

RADON INVESTIGATION REPORT

**JOHN F. KENNEDY MIDDLE SCHOOL
500 BROADWAY
BETHPAGE, NEW YORK 11714**

**PREPARED FOR:
BETHPAGE UNION FREE SCHOOL DISTRICT
10 CHERRY AVENUE
BETHPAGE, NEW YORK 11714**

**JCB PROJECT #: 22-51661
MAY 2022**

**J.C. BRODERICK & ASSOCIATES, INC.
Environmental Consulting & Testing**

**1775 Expressway Drive North
Hauppauge, New York 11788
631-584-5492 Fax: 631-584-3395**



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Section No. 1.0: Introduction

J.C. Broderick and Associates (JCB) was retained by the Bethpage Union Free School District (Bethpage) to perform an indoor air survey for radon gas as a result of identifying radium in the local groundwater by the Bethpage Water District and by JCB during the annual groundwater investigation at the Bethpage High School. The sampling protocol was performed essentially in accordance with the requirements of the United States Environmental Protection Agency (EPA) *Radon Measurement in Schools Revised Edition* (EPA 402-R-92-014), dated July 1993.

Section No. 2.0: Site Description and Location

The Subject Site is located at 500 Broadway Bethpage, New York 11714. The Subject Site is located on the east side of Broadway between Michael Court to the north and Gateway Street to the south. According to the United States Geological Survey (USGS) *Huntington, New York, 1992 7.5 Minute Series Topographical Map*, the Subject Site is situated at an approximate elevation of 112 feet (ft) above mean sea level. Groundwater is estimated at approximately 50 feet below surface grade (bsg). The location of the Subject Site is shown on the Site Location Map, Appendix-A Figure 1.

Section No. 3.0: Radon Sampling and Analysis

The detection of Radium 226 and 228 in the local groundwater prompted the sampling and analysis of Radon within the middle school building. On April 18, 2022, JCB set up short term Radon in Air test kits in nine (9) rooms and spaces within the basement of the middle school building that were in contact with the ground. The sampling devices were collected on April 21, 2022, after at least three days of exposure. In accordance with the EPA guidance document, in addition to the test kits, a total of one (1) duplicate (dup) sample and one (1) field blank sample were collected.

The following table summarizes the Radon samples submitted for laboratory analysis:

Table No. 1: Summary of Radon Samples Submitted for Laboratory Analysis					
Sample Device Number	Location	Sample Start Date	Sample End Date	Description of Sample	Analysis Method
495558	Basement Storage Rm 0004	04/18/22	04/21/22	Basement Storage Rm 0004	Radon in Air
498058	Basement Storage Rm 0005	04/18/22	04/21/22	Basement Storage Rm 0005	Radon in Air
498041	Basement Storage Rm 0006	04/18/22	04/21/22	Basement Storage Rm 0006	Radon in Air
496223	Basement Storage Rm 0008	04/18/22	04/21/22	Basement Storage Rm 0008	Radon in Air
498054	Basement Storage Rm 0009	04/18/22	04/21/22	Basement Storage Rm 0009	Radon in Air
497991	Basement Storage Rm 0010	04/18/22	04/21/22	Basement Storage Rm 0010	Radon in Air
498042	Basement Storage Rm 0012	04/18/22	04/21/22	Basement Storage Rm 0012	Radon in Air
498081	Basement Storage Rm 0012	04/18/22	04/21/22	Basement Storage Rm 0012 - Blank	Radon in Air
498016	Basement Hallway 0016	04/18/22	04/21/22	Basement Hallway 0016	Radon in Air
497978	Basement Hallway 0017	04/18/22	04/21/22	Basement Hallway 0017	Radon in Air
498187	Basement Hallway 0017	04/18/22	04/21/22	Basement Hallway 0017 - Dup	Radon in Air
Notes: Rm = Room					

Section No. 4.0: Radon Laboratory Analytical Summary

The short-term Radon in Air sampling was performed by laboratory supplied test kits, assigned individual identification numbers and secured. Chain of Custody documents were prepared, and the samples were then delivered to an independent New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certified laboratory for analysis of Radon in Air.

EMSL Analytical Inc. (EMSL) of Cinnaminson, New Jersey provided laboratory analytical services. Copies of EMSL's NYSDOH certifications are available upon request.

The laboratory analytical results for the Radon in Air samples were reviewed and compared to the United States Environmental Protection Agency (EPA) recommended action level of 4 pCi/L as reported in *Radon Measurement in Schools Revised Edition* (EPA 402-R-92-014), dated July 1993.

The following table summarized the Radon in Air analytical results:

Table No. 2: Summary of Radon Samples Analysis Results		
Sample Device Number	Location	Radon Activity pCi/L
495558	Basement Storage Rm 0004	1.0
498058	Basement Storage Rm 0005	1.3
498041	Basement Storage Rm 0006	0.9
496223	Basement Storage Rm 0008	Not Analyzed
498054	Basement Storage Rm 0009	0.8
497991	Basement Storage Rm 0010	0.3
498042	Basement Storage Rm 0012	1.0
498081	Basement Storage Rm 0012 - Blank	0.0
498016	Basement Hallway 0016	0.9
497978	Basement Hallway 0017	1.2
498187	Basement Hallway 0017 – Dup	0.9

The laboratory analysis results from the Radon in Air samples submitted did not reveal any elevated concentrations of Radon exceeding 4.0 pCi/L, the referenced guidance value established by the EPA.

Section No. 5.0: Quality Assurance and Quality Control (QA/QC) Procedures

To ensure that measurement results are reliable, JCB performed an unexposed control detector (blank) side-by-side with the sampling device at one (1) sampling location.

The field sampling team-maintained Radon sampling chain of custody records used to track samples from sampling point to analysis which summarized the following:

- Sample identification;
- Test Kit ID number;
- Device ID number;
- Sampling beginning date and time;
- Sampling ending date and time;
- Temperature, °F;
- Humidity, %;

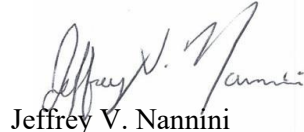
Section No. 6.0: Conclusions and Recommendations

Based upon the sampling results reported, the USEPA decision matrix does not recommend any mitigation for Radon.

Due to the detection of Radium 226 and 228 in the local groundwater, JCB does recommend that continued monitoring for Radon in Air within the school building be performed to confirm the effectiveness of the isolation barrier.

Sincerely,

J.C. Broderick & Associates, Inc.



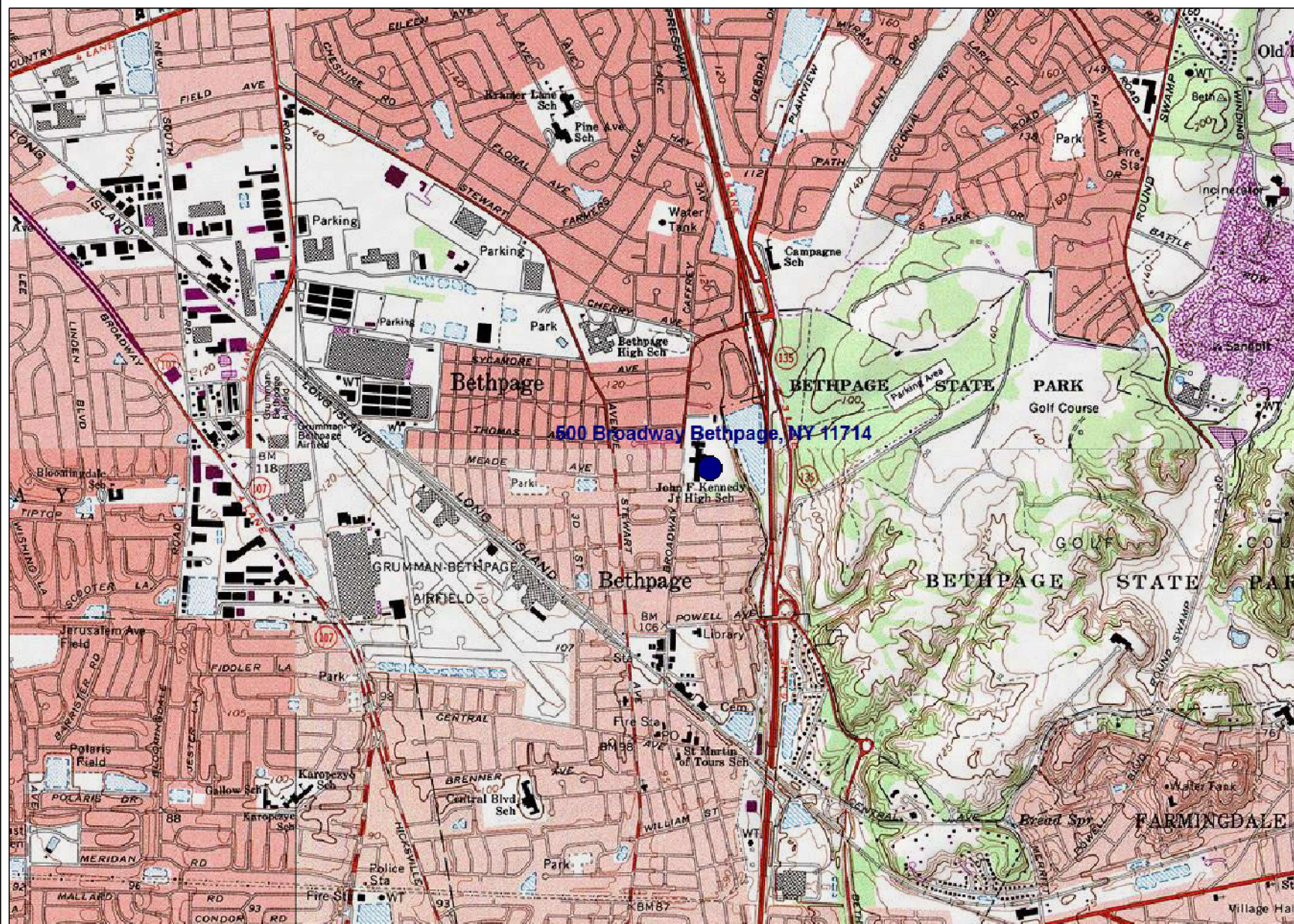
Jeffrey V. Nannini
Environmental Scientist



Steven Muller, P.G.
Project Manager

Appendix A

Figures



0 1000 FEET 0 500 1000 METERS
 Map created with TOPO!® ©2003 National Geographic (www.nationalgeographic.com/topo)

JCB LEGEND
 ● SUBJECT SITE



J.C. BRODERICK

& Associates

Environmental Consulting and
 Testing

1775 Express Drive North
 Hauppauge, NY 11788

Phone: (631).584.5492

Fax: (631).584.3395

Notes:

John F. Kennedy
 Middle School
 500 Broadway
 Bethpage, NY 11714

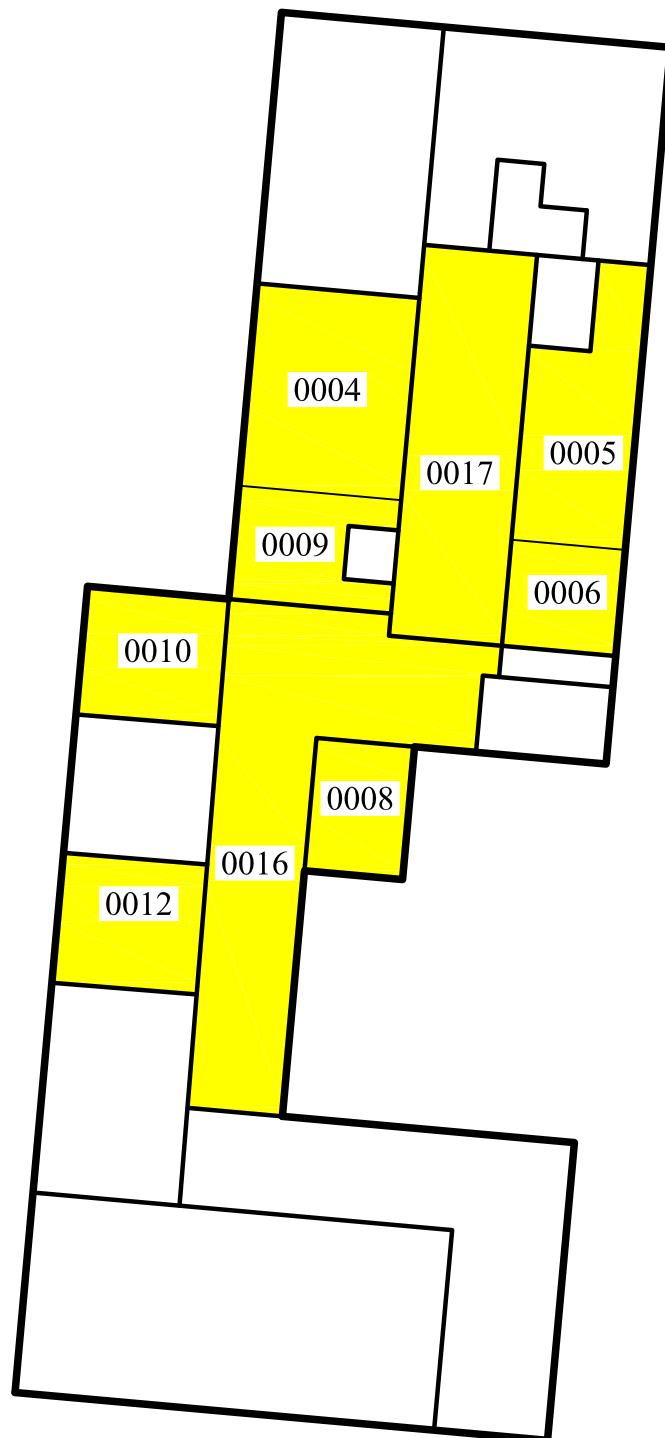
Drawing Title

Figure No. 1
 Site Location Map

Scale As Noted	Project No. 22-51661	Date 04-18-22
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Drawn By J.V.N.	Checked By S.W.M.	Page No. 1 of 2
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Drawing No.



JCB LEGEND	
	RADDN SAMPLE LOCATION



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John F. Kennedy
Middle School
500 Broadway
Bethpage, NY 11714

Drawing Title

Figure No. 2

**Basement
Radon
Sampling
Locations**

Scale N.T.S.	Project No. 22-51661	Date 04-18-22
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Drawn By J.V.N.	Checked By S.W.M.	Page No. 2 of 2
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Drawing No.

2

Appendix B

Field Photograph Logs

**Radon Sampling and Duplicate Sample Location
Middle School Basement Hallway**



Field Photograph Log

Radon Investigation Report

**John F. Kennedy Middle School
500 Broadway
Bethpage, New York 11714**

Photo No. 01

JCB#: 22-51661

**Radon Sampling Location
Middle School Basement Storage Room**



Field Photograph Log

Radon Investigation Report

**John F. Kennedy Middle School
500 Broadway
Bethpage, New York 11714**

Photo No. 02

JCB#: 22-51661

**Radon Sampling and Blank Location
Middle School Basement Storage Room**



Field Photograph Log

Radon Investigation Report

**John F. Kennedy Middle School
500 Broadway
Bethpage, New York 11714**

Photo No. 03

JCB#: 22-51661

**Radon Sampling and Duplicate Sample Location
Middle School Basement Storage Room**



Field Photograph Log

Radon Investigation Report

**John F. Kennedy Middle School
500 Broadway
Bethpage, New York 11714**

Photo No. 04

JCB#: 22-51661

Appendix C

Laboratory Analysis Reports

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (800) 220-3675 / (856) 786-0327

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

EMSL Order: 382203302

CustomerID: JCBR50

CustomerPO:

ProjectID:

Attn: **Steven Muller**
J.C. Broderick & Associates
1775 Expressway Drive North, Suite 1
Hauppauge, NY 11788

Phone: (631) 584-5492
Fax:
Received: 4/25/2022 10:36 AM
Analysis Date: 4/25/2022
Collected: 4/18/2022

Project: **JFK MS/22-51661**

Test **JFK MS/22-51661**
Site: **500 Broadway**
Bethpage, NY 11714

Test Report: Radon in Air Test Results

Liquid Scintillation ID	Location	Radon Activity (pCi/L)	Start	Stop	Temperature F	Humidity %	Sample Type
495558 382203302-0001	Room# 0004-Table	1	4/18/2022 9:20:00 AM	4/21/2022 3:46:00 PM	72.8	44	Customer
Sample Notes:							
498058 382203302-0002	Room# 0005-Box	1.3	4/18/2022 9:21:00 AM	4/21/2022 3:48:00 PM	73.7	42.7	Customer
Sample Notes:							
498041 382203302-0003	Room# 0006-Box	0.9	4/18/2022 9:22:00 AM	4/21/2022 3:45:00 PM	72.5	41.6	Customer
Sample Notes:							
496223 382203302-0004	Room# 0008-Shelf - Missing		4/18/2022 9:24:00 AM	4/21/2022	0	0	Customer
Sample Notes: Not Analyzed Radon device not received by lab.							
498054 382203302-0005	Room# 0009-Table	0.8	4/18/2022 9:25:00 AM	4/21/2022 3:43:00 PM	72.8	37	Customer
Sample Notes:							
497991 382203302-0006	Room# 0010-Table	0.3	4/18/2022 9:26:00 AM	4/21/2022 3:39:00 PM	69.8	32.5	Customer
Sample Notes:							
498042 382203302-0007	Room# 0012-Desk	1	4/18/2022 9:28:00 AM	4/21/2022 3:44:00 PM	71.7	39.6	Customer
Sample Notes:							
498081 382203302-0008	Room# 0012-Desk	0	4/18/2022 9:28:00 AM	4/21/2022 3:44:00 PM	71.7	39.6	Blank
Sample Notes:							
498016 382203302-0009	Room# 0016-Table	0.9	4/18/2022 9:29:00 AM	4/21/2022 3:44:00 PM	72.8	39.7	Customer
Sample Notes:							
497978 382203302-0010	Room# 0017-Cabinet	1.2	4/18/2022 9:30:00 AM	4/21/2022 3:38:00 PM	67.8	51.3	Customer
Sample Notes:							

Please visit www.radontestinglab.com

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (800) 220-3675 / (856) 786-0327

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

EMSL Order: 382203302

CustomerID: JCBR50

CustomerPO:

ProjectID:

Test Report: Radon in Air Test Results

Liquid Scintillation ID	Location	Radon Activity (pCi/L)	Start	Stop	Temperature F	Humidity %	Sample Type
498187	Room# 0017-Cabinet	0.9	4/18/2022	4/21/2022	67.8	51.3	Duplicate
382203302-0011			9:30:00 AM	3:38:00 PM			

Duplicate RPD = 28.6%**Sample Notes:** Duplicate's Customer Sample:382203302-0010**Report Notes**

The United States Environmental Protection Agency (EPA) has established a radon action level of 4.0pCi/L. EPA recommends mitigation of a structure if the confirmed radon level is equal to or greater than 4.0pCi/L.

The radon tests were performed using liquid scintillation radon detectors and counted on a liquid scintillation counter following EPA Method # 402-R-92-004 testing protocol for Radon in Air testing. EPA recommends retesting every two years.

Please contact EMSL Analytical, Inc. or your State Health Department for further information.

All procedures used for generating this report are in complete accordance with the current EPA protocols for the analysis of Radon in Air.

Analyst(s)

Kevin Schwartz (10)

Dominic Gehret, Radiochemistry Laboratory Manager, 10872

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder. The test results meets all NELAC requirements unless otherwise specified.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ FL RB2034/R2687,IL RNL2008202,IN RTL00935,IA RNLAB10005,KS KS-LB-0005/KS-MS-0482,ME SPC202,MN RL-0005,NE 474/RMB-1083,NJ 03036/MEB92525/MES13910,NY 10872,OH RL39,OK D9952,PA 2573/3393/68-00367,RI RMB-108/RI00179,WV RL000220,NRSB-ARL6006,NRPP

Initial report from 04/27/2022 15:55:16

Fed Ex 27233640 4301

M3



EMSL ANALYTICAL, INC.

CHAIN OF CUSTODY RADON LABORATORY SERVICES (COMMERCIAL USE)

EMSL Job #: 382203302

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: 800-220-3675
www.emsl.com

Company Information:

EMSL Acct #: JCBR50

Company Name: JCBRODERICK & ASSOC

Contact: STEVEN MULLEN

Address: 1775 EXPRESSWAY DR. N

City: HAUPPAUGE

State: NY Zip: 11788

Phone: 631-584-5494 Fax:

Email: Smullen@JCBRODERICK.COM

Technician Certification #:

Tech Name: STEVEN MULLEN

Tech Signature:

Project/Site Information:

*Required

Project Name: JFK MS

Project # / PO: 22-51661

*Address: 500 BROADWAY

*City: BETHPAGE *State: NY *Zip: 11714

*Building type? ☐ Residential ☐ Non-Residential☒ School ☐ Other:*Building foundation type? ☒ Basement ☐ Crawlspace☐ Slab on Grade ☐ Other

Special Notes / Instructions:

*Turnaround Time (TAT) Options

☐ 1 Day☐ 2 Day☐ 3 Day☒ 4 Day

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(S) Sample (B) Blank (D) Duplicate	Device Number	Location	Room #	Exposure Period Beginning Date		Exposure Period Ending Date		Temp. °F	Humidity, %
				Date	Time	Date	Time		
(S) Sample	495558	TABLE	0004	4/18/22	9:20	4/21/22	3:46	72.8	44.0
S	498058	BOX	0005	4/18/22	9:21	4/21/22	3:48	73.7	42.7
S	498041	BOX	0006	4/18/22	9:22	4/21/22	3:45	72.5	41.6
S	496223	SHELF	0008	4/18/22	9:24	4/21/22	MISSING		
S	498054	TABLE	0009	4/18/22	9:25	4/21/22	3:43	72.8	37.0
S	497991	COUNTER	0010	4/18/22	9:26	4/21/22	3:39	69.8	32.5
S	498042	DESK	0012	4/18/22	9:28	4/21/22	3:44	71.7	39.6
B	498081								

Relinquished by (Sign):

Date: 4/22/22 Time:

1 Page of 2

Received by EMSL (Sign): Katherine Viaud

Date: 4.22.22 Time: 5:04PM

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200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: 800-220-3675
www.emsl.com

382203302

ENSL ANALYTICAL, INC.Relinquished by (Sign):

Date: 4/22/22 Time:

2 Page of 2

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Date: 4-22-22 Time: 5:04 PM