | Penthouse - air handler 2 wrap insulation | Black Non-Fibrous Homogeneous | 5% Glass | 95% Non-fibrous (Other) | None Detected |
| 10a 241602283-0028 | Penthouse - black woven flex connector | Gray Fibrous Homogeneous | 80% Glass | 20% Non-fibrous (Other) | None Detected |
| 10b 241602283-0029 | Penthouse - black woven flex connector | Black Fibrous Homogeneous | 80% Glass | 20% Non-fibrous (Other) | None Detected |
| 11a 241602283-0030 | Penthouse - grey caulk on air handler | Gray Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 11b 241602283-0031 | Penthouse - grey caulk on air handler | Gray Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 12a 241602283-0032 | 3rd floor - 12x12 beige w/brown specs floor tile | Gray Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 12b 241602283-0033 | 2nd floor - 12x12 beige w/brown specs floor tile | Gray Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 13a 241602283-0034 | 3rd floor - black mastic for #12a | Black Non-Fibrous Homogeneous | <1% Cellulose | 100% Non-fibrous (Other) | None Detected |
| 13b 241602283-0035 | 2nd floor - black mastic for #12b | Black Non-Fibrous Homogeneous | 2% Cellulose | 98% Non-fibrous (Other) | None Detected |

Initial Report From: 06/09/2016 18:28:27



EMSL Analytical, Inc.

29 North Plains Highway, Unit # 4 Wallingford, CT 06492

Tel/Fax: (203) 284-5948 / (203) 284-5978

<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 241602283

Customer ID: LOUR62

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos | | Asbestos |
|-----------------------|--|--------------------------------------|--------------------------------|---|---------------|
| | | | % Fibrous | % Non-Fibrous | % Type |
| 14a 241602283-0036 | 3rd floor - 12x12 grey floor tile | Gray Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 14b 241602283-0037 | 2nd floor - 12x12 grey floor tile | Gray Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 15a 241602283-0038 | 3rd floor - 12x12 black floor tile | Black Non-Fibrous Homogeneous | | 40% Ca Carbonate 60% Non-fibrous (Other) | None Detected |
| 15b 241602283-0039 | 3rd floor - 12x12 black floor tile | Black Non-Fibrous Homogeneous | | 40% Ca Carbonate 60% Non-fibrous (Other) | None Detected |
| 16a 241602283-0040 | Sheetrock joint compound | White Non-Fibrous Homogeneous | | 40% Ca Carbonate 60% Non-fibrous (Other) | None Detected |
| 16b 241602283-0041 | Sheetrock joint compound | White Non-Fibrous Homogeneous | | 45% Ca Carbonate 55% Non-fibrous (Other) | None Detected |
| 16c 241602283-0042 | Sheetrock joint compound | White Non-Fibrous Homogeneous | | 45% Ca Carbonate 55% Non-fibrous (Other) | None Detected |
| 16d 241602283-0043 | Sheetrock joint compound | White Non-Fibrous Homogeneous | | 40% Ca Carbonate 60% Non-fibrous (Other) | None Detected |
| 16e 241602283-0044 | Sheetrock joint compound | White Non-Fibrous Homogeneous | | 30% Ca Carbonate 70% Non-fibrous (Other) | None Detected |
| 17a 241602283-0045 | 2'x2' stucco suspended ceiling tiles | White Non-Fibrous Homogeneous | 65% Min. Wool | 35% Non-fibrous (Other) | None Detected |
| 17b 241602283-0046 | 2'x2' stucco suspended ceiling tiles | Gray Non-Fibrous Homogeneous | 80% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 18a 241602283-0047 | 2'x2' white with fissures + pinholes SCT | Gray/White Fibrous Homogeneous | 50% Cellulose 35% Min. Wool | 15% Non-fibrous (Other) | None Detected |
| 18b 241602283-0048 | 2'x2' white with fissures + pinholes SCT | Gray Fibrous Homogeneous | 40% Cellulose 40% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 19a 241602283-0049 | 4" brown cove base | Brown Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 19b 241602283-0050 | 4" brown cove base | Gray Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 20a 241602283-0051 | Brown mastic for #19 | Yellow Non-Fibrous Homogeneous | <1% Cellulose | 100% Non-fibrous (Other) | None Detected |
| 20b 241602283-0052 | Brown mastic for #19 | Yellow Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 21a 241602283-0053 | 4" grey cove base | Gray Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 21b 241602283-0054 | 4" grey cove base | Gray Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |

Initial Report From: 06/09/2016 18:28:27



EMSL Analytical, Inc.

29 North Plains Highway, Unit # 4 Wallingford, CT 06492

Tel/Fax: (203) 284-5948 / (203) 284-5978

<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 241602283

Customer ID: LOUR62

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos | | Asbestos |
|----------------|--|---|--------------------------------|--------------------------|------------------------------|
| | | | % Fibrous | % Non-Fibrous | % Type |
| 22a | Tan mastic for #21 | | | | Insufficient Material |
| 241602283-0055 | | | | | |
| 22b | Tan mastic for #21 | | | | Insufficient Material |
| 241602283-0056 | | | | | |
| 25a | Brown carpet glue | Tan Non-Fibrous Homogeneous | <1% Synthetic | 100% Non-fibrous (Other) | None Detected |
| 241602283-0057 | | | | | |
| 25b | Brown carpet glue | Tan Non-Fibrous Homogeneous | <1% Synthetic | 100% Non-fibrous (Other) | None Detected |
| 241602283-0058 | | | | | |
| 26a | Grey WFC | Gray Non-Fibrous Homogeneous | | 97% Non-fibrous (Other) | 3% Chrysotile |
| 241602283-0059 | | | | | |
| 26b | Grey WFC | | | | Positive Stop (Not Analyzed) |
| 241602283-0060 | | | | | |
| 27a | Sheetrock | White Non-Fibrous Homogeneous | <1% Cellulose | 100% Non-fibrous (Other) | None Detected |
| 241602283-0061 | | | | | |
| 27b | Sheetrock | Gray Non-Fibrous Homogeneous | 2% Cellulose | 98% Non-fibrous (Other) | None Detected |
| 241602283-0062 | | | | | |
| 28a | 9x9 brown floor tile | Brown Non-Fibrous Homogeneous | | 96% Non-fibrous (Other) | 4% Chrysotile |
| 241602283-0063 | | | | | |
| 28b | 9x9 brown floor tile | | | | Positive Stop (Not Analyzed) |
| 241602283-0064 | | | | | |
| 29a | 12x12 grey w/brown specs floor tile | Pink Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 241602283-0065 | | | | | |
| 29b | 12x12 grey w/brown specs floor tile | Pink Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 241602283-0066 | | | | | |
| 30a | Building dept, kitchen, floor linoleum | Tan Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 241602283-0067 | | | | | |
| 30b | Building dept, kitchen, floor linoleum | Tan Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 241602283-0068 | | | | | |
| 31a | Tan mastic for #30 | Tan/Black Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 241602283-0069 | | | | | |
| 31b | Tan mastic for #30 | Tan/Black Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 241602283-0070 | | | | | |
| 32a | Sheetrock tape | White Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 241602283-0071 | | | | | |
| 32b | Sheetrock tape | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 241602283-0072 | | | | | |
| 33a | 1'x1' white with pinholes + fissures SCT | Gray Fibrous Homogeneous | 40% Cellulose 20% Min. Wool | 40% Non-fibrous (Other) | None Detected |
| 241602283-0073 | | | | | |

Initial Report From: 06/09/2016 18:28:27



EMSL Analytical, Inc.

29 North Plains Highway, Unit # 4 Wallingford, CT 06492

Tel/Fax: (203) 284-5948 / (203) 284-5978

<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 241602283

Customer ID: LOUR62

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos | | Asbestos |
|-----------------------|---|-------------------------------------|--------------------------------|--------------------------|------------------------------|
| | | | % Fibrous | % Non-Fibrous | % Type |
| 33b 241602283-0074 | 1'x1' white with pinholes + fissures SCT | Gray Fibrous Homogeneous | 40% Cellulose 40% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 34a 241602283-0075 | 12x12 brown floor tile | Red Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | <1% Chrysotile |
| 34b 241602283-0076 | 12x12 brown floor tile | Red Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | <1% Chrysotile |
| 35a 241602283-0077 | Deputy assessor, 4" black cove base | Black Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 35b 241602283-0078 | Deputy assessor, 4" black cove base | Black Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 36a 241602283-0079 | White mastic for #35 | White Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 36b 241602283-0080 | White mastic for #35 | White Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 37a 241602283-0081 | Penthouse - air handler 3 insulation | Gray Fibrous Homogeneous | | 60% Non-fibrous (Other) | 40% Chrysotile |
| 37b 241602283-0082 | Penthouse - air handler 3 insulation | | | | Positive Stop (Not Analyzed) |
| 37c 241602283-0083 | Penthouse - air handler 4 insulation | | | | Positive Stop (Not Analyzed) |
| 38a 241602283-0084 | 9x9 brown w/white specs floor tile | Red Non-Fibrous Homogeneous | | 95% Non-fibrous (Other) | 5% Chrysotile |
| 38b 241602283-0085 | 9x9 brown w/white specs floor tile | | | | Positive Stop (Not Analyzed) |
| 39a 241602283-0086 | Maintenance - air handler insulation | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 39b 241602283-0087 | Maintenance - air handler insulation | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 39c 241602283-0088 | Maintenance - air handler insulation | White Fibrous Homogeneous | 99% Glass | 1% Non-fibrous (Other) | None Detected |
| 40a 241602283-0089 | Maintenance - 4" pipe insulation | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 40b 241602283-0090 | Maintenance - 4" pipe insulation | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 40c 241602283-0091 | Maintenance - 4" pipe insulation | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 41a 241602283-0092 | Maintenance - 2" pipe insulation | Tan Fibrous Homogeneous | 98% Cellulose | 2% Non-fibrous (Other) | None Detected |

Initial Report From: 06/09/2016 18:28:27



EMSL Analytical, Inc.

29 North Plains Highway, Unit # 4 Wallingford, CT 06492

Tel/Fax: (203) 284-5948 / (203) 284-5978

<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 241602283

Customer ID: LOUR62

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos | | Asbestos |
|-----------------------|---|-------------------------------|---------------------------|-------------------------|------------------------------|
| | | | % Fibrous | % Non-Fibrous | % Type |
| 41b 241602283-0093 | Maintenance - 2" pipe insulation | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 41c 241602283-0094 | Maintenance - 2" pipe insulation | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 42a 241602283-0095 | Maintenance - 10" pipe insulation | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 42b 241602283-0096 | Maintenance - 10" pipe insulation | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 42c 241602283-0097 | Maintenance - 10" pipe insulation | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 43a 241602283-0098 | Maintenance - air handler wall penetration caulk, tan | Tan Non-Fibrous Homogeneous | | 98% Non-fibrous (Other) | 2% Chrysotile |
| 43b 241602283-0099 | Maintenance - air handler wall penetration caulk, tan | | | | Positive Stop (Not Analyzed) |
| 44a 241602283-0100 | Maintenance - 2" pipe elbow insulation | Gray Fibrous Homogeneous | | 35% Non-fibrous (Other) | 65% Chrysotile |
| 44b 241602283-0101 | Maintenance - 2" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 44c 241602283-0102 | Maintenance - 2" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 45a 241602283-0103 | Maintenance - 4" pipe elbow insulation | Gray Fibrous Homogeneous | | 40% Non-fibrous (Other) | 60% Chrysotile |
| 45b 241602283-0104 | Maintenance - 4" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 45c 241602283-0105 | Maintenance - 4" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 46a 241602283-0106 | Maintenance - 10" pipe elbow insulation | Gray Fibrous Homogeneous | 40% Min. Wool | 15% Non-fibrous (Other) | 45% Chrysotile |
| 46b 241602283-0107 | Maintenance - 10" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 46c 241602283-0108 | Maintenance - 10" pipe elbow insulation | | | | Positive Stop (Not Analyzed) |
| 47a 241602283-0109 | Boiler room - air duct insulation | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 47b 241602283-0110 | Boiler room - air duct insulation | Tan Fibrous Homogeneous | 99% Cellulose | 1% Non-fibrous (Other) | None Detected |
| 47c 241602283-0111 | Boiler room - air duct insulation | Tan/Black Fibrous Homogeneous | 75% Cellulose 5% Glass | 20% Non-fibrous (Other) | None Detected |

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EMSL Order: 241602283

Customer ID: LOUR62

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos | | Asbestos |
|-----------------------|---|--|--------------------------------|---|----------------|
| | | | % Fibrous | % Non-Fibrous | % Type |
| 48a 241602283-0112 | Boiler room - 24" pipe elbow insulation | Gray Non-Fibrous Homogeneous | 80% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 48b 241602283-0113 | Boiler room - 24" pipe elbow insulation | Gray Non-Fibrous Homogeneous | 80% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 48c 241602283-0114 | Boiler room - 24" pipe elbow insulation | Gray Fibrous Homogeneous | | 40% Non-fibrous (Other) | 60% Chrysotile |
| 49a 241602283-0115 | Boiler room - boiler door gasket | White Fibrous Homogeneous | 99% Glass | 1% Non-fibrous (Other) | None Detected |
| 49b 241602283-0116 | Boiler room - boiler door gasket | White Fibrous Homogeneous | 99% Glass | 1% Non-fibrous (Other) | None Detected |
| 49c 241602283-0117 | Boiler room - boiler door gasket | White Non-Fibrous Homogeneous | 99% Glass | 1% Non-fibrous (Other) | None Detected |
| 50a 241602283-0118 | Boiler room - CP II | White Fibrous Homogeneous | 45% Cellulose | 55% Non-fibrous (Other) | None Detected |
| 50b 241602283-0119 | Boiler room - CP II | White Non-Fibrous Homogeneous | 80% Cellulose | 20% Non-fibrous (Other) | None Detected |
| 51a 241602283-0120 | Gun range, bathroom - 1x1 white SCT | Brown Fibrous Homogeneous | 99% Glass | 1% Non-fibrous (Other) | None Detected |
| 51b 241602283-0121 | Gun range, bathroom - 1x1 white SCT | Tan Non-Fibrous Homogeneous | 80% Glass | 20% Non-fibrous (Other) | None Detected |
| 52a 241602283-0122 | Gun range - 2'x4' white with fissures SCT | Gray/White Fibrous Homogeneous | 40% Cellulose 40% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 52b 241602283-0123 | Gun range - 2'x4' white with fissures SCT | Gray Fibrous Homogeneous | 40% Cellulose 40% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 53a 241602283-0124 | Gun range - 2x2 white SCT | Gray/White Non-Fibrous Homogeneous | 35% Cellulose 45% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 53b 241602283-0125 | Gun range - 2x2 white SCT | Gray Fibrous Homogeneous | 40% Cellulose 20% Min. Wool | 40% Non-fibrous (Other) | None Detected |
| 54a 241602283-0126 | Gun range - 12x12 blue floor tile | Blue Non-Fibrous Homogeneous | | 30% Ca Carbonate 70% Non-fibrous (Other) | None Detected |
| 54b 241602283-0127 | Gun range - 12x12 blue floor tile | Blue Non-Fibrous Homogeneous | | 30% Ca Carbonate 70% Non-fibrous (Other) | None Detected |
| 55a 241602283-0128 | Gun range - brown mastic for #54 | Tan Non-Fibrous Homogeneous | <1% Cellulose | 100% Non-fibrous (Other) | None Detected |
| 55b 241602283-0129 | Gun range - brown mastic for #54 | Tan Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |
| 56a 241602283-0130 | Gun range - 1x1 white SCT w/fissures | Gray Fibrous Homogeneous | 40% Cellulose 40% Min. Wool | 20% Non-fibrous (Other) | None Detected |

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<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 241602283

Customer ID: LOUR62

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

| Sample | Description | Appearance | Non-Asbestos | | Asbestos |
|-----------------------|--------------------------------------|-------------------------------|--------------------------------|---|---------------|
| | | | % Fibrous | % Non-Fibrous | % Type |
| 56b 241602283-0131 | Gun range - 1x1 white SCT w/fissures | Gray Fibrous Homogeneous | 40% Cellulose 40% Min. Wool | 20% Non-fibrous (Other) | None Detected |
| 57a 241602283-0132 | Gun range - 9x9 floor tile | Black Non-Fibrous Homogeneous | | 25% Ca Carbonate 75% Non-fibrous (Other) | None Detected |
| 57b 241602283-0133 | Gun range - 9x9 floor tile | Black Non-Fibrous Homogeneous | | 30% Ca Carbonate 70% Non-fibrous (Other) | None Detected |
| 58a 241602283-0134 | Gun range - brown mastic for #57 | Tan Non-Fibrous Homogeneous | <1% Cellulose | 100% Non-fibrous (Other) | None Detected |
| 58b 241602283-0135 | Gun range - brown mastic for #57 | Tan Non-Fibrous Homogeneous | | 100% Non-fibrous (Other) | None Detected |

Analyst(s)

Jeremy Patino (42)
Kristin Lopez (26)
Lauren Brennan (15)
William Shedrawy (24)

Lauren Brennan, Asbestos Lab Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Wallingford, CT NVLAP Lab Code 200700-0,

Initial Report From: 06/09/2016 18:28:27



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (Lab Use Only):

241602283

EMSL ANALYTICAL, INC.
4 FAIRFIELD BLVD
WALLINGFORD, CT 06492
PHONE: (203) 284-5948
FAX: (203) 284-5978

| | | | |
|---|--------------------|---|-----------------|
| Company : Loureiro Engineering Associates, Inc | | EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different <small>If Bill to is Different note instructions in Comments**</small> | |
| Street: 100 Northwest Dr | | <i>Third Party Billing requires written authorization from third party</i> | |
| City: Plainville | State/Province: CT | Zip/Postal Code: 06062 | Country: US |
| Report To (Name): Jamie Roche | | Telephone #: 860-410-2945 | |
| Email Address: jaroche@Loureiro.com | | Fax #: 860-747-8822 | Purchase Order: |
| Project Name/Number: <i>City of Bristol, HCB 6.04</i> | | Please Provide Results: <input type="checkbox"/> Fax <input checked="" type="checkbox"/> Email | |
| U.S. State Samples Taken: CT | | CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt | |

Turnaround Time (TAT) Options* - Please Check

3 Hour
 6 Hour
 24 Hour
 48 Hour
 72 Hour
 96 Hour
 1 Week
 2 Week

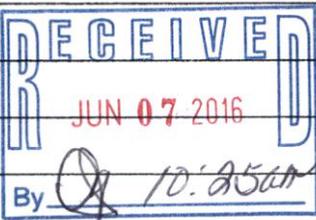
*For TEM Air 3 hr through 6 hr, please call ahead to schedule. *There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

| PLM - Bulk (reporting limit) | TEM - Bulk |
|--|--|
| <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) Point Count <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) Point Count w/Gravimetric <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1000 (<0.1%) <input type="checkbox"/> NIOSH 9002 (<1%) <input type="checkbox"/> NY ELAP Method 198.1 (friable in NY) <input type="checkbox"/> NY ELAP Method 198.6 NOB (non-friable-NY) <input type="checkbox"/> OSHA ID-191 Modified <input type="checkbox"/> Standard Addition Method | <input type="checkbox"/> TEM EPA NOB - EPA 600/R-93/116 Section 2.5.5.1 <input type="checkbox"/> NY ELAP Method 198.4 (TEM) <input type="checkbox"/> Chatfield Protocol (semi-quantitative) <input type="checkbox"/> TEM % by Mass - EPA 600/R-93/116 Section 2.5.5.2 <input type="checkbox"/> TEM Qualitative via Filtration Prep Technique <input type="checkbox"/> TEM Qualitative via Drop Mount Prep Technique |
| Other | |
| <input type="checkbox"/> | |

Check For Positive Stop - Clearly Identify Homogenous Group Date Sampled: *6-3-16*

Samplers Name: *P. Zayenichik* Samplers Signature: *P. Zayenichik*

| Sample # | HA # | Sample Location | Material Description |
|-----------|-------------|------------------|---------------------------------|
| <i>1a</i> | <i>Bulk</i> | <i>Penthouse</i> | <i>12" pipe wrap insulation</i> |
| <i>1B</i> | ↓ | ↓ | ↓ |
| <i>1C</i> | ↓ | ↓ | ↓ |
| <i>2a</i> | ↓ | ↓ | <i>6" pipe wrap insulation</i> |
| <i>2b</i> | ↓ | ↓ | ↓ |
| <i>2c</i> | ↓ | ↓ | ↓ |
| <i>3a</i> | ↓ | ↓ | <i>3" pipe wrap insulation</i> |
| <i>3b</i> | ↓ | ↓ | ↓ |
| <i>3c</i> | ↓ | ↓ | ↓ |
| <i>4a</i> | ↓ | ↓ | <i>2" pipe wrap insulation</i> |



Client Sample # (s): *1a* - *586* Total # of Samples: *135*

Relinquished (Client): *P. Zayenichik* Date: *6-6-16* Time: *17:00*

Received (Lab): Date: Time:

Comments/Special Instructions:
Void samples 23a,b,24a,b. Analyze mastic only when specified



EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

241602283

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-5974

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

| Sample # | Sample Description | Volume/Area (Air) HA # (Bulk) | Date/Time Sampled |
|---------------------------------|---|----------------------------------|----------------------|
| 46 | penthouse, 2" pipewrap insulation | Bulk | 6-3-16 |
| 4C | ↓ | | |
| 5A | 2" pipe elbow insulation | | |
| 5B | ↓ | | |
| 5C | ↓ | | |
| 6A | 3" pipe | | |
| 6B | ↓ | | |
| 6C | ↓ | | |
| 7A | 6" pipe | | |
| 7B | ↓ | | |
| 7C | ↓ | | |
| 8A | 12" pipe | | |
| 8B | ↓ | | |
| 8C | ↓ | | |
| 9A | air handler 2 wrap insulation | | |
| 9B | ↓ | | |
| 9C | ↓ | | |
| 10A | Black woven flux connector | | |
| 10B | ↓ | | |
| 11A | grey caulk on air handler | | |
| 11B | ↓ | | |
| 12A | 3rd floor, 12x12 beige w/brown specs floor tile | | |
| 12B | 2nd floor, ↓ | | |
| 13A | Black mastic for #12A | | |
| *Comments/Special Instructions: | | | |





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Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

2416 02283

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CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-5974

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

| Sample # | Sample Description | Volume/Area (Air) HA # (Bulk) | Date/Time Sampled |
|---------------------------------|--|----------------------------------|----------------------|
| 136 | Black mastic for # 126 | Bulk | 6-3-16 |
| 14a | 3rd floor, 12x12 grey floor tile | ↓ | ↓ |
| 14b | 2nd floor, ↓ | | |
| 15a | 3rd floor, 12x12 black floor tile | | |
| 15b | ↓ | | |
| 16a | Sheetrock Joint compound | | |
| 16b | ↓ | | |
| 16c | | | |
| 16d | | | |
| 16e | ↓ | | |
| 17a | 2'x2' Stucco suspended ceiling tiles | | |
| 17b | ↓ | | |
| 18a | 2'x2' white with fissures+pinholes SCT | | |
| 18b | ↓ | | |
| 19a | 4" Brown Cove base | | |
| 19b | ↓ | | |
| 20a | Brown mastic for #19 | | |
| 20b | ↓ | | |
| 21a | 4" grey cove base | | |
| 21b | ↓ | | |
| 22a | tan mastic for # 21 | | |
| 22b | ↓ | | |
| 23a | 9x9 beige w/brown specs floor tile | | |
| 23b | ↓ | | |
| *Comments/Special Instructions: | | | |

composite
 composite
 void
 void

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 By 10:25



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Asbestos Chain of Custody

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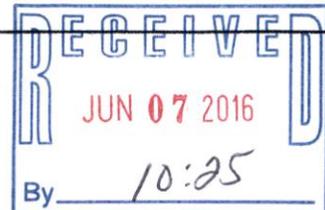
void
void

comp

composite
w/ #36

| Sample # | Sample Description | Volume/Area (Air) HA # (Bulk) | Date/Time Sampled |
|----------|--|----------------------------------|----------------------|
| 24a | black mastic for #23 | Bulk | 6-3-16 |
| 24b | ↓ | | |
| 25a | Brown carpet glue | | |
| 25b | ↓ | | |
| 26a | Grey WFC | | |
| 26b | ↓ | | |
| 27a | Sheetrock | | |
| 27b | ↓ | | |
| 28a | 9x9 Brown floor tile | | |
| 28b | ↓ | | |
| 29a | 12x12 grey w/brown specs floor tile | | |
| 29b | ↓ | | |
| 30a | Building dept, kitchen, floor linoleum | | |
| 30b | ↓ | | |
| 31a | tan mastic for #30 | | |
| 31b | ↓ | | |
| 32a | Sheetrock Tape | | |
| 32b | ↓ | | |
| 33a | 1'x1' whitewith piphols + fissures SCT | | |
| 33b | ↓ | | |
| 34a | 12x12 Brown floor tile | | |
| 34b | ↓ | | |
| 35a | Deputy assessor, 4" black cove base | | |
| 35b | ↓ | | |

*Comments/Special Instructions:





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Asbestos Chain of Custody

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

Composite w/ # 35

| Sample # | Sample Description | Volume/Area (Air) HA # (Bulk) | Date/Time Sampled |
|----------|--|----------------------------------|----------------------|
| 369 | white mastic floor #35 | Bulk | 6-3-16 |
| 366 | ↓ | | |
| 379 | penthouse, air handler 3 insulation | | |
| 376 | ↓ ↓ ↓ 3 ↓ | | |
| 370 | ↓ ↓ ↓ 4 ↓ | | |
| 389 | 9x9 Brown w/white specs floor tile | | |
| 386 | ↓ | | |
| 399 | maintenance, air handler insulation | | |
| 396 | ↓ ↓ | | |
| 390 | ↓ ↓ | | |
| 409 | 4" pipe insulation | | |
| 406 | ↓ ↓ | | |
| 400 | ↓ ↓ | | |
| 419 | 2" pipe insulation | | |
| 416 | ↓ ↓ | | |
| 410 | ↓ ↓ | | |
| 429 | 10" pipe insulation | | |
| 426 | ↓ ↓ | | |
| 420 | ↓ ↓ | | |
| 439 | air handler wall penetration caulk fan | | |
| 436 | ↓ ↓ | | |
| 449 | 2" pipe elbow insulation | | |
| 446 | ↓ ↓ | | |
| 440 | ↓ ↓ | | |

*Comments/Special Instructions:





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LABORATORY PRODUCTS TRAINING

Asbestos Chain of Custody

EMSL Order Number (Lab Use Only):

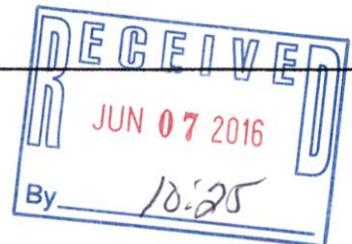
241602283

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CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-5974

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

| Sample # | Sample Description | Volume/Area (Air) HA # (Bulk) | Date/Time Sampled |
|---------------------------------|---------------------------------------|----------------------------------|----------------------|
| 45a | maintenance, 4" pipe elbow insulation | Bulk | 6-3-16 |
| 45b | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 45c | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 46a | 10" pipe elbow insulation | | |
| 46b | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 46c | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 47a | boiler room, air duct insulation | | |
| 47b | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 47c | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 48a | 24" pipe elbow insulation | | |
| 48b | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 48c | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 49a | boiler door gasket | | |
| 49b | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 49c | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 50a | CP11 | | |
| 50b | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 51a | Gun Range, bathroom, 1x1 white SCT | | |
| 51b | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 52a | 2'x4', white with fissures SCT | | |
| 52b | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 53a | 2x2 white SCT | | |
| 53b | ↓ ↓ ↓ | ↓ ↓ ↓ | ↓ ↓ ↓ |
| 54a | 12x12 blue floor tile | | |
| *Comments/Special Instructions: | | | |

Composite
w/ # 55

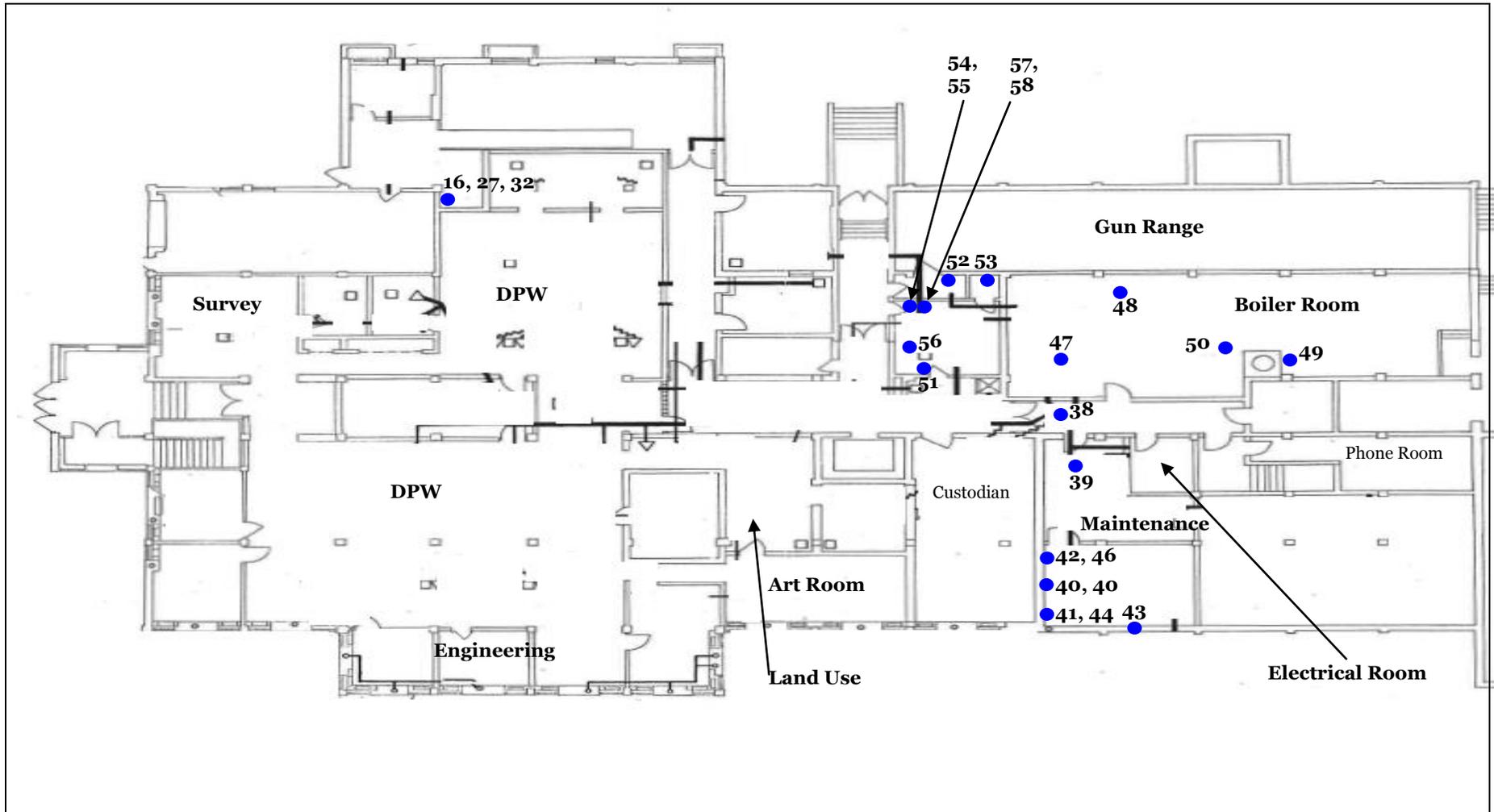


Appendix C

Sample Location Sketch

| | |
|---|------------------------------|
| Project Name: City of Bristol | LEA Comm. No 11CB6.04 |
| Project Location: 111 North Main Street, Bristol, CT | |
| Sampling Date: June 3, 2016 | |

Sampling Locations: Ground Floor

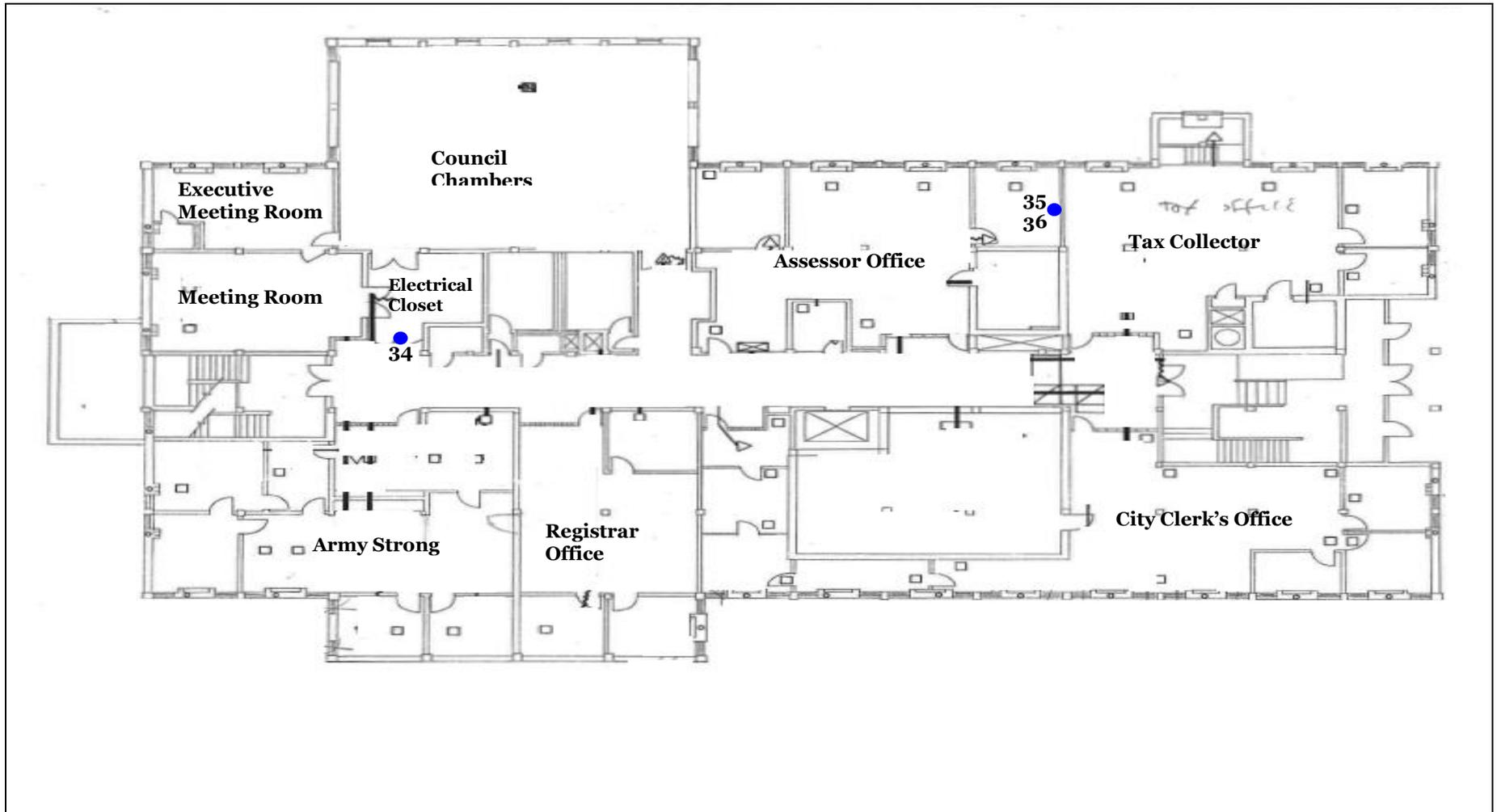


Asbestos Inspector: Pavel Zayenchik

(Signature) *P. Zayenchik*

| | |
|---|------------------------------|
| Project Name: City of Bristol | LEA Comm. No 11CB6.04 |
| Project Location: 111 North Main Street, Bristol, CT | |
| Sampling Date: June 3, 2016 | |

Sampling Locations: First Floor

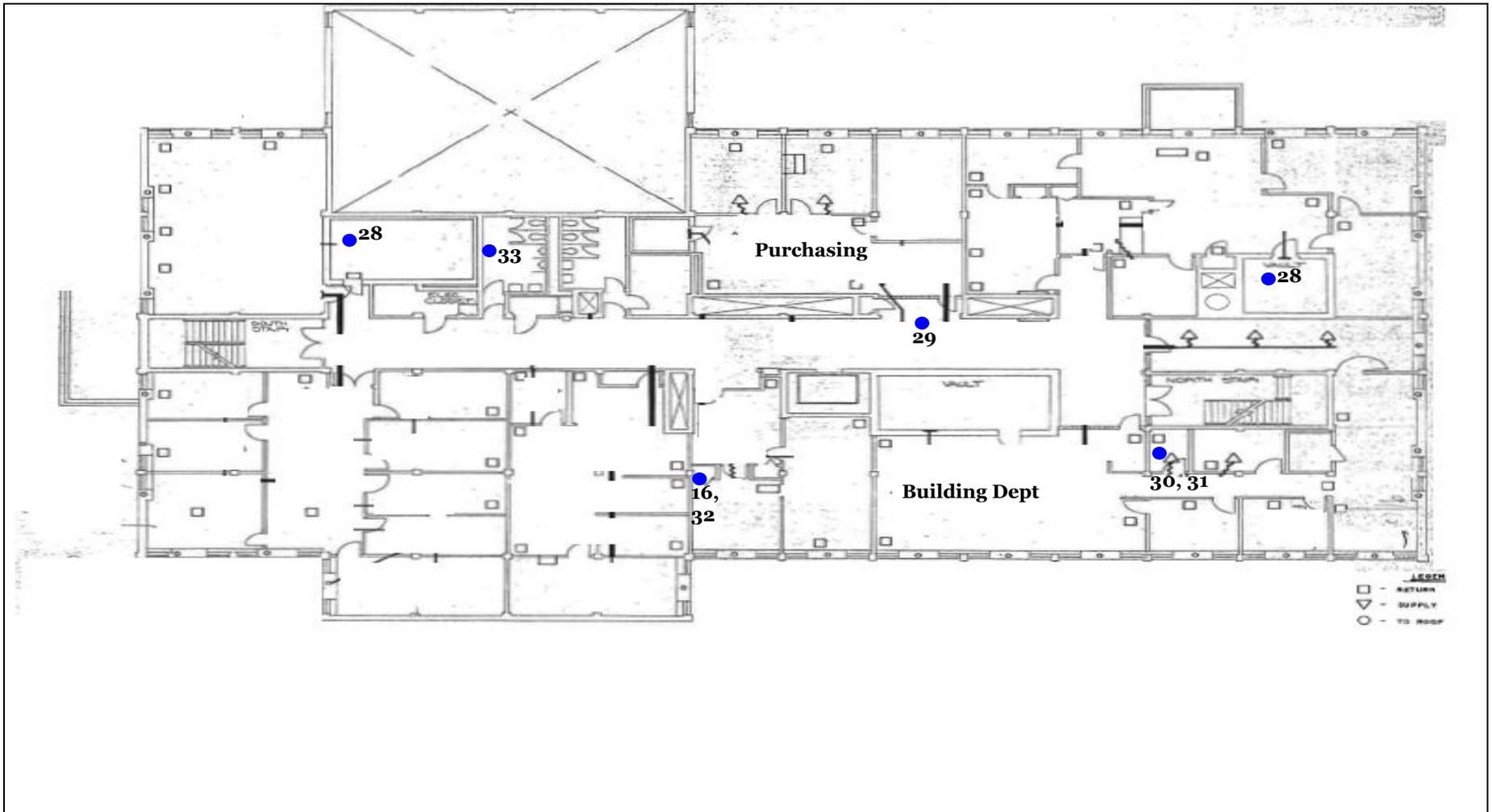


Asbestos Inspector: Pavel Zayenchik

(Signature) *P. Zayenchik*

| | |
|---|------------------------------|
| Project Name: City of Bristol | LEA Comm. No 11CB6.04 |
| Project Location: 111 North Main Street, Bristol, CT | |
| Sampling Date: June 3, 2016 | |

Sampling Locations: Second Floor

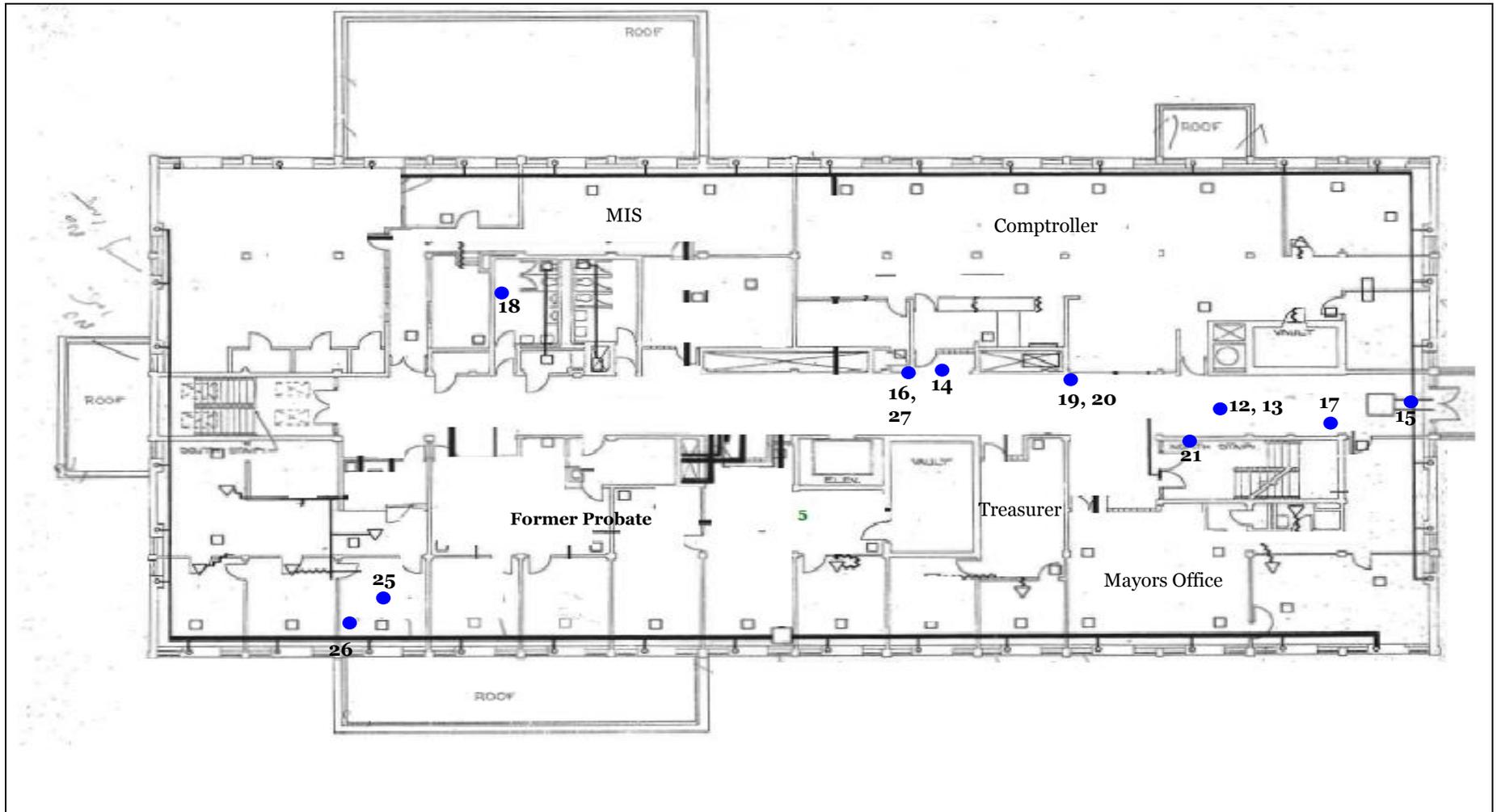


Asbestos Inspector: Pavel Zayenchik

(Signature) *P. Zayenchik*

| | |
|---|------------------------------|
| Project Name: City of Bristol | LEA Comm. No 11CB6.04 |
| Project Location: 111 North Main Street, Bristol, CT | |
| Sampling Date: June 3, 2016 | |

Sampling Locations: Third Floor

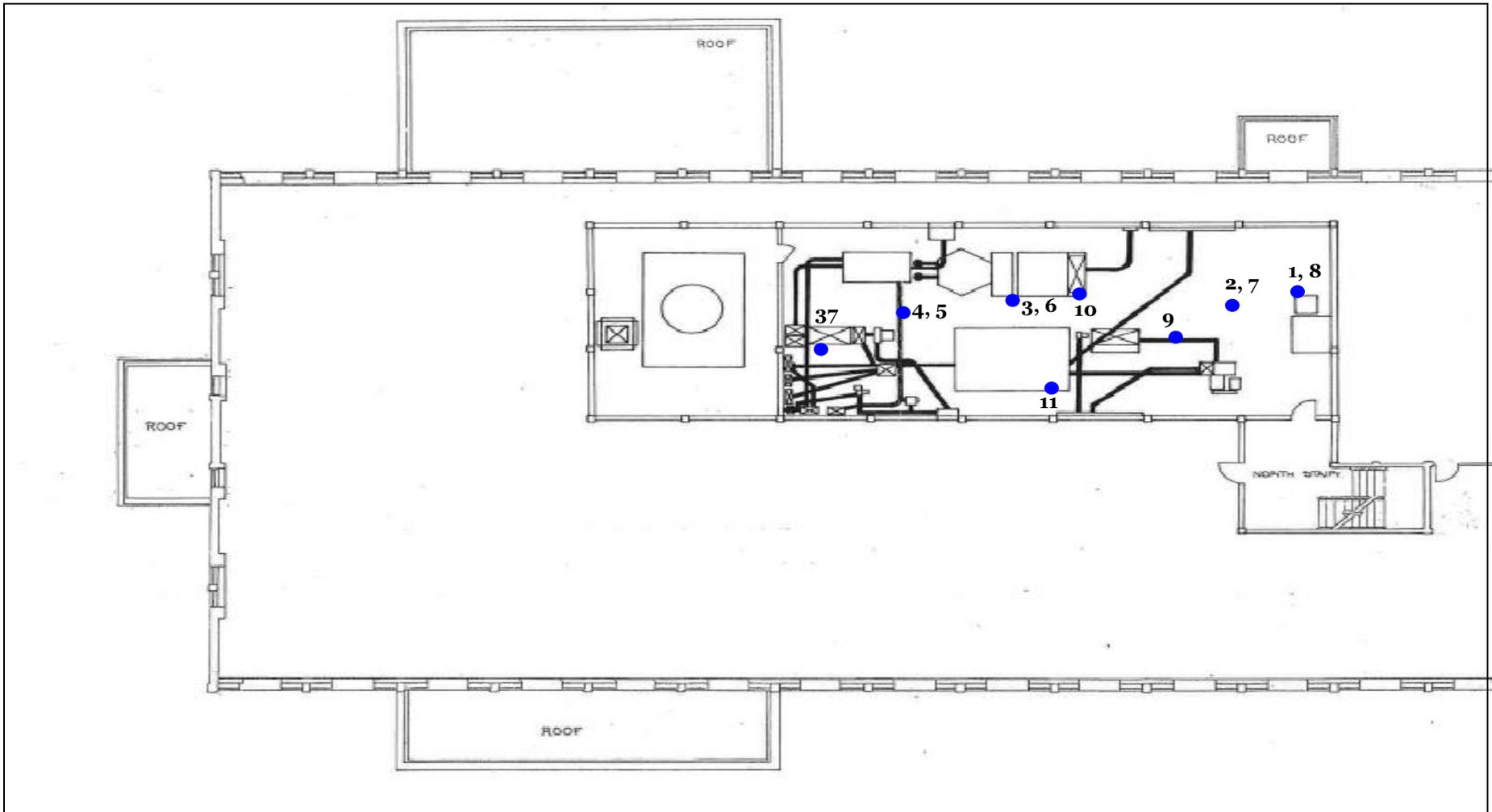


Asbestos Inspector: Pavel Zayenchik

(Signature) *P. Zayenchik*

| | |
|---|------------------------------|
| Project Name: City of Bristol | LEA Comm. No 11CB6.04 |
| Project Location: 111 North Main Street, Bristol, CT | |
| Sampling Date: June 3, 2016 | |

Sampling Locations: Penthouse



Asbestos Inspector: Pavel Zayenchik

(Signature) *P. Zayenchik*

Appendix D

Licenses and Accreditations



State of Connecticut

Lookup Detail View

Name

Name
PAVEL ZAYENCHIK

License Information
lookup

| License Type | License Number | Expiration Date | Granted Date | License Name | License Status | Licensure Actions or Pending Charges |
|-------------------------------|----------------|-----------------|--------------|-----------------|----------------|--------------------------------------|
| Asbestos Consultant-Inspector | 869 | 10/31/2016 | 02/03/2014 | PAVEL ZAYENCHIK | ACTIVE | None |

Generated on: 1/5/2016 5:10:14 PM

WALLET CARD

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME

GERALD J MISHLER

VALIDATION NO
03-420215

CERTIFICATE NO
000767

CURRENT THROUGH
02/28/17

PROFESSION

ASBESTOS CONSULTANT-INSPECTOR


SIGNATURE


COMMISSIONER

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT
THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A
ASBESTOS CONSULTANT-INSPECTOR

JAMIE A. ROCHE

CERTIFICATE NO
000181
CURRENT THROUGH
03/31/17
VALIDATION NO
03-436515

SIGNATURE


COMMISSIONER


INSTRUCTIONS:

1. Detach and sign each of the cards on this form
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

WALLET CARD

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME

JAMIE A. ROCHE

CERTIFICATE NO.

03-436515

CURRENT THROUGH

03/31/17

PROFESSION

ASBESTOS CONSULTANT-INSPECTOR

SIGNATURE

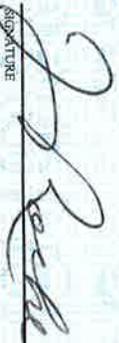
COMMISSIONER


STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT
THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A
ASBESTOS CONSULTANT-PROJECT MONITOR

JAMIE A. ROCHE

CERTIFICATE NO
000233
CURRENT THROUGH
03/31/17
VALIDATION NO
03-437369

SIGNATURE


COMMISSIONER


INSTRUCTIONS:

1. Detach and sign each of the cards on this form
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

WALLET CARD

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME

JAMIE A. ROCHE

CERTIFICATE NO.

03-437369

CURRENT THROUGH

03/31/17

PROFESSION

ASBESTOS CONSULTANT-PROJECT MONITOR

SIGNATURE

COMMISSIONER


State of Connecticut, Department of Public Health

Approved Environmental Laboratory

THIS IS TO CERTIFY THAT THE LABORATORY DESCRIBED BELOW HAS BEEN APPROVED BY THE STATE DEPARTMENT OF PUBLIC HEALTH PURSUANT TO APPLICABLE PROVISIONS OF THE PUBLIC HEALTH CODE AND GENERAL STATUTES OF CONNECTICUT, FOR MAKING THE EXAMINATIONS, DETERMINATIONS OR TESTS SPECIFIED BELOW WHICH HAVE BEEN AUTHORIZED IN WRITING BY THAT DEPARTMENT.

EMSL ANALYTICAL, INC. - CT

LOCATED AT 29 North Plains Highway, Unit #4 IN Wallingford, CT 06492

AND REGISTERED IN THE NAME OF Gloria Oriol

THIS CERTIFICATE IS ISSUED IN THE NAME OF Gloria Oriol WHO HAS BEEN DESIGNATED

BY THE REGISTERED OWNER/AUTHORIZED AGENT TO BE IN CHARGE OF THE LABORATORY WORK COVERED BY THIS CERTIFICATE OF APPROVAL AS FOLLOWS:

DRINKING WATER, NON-POTABLE WATER/WASTEWATER

Examination for:

Bacteria

Asbestos - TEM

BUILDING MATERIALS

Examination for:

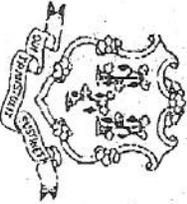
Asbestos Fibers - PCM, TEM

Bulk Identification - PLM, TEM

SEE COMPUTER PRINT-OUT FOR SPECIFIC TESTS APPROVED

THIS CERTIFICATE EXPIRES September 30, 2017 AND IS REVOCABLE FOR CAUSE BY THE STATE DEPARTMENT OF PUBLIC HEALTH

DATED AT HARTFORD, CONNECTICUT, THIS 10th DAY OF September 2015



Registration #

PH - 0322

SUZANNE BIANCAPLOR, MS, MPH
CHIEF, ENVIRONMENTAL HEALTH SECTION



January 12, 2021

City of Bristol
Department of Public Works
111 North Main Street
Bristol, CT 06010

Attn: David Oakes

RE: Lead Decontamination Services for Town Hall Gun Range – Bristol, CT

Mr. Oakes:

In response to your request, Loureiro Engineering Associates, Inc. (LEA) is pleased to submit this proposal to the City of Bristol (“Client”) for professional services in connection with the lead decontamination of the old Bristol Police Department gun range in Town Hall.

1.0 Background

An old gun range used by the Bristol Police Department in Town Hall is contaminated with lead from old bullet shell casings and vaporized lead. The gun range has previously undergone lead testing (approximately 4 years ago) and some abatement, including the removal of all shell casings. Due to public and employee health concerns, the City of Bristol and LEA recommend that further lead abatement procedures are followed per EPA and HUD guidelines, including sampling of impacted areas. The new HUD standard used for federally funded lead abatements is 10 ug/SF (micrograms per square foot) while the EPA standard remains at 40 ug/SF. Loureiro recommends that the City of Bristol follow the EPA recommended lead level of 40 ug/SF as the gun range is highly unlikely to reach the HUD standard.

2.0 Scope of Services

Based on our understanding of your project and our knowledge of the gun range, LEA is proposing to provide the following services necessary to complete this task. The proposed scope of work is detailed below:

- Prepare a project specific Job Hazard Analysis (JHA) prior to initiation of site activities. The JHA will establish the protocols and procedures that will be followed by LEA personnel when performing the work.
- Take up to (16) samples from the gun range by collecting dust wipe samples. Samples will be taken from the North, South, East, and West facing walls, in addition to the ceiling and floor. This includes; (6) baseline samples, (6) post abatement samples, as well as (2) pre and (2) post abatement “blanks” to verify effectiveness.
- Take up to (8) samples from adjacent control room to determine if lead decontamination has traveled to surrounding area.

Loureiro Engineering Associates, Inc.

100 Northwest Drive • Plainville, CT 06062 • 860.747.6181 • Fax 860.747.8822 • www.Loureiro.com

AN EMPLOYEE-OWNED COMPANY



- After baseline samples are analyzed, decontamination activities will include “wet washing” of gun range walls, floor, and ceiling as necessary. The wet wash will consist of washing each surface with trisodium phosphate (TSP) or other liquid detergents and collecting displaced dust with HEPA vacuums. Each surface will be washed twice before post sample is collected.
- Recollect samples of post washed surfaces.
- Clean and decommission old gun stands, overhead slide rails, and dispose of at an approved facility.
- Encapsulate gun range walls, ceiling, and floor with paint, varnish, or a standard liquid encapsulant such as, “Fiberlock LBC” to seal off any remaining dust.

3.0 Communications and Reporting

Loureiro will provide a memo documenting the work performed (electronic copy only) as well as the results of the pre and post analyzed samples.

4.0 Assumptions

- LEA will wet wash gun range surfaces (2) times and take a post abatement sample after the second wash. Additional labor and materials to reduce any detectable levels of lead is not included in this proposal.
- Lead sampling and analytical lab costs include up to (24) samples. Any additional samples and their associated costs are not included in this proposal.
- The City of Bristol understands that lead levels may never reach acceptable threshold (40 ug/SF).
- Gun range surfaces to be cleaned are non-porous.
- (2) coats of encapsulant will be used per washed surface.
- If and when encapsulant wears off, any remaining lead contaminant will again be exposed. This proposal does not include any additional labor and materials to refinish encapsulant after initial coatings.
- LEA will containerize dust and dispose of at an approved facility.
- LEA will dispose of gun stands on floor and slide rails overhead at an approved facility. This proposal does not include the removal of any ceiling material or existing ceiling tracks.
- All work will be performed during 1st shift regular business hours.
- LEA will have free and clear access to the gun range and surrounding areas to complete project tasks.
- LEA will not be held responsible for any delays or costs incurred due to COVID 19 or lack of access to the worksite due to COVID 19.



5.0 Fees

On the basis of our understanding of the project and the services described herein, we propose to complete the project for a **lump sum fee of \$19,690.00**. Our proposed fees are based on our current understanding of the project and the level of effort necessary to complete the scope of services specified herein. Should additional information or circumstances affect the level of effort necessary to complete the proposed work, we will inform you in advance of any potential impact to the proposed fees and/or schedule. We will not exceed the fees indicated above without prior written authorization from you.

6.0 Schedule

LEA is prepared to begin work on this project within approximately two weeks from receipt of a signed task authorization. The schedule will be coordinated with Mr. Oakes.

LEA appreciates the opportunity to submit this proposal to you. If there are any questions or comments concerning this information, please contact me at 860-410-2967.

Sincerely,

LOUREIRO ENGINEERING ASSOCIATES, INC.

Handwritten signature of Rick Boswell in black ink.

Rick Boswell
Project Manager

Handwritten signature of Frank Pasinski in black ink.

Frank Pasinski
Field Operations Manager

Authorization to Proceed

I hereby authorize Loureiro Engineering Associates, Inc. to proceed with the work described in this Proposal and in accordance with the General Terms and Conditions attached hereto. I understand that I will be billed monthly and that payment is due and payable within 30 days of the date of the invoice, with interest accruing at the rate of 1.5% per month thereafter.

Signature

Date

Title

LOUREIRO ENGINEERING ASSOCIATES, INC.
General Terms and Conditions

These General Terms and Conditions are attached to and incorporated into the Proposal Letter that, as executed, shall serve as the Agreement between City of Bristol (CLIENT) and Loureiro Engineering Associates, Inc. (CONSULTANT) in respect of the Project described therein.

ARTICLE 1: GENERAL

The CONSULTANT shall perform for the CLIENT professional services in all phases of the Project to which this Agreement applies as described in the Proposal Letter and as hereinafter provided.

As used herein the term "Agreement" refers to the Proposal Letter or Agreement to which these General Terms and Conditions are attached as if they were part of one and the same document.

If CONSULTANT shall be unable to perform in accordance with the terms hereof due to naturally occurring soil, water or other environmental conditions, the presence of foreign or hazardous substances, violent weather, strike, civil disturbance or similar event beyond CONSULTANT'S control, CONSULTANT may request from the CLIENT that the terms of this Agreement affected thereby be modified by a written Amendment to be signed by the parties. The CLIENT, as its option, may agree to a modification on CONSULTANT'S terms or to such other terms as the parties may find acceptable.

ARTICLE 2: RESPONSIBILITIES OF THE CLIENT

As applicable and necessary for CONSULTANT to perform its services, the CLIENT will:

- Provide all criteria and full information as to its requirements for CONSULTANT'S services, including the CLIENT'S objectives, constraints or standards.
- Assist CONSULTANT by placing at its disposal all available information pertinent to the Project, excluding any financial information, but including previous environmental permits, engineering reports and any other similar data relative to the Project.
- Provide CONSULTANT all permissions, access and rights of entry to enter the property owned by the CLIENT and/or others in order for

CONSULTANT to fulfill the scope of work included under this Agreement.

ARTICLE 3: PROJECT SCHEDULE

CONSULTANT shall commence the Project upon the date of execution of this Agreement and proceed expeditiously to complete the various tasks of the proposed scope of services within the time periods specified in the Proposal Letter, subject to the terms and conditions hereof.

ARTICLE 4: COMPENSATION

For the services authorized under this Agreement, CONSULTANT shall be compensated as specified in the Proposal Letter. If the Proposal Letter specifies that compensation will be on a time and expense basis and includes an upper limit or "not to exceed" amount, the amount due hereunder shall not exceed the stated maximum amount unless a supplemental Agreement or Amendment approving the increase in the maximum amount has been executed.

The CONSULTANT will submit monthly invoices requesting payment from the CLIENT based upon the work completed for the services performed to date by the CONSULTANT under this Agreement. CLIENT agrees to bring to CONSULTANT'S attention in writing any questions regarding CONSULTANT'S invoice within ten (10) days of receipt. In the event that CLIENT does not provide CONSULTANT with written questions within ten (10) days, the invoice shall be deemed accurate and acceptable to CLIENT. CLIENT agrees to make payment to the CONSULTANT within thirty (30) calendar days after receipt of the CONSULTANT'S invoice. If an invoice remains unpaid after sixty (60) calendar days of submission to the CLIENT, the CONSULTANT has the right to cease all work until all amounts due CONSULTANT are paid in full.

In the event that payment for services is not made within thirty (30) calendar days after receipt of the CONSULTANT'S invoice, the CLIENT agrees to pay a service charge of 1.5% per month on the unpaid balance. Should it become necessary for CONSULTANT to commence legal action to collect any sums due it, it is agreed

that CONSULTANT shall be entitled to collect from the CLIENT its costs incurred in any such action(s) including reasonable collection fees, attorney's fees, litigation costs and cost for defense.

ARTICLE 5: LIABILITY INSURANCE

CONSULTANT shall, during the performance of the Agreement, keep in force the following insurance, together with any other coverage that may be required by law:

Workers' Compensation Insurance, including Employer's Liability Insurance for its employees in compliance with statutory limits; Commercial General Liability Insurance with \$1,000,000 per occurrence combined single limit and policy aggregate; Business Automobile Insurance, including operation of owned, non-owned and hired automobiles, with combined single limits for bodily injury and property damage of \$1,000,000 per occurrence and policy aggregate; Professional Liability Insurance with \$1,000,000 per occurrence and policy aggregate.

CONSULTANT shall furnish to the CLIENT, at their request, certificates of insurance, evidencing the insurance required hereby. All policies required hereunder shall contain a provision that at least thirty (30) days' prior written notice shall be given to the CLIENT in the event of cancellation, reduction or non-renewal of any such insurance.

ARTICLE 6: ESA SERVICES

In consideration of the substantial risks to CONSULTANT in performing Environmental Site Assessment (ESA) services, the CLIENT agrees, to the maximum extent permitted by law, to indemnify and hold CONSULTANT harmless from any damage, liability or cost, including reasonable attorneys' fees and costs of defense, arising out of or resulting from the performance of the services under this Agreement or related in any manner whatsoever to the existence, release, or disposal of toxic or hazardous substances, excepting only those damages, liabilities or costs arising directly from the sole negligence or willful misconduct of CONSULTANT. In addition, the CLIENT agrees, to the maximum extent permitted by law, to waive any claims against CONSULTANT arising out of the performance of the services under this Agreement.

ARTICLE 7: KNOWN OR SUSPECTED ENVIRONMENTAL HAZARDS

In consideration of the substantial risks to CONSULTANT posed by the presence or suspected presence of asbestos or hazardous or toxic materials on or about the project site, the CLIENT agrees, to the fullest extent permitted by law, to indemnify and hold harmless CONSULTANT, his or her

officers, directors, employees, agents, and independent consultants and any of them from all claims and losses, including reasonable attorneys' fees and defense costs, arising out of, or in any way connected with, the performance or nonperformance of the obligations under this Agreement unless and until there has been an adjudication by a court or forum of competent jurisdiction that the claims at issue are a direct result of the sole negligence of CONSULTANT.

ARTICLE 8: SCOPE OF WORK

The CLIENT and CONSULTANT have agreed to a list of basic services that CONSULTANT will provide to the CLIENT, listed in the Proposal Letter. Services not set forth in the Proposal Letter are excluded from the scope of services and CONSULTANT assumes no responsibility to perform such services.

ARTICLE 9: STANDARD OF CARE

Services provided by CONSULTANT under this Agreement will be performed in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances in the same locality. The CONSULTANT makes no other warranties, express or implied, with respect to the services rendered hereunder.

ARTICLE 10: MUTUAL INDEMNIFICATION

To the fullest extent permitted by law, Consultant agrees to indemnify and hold harmless the Client, its employees, agents, affiliates and subsidiaries, for any and all claims, damage obligations, liabilities, judgments and losses, including reasonable attorneys' fees and other court costs, asserted by any third parties to the extent such damage is determined to have been caused by the negligent acts, errors or omissions or wilful misconduct by Consultant in the performance of its services under this Agreement. Consultant shall not be responsible for any loss, damage or liability arising from negligent or wilful acts by the Client or any of its, employees, agents, affiliates or subsidiaries. To the fullest extent permitted by law, the Client agrees to indemnify and hold harmless the Consultant, its employees, agents, affiliates and subsidiaries, for any and all claims, damage obligations, liabilities, judgments and losses, including reasonable attorneys' fees and other court costs, asserted by any third parties against Consultant arising from or relating to 1) any unknown site condition or subterranean structures of which Consultant does not have actual knowledge; 2) any errors, omissions or inconsistencies in any data, documents, records or information provided by the Client on which Consultant reasonably relied; 3) any breach of contract, tort, error, omission, wrong, fault or failure to comply with applicable law by the Client or any third party

over which Consultant has no control; 4) the Client's unauthorized use of plans, reports, documents and related materials prepared by Consultant in performing its services.

ARTICLE 11: PERMITS AND APPROVALS

CONSULTANT shall assist the CLIENT in applying for those permits and approvals typically required by law for projects similar to the one for which CONSULTANT'S services have been engaged. This assistance consists of completing and submitting forms as to the results of certain work included in the Scope of Services. This assistance does not include payment of permit fees, special studies, special research, attendance at meetings with public authorities, special testing, or special documentation not normally required for this type of project. CONSULTANT will provide such special services as Additional Services, in accordance with CONSULTANT'S prevailing fee schedule, as authorized by the CLIENT.

ARTICLE 12: MEDIATION

In an effort to resolve any conflicts that arise during the project or following completion of the project, the CLIENT and CONSULTANT agree that all disputes between them arising out of or relating to this Agreement shall be submitted to nonbinding mediation first before arbitration is commenced. Such mediation shall take place within thirty (30) days of such dispute arising. The CLIENT and CONSULTANT further agree to include a similar mediation provision in all agreements with independent contractors and consultants retained for the project and to require all independent contractors and consultants also to include a similar mediation provision in all agreements with subcontractors, subconsultants, suppliers, or fabricators so retained.

ARTICLE 13: ARBITRATION

Any controversy or claim relating to or arising out of this Agreement, or any breach thereof, which is not resolved by mediation in accordance with ARTICLE 11, shall be resolved by arbitration in the City of Hartford, CT in accordance with the then current Commercial Rules of the American Arbitration Association. Judgment upon the arbitration award, rendered by the arbitrator(s) may be entered in any Connecticut courts having jurisdiction thereof. The Prevailing party in such arbitration shall be entitled to recovery of all reasonable costs incurred, including staff time, administrative costs, attorneys' fees and other related expenses. Any claim brought pursuant to this paragraph shall be filed no later than one year after the date of substantial completion of the services rendered under this Agreement or the expiration of the applicable statute of limitations, whichever is earlier.

ARTICLE 14: DELAYS

CONSULTANT is not responsible for delays caused by factors beyond CONSULTANT'S reasonable control, including but not limited to delays because of strikes, lockouts, work slowdowns or stoppages, accidents, acts of God, failure of any governmental or other regulatory authority to act in a timely manner, failure of the CLIENT to furnish timely information or approve or disapprove CONSULTANT'S services or work product promptly, or delays caused by faulty performance of the CLIENT or by contractors of any level. When such delays occur, the CLIENT agrees that CONSULTANT is not responsible for damages, nor shall CONSULTANT be deemed to be in default of this Agreement.

ARTICLE 15: RESTORATION

The CLIENT understands that use of testing or other equipment may cause unavoidable damage, the correction of which is not part of this Agreement. The CLIENT agrees, to the fullest extent permitted by law, to indemnify and hold CONSULTANT and his or her subconsultants harmless from any claim, liability, or cost (including reasonable attorneys' fees and costs of defense) for injury or loss arising or allegedly arising from procedures associated with testing or investigative activities or discovery of hazardous materials or suspected hazardous materials on said property.

ARTICLE 16: CHANGED CONDITIONS

The CLIENT shall rely on CONSULTANT'S judgment as to the continued adequacy of this Agreement in light of occurrences or discoveries that were not originally contemplated by or known to CONSULTANT. Should CONSULTANT call for contract renegotiation, CONSULTANT shall identify the changed conditions necessitating renegotiation and CONSULTANT and the CLIENT shall promptly and in good faith enter into renegotiation of this Agreement. If terms cannot be agreed to, the parties agree that either party has the absolute right to terminate this Agreement.

ARTICLE 17: CONFIDENTIALITY

CONSULTANT agrees to keep confidential and not to disclose to any person or entity, other than CONSULTANT'S employees, subconsultants and subcontractors, if appropriate, any data and information not previously known to and generated by CONSULTANT or furnished to CONSULTANT and marked CONFIDENTIAL by the CLIENT. These provisions shall not apply to information in whatever form that comes into the public domain, nor shall it restrict CONSULTANT from giving notices required by law or complying with any order to provide information or data when such order is issued by a court, administrative agency or other authority with proper

jurisdiction, or if it is reasonably necessary for CONSULTANT to defend itself from any suit or claim.

ARTICLE 18: LIMITATION OF LIABILITY

To the fullest extent permitted by law, and notwithstanding any other provision of this Agreement, the total liability, in the aggregate, of CONSULTANT and CONSULTANT'S officers, directors, partners, employees, agents and subconsultants, and any of them, to the CLIENT or anyone claiming by, through or under the CLIENT, for any and all claims, losses, costs, or damages of any nature whatsoever arising out of, resulting from, or in any way related to the Project or the Agreement from any cause or causes, including but not limited to the negligence, professional errors or omissions, strict liability, breach of contract or warranty, express or implied, of CONSULTANT or CONSULTANT'S officers, directors, employees, agents or subconsultants, or any of them, shall not exceed the total compensation received by CONSULTANT under this Agreement.

CONSULTANT'S goal is to provide you with the answers to your questions regarding what lies below the surface. CONSULTANT employs state of the art electromagnetic signal tracing and radar imaging technologies. However, CLIENT acknowledges that no method of locating underground structures or utilities can ever guarantee 100% accuracy or completeness. CLIENT further acknowledges that, in certain circumstances, CONSULTANT'S results will be based, in part, upon the quality of the data provided by CLIENT, and that the decision to proceed with drilling, excavation or any destructive methods is left entirely up to the CLIENT.

CONSULTANT will not accept liability for inaccurate data provided by CLIENT and CLIENT agrees to release and indemnify CONSULTANT and its agents and representatives from all losses and damages asserted by CLIENT or third parties which arise from the negligence, carelessness or other misconduct by CLIENT in providing data or in CLIENT'S interpretation of data.

It is the CLIENT'S responsibility to prepare the site for scanning, including clearly identifying areas to be scanned, securing access to all areas required for scanning, and keeping these areas clean and free of obstructions. Delays caused by CLIENT'S failure to do so shall not be the responsibility of CONSULTANT and may result in an increased price.

ARTICLE 19: STATUTE OF LIMITATIONS

All legal actions by either party against the other arising out of or in any way connected with the services to be performed

hereunder must be brought within twelve (12) months from the date of substantial completion of the Scope of Services, unless CONSULTANT'S services shall be terminated earlier, in which case the date of termination of this Agreement shall be used as the accrual date.

ARTICLE 20: EXCLUDED SERVICES

Other services available from CONSULTANT and applicable to the project have been made known and explained to the CLIENT. Where CONSULTANT has deemed a service needed or advisable, CONSULTANT had made this opinion known to the CLIENT and the CLIENT has confirmed his or her opinion that such services are not requested of CONSULTANT and/or that the CLIENT has made or shall make arrangements to obtain those services from a source other than CONSULTANT.

The CLIENT hereby agrees, to the fullest extent permitted by law, to indemnify and hold CONSULTANT harmless from any claim, liability, or cost (including reasonable attorneys' fees and costs of defense) for injury or loss arising or allegedly arising from CONSULTANT'S failure to perform a service referenced above and excluded at the CLIENT'S direction.

ARTICLE 21: INFORMATION PROVIDED BY OTHERS

CONSULTANT shall indicate to the CLIENT the information needed for rendering of services hereunder. The CLIENT shall provide to CONSULTANT such information as is available to the CLIENT and the CLIENT'S consultants and contractors, and CONSULTANT shall be entitled to rely upon the accuracy and completeness thereof. The CLIENT recognizes that it is impossible for CONSULTANT to assure the accuracy, completeness, and sufficiency of such information, either because it is impossible to verify, or because of errors or omissions which may have occurred in assembling the information the CLIENT is providing. Accordingly, the CLIENT agrees, to the fullest extent permitted by law, to indemnify and hold CONSULTANT and its subconsultants harmless from any claim, liability, or cost including reasonable attorneys' fees and costs of defense) for injury or loss arising or allegedly arising from errors, omissions, or inaccuracies in documents or other information provided by the CLIENT to CONSULTANT.

ARTICLE 22: RIGHT TO RETAIN CONSULTANTS

CONSULTANT may retain the services of subconsultants when, in CONSULTANT'S sole opinion, it is appropriate and/or customary to do so. CONSULTANT'S use of other consultants shall not be unreasonably restricted by the CLIENT provided that CONSULTANT notifies the CLIENT in advance.

ARTICLE 23: CERTIFICATIONS, GUARANTEES, AND WARRANTIES

CONSULTANT shall not be required to sign any documents, no matter by whom requested, that would result in having to certify, guarantee, or warrant the existence of conditions whose existence CONSULTANT cannot ascertain. The CLIENT also agrees not to make resolution of any dispute with CONSULTANT or payment of any amount due to CONSULTANT in any way contingent upon CONSULTANT'S signing any such certification.

ARTICLE 24: CORPORATE PROTECTION

It is intended by the parties of this Agreement that CONSULTANT'S services in connection with the project shall not subject CONSULTANT'S individual employees, officers, or directors to any personal legal exposure for the risks associated with this project. Therefore, and notwithstanding anything to the contrary contained herein, the CLIENT agrees that as the CLIENT'S sole and exclusive remedy, any claim, demand or suit shall be directed and/or asserted only against CONSULTANT, a Connecticut corporation, and not against any of CONSULTANT'S employees, officers, or directors.

ARTICLE 25: WASTE DISPOSAL

It shall be the responsibility of the CLIENT to make arrangements for the transportation and disposal of any and all hazardous and/or contaminated wastes generated as a result of the work required under this Agreement. Samples obtained for laboratory analysis will be returned to the CLIENT for disposal upon completion of analytical testing. In addition, it will be the responsibility of the CLIENT to sign any hazardous waste manifests required for the proper transportation and disposal of these wastes.

ARTICLE 26: BURIED UTILITIES AND OTHER SUBSURFACE FEATURES

CONSULTANT will make reasonable efforts to obtain information from "Call Before You Dig" and local authorities concerning subsurface features at the project site. The CLIENT will furnish any and all available information to CONSULTANT concerning any buried utilities or subsurface features. Prior to the commencement of the project, CONSULTANT will obtain the CLIENT'S approval for all proposed subsurface penetration locations. The CLIENT agrees, to the fullest extent permitted by law, to indemnify and hold CONSULTANT and his or her subconsultants harmless from any damage, liability, or cost, including reasonable attorneys' fees and defense costs, for any property damage, injury, or economic loss arising or allegedly arising from subsurface penetrations in locations authorized by the CLIENT or from inaccuracy of

information provided to CONSULTANT by the CLIENT, except for damages caused by the sole negligence of CONSULTANT in his or her use of CLIENT furnished information.

ARTICLE 27: PUBLIC RESPONSIBILITY

The CLIENT recognizes that both the CLIENT and CONSULTANT owe a duty of care to the public that requires them to conform to applicable codes, standards, regulations, and ordinances, principally to protect public health and safety. CONSULTANT will do his or her best to alert the CLIENT to any matter that requires the CLIENT'S immediate action to protect public health and safety or conform to applicable codes, standards, regulations, or ordinances. Should the CLIENT decide to disregard CONSULTANT'S recommendations in these respects, the CLIENT agrees that CONSULTANT has the right to employ his or her best judgment in deciding whether or not to notify public health officials or take other appropriate action. The CLIENT agrees that CONSULTANT shall not be held liable in any respect for reporting or failing to report said conditions. Accordingly, the CLIENT agrees, to the fullest extent permitted by law, to indemnify and hold CONSULTANT harmless from any claim, liability, or cost (including reasonable attorneys' fees and costs of defense) for injury or loss arising or allegedly arising from CONSULTANT'S notifying, or failure to notify, public officials.

ARTICLE 28: REUSE AND OWNERSHIP OF DOCUMENTS

Reports, recommendations, designs, analyses and all other materials resulting from CONSULTANT'S efforts are intended solely for the purpose of the AGREEMENT; any reuse by CLIENT or others for purposes outside of this Agreement or any failure to follow CONSULTANT'S recommendations, without CONSULTANT'S written permission, shall be at the user's sole risk and without liability or legal exposure to CONSULTANT, or to CONSULTANT'S subconsultants and CLIENT shall indemnify and hold harmless CONSULTANT and CONSULTANT'S subconsultants from all claims, damages, losses and expenses including attorneys' fees arising out or resulting therefrom. All reports, field notes, calculations, estimates, specifications and other documents of whatever kind which are prepared, as instruments of service, shall remain CONSULTANT'S property and CONSULTANT shall retain the intellectual property rights to such material.

ARTICLE 29: TERMINATION

This Agreement may be terminated by either party by ten (10) days' written notice to the other party without cause; by mutual written agreement of the parties; or by either party on

one days' written notice to the other in the event of substantial failure to perform in accordance with the terms hereof by the other party through no fault of the terminating party. If this Agreement is terminated, the CLIENT shall within thirty (30) days pay the CONSULTANT for all services rendered and all costs incurred up to the date of termination, in accordance with the compensation provisions of this Agreement.

Notice of termination shall be given by the terminating party by hand delivery or by mailing certified mail, return receipt requested, to the principal office of the other. The effective date of termination shall be computed from the date of receipt of notice.

ARTICLE 30: SUCCESSORS AND ASSIGNS

The CLIENT and CONSULTANT each binds itself and its partners, successors, executors, administrators, assigns and legal representatives to the other party to this Agreement and to the partners, successors, executors, administrators, assigns and legal representatives of such other party, in respect to all covenants, agreements and obligations of this Agreement.

CONSULTANT shall not assign, or transfer any rights or obligations under or interest in (including, but without limitation, moneys that may become due or moneys that are due) this Agreement without the prior written consent of the CLIENT. Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under this Agreement.

Nothing herein shall be construed to give any rights or benefits hereunder to anyone other than the CLIENT and CONSULTANT.

ARTICLE 31: EXTENT OF AGREEMENT

This Agreement represents the entire and integrated agreement between the CLIENT and CONSULTANT and supersedes all prior negotiations, representations or agreements, either written or oral, or purchase order terms and conditions for this Project.

No change, alteration or modification of this Agreement shall be binding upon either party hereto, unless the same is in writing and is signed by a duly authorized officer or representative of such party.

ARTICLE 32: NOTICES

Any notice required under this Agreement will be in writing, addressed to the appropriate party at the address which appears on the Proposal Letter (as may be modified from

time to time by such party) and given personally, by registered or certified mail, return receipt requested, by facsimile, or by a nationally recognized overnight courier service. All notices shall be effective upon the date of receipt.

ARTICLE 33: SEVERABILITY AND SURVIVAL

Any provision of this Agreement later held to be unenforceable for any reason shall be deemed void, and all remaining provisions shall continue in full force and effect. All obligations arising prior to the termination of this Agreement and all provisions of this Agreement allocating responsibility or liability between the CLIENT and the CONSULTANT shall survive the completion of the services hereunder and the termination of this Agreement.

ARTICLE 34: INSURABILITY

CLIENT and CONSULTANT agree it is essential that CONSULTANT'S applicable insurance coverage apply to the project involved, for protection of CLIENT, CONSULTANT, and any appropriate third parties that may be involved. Accordingly, CONSULTANT shall have this Agreement reviewed for insurability. Any element of this Agreement which is not insurable or whose insurability is questionable shall be considered null and void, and CLIENT and CONSULTANT shall work together in good faith to replace any such element with another of similar intent, whose insurability is not in question. Should CLIENT require any special coverage, policy, amendment, or rider in order to attain insurability or for any other purpose, CLIENT shall pay the additional cost, if any, thereof.

ARTICLE 35: GOVERNING LAW

The terms of this Agreement shall be construed and interpreted under, and all respective rights and duties of the parties shall be governed by, the laws of the State of Connecticut.