SCHEMATIC DESIGN
WASHINGTON IRVING MIDDLE SCHOOL
105 CUMMINS HIGHWAY
ROSLINDALE, MA

DRAFT REPORT

OCTOBER 14, 2022

MOUNT VERNON GROUP
ARCHITECTS

BOSTON PUBLIC SCHOOLS
CITY OF BOSTON
WASHINGTON IRVING SCHOOL RENOVATION/ADDITION PROJECT
ROSLINDALE, MA.

SCHEMATIC DESIGN

TABLE OF CONTENTS

BOSTON PUBLIC SCHOOLS
CITY OF BOSTON
WASHINGTON IRVING SCHOOL RENOVATION/ADDITION PROJECT
ROSLINDALE, MA.

SCHEMATIC DESIGN

PROJECT DIRECTORY
OWNER:

Public Facilities Department (PFD)

Patrick Mulvey-Welsh, MCPPO
Assistant Director of Construction
City of Boston/Public Facilities Department
22 Drydock Ave.
Boston, MA 02210
T: 617-635-3408
C: 617-869-6642
E: Patrick.mulvey-welsh@boston.gov

William Evers
Project Manager
City of Boston/Public Facilities Department
22 Drydock Ave.
Boston, MA 02210
T: 617-635-3408
C: 617-293-3097
E: bill.evers@boston.gov

Evan Brinkman, AIA
Assistant Director for Design
City of Boston/Public Facilities Department
22 Drydock Ave.
Boston, MA 02210
T: 617-635-3408
C: 617-233-2864
E: evan.brinkman@boston.gov

Angela Chan
Senior Review Architect
City of Boston/Public Facilities Department
22 Drydock Ave.
Boston, MA 02210
T: 617-635-3408
E: angela.chan@boston.gov

BOSTON PUBLIC SCHOOLS
CITY OF BOSTON
WASHINGTON IRVING SCHOOL RENOVATION/ADDITION PROJECT
ROSLINDALE, MA.

SCHEMATIC DESIGN

Boston Public Schools (BPS)

Brian Forde
Executive Director – Facilities Department
City of Boston/Boston Public Schools
1216 Dorchester Ave.
Dorchester, MA 02125
T: 617-635-9162
E: bforde2@bostonpublicschools.org

Lauren Viviani
City of Boston/Boston Public Schools
1216 Dorchester Ave.
Dorchester, MA 02125
T: 617-635-9162
E: lviviani@bostonpublicschools.org

Kayla Jackson
City of Boston/Boston Public Schools
1216 Dorchester Ave.
Dorchester, MA 02125
T: 617-635-9162
E: kjackson4@bostonpublicschools.org

Sam DePina
City of Boston/Boston Public Schools
1216 Dorchester Ave.
Dorchester, MA 02125
T: 617-635-9162
E: sdepina@bostonpublicschools.org

Indira Alvarez
City of Boston/Boston Public Schools
1216 Dorchester Ave.
Dorchester, MA 02125
T: 617-635-9162
E: ialvarez@bostonpublicschools.org

BOSTON PUBLIC SCHOOLS
CITY OF BOSTON
WASHINGTON IRVING SCHOOL RENOVATION/ADDITION PROJECT
ROSLINDALE, MA.

SCHEMATIC DESIGN

Teresa Neff-Webster
City of Boston/Boston Public Schools
1216 Dorchester Ave.
Dorchester, MA 02125
T: 617-635-9162
E: tneffwebster@bostonpublicschools.org

Drew Echelson
City of Boston/Boston Public Schools
1216 Dorchester Ave.
Dorchester, MA 02125
T: 617-635-9162
E: dechelson@bostonpublicschools.org

Jomila Smith
City of Boston/Boston Public Schools
1216 Dorchester Ave.
Dorchester, MA 02125
T: 617-635-9162
E: jsmith4@bostonpublicschools.org

ARCHITECT:

Frank Tedesco AIA, LEED AP BD+C
Principal
Mount Vernon Group Architects, Inc.
178 Albion St., Suite 240
Wakefield, MA 01880

T: 781-213-5030 x118
M: 617-930-2899
E: ftedesco@mvgarchitects.com

Dennis J. Daly, AIA
Principal
Mount Vernon Group Architects, Inc.
178 Albion St., Suite 240
Wakefield, MA 01880

T. 781.213.5030
F. 781.213.5040
C. 781.451.1146
E. ddaly@mvgarchitects.com

BOSTON PUBLIC SCHOOLS
CITY OF BOSTON
WASHINGTON IRVING SCHOOL RENOVATION/ADDITION PROJECT
ROSLINDALE, MA.

SCHEMATIC DESIGN

David Turcotte
Associate Principal / Project Manager
Mount Vernon Group Architects, Inc.
178 Albion St., Suite 240
Wakefield, MA 01880

T: 781-451-0240 direct line
F: 781-213-5040
C: 978-424-1892
E: dturcotte@mvgarchitects.com

LANDSCAPE ARCHITECT:

Michelle Crowley, ASLA
Principal
Crowley Cottrell, LLC
171 Milk St., Fl. 2
Boston, MA 02109

T. 617.338.8400 ext. 101
F. 617.203.9033
C. 617.877.9867
E. mich@crowleycottrell.com

Jessica Brown, MLA
Associate / Project Manager
Crowley Cottrell, LLC
171 Milk St., Fl. 2
Boston, MA 02109

T. 617.338.8400 ext. 103
F. 617.203.9033
M. 617.203.9033
E. jessica@crowleycottrell.com

CIVIL ENGINEER:

Chris Emilius, PE
Project Manager
Brennan Consulting, LLC
24 Ray Ave.
Burlington, MA 01803

T. 617.273.3434 ext. 100
E. cemilius@brennanconsults.com

SCHEMATIC DESIGN
STRUCTURAL ENGINEER:

Jerome A. Yurkoski, PE
Senior Principal
SOUZA, TRUE & PARTNERS, INC.
265 Winter Street, Third Floor
Waltham, MA 02451

T: (617) 926-6100, Ext. #239
C: (978) 852-6243
E: jyurkoski@souzatrue.com

MECHANICAL/PLUMBING/FP ENGINEERS:

Marty Vickey, PE, LEED AP
President
C.A. Crowley Engineering, Inc.
645 County St., Unit 6
Taunton, MA 02780

T: 508.884.5094 ext 241
F: 508.884.5099
E: mvickey@crowleyeng.com

Raymond C. Vincent, PE
Plumbing/Fire Protection Department Head
C.A. Crowley Engineering, Inc.
645 County St., Unit 6
Taunton, MA 02780

T: 508.884.5094 ext 244
F: 508.884.5099
E: rvincent@crowleyeng.com

Ravi Addanki
Sr. Mechanical Engineer
C.A. Crowley Engineering, Inc.
645 County St., Unit 6
Taunton, MA 02780

T: 508.884.5094 ext 228
F: 508.884.5099
E: raddanki@crowleyeng.com

BOSTON PUBLIC SCHOOLS
CITY OF BOSTON
WASHINGTON IRVING SCHOOL RENOVATION/ADDITION PROJECT
ROSLINDALE, MA.

SCHEMATIC DESIGN
ELECTRICAL ENGINEER:

Mary Beth Fritz
Vice President/Electrical Designer
Shepherd Engineering Inc.
1308 Grafton Street
Worcester, MA 01604

T: 508.757.7793
F: 508.753.2309
C: 508.509.3627
E: mfritz@shepherdengineering.com

ESTIMATOR:

Seamus Fennessy, MRICS
President
Fennessy Consulting Services
27 Glen St., Suite 8
Stoughton, MA 02072

T: 781.344.4464 ext 102
F: 781.344.4452
C: 617.777.0849
E: sfennessy@fennessyconsulting.com

MOUNT VERNON GROUP
ARCHITECTS

WASHINGTON IRVING SCHOOL, ROSLINDALE
SD PROGRESS MEETING AGENDA
SCHEMATIC DESIGN
OCTOBER 5, 2022 10AM

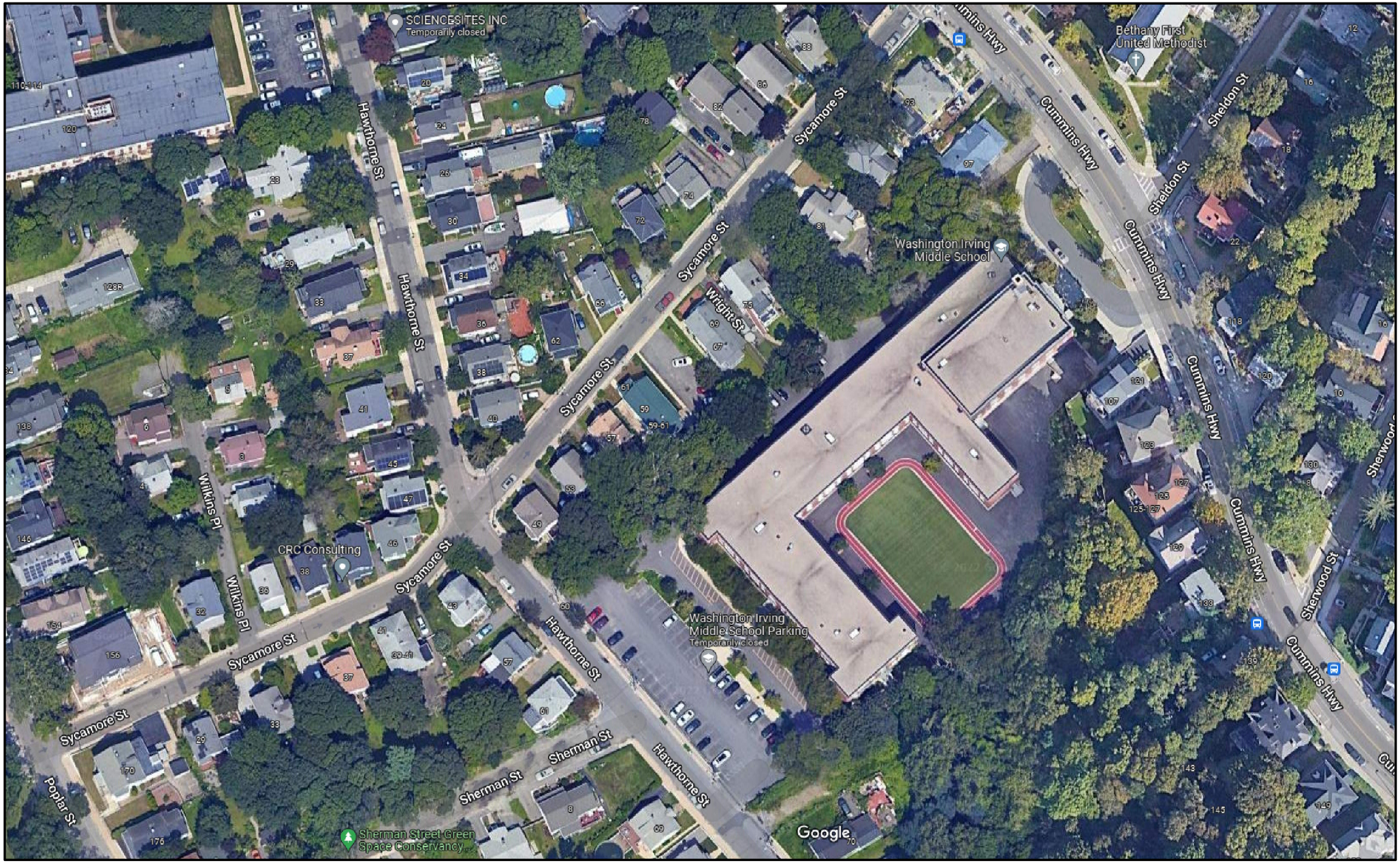
AGENDA:

- Opening remarks & roll call – PFD, BPS, CC, MVG
- Overview of existing school location and layout – Aerial map/MVG Architects
- Floor Plans, existing and new addition K-6 grade layout – MVG Architects
- Landscape Plans, new layout options – Crowley Cottrell Landscape Architects
- Exterior Elevations, 2D views @ new additions – MVG
- Exterior Elevations, 3D Sketchup model views - MVG
- Questions & Comments
- Next meeting date

MVG Architects

WASHINGTON IRVING SCHOOL PROJECT
Boston Public Schools
City of Boston

SCHEMATIC DESIGN

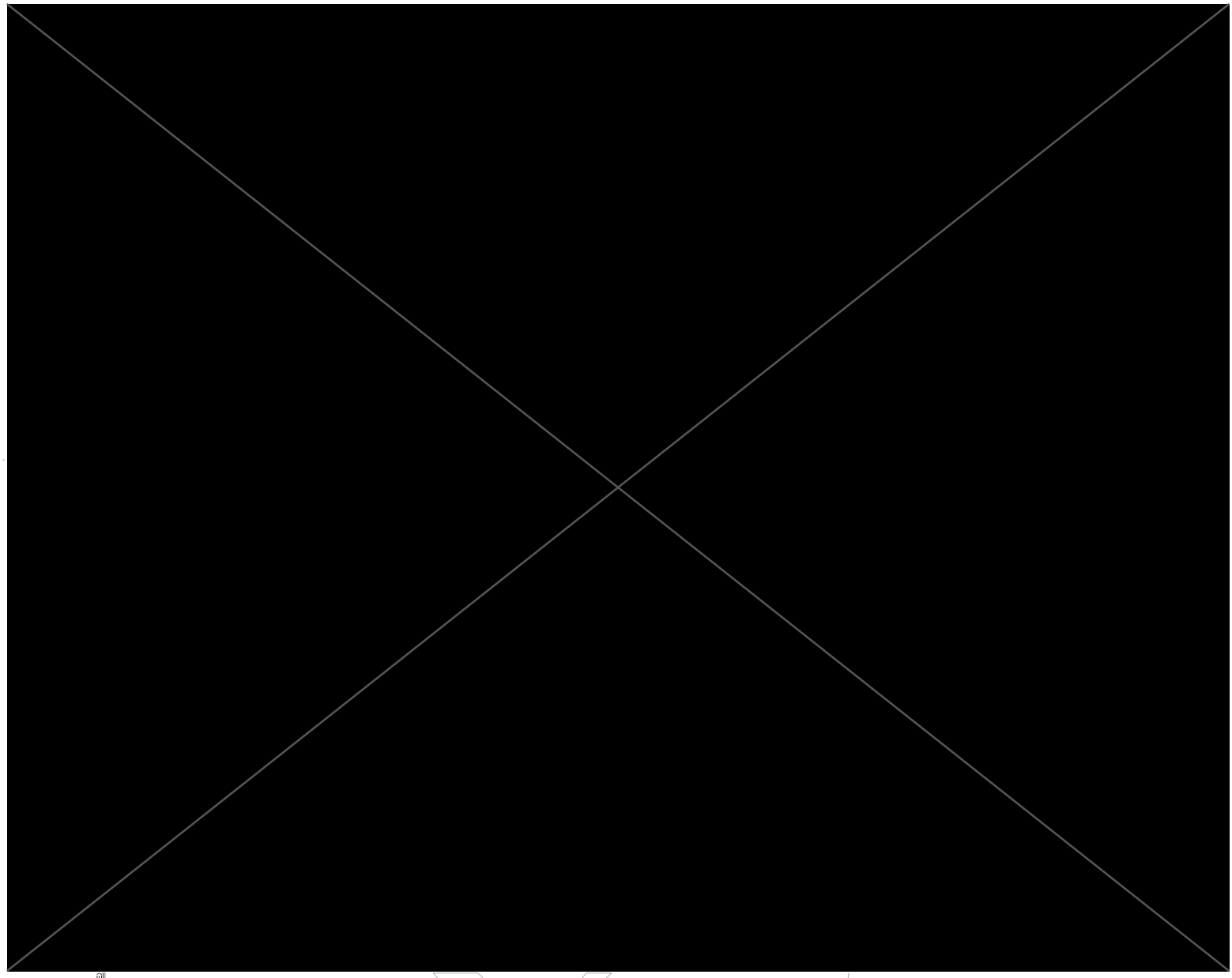


Washington Irving Elementary School Location
Alternative 1, Existing Aerial View
Gr. K-6, 700 Students
Renovation/Addition Construction
114,225 SF

MOUNT VERNON GROUP ARCHITECTS

WASHINGTON IRVING SCHOOL PROJECT
Boston Public Schools
City of Boston

SCHEMATIC DESIGN
700 STUDENT PROPOSED LAYOUT



WRIGHT ST.

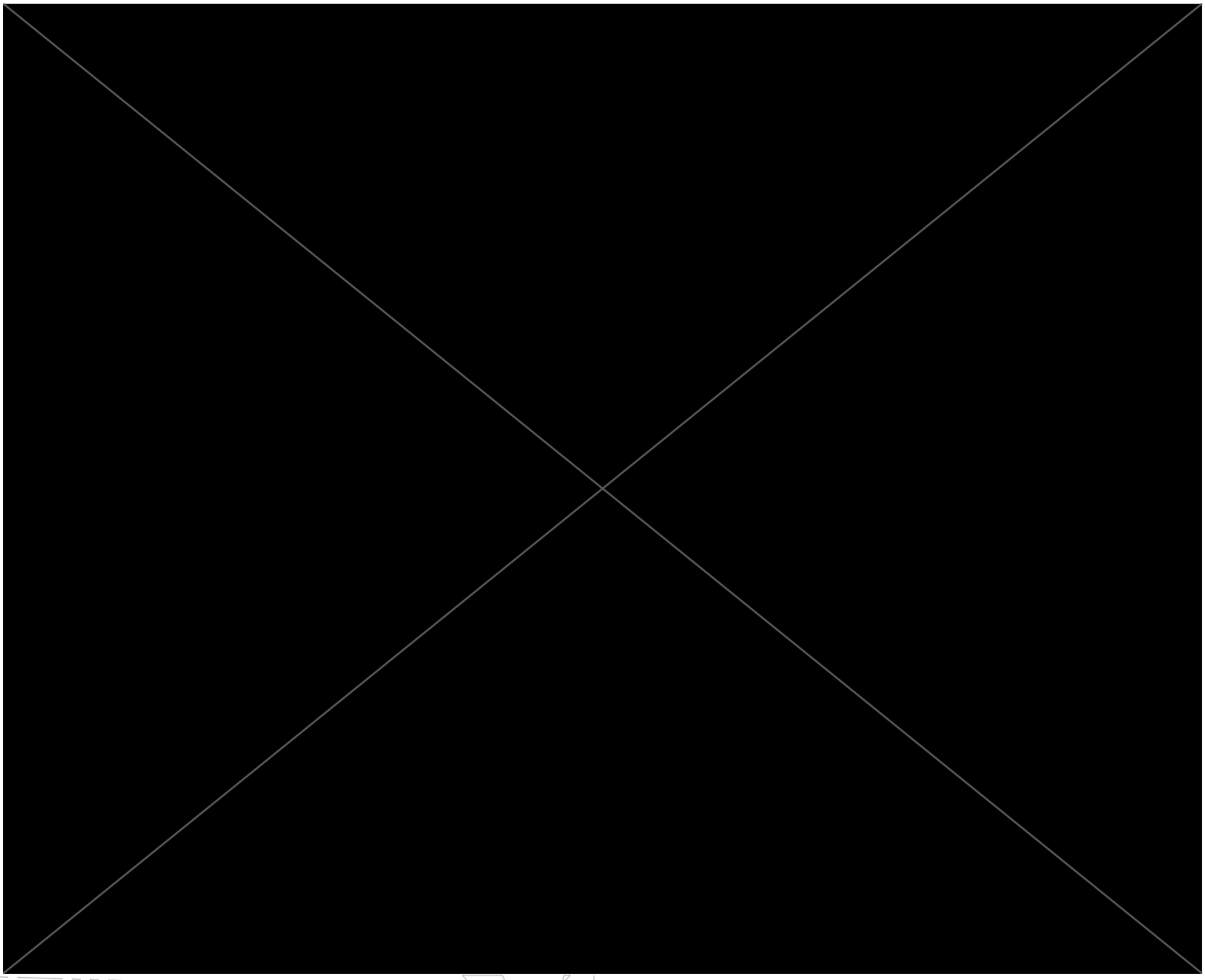
0 25' 50' 100'
SCALE: 1" = 50'-0"

Washington Irving Elementary School Location
Alternative 1, First Floor
Gr. K-6, 700 Students
Renovation/Addition Construction
114,225 SF

MVG
MOUNT VERNON GROUP
ARCHITECTS

WASHINGTON IRVING SCHOOL PROJECT
Boston Public Schools
City of Boston

SCHEMATIC DESIGN
700 STUDENT PROPOSED LAYOUT



WRIGHT ST.

0 25' 50' 100'

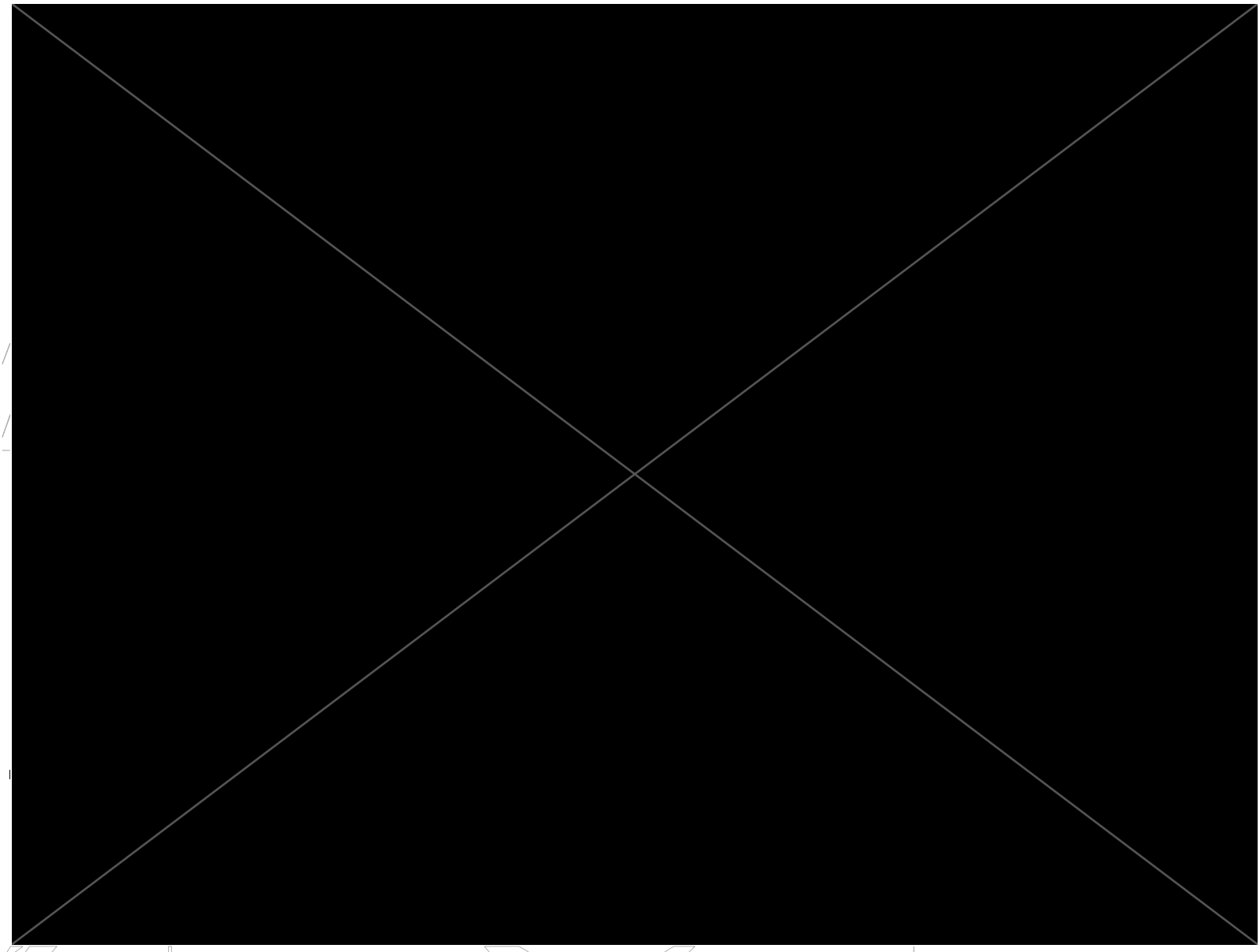
SCALE: 1" = 50'-0"

Washington Irving Elementary School Location
Alternative 1, Second Floor
Gr. K-6, 700 Students
Renovation/Addition Construction
114,225 SF

MVG
MOUNT VERNON GROUP
ARCHITECTS

WASHINGTON IRVING SCHOOL PROJECT
Boston Public Schools
City of Boston

SCHEMATIC DESIGN
700 STUDENT PROPOSED LAYOUT



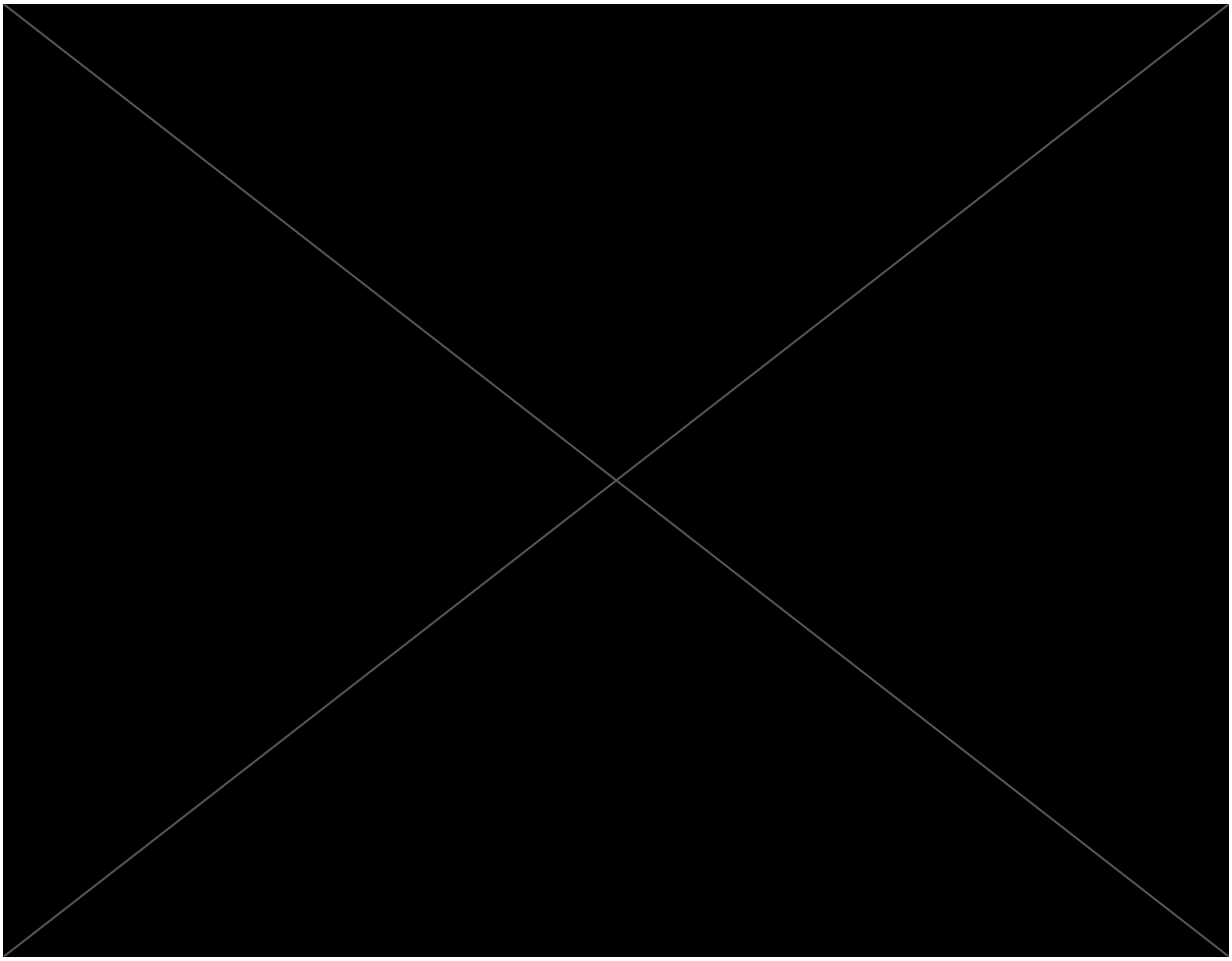
0 25' 50' 100'
SCALE: 1" = 50'-0"

Washington Irving Elementary School Location
Alternative 1, Third Floor
Gr. K-6, 700 Students
Renovation/Addition Construction
114,225 SF

MVG
MOUNT VERNON GROUP
ARCHITECTS

WASHINGTON IRVING SCHOOL PROJECT
Boston Public Schools
City of Boston

SCHEMATIC DESIGN
700 STUDENT PROPOSED LAYOUT



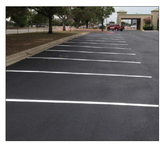
0 25' 50' 100'
SCALE: 1" = 50'-0"

Washington Irving Elementary School Location
Alternative 1, Fourth Floor
Gr. K-6, 700 Students
Renovation/Addition Construction
114,225 SF

MVG
MOUNT VERNON GROUP
ARCHITECTS

PAVING / SURFACING

1 ASPHALT PARKING LOT
new parking lot top coat and striping

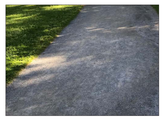


2A PEDESTRIAN CONCRETE PAVING
4" poured concrete on 6" aggregate base

2B VEHICULAR CONCRETE
6" poured concrete on 12" aggregate base

3 BOARDWALK
wood boardwalk flush with parking lot to bridge rain garden

4 STABILIZED STONEDUST
accessible reinforced stonedust path with steel edging



5 SYNTHETIC TURF
athletic turf on drainage grid with crushed aggregate base

6 RUBBER-CUSHIONED SAFTEY SURFACING
depth TBD with play structure

7 PAINTED CONCRETE PLAY
thermoplastic long lasting paint- colors TBD

8 PLAZA PAVING
tbd.

PLANTING

10 EXISTING TREES TO REMAIN
trees to be protected during construction (white circle center)

11 RAIN GARDEN
existing rain garden to remain and extend along entire dropoff

12 SHADE TREES
4" caliper deciduous trees. tree pits a minimum of 4'x4'

13 NATURE PLAY PLANTING
canopy trees, low maintenance shrubs and perennials

14 LAWN
sodded lawn

FURNISHINGS

15 PICNIC TABLE
Vestre April Series in metal or wood (or equal)

16 BENCH
Vestre April Series in metal or wood (or equal)

17 PLAY EQUIPMENT
LSI crabtrap (or equal), XXX spinner, set of swings with basket swing

18 BASKETBALL HOOP
freestanding hoop with fence behind backboard

19 LOG BALANCE BEAMS
surfaced mounted in rubber play surfacing

20 STUMP CIRCLE OUTDOOR CLASSROOM
mounted in stabilized stonedust

21 BOULDERS
set in grade

SITE STRUCTURES

22 SOLID GRANITE SEAT WALL
18" tall, reclaimed granite to match school stairs

23 VEHICULAR BOLLARDS
product TBD.

24 BASEMENT WINDOW WELL
concrete window well retaining grade with metal grate top

25 POURED CONCRETE STAIRS + WALLS
adjacent retaining walls as needed

LIGHTING

26 PARKING / FLOOD LIGHT
product TBD.

27 PEDESTRIAN LIGHT
product TBD.

28 BOLLARD LIGHT
product TBD.

NORTH ARROW

N

CONSULTANTS

Crowley Cottrell, LLC
171 Milk Street, 2nd Floor
Boston MA 02109
617.338.8400
www.crowleycottrell.com

REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING ELEMENTARY SCHOOL RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

PROPOSED LANDSCAPE OPTION 1

MVG
MOUNT VERNON GROUP ARCHITECTS

200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

STAMP

DRAWING INFORMATION

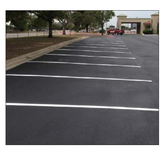
SCALE	1" = 20'-0"
DRAWN BY	BW, CVM
CHECKED	MC, JB
DATE	SEPTEMBER 27, 2022

DRAWING NUMBER

L100-1

PAVING / SURFACING

1 ASPHALT PARKING LOT
new parking lot top coat and striping



2A PEDESTRIAN CONCRETE PAVING
4" poured concrete on 6" aggregate base

2B VEHICULAR CONCRETE
6" poured concrete on 12" aggregate base

3 BOARDWALK
wood boardwalk flush with parking lot to bridge rain garden

4 STABILIZED STONEDUST
accessible reinforced stonedust path with steel edging

5 SYNTHETIC TURF
athletic turf on drainage grid with crushed aggregate base

6 RUBBER-CUSHIONED SAFTEY SURFACING
depth TBD with play structure

7 PAINTED CONCRETE PLAY
thermoplastic long lasting paint- colors TBD

8 PLAZA PAVING
tbd.

9 TRACK
6' wide running track, 2 lanes

(op 2+3 only)

PLANTING

10 EXISTING TREES TO REMAIN
trees to be protected during construction (white circle center)

11 RAIN GARDEN
existing rain garden to remain and extend along entire dropoff

12 SHADE TREES
4" caliper deciduous trees. tree pits a minimum of 4'x4'

13 NATURE PLAY PLANTING
canopy trees, low maintenance shrubs and perennials

14 LAWN
sodded lawn

FURNISHINGS

15 PICNIC TABLE
Vestre April Series in metal or wood (or equal)

16 BENCH
Vestre April Series in metal or wood (or equal)

17 PLAY EQUIPMENT
LSI crabtrap (or equal), XXX spinner, set of swings with basket swing

18 BASKETBALL HOOP
freestanding hoop with fence behind backboard

19 LOG BALANCE BEAMS
surfaced mounted in rubber play surfacing

20 STUMP CIRCLE OUTDOOR CLASSROOM
mounted in stabilized stonedust

21 BOULDERS
set in grade

SITE STRUCTURES

22 SOLID GRANITE SEAT WALL
18" tall, reclaimed granite to match school stairs

23 VEHICULAR BOLLARDS
product TBD.

24 BASEMENT WINDOW WELL
concrete window well retaining grade with metal grate top

25 POURED CONCRETE STAIRS + WALLS
adjacent retaining walls as needed

LIGHTING

26 PARKING / FLOOD LIGHT
product TBD.

27 PEDESTRIAN LIGHT
product TBD.

28 BOLLARD LIGHT
product TBD.

NORTH ARROW

N

CONSULTANTS

Crowley Cottrell, LLC
171 Milk Street, 2nd Floor
Boston MA 02109
617.338.8400
www.crowleycottrell.com

REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING ELEMENTARY SCHOOL RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

PROPOSED LANDSCAPE OPTION 2

MVG
MOUNT VERNON GROUP ARCHITECTS
200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880
781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

STAMP

DRAWING INFORMATION

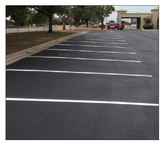
SCALE	1" = 20'-0"
DRAWN BY	BW, CVM
CHECKED	MC, JB
DATE	SEPTEMBER 27, 2022

DRAWING NUMBER

L100-2

PAVING / SURFACING

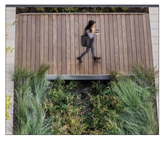
1 ASPHALT PARKING LOT
new parking lot top coat and striping



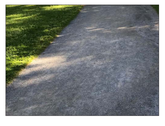
2A PEDESTRIAN CONCRETE PAVING
4" poured concrete on 6" aggregate base

2B VEHICULAR CONCRETE
6" poured concrete on 12" aggregate base

3 BOARDWALK
wood boardwalk flush with parking lot to bridge rain garden



4 STABILIZED STONEDUST
accessible reinforced stonedust path with steel edging



5 SYNTHETIC TURF
athletic turf on drainage grid with crushed aggregate base

6 RUBBER-CUSHIONED SAFTEY SURFACING
depth TBD with play structure

7 PAINTED CONCRETE PLAY
thermoplastic long lasting paint- colors TBD

8 PLAZA PAVING
tbd.

9 TRACK
6' wide running track, 2 lanes

(op 2+3 only)

PLANTING

10 EXISTING TREES TO REMAIN
trees to be protected during construction (white circle center)

11 RAIN GARDEN
existing rain garden to remain and extend along entire dropoff

12 SHADE TREES
4" caliper deciduous trees. tree pits a minimum of 4'x4'

13 NATURE PLAY PLANTING
canopy trees, low maintenance shrubs and perennials

14 LAWN
sodded lawn

FURNISHINGS

15 PICNIC TABLE
Vestre April Series in metal or wood (or equal)

16 BENCH
Vestre April Series in metal or wood (or equal)

17 PLAY EQUIPMENT
LSI playbooster (or equal), XXX spinner, set of swings with basket swing

18 BASKETBALL HOOP
freestanding hoop with no fence behind the backboard

19 LOG BALANCE BEAMS
surfaced mounted in rubber play surfacing

20 STUMP CIRCLE OUTDOOR CLASSROOM
mounted in stabilized stonedust

21 BOULDERS
set in grade

SITE STRUCTURES

22 SOLID GRANITE SEAT WALL
18" tall, reclaimed granite to match school stairs

23 VEHICULAR BOLLARDS
product TBD.

24 BASEMENT WINDOW WELL
concrete window well retaining grade with metal grate top

25 POURED CONCRETE STAIRS + WALLS
adjacent retaining walls as needed

LIGHTING

26 PARKING / FLOOD LIGHT
product TBD.

27 PEDESTRIAN LIGHT
product TBD.

28 BOLLARD LIGHT
product TBD.

NORTH ARROW

N

CONSULTANTS

Crowley Cottrell, LLC
171 Milk Street, 2nd Floor
Boston MA 02109
617.338.8400
www.crowleycottrell.com

REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING ELEMENTARY SCHOOL RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

PROPOSED LANDSCAPE OPTION 3

MVG
MOUNT VERNON GROUP ARCHITECTS
200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880
781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

STAMP

DRAWING INFORMATION

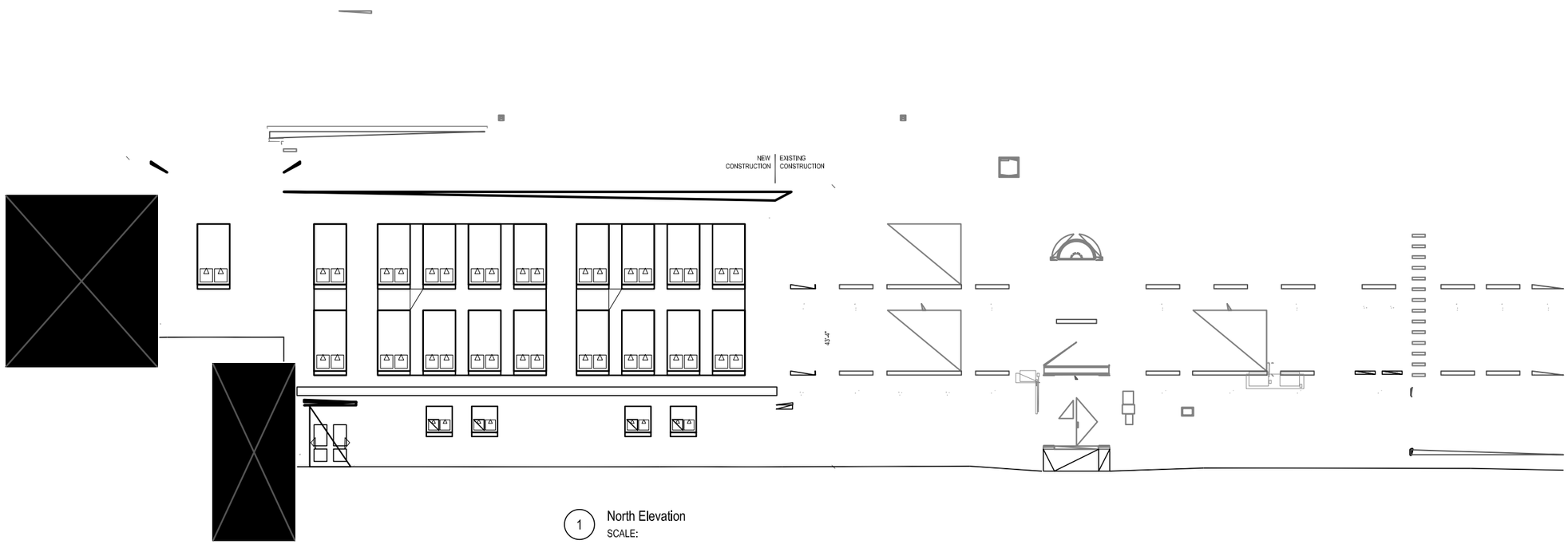
SCALE	1" = 20'-0"
DRAWN BY	BW, CVM
CHECKED	MC, JB
DATE	SEPTEMBER 27, 2022

DRAWING NUMBER

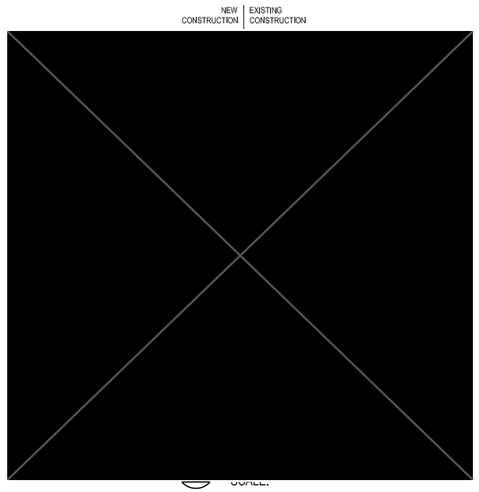
L100-3

WASHINGTON IRVING SCHOOL PROJECT
Boston Public Schools
City of Boston

SCHEMATIC DESIGN
700 STUDENT PROPOSED LAYOUT



1 North Elevation
SCALE:

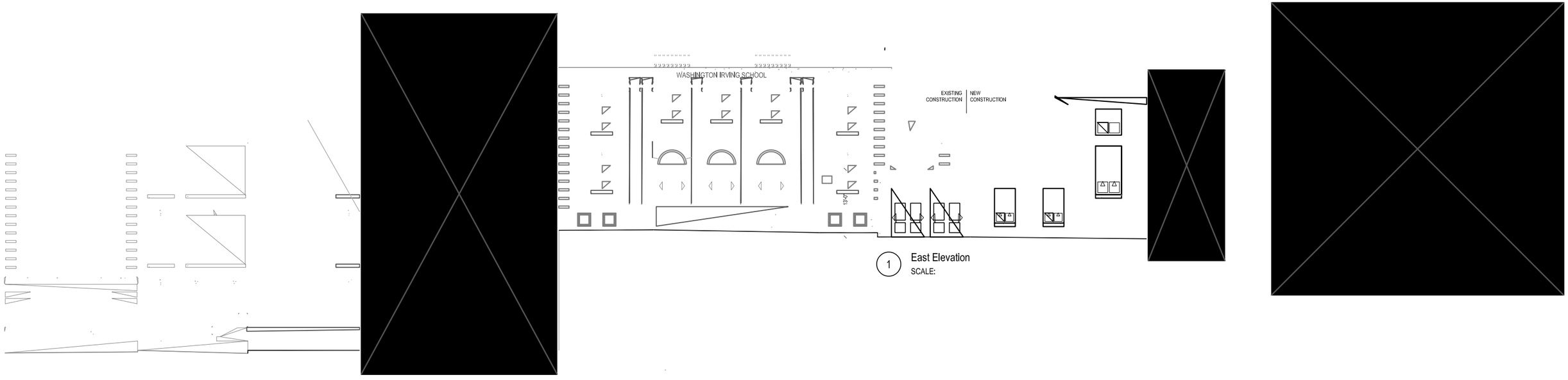


Washington Irving Elementary School Location
Alternative 1, North & West Exterior Elevations @ New Addition
Gr. K-6, 700 Students
Renovation/Addition Construction
114,225 SF

MVG
MOUNT VERNON GROUP ARCHITECTS

WASHINGTON IRVING SCHOOL PROJECT
Boston Public Schools
City of Boston

SCHEMATIC DESIGN
700 STUDENT PROPOSED LAYOUT



1 East Elevation
SCALE:

Washington Irving Elementary School Location
Alternative 1, East & South Exterior Elevations @ New Addition
Gr. K-6, 700 Students
Renovation/Addition Construction
114,225 SF

MVG
MOUNT VERNON GROUP ARCHITECTS


WASHINGTON
IRVING


WASHINGTON
IRVING

MODULE 3.3.3 PERMITTING REQUIREMENTS

Massachusetts Environmental Policy Act (MEPA) Review

The Massachusetts Environmental Policy Act (MEPA) regulations set forth criteria for review thresholds and submittal requirements for construction projects that require state agency action and may have environmental or historical impacts. If any of the thresholds are met or exceeded for a project, an Environmental Notification Form (ENF) is filed with the MEPA Office; an Environmental Impact Report (EIR) also can be required in certain instances for projects with more substantial impacts. The MEPA Office does not issue permits, but verifies which regulatory agencies need to be involved and coordinates this effort to maximize consistency between agencies. The MEPA Office is also responsible for conducting public notice and public consultation sessions.

The project team reviewed the applicable MEPA Review Thresholds in the following categories: Land; State Listed Species; Wetlands, Waterways and Tidelands; Water; Wastewater; Transportation; Energy; Air; Solid and Hazardous Waste; Historical and Archaeological Resources; Areas of Critical Environmental Concern; and Regulations. Based on the preliminary Project facts, review of resources, and the promulgated MEPA Review Thresholds, the team concludes that this Project does not meet or exceed any MEPA Threshold .

City of Boston and the Massachusetts Historical Commissions

This project is not on the list of historical significant sites for the Boston Historical Commission (BHC) or the Massachusetts Historical Commission (MHC).

City of Boston Conservation Commission

A review of available data shows that the Project is located within the buffer zone of an Isolated Vegetated Wetland (IVW). Consequently, In accordance with the Boston Wetlands Ordinance, Chapter 7-1.4, a Notice of Intent (NOI) Application Form and required materials must be submitted. However, work within the IVW buffer zone is not subject to the MADEP Wetland Protection Act, and does not require a NOI to the MADEP.

The NOI includes a narrative and supporting documentation describing how the

project will meet all performance standards for alterations to the IVW. Performance standards refer to the type and extent of work that may be permitted in wetland resource areas.

NOI Submission requirements to the Conservation Commission include:

- Boston NOI Form
- Locus Map
- Engineering Plans and Site Plan
- Project Narrative including description of existing site condition, description of site work, description of resource area impacts and avoidance and mitigation measures
- Stormwater Management Report
- Proof of mailing to abutters
- Wetland Ordinance Fee Sheet
- Check for application fees

The commission has public hearings every two weeks on Wednesday's and requires the NOI Application Form with supporting documents two weeks in advance of a meeting.

Boston Water & Sewer Commission (BWSC)

This project will require a Site Plan Application and a Stormwater Permit because the site stormwater discharges to the Boston municipal storm drain system.

The Site Plan Application requires extensive supporting documentation that is generally described in the Site Plan Review Checklist. The project will be creating additional impervious land from which overland stormwater flows will be generated.

A Construction Stormwater Permit will be required by the contractor. The permit will include developing a stormwater pollution prevention plan (SWPPP) prior to submitting the Notice of Intent to EPA.

Boston Zoning Code Article 80

This project is does not appear to be subject to either the large or small project review. The small project review requires the erection or extension that results in the aggregate gross floor area of 20,000 sf or more. This project is an addition to an

existing school and the aggregate gross floor area of the addition is approximately 12,000 sf. At this time we do not believe this project is subject to the Boston Planning & Development Agency (BPDA) due to underlying zoning requirements. However, we are attempting to have the determination verified by the City of Boston.

Boston Department of Public Works – Public Improvement Commission (PIC)

This project will require the issuance of a Curb Cut Permit for the revision of access to Cummins Highway.

Due to the revisions in the sidewalk for Cummins Highway, and possibly Hawthorne Street a Specific Repairs approval will also be required from the PIC.

Massachusetts Department of Public Safety Building Permit

New construction, renovation, or demolition of existing structures and changes of use or occupancy of an existing building must conform to the provisions of the Massachusetts State Building Code (M.G.L. c. 143, §§ 93-100: Inspection and Regulation of, and Licenses for, Buildings, Elevators and Cinematographs; 780 CMR: Massachusetts State Building Code).

The Project must submit a Building Permit Application for a State-Owned Building through the Department of Public Safety, which is consistent with the permit requirements of the MA State Building Code. The State Building Inspector has 30 days to review the application.

Permitting Review Timeline

Based on preliminary conversations with the City it is believed that the local permitting process will take about 12 weeks from when the first application is submitted to when the Planning Board grants approval. Applications should be submitted in the following order:

- Boston Conservation Commission Notice of Intent
    - Meets every other Wednesday, and applications are due 2 weeks in advance of a hearing.
    - Estimated 8 weeks to receive Order of Conditions

SCHEMATIC DESIGN SUBMITTAL

- Boston Water & Sewer Commission – Site Plan Application
    - 12 weeks to receive Site Plan Approval

- Boston Department of Public Works - PIC
    - 8 weeks
    - meets every week

- BPDA – Article 80
    - 8 weeks
    - meets every week

- Building Permit Application
    - Obtained after Construction Documents have been submitted

UTILITIES

Drainage

Stormwater runoff from the addition will be infiltrated on site in order to promote best engineering practices. An existing catch basin is located south of the addition and will be utilized to discharge the roof drain from the addition. The catch basin conveys existing storm water to an infiltration system further south under the parking lot adjacent to Hawthorne Street. The Infiltration system was constructed on site in 2016 as a Green Infrastructure initiative by BWSC. Any revisions to the playground area west of the building will similarly be connected to the Green Initiative stormwater system.

Sewer

Sewer is provided to the existing school building and will not require connections or adjustments of any kind.

Water

Similar to the sewer, water is provided to the existing school building and will not require connections or adjustments of any kind.

Gas

Same as water and sewer.

Telephone/Electric

Same as water and sewer.

BOSTON PUBLIC SCHOOLS
CITY OF BOSTON
WASHINGTON IRVING SCHOOL RENOVATION/ADDITION PROJECT
ROSLINDALE, MA.

SCHEMATIC DESIGN SUBMITTAL

LANDSCAPE PROPOSAL

I. LANDSCAPE

A. SITE / CONTEXT

The Washington Irving School is located at 105 Cummins Highway in Roslindale MA on a 3.17 acre +/- parcel. The site is surrounded by residential neighborhood.

Cummins Highway runs in front of the school on the northeast, and is a large, busy street. On the northwest, the back of the school abuts residential house lots on Sycamore Street. Off Sycamore Street, a paper street, Wright Street, dead-ends at a wall at the school property line. The school lot has one exit onto Sycamore Street, between two houses. This is a school driveway, not a public street. Hawthorne Street bounds the school parking lot on the southwest, and is a small, residential, dead-end street, that is one-way away from the school

The school building occupies the center of the site and there are distinct zones on each side of the building: the Cummins Highway Entry on the north east, the play area on the southeast, the Hawthorne Street Entry and Parking lot on the southwest.

B. CUMMINS HIGHWAY ENTRY

At this entry it is proposed to add two new ADA parking spaces by the new accessible school entry. In addition, the new entry and the auditorium stairs are joined on a shared pedestrian / vehicular plaza. The automobile zone is demarcated by bollards and change in paving color, but is a flush condition. The plaza is bounded by granite blocks that create a low wall, which are broken to allow access to the plaza from the crosswalk on Cummings Highway. Bike racks are located on either side of the building. Removable bollards allow fire access to the back of the building.

C. PLAY AREA

At this entry it is proposed to add two new ADA parking spaces by the new accessible school entry. In addition, the new entry and the auditorium stairs are joined on a shared pedestrian / vehicular plaza. The automobile zone is demarcated by bollards and change in paving color, but is a flush condition. The plaza is bounded by granite block that create a low wall, which is broken

to allow access to the plaza from the crosswalk on Cummings Highway. Bike racks are located on either side of the building. Removable bollards allow fire access to the back of the building.

D. HAWTHORNE STREET ENTRY

At this entry it is proposed to add two new ADA parking spaces by the new accessible school entry. In addition, the new entry and the auditorium stairs are joined on a shared pedestrian / vehicular plaza. The automobile zone is demarcated by bollards and change in paving color, but is a flush condition. The plaza is bounded by granite block that create a low wall, which is broken to allow access to the plaza from the crosswalk on Cummings Highway. Bike racks are located on either side of the building. Removable bollards allow fire access to the back of the building.

E. BACK OF SCHOOL

At this entry it is proposed to add two new ADA parking spaces by the new accessible school entry. In addition, the new entry and the auditorium stairs are joined on a shared pedestrian / vehicular plaza. The automobile zone is demarcated by bollards and change in paving color, but is a flush condition. The plaza is bounded by granite block that create a low wall, which is broken to allow access to the plaza from the crosswalk on Cummings Highway. Bike racks are located on either side of the building. Removable bollards allow fire access to the back of the building.

BOSTON PUBLIC SCHOOLS
CITY OF BOSTON
WASHINGTON IRVING SCHOOL RENOVATION/ADDITION PROJECT
ROSLINDALE, MA.

SCHEMATIC DESIGN SUBMITTAL

MODULE # **M/P/FP DESIGN NARRATIVE**

WASHINGTON IRVING MIDDLE SCHOOL SITE
Renovation/Addition

PLUMBING

General

The following is the Plumbing System Narrative which defines the scope of work and capacities of the Plumbing System as well as the Basis of Design. The Plumbing Systems shall be designed and constructed for NE-CHPS included in this submission.

1. CODES

   A. All work installed under Section 220000 shall comply with the MA Plumbing Code (248 CMR) and all federal, state, county, and local codes, statutes, and ordinances.

2. DESIGN INTENT

   A. Plumbing systems shall be new and sized to accommodate the existing building renovations and addition. Plumbing work will include furnishing all fixtures, equipment, materials, labor, testing and inspections required for the complete replacement and operational installation of the plumbing systems.

Design Parameters

1. GENERAL

   A. The required plumbing systems include cold water, hot water, hot water recirculation, sanitary, waste and vent system, kitchen grease waste system, storm drain system, and natural gas system. Acid waste and vent piping system will be provided if necessary.

   B. The renovated building and addition will be serviced by the municipal water, sewer, storm, and natural gas systems.

   C. All plumbing will conform to applicable accessibility and water conservation codes.

Plumbing Systems

1. DRAINAGE SYSTEM

   A. Sanitary, waste, and vent piping systems will be provided and will connect to all fixtures and equipment requiring such connections throughout the renovated building and addition. The buildings drain(s) will extend to a point 10'-0" of developed length beyond the building foundation. All plumbing system vents will extend through the roof.

B. A separate, dedicated kitchen grease waste system will be provided and extend to an exterior grease interceptor. The exterior grease interceptor will be designed and provided by others. A chamber vent for the grease interceptor will be provided and will run independently back in to the building and through the roof. Grease waste piping will serve kitchen equipment and floor drains. Interior grease traps will be provided at specific kitchen equipment such as, but not limited to, dishwashers and scullery sinks.

C. A storm drainage system will be provided to drain all flat roofs using roof drains and interior storm drainage piping routed through the renovated building and addition. The storm drainage system will extend to a point 10'-0" of developed length beyond the building foundation.

D. If necessary, a separate, dedicated acid waste and vent piping will be provided and will include a containment and chemical injection neutralization system. The piping system will connect to each fixture discharging wastes which require treatment.

2. WATER SYSTEM

LEED v4 Water Efficiency (WE)
WE C2 Indoor Water Use Reduction

LEED v4 Energy and Atmosphere (EA)
EA C1 Enhanced Commissioning
EA C2 Optimize Energy Performance
EA C3 Advanced Energy Metering

A. Domestic water service for the renovated building and addition will be provided from the municipal water system. The water service will include valves, strainers, a water meter, pressure gauge and drain. The water meter will be interfaced with the building management system. Backflow preventers will be installed where required including, but not limited to, HVAC system make-up water connections, kitchen equipment, custodial detergent injection systems, and laboratories.

B. Hot and cold water distribution piping will be provided throughout the renovated building and addition and connect to each plumbing fixture. Hot water recirculation systems will be provided.

C. Water heating will be provided by the existing gas fired tank type water heaters. Thermostatic mixing valves will be installed to provide 140°F hot water to the kitchen fixtures and janitor sinks, and 120°F hot water to serve general use fixtures. Hot water at showers and public use lavatories will be further tempered to code allowed maximum temperatures by point-of-use pressure balancing and thermostatic mixing valves. Hot water recirculation pumps and piping will be provided for each system. A submeter will be interfaced with the building management system.

3. NATURAL GAS SYSTEM

LEED v4 Energy and Atmosphere (EA)
EA C3 Advanced Energy Metering

A. The renovated building and addition will be provided with a natural gas service and meter. Distribution piping will be installed to serve the heating system equipment, domestic water heaters, kitchen cooking equipment, and generator (if provided). The gas meter will be interfaced with the building management system.

B. The local gas company will be contacted to confirm availability of adequate flow and pressure.

4. FIXTURES

LEED v4 Water Efficiency (WE)
WE C2 Indoor Water Use Reduction

A. The renovated building and addition will be furnished with all new fixtures, including supports, connections, fittings, and any incidental items required for a complete installation. Water closets shall be wall-hung, white vitreous china with flush valves. Urinals shall be wall-hung, white vitreous china with flush valves. Lavatories shall be wall-hung or drop-in white vitreous china with manual faucets. General use sinks shall be stainless steel with manual faucets. Showers, if provided, will be furnished with thermostatic and pressure balancing mixing valves. Water coolers shall be stainless steel.

B. The proposed flow rates for the new plumbing fixtures are as follows:

1. Water closets 1.28 gpf
2. Urinals 0.125 gpf
3. Lavatories 0.35 gpm
4. Sinks 1.5 gpm
5. Showers 1.5 gpm
6. Water Coolers 0.5 gpm

5. DRAINS

A. Floor drains will be provided where required throughout the renovated building and addition. Floor drains will be connected to the appropriate drainage and venting system, and will be equipped with electronic automatic trap priming devices where necessary.

6. VALVES

A. Properly sized and accessible valves will be provided to isolate the hot water, cold water and hot water recirculation system piping for maintenance and repair.

7. INSULATION

A. All water piping and storm drainage piping will be insulated.

8. CLEANOUTS

A. Cleanouts will be installed at appropriate intervals on the sanitary, waste, storm, grease, and acid drainage systems to allow for proper maintenance of these systems.

9. ACCESS DOORS

    A. Access doors will be provided at hard ceilings and walls to allow access to valves, cleanouts, and other equipment requiring maintenance or adjustment.

FIRE PROTECTION

General

The following is the Fire Protection System Narrative, which defines the scope of work and capacities of the Fire Protection System as well as the Basis of Design.

1. CODES

    A. All work installed under Section 210000 shall comply with the MA State Building Code (780 CMR) and all federal, state, county, and local codes, laws, and ordinances.

2. DESIGN INTENT

    A. Fire Protection systems shall be new and designed to accommodate the renovated building and addition. Fire Protection work will include furnishing all equipment, materials, labor, testing and inspections required for the complete and operational installation of the fire protection systems.

3. GENERAL

    A. In accordance 780 CMR Section 903, Table 903.2, any educational building with an aggregate building area greater than 12,000 square feet must be protected with an automatic fire sprinkler system.

Design Parameters

1. BASIS OF DESIGN

    A. Loading docks, mechanical rooms, storage rooms, and the kitchen service area are considered Ordinary Hazard Group 1; stages and library stack room areas are considered Ordinary Hazard Group 2; all other areas are considered light hazard.

    B. Required Design Densities:

Light Hazard Areas	0.10 GPM over a design area of 1,500 s.f.
Ordinary Hazard Group 1	0.15 GPM over a design area of 1,500 s.f.
Ordinary Hazard Group 2	0.20 GPM over a design area of 1,500 s.f.

    C. Maximum Sprinkler Spacing:

Light Hazard Areas: 225 s.f., maximum of 15’ between sprinklers
Ordinary Hazard Areas: 130 s.f., maximum of 15’ between sprinklers

BOSTON PUBLIC SCHOOLS
CITY OF BOSTON
WASHINGTON IRVING SCHOOL RENOVATION/ADDITION PROJECT
ROSLINDALE, MA.

SCHEMATIC DESIGN SUBMITTAL

2. HYDRANT FLOW TEST

   A. A hydrant flow test will be required to determine if there is adequate flow and pressure to support the automatic sprinkler system. Flow test data is required to be less than one year old, and measured from within 500' of the building.

Fire Protection Systems

1. DESCRIPTION

   A. The system will be an automatic combination wet pipe sprinkler and standpipe system. The system will be divided into protection zones controlled by individual zone control and check valves. Protection zones shall not exceed 52,000 s.f.

   B. Main system riser will consist of supervised control valves, backflow preventer, alarm check valve(s) with trim, and test and drain connections,

   C. Protection zones shall be provided with individual system risers which shall consist of supervised zone control valves, riser check valves, pressures gauges, drains, waterflow switches, and test connections.

   D. Standpipes will be provided in each required exit stairway with hose valves located on main floor landings. Each standpipe will be equipped with a supervised isolation valve.

   E. Floor control valve assemblies with be provided for supply and isolation of each floor. Floor control valve assemblies shall be fed from the standpipe and located within the egress stairwells. Floor control valve assemblies shall include a supervised isolation valve, check valve, flow switch, and test and drain connection.

   F. The system will be provided with an exterior fire department connection of a size and type to meet local requirements.

   G. All areas of the building shall be provided with sprinkler coverage, including electric rooms and combustible concealed spaces.

   H. Sprinklers will not be installed in elevator shafts and machine rooms.

2. FIRE WATER SERVICE

   A. Fire water service for the renovated building and addition will be provided from the municipal water system. The water service will include supervised control valves and a backflow preventer.

3. SPRINKLERS

   A. Upright, pendent and sidewall sprinklers will be provided throughout the renovated building and addition.

   B. Sidewall sprinklers will be installed under overhead doors.

C. Special application combustible concealed space sprinklers will be installed within interstitial spaces of exposed combustible construction.

4. PIPING AND FITTINGS

A. All underground private fire service main piping shall be Class 52 cement lined ductile iron with bituminous outside coating and push-on joint equal to the "Tyton" joint as manufactured by US Pipe and Foundry, and in accordance with ANSI A21.51. Fittings shall be ductile iron MegaLug type restrained mechanical joints. Joints between consecutive push-on pipe sections shall be restrained utilizing a boltless restraint joint system equal to US Pipe and Foundry Field Lok 350. Thrust blocks shall be provided and installed where required.

B All piping inside the building and addition for the Sprinkler System, two inches (2") and smaller in size, shall be Schedule 40 threaded black steel, conforming to ASTM Standards A53, A135, and/or A795 as applicable, and listed and approved for use in Fire Suppression Systems.

C. All Sprinkler System piping inside the building and addition two and one-half inches (2½") and larger in size, unless otherwise noted, shall be Schedule 10 black steel pipe with rolled groove ends, conforming to ASTM Standards A53, A135 and/or A795 as applicable, and listed and approved for use in Fire Suppression Systems.

D. U.L. listed and F.M. approved groove fittings will be allowed. All fittings shall be approved by Underwriters' Laboratories for use in Sprinkler System and shall be designed and guaranteed for a working pressure of not less than 175-psi cold-water pressure.

5. HOSE VALVES

A. Standpipe hose valves shall be 2½" polished chrome plated brass angle valve with removable 2½" chrome plated brass cap with chain. Valves shall be rated for 300psi. Valve and coupling shall have external threads having the NH standard thread, as specified in NFPA 1963.

6. FIRE PUMP

B. A hydrant flow test will be required to determine if there is adequate flow and pressure to support the automatic sprinkler system. A fire pump shall be provided if hydraulic calculations determine that the public water supply is inadequate.

HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

General

The following is the HVAC system narrative, which defines the scope of work and Basis of Design. The HVAC systems will be designed and constructed for LEED v4 scorecard included in this submission. This narrative includes information about pertinent codes, design criteria and proposed systems description.

BOSTON PUBLIC SCHOOLS
CITY OF BOSTON
WASHINGTON IRVING SCHOOL RENOVATION/ADDITION PROJECT
ROSLINDALE, MA.

SCHEMATIC DESIGN SUBMITTAL

The project is an existing three-story, educational building. The building is use group Education. The space will include classrooms, gymnasium, cafeteria, administration areas and educational support areas.

The planned operating schedule for the classroom portion is 7:00 am to 4:00 pm Monday thru Friday during the school year. The schedule for the administration portion is 7:00 am to 5:00 pm Monday thru Friday year-round.

The mechanical construction documents which include the design drawings and mechanical specification section 23 00 00 HVAC will incorporate all HVAC work described within this design narrative. The scope of work will include the furnishing of all labor and materials and in performing all operations in connection with the installation of the new HVAC work.

1. CODES

All work installed under Division 23 00 00 will comply with International Building Code (IBC) 2015, International Mechanical Code (IMC) 2015, International Energy Conservation Code (IECC) 2018, Massachusetts Building Code, and all local, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

The work of Division 23 00 00 is described within the narrative report. The HVAC project scope of work will consist of replacing the existing HVAC systems in entirety with new HVAC equipment/systems and HVAC distribution systems as described herein. All new work shall consist of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Heating, Ventilating and Air Conditioning work and all items incidental thereto, including commissioning and testing.

Design Parameters

1. DESIGN CRITERIA

Following are the assumptions used to calculate the capacities and parameters for the building components

DESIGN CRITERIA CHART		
1.	Occupancy Type	Educational
2.	Summer Outdoor Design Conditions (per ASHRAE Fundamentals – 2001)	Design City: Boston, MA
		Dry Bulb – 88° F
		Wet Bulb – 74° F
3.	Summer Indoor Design Conditions	Dry Bulb – 75° F
		Relative Humidity – 55%
4.	Winter Outdoor Design Conditions (per ASHRAE Fundamentals – 2001)	Design City: Boston, MA
		Dry Bulb – 7° F
5.		Dry Bulb (Occupied) – 70° F

	Winter Indoor Design Conditions	Dry Bulb (Unoccupied) – 55° F
6.	Ventilation	Per IMC 2015

Building Systems

All material and work provided will be in accordance with the above-mentioned codes and standards:

1. CENTRAL HEATING and COOLING SYSTEMS

LEED v4 Energy and Atmosphere (EA)
EA C1 Enhanced Commissioning
EA C2 Optimize Energy Performance

The new central heating system for the school will consist of gas-fired, hot water, high efficiency condensing type boilers. The boilers will produce hot water which will be circulated through dedicated hot water piping to finned-tube radiation, wall heaters and unit heaters throughout the school. The boilers will be direct vent and will acquire combustion air (CA) direct from the outdoors and will exhaust the flue gases directly to the outdoors. The CA intake pipes will be scheduled 40 PVC and the flue exhaust pipes will be double wall stainless steel AL29-4C. The CA intake and flue exhaust pipes associated with the boilers will terminate sidewall or through the roof as applicable with the manufacturer recommended termination fittings. The boilers will operate on a re-set water supply temperature based on the outdoor air temperature. The hot water circulating pumps that distribute hot water to various spaces within the building will include with variable frequency drives (VFD) that will modulate the speed of the pumps based on actual demand which would result in energy savings. The hot water supply and return piping will be schedule 40 steel or type L copper based on the size and will be insulated with fiberglass insulation with thickness complying with IECC 2018.

2. CENTRAL VENTILATION SYSTEMS

LEED v4 Indoor Environmental Quality (EQ)
EQ C1 Enhanced Indoor Air Quality Strategies

Ventilation for the building will be provided by multiple, roof mounted dedicated outdoor air systems (DOAS) that will supply 100% outside air. The DOAS units will supply conditioned/dehumidified ventilation air to the support areas and classrooms. Each DOAS unit will include a supply fan, exhaust fan, gas furnace with modulating gas valve, MERV 13 filtration media, direct expansion (DX) cooling coil with hot gas re-heat and an air-cooled condensing section and an energy recovery wheel. Air will be exhausted from the support areas and classrooms using the DOAS unit where the unit's internal energy recovery wheel will temper the incoming outdoor air by transferring energy from the exhaust air.

3. ELECTRONIC AIR FILTRATION

Active electronic air filters will be installed in return ductwork systems served by rooftop air handling units. These filters have a MERV 13 rating and a MERV-NC rating of 15-16.

4. CLASSROOMS

LEED v4 Energy and Atmosphere (EA)
EA C1 Enhanced Commissioning
EA C2 Optimize Energy Performance

LEED v4 Indoor Environmental Quality (EQ)
EQ C1 Enhanced Indoor Air Quality Strategies
EQ C5 Thermal Comfort

Heating and dehumidification for the classroom areas will be provided by perimeter finned tube radiation and DOAS units respectively. Each classroom will be served by a displacement ventilation diffuser(s) which will delivery tempered and dehumidified ventilation air from the DOAS units. Air will be removed from the classroom via a ceiling mounted exhaust grille. The exhaust air will be used to pre-heat/cool the ventilation air through energy recovery section located on the DOAS unit. Each classroom will have a dedicated thermostat to control the perimeter finned tube radiation.

5. ADMINISTRATION AND SUPPORT AREAS

LEED v4 Indoor Environmental Quality (EQ)
EQ C1 Enhanced Indoor Air Quality Strategies
EQ C5 Thermal Comfort

The administration and support areas will be served by a variable refrigerant flow (VRF) system. The VRF systems shall include multiple indoor units (ceiling cassettes, ducted AHU etc.) interlocked with an outdoor condensing heat pump unit. The VRF systems shall be capable of providing simultaneous heating and cooling. Ventilation air for the various zones being served by the VRF systems shall be provided by a dedicated 100% outside air packaged energy recovery ventilation (ERV) unit. The ERV unit will include a supply fan, exhaust fan, gas furnace with modulating gas valve, MERV 13 filtration media, direct expansion (DX) cooling coil with hot gas re-heat and an air-cooled condensing section and an energy recovery wheel. Air will be exhausted from the various zones using the ERV unit where the unit's internal energy recovery wheel will temper the incoming outdoor air by transferring energy from the exhaust air.

6. MUSIC ROOMS

LEED v4 Indoor Environmental Quality (EQ)
EQ C1 Enhanced Indoor Air Quality Strategies
EQ C5 Thermal Comfort

The Music Rooms will be served by a dedicated packaged rooftop unit that will provide a mixture of outdoor air and return air to provide heating, cooling and ventilation. The rooftop unit will include a supply fan, gas furnace with modulating gas valve, DX cooling coil with associated air-cooled condensing section and MERV 13 filtration media. Supply air will be delivered to the space via sheetmetal ductwork. The ventilation rate will be controlled by carbon dioxide (CO2) controls which will monitor and regulate the amount of outdoor air supplied to the space in order to maintain proper CO2 levels (maximum of 1,000 ppm).

7. MEDIA CENTER

LEED v4 Indoor Environmental Quality (EQ)
EQ C1 Enhanced Indoor Air Quality Strategies
EQ C5 Thermal Comfort

The Media Center will be served by a variable refrigerant flow (VRF) system. The VRF systems shall include multiple indoor units (ceiling cassettes, ducted AHU etc.) interlocked with an outdoor condensing heat pump unit. The VRF systems shall be capable of providing simultaneous heating and cooling. Ventilation air for the various zones being served by the VRF systems shall be provided by a dedicated 100% outside air packaged energy recovery ventilation (ERV) unit. The ERV unit will include a supply fan, exhaust fan, gas furnace with modulating gas valve, MERV 13 filtration media, direct expansion (DX) cooling coil with hot gas re-heat and an air-cooled condensing section and an energy recovery wheel. Air will be exhausted from the various zones using the ERV unit where the unit's internal energy recovery wheel will temper the incoming outdoor air by transferring energy from the exhaust air.

8. CAFETERIA

LEED v4 Energy and Atmosphere (EA)
EA C1 Enhanced Commissioning
EA C2 Optimize Energy Performance

LEED v4 Indoor Environmental Quality (EQ)
EQ C1 Enhanced Indoor Air Quality Strategies
EQ C5 Thermal Comfort

The Cafeteria will be served by a packaged gas/electric rooftop unit (RTU) that will provide heating, cooling and ventilation. The rooftop unit will include a supply fan, power exhaust, gas furnace with modulating gas valve, DX cooling with associated air-cooled condensing unit section and MERV 13 filter. Supply air will be delivered to the space via sheetmetal ductwork. The ventilation rate will be controlled by carbon dioxide (CO2) controls which will monitor and regulate the amount of outdoor air supplied to the space in order to maintain proper CO2 levels (maximum of 1,000 ppm). Air will be returned to the rooftop unit or exhausted through a ducted return system with register located low on the wall.

9. GYMNASIUM

LEED v4 Energy and Atmosphere (EA)
EA C1 Enhanced Commissioning
EA C2 Optimize Energy Performance

LEED v4 Indoor Environmental Quality (EQ)
EQ C1 Enhanced Indoor Air Quality Strategies
EQ C5 Thermal Comfort

The Gymnasium will be served by packaged gas/electric rooftop units (RTU) that will provide heating, cooling and ventilation. The rooftop unit will include a supply fan, power exhaust, gas furnace with modulating gas valve, DX cooling with associated air-cooled condensing unit section and MERV 13 filter. Supply air will be delivered to the space via sheetmetal ductwork. The ventilation rate will be

controlled by carbon dioxide (CO2) controls which will monitor and regulate the amount of outdoor air supplied to the space in order to maintain proper CO2 levels (maximum of 1,000 ppm). Air will be returned to the rooftop unit or exhausted through a ducted return system with register located low on the wall.

10. AUDITORIUM

LEED v4 Energy and Atmosphere (EA)
EA C1 Enhanced Commissioning
EA C2 Optimize Energy Performance

LEED v4 Indoor Environmental Quality (EQ)
EQ C1 Enhanced Indoor Air Quality Strategies
EQ C5 Thermal Comfort

The Auditorium will be served by packaged gas/electric rooftop units (RTU) that will provide heating, cooling and ventilation. The rooftop unit will include a supply fan, power exhaust, gas furnace with modulating gas valve, DX cooling with associated air-cooled condensing unit section and MERV 13 filter. Supply air will be delivered to the space via sheetmetal ductwork. The ventilation rate will be controlled by carbon dioxide (CO2) controls which will monitor and regulate the amount of outdoor air supplied to the space in order to maintain proper CO2 levels (maximum of 1,000 ppm). Air will be returned to the rooftop unit or exhausted through a ducted return system with register located low on the wall.

11. KITCHEN

LEED v4 Indoor Environmental Quality (EQ)
EQ C1 Enhanced Indoor Air Quality Strategies
EQ C5 Thermal Comfort

The kitchen area will be served by a gas fired make-up unit located on the roof and an exhaust fan serving the kitchen exhaust hood. The make-up air unit shall also serve the kitchen food preparation spaces and will provide heating and ventilation to these spaces. The make-up air unit will supply 100% outside air (tempered) to the kitchen and food preparation spaces and this air will be exhausted by the Kitchen hood exhaust fan. Since the MAU is dedicated for the kitchen, re-circulation of air is allowed from these spaces when the spaces are occupied/unoccupied and kitchen exhaust is not operational. A separate roof mounted exhaust fan will be provided for exhaust from the dishwasher hood.

12. COMMON AND MISCELLANEOUS AREAS

All vestibules and entrances will be heated by hot water cabinet unit heaters. Corridors will be served by air handling units to provide ventilation. Corridors that have exterior walls or roofs will be heated by cabinet unit heaters

Toilet rooms and janitors closest will be exhausted by DOAS units or dedicated exhaust fans. Utility, storage, and mechanical rooms will be heated by hot water terminal units and ventilated as needed.

13. SPECIAL EDUCATION ROOMS

LEED v4 Energy and Atmosphere (EA)
EA C1 Enhanced Commissioning
EA C2 Optimize Energy Performance

LEED v4 Indoor Environmental Quality (EQ)
EQ C1 Enhanced Indoor Air Quality Strategies
EQ C5 Thermal Comfort

Each of these rooms shall be served by a dedicated DX spilt system which will include an indoor unit and an associated outdoor air-cooled condensing unit located on the roof. The split systems shall provide cooling for the space. Heating for these rooms shall be provided by hot water baseboard radiation. At the owner's discretion, dedicated hyperheat split heat pump systems can be provided to serve these spaces that shall provide both heating and cooling for the space and shall eliminate the requirement for the baseboard radiation. Ventilation air for these spaces will be provided by the DOAS unit serving the remainder of the classrooms.

14. MDF, IDF AND ELECTRIC ROOMS

Each of these rooms shall be served by a dedicated DX spilt system which will include an indoor wall mounted ductless air handling unit and an associated outdoor air-cooled condensing unit located on the roof that shall provide cooling for the space.

15. AUTOMATIC TEMPERATURE CONTROLS

The building will be provided with a new direct digital control (DDC) system which will monitor and control all the major HVAC equipment. The boilers will be controlled by the factory installed operating and safety controls and the new DDC system will interface with the factory controllers to allow monitoring and adjustment. All the rooftop units, make-up air units, exhaust fans, and room controls will be controlled by the DDC system. The DDC system will include graphical representation (via. software) for each major piece of equipment. Individual room controls will consist of a wall mounted thermostat with a limited adjustment range.

16. GREEN KIOSK: LEED v4 'Innovation (IN)'
IN C1 LEED Educational Display, Green Cleaning Policy
Energy savings via high efficiency equipment shall be displayed on the monitor at the "Green Kiosk" from the Building Energy Management System.

- Carbon Dioxide Sensors will be installed in HVAC systems to modulate the amount of ventilation air based on ppm of CO2 which will increase energy savings and to monitor and increase indoor air quality.
- Indoor air temperature set point policy shall be established for all rooms and publicized for occupants to view.
- Electronic Air Filtration (MERV-13) shall be installed in ducted HVAC systems.
- Condensing boilers shall achieve higher efficiency and performance by supplying lower hot water temperature to heating equipment based on the outside temperatures.
- Displacement Ventilation shall be installed in Classrooms. This system increases ventilation effectiveness by supplying air at low velocities toward heat sources, causing supply air

temperature to rise and become more buoyant, therefore displacing heat and contaminants up toward the exhaust grilles located at the ceiling.

17. LEED v4 Compliance Items

Additionally, following are compliance items for the building part of the HVAC design parameters.

Energy and Atmosphere:
EA P1 Fundamental Commissioning and Verification
EA P2 Minimum Energy Performance
EA P3 Building-Level Energy Metering
EA P4 Fundamental Refrigerant Management
EA C1 Enhanced Commissioning
EA C2 Optimize Energy Performance
EA C6 Enhanced Refrigerant Management

Indoor Environmental Quality:
EQ P1 Minimum Indoor Air Quality Performance
- HVAC systems shall provide the minimum ventilation requirements as outlined in ASHRAE 62.1.

EQ P2 Environmental Tobacco Smoke Control
EQ P3 Minimum Acoustic Performance
EQ C1 Enhanced Indoor Air Quality Strategies
EQ C2 Low-Emitting Materials
EQ C3 Construction Indoor Air Quality Management Plan
- Building flush-out, ductwork protection, filter changes shall be compliant with these requirements.
- Prior to building flush-out the contractor shall provide and install 4-inch, MERV-10 filters in all air handling units. After building flush-out is complete, contractor shall replace MERV-10 filters with factory supplied, 4-inch MERV-8 filters. All HVAC filters shall be replaced prior to occupancy. Electronic air filters shall not be operational until building flush out is complete.

EQ C4 Indoor Air Quality Assessment
EQ C5 Thermal Comfort
- HVAC system designs shall comply with ASHRAE 55.

Miscellaneous:

- Electronic air filters (MERV-13) shall be provided.
- Building shall be provided with dedicated exhaust system for spaces where chemical use occurs. Exhaust shall be provided at a rate of 0.5 cfm/sq.ft and make-up air shall be provided.
- Gas-fired boilers and furnaces for HVAC equipment shall be equipped with electric ignitions.
- Air intakes shall be in accordance to ASHRAE Standard 62.1.
- All systems shall be provided with return ductwork.
- Each classroom shall be provided with an independent temperature sensor for occupant control. Thermostats shall have the ability to adjust +/-3ºF.
- HVAC shall specify an Energy Management System designed to monitor and trend Lighting (via a BAC net connection), Photovoltaics (via a MOD bus connection), HVAC and Domestic Hot Water.

- Electrical and Plumbing shall meter energy sources (electricity, natural gas and domestic/potable water), the EMS shall trend data with respect to the outside air temperature.
- The DDC system shall be equipped with sensors, point's matrix, trend capabilities, system architecture, data storage and operator interface.
- Project specifications shall include instructions for building operators to analyze energy source trending vs. outside air temperature and adjust equipment operation as required to increase energy efficiency.

Mechanical Loads

Heating and cooling load calculations shall be performed per IECC 2018 requirements for each space to properly size the respective HVAC equipment serving the space during the design development. Based on industry standards the approximate sizes of equipment serving the school shall be,

- Administrative Areas – Cooling: 400 SF/ton, Heating – 20 Btuh/SF.
- Classrooms – Heating: 20 Btuh/SF.
- Cafeteria – Cooling: 300 SF/ton, Heating – 20 Btuh/SF.
- Auditorium – Cooling: 300 SF/ton, Heating – 20 Btuh/SF
- Other areas – Cooling: 350 SF/ton, Heating – 20 Btuh/SF.

BOSTON PUBLIC SCHOOLS
CITY OF BOSTON
WASHINGTON IRVING SCHOOL RENOVATION/ADDITION PROJECT
ROSLINDALE, MA

SCHEMATIC DESIGN SUBMITTAL

MODULE 4.1.2 2 – 2N.4 ELECTRICAL/TELECOMMUNICATIONS/SECURITY NARRATIVE

ELECTRICAL

General

The following is the Electrical system narrative, which defines the scope of work and capacities of the Power and Lighting system as well as the Basis of Design. The electrical systems shall be designed and constructed to meet the NE-CHPS scorecard included in this submission.

1. CODES

   All work installed under Division 26 shall comply with the Massachusetts State Building Code and all local, county, and federal codes, laws, statutes, and authorities having jurisdiction.

2. DESIGN INTENT

   The work of Division 26, 27 & 28 are as described in this Narrative. All work is new and consists of furnishing all materials, equipment, labor, transportation, facilities, and all operations and adjustments required for the complete and operating installation of the Electrical work and all items incidental thereto, including commissioning and testing.

Design Parameters

1. High Voltage: 277/480 Volt
2. Low Voltage: 120/208 Volt
3. Phase: 3-Phase, 4-Wire
4. Amperage: 1600 Amps
5. KW: 1,315 KW

Electrical Utility load usage is estimated at approximately 8-watts per square foot.

BOSTON PUBLIC SCHOOLS
CITY OF BOSTON
WASHINGTON IRVING SCHOOL RENOVATION/ADDITION PROJECT
ROSLINDALE, MA

SCHEMATIC DESIGN SUBMITTAL

Building Systems

1. SEQUENCE OF OPERATIONS AND INTERACTIONS
   Light Pollution Reduction

   A. All lighting fixtures will be controlled via programmable lighting panelboards which utilize a microprocessor programmable controller with self-contained solenoid operated circuit breakers. The control of the circuit breakers shall be by automatic means such as time of day to reduce corridor lighting and security system inputs to turn off all building lighting when the system is armed.

   B. Exterior lighting will be controlled via an astronomical time clock integral to programmable lighting panelboards.

   C. Emergency and exit lighting will be run through life safety lighting panelboards to be on during normal building operating hours as well as power outage conditions. The light poles will be connected to the normal power lighting control system.

2. ELECTRICAL SYSTEMS

   A. Electrical Distribution System:

      i) A new service to the building shall be provided. The new service ratings are designed for a demand load of 8 watts/square foot. The service capacity will be sized for 1600 amperes with 100 percent rating at 277/480 Volt, 3 Phase, 4 Wire.

      ii) New Main distribution panelboard, lighting panelboards, power panelboards, and step down transformers will be provided to accommodate respective loads. The equipment will be located in dedicated electric rooms or closets on each floor. The incoming utility power shall be monitored by the power meter mounted in the main distribution board and interfaced to the building DDC building management system.

      iii) A new main electrical room shall be constructed in the sub-basement level of the building; new electric rooms shall be located in each wing, on each floor of the building to service the power of the local areas. All branch circuit homeruns shall feed back to the sub-panels. The sub-panels, in turn, feed to the designated main distribution board.

   B. Emergency and Standby Power System:

i) A 350KW, 480 volt diesel oil-fired generator with a weatherproof, sound attenuated enclosure with fuel oil sub-base tank shall be mounted outside, in the near vicinity of the building. The generator shall provide emergency power via a 150 amp transfer switch and panelboards to all emergency lights and egress exit signs. The generator shall also provide standby power via a 400 amp transfer switch and panelboards.

ii) A new 2 hour fire rated life safety electrical room shall be constructed on the 1st and 2nd floor of the building.

iii) The building will be protected with a complete electrical emergency system. Systems included in these categories are: lighting at all means of egress; selective lighting throughout the facility to provide a logical route in which to exit the building; exit signs; fire alarm system; generator system. In order to utilize the Generator to its capacity and to provide the school with some capabilities in the event of normal power outage, the following systems and equipment shall be powered as standby emergency power: Security System; Camera System; Sound/Clock System; Energy Management System; all freezers, coolers and refrigerators; selective Administrative power and heat; selective exterior site lighting; any heaters in remote areas where pipes could potentially freeze; main water pumps and main boilers.

C. Interior Lighting System:
Optimize Energy Performance
Interior Lighting

i) Lighting system shall be the following for each type of area.

ii) Lighting fixtures for the corridors, kitchen and bathrooms shall consist of recessed mounted 2x4, LED lensed troffer fixtures. The light level will be designed for approximately 20 foot candles.

iii) Light fixtures for classrooms, offices, and special purposes education rooms lighting shall consist of recessed mounted 2x4, indirect/direct LED fixtures and/or LED pendant mounted linear light fixtures. The light level will be designed for approximately 30-34 foot candles.

iv) Light fixtures for the media center shall consist of pendant mounted linear indirect/direct LED fixtures. The light level will be designed for approximately 30-34 foot candles.

v) Lighting fixtures for the cafeteria shall consist of recessed mounted LED

downlights and pendant mounted LED decorative disc or linear lights. The light level will be designed for approximately 30 foot candles.

vi) Utility rooms lighting shall consist of surface or pendant mounted industrial strip LED light fixtures. The light level will be designed for 5 foot candles.

vii) All classrooms, offices, media center and special purposes education rooms shall be provided with minimum two-zone switching with manual dimming control with the presentation wall being on a dedicated manual dimming zone. At a minimum, ceiling mounted occupancy sensors shall be located in all classrooms and larger rooms, wall mounted occupancy sensors shall be located in all offices and smaller rooms. In most cases, integral occupancy/photocontrol sensors shall be installed in each Classroom fixture for maximum control of light levels and consumption.

viii) A stage lighting system consisting of performance LED stage lights, stage industrial strip LED house lights and performance dimming system that also controls the cafetorium lighting shall be provided. House lighting system shall be designed to dim the light fixtures in the space to 0%. House lighting shall be connected to the Fire Alarm Control System to bring the light level to 100% full brightness in the event of an alarm.

ix) Emergency generator power shall be provided to selected LED light fixtures in all egress paths and multiple occupancy rooms to serve as code required emergency egress lighting.

x) In all common areas, corridors and main assembly areas, a low voltage lighting system will be designed. The lighting circuits will feed back to a central monitoring center, where light fixtures can be controlled. This system shall meet the utility company rebate program. The building light fixtures will be controlled from one location, through a networked web-based software program.

xi) The Gymnasium will be lit with LED hi-bay pendant light fixtures. The lights will be controlled via several switches, for maximum versatility of the space. Ceiling mounted occupancy/photocontrol sensors will control select lights.

xii) The Classroom light fixtures will be controlled by manual low voltage manual switches on the wall, ceiling mounted occupancy sensors and photocells (for day-light dimming. The dimmable LED light fixtures shall connect to the main central control system with web-based software for remote control.

xiii) The main central control system for the building light fixtures shall be located in the

maintenance room, or other room designated by Administration. The system shall come equipped with web-based software for remote control. The system shall control, monitor and manage: Day-light Harvesting; Time Scheduling; individual room control; and, energy consumption. The system shall track and record the light levels and consumption. The central monitoring system will have the ability to override all local controls to de-energize the lights during non-occupied hours through internal time clocks.

D. Site Lighting System:
Light Pollution Reduction

i) New Site lighting will be comprised of full cut-off, Dark Sky compliant, architectural grade fixtures with white light LED sources.

ii) Fixtures will be compliant with LEED v4 Credit SSC8, classified as Lighting Zone 2.

iii) Pole mounted fixtures in parking areas will be located at a height of 25 ft. above grade.

iv) Pole mounted fixtures in pedestrian areas will be located at a height of 12 ft. above grade.

v) All lighting will be located so as to eliminate light trespass across property lines. The layout will meet IESNA RP-33 for Exterior Environments

vi) Illumination levels and uniformities at grade will be in compliance with Illuminating Engineering Society of North America (IESNA) IESNA/ANSIRP-8 recommendations. Parking and pedestrian areas will meet a minimum level of 0.5 foot candles average.

vii) The entire site will be controlled via the low voltage lighting central monitoring system. The system consists of a time clock and photo sensor control module for each circuit to ensure complete flexibility of the site.

E. Wiring Devices:

i) Each classrooms will have a minimum of two duplex receptacles and two double duplex per teaching wall and two double duplex receptacles on dedicated circuits at classroom computer workstations.

ii) Office areas will generally have one duplex outlet per wall. At each workstation a

double duplex receptacle will be provided.

iii) The media center will have a minimum of two sets of duplex receptacles on each wall and floor mounted receptacles located at selective desks.

iv) Corridors will have a maintenance receptacles at approximately 25 foot intervals.

v) Exterior weatherproof receptacles with lockable enclosures will be installed near exterior doors.

vi) 120VAC power junction boxes will be provided in the Gymnasium and Cafeteria to support the new assistance listening systems.

vii) The power design will be coordinated closely with the telecommunications design, architectural design and Owner equipment. All power connections to mechanical, plumbing and all other trades shall be coordinated and connected accordingly.

F. Fire Alarm System:

i) The new fire alarm system shall be addressable, voice notification type with integral battery backup. New devices and loops shall be connected into the new fire alarm control panel.

ii) New smoke detectors will be provided in the open areas, corridors, stairwells, storage closets, electrical rooms, and MDF/IDF rooms.

iii) New water flow and tamper sprinkler system devices will be supervised.

iv) New Speaker/strobes will be provided in egress ways, classrooms, assembly spaces, open areas and other large spaces. Strobe only units will be provided in bathrooms and conference rooms.

v) Manual pull stations will be provided at exit discharge doors and at the entrances to stairwells.

vi) The system will notify the local fire department in the event of alarm condition via a new radio master box or central monitoring station.

vii) The system shall be Class “A” addressable, closed loop initiating device circuits with individual zone supervision, individual voice evacuation, indicating appliance circuit supervision, incoming and standby power supervision. Included in the main fire alarm system shall be a main control panel, remote annunciator(s), manual

pull stations, automatic fire detectors, speaker/visual and flashing strobes, elevator recall connections, duct smoke detectors and supervision of the sprinkler system and kitchen Ansul System.

3. SECURITY SYSTEMS

A. CCTV System

i) A Closed Circuit TV system shall be provided consisting of a computer server with image software and IP based PoE CCTV cameras. The head end server will be located in the head end MDF room and will be rack mounted. The system can be accessed with proper security login from any PC within the facility or externally via an IP address. Each camera can be viewed independently. The CCTV server will store this information for 30 days at 15 frames per second. The system shall be proprietary, manufactured by Avigilon.

ii) The location of the cameras is generally in the new and existing corridors and exterior on the building perimeter walls.

B. Intrusion System

i) The intrusion system will be addressable with integral battery backup. New devices shall be connected into the new intrusion system control panel.

ii) Motion sensors located in all 1st floor exterior rooms with computers and expensive equipment and within all and corridors. Door contacts shall be mounted on all exterior doors.

iii) Keypads shall be located in the main lobby and at the rear janitor's entrance and Receiving Area door.

iv) Glass break protection shall be installed in rooms with windows, on floors that are accessible.

v) All egress doors shall be locked. Doors shall be controlled via keys or card readers. When personnel enter designated doors, the key pad must be activated with a four digit code. System shall be programmed with a delay period. In the event that the system is actuated, the following shall occur: all audible security alarm annunciators shall sound; centrally located visual annunciation shall take place at the control station showing the point in alarm; a telephone line shall be provided for communication to the alarm company; all automatic alarm devices located at each perimeter door shall be automatically activated.

C. Card Access System

i) A card access system shall be provided consisting of card access door controllers and proximity readers.

ii) Proximity readers will be located at the front entrance doors, rear janitor's entrance doors and selected staff entrance doors.

iii) Each proximity reader will have a distinctive code to identify the user and a log will be kept in memory. The log within the panel can be accessed through a computer.

D. Intercom System

i) A video/voice intercom system shall be provided consisting of a master station located in the main office and door stations located the front entry door and rear kitchen delivery door.

4. AUDIOVISUAL SYSTEMS

i) Audiovisual systems shall consist of an interactive projector, or smart board, and audiovisual cabling. Provide Ultra-Short Throw projectors with stylus and touch interactive control or smart board at the Teacher Presentation wall. The audiovisual systems shall be installed in all instructional spaces including the Media Center instructional area, Breakout Areas, the Small Group room and Remedial instructional spaces. The audiovisual system shall be interfaced to and shall utilize the speech/sound reinforcement system installed in each space. Provide testing of all systems and test reports.

5. ELECTRIC VEHICHLE CHARGING STATIONS

i) Charging stations shall be installed on site. Stations shall be UL listed, NEMA 3R, bollard mount. Stations shall be powered by 120/208 volt power. Stations shall be connected to the building's DDC system.

6. PHOTOVOLTAIC SYSTEM

i) The power system shall be designed to incorporate a future PV system installation with a dedicated back feed circuit breaker, dedicated photovoltaic equipment spaces and

empty raceway system. There will be an area on the roof designated for solar panels. The electrical design shall show the necessary raceways from the solar panels on the roof to the remote solar equipment and inverters. The Electrical Contractor shall be responsible to feed from the inverter to the Utility Company's primary transformer. Located on the site. The Owner may choose to sell back any extra power they generate to the Utility Company.

7. ELECTRICAL SUPPORT FOR ALL OTHER BUILDING SYSTEMS

i) The Electrical Contractor shall be responsible for electrical support/connections to mechanical, plumbing, fire protection, telecommunications, and any other systems within the site requiring electrical power.

8. TELECOMMUNICATIONS

i) The Technology System is comprised of Communications Cabling for data, IP Video, VoIP and cabling for instructional interactive whiteboard/video projector systems, a Voice system, a Video Distribution system, a Public Address system, Speech/Sound Reinforcement systems, and Synchronized Master/Secondary Clock system.

ii) Communications Cabling: Communications Cabling: shall consist of Tel./Data and Audio-Visual cabling. Provide Category 6A UTP and OM3 fiber cabling for data, voice, wireless Wi-Fi, and Video outlet locations. Provide Category 6A UTP cabling for voice riser cabling between wire closers. Provide Category 6A cabling as follows.

iii) Provide Test Reports and as-built drawings for all cabling.

iv) Audio-Visual Cabling: Audio-Visual cabling shall consist of cabling installed between the smart board/projector and teacher/presentation outlets at each audio-visual location. Provide cabling as follows for each location.

v) Voice POTS Cabling: Voice cabling shall consist of Category 6A UTP data cabling.

vi) Provide dedicated POTS lines for fax machine locations and elevator emergency line. Fax lines shall be installed in the main administration office workroom, Nurse's office, and Media Center. Provide Test Reports and as-built drawings for all cabling.

vii) Voice System: Voice system shall consist of Voice over IP equipment. Provide Voice over IP PBX equipment and VoIP phone handsets. The IP/PBX shall be hardware fault tolerant and have failover capabilities. Provide installation and programming as per the Owner's requirements.

viii) Video Distribution System: Video Distribution shall be over the data network. Provide four CATV receivers and DirecTV satellite with four receivers. Provide eight High Definition encoders for simultaneous distribution of eight CATV channels. Provide a High Definition decoder/controller at each interactive whiteboard/projector system location. Provide a Video on Demand server with 25TB storage. Provide one local origination live broadcast cart with High Definition camcorder and encoder, and one tripod. Provide a Digital Signage server capable of two simultaneous content streams with a High Definition encoder, 50" TV monitors, and High Definition decoders/controllers. Provide 1-line and as-built drawings.

ix) Public Address/Intercom System: The Public Address/Intercom system shall consist of a console located in the Head End room, ceiling or wall speakers, and wiring. Provide PA/Intercom console. Provide two-way speakers all classroom spaces to provide for answer back capabilities. Provide one-way speakers in location requiring multiple speakers for coverage. Speakers shall be installed in all spaces including corridors, offices, common spaces, gang toilets, building system spaces, and storage rooms. PA speakers in offices shall be connected to a volume control. The PA console shall be interfaced to the voice system to provide the capability for PA announcements to be made from any phone handset in the building. The PA console shall be interfaced to the Fire Alarm system for interrupt during a fire alarm. Provide programming as per the Owner's requirements. Provide test reports.

x) Wireless Access Points: Wireless access points (WAP) devices shall be installed in all Classrooms, offices, Gymnasium, Cafeteria, Auditorium, Main spaces, etc., to allow wireless capable devices and wired devices to communicate. A minimum of two (2) Cat 6A cables shall be run form the nearest MDF/IDF Room to each wireless access device.

xi) Speech/Sound reinforcement Systems: Speech/Sound Reinforcement systems for enhancement and uniform distribution of speech and sound shall consist of wireless Infrared microphones and receivers, and speakers. The systems shall include a wireless media converter so that they can also be utilized as the sound systems for the interactive whiteboard/projector systems. The speech/sound reinforcement systems shall be installed on the ceiling in all instructional spaces including the Media Center instructional area, Breakout Areas, the Small Group Room and Remedial instructional spaces. Provide testing of all systems and test reports.

xii) Synchronized Clock System: The synchronized clock system shall consist of a master clock located in the Head End Room and secondary clocks located in all offices, instructional spaces including Breakout Areas, and common spaces. Wiring shall be low voltage 24 VAC wire. Secondary clocks shall be 12" in diameter, except for the Gymnasium, Cafeteria, and the Media Center. The Gymnasium shall have 16" clocks with wire guards. The Cafeteria and Media Center shall have 16" clocks. The Master Clock will be interfaced to the Public Address system to provide for scheduled bell tones. Provide programming as per the Owner's requirements. Provide as-built drawings.

xiii) Duress Alert System: The Duress Alert system shall be a fully supervised system with multiple alert capabilities. The system will be capable of multiple levels of alarm and call escalation capabilities. Wireless transmitters will operate in the 902 to 928MHz frequency band. To provide extended range for larger installations, wireless repeaters shall be available. In order to provide maximum reliability and interference immunity, all wireless sensors, transmitters and repeaters shall use a spread spectrum, frequency-hopping technique, which, upon alarm activation, sends redundant messages across a bandwidth that is at least 10MHz wide. The wireless sensors and repeaters shall be capable of periodically transmitting check-in signals to monitor the integrity of their wireless links to compatible receivers. These transmitters and repeaters shall be able to be programmed for check-in transmissions that occur as frequently as every 60 seconds. The information provided in these check-in messages shall at least include alarm and battery condition status. Wireless receivers shall resolve signals from the transmitters and repeaters specifically registered into the system, even in the presence of RF interference. Provide fixed 4-button Duress Buttons. Provide Wireless Transmitters. Provide Repeaters as required. Provide Wireless 2-way Interface Module that can be used as an output interface to hardwired inputs of public address, video distribution, access, intrusion, fire and surveillance systems. Provide coordination and programming for interfaces to systems above as required by the Owner. Provide system training for support staff. Provide test reports.

9. TESTING REQUIREMENTS

The Electrical Contractor shall provide testing of the following systems with the Owner and Owner's representative present:

- Power distribution system for cables insulation and proper phasing.
- Grounding system
- Lighting control system (interior and exterior).
- Fire alarm system.

- Security systems.
- Photovoltaic System.
- Audiovisual System.
- Telecommunications.

Testing reports shall be submitted to the engineer for review and approval before providing to the Owner.

10. OPERATION MANUALS AND MAINTENANCE MANUALS

When the project is completed, the Electrical Contractor shall provide operation and maintenance manuals to the Owner.

11. RECORD DRAWINGS AND CONTROL DOCUMENTS

When the project is completed, an as-built set of drawings, showing all lighting and power requirements from contract and addendum items, will be provided to the Owner.

12. COMMISSIONING

The project will be commissioned per Section 018100 of the specifications.

LGCI
Lahlaf Geotechnical Consulting, Inc.
100 Chelmsford Rd Suite 2
Billerica, MA 01862
Telephone: 9783305912
Fax: 9783305056

BORING LOG

B-1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Prop. Additions - Washington Irving Middle School
LGCI PROJECT NUMBER: 2243
PROJECT LOCATION: Roslindale, MA

DATE STARTED: 10/12/22 **DATE COMPLETED:** 10/12/22
BORING LOCATION: Within proposed eastern addition
COORDINATES: NA
SURFACE El.: 83 ft. (see note 1) **TOTAL DEPTH:** 26 ft.
WEATHER: 60's / Sunny
GROUNDWATER LEVELS:
DURING DRILLING: 24.0 ft. / El. 59.0 ft. Based on sample moisture
AT END OF DRILLING: 24.0 ft. / El. 59.0 ft.
OTHER: -

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tyler Kennedy
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Diedrich D-25
HAMMER TYPE: Automatic
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: HO **CHECKED BY:** TG

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
		0					Topsoil	0.5 / 82.5	S1 - Top 6": Topsoil
			S1	4-7-15-26 (22)	24/18				Bot. 12": Silty SAND with Gravel (SM), fine to medium, 15-20% fines, 15-20% fine angular gravel, trace of organic soil, trace of asphalt, brown, moist
		2	S2	18-13-11-10 (24)	24/14				S2 - Poorly Graded SAND with Silt and Gravel (SP-SM), fine to medium, ~10% fines, 15-20% fine subrounded gravel, trace of brick, brown, moist
	80.0	4	S3	6-5-5-5 (10)	24/8				S3 - Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, 25-30% fine angular gravel, trace of roots, brown, moist
5		6	S4	6-5-6-11 (11)	24/12				S4 - Similar to S3, no roots
	75.0	8	S5	6-6-6-6 (12)	24/0				S5 - No recovery
10		10	S6	9-9-6-8 (15)	24/6		Fill		S6 - Similar to S3, ~15% coarse angular gravel, trace of organic soil
	70.0	12							
15		14	S7	7-17-22-22 (39)	24/4				S7 - Silty SAND with Gravel (SM), fine to coarse, 20-25% fines, 30-35% fine to coarse subangular gravel, trace of organic soil, brown, moist
	65.0	16							
		19	S8	6-7-2-2 (9)	24/8			19.0 / 64.0	S8 - Silty SAND (SM), fine to medium, 25-30% fines, trace of organic soil, petroleum odor, gray to black, moist
20		21					Buried Organic Soil		
						1		22.0 / 61.0	REMARK 1: Strata change assumed based on drilling effort.
	60.0	24					Sand and Gravel		S9 - Well Graded GRAVEL with Silt and Sand (GW-GM), fine to coarse, subrounded to subangular, 5-10% fines, 15-20% fine to coarse sand, brown,
25				19-31-50-27					

GENERAL NOTES:

1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions, Green Infrastructure & Site Improvements at W. Irving School, 105 Cummins Hwy Roslindale, MA," prepared by Bryant Associates, dated May 10, 2016, and provided to LGCI by Mount Vernon Group Architects, Inc. (MVG) via e-mail on October 3, 2022.

LGCI
Lahlaf Geotechnical Consulting, Inc.
100 Chelmsford Rd Suite 2
Billerica, MA 01862
Telephone: 9783305912
Fax: 9783305056

BORING LOG

B-1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Prop. Additions - Washington Irving Middle School
LGCI PROJECT NUMBER: 2243
PROJECT LOCATION: Roslindale, MA

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
		24	S9	(81)	24/11		Sand and Gravel	61.0	wet
		26						26.0	Bottom of borehole at 26.0 feet. Borehole backfilled with drill cuttings and six bags of gravel.
	55.0								
30									
	50.0								
35									
	45.0								
40									
	40.0								
45									
	35.0								
50									
	30.0								
55									
	25.0								
60									

LGCI
Lahlaf Geotechnical Consulting, Inc.
100 Chelmsford Rd Suite 2
Billerica, MA 01862
Telephone: 9783305912
Fax: 9783305056

BORING LOG

B-2
PAGE 1 OF 1

CLIENT: Mount Vernon Group Architects, Inc.
PROJECT NAME: Prop. Additions - Washington Irving Middle School
LGCI PROJECT NUMBER: 2243
PROJECT LOCATION: Roslindale, MA

DATE STARTED: 10/12/22 **DATE COMPLETED:** 10/12/22
BORING LOCATION: Within proposed northern addition
COORDINATES: NA
SURFACE El.: 65 ft. (see note 1) **TOTAL DEPTH:** 19 ft.
WEATHER: 60's / Sunny
GROUNDWATER LEVELS:
DURING DRILLING: Not encountered
AT END OF DRILLING: 4.0 ft. / El. 61.0 ft.
OTHER: -

DRILLING SUBCONTRACTOR: Northern Drill Service, Inc.
DRILLING FOREMAN: Tyler Kennedy
DRILLING METHOD: Drive and wash with 4-inch casing
DRILL RIG TYPE/MODEL: Diedrich D-25
HAMMER TYPE: Automatic
HAMMER WEIGHT: 140 lb. **HAMMER DROP:** 30 in.
SPLIT SPOON DIA.: 1.375 in. I.D., 2 in. O.D.
CORE BARREL SIZE: NA
LOGGED BY: HO **CHECKED BY:** TG

Depth (ft.)	El. (ft.)	Sample Interval (ft.)	Sample Number	Blow Counts (N Value)	Pen./Rec. (in.)	Remark	Strata	Depth El.(ft.)	Material Description
							Asphalt	0.5	Top 6": Asphalt
		0.5	S1	12-10-8 (18)	18/8		Fill		S1 - Silty SAND with Gravel (SM), fine to medium, 20-25% fines, 15-20% fine subrounded gravel, trace of organic soil, trace of asphalt, brown, moist
		2	S2	5-23-11-12 (34)	24/14				S2 - Top 10": Similar to S1, trace of bricks Bot. 4": Silty SAND (SM), fine to medium, 25-30% fines, trace of organic soil, trace of roots, black, moist
		4	S3	11-20-27-21 (47)	24/15				S3 - Silty SAND with Gravel (SM), fine to coarse, 15-20% fines, 30-35% fine to coarse angular gravel, light brown, moist
5	60.0	6	S4	23-22-25-29 (47)	24/18				S4 - Silty SAND with Gravel (SM), fine to coarse, 15-20% fines, 30-35% fine to coarse angular gravel, light brown, moist
		8	S5	15-16-25-21 (41)	24/10			8.0	S5 - Silty SAND with Gravel (SM), fine to medium, 15-20% fines, 20-25% fine to coarse subangular to subrounded gravel, brown, moist
10	55.0	10	S6	16-16-15-14 (31)	24/10		Sand and Gravel		S6 - Similar to S5
		12	S7	11-10-15-22 (25)	24/8				S7 - Top 3": Similar to S5 Bot. 5": Silty SAND (SM), fine to medium, 15-20% fines, 10-15% fine angular gravel, brown, moist
15	50.0	14	S8	25-22-18-18 (40)	24/11				S8 - Silty SAND with Gravel (SM), fine to medium, 15-20% fines, 25-30% fine to coarse subangular to subrounded gravel, trace of weathered rock, brown, moist
		16				1		18.0	REMARK 1: Casing refusal encountered at depth of 18 feet on possible rock, advanced roller bit to depth of 19 feet to confirm presence of rock.
		19	S9	100/0"	0/0		Rock	19.0	S9 - No recovery Bottom of borehole at 19.0 feet. Borehole backfilled with drill cuttings and three bags of gravel. Ground surface restored with cold patch asphalt.
20	45.0								
25	40.0								

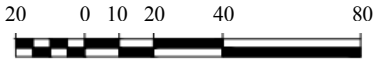
GENERAL NOTES:

1. The ground surface elevation was interpolated to the nearest foot from drawing titled: "Existing Conditions, Green Infrastructure & Site Improvements at W. Irving School, 105 Cummins Hwy Roslindale, MA," prepared by Bryant Associates, dated May 10, 2016, and provided to LGCI by Mount Vernon Group Architects, Inc. (MVG) via e-mail on October 3, 2022.

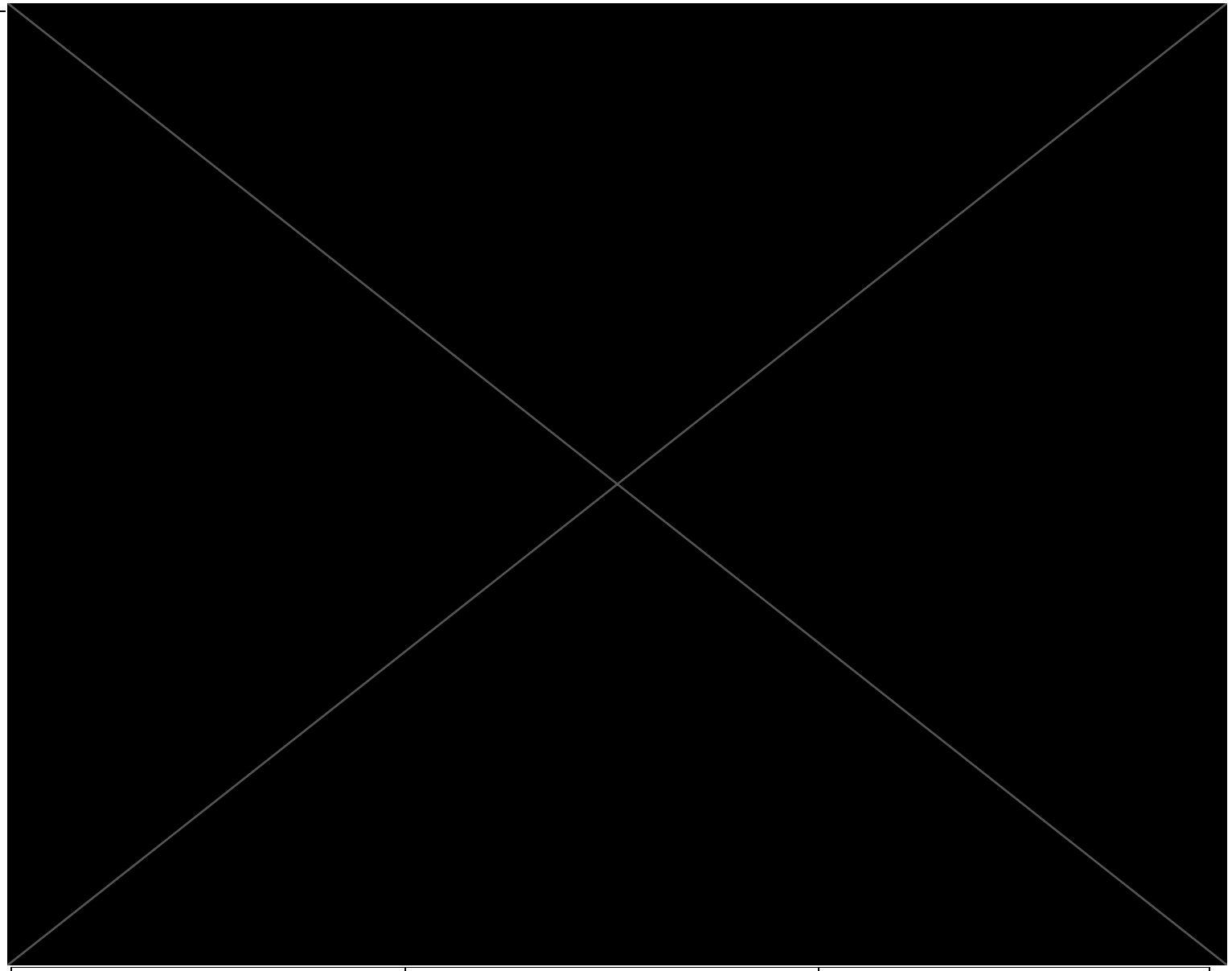
Legend

Approximate location of borings advanced by Northern Drill Services, Inc. (NDS) of Northborough, MA on October 12, 2022, and observed by Lahlaf Geotechnical Consulting, Inc. (LGCI).

Approximate Scale (ft.)



Note
Figure based on drawing titled: "Existing Conditions, Green Infrastructure & Site Improvements at W. Irving School, 105 Cummins Hwy Roslindale, MA," prepared by Bryant Associates, dated May 10, 2016, and provided to LGCI by Mount Vernon Group Architects, Inc. (MVG) via e-mail on October 3, 2022.



Client:	Project:	Figure 3 – Boring Location Plan	
Mount Vernon Group Architects, Inc.	Proposed Additions – Washington Irving Middle School		
LGCI Lahlaf Geotechnical Consulting, Inc.	Project Location: Roslindale, MA	LGCI Project No.: 2243	Date: Oct. 2022

AHERA ASBESTOS MANAGEMENT PLAN

FOR

Washington Irving Middle School

105 Cummins Highway
Roslindale, MA 02131

Prepared By:

Jeffrey Lane, Environmental Specialist

Asbestos Management Planner

AP52143

TABLE OF CONTENTS

CONTACT INFORMATION

Local Education Agency and School Information

Boston Public Schools
2300 Washington Street
Roxbury, MA 02119
(617) 635-9000

Washington Irving Middle School
105 Cummins Highway
Roslindale, MA 02131

Designated Person Information and Training

Jeffrey Lane, Environmental Specialist
Campbell Resource Center
Department of Planning and Engineering
1216 Dorchester Avenue
Dorchester, MA 02125
(617) 635-8300

Course	Training Agency	Date(s)	Hours of Training
Asbestos Management Planner	Institute for Environmental Education	June 26-27, 2003	16 hours
Asbestos Management Planner Refresher	Institute for Environmental Education	May 24, 2013	8 hours
Asbestos Inspector	Institute for Environmental Education	June 23-25, 2003	24 hours
Asbestos Inspector Refresher	Institute for Environmental Education	May 24, 2013	4 hours

DESIGNATED PERSON ASSURANCES

In accordance with 40 CFR763.93 of the Environmental Protection Agency Asbestos-Containing Material in Schools regulation, the Local Education Agency (LEA) Designated Person through the activities of the Environmental Section of Boston Public Schools Office of Facilities Management hereby certifies that the following general responsibilities of the LEA under 40 CFR 763.84 have been or will be met:

- Ensure that the activities of any persons who perform inspections, reinspections, and periodic surveillance, develop and update management plans, and develop and implement response actions, including operations and maintenance, are carried out in accordance with Part 763, Subpart E.
- Ensure that all custodial and maintenance employees are properly trained as required by Part 763, Subpart E and other applicable Federal and/or State regulations (e.g. the Occupational Safety and Health Administration Asbestos Standard for Construction, the EPA Worker Protection Rule, or applicable State regulations).
- Ensure that workers and building occupants, or their legal guardians, are informed at least once each school year about inspections, response actions, and post-response action activities, including periodic reinspection and surveillance activities that are planned or in progress.
- Ensure that short-term workers (e.g. telephone repair workers, utility workers, or exterminators) who may come in contact with asbestos in a school are provided information regarding the locations for Asbestos-Containing Building Materials (ACBM) and suspected ACBM assumed to be Asbestos-Containing Materials (ACM).
- Ensure that warning labels are posted in accordance with 40 CFR 763.95.
- Ensure that management plans are available for inspection and notification of such availability has been provided as specified in the management plan under 40 CFR 763.93(g).
- Designate a person to ensure that requirements under 763.84 are properly implemented and ensure that the designated person receives adequate training to perform duties assigned under 763.84. Such training shall provide, as necessary, basic knowledge of: health effects of asbestos; detection, identification, and assessment of ACM; options for controlling ACBM; asbestos management programs; relevant Federal and State regulations concerning asbestos, including those in Part 763, Subpart E and those of the Occupational Safety and Health Administration, U.S. Department of Transportation and the U.S. Environmental Protection Agency.
- Consider whether any conflict of interest may arise from inter-relationship among accredited personnel and whether that should influence the selection of accredited personnel to perform activities under Part 763, Subpart E.

Name of Designated Person: Jeffrey Lane

Designated Person's Signature: _____ Date: _____

1.0 INTRODUCTION

1.01 TYPES AND USES OF ASBESTOS

Asbestos is a naturally occurring fibrous mineral. It is different from other minerals because its crystals form long, thin fibers. Asbestos minerals are divided in two groups: serpentine have a sheet or layered structure and amphiboles have a chain-like structure. The three most common types of asbestos are chrysotile, amosite, and crocidolite. The other three types of asbestos are anthophyllite, tremolite, and actinolite.

Asbestos has been used in thousands of products because of its low cost, strength, fire resistance, chemical resistance, and insulating ability. Some uses of asbestos include: acoustical plaster, boiler insulation, breeching insulation, ceiling tiles, fire doors, fireproofing materials, gaskets, joint compound, mastic, pipe insulation, roofing shingles, and vinyl floor tiles.

1.02 ASBESTOS HAZARD EMERGENCY RESPONSE ACT (AHERA)

The Asbestos Emergency Response Act (AHERA) was signed into law by President Reagan on October 22, 1986. It requires all Local Education Agencies (LEAs) with schools, grades K-12 to be inspected for the presence of asbestos containing building materials (ACBM), to develop asbestos management plans to properly manage the asbestos, to take appropriate actions to control the release of asbestos fibers, and to comply with AHERA's recordkeeping requirements. In addition to the original inspection, the regulation requires 6 month periodic surveillance and 3 year reinspections to reassess the condition of ACBM. Other requirements include: designating and training a Designated Person to ensure the LEA is in compliance with AHERA regulations, providing asbestos awareness training for custodial staff, and implementing an Operations and Maintenance Plan (O&M).

1.03 FRIABLE AND NONFRIABLE

The U.S. Environmental Protection Agency (EPA) distinguishes between friable and nonfriable forms of ACBM. Friable ACBM contains more than 1% asbestos and can be crushed, pulverized, or reduced to powder by hand pressure when dry. Friable asbestos also includes previously nonfriable material when it becomes damaged to the extent that when dry it may be crushed, pulverized, or reduced to powder by hand pressure. Damaged friable ACBM will release fibers into the air more readily than nonfriable ACBM.

1.04 ASBESTOS HEALTH RISKS

Exposure to asbestos may result in asbestosis (a disease characterized by lung scarring), lung cancer, mesothelioma (always fatal cancer arising in the chest or abdominal cavity), and other diseases. Asbestos related diseases are often dose-response related (the greater the exposure to airborne fibers, the greater the risk of developing an illness) and have a latency period (typically 15 to 30 years).

Asbestos poses little risk if it is well maintained. The EPA only requires asbestos removal to prevent significant public exposure to airborne fibers during building demolition and renovation activities.

1.05 ASBESTOS MANGEMENT PLAN

The asbestos management plan must be developed by an accredited and licensed Asbestos Management Planner. It identifies all friable ACBM, nonfriable ACBM, and friable and nonfriable suspected ACBM in the school building. The principal objective is to protect the health and safety of the building occupants.

2.0 LOCAL EDUCATION AGENCY (LEA) AND DESIGNATED PERSON

2.01 LEA'S RESPONSIBILITY

The Local Education Agency (LEA) must have an asbestos management plan for school buildings under its authority. This plan was to be submitted to the state Governor (or designee), no later than October 12, 1988. LEAs were required to begin implementation of their management plan by July 9, 1989 and to complete implementation in a timely fashion. A copy of the plan must be available in the school administrative offices for viewing by the public.

2.02 DESIGNATED PERSON'S RESPONSIBILITY

The EPA requires public school districts and private non-profit schools to appoint an asbestos management coordinator, called the "AHERA Designated Person." This person is responsible for a number of asbestos-related activities, including the implementation of the plan for managing ACBM in the school buildings and compliance with federal asbestos regulations.

3.0 AHERA INITIAL INSPECTION

The City of Boston Public Facilities Department retained BCM Eastern Inc. (BCM) to conduct AHERA inspections at each of the 132 Boston Public Schools beginning June 1, 1988 and finishing July 31, 1988. All inspections were conducted by EPA and Massachusetts accredited Asbestos Inspectors. The inspectors visually inspected all areas of the building for the presence of friable and nonfriable ACBM and physically assessed (by touching to determine friability) all friable ACBM.

3.01 IDENTIFICATION OF ACBM

The Asbestos Inspector shall identify three categories of materials that are likely to contain asbestos: surfacing material, thermal system insulation (TSI), and miscellaneous material. Once these materials are located, homogenous sampling areas are delineated. A homogenous sampling area is an area of ACBM or suspect ACBM that appears similar throughout in terms of color, texture, and date of material application. Below are descriptions of the three categories of ACBM:

Surfacing Material - Material that is sprayed-on, troweled-on or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

Thermal System Insulation - Material applied to pipes, fittings, boilers, breeching, tanks, ducts or other interior structural components to prevent heat loss or gain, or water condensation, or for other purposes.

Miscellaneous Material - Interior building material on structural components, structural members or fixtures, such as floor and ceiling tiles, and does not include surfacing material or thermal system insulation.

All material suspected to be ACBM must be assumed to be ACBM unless the homogenous area is sampled and the laboratory analysis of the sample(s) is negative (None Detected) for asbestos. Depending of the type of material, the EPA requires a minimum number of samples to be taken or the material will be considered ACBM regardless of the laboratory analysis.

3.02 PHYSICAL ASSESSMENT OF ACBM

AHERA requires the asbestos inspector to conduct a physical assessment of all friable known and assumed ACBM and all thermal system insulation. The physical assessment consists of assessing both the condition of the material and the potential for future disturbance. The material is classified into one of the following seven physical assessment categories:

1. Damaged or significantly damaged thermal system insulation (TSI)
2. Damaged friable surfacing ACBM
3. Significantly damaged friable surfacing ACBM
4. Damaged or significantly damaged friable miscellaneous ACBM
5. ACBM with the potential for damage
6. ACBM with potential for significant damage
7. Any remaining friable ACBM or friable suspect ACBM

4.0 AHERA REINSPECTION

At least once every three years Massachusetts accredited and licensed Asbestos Inspectors shall conduct AHERA re-inspections at each building that Boston Public Schools owns, leases, or otherwise uses as a school building. The re-inspections include the following:

- Visually re-inspect and reassess the condition of all friable known or assumed ACBM.
- Visually inspect material that was previously considered non-friable and touch the material to determine whether it has become friable since the last inspection or re-inspection.
- Identify any homogenous areas in which material has become friable since the last inspection or re-inspection.
- Bulk samples may be collected and submitted for analysis for any homogenous area of newly friable material that is already assumed to be ACBM.

- Perform a physical assessment of the condition of the newly friable material in areas where samples are collected and of newly friable materials in areas assumed to be ACBM.
- Reassess the condition of friable known or assumed ACBM previously identified.

As part of the three year re-inspection an accredited and licensed Massachusetts Asbestos Management Planner will recommend repair actions based on the Asbestos Inspector's results.

5.0 INSPECTION HISTORY

AHERA Initial Inspection

6/23/1988

Peter Charrington, Asbestos Management Planner, License Number MP 00025
BCM Engineers

Pamela Evans, Asbestos Management Planner, License Number MP 00135
BCM Engineers

John Heemer, Asbestos Management Planner, License Number MP 00136
BCM Engineers

Cheryl Sterchak, EPA-Accredited Building Inspector, License Number 100-99
BCM Engineers

AHERA Reinspection

8/8/1994

Jeffrey Lane, Asbestos Management Planner, License Number AP52143
Boston Public Schools

Jeffrey Lane, Asbestos Inspector, License Number AI52144
Boston Public Schools

AHERA Reinspection

7/27/1997

Jeffrey Lane, Asbestos Management Planner, License Number AP52143
Boston Public Schools

Michael DiLorenzo, Asbestos Inspector, License Number AI52112
Boston Public Schools

AHERA Reinspection

6/30/2000

Jeffrey Lane, Asbestos Management Planner, License Number AP52143
Boston Public Schools

Michael DiLorenzo, Asbestos Inspector, License Number AI52112
Boston Public Schools

AHERA Reinspection

6/28/2006

Jeffrey Lane, Asbestos Management Planner, License Number AP52143
Boston Public Schools

Michael DiLorenzo, Asbestos Inspector, License Number AI52112
Boston Public Schools

AHERA Reinspection

7/6/2009

Jeffrey Lane, Asbestos Management Planner, License Number AP52143
Boston Public Schools

Michael DiLorenzo, Asbestos Inspector, License Number AI52112
Boston Public Schools

5.0 INSPECTION HISTORY (CONTINUED)

AHERA Reinspection

7/11/2012

Jeffrey Lane, Asbestos Management Planner, License Number AP52143
Boston Public Schools

Jeffrey Lane, Asbestos Inspector, License Number AI52144
Boston Public Schools

AHERA Reinspection

11/13/2015

Michael DiLorenzo, Asbestos Management Planner, License Number AP900411
Boston Public Schools

Michael DiLorenzo, Asbestos Inspector, License Number AI52112
Boston Public Schools

6.0 SUMMARY OF FINDINGS FOR SUSPECT MATERIALS

Asbestos was detected or assumed in the following friable materials:

12" x 12" Ceiling Tile
2' x 2' White Ceiling Tile
Packing
Pipe Fittings
Pipe Insulation

Asbestos was detected or assumed in the following non-friable materials:

12" x 12" Black Floor Tile
12" x 12" Floor Tile
12" x 12" Gray Floor Tile
12" x 12" Green Floor Tile with White Stripes
12" x 12" Green Speckled Floor Tile
12" x 12" Solid Mustard Floor Tile
12" x 12" White Floor Tile
4" x 4" Floor Tile
6" x 6" Floor Tile
9" x 9" Black Floor Tile
9" x 9" Brown Floor Tile
9" x 9" Floor Tile
9" x 9" Yellow Floor Tile
Light Brown Speckled Floor Tile
Possible Underlayment Below Wood Floor
Stone Colored Linoleum
Terrazzo Floor
Tin Pan Ceiling Insulation
Transite Sink
Transite Toilet Partition
Wiring Insulation

6.0 SUMMARY OF FINDINGS FOR SUSPECT MATERIALS (CONTINUED)

The following table is a list of all materials in this building that were tested for the presence of asbestos or were assumed to contain asbestos along with the overall sample results. Complete information on asbestos containing materials can be found in Section 7 of this management plan.

Material Number	*Suspect Material*	*Category*	*Material Location(s)*	*Asbestos Present?*
PI-1	Pipe Insulation	Thermal System Insulation	BOILER ROOM, BOY'S LOCKER ROOM, 2ND FLOOR TEACHER'S BATHROOM, 206A, 207A, 216A, 231, 2ND FLOOR HALLWAY, 228 (BOY'S BATHROOM), 226, 116, CUSTODIAN'S ROOM, CUSTODIAN'S STORAGE ROOM, 131 (MEN'S BATHROOM), 119, 126B, 128, 129, STORAGE ROOM, 120, 121, 123, 124, 1ST FLOOR HALLWAY, 110, GIRL'S BATHROOM, 105, 104, 103B, 103C, 103 (BATHROOM), 112 STORAGE ROOM, 102, AND CAFETERIA	Yes
TI-2	Tank Insulation	Thermal System Insulation	BOILER ROOM	All Abated
HPI-3	Header Pipe Insulation	Thermal System Insulation	BOILER ROOM	All Abated
BI-4	Boiler Insulation	Thermal System Insulation	BOILER ROOM	All Abated
PF-5	Pipe Fittings	Thermal System Insulation	BOILER ROOM, BOY'S LOCKER ROOM, 2ND FLOOR TEACHER'S BATHROOM, 206A, 207A, 216A, 231, 2ND FLOOR HALLWAY, 228 (BOY'S BATHROOM), 226, 116, CUSTODIAN'S ROOM, CUSTODIAN'S STORAGE ROOM, 131 (MEN'S BATHROOM), 119, 126B, 128, 129, STORAGE ROOM, 120, 121, 123, 124, 1ST FLOOR HALLWAY, 110, GIRL'S BATHROOM, 105, 104, 103B, 103C, 103 (BATHROOM), 112 STORAGE ROOM, 102, AND CAFETERIA	Yes (assumed)
BR-6	Breeching Insulation	Thermal System Insulation	BOILER ROOM	All Abated
TER-7	Terrazzo Floor	Miscellaneous Material	HALLWAYS	Yes (assumed)
TPCI-8	Tin Pan Ceiling Insulation	Surfacing Material	AUDITORIUM	Yes (assumed)
PA-9	Packing	Thermal System Insulation	PENTHOUSE	Yes (assumed)
CT-10	2' x 2' White Ceiling Tile	Miscellaneous Material	PENTHOUSE AND MUSIC ROOM	Yes

6.0 SUMMARY OF FINDINGS FOR SUSPECT MATERIALS (CONTINUED)

Material Number	*Suspect Material*	*Category*	*Material Location(s)*	*Asbestos Present?*
WB-11	Wallboard	Miscellaneous Material	ROOMS 302, 323, 216, AND WORK ROOM (BY ROOM 321)	No
CRT-12	4" x 4" Ceramic Wall Tile	Miscellaneous Material	BATHROOMS	No
PL-13	Plaster	Surfacing Material	BOILER ROOM, 2ND FLOOR STOCK ROOM, 2ND FLOOR GIRL'S LOCKER ROOM, ROOMS 214, 304, 305, AND CAFETERIA	No
LN-14	Green Linoleum	Miscellaneous Material	NURSE'S OFFICE	No
CRT-15	2" x 2" Ceramic Floor Tile	Miscellaneous Material		No
FT-16	4" x 4" Floor Tile	Miscellaneous Material	BATHROOMS	Yes (assumed)
FT-17	6" x 6" Floor Tile	Miscellaneous Material		Yes (assumed)
FT-18	12" x 12" Floor Tile	Miscellaneous Material		Yes (assumed)
FT-19	9" x 9" Floor Tile	Miscellaneous Material		Yes (assumed)
VC-20	HVAC Vibration Cloth	Thermal System Insulation	BOILER ROOM	All Abated
I-21	Insulation	Thermal System Insulation	PENTHOUSE MUSIC ROOM	No
TM-22	12" x 12" White Floor Tile	Miscellaneous Material	GYM OFFICE	No
TM-23	12" x 12" Blue Floor Tile	Miscellaneous Material	GYM OFFICE	No
TTT-24	Transite Table Top	Miscellaneous Material	ROOMS 316 AND 307	No
CE-25	Wall Cement Behind Univent	Miscellaneous Material	ROOM 204	No
TM-26	12" x 12" Speckled Gray and White Floor Tile	Miscellaneous Material	ROOM 108	No
FT-27	12" x 12" Light Green Floor Tile	Miscellaneous Material	ROOM 216	No
FT-28	12" x 12" Light Blue Speckled Floor Tile	Miscellaneous Material	MAIN OFFICE, 218E, 218B, AND 218A	No
FT-29	12" x 12" Gray Floor Tile with Yellow Speckles	Miscellaneous Material	ROOM 219	No
FT-30	12" x 12" Green Floor Tile with White Stripes	Miscellaneous Material	ROOM 221	Yes
FT-31	12" x 12" Red Speckled Floor Tile	Miscellaneous Material	AUDITORIUM	No
FT-32	12" x 12" Yellow Speckled Floor Tile	Miscellaneous Material	AUDITORIUM	No

6.0 SUMMARY OF FINDINGS FOR SUSPECT MATERIALS (CONTINUED)

Material Number	*Suspect Material*	*Category*	*Material Location(s)*	*Asbestos Present?*
FT-33	12" x 12" Aqua Floor Tile	Miscellaneous Material	MEN'S TEACHER'S ROOM	No
FC-34	Rolled Vinyl Flooring	Miscellaneous Material	BETWEEN ROOMS 302 AND 303	No
TM-35	9" x 9" Yellow Floor Tile	Miscellaneous Material	AUDITORIUM	Yes (assumed)
TM-36	9" x 9" Brown Floor Tile	Miscellaneous Material	AUDITORIUM	Yes (assumed)
WI-37	Wiring Insulation	Miscellaneous Material	AUDITORIUM	Yes (assumed)
CT-38	12" x 12" Ceiling Tile	Miscellaneous Material	AUDITORIUM	Yes (assumed)
TSI-39	Transite Sink	Miscellaneous Material	ROOMS 320, 321, 319, 318, AND 316	Yes (assumed)
TM-40	12" x 12" Green Speckled Floor Tile	Miscellaneous Material	ROOM 332	Yes (assumed)
TTP-41	Transite Toilet Partition	Miscellaneous Material	ROOMS 332 AND 335	Yes (assumed)
TM-42	12" x 12" Solid Mustard Floor Tile	Miscellaneous Material	ROOM 219C	Yes (assumed)
BRPI-43	Boiler Rib Packing Insulation	Thermal System Insulation	BOILER ROOM	All Abated
TM-44	Light Brown Speckled Floor Tile	Miscellaneous Material	CUSTODIAN'S ROOM	Yes (assumed)
TM-45	12" x 12" Gray Floor Tile	Miscellaneous Material	ROOMS 108, 106, 105, 104, 103, 103A, 103B, 103C, 102, B123, B125, B126, B130, AND B131	Yes (assumed)
TM-46	12" x 12" White Floor Tile	Miscellaneous Material	ROOMS 108, 106, 105, 104, 103, 103A, 103B, 103C, AND 102	Yes (assumed)
TM-47	12" x 12" Black Floor Tile	Miscellaneous Material	ROOMS 108, 106, 105, 104, 103, 103A, 103B, 103C, 102, AND STAIRWELL C	Yes (assumed)
TM-48	9" x 9" Black Floor Tile	Miscellaneous Material	ROOM B124	Yes (assumed)
LN-D 49	Stone Colored Linoleum	Miscellaneous Material	B POD HALLWAY AND 1ST FLOOR B HALLWAY	Yes (assumed)
TM-50	12" x 12" White Floor Tile	Miscellaneous Material	AUDITORIUM	Yes (assumed)

6.0 SUMMARY OF FINDINGS FOR SUSPECT MATERIALS (CONTINUED)

Material Number	*Suspect Material*	*Category*	*Material Location(s)*	*Asbestos Present?*
UND-51	Possible Underlayment Below Wood Floor	Miscellaneous Material	ROOMS 208, 322A, 322B, 323A, 324A, 324B, 202, 204, 201, 203A, 203B, 206, 205B, 205, 207, 334, 302, 301, 303, 305, 307, 117, MUSIC ROOM, 321, 320A, 320, 319, 318, 317, 316,316A, 319A, 315, 314, 313, 312, 311, 311B, 310, 309, 308, 307, 304, 214A, 214B, 212, 211, 213, 215, 217, 222, 223, 224, 119, GYM, 120, 121, 123, 124, 112 STORAGE, AND STAGE	Yes (assumed)

7.0 MATERIAL INFORMATION TABLES

This section details material information such as sample locations and sample results. It also contains information on if the material is friable or nonfriable, its EPA category, the material's physical assessment from the initial AHERA inspection and all subsequent reinspections, and any recommended response actions.

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Pipe Insulation	**PI-1**	**Yes**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Thermal System Insulation	Friable	Friable	5,801	Linear Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	6. Undamaged friable ACBM with potential for significant damage	Operations and Maintenance Program

General Material Comments

2015 - AHERA Assessment #6
Response Action - Operations and Maintenance Program

2012 - AHERA Assessment #1
Response Action - Repair
Wet wrapped the following: Custodian's Store Room - (1) spot; Room 126B - (1) spot; 1st Floor Hallway (by Room 103) - (1) spot

2009 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

2006 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

2003 - AHERA Assessment #1
Response Action - Repair
Wet wrapped the following: Kitchen - (1) spot

2000 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

1997 - AHERA Assessment #1
Response Action - Repair
Wet wrapped the following: Boy's and Girl's Locker Rooms - Several spots

1994 - AHERA Assessment #1
Response Action - Removal

Material Location(s)

BOILER ROOM, BOY'S LOCKER ROOM, 2ND FLOOR TEACHER'S BATHROOM, 206A, 207A, 216A, 231, 2ND FLOOR HALLWAY, 228 (BOY'S BATHROOM), 226, 116, CUSTODIAN'S ROOM, CUSTODIAN'S STORAGE ROOM, 131 (MEN'S BATHROOM), 119, 126B, 128, 129, STORAGE ROOM, 120, 121, 123, 124, 1ST FLOOR HALLWAY, 110, GIRL'S BATHROOM, 105, 104, 103B, 103C, 103 (BATHROOM), 112 STORAGE ROOM, 102, AND CAFETERIA

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
WIHS-3862	Boiler Room		Yes	10%	1) Pipe Insulation	10 % Chrysotile
WIHS-2527	Boiler Room		Yes	5%	1) Pipe Insulation	5 % Chrysotile
WIHS-3008	Boy’s Locker Room		Yes	20%	1) Pipe Insulation	20 % Chrysotile
HB-91-19781B	Girl’s Bathroom, Outside Health and Hospital Office		Yes	0%	1) Pipe Insulation	None Detected

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Tank Insulation	**TI-2**	**All Abated**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Thermal System Insulation	Friable	Friable	60	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response

General Material Comments

2003 AHERA Reinspection - Removed

2000 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

1997 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

1994 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

Material Location(s)

BOILER ROOM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

Material Description	Material Number	Asbestos Present?
Header Pipe Insulation	**HPI-3**	**All Abated**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Thermal System Insulation	Friable	Friable	60	Linear Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response

General Material Comments

2003 AHERA Reinspection - Removed

2000 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

1997 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

1994 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

Material Location(s)

BOILER ROOM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Boiler Insulation	**BI-4**	**All Abated**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Thermal System Insulation	Friable	Friable	850	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response

General Material Comments

2003 AHERA Reinspection - Removed

2000 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

1997 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

1994 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

Material Location(s)

BOILER ROOM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
WIHS-5329	Boiler Room		Yes	0%	1) Boiler Insulation	None Detected
HB-91-19777B	Boiler Room		Yes	0%	1) Boiler Insulation	None Detected
HB-91-19778B	Boiler Room		Yes	0%	1) Boiler Insulation	None Detected
HB-91-19779B	Boiler Room		Yes	0%	1) Boiler Insulation	None Detected
HB-91-19780B	Boiler Room		Yes	0%	1) Boiler Insulation	None Detected

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Pipe Fittings	**PF-5**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Thermal System Insulation	Friable	Friable	3	Linear Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	6. Undamaged friable ACBM with potential for significant damage	Operations and Maintenance Program

General Material Comments

2015 - AHERA Assessment #6
Response Action - Operations and Maintenance Program
Cafeteria - (22) pipe fittings have been removed

2009 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

2006 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

2003 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

2000 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

1997 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

1994 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

Material Location(s)

BOILER ROOM, BOY'S LOCKER ROOM, 2ND FLOOR TEACHER'S BATHROOM, 206A, 207A, 216A, 231, 2ND FLOOR HALLWAY, 228 (BOY'S BATHROOM), 226, 116, CUSTODIAN'S ROOM, CUSTODIAN'S STORAGE ROOM, 131 (MEN'S BATHROOM), 119, 126B, 128, 129, STORAGE ROOM, 120, 121, 123, 124, 1ST FLOOR HALLWAY, 110, GIRL'S BATHROOM, 105, 104, 103B, 103C, 103 (BATHROOM), 112 STORAGE ROOM, 102, AND CAFETERIA

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Breeching Insulation	**BR-6**	**All Abated**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Thermal System Insulation	Friable	Friable	720	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response

General Material Comments

2003 AHERA Reinspection - Removed

2000 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

1997 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

1994 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

Material Location(s)

BOILER ROOM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Terrazzo Floor	**TER-7**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category II	49,605	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2009 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2006 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2003 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2000 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

1997 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

1994 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

HALLWAYS

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Tin Pan Ceiling Insulation	**TPCI-8**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Surfacing Material	Non-Friable	Category II	1,900	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2009 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2006 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2003 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

1994 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

AUDITORIUM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

Material Description	Material Number	Asbestos Present?
Packing	**PA-9**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Thermal System Insulation	Friable	Friable	280	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response

General Material Comments

2015 AHERA Reinspection - Inspector could not find the material

2003 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

Material Location(s)

PENTHOUSE

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
2' x 2' White Ceiling Tile	**CT-10**	**Yes**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Friable	Friable	330	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response

General Material Comments

2015 AHERA Reinspection - Inspector could not find the material

2012 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

2009 - AHERA Assessment #7
Response Action - Operations and Maintenance Program

2006 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

2003 - AHERA Assessment #7
Response Action - Operations and Maintenance Program

1997 - AHERA Assessment #7
Response Action - Operations and Maintenance Program

Material Location(s)

PENTHOUSE AND MUSIC ROOM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
WIHS-8152	Penthouse - Upper Assembly Hall		Yes	2%	1) 2' x 2' White Ceiling Tile	2 % Amosite

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Wallboard	**WB-11**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Friable	Friable	3,200	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments:

Material Location(s): ROOMS 302, 323, 216, AND WORK ROOM (BY ROOM 321)

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
WIHS-0487	Work Room By Room 321		Yes	0%	1) Wallboard	None Detected
WIHS-2339	Room 302		Yes	0%	1) Wallboard	None Detected
WIHS-9299	Room 323		Yes	0%	1) Wallboard	None Detected
WIHS-1334	Room 216		Yes	0%	1) Wallboard	None Detected

Material Description	Material Number	Asbestos Present?
4" x 4" Ceramic Wall Tile	**CRT-12**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category II	735	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments:

Material Location(s): BATHROOMS

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Plaster	**PL-13**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Surfacing Material	Friable	Friable	95,300	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	No Assessment,Non-asbestos	Operations and Maintenance Program

General Material Comments

Material Location(s)

BOILER ROOM, 2ND FLOOR STOCK ROOM, 2ND FLOOR GIRL'S LOCKER ROOM, ROOMS 214, 304, 305, AND CAFETERIA

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
WIHS-0208	Boiler Room		Yes	0%	1) Plaster	None Detected
WIHS-8881	Second Floor Stock Room		Yes	0%	1) Plaster	None Detected
WIHS-0990	Second Floor Girl's Locker Room		Yes	0%	1) Plaster	None Detected
WIHS-0946	Rom 214 Closet		Yes	0%	1) Plaster	None Detected
HB-91-23773B	Room 304		Yes	0%	1) Wall Plaster	None Detected
HB-91-23774B	Room 305		Yes	0%	1) Wall Plaster	None Detected
HB-91-23775B	Cafeteria		Yes	0%	1) Ceiling Plaster	None Detected

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Green Linoleum	**LN-14**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	340	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	No Assessment,Non-asbestos	Operations and Maintenance Program

General Material Comments

2006 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2003 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

1994 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

NURSE'S OFFICE

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
003A	Nurse's Office		Yes	0%	1) Green Linoleum	None Detected
003B	Nurse's Office		Yes	0%	1) Green Linoleum	None Detected
004A	Nurse's Office		Yes	0%	1) Mastic on Green Linoleum	None Detected
004B	Nurse's Office		Yes	0%	1) Mastic on Green Linoleum	None Detected

Material Description	Material Number	Asbestos Present?
2" x 2" Ceramic Floor Tile	**CRT-15**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category II	25	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments

Material Location(s)

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
4" x 4" Floor Tile	**FT-16**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	130	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2006 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2003 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

BATHROOMS

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

Material Description	Material Number	Asbestos Present?
6" x 6" Floor Tile	**FT-17**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	400	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		Not Assessed under AHERA	

General Material Comments

2015 AHERA Reinspection - Inspector could not find the material

2003 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

1997 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

1994 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" Floor Tile	**FT-18**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	2,700	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

For all post 2009 reinspections, please refer to TM-22, TM-23, TM-26, FT-27, FT-28, FT-29, FT-30, FT-31, FT-32, FT-33, TM-40, TM-42, TM-44, TM-45, TM-46, TM-47, and TM-50.

2009 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2006 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2003 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2000 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

1997 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

1994 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
9" x 9" Floor Tile	**FT-19**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	2,755	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

For all post 2009 reinspections, please refer to TM-35, TM-36, and TM-48.

2009 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2006 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2003 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2000 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

1997 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

1994 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

Material Description	Material Number	Asbestos Present?
HVAC Vibration Cloth	**VC-20**	**All Abated**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Thermal System Insulation	Non-Friable	Category II	10	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		Not Assessed under AHERA	

General Material Comments

2015 AHERA Reinspection - Removed

1994 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

BOILER ROOM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Insulation	**I-21**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Thermal System Insulation	Friable	Friable	0	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments:

Material Location(s): PENTHOUSE MUSIC ROOM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
HB-91-19890B	Penthouse Music Room		Yes	0%	1) Insulation	None Detected
HB-91-19891B	Penthouse Music Room		Yes	0%	1) Plasterboard	None Detected

Material Description	Material Number	Asbestos Present?
12" x 12" White Floor Tile	**TM-22**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	0	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments:

Material Location(s): GYM OFFICE

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
001	Gym Office		Yes	0%	1) 12" x 12" White Floor Tile	None Detected
003	Gym Office		Yes	0%	1) Mastic on 12" x 12" White Floor Tile	None Detected

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" Blue Floor Tile	**TM-23**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	0	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments

Material Location(s)
GYM OFFICE

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
002	Gym Office		Yes	0%	1) 12" x 12" Blue Floor Tile	None Detected
004	Gym Office		Yes	0%	1) Mastic on 12" x 12" Blue Floor Tile	None Detected

Material Description	Material Number	Asbestos Present?
Transite Table Top	**TTT-24**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category II	84	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments
2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)
ROOMS 316 AND 307

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
IMS-01	NA		Yes	0%	1) Transite Table Top	None Detected

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Wall Cement Behind Univent	**CE-25**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category II	0	

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments

Material Location(s)

ROOM 204

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
1A	Room 204		Yes	0%	1) Wall Cement Behind Univent	None Detected
1B	Room 204		Yes	0%	1) Wall Cement Behind Univent	None Detected
1C	Room 204		Yes	0%	1) Wall Cement Behind Univent	None Detected

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" Speckled Gray and White Floor Tile	**TM-26**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	0	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments

Material Location(s)
ROOM 108

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
01	Room 108		Yes	0%	1) 12" x 12" Speckled Gray and White Floor Tile	None Detected
01A	Room 108		Yes	0%	1) Mastic on 12" x 12" Speckled Gray and White Floor Tile	None Detected
02	Room 108		Yes	0%	1) 12" x 12" Speckled Gray and White Floor Tile	None Detected
02A	Room 108		Yes	0%	1) Mastic on 12" x 12" Speckled Gray and White Floor Tile	None Detected
03	Room 108		Yes	0%	1) 12" x 12" Speckled Gray and White Floor Tile	None Detected
03A	Room 108		Yes	0%	1) Mastic on 12" x 12" Speckled Gray and White Floor Tile	None Detected

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" Light Green Floor Tile	**FT-27**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	700	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

ROOM 216

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
001A	Room 216		Yes	0%	1) 12" x 12" Light Green Floor Tile	None Detected
001B	Room 216		Yes	0%	1) 12" x 12" Light Green Floor Tile	None Detected
001C	Room 216		Yes	0%	1) 12" x 12" Light Green Floor Tile	None Detected

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" Light Blue Speckled Floor Tile	**FT-28**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	530	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

MAIN OFFICE, 218E, 218B, AND 218A

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
002A	Main Office		Yes	0%	1) 12" x 12" Light Blue Speckled Floor Tile	None Detected
002B	Main Office		Yes	0%	1) 12" x 12" Light Blue Speckled Floor Tile	None Detected
002C	Main Office		Yes	0%	1) 12" x 12" Light Blue Speckled Floor Tile	None Detected

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" Gray Floor Tile with Yellow Speckles	**FT-29**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	634	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

ROOM 219

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
005A	Room 219		Yes	0%	1) 12" x 12" Gray Floor Tile with Yellow Speckles	None Detected
005B	Room 219		Yes	0%	1) 12" x 12" Gray Floor Tile with Yellow Speckles	None Detected
005C	Room 219		Yes	0%	1) 12" x 12" Gray Floor Tile with Yellow Speckles	None Detected

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" Green Floor Tile with White Stripes	**FT-30**	**Yes**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	748	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

ROOM 221

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
006A	Room 221		Yes	3%	1) 12" x 12" Green Floor Tile with White Stripes	3 % Chrysotile
006B	Room 221		No	Not Avail.	1) 12" x 12" Green Floor Tile with White Stripes	Did Not Analyze
006C	Room 221		No	Not Avail.	1) 12" x 12" Green Floor Tile with White Stripes	Did Not Analyze

Material Description	Material Number	Asbestos Present?
12" x 12" Red Speckled Floor Tile	**FT-31**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	240	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

AUDITORIUM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
007A	Auditorium		Yes	0%	1) 12" x 12" Red Speckled Floor Tile	None Detected
007B	Auditorium		Yes	0%	1) 12" x 12" Red Speckled Floor Tile	None Detected

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" Yellow Speckled Floor Tile	**FT-32**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	240	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

AUDITORIUM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
008A	Auditorium		Yes	0%	1) 12" x 12" Yellow Speckled Floor Tile	None Detected
008B	Auditorium		Yes	0%	1) 12" x 12" Yellow Speckled Floor Tile	None Detected

Material Description	Material Number	Asbestos Present?
12" x 12" Aqua Floor Tile	**FT-33**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	0	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments

Material Location(s)

MEN'S TEACHER'S ROOM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
009A	Men's Teacher's Room		Yes	0%	1) 12" x 12" Aqua Floor Tile	None Detected
009B	Men's Teacher's Room		Yes	0%	1) 12" x 12" Aqua Floor Tile	None Detected
009C	Men's Teacher's Room		Yes	0%	1) 12" x 12" Aqua Floor Tile	None Detected

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Rolled Vinyl Flooring	**FC-34**	**No**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	0	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		No Assessment,Non-asbestos	

General Material Comments

Material Location(s)
BETWEEN ROOMS 302 AND 303

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer
010A	Between Rooms 302 and 303		Yes	0%	1) Rolled Vinyl Floor Covering	None Detected
010B	Between Rooms 302 and 303		Yes	0%	1) Rolled Vinyl Floor Covering	None Detected
011A	Between Rooms 302 and 303		Yes	0%	1) Mastic on Rolled Vinyl Floor Covering	None Detected

Material Description	Material Number	Asbestos Present?
9" x 9" Yellow Floor Tile	**TM-35**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	550	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments
2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)
AUDITORIUM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
9" x 9" Brown Floor Tile	**TM-36**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	550	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

AUDITORIUM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

Material Description	Material Number	Asbestos Present?
Wiring Insulation	**WI-37**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category II	10	Linear Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		Not Assessed under AHERA	

General Material Comments

2015 AHERA Reinspection - Inspector could not find the material

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

AUDITORIUM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" Ceiling Tile	**CT-38**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Friable	Friable	3,000	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	6. Undamaged friable ACBM with potential for significant damage	Operations and Maintenance Program

General Material Comments

2015 - AHERA Assessment #6
Response Action - Operations and Maintenance Program
Auditorium - (5) missing ceiling tiles

2012 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

Material Location(s)

AUDITORIUM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

Material Description	Material Number	Asbestos Present?
Transite Sink	**TSI-39**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category II	72	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

ROOMS 320, 321, 319, 318, AND 316

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" Green Speckled Floor Tile	**TM-40**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	200	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

ROOM 332

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

Material Description	Material Number	Asbestos Present?
Transite Toilet Partition	**TTP-41**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category II	280	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

ROOMS 332 AND 335

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" Solid Mustard Floor Tile	**TM-42**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	70	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

ROOM 219C

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

Material Description	Material Number	Asbestos Present?
Boiler Rib Packing Insulation	**BRPI-43**	**All Abated**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Thermal System Insulation	Friable	Friable	880	Linear Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response

General Material Comments

2015 AHERA Reinspection - Removed

2012 - AHERA Assessment #5
Response Action - Operations and Maintenance Program

Material Location(s)

BOILER ROOM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
Light Brown Speckled Floor Tile	**TM-44**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	180	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

CUSTODIAN'S ROOM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

Material Description	Material Number	Asbestos Present?
12" x 12" Gray Floor Tile	**TM-45**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	6,790	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

ROOMS 108, 106, 105, 104, 103, 103A, 103B, 103C, 102, B123, B125, B126, B130, AND B131

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" White Floor Tile	**TM-46**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	1,140	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

ROOMS 108, 106, 105, 104, 103, 103A, 103B, 103C, AND 102

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

Material Description	Material Number	Asbestos Present?
12" x 12" Black Floor Tile	**TM-47**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	1,280	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

ROOMS 108, 106, 105, 104, 103, 103A, 103B, 103C, 102, AND STAIRWELL C

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
9" x 9" Black Floor Tile	**TM-48**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	850	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

ROOM B124

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

Material Description	Material Number	Asbestos Present?
Stone Colored Linoleum	**LN-D 49**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	3,600	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		Not Assessed under AHERA	

General Material Comments

2015 AHERA Reinspection - Inspector could not find the material

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

B POD HALLWAY AND 1ST FLOOR B HALLWAY

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

7.0 MATERIAL INFORMATION TABLES (CONTINUED)

Material Description	Material Number	Asbestos Present?
12" x 12" White Floor Tile	**TM-50**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category I	1,700	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
Good	None	Not Assessed under AHERA	Operations and Maintenance Program

General Material Comments

2015 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

AUDITORIUM

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

Material Description	Material Number	Asbestos Present?
Possible Underlayment Below Wood Floor	**UND-51**	**Yes (assumed)**

Material Category	Friable Classification	EPA Category	Total Quantity	Unit of Measure
Miscellaneous Material	Non-Friable	Category II	37,540	Square Feet

General Condition	Damage Category	Overall Material Assessment	Recommended Response
		Not Assessed under AHERA	

General Material Comments

2015 AHERA Reinspection - Not accessible

2012 AHERA Reinspection - Good Condition
Response Action - Operations and Maintenance Program

Material Location(s)

ROOMS 208, 322A, 322B, 323A, 324A, 324B, 202, 204, 201, 203A, 203B, 206, 205B, 205, 207, 334, 302, 301, 303, 305, 307, 117, MUSIC ROOM, 321, 320A, 320, 319, 318, 317, 316,316A, 319A, 315, 314, 313, 312, 311, 311B, 310, 309, 308, 307, 304, 214A, 214B, 212, 211, 213, 215, 217, 222, 223, 224, 119, GYM, 120, 121, 123, 124, 112 STORAGE, AND STAGE

Sample ID(s)	Sample Location(s)	Floor	Analyzed	Overall Result	Layer(s) Reported By Lab	Results by Layer

8.0 PERIODIC SURVEILLANCE

At least once every six months the Boston Public Schools conducts periodic surveillance in each building that Boston Public Schools owns, leases, or otherwise uses as a school building that contains ACBM or is assumed to contain ACBM. Each person performing periodic surveillance shall:

- Visually inspect all areas that are identified in the management plan as ACBM or assumed ACBM
- Record the date of the surveillance, his or her name, and any changes in the condition of the materials.
- Submit to the Designated Person a copy of the periodic surveillance report for inclusion in the asbestos management plan.

9.0 OPERATIONS AND MAINTENANCE PROGRAM

9.01 INTRODUCTION

The Operations and Maintenance (O&M) Program is a set of specific procedures and practices applied to building cleaning, maintenance, renovation and general operation to maintain the building as free of asbestos contamination as possible. The Operations and Maintenance Program is required under Environmental Protection Agency 40 CFR Part 763 "Asbestos-Containing Material in School; Final Rule and Notice."

The primary objectives of an Operations and Maintenance (O&M) program are:

- Facilitate cleanup of asbestos fibers if release occurs during the operations or maintenance procedures of the building;
- Reduce the potential for asbestos fiber release by minimizing the risk of ACBM disturbance or damage in the building;
- Monitor the condition of ACBM in the building;

An O&M program is limited to repair or removal of small areas of significantly damaged ACM, or small areas where removal is necessary to facilitate maintenance/renovation activities. Large abatement projects that require extensive planning and technical expertise are beyond the scope of an O&M program.

Specific features of an O&M program should be individually designed and periodically updated to meet special and/or changing circumstances of a facility and its occupants. Each 0&M program, however, should address the following:

- Program Organization
- Training
- Respiratory Protection Program
- Medical Surveillance Program
- Specialized Cleaning Procedures
- Special Work Practices for Custodial Activities
- Asbestos Emergency Response Actions
- Periodic Surveillance
- Recordkeeping

9.02 PROGRAM ORGANIZATION

The success of the O&M Program relies on the active participation of many people. Each of these people must clearly know their role in the O&M Program. Suggested roles and their responsibilities are as follows:

- Designated Person - Has the overall responsibility for implementation of the O&M Program in the building and serves as the coordinator of all activities related to ACM. Serves as Respiratory Protection Program Manager.
- Environmental Staff - Must be capable of recognizing ACM and trained in the special techniques and procedures required in working around ACM. Responsible for notifying the Designated Person if ACM is disturbed or damaged. Perform routine inspections of ACM inspecting for damage or deterioration.
- Custodial Staff Supervisor - Reports directly to the Designated Person. Assures that all custodial personnel are aware of the location of ACM and educated in the hazards of asbestos.
- Custodial Staff - Must be capable of recognizing ACM and educated in the hazards of asbestos. Do not disturb any ACM.
- Building Occupants - Report to the Principal any incidents where damage to ACM is observed. Do not disturb any ACM.
- Outside Contractors - Required to report to the Project Manager prior to beginning work. Not permitted to perform work in areas where ACM is physically contacted unless specifically licensed and directed to do so by the Designated Person or an Environmental Supervisor from the Environmental Section of Boston Public Schools' Facilities Management. Any work in which any asbestos containing material (ACM) is physically contacted or disturbed shall be done by private licensed asbestos abatement contractor.
- Asbestos Abatement Contractor - Reports to the Environmental Chief or his/her designated representative (which includes but not limited Environmental Supervisors from the Environmental Section of BPS Facilities Management) and is responsible for performing all work in which ACM is physically contacted which includes major asbestos removal as well as spot removal and asbestos disposal. Performs special cleaning and disposal of ACM as needed.
- Asbestos Project Monitor - Advises Designated Person in recommended techniques and procedures. Performs bulk sample surveys and analysis and air monitoring as needed.
- Asbestos Project Designer – Prepares the design specifications for asbestos abatement projects.

9.03 TRAINING

Please refer to Section 12 of the Asbestos Management Plan for details about training and education.

9.04 RESPIRATORY PROTECTION PROGRAM

Please refer to Appendix A for details of the Respiratory Protection Program.

9.05 MEDICAL SURVEILLANCE PROGRAM

Please refer to Appendix A for details of the Medical Surveillance Program.

9.06 SPECIALIZED CLEANING PROCEDURES

Following the completion of the original AHERA inspection, all areas of the school building where friable ACBM, damaged or significantly damaged thermal system insulation, or friable suspected ACBM assumed to be ACM are present shall be cleaned at least once. This cleaning must happen after the completion of the inspection and before the initiation of any response action, other than O&M activities.

The cleaning must include the following:

- HEPA vacuum or steam clean all carpets
- HEPA vacuum or wet clean all other floors and all other horizontal surfaces
- Dispose of all debris, filters, mop heads, and clothes in sealed, leak-tight containers

9.07 SPECIAL WORK PRACTICES FOR CUSTODIAL ACTIVITIES

The Boston Public Schools' policy is not to have custodial employees conduct activities that will disturb materials containing asbestos. However, there are housekeeping and maintenance activities during which custodial staff may come in contact with ACBM. These work activities are to be carried out according to the procedures described in this Operations and Maintenance Program.

A. Dry Buffing of Asbestos-Containing Floor Tile

1. Sanding of asbestos or presumed asbestos-containing floor tile is prohibited.

B. Stripping of Asbestos-Containing Floor Tile

1. The floor must be kept adequately wet during the stripping operation.
2. After stripping and before the application of the new wax, the floor should be thoroughly cleaned while it is still wet.
3. The machines are not to be run at speeds greater than 300 rpm during the stripping operation.
4. The machines must be equipped with low abrasion pads.

C. Accessing Areas Above Non-Asbestos Ceiling Tiles Which Contain Asbestos-Containing Pipe Insulation or Asbestos Containing Surfacing Materials

1. The custodial staff shall review the Asbestos Management Plan to determine the presence of asbestos-containing material above the non-asbestos ceiling tiles.
2. If asbestos-containing material is present, traffic control barriers shall be established surrounding the work area.
3. One layer of polyethylene sheeting shall be placed on the floor under where the ceiling tiles will be removed.
4. The non-asbestos ceiling tile should be lifted freely. If not, the worker shall attempt to lift another ceiling tile.
5. The ceiling tile shall be lifted carefully and placed on top of the remaining ceiling tiles.
6. The worker shall conduct a visual inspection of the area to determine if asbestos-containing material or asbestos contaminated ceiling tiles will be disturbed.
7. If asbestos-containing material or asbestos contaminated ceiling tiles will be

disturbed, the Designated Person shall be informed and the work shall be conducted by a licensed Asbestos Abatement Contractor.

9.08 ASBESTOS EMERGENCY RESPONSE ACTIONS

The following procedures shall be followed when asbestos is accidently disturbed or unexpectedly encountered during routine maintenance, renovation, or demolition work.

A. General

1. The workers shall stop working and isolate the affected area with the required warning signs and barrier tape.
2. The workers shall immediately notify the Principal or Headmaster.
3. The Principal or Headmaster shall notify the Designated Person.
4. The Designated Person or his/her designated representative shall visit the school work site and determine if the incident is a minor fiber release episode or major fiber release episode.

B. Response Actions

1. Repair – Return damaged ACBM to undamaged condition or to an intact state so as to prevent fiber release.
2. Encapsulation – The treatment of ACBM with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers, as the encapsulant creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulant).
3. Enclosure – An air-tight, impermeable, permanent barrier around ACBM to prevent the release of asbestos fibers in the air.
4. Removal – Taking out or the stripping of substantially all ACBM from a damaged area, a functional space, or homogenous area in a school building.

C. Minor Fiber Release Episode (< 3 Square Feet or 3 Linear Feet of ACM)

1. If the Designated Person discovers a minor problem, corrective measures will be performed under the Designated Person's directions to allow for safe resumption of work.
2. The area will be secured from unauthorized entry and warning signs will be posted.
3. A licensed asbestos abatement contractor shall HEPA vacuum any debris and wet clean all surfaces, fixtures, and components in the area.
4. The asbestos abatement contractor may also need to modify the HVAC system.
5. If there is a minor amount of damage to asbestos-containing material, the abatement contractor may also need to repair, encapsulate, enclose, or remove the damaged asbestos-containing material.
6. The abatement contractor shall place any asbestos debris and other cleaning materials in a sealed, leak-tight container.

D. Major Fiber Release Episode (> 3 Square Feet or 3 Linear Feet of ACM)

1. If the Designated Person discovers a major problem, the area will be secured

from unauthorized entry and warning signs will be posted.

2. The HVAC will be shut off or temporarily modified to prevent the distribution of fibers to other areas in the building.
3. A licensed asbestos project designer must prepare the design specification for the project.
4. A licensed asbestos abatement contractor shall proceed with the abatement project per the design specifications. (HEPA vacuum any debris and wet clean all surfaces, fixtures, and components in the area. Repair, encapsulate, enclose, or remove the damaged asbestos-containing material.)

9.09 PERIODIC SURVEILLANCE

Please refer to Section 8 of the Asbestos Management Plan for details about periodic surveillance.

9.10 RECORDKEEPING

Please refer to Appendix C of the Asbestos Management Plan for asbestos abatement project details.

10.0 ANNUAL NOTIFICATION LETTER

The Boston Public Schools Designated Person is responsible for annually informing parents, guardians, and employees of the availability of the asbestos management plan. This notification is to be documented and maintained in the AHERA Management Plan.

Annual Notification Letter

11.0 NOTIFICATION TO SHORT-TERM WORKERS AND CONTRACTORS

The Designated Person is responsible for notifying short-term workers and contractors who come in contact with asbestos, the locations of the ACBM or assumed ACBM. Also, the Designated Person will have the short-term worker and contractor notice signed by the company and placed into the AHERA Management Plan. The “Short-Term Worker and Contractor Notice” will be sent out and signed by contract vendors initially and annually.

BOSTON PUBLIC SCHOOLS

OFFICE OF FACILITIES MANAGEMENT

DPEARTMENT OF PLANNING AND ENGINEERING

NOTICE TO CONTRACTORS

AHERA NOTIFICATION REQUIREMENTS

In accordance with federal regulations 40 CFR Part 763, Subpart E, the Asbestos Hazardous Emergency Response Act (AHERA), Boston Public Schools must notify all short-term, temporary employees (i.e. contractors) of possible asbestos building containing materials (ACBM) in school buildings. As part of the notification process, all contractors are required to report to the school's main administrative office and request the AHERA Management Plan prior to the commencement of any work activity.

The contractor will also be required, as part of the payment process to submit and sign a statement of compliance that he/she has been provided notice of possible asbestos-containing building (ACBM) for that school building.

_____

Khadijah J. Brown, AIA

Director Facilities Management

12.0 EDUCATION AND TRAINING

12.01 CUSTODIANS AND MAINTENANCE PERSONNEL

The Boston Public Schools conducts two hour asbestos awareness training for all custodians. New custodians are trained within 60 days of commencement of employment. The training includes:

- Information regarding asbestos and its various uses and forms
- Information of the health effects associated with asbestos exposure
- Locations of ACBM identified throughout each school building in which they work
- Recognition of damage, deterioration, and delamination of ACBM
- The name and telephone number of the Designated Person and the availability and location of the asbestos management plan

12.02 CONSTRUCTION AND REPAIR CONTRACTORS

All workers must have the following initial training and annual refresher training courses:

1. OSHA 10-hour Health and Safety Training
2. Hazard Communication Standard in the Global Harmonization System (GHS).

12.03 ASBESTOS ABATEMENT CONTRACTOR AND ASBESTOS CONSULTANT

All workers must have the following initial and annual refresher training courses in accordance with their designated work activity (as identified in the first column of table below):

Activity	Initial Training Course	Annual Refresher Course
Repair and Maintenance	16 hour OSHA – Class III	OSHA – Class III
Asbestos Abatement	40 hour EPA Supervisor 32 hour EPA Worker	8 hour Supervisor 8 Hour Worker
Project Monitor	40 hour Project Monitor	8 hour Project Monitor
Asbestos Inspector	24 hour Site Inspector	4 hour Site Inspector
Asbestos Management Planner	16 hour Management Planner *The Management Planner must be an accredited site inspector prior to taking the course.*	8 hour Management Planner
Asbestos Designer	24 hour Project Designer	8 hour Project Designer

Asbestos Training PDF

APPENDIX A

Boston Public Schools'

Respiratory Protection Program

I. OBJECTIVE

The ***Boston Public Schools*** Respiratory Protection Program is designed to protect employees by establishing accepted practices for respirator use, providing guidelines for training and respirator selection, and explaining proper storage, use and care of respirators. This program also serves to help the company and its employees comply with Occupational Safety and Health Administration (OSHA) respiratory protection requirements as found in 29 CFR 1910.134.

Table of Contents

II. ASSIGNMENT OF RESPONSIBILITY

A. Employer

Boston Public Schools (BPS) is responsible for providing respirators to BPS employees when they are necessary for health protection. Boston Public Schools will provide respirators that are applicable and suitable for the intended purpose at no charge to affected employees. Any expense associated with training, medical evaluations and respiratory protection equipment will be borne by Boston Public Schools.

Private contractors working on BPS school property or for BPS, who by the nature of their work, need to provider respiratory personal protective equipment (PPE) to their employees must meet the requirements set forth in 29 CFR 1910.134 and this document ("Boston Public Schools' Respiratory Protection Program"). Documentation shall be provided as contract submittals.

B. Program Administrator

The Program Administrator for ***Boston Public Schools*** is the Environmental Specialist. The Program Administrator is responsible for administering the respiratory protection program. Duties of the program administrator include:

1. Identifying work areas, process or tasks that require workers to wear respirators.
2. Evaluating hazards.
3. Selecting respiratory protection options.
4. Monitoring respirator use to ensure that respirators are used in accordance with their specifications.
5. Arranging for and/or conducting training.
6. Ensuring proper storage and maintenance of respiratory protection equipment.
7. Conducting quantitative fit testing.
8. Administering the medical surveillance program.
9. Maintaining records required by the program.
10. Evaluating and updating the program as needed.

C. Supervisors

Supervisors are responsible for ensuring that the respiratory protection program is implemented in their particular areas. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. Duties of the supervisor include:

1. Ensuring that employees under their supervision (including new hires) receive appropriate training, fit testing, and annual medical evaluation.
2. Ensuring the availability of appropriate respirators and accessories.
3. Being aware of tasks requiring the use of respiratory protection.
4. Enforcing the proper use of respiratory protection when necessary.

5. Ensuring that respirators are properly cleaned, maintained, and stored according to this program.
6. Ensuring that respirators fit well and do not cause discomfort.
7. Continually monitoring work areas and operations to identify respiratory hazards.
8. Coordinating with the Program Administrator on how to address respiratory hazards or other concerns regarding this program.

D. Employees

Each employee is responsible for wearing his or her respirator when and where required and in the manner in which they are trained. Employees must also:

1. Care for and maintain their respirators as instructed, guard them against damage, and store them in a clean, sanitary location.
2. Inform their supervisor if their respirator no longer fits well, and request a new one that fits properly.
3. Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding this program.
4. Use the respiratory protection in accordance with the manufacturer's instructions and the training received.

III. APPLICABILITY

This program applies to all BPS employees who are required to wear respirators during normal work operations, as well as during some non-routine or emergency operations.

In addition, any employee who voluntarily wears a respirator when one is not required (i.e., in certain maintenance and coating operations) is subject to the medical evaluation, cleaning, maintenance, and storage elements of this program, and will be provided with necessary training. Employees who voluntarily wear filtering face pieces (dust masks) are not subject to the medical evaluation, cleaning, storage, and maintenance provisions of this program.

All employees and processes that fall under the provisions of this program are listed in Attachment D.

IV. PROGRAM

A. Hazard Assessment and Respirator Selection

The Program Administrator will train supervisors on respiratory hazard assessment and with the supervisors will select respiratory PPE to be used on site, based on the hazards to which workers are exposed and in accordance with the OSHA Respiratory Protection Standard. The Program Administrator will conduct a hazard evaluation for each operation, process, or work area where airborne contaminants may be present in routine operations or during an emergency. A log of identified hazards will be maintained by the Program Administrator (See Sample Hazard Evaluation, Attachment C). The hazard evaluations shall include:

1. Identification and development of a list of hazardous substances used in the workplace by department or work process.
2. Review of work processes to determine where potential exposures to hazardous substances may occur. This review shall be conducted by surveying the workplace, reviewing the process records, and talking with employees and supervisors.
3. Exposure monitoring to quantify potential hazardous exposures.

The proper type of respirator for the specific hazard involved will be selected in accordance with the manufacturer's instructions. A list of employees and appropriate respiratory protection will be maintained by the Program Administrator (see Attachment D).

B. Updating the Hazard Assessment

The Program Administrator must revise and update the hazard assessment as needed (i.e., any time work process changes may potentially affect exposure). If an employee feels that respiratory protection is needed during a particular activity, he/she is to contact his/her supervisor or the Program Administrator. The Program Administrator will evaluate the potential hazard, and arrange for outside assistance as necessary. The Program Administrator will then communicate the results of that assessment to the employees. If it is determined that respiratory protection is necessary, all other elements of the respiratory protection program will be in effect for those tasks, and the respiratory program will be updated accordingly.

C. Training

The Program Administrator will provide training to respirator users and their supervisors on the contents of the Boston Public Schools' Respiratory Protection Program and their responsibilities under it, and on the OSHA Respiratory Protection Standard. All affected employees and their supervisors will be trained prior to using a respirator in the workplace. Supervisors will also be

trained prior to supervising employees that must wear respirators.

The training course will cover the following topics:

1. The Boston Public Schools Respiratory Protection Program;
2. The OSHA Respiratory Protection Standard (29 CFR 1910.134);
3. Respiratory hazards encountered at Boston Public Schools Facilities Management and their health affects;
4. Proper selection and use of respirators;
5. Limitations of respirators (no emergency entry or rescue);
6. Respirator donning and user seal (fit) checks;
7. Fit testing;
8. Maintenance and storage; and
9. Medical signs and symptoms limiting the effective use of respirators.

Employees will be retrained annually or as needed (e.g., if they change departments or work processes and need to use a different respirator). Employees must demonstrate their understanding of the topics covered in the training through hands-on exercises and a written test. Respirator training will be documented by the Program Administrator and the documentation will include the type, model, and size of respirator for which each employee has been trained and fit tested.

D. NIOSH Certification

All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. Also, all filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while the respirator is in use.

E. Medical Evaluation

Employees who are either required to wear respirators must pass a medical exam provided by Boston Public Schools Facilities Management, annually in April, before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until a physician has determined that they are medically able to do so. Any employee refusing the medical evaluation will not be allowed to work in an area requiring respirator use.

A licensed physician at Occupational Health Initiative, Inc. 1101 Beacon Street, Eight East, Brookline, MA 02446 shall provide company medical services and provide the medical evaluations. The medical evaluations will be offered in April each year during the school vacation period at the International Union of Painters and Allied Trades Facility, 25 Colgate Road, Roslindale, MA. Medical evaluation procedures are as follows:

1. The medical evaluation will be conducted using the questionnaire provided in Appendix C of the OSHA Respiratory Protection Standard. The Program Administrator will provide a copy of this questionnaire to all employees requiring medical evaluations.
2. To the extent feasible, the company will provide assistance to employees who are unable to read the questionnaire. When this is not possible, the employee will be sent directly to the physician for medical evaluation.
3. All affected employees will be given a copy of the medical questionnaire to complete, along with a stamped and addressed envelope for mailing the questionnaire to the company physician. Employees will be permitted to complete the questionnaire on company time.
4. Follow-up medical exams will be granted to employees as required by the Standard, and/or as deemed necessary by the evaluating physician.
5. All employees will be granted the opportunity to speak with the physician about their medical evaluation, if they so request.
6. The Program Administrator shall provide the evaluating physician with a copy of this Program, a copy of the OSHA Respiratory Protection Standard, the list of hazardous substances by work area, and the following information about each employee requiring evaluation:

    a. His or her work area or job title;
    b. Proposed respirator type and weight;
    c. Length of time required to wear respirator;
    d. Expected physical work load (light, moderate or heavy);
    e. Potential temperature and humidity extremes; and
    f. Any additional protective clothing required.

7. Positive pressure air purifying respirators will be provided to employees as required by medical necessity.
8. After an employee has received clearance to wear his or her respirator, additional medical evaluations will be provided under the following circumstances:

    a. The employee reports signs and/or symptoms related to their ability to use the respirator, such as shortness of breath, dizziness, chest pains or wheezing.
    b. The evaluating physician or supervisor informs the Program Administrator that the employee needs to be reevaluated.
    c. Information found during the implementation of this program, including observations made during the fit testing and program evaluation, indicates a need for reevaluation.
    d. A change occurs in workplace conditions that may result in an increased physiological burden on the employee.

All examinations and questionnaires are to remain confidential between the employee and the physician. The Program Administrator will only retain the physician's written recommendations regarding each employee's ability to wear a respirator.

F. Fit Testing

Employees who are required to wear half-face piece APRs will be fit tested:

1. Prior to being allowed to wear any respirator with a tight-fitting face piece;
2. Annually; or
3. When there are changes in the employee's physical condition that could affect respiratory fit (e.g., obvious change in body weight, facial scarring, etc.).

Employees will be fit tested with the make, model, and size of respirator that they will actually wear. Employees will be provided with several models and sizes of respirators so that they may find an optimal fit. Fit testing of powered air purifying respirators will be conducted in the negative pressure mode.

The Program Administrator will conduct fit tests in accordance with the OSHA Respiratory Protection Standard.

G. General Respirator Use Procedures

1. Employees will use their respirators under conditions specified in this program, and in accordance with the training they receive on the use of each particular model. In addition, the respirator shall not be used in a manner for which it is not certified by NIOSH or by its manufacturer.

2. All employees shall conduct user seal checks each time they wear their respirators. Employees shall use either the positive or negative pressure check (depending on which test works best for them) as specified in the OSHA Respiratory Protection Standard.

    a. Positive Pressure Test: This test is performed by closing off the exhalation valve with your hand. Breathe air into the mask. The face fit is satisfactory if some pressure can be built up inside the mask without any air leaking out between the mask and the face of the wearer.

    b. Negative Pressure Test: This test is performed by closing of the inlet openings of the cartridge with the palm of your hand. Some masks may require that the filter holder be removed to seal off the intake valve. Inhale gently so that a vacuum occurs within the face piece. Hold your breath for ten (10) seconds. If the vacuum remains, and no inward leakage is detected, the respirator is fit properly.

3. All employees shall be permitted to leave the work area to maintain their respirator for the following reasons:

a. To clean their respirator if it is impeding their ability to work;
b. To change filters or cartridges;
c. To replace parts; or
d. To inspect respirator if it stops functioning as intended.

Employees should notify their supervisor before leaving the area.

4. Employees are not permitted to wear tight-fitting respirators if they have any condition, such as facial scars, facial hair, or missing dentures that would prevent a proper seal. Employees are not permitted to wear headphones, jewelry, or other items that may interfere with the seal between the face and the face piece.

5. Before and after each use of a respirator, an employee or immediate supervisor must make an inspection of tightness or connections and the condition of the face piece, headbands, valves, filter holders and filters. Questionable items must be addressed immediately by the supervisor and/or Program Administrator.

H. Air Quality

For supplied-air respirators, only Grade D breathing air shall be used in the cylinders. The Madison Park Technical/Vocational High School Supervisor will coordinate deliveries of compressed air with the company's vendor and will require the vendor to certify that the air in the cylinders meets the specifications of Grade D breathing air.

The supervisor will maintain a minimum air supply of one fully charged replacement cylinder for each SAR unit. In addition, cylinders may be recharged as necessary from the breathing air cascade system located near the respirator storage area. These respirators will require specific permitted approval from Facilities Management for use at any school building outside of Madison Park Technical/Vocational High School auto body paint spray booth.

I. Change Schedules

Respirator cartridges shall be replaced as determined by the Program Administrator, supervisor(s), and manufacturers' recommendations (minimally, once per year or sooner as determined).

J. Cleaning

Respirators are to be regularly cleaned and disinfected at the designated respirator cleaning station. Respirators issued for the exclusive use of an employee shall be cleaned as often as necessary. Atmosphere-supplying and emergency use respirators are to be cleaned and disinfected after each use.

The following procedure is to be used when cleaning and disinfecting reusable respirators:

1. Disassemble respirator, removing any filters, canisters, or cartridges.
2. Wash the face piece and all associated parts (except cartridges and elastic headbands) in an approved cleaner-disinfectant solution in warm water (about 120 degrees Fahrenheit). Do not use organic solvents. Use a hand brush to remove dirt.
3. Rinse completely in clean, warm water.
4. Disinfect all facial contact areas by spraying the respirator with an approved disinfectant.
5. Air dry (do NOT use compressed air to dry) in a clean area.
6. Reassemble the respirator and replace any defective parts. Insert new filters or cartridges and make sure the seal is tight.
7. Place respirator in a clean, dry plastic bag or other airtight container.

The Program Administrator will ensure an adequate supply of appropriate cleaning and disinfection materials at the cleaning station. If supplies are low, employees should notify their supervisor, who will inform the Program Administrator.

K. Maintenance

Respirators are to be properly maintained at all times in order to ensure that they function properly and protect employees adequately. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts will be replaced prior to use. No components will be replaced or repairs made beyond those recommended by the manufacturer. Repairs to regulators or alarms of atmosphere-supplying respirators will be conducted by the manufacturer.

1. All respirators shall be inspected routinely before and after each use.

2. Respirators kept for emergency use shall be inspected after each use, and at least monthly by the Program Administrator to assure that they are in satisfactory working order

3. The Respirator Inspection Checklist (Attachment E) will be used when inspecting respirators.

4. A record shall be kept of inspection dates and findings for respirators maintained for emergency use.

5. Employees are permitted to leave their work area to perform limited maintenance on their respirator in a designated area that is free of respiratory hazards. Situations when this is permitted include:

a. Washing face and respirator face piece to prevent any eye or skin irritation;
b. Replacing the filter, cartridge or canister;
c. Detection of vapor or gas breakthrough or leakage in the face piece; or
d. Detection of any other damage to the respirator or its components.

L. Storage

After inspection, cleaning, and necessary repairs, respirators shall be stored appropriately to protect against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals.

1. Respirators must be stored in a clean, dry area, and in accordance with the manufacturer's recommendations. Each employee will clean and inspect their own air-purifying respirator in accordance with the provisions of this program, and will store their respirator in a plastic bag in the designated area. Each employee will have his/her name on the bag and that bag will only be used to store that employee's respirator.

2. Respirators shall be packed or stored so that the face piece and exhalation valve will rest in a near normal position.

3. Respirators shall not be placed in places such as lockers or toolboxes unless they are in carrying cartons.

4. Respirators maintained at stations and work areas for emergency use shall be stored in compartments built specifically for that purpose, be quickly accessible at all times, and be clearly marked.

5. The Program Administrator will store Boston Public Schools Facilities Management supply of respirators and respirator components in their original manufacturer's packaging in the Environmental Sections Storage Cage at the Campbell Resource Center, 1216 Dorchester Avenue, Dorchester, MA.

M. Respirator Malfunctions and Defects

1. For any malfunction of an ASR (atmosphere-supplying respirator), such as breakthrough, face piece leakage, or improperly working valve, the respirator wearer should inform his/her supervisor that the respirator no longer functions as intended, and go to the designated safe area to maintain the respirator. The supervisor must ensure that the employee either receives the needed parts to repair the respirator or is provided with a new respirator.

2. All workers wearing atmosphere-supplying respirators will work with a buddy. The Program Administrator shall develop and inform employees of the procedures to be used when a buddy is required to assist a coworker who experiences an ASR malfunction.

3. Respirators that are defective or have defective parts shall be taken out of service immediately. If, during an inspection, an employee discovers a defect in a respirator, he/she is to bring the defect to the attention of his/her supervisor. Supervisors will give all defective respirators to the Program Administrator. The Program Administrator will decide whether to:

    a. Temporarily take the respirator out of service until it can be repaired;
    b. Perform a simple fix on the spot, such as replacing a head strap; or
    c. Dispose of the respirator due to an irreparable problem or defect.

    When a respirator is taken out of service for an extended period of time, the respirator will be tagged out of service, and the employee will be given a replacement of a similar make, model, and size. All tagged out respirators will be kept in the Environmental Section's Storage Cage at the Campbell Resource Center, 1216 Dorchester Avenue, Dorchester, MA.

N. Program Evaluation

The Program Administrator will conduct periodic evaluations of the workplace to ensure that the provisions of this program are being implemented. The evaluations will include regular consultations with employees who use respirators and their supervisors, site inspections, air monitoring and a review of records. Items to be considered will include:

1. Comfort;
2. Ability to breathe without objectionable effort;
3. Adequate visibility under all conditions
4. Provisions for wearing prescription glasses;
5. Ability to perform all tasks without undue interference; and
6. Confidence in the face piece fit.

Identified problems will be noted in an inspection log and addressed by the Program Administrator. These findings will be reported to Boston Public Schools Facilities Management administration, and the report will list plans to correct deficiencies in the respirator program and target dates for the implementation of those corrections.

O. Documentation and Recordkeeping

1. A written copy of this program and the OSHA Respiratory Protection Standard shall be kept in the Program Administrator's office and made available to all employees who wish to review it.

2. Copies of training and fit test records shall be maintained by the Program Administrator. These records will be updated as new employees are trained, as existing employees receive refresher training, and as new fit tests are conducted

3. For employees covered under the Respiratory Protection Program, the Program Administrator shall maintain copies of the physician's written recommendation regarding each employee's ability to wear a respirator. The completed medical questionnaires and evaluating physician's documented findings will remain confidential in the employee's medical records at the location of the evaluating physician's practice.

ATTACHMENT A

Sample Hazard Assessment Log

Hazard Assessment Log ***DATE***				
Department	**Contaminants**	**Exposure Level (8 hr TWA*)**	**PEL****	**Controls**
Building Services – Custodial Flooring Work Crew	Polyurethane			
Building Services – Custodial Drum Sanding	Particulates, wood dust			
Madison Park Tech/Voc HS	Spray paint application			
Facilities Management; Environmental Division	Asbestos		0.1 fiber/cubic centimeter as an 8 hour time weighted average	

* Summarized from Industrial Hygiene report provided by ***Responsible Person***.

** These values were obtained from a survey on average exposures as published in the American Journal of Industrial Hygiene _____.

ATTACHMENT B

Sample Record of Respirator Use

Required and Voluntary Respirator Use at *(Company Name)*	
Type of Respirator	**Department/Process**
Filtering face piece (dust mask)	Barrier protection for clean-up of flooded work areas. Voluntary with Facilities Management approval dusty clean-ups.
Half-face piece APR or PAPR with P100 filter	Custodial drum-sanding crew Facilities Management; Environmental Division – Collecting asbestos bulk samples
SAR, pressure demand, with auxiliary SCBA	None
Continuous flow SAR with hood	None
Half-face piece APR with organic vapor cartridge	Custodial flooring crew – application of polyurethane
Escape SCBA	None

* Until ventilation is installed.

ATTACHMENT C

Sample Hazard Evaluation

Process Hazard Evaluation for *Boston Public Schools Facilities Management* ***DATE***	
Process	**Noted Hazards**
Prep-sanding	Ventilation controls on some sanders are in place, but employees continue to be exposed to respirable wood dust Half-face piece APRs with P100 filters and goggles are required for employees sanding wood pieces. PAPRs will be available for employees who are unable to wear an APR.
Prep-cleaning	
Assembly	Ventilation controls on sanders are in place, but employees continue to be exposed to respirable wood dust; half-face piece APRs with P100 filters and goggles are required for employees sanding wood pieces in the assembly department. PAPRs will be available for employees who are unable to wear an APR.
Maintenance	Because of potential IDLH conditions, employees cleaning dip coat tanks must wear a pressure demand SAR during the performance of this task.
Cleaning Spray Booth Walls	Employees may voluntarily wear half-face piece APRs with P100 cartridges**.** Although exposure monitoring has shown that exposures are kept within PELs during this procedure, ***Company Name*** will provide respirators to workers who are concerned about potential exposures
Loading Coating Agents into Supply Systems	
Changing Booth Filters	Employees may voluntarily wear half-face piece APRs with P100 cartridges. Although exposure monitoring has shown that exposures are kept within PELs during this procedure, ***Company Name*** will provide respirators to workers who are concerned about potential exposures

(Include documentation of the sampling data that hazard evaluation is based on.

ATTACHMENT D

Respirator Inspection Checklist

Type of Respirator:	**Location:**
Respirator Issued to:	**Type of Hazard:**
Face piece	_____ Cracks, tears, or holes _____ Face mask distortion _____ Cracked or loose lenses/face shield
Head straps	_____ Breaks or tears _____ Broken buckles
Valves:	_____ Residue or dirt _____ Cracks or tears in valve material
Filters/Cartridges:	_____ Approval designation _____ Gaskets _____ Cracks or dents in housing _____ Proper cartridge for hazard
Air Supply Systems	_____ Breathing air quality/grade _____ Condition of supply hoses _____ Hose connections _____ Settings on regulators and valves

Rubber/Elastomer Parts	_____ Pliability _____ Deterioration

Inspected by:	**Date:**
Action Taken:	

ATTACHMENT F

Sample Immediately Dangerous to Life and Health (IDLH) Assessment Log

(Only for specifically contracted employees – no BPS employees will be required as part of their job description to enter a permit-required confined space)

The Program Administrator has identified the following area as presenting the potential for IDLH conditions:

Process	IDLH Condition	Procedure
		Workers will follow the permit required confined space entry procedures specified in the ***(Company Name)*** Confined Space Program. As specified in these procedures, the Program Administrator has determined that workers entering this area shall wear a pressure demand SAR. In addition, an appropriately trained and equipped standby person shall remain IMMEDIATELY outside the work area and maintain constant voice and visual communication with the worker. In the event of an emergency requiring the standby person to enter the IDLH environment, the standby person shall immediately notify the Program Administrator and will proceed with rescue operations in accordance with rescue procedures outlined in the ***(Company Name)*** Confined Space Program.

_____ _____

Program Administrator Date

Summary of significant dates and deadlines:

Date	Activity
April 30	Medical Evaluations & Respiratory Fit Testing at IUPAT Union Hall 25 Colgate Rd Roslindale, MA
July 30	Annual Review of Boston Public Schools' Respiratory Protection Program

For more information contact:

Name:	Jeffrey Lane, Environmental Specialist
Department:	Facilities Management
Mailing Address:	26 Court Street Boston, MA 02108
Phone:	617-635-8300
Fax:	617-635-9252
E-mail:	jlane@boston.k12.ma.us

APPENDIX B

Asbestos Bulk Samples

Bulk samples of suspect asbestos-containing building materials were obtained using standard industrial hygiene techniques including wetting the material to minimize fiber release. Our personnel wore half-face air purifying respirators equipped with high efficiency particulate (HEPA) filters while collecting samples.

For each homogenous material identified by visual inspection as suspect material, random samples are collected. Our sampling strategy for suspect friable surfacing materials was based on guidelines outlined in the EPA publication Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials, and the procedures outlined in 40 CFR 763.86, Subpart E (AHERA). For nonfriable suspect materials, AHERA requires the asbestos inspector to determine the appropriate number of samples to obtain for analysis.

The bulk samples are delivered to an independent laboratory that participates in the bulk sample proficiency analysis program conducted by the United States Environmental Protection Agency and is accredited by the National Voluntary Laboratory Program (NVLP). The samples are analyzed using Polarized Light Microscopy (PLM) with dispersion staining to estimate the percent of asbestos composition by volume.

A single bulk sample is randomly selected from each homogenous material for first-round testing. If the first single bulk sample is positive, the remaining samples are not analyzed. If the sample is negative (None Detected), the other samples are analyzed. Every sample for a homogenous material must be reported negative for that material to be considered non-asbestos containing. Samples in which asbestiform minerals are observed, but exist in concentrations of less than one percent (< 1%), are designated as present in Trace amounts. All other samples are designated as asbestos-containing with the appropriate percent of asbestos noted.

APPENDIX C

Asbestos Abatement Projects

APPENDIX D

Definition of Terms and Assessment Criteria

Material Description contains the description of the suspect homogeneous asbestos containing building material.

Material Number is used to reference the material for reinspections, periodic surveillance, etc.

Asbestos Type And Content describes the type of asbestos and its percentage in the material.

Asbestos Results for positive materials are shown as a percentage. Samples having less than 1% asbestos are reported as containing "Trace" amounts of asbestos. Samples with no detected asbestos are reported as "None Detected."

Sample Number(s) identifies a particular material sample obtained from a specific sample location. Sample numbers are used primarily for laboratory identification.

Sample Location identifies where the samples of this material were obtained.

Material Category categorizes each material as Surfacing, TSI or Miscellaneous.

Surfacing Material - Material that is sprayed-on, troweled-on or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

Thermal System Insulation - (TSI) Material applied to pipes, fittings, boilers, breeching, tanks, ducts or other interior structural components to prevent heat loss or gain, or water condensation, or for other purposes.

Miscellaneous Materials - Interior building material on structural components, structural members or fixtures, such as floor and ceiling tiles, and does not include surfacing material or thermal system insulation.

Quantity & Units reports approximate total quantity per unit of measure for each material in linear feet (LF), square feet (SF), or cubic feet (CF).

Building(s) & Floor(s) specifies where a material is located.

Material Location describes where the material is found throughout the building.

Material Condition identifies the material as Friable or Non-Friable.

Friable - An asbestos containing material, when dry, that may be crumbled, pulverized or reduced to powder by hand pressure, and includes previously nonfriable material after such previously nonfriable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure. Friable materials are of greatest concern due to their potential fiber release.

Non-Friable - An asbestos containing material, when dry, may not be crumbled, pulverized, or reduced to powder by hand pressure. Non-friable materials can become friable, when dry, by crushing, sanding, sawing, shot-blasting, severe weathering or by other mechanically induced means.

Damage Category describes the type of damage, if any, to the material. The following damage categories are used: None, Physical, Air, and Water.

Material Assessment - The inspector shall classify and give reasons in the written assessment for classifying the ACBM and suspected ACBM assumed to be ACM in the school building into one of the following categories: 1) Damaged or significantly damaged thermal system insulation ACM, 2) Damaged friable surfacing ACM, 3) Significantly damaged friable surfacing ACM, 4) Damaged or significantly damaged friable miscellaneous ACM, 5) ACBM with the potential for damage, 6) ACBM with potential for significant damage, and 7) Any remaining friable ACBM or friable suspect ACBM. Only friable materials are assessed under AHERA regulations. Non-friable materials, unless damaged, are not assessed and can be assumed to be in good condition.

Damaged - The damage or deterioration of the material results in inadequate cohesion or adhesion with crumbling, blistering, water stains, marring or otherwise abraded over less than one-tenth (1/10) of the surface if the damage is evenly distributed or one-fourth (1/4) if the damage is localized.

Significant Damage - The damage or deterioration of the material results in inadequate adhesion or cohesion and the damage is extensive and severe with one or more of the following characteristics: 1) Crumbling or blistering over at least one-tenth (1/10) of the surface if evenly distributed, one-fourth (1/4) if the damage is localized; 2) Areas of the material hanging from the surface, delaminated, or showing adhesive failure; 3) Water stains, gouges or marred.

Recommended Response are response actions or control options that fall into five main categories:

Operations & Maintenance Program (O&M) - A program of training, cleaning, work practices, and periodic surveillance to maintain friable ACBM in good condition, ensure clean-up of asbestos fibers previously released, and prevent further fiber release by minimizing and controlling friable ACBM disturbance or damage. As long as asbestos containing materials remain in a building, an O&M program should be instituted to alert maintenance personnel, custodial workers and outside vendors of the existence and location of these materials and to set a policy for the maintenance of these materials.

Repair - Return damaged ACBM to undamaged condition or to an intact state so as to prevent fiber release.

Encapsulation - The treatment of ACBM with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers, as the encapsulant creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulant).

Enclosure - An air-tight, impermeable, permanent barrier around ACBM to prevent the release of asbestos fibers in the air.

Removal - Taking out or the stripping of substantially all ACBM from a damaged area, a functional space, or a homogenous area in a school building.

Comments & Damage Description contains any additional information and/or specific details of material damage.

EPA Category provides the appropriate material category as outlined in the NESHAPS regulation. The four options are Friable, Category I, Category II, and Needs Determination.

Friable - Any material containing more than 1 percent asbestos that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. Friable asbestos material is always considered Regulated Asbestos Containing Materials (RACM) that requires removal prior to building renovation or demolition activities that impact the material.

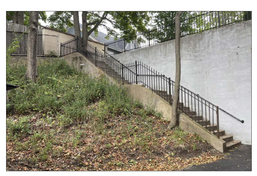
Category I Nonfriable Asbestos Containing Material (ACM) - Asbestos containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos. Category I material is considered RACM if it has become friable or will be or has been subjected to sanding, grinding, cutting, or abrading.

Category II Nonfriable Asbestos Containing Material (ACM) - Asbestos containing material excluding Category I nonfriable ACM, containing more than 1 percent asbestos. Category II material is considered RACM if it has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

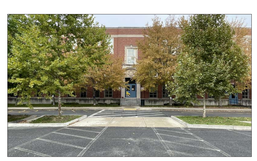
Needs Determination - Materials that the individual designing the abatement and demolition project needs to inspect and evaluate to determine the potential for the material to become RACM and/or evaluate the asbestos content for the composite and individual layers of the material.

1 ASPHALT PARKING LOT
all asphalt to get new top coat and parking to be re-striped. Chainlink fence to be removed and replaced along Hawthorne sidewalk.

2 CONCRETE STAIRS
stairs to be demolished and replaced to align parallel with the building. Slope to be removed and retained with a wall following the north property line.



3 1ST FLOOR ENTRY
concrete paving and accessible entry to be removed and reconfigured to meet new secure entry on NW corner



4 CUMMINS HIGHWAY ENTRY
asphalt and concrete to be removed for accessible entry building addition and future plaza dropoff and parking

5 TURF FIELD AND RUBBER TRACK
field and track to be removed and replaced with smaller grass field and playground structures

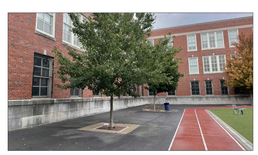
6 PARKING LOT RAIN GARDEN
rain garden to remain and be extended along entire row of parking and bus drop off

7 CONCRETE DRAINAGE BASIN
concrete to be removed and replaced with extenstion of rain garden

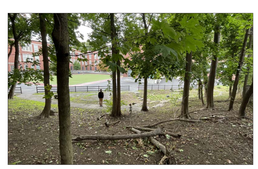
8 PLAY AREA RAIN GARDEN
existing rain garden to be expanded and improved. Vinyl split rail fence to be removed.

9 CURBED PLANTING
curbed planter to be adjusted to improve fire access

10 SHADE TREES
deciduous trees to remain when possible in proposed plan

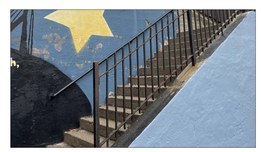


11 WOODED PLAY AREA
canopy trees to remain and planting to be expanded as nature play area. Abandoned curbs and vinly split rail fence at boundary to be removed.



12 CONCRETE STAIRS AND ASPHALT RAMP
stairs and ramp to be removed and replaced with sloped path through nature play. window well required at building.

13 CONCRETE STAIRS AND WALLS
stairs and walls to be structurally assessed and replaced in kind if deemed necessary



14 BASKETBALL HOOP
movable hoop to be removed and replaced.

15 TELEPHONE POLES
existing powerlines to be removed when possible. existing lights to be removed and replaced

NORTH ARROW

N

CONSULTANTS

Crowley Cottrell, LLC
171 Milk Street, 2nd Floor
Boston MA 02109
617.338.8400
www.crowleycottrell.com

REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING
ELEMENTARY SCHOOL
RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

EXISTING LANDSCAPE
BASED ON 2016
IMPROVEMENT PLANS

MVG
MOUNT VERNON GROUP
ARCHITECTS

200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

STAMP

DRAWING INFORMATION

SCALE	1" = 20'-0"
DRAWN BY	BW, CVM
CHECKED	MC, JB
DATE	SEPTEMBER 21, 2022

DRAWING NUMBER

L100

PAVING / SURFACING

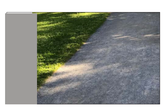
1 **ASPHALT PARKING LOT**
new parking lot top coat and striping

2A **PEDESTRIAN CONCRETE PAVING**
4" poured concrete on 6" aggregate base

2B **VEHICULAR CONCRETE**
6" poured concrete on 12" aggregate base

3 **BOARDWALK**
wood boardwalk flush with parking lot to bridge rain garden

4 **STABILIZED STONEDUST**
accessible reinforced stonedust path with steel edging



5 **OPEN PLAY FIELD**
turf grass with irrigation

6 **RUBBER-CUSHIONED SAFTEY SURFACING**
depth TBD with play structure

7 **PAINTED CONCRETE PLAY**
thermoplastic long lasting paint- colors TBD

8A **PEDESTRIAN PLAZA PAVING**
tbd.

8B **VEHICULAR PLAZA PAVING**
tbd.

9 **TRACK**
6' wide running track, 2 lanes

10 **FIRE LANE**
20' wide plowable surface

PLANTING

11 **EXISTING TREES TO REMAIN**
trees to be protected during construction (white circle center)

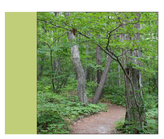
12 **RAIN GARDEN**
existing rain gardens to remain.

Extend parking garden along entire drop-off.

Enhance garden planting in nature play zone.

13 **SHADE TREES**
4" caliper deciduous trees. tree pits a minimum of 4'x4'

14 **NATURE PLAY PLANTING**
canopy trees, low maintenance shrubs and perennials



15 **LAWN**
sodded lawn

FURNISHINGS

16 **PICNIC TABLE**
Vestre April Series in metal or wood (or equal)

17 **BENCH**
Vestre April Series in metal or wood (or equal)

18 **PLAY EQUIPMENT**
LSI playbooster (or equal), Berlinner O Tannenbaum spinner, set of swings with basket swing

19 **BASKETBALL HOOP**
freestanding hoop with tall fence behind the backboard

20 **LOG BALANCE BEAMS**
surfaced mounted in rubber play surfacing

21 **STUMP CIRCLE OUTDOOR CLASSROOM**
mounted in stabilized stonedust

22 **BOULDERS**
set in grade and retaining slope as necessary

23 **BIKE RACK**
DERO round rack

SITE STRUCTURES

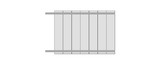
24 **SOLID GRANITE SEAT WALL**
18" tall, reclaimed granite to match school stairs

25 **VEHICULAR BOLLARDS**
product TBD. removable bollads at firelane.

26 **BASEMENT WINDOW WELL**
concrete window well retaining grade with metal grate top

27 **CONCRETE RETAINING WALLS**
guardrails as shown in plan

28 **CONCRETE STAIRS**
metal handrails on all stairs



29 **CHAINLINK FENCE**
4' tall black mini-mesh fence along Hawthorne edge of parking

LIGHTING

30 **PARKING / FLOOD LIGHT**
product TBD.

31 **PEDESTRIAN LIGHT**
product TBD.

32 **BOLLARD LIGHT**
product TBD.

NORTH ARROW

N

CONSULTANTS

Crowley Cottrell, LLC
171 Milk Street, 2nd Floor
Boston MA 02109
617.338.8400
www.crowleycottrell.com

REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING ELEMENTARY SCHOOL RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

PROPOSED LANDSCAPE

MVG
MOUNT VERNON GROUP ARCHITECTS

200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

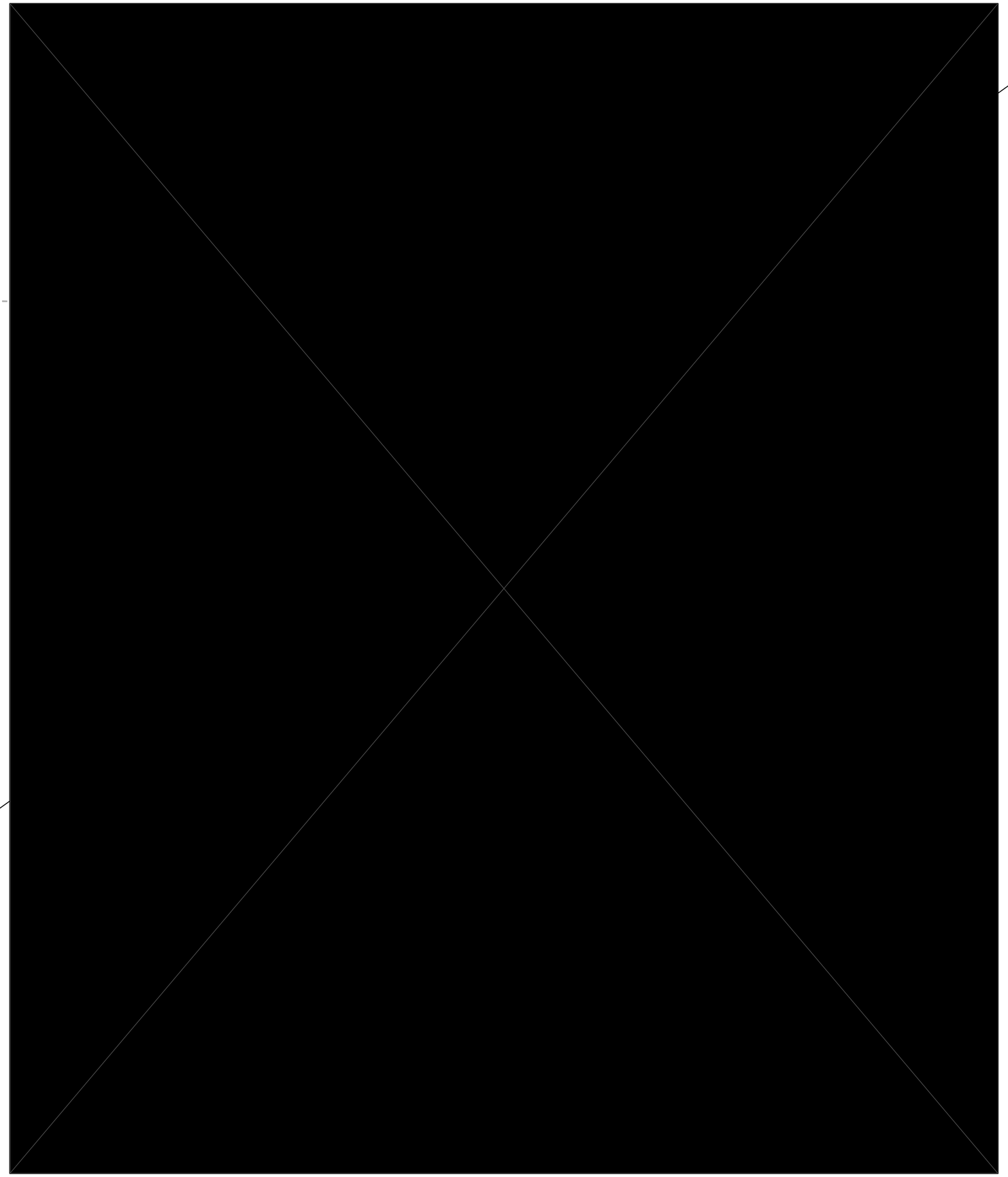
STAMP

DRAWING INFORMATION

SCALE	1" = 20'-0"
DRAWN BY	BW, CVM
CHECKED	MC, JB
DATE	SEPTEMBER 27, 2022

DRAWING NUMBER

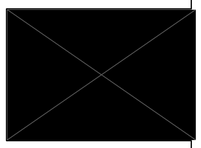
L200



NORTH ARROW

N

CONSULTANTS



REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING
ELEMENTARY SCHOOL
RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

FIRST FLOOR PLAN -
PART 'A'

MVG
MOUNT VERNON GROUP
ARCHITECTS

200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

STAMP

DRAWING INFORMATION

SCALE	1/8"=1'-0"
DRAWN BY	DMT
CHECKED	LA
DATE	OCTOBER 14, 2022

DRAWING NUMBER

A1.01

NORTH ARROW

N

CONSULTANTS

REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING
ELEMENTARY SCHOOL
RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

FIRST FLOOR PLAN -
PART 'B'

MVG
MOUNT VERNON GROUP
ARCHITECTS

200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

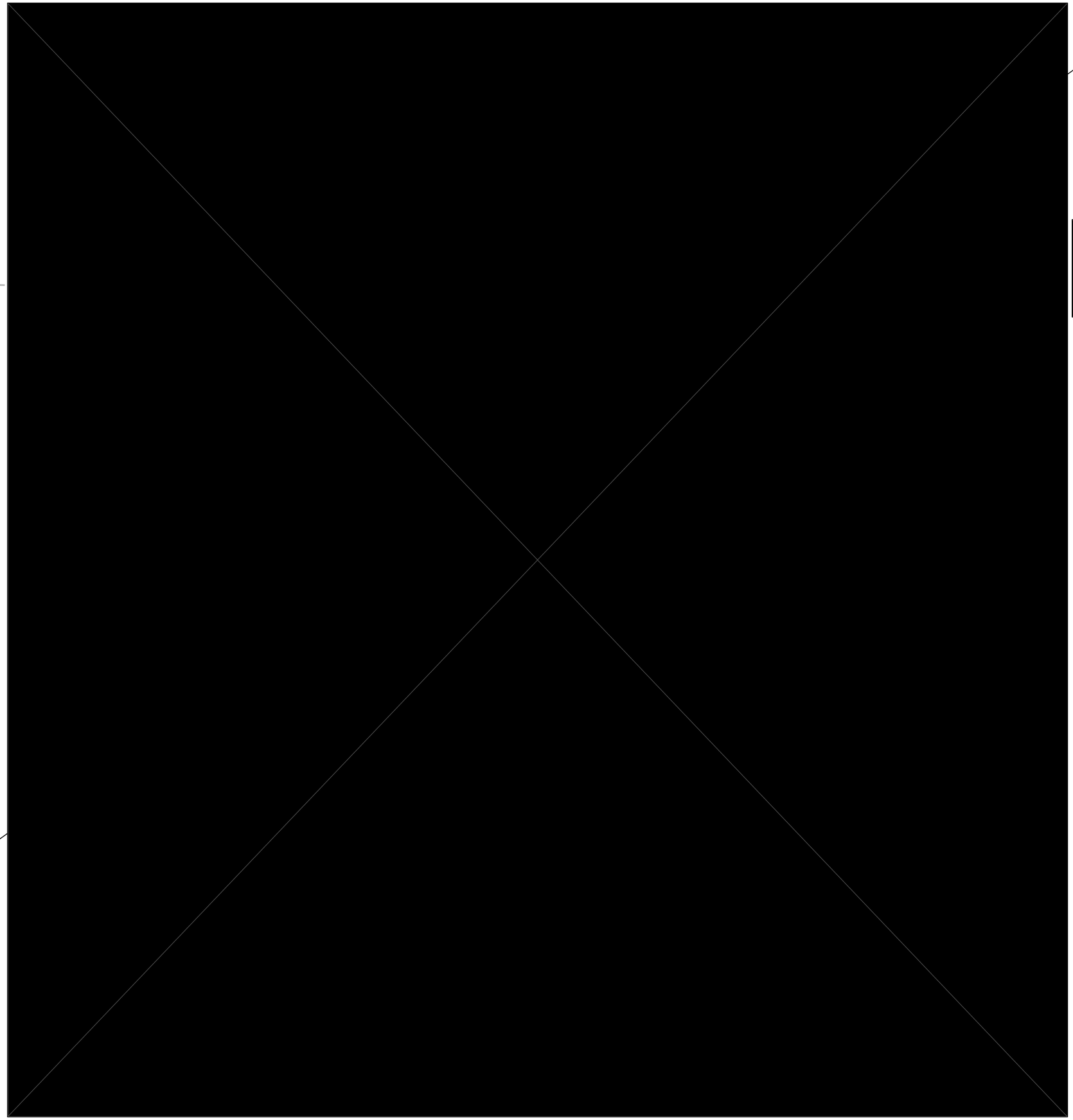
STAMP

DRAWING INFORMATION

SCALE	1/8"=1'-0"
DRAWN BY	DMT
CHECKED	LA
DATE	OCTOBER 14, 2022

DRAWING NUMBER

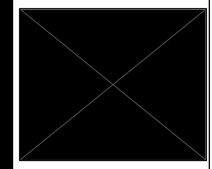
A1.02



NORTH ARROW

N

CONSULTANTS



REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING
ELEMENTARY SCHOOL
RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

SECOND FLOOR PLAN -
PART 'A'

MOUNT VERNON GROUP
ARCHITECTS

200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

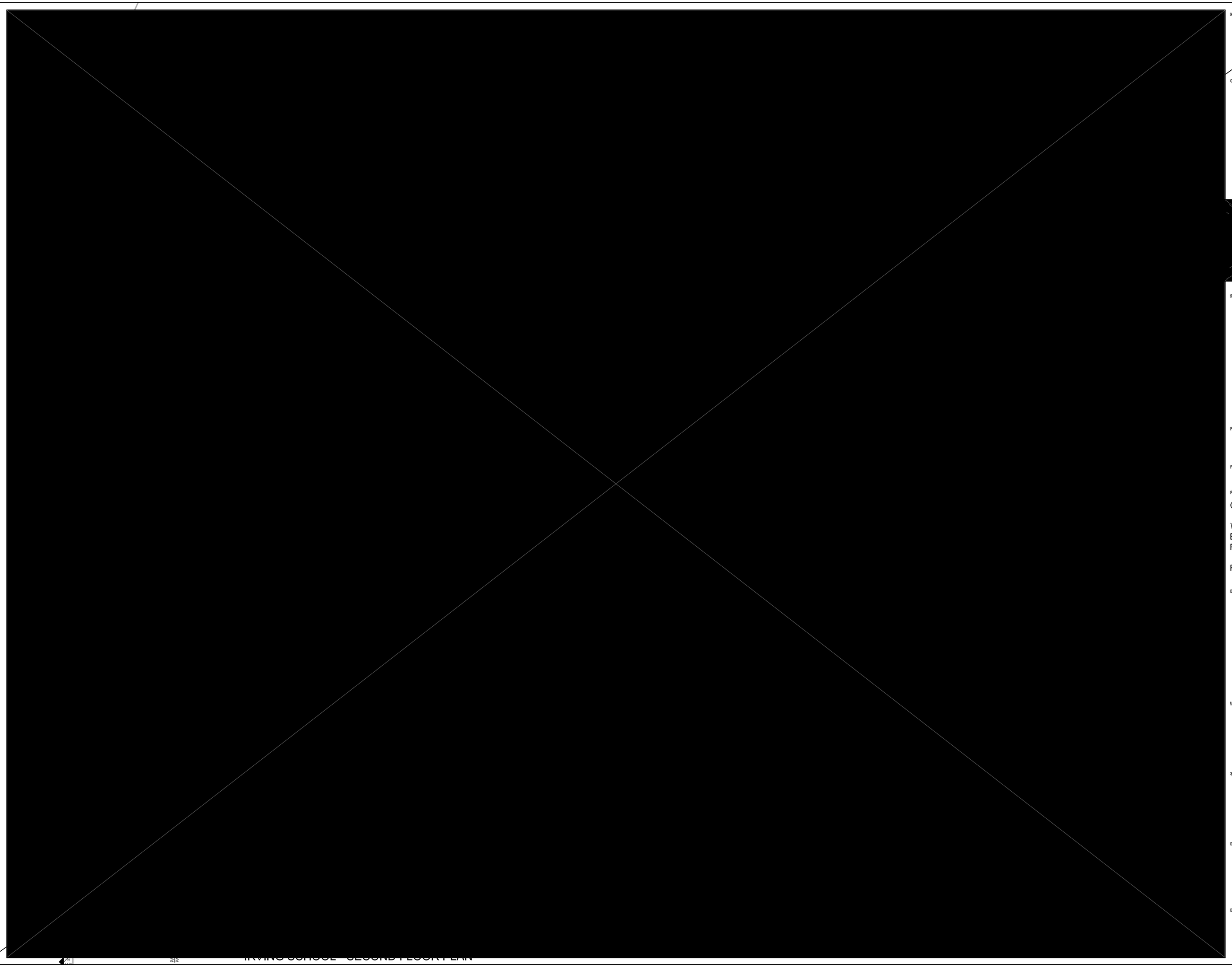
STAMP

DRAWING INFORMATION

SCALE	1/8"=1'-0"
DRAWN BY	DMT
CHECKED	LA
DATE	OCTOBER 14, 2022

DRAWING NUMBER

A1.03



NORTH ARROW

N

CONSULTANTS

REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING
ELEMENTARY SCHOOL
RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

SECOND FLOOR PLAN -
PART 'B'

MVG
MOUNT VERNON GROUP
ARCHITECTS

200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

STAMP

DRAWING INFORMATION

SCALE	1/8"=1'-0"
DRAWN BY	DMT
CHECKED	LA
DATE	OCTOBER 14, 2022

DRAWING NUMBER

A1.04

IRVING SCHOOL - SECOND FLOOR PLAN

NORTH ARROW

CONSULTANTS

REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING
ELEMENTARY SCHOOL
RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

THIRD & PARTIAL
FOURTH FLOOR PLANS -
PART 'A'

MOUNT VERNON GROUP
ARCHITECTS

200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

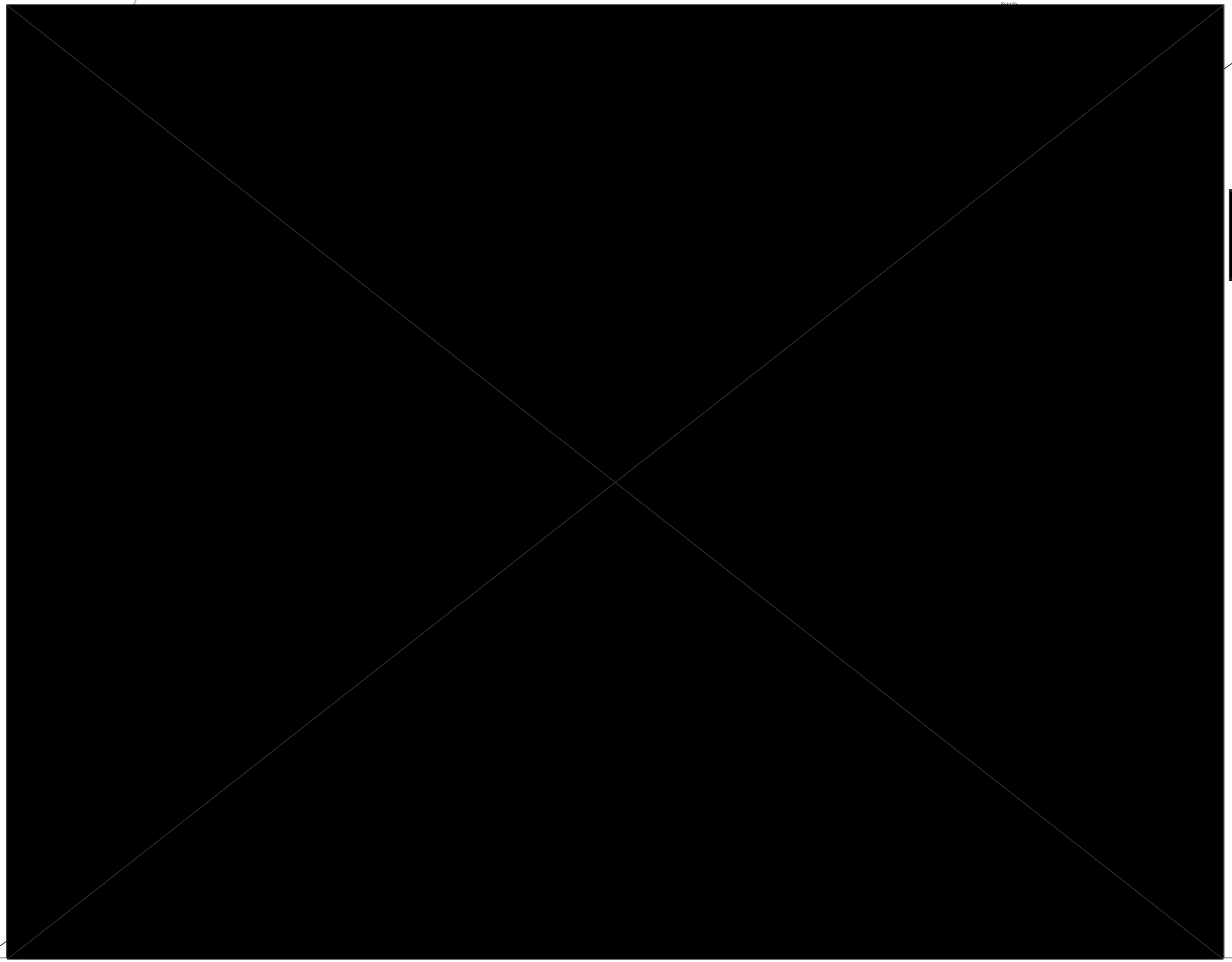
STAMP

DRAWING INFORMATION

SCALE	1/8"=1'-0"
DRAWN BY	DMT
CHECKED	LA
DATE	OCTOBER 14, 2022

DRAWING NUMBER

A1.05



NORTH ARROW

CONSULTANTS

REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING
ELEMENTARY SCHOOL
RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

THIRD FLOOR PLAN -
PART 'B'

MOUNT VERNON GROUP
ARCHITECTS

200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

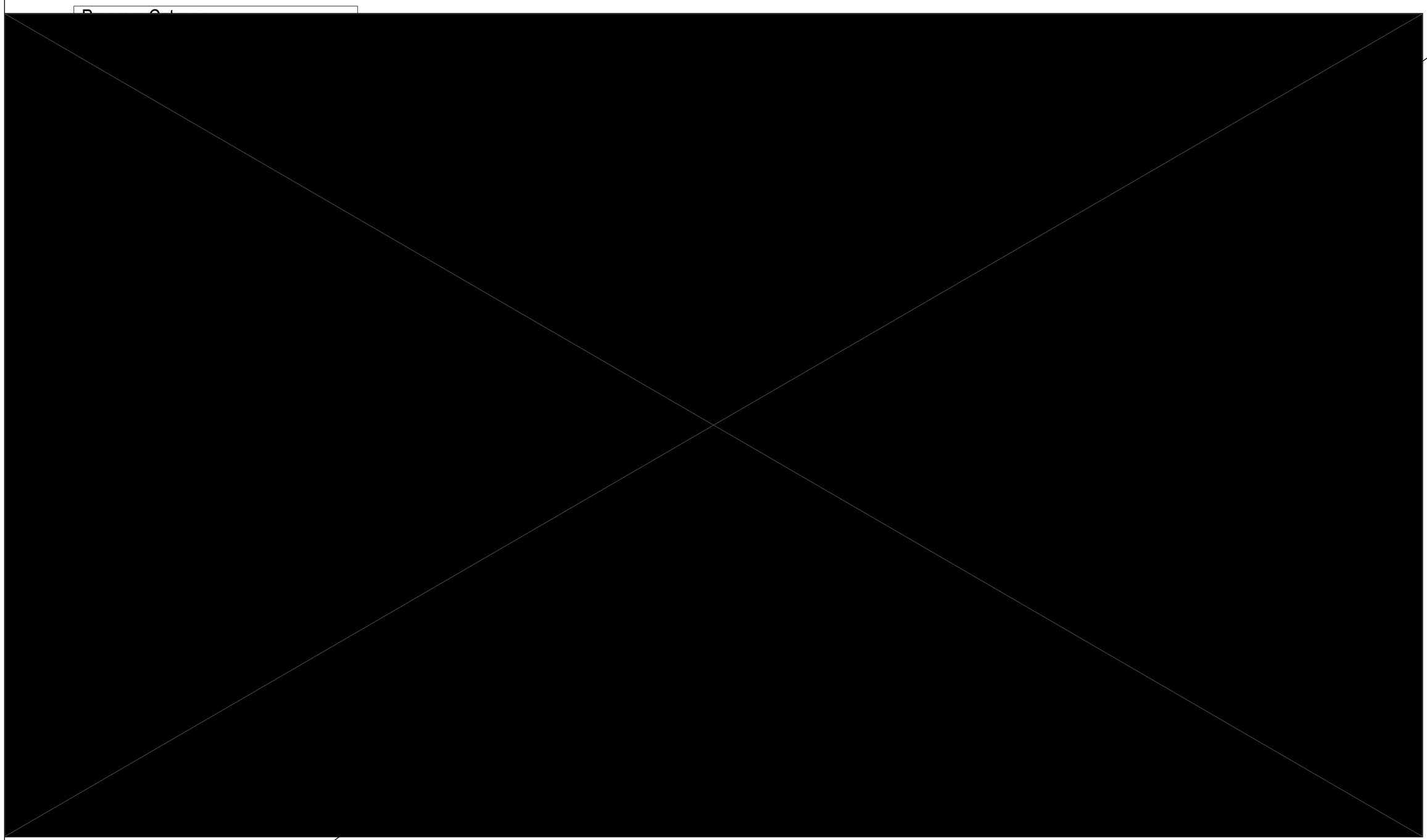
STAMP

DRAWING INFORMATION

SCALE	1/8"=1'-0"
DRAWN BY	DMT
CHECKED	LA
DATE	OCTOBER 14, 2022

DRAWING NUMBER

A1.06



NORTH ARROW

N

CONSULTANTS

REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING
ELEMENTARY SCHOOL
RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

ROOF PLAN -
PARTS 'A' & 'B'

MOUNT VERNON GROUP
ARCHITECTS

200 Harvard Mill Sqaure
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

STAMP

DRAWING INFORMATION

SCALE	3/32"=1'-0"
DRAWN BY	DMT
CHECKED	LA
DATE	OCTOBER 14, 2022

DRAWING NUMBER

A2.01

[redacted]

TH ARROW

N

SULTANTS

ISIONS

JECT PHASE

SD SUBMISSION

JECT NUMBER

02018.04

JECT NAME/LOCATION

ITY OF BOSTON

WASHINGTON IRVING
LEMENTARY SCHOOL
NOVATION & ADDITION

OSLINDALE, MA

WING TITLE

EXTERIOR
ELEVATIONS

OUNT VERNON GROUP
ARCHITECTS

178 Albion Street, Suite 240
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

AP

WING INFORMATION

SCALE 1/8"=1'-0"

DRAWN BY DMT

CHECKED LA

DATE OCTOBER 14, 2022

WING NUMBER

A4.01

NORTH ARROW

CONSULTANTS

REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING
ELEMENTARY SCHOOL
RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

EXTERIOR
ELEVATIONS

MOUNT VERNON GROUP
ARCHITECTS

178 Albion Street, Suite 240
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

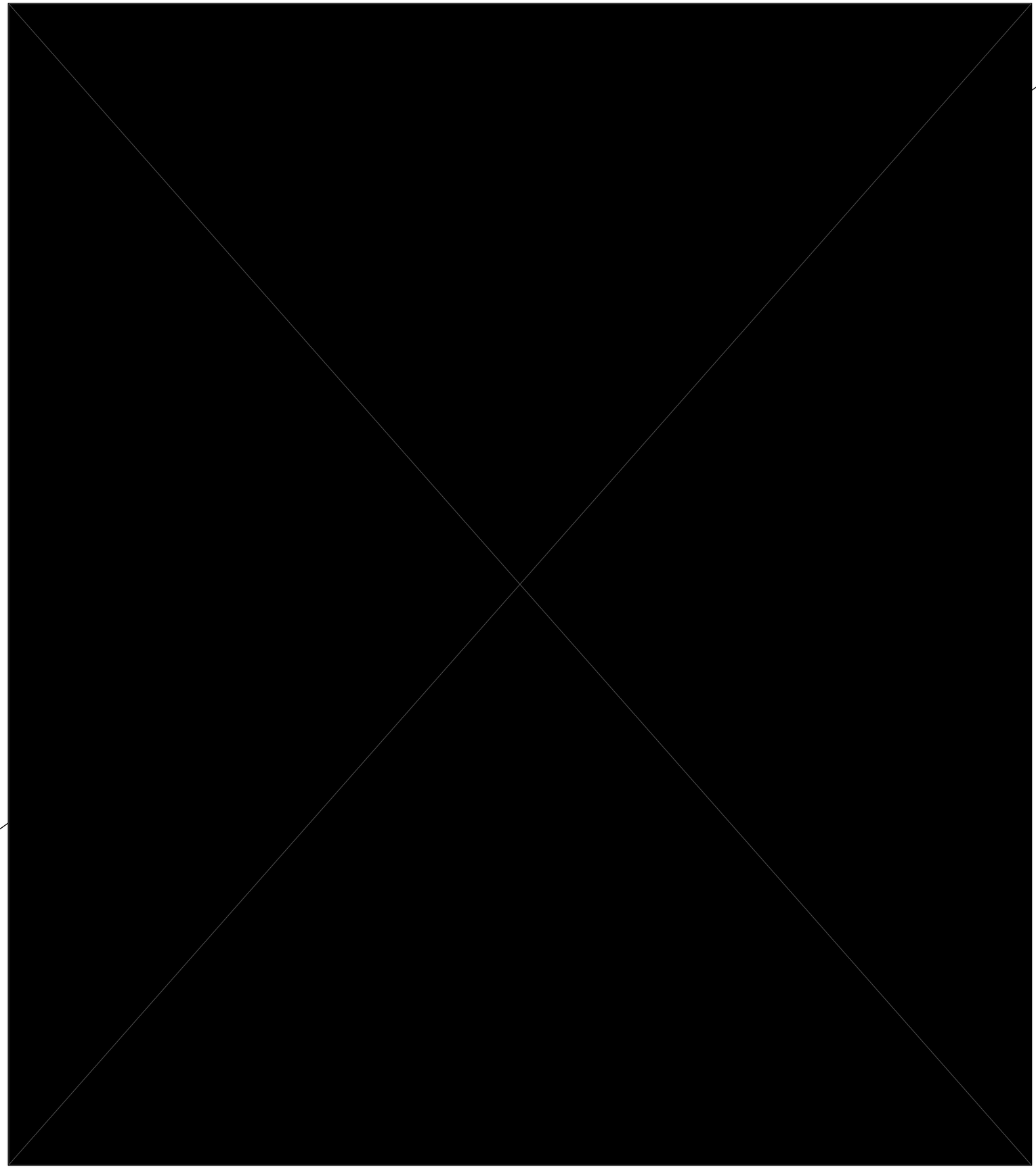
STAMP

DRAWING INFORMATION

SCALE	1/8"=1'-0"
DRAWN BY	DMT
CHECKED	LA
DATE	OCTOBER 14, 2022

DRAWING NUMBER

A4.02



NORTH ARROW

N

CONSULTANTS

REVISIONS

PROJECT PHASE

SD SUBMISSION

PROJECT NUMBER

02018.04

PROJECT NAME/LOCATION

CITY OF BOSTON

WASHINGTON IRVING
ELEMENTARY SCHOOL
RENOVATION & ADDITION

ROSLINDALE, MA

DRAWING TITLE

EXTERIOR
ELEVATIONS

MVG
MOUNT VERNON GROUP
ARCHITECTS

178 Albion Street, Suite 240
Wakefield, Massachusetts 01880

781 213 5030 T
781 213 5040 F
info@mvgarchitects.com E

STAMP

DRAWING INFORMATION

SCALE	1/8"=1'-0"
DRAWN BY	DMT
CHECKED	LA
DATE	OCTOBER 14, 2022

DRAWING NUMBER

A4.03