ARROWSTREET

LINCOLN-ELIOT ELEMENTARY SCHOOL

EXISTING CONDITIONS ASSESSMENT

NEWTON, MA

SECTION FROM 2/13/2019 REPORT

31 MARCH 2022 REISSUED

PREPARED FOR

NEWTON PUBLIC SCHOOLS
Legacy & Excellence

David Fleishman,
Superintendent

Ruthanne Fuller,
Mayor

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Contained here is a Section from the Educational Planning and Facilities Assessment Report issued on Februrary 13, 2019 for Lincoln-Eliot Elementary School and Newton Early Childhood Program.

The section extracted from the full report is only the Existing Conditions Assessment of 150 Jackson Road Building. No edits have been made to the report nor any new information added.

NEWTON PUBLIC SCHOOLS
Equity & Excellence

LINCOLN - ELIOT ELEMENTARY SCHOOL
NEWTON EARLY CHILDHOOD PROGRAM

150 JACKSON ROAD
687 WATERTOWN STREET

EDUCATIONAL PLANNING AND FACILITY ASSESSMENT

Newton Public Schools
Newton, Massachusetts

February 13, 2019

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SECTION 3A – 150 JACKSON ROAD EVALUATION OF EXISTING CONDITIONS

3A.1 Existing Conditions

The current building at 150 Jackson Rd in Newton, Massachusetts was obtained by the City of Newton in 2015 for $15,350,000. The building was formerly used by the Aquinas College until it closed in 2000. The site is 248,884 SF with an existing three-story building that occupies the eastern and southern portion of the site with parking adjacent to the building. The Assessors report identifies the site as 15 Walnut Park. (See GIS Map in Appendix 5.15.)

The building is currently occupied by the Newton Early Childhood Program (NECP). The building consists of an auditorium and cafeteria wing, a central three story classroom wing and a former Convent wing. The NECP program utilizes the lower and middle levels of the central classroom wing. The third floor of the Academic wing and the Convent wing are currently unoccupied. The Cafeteria is used by school administration. The auditorium is used by the community.

The North end of the site is a wooded area with two adjacent houses along Pearl Street. The East and West neighbors are private residential properties. The existing Lincoln-Eliot Elementary School at 191 Pearl Street is located north of the site. Immediately South of the site is the Walnut Park Montessori School and Jackson Elementary School, private schools serving ages 18 months through Grade 6.

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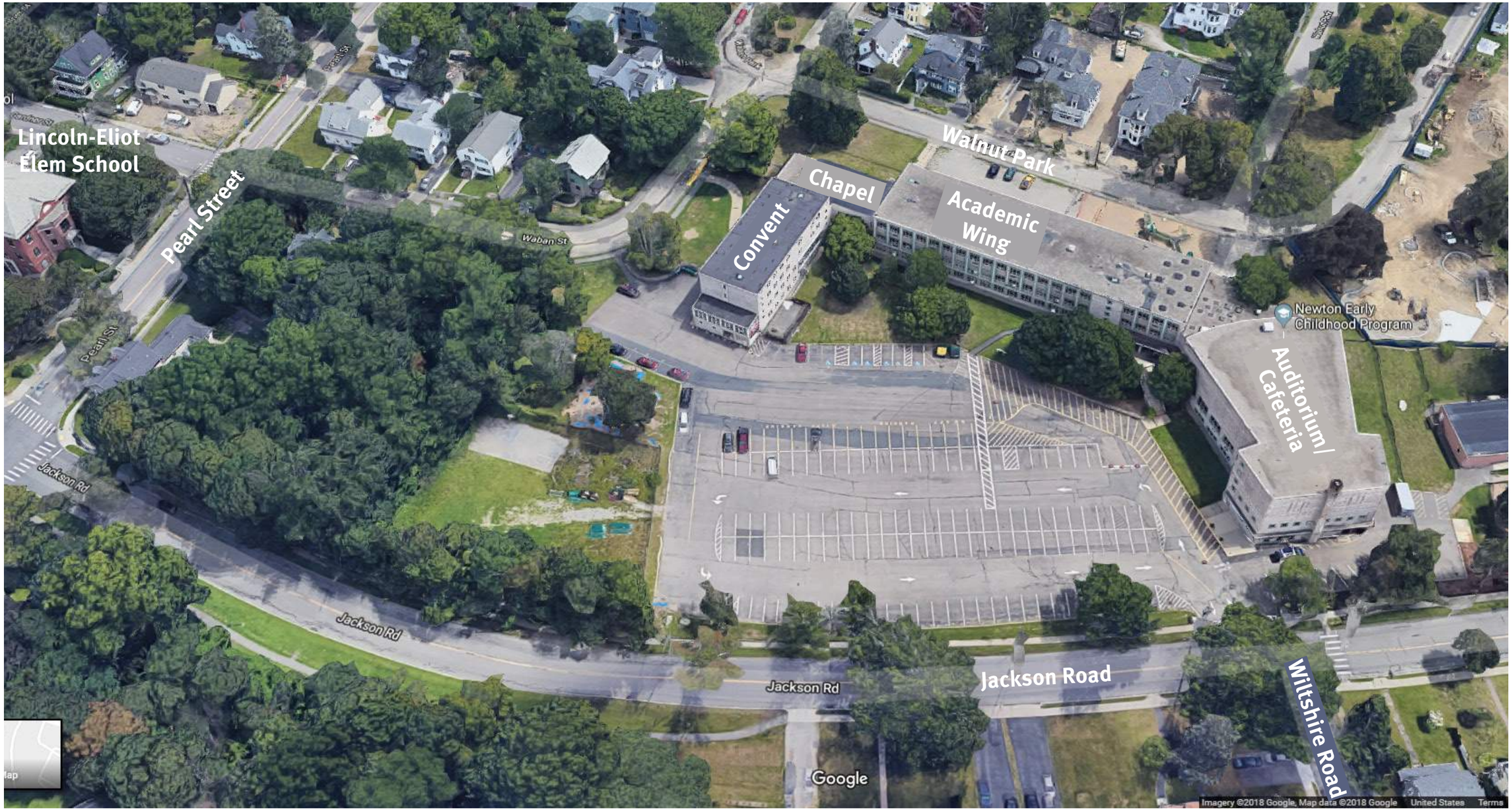
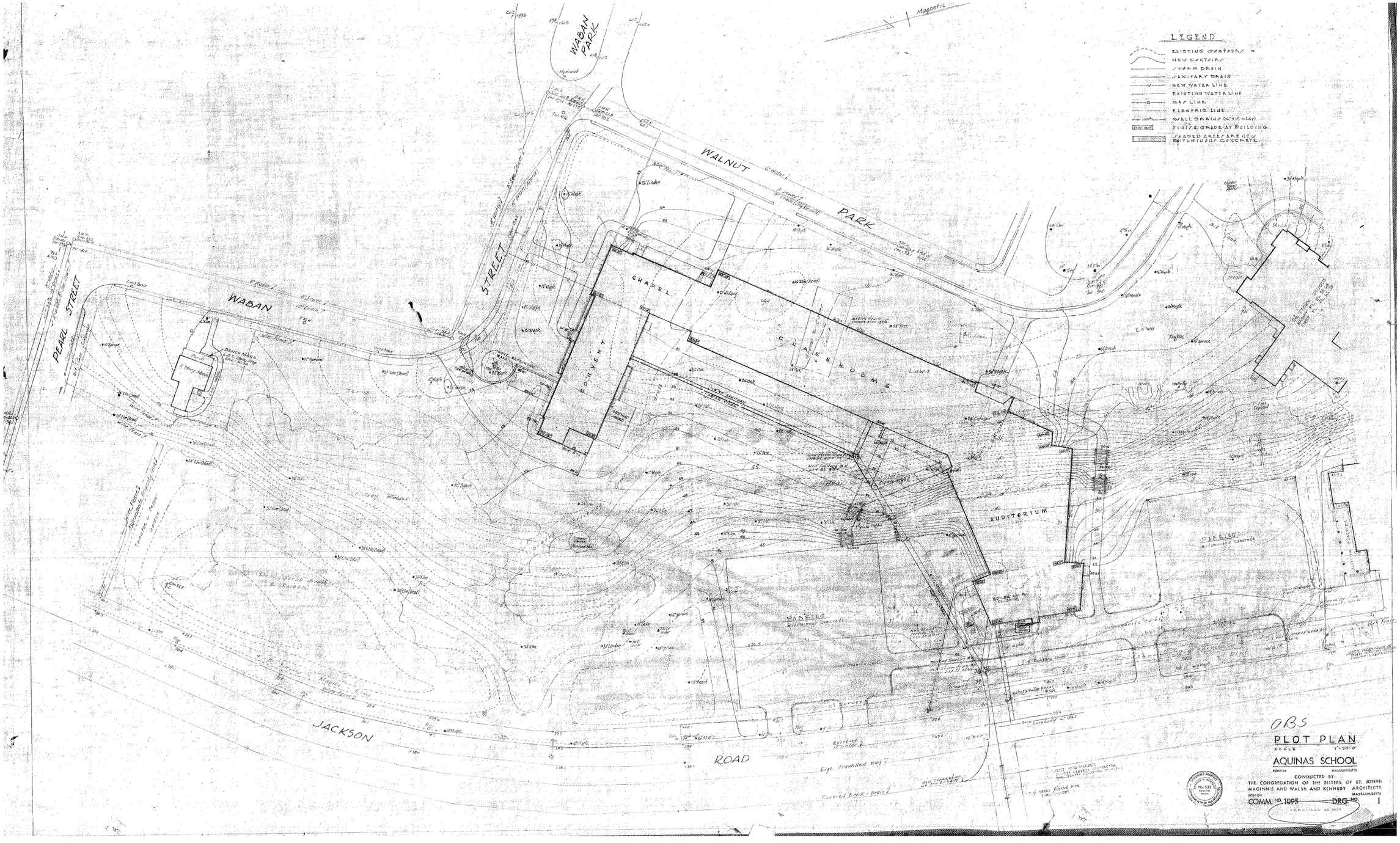
3A.2 Existing Conditions Floor & Site Plans

EXISTING AERIAL



EXISTING CONDITIONS SITE PLAN


LEGEND
EXISTING CONTOURS
NEW CONTOURS
STORM DRAIN
SANITARY DRAIN
NEW WATER LINE
EXISTING WATER LINE
GAS LINE
ELECTRIC LINE
WALL DRAINS (CAST CLAY)
FINISH GRADE AT BUILDING
SHADED AREAS ARE NEW BITUMINOUS CONCRETE
WALNUT PARK
WABAN PARK
PEARL STREET
WABAN STREET
CHAPEL
CLASSROOMS
AUDITORIUM
PARKING
ENTRANCE
JACKSON ROAD
Magnetic
PLOT PLAN
SCALE 1"=20'-0"
AQUINAS SCHOOL
NEWTON MASSACHUSETTS
CONDUCTED BY:
THE CONGREGATION OF THE SISTERS OF ST. JOSEPH
MAGINNIS AND WALSH AND KENNEDY ARCHITECTS
BOSTON MASSACHUSETTS
COMM. No. 1095 DRG. No. 1
FEBRUARY 28, 1964

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3A.3 Zoning & Property Restrictions

Property Development Restrictions
The existing 150 Jackson Road property is available for further development to support Lincoln-Eliot Elementary School program in the existing building. The following is a detailed evaluation of potential development restrictions on the site.

Easements
There were no known easements identified during the initial site survey research.

Protected Resources
The Newton GIS mapping does not identify any protected resources within the site. There are no identified protected rare species areas, vernal pools, flood zones, wetlands restrictions.

Zoning
Referenced in this Zoning section is the Newton City Ordinances, Volume II, Chapter 30: Zoning Ordinance, Updated 12-11-2018, cited as the "City of Newton Zoning Ordinance". The site at 150 Jackson Road (also identified as "15 Walnut Park") is zoned as Public (PUB) Use (see Zoning Map in Appendix 5.19). A school is considered an Institutional Use (Section 2.3.1 Principal Uses Allowed) which is an allowed use in a Public Use District (Section 2.2.1. Public Use District). The use shall be subject to a Site Plan Review (outlined below), and is not otherwise subject to dimensional, parking, or any otherwise applicable zoning requirements. (Section 2.3.1 Principal Uses Allowed)

Site Plan Approval Process
As an educational use, the Lincoln-Eliot School project is subject to the Administrative Site Plan Review (ASPR) process per Section 7.5.2 Process for Religious or Educational Use, of the City of Newton Zoning Ordinance. This process governs the review of uses protected under Massachusetts General Law (MGL) Chapter 40A, Section 3, also known as the "Dover Amendment."

The Planning and Development Department is responsible for overseeing the Administrative Site Plan Review process for "the construction, alteration, enlargement, reconstruction, or change of use of buildings for religious or non-profit educational purposes". The City of Newton follows a Site Plan Approval process through the Rules and Orders of City Council. The Administrative Review Process can take up to 60 days and is summarized in Appendix 5.21 Administrative Site Plan Review Application and Process.

3A.4 Methods & Assumptions

Existing conditions information was obtained from the original drawings of the Aquinas School, dated 1965, satellite images of the site, and Aquinas School 2018 AHERA Inspection Report provided by the Owner. These materials have been supplemented by visual observation of the building and property. A site survey of the property was not available at the time that the existing conditions information was being reviewed.

The following tasks were completed as part of this review:

- The design team, including architectural, structural, mechanical, electrical, plumbing engineers, and the code consultant visited the building and visually assessed the condition

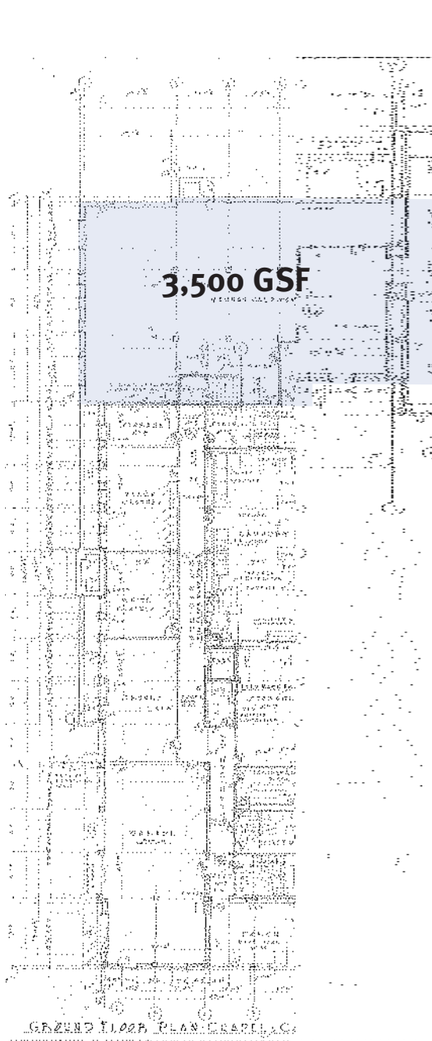
of the existing building and systems. The above team was escorted through the facility by David Stickney, Director of Facilities for Newton Public Schools.

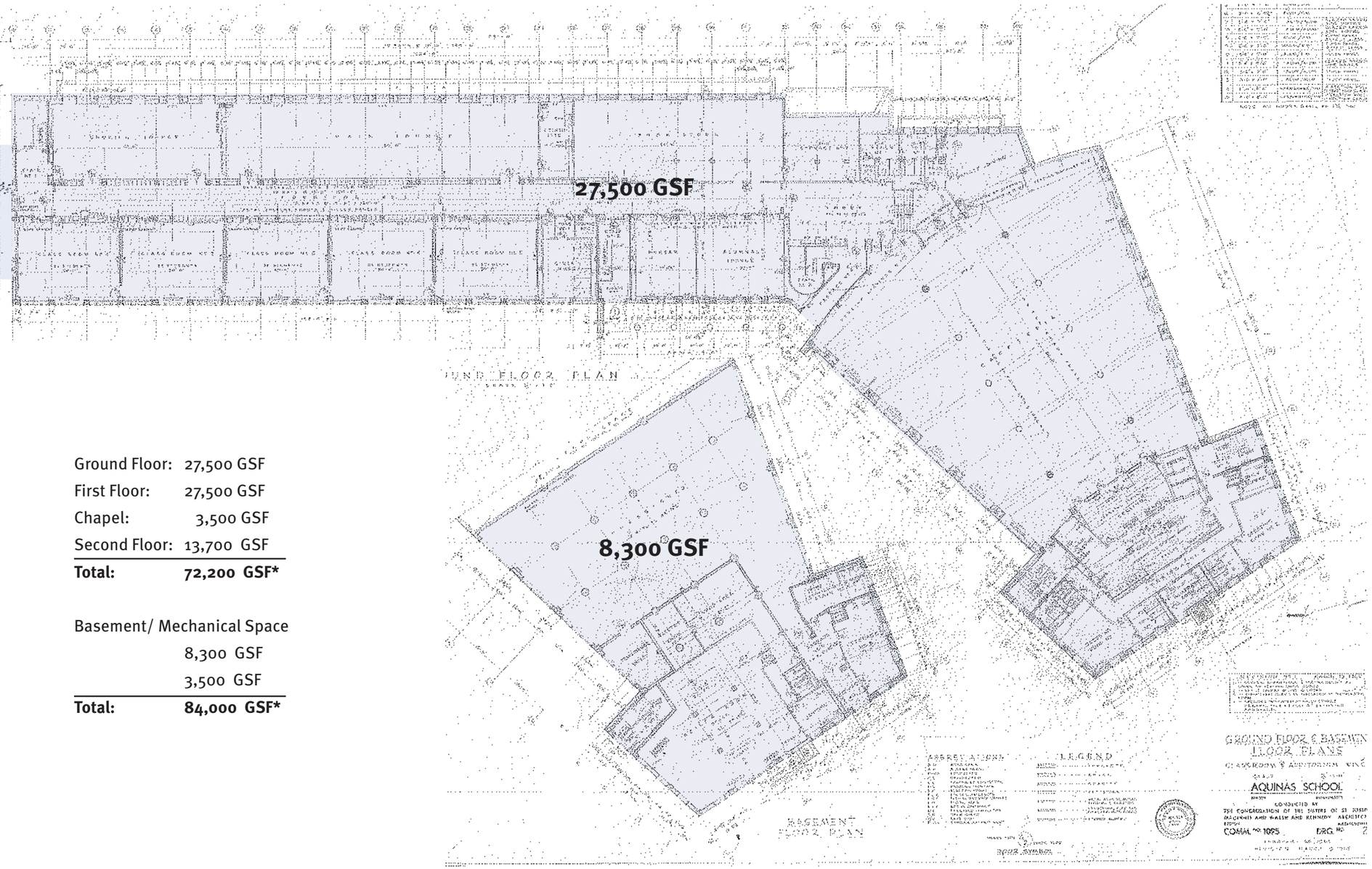
- The civil engineer has reviewed existing site condition.

The following items were not available at the time of the existing conditions review:

- Hazardous materials testing in the building had not been performed. A limited PCB Abatement Plan was executed in 2016 for the completion of the window replacement project. A Soil Release Abatement Measure was prepared by Universal Environmental Consultants for the City of Newton on May 23, 2016.
- A traffic study report had not been performed at the time of this report.

EXISTING FLOOR PLAN — GROUND FLOOR





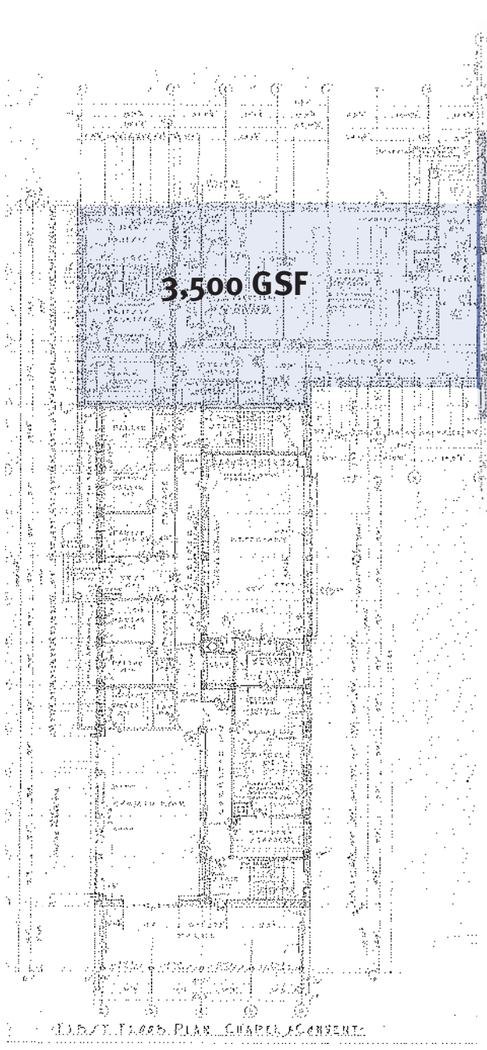
Ground Floor:	27,500 GSF
First Floor:	27,500 GSF
Chapel:	3,500 GSF
Second Floor:	13,700 GSF
Total:	**72,200 GSF***

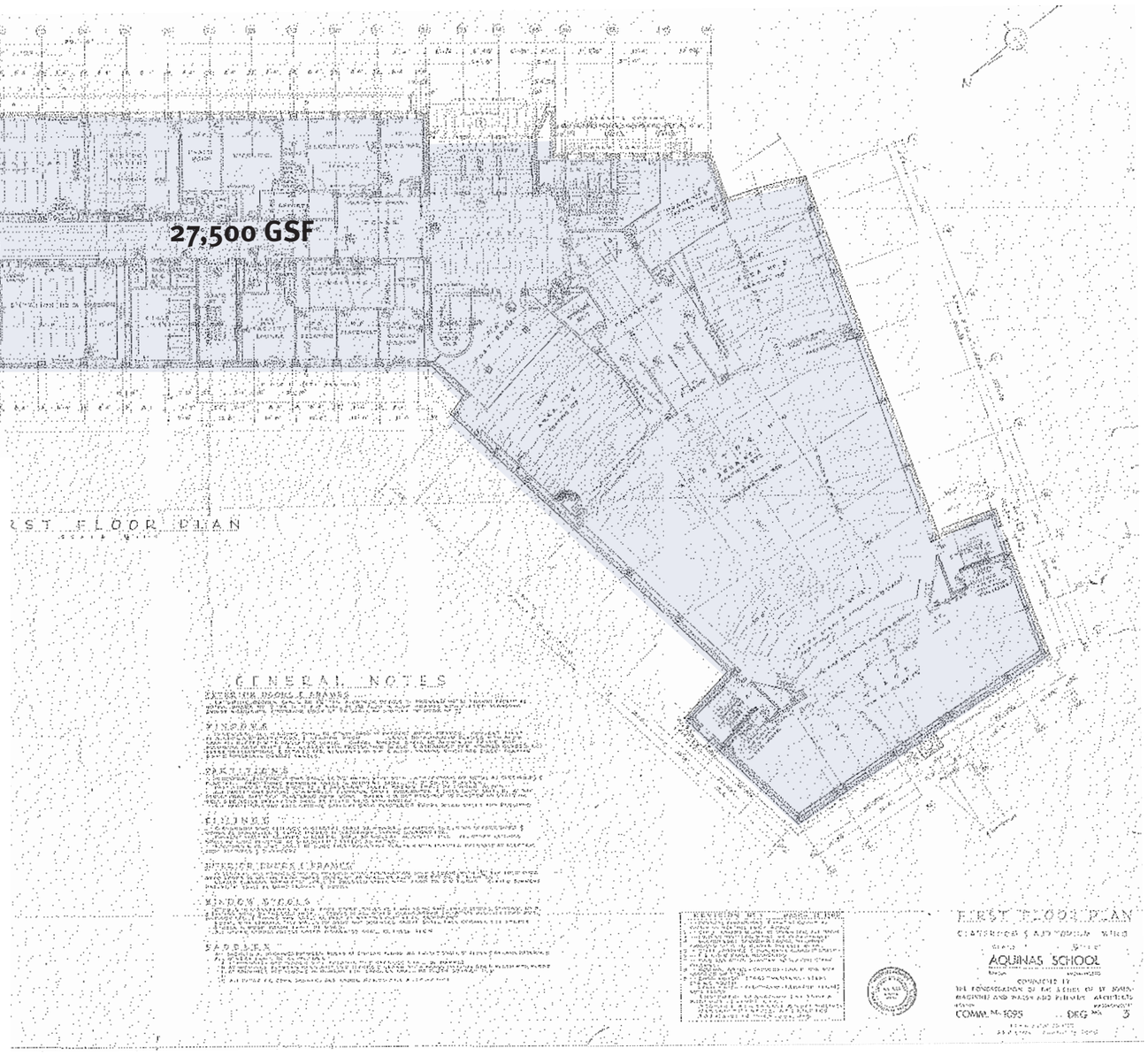
Basement/ Mechanical Space

	8,300 GSF
	3,500 GSF
Total:	**84,000 GSF***

All SF/ GSF is approximate and to be verified

EXISTING FLOOR PLAN — FIRST FLOOR





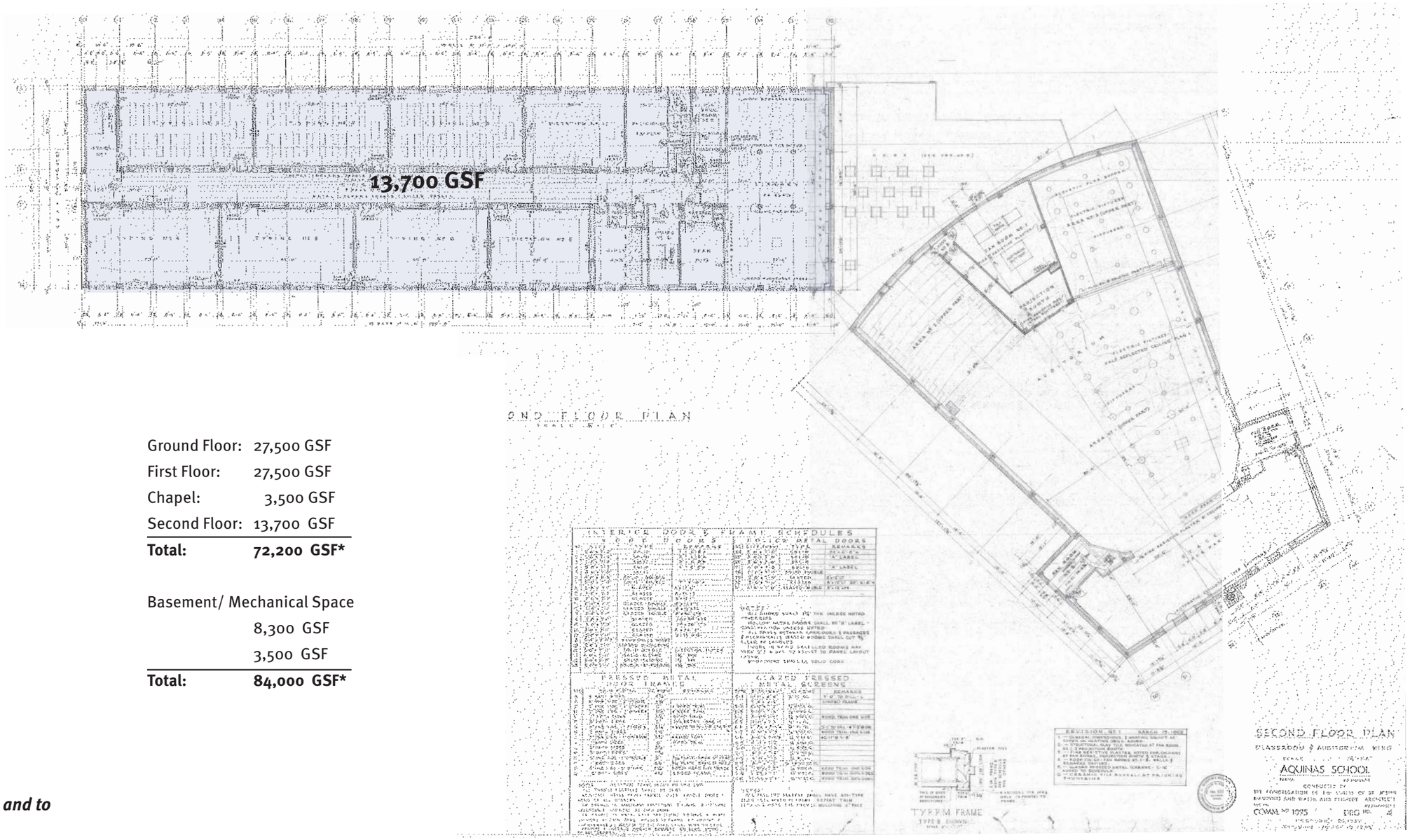
Ground Floor:	27,500 GSF
First Floor:	27,500 GSF
Chapel:	3,500 GSF
Second Floor:	13,700 GSF
Total:	**72,200 GSF***

Basement/ Mechanical Space

	8,300 GSF
	3,500 GSF
Total:	**84,000 GSF***

All SF/ GSF is approximate and to be verified

EXISTING FLOOR PLAN — SECOND FLOOR



Ground Floor:	27,500 GSF
First Floor:	27,500 GSF
Chapel:	3,500 GSF
Second Floor:	13,700 GSF
Total:	**72,200 GSF***

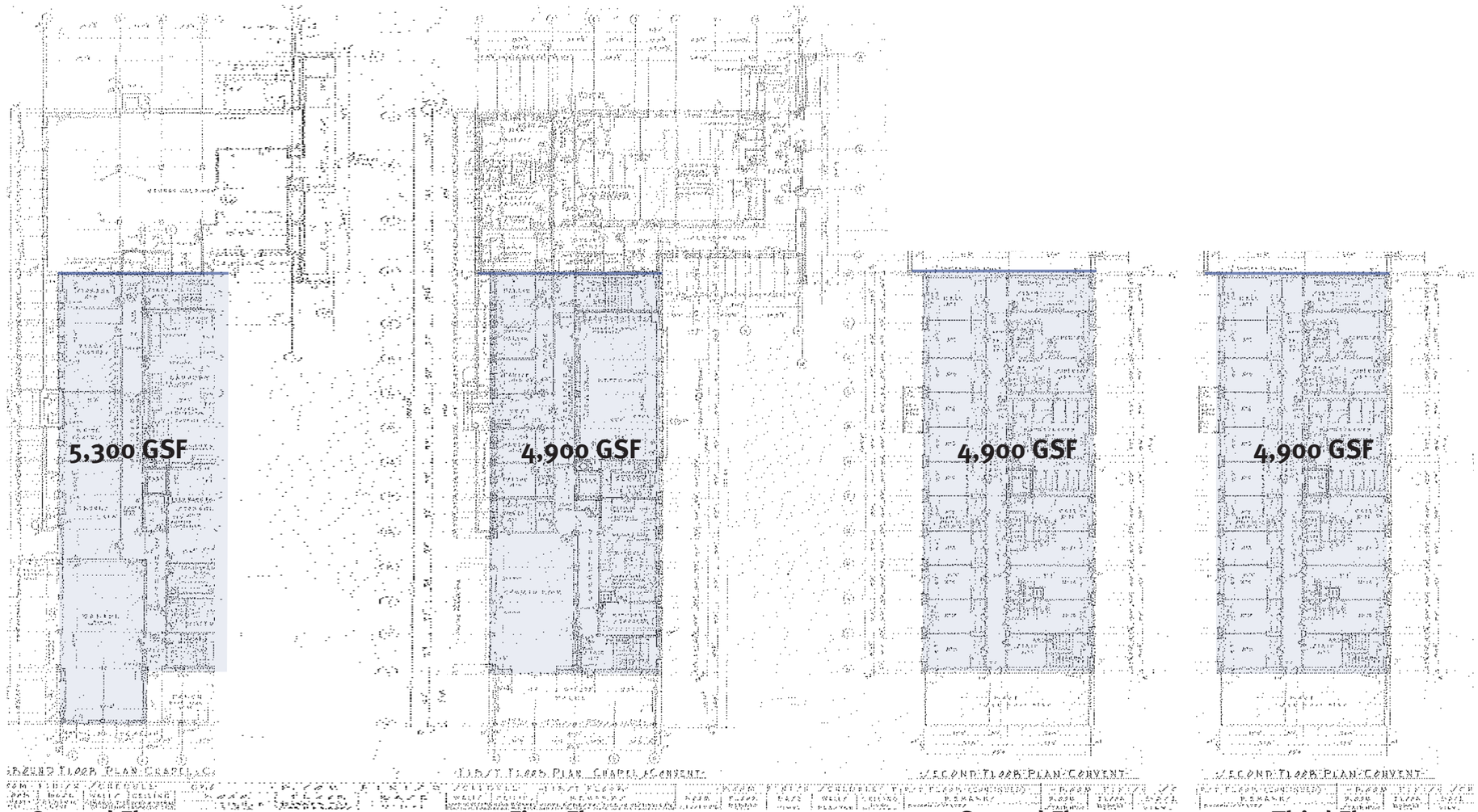
Basement/ Mechanical Space

	8,300 GSF
	3,500 GSF
Total:	**84,000 GSF***

All SF/ GSF is approximate and to be verified

EXISTING FLOOR PLAN — CONVENT WING

Ground Floor:	5,300 GSF
First Floor:	4,900 GSF
Third Floor:	4,900 GSF
Second Floor:	4,900 GSF
Total:	**20,000 GSF***



All SF/ GSF is approximate and to be verified

3A.5 Existing Building Conditions

The existing building at 150 Jackson Road consists of three distinct wings organized in a linear fashion; the cafeteria/auditorium, the central classroom core and the former convent wing. The central classroom core is now partially occupied by the NECP program on the lowest and middle level. The 1965 building is entirely a concrete structure with a brick façade.

Exterior Building Envelope

The building envelope and brick façade is in good condition for its age. There is some evidence of past water leakage on the interior of the building. It is unknown at this time if the building envelope has insulation. Based on visual review of the existing building and the construction drawings, it appears that the existing exterior walls do not meet current energy code requirements or sustainable design goals.

The windows for the academic core and cafeteria wing were replaced in 2016. PCB identified in the areas of the window replacement work was encapsulated or abated at that time. Windows in the existing convent are in poor condition and have poor thermal performance. Exterior doors and threshold are in adequate condition and need to be replaced in some areas.

The third floor of the academic wing and the entire convent wing are currently not in use. Air leaks and cold spots are apparent where mechanical equipment has been removed from the exterior walls.

Interiors

Most of the interior finishes in the building including the doors, ceilings, finish flooring and casework are original to the building and should be replaced or part of an overall upgrade of the building. Finish flooring on the lowest level and middle level in the academic wing where the NECP program is currently being housed has been replaced with VCT and carpet.

Equipment

The existing kitchen located near the existing cafeteria is fully equipped. The appliances appear to be older, and were not operational during the site visit. The existing equipment will likely need to be replaced as part of a building modernization. Terra cotta flooring and ceramic wall tile are in adequate condition. There is an additional kitchen located in the convent that is not in use and does not meet current code standards.

Building Systems

The MEP/FP systems appear original to building and have reached or exceeded their serviceable life. The systems are inefficient and require substantial repairs or upgrades to meet current standards. There is no fire protection/sprinkler system in the building.

The electrical systems have reached their life expectancy and are in poor condition. The interior lighting is possibly original to the building and not energy efficient, nor connected to automated building controls as required by the energy code.

Most plumbing fixtures do not meet current code and are not water efficient. The building will need to be evaluated to address the required number of fixtures to serve the projected population.

The following sections of this report provide more detailed analysis of the existing building structure and building systems from the Design Team.

	150 Jackson Road
Site and Civil	
Observations	
Parking spaces	140
Existing play structures	●
Neighborhood concerns	●
Existing parking lot pavement	◎
ADA accessible site	●
Separation of vehicles and pedestrians	●
Hazardous soils *	●
Wetlands buffer zone (Wetlands Protection Act)	n/a

** 15 Walnut Park, Newton ‹ MA Release Abatement Measure Plan, May 23, 2018*

Architecture and Code	
Observations	
Exterior windows	●
Exterior masonry	●
Exterior wall insulation	Unknown
Roof condition	●
Interior finishes	●
Fire protection system	●
ADA accessibility throughout, including elevator upgrades	●
Bathroom handicap accessibility	●
Exit/ egress paths (Stair nosing, hand/guardrail upgrades)	●
Past water leakage	●

Legend	
●	Good
◎	Repair/ Update
●	Replace/ Needed/ Address
n/a	Not applicable

	150 Jackson Road
Structural	
Observations	
Structural performance	●
Foundation settlement	●
Cracks in the interior and exterior masonry walls	n/a
Concrete spalling	n/a
Noticeable floor deflection	n/a

Plumbing and Fire Protection	
Observations	
Fire suppression system per current code	●
Dedicated fire service from site to building	●
Hot water boiler	●
Hot/ colder water piping	●
Storm piping system	●
Waste/ vent system	●
Egress stair standpipes	●
Plumbing fixture quality	●
Plumbing fixture quantity/ counts/ distribution	●

Legend	
●	Good
◉	Repair/ Update
●	Replace/ Needed/ Address
n/a	Not applicable

	150 Jackson Road
Heating, Ventilation, and Air Conditioning (HVAC)	
Observations	
Chiller	●
Boiler	●
HVAC equipment	●
Hot water piping and insulation	●
Exhaust ductwork system	●
Exhaust air fans	●
Pneumatic control system	●

Electrical	
Observations	
Life safety lighting	●
Backup generator	●
Fire alarm system	●
Lighting systems	●
Lightning protection system	●
Tel/ Com and IT Systems	◎
Building communication system	◎
Main switchboard and branch circuit panels	●
Receptacle quantity and quality (GFCI)	●

Legend	
●	Good
◎	Repair/ Update
●	Replace/ Needed/ Address
n/a	Not applicable

3A.6 Code & Accessibility Analysis

BUILDING, FIRE & ACCESS, INC.

17 Brian Road ◇ Lancaster, MA 01523

NEWTON SCHOOL

150 JACKSON ROAD

150 JACKSON ROAD, NEWTON, MA 02458

Code Compliance Considerations - Existing Conditions Report

Prepared For:

Arrowstreet, Inc.
Suite 700N
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Boston, MA 02109

BFA #180049.000

November 14, 2018

Executive Summary

150 Jackson Road has been reviewed to determine what minimum upgrades are necessary to bring the building into compliance with current codes for fire protection, egress and accessibility.

SUMMARY TABLE –150 JACKSON ROAD	
Uses	Educational, E with Accessory A & B
Special Uses	Auditorium with Stage
Historic	No
Mixed Use Approach	Nonseparated Mixed Use must be Presumed
Risk Category	III
General Building Height & Area	Compliant for Type IB or IIA
Exterior Walls & Openings	Compliant with fire separation distances which allow nonloadbearing walls to be nonrated and have unlimited unprotected openings
Sprinklers	Not Provided, required throughout.
Standpipes	Not Provided, Required throughout and at the stage.
Fire Extinguishers	Required Throughout
Fire Alarm System	Voice alarm system is required throughout
Emergency Responder Radio Coverage	Not required but should be provided throughout
Exits	Compliant
Accessibility	The building is compliant with the $100,000 threshold. The building is not compliant with 521 CMR regarding a number of issues including most public restrooms, accessible routes, door hardware, stair nosings, handrails, etc. With such a low 30% threshold it is likely an appreciable project will require numerous upgrades to make compliant with 521 CMR.
Plumbing Fixtures	Not compliant with current code for student and staff fixture counts.

Building, Fire & Access, Inc.

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Building, Fire & Access, Inc.

INTRODUCTION

BACKGROUND

Arrowstreet, Inc. has retained Building, Fire & Access, Inc. to provide fire protection, life safety, and accessibility consulting services to review the Newton School located at 150 Jackson Road, Newton, MA 02458. This report serves as a Code Compliance Considerations - Existing Conditions Report for the building. More specifically, this report identifies upgrades required to bring the school up to current code in terms of fire protection systems, life safety features and accessibility for persons with disabilities.

APPLICABLE CODES

The following primary codes are currently applicable to Massachusetts construction projects. This report focuses on 780 and 521 CMR considerations.

- **Accessibility**
  - Massachusetts Architectural Access Board (521 CMR).
  - The Americans with Disabilities Act, 2010 ADA Standards for Accessible Design (ADA).

- **Building Code** - Massachusetts State Building Code 9th Edition (780 CMR). 780 CMR is an amended version of the 2015 International Building Code.
  - **Existing Building Code** – 780 CMR Chapter 34. Chapter 34 is an amended version of the 2015 International Existing Building Code (IEBC).
  - **Energy Conservation Code** – 780 CMR Appendix AA. Appendix AA (also known as the Stretch Energy Code) is an amended version of the 2015 International Energy Code (IECC).
  - **Mechanical** - International Mechanical Code, 2015, as adopted by 780 CMR (IMC).
  - **NFPA 13** – 2013 - Standard for the Installation of Sprinklers
  - **NFPA 14** – 2013 - Standard for the Installation of Standpipes
  - **NFPA 72** – 2013 - National Fire Alarm Code
  - **NFPA 25** – 2014 - Standard for the Inspection, Testing & Maintenance of Water Based Fire Protection

- **Fire Code** - Massachusetts Comprehensive Fire Safety Code (527 CMR). Anticipated 527 CMR will be an amended version of the 2015 NFPA 1, National Fire Code.
  - **Electrical Code** - Massachusetts Electrical Code, 527 CMR 12.00. The Massachusetts Electrical Code is an amended version of the 2017 National Electrical Code (NFPA 70).

- **Plumbing** - Massachusetts Fuel Gas and Plumbing Codes (248 CMR). 248 CMR is unique to Massachusetts.
  - **NFPA 54** – 2012 – National Fuel Gas Code with Amendments

- **Elevator** – Massachusetts Elevator Regulations (524 CMR). 524 CMR adopts and amends the 2013 Edition of ASME A17.1, Safety Code for Elevators and Escalators.

ASSUMPTION

The code review and this report have been prepared based on the assumptions that if any hazardous materials are to be located within the building, now or in the future, the amount of such materials will be limited to the exempt amounts permitted by 780 CMR.

Building, Fire & Access, Inc.

ASSESSED VALUE

The assessed value of the building is used in the determination of thresholds which may trigger sprinkler and accessibility compliance. The values used are the building assessed value not including the land value.

- 150 Jackson Road is identified as 15 Walnut Park in the Newton Assessor's database. The 2019 assessed value is $16,627,000.00 for the building and land.

A breakdown of the building only value is needed for a complete review of threshold triggers. The following table contains a summary of threshold values using the total assessed value for the interim.

Location	Assessed Building Value	30%	33%
150 Jackson Road	$16,627,000.00	$4,988,100.00	$5,486,910.00

Table 1- Assessed Value

GENERAL CONSIDERATION

Most of the applicable codes and laws do not contain retroactive provisions with limited exception. Required code upgrades are often based on the extent and/or cost of proposed work. For the purpose of this review, the upgrades identified for fire protection systems, life safety features and accessibility compliance are based on the specific concept to bring the school into compliance with current criteria for fire protection, life safety and accessibility.

RETROACTIVE REQUIRMENTS

In general, 780 CMR & 527 CMR do not have retroactive provisions except as follows:

1. **Maintenance Provisions (780 CMR 102.8 and 527 CMR 1.03)**
   Maintenance provisions can be enforced to require any work necessary to maintain compliance with codes at the time of construction or last substantial renovation.

2. **Existing Means of Egress, Lighting and Ventilation (780 CMR 102.6.4)**
   This provision may be enforced regardless of compliance at the time of original construction or last substantial renovation. The provision is specifically intended to ensure minimally:

   a. Adequate number of exits
   b. Adequate exit capacity
   c. Adequate exit arrangement
   d. Adequate lighting
   e. Adequate ventilation

   If in the opinion of the building code official any of these are not adequate, abatement orders may be issued.

The available exits satisfy the required number of exits (Item 2.a) and the required capacity (Item 2.b.). Item 2.c, adequate exit arrangement is a subjective provision but generally is enforced only for specific notable issues (i.e. locked exits, improper exit enclosure, dangerous guardrails, etc.). The arrangement of exits in the building is satisfactory in my opinion. The existing lighting and ventilation (Items 2.d & 2.e) appear to be adequate and should be considered acceptable if maintained properly.

MASSACHUSETTS GENERAL LAW CHAPTER 148 SECTION 26G

The Massachusetts General Law Chapter 148 Section 26G (M.G.L.c.148 §26G) is the state's enhanced sprinkler law and is applicable because the aggregate area is greater than 7,500 gsf. For existing buildings, the law would be triggered if an addition is made or if a substantial renovation were to occur. A tragic fire event in Newton several years ago served as the impetus for the enhanced sprinkler law.

- The 150 Jackson road building is not compliant with M.G.L.c.148 §26G.

Sprinklers would be required throughout 150 Jackson Road to comply with the law in the event of an addition or substantial alteration exceeding the 33% threshold for building value or 33% of the aggregate area of the building. The remainder of this report presumes sprinklers will be provided throughout.

BUILDING SYSTEMS AND FEATURES

USE AND OCCUPANCY CLASSIFICATION

The building is classified as Educational, E Use. Under the current code, all assembly spaces are considered accessory for the purpose of construction classification and plumbing fixtures. Otherwise, use criteria is applicable based on the respective space.

Educational, E	School
Accessory A-1	Auditorium with fixed seating
Accessory A-2	Cafeteria/Dining
Accessory A-3	Spaces with occupant loads greater than 50… such as libraries, conference rooms)
Accessory B	Offices
Accessory S	Storage

CONSTRUCITON

The existing construction appears to be either Type IIA (1 hour) or Type IB (2 hour) noncombustible construction. More detailed review is required to confirm.

In either case, the building construction is compliant and possible additions could be made with the area limitations of the code without requiring upgrade to the construction. The allowable limits are:

- Type IB, 180 Feet, 6 Stories, UL area
- Type IIA, 85 Feet, 4 Stories, 43,500 gsf/ Story, 87,000 gsf/Aggregate

EXTERIOR WALLS

The fire separation distance setbacks are such that nonloadbearing exterior walls are permitted to be nonrated and have unlimited unprotected openings.

INTERIOR FINISHES

Chapter 8 of 780 CMR regulates interior finish and trim of buildings. Interior finish includes all wall, ceiling and floor finishes, wainscoting and paneling or other finish applied structurally or for acoustical treatment, insulation, decoration or similar purposes (780 CMR 801.1).

WALLS AND CEILINGS

All interior finish and trim must be classified per ASTM E84 as follows:

Interior Finish Classifications		
Classification	Flame Spread	Smoke Development
Class A	0 – 25	0 – 450
Class B	26 – 75	0 – 450
Class C	76 – 200	0 – 450

Table 2 - Interior Finish Classifications

Finishes having a flame-spread rating in excess of 200 or a smoke-developed rating in excess of 450 are not permitted. The following table summarizes required interior finish requirements for walls and ceilings.

Wall and Ceiling Interior Finish Requirements (780 CMR Table 803.9)			
Use Group	Required Vertical Exits and Passageways	Exit Access Corridors and Other Exit ways	Rooms or Enclosed Spaces
E, B	B	C	C
A-2/A-3	B	B	C
S	C	C	C

Table 3 - Interior Finish Requirements

FLOORS

Class II flooring finishes are permitted throughout. All finishes must pass the DOC FF-1 Pill Test or ASTM D2859.

DECORATIONS AND HANGINGS

Combustible decorations and hangings (such as curtains) must pass NFPA 701 and may not cover more than 10% of walls.

527 CMR also contains specifics for schools in terms of hangings and covering of walls with various materials.

Such decorations and hangings are not permitted on exit doors.

FIRE PROTECTION SYSTEMS

The following fire protection life safety systems are required:

1. Sprinklers are required throughout.

2. Standpipes are required in 150 Jackson Road in each stairway, at the stage and such that the travel distance to a hose connection is not more than 200 feet.

3. Fire Extinguishers are required throughout.

4. Voice Alarm Fire Alarm Systems are required throughout.

5. CO Detection is required in each classroom and in rooms where fossil fuels are utilized.

6. Emergency Responder Radio Coverage is required throughout to meet new construction criteria.

EXITS

The egress features available provide adequate egress for the retroactive criteria and technically is compliant. However, many detail criteria are not compliant including:

- Stair Nosings
- Handrails
- Guardrails
- Door Hardware
- Door Propping Devices/Wedges

Any and all work will require complete egress system upgrades to the work area and possibly beyond.

ACCESSIBILITY

CHAPTER 12 – EDUCATION FACILITIES

Educational facilities must comply with 521 CMR, except as specified or modified in 521 CMR 36.00. All administrative spaces, instructional spaces, and areas open to students or the general public must comply with 521 CMR. Lecture halls and classrooms of educational facilities must also comply with Chapter 26.00, Places of Assembly.

KITCHENS IN CLASSROOMS

If provided, kitchens in classrooms must comply with the requirements of 521 CMR 28.00: Kitchens.

SINKS, COUNTERS, AND OTHER WORK AREAS IN CLASSROOMS OR LABORATORIES

At least 5%, with a minimum of one of each type of element, in each classroom or laboratory must comply with 36.4.

RECREATIONAL FACILITIES

All recreational facilities must comply with the requirements of 521 CMR 26.00 Places of Assembly, 49.00 Exercise Machines and Equipment, 54.00 Swimming Pools, Wading Pools and Spas, 56.00 Locker Rooms, and 59.00 Play Areas.

OTHER 521 CMR CONSIDERATIONS

ACCESSIBLE ROUTES

Accessible routes within the site must be provided from public transportation stops, accessible parking and accessible passenger loading zones, and public streets or sidewalks to the accessible building entrance served. All public entrances are required to be accessible. It is required that at least one accessible route connect accessible buildings, accessible

facilities, accessible elements, and accessible spaces that are on the same site. As previously noted in the accessible egress section of this report, areas of rescue assistance/areas of refuge are not required in the building (780 CMR 1009.3 Exceptions 2 & 5 and 521 CMR 8.12 Exception 1).

PUBLIC TOILET ROOMS

All public toilet rooms must be accessible. Within the public restrooms, the clear spaces required for the accessible route, the turning space(s) and the fixture(s) is permitted to overlap. Where multiple single user toilet rooms are provided, all must be made accessible except where multiple single user toilet rooms are grouped together and accessed from a common door. Where multiple single user toilet rooms are accessed from a shared door, this arrangement functions as a public toilet room and only one single user toilet room is required to be accessible. This is consistent with the number of toilet stalls that would be required to be made accessible in a conventional public toilet room.

DOORS

All doorways and openings required to be accessible have a clear opening of not less than 32 inches. A minimum clear floor area must be provided on both sides of all non-automatic doors and gates. The minimum space between two hinged or pivoted doors in series must be 48 inches, plus the width of any door swinging into the space. Doors in series must swing either in the same direction or away from the space between the doors.

STAIRWAYS

Stairways must have continuous handrails on both sides of all stairs. Where handrails terminate at the top and bottom of a stair run, they must have extensions. Ends of handrails are either rounded or returned smoothly to the floor, wall, or post. Extensions on handrails that are not attached to walls must be returned smoothly to the floor or a post. Extensions are not required where such extensions would cause a hazardous condition. When a handrail is mounted adjacent to a wall, the clear space between the handrail and the wall must be 1½ inches.

DRINKING FOUNTAINS

Drinking fountains include water coolers. Drinking fountains, when provided, must comply with the following requirements.

1. All drinking fountains shall be accessible and on an accessible route.

2. Either two drinking fountains shall be provided (one hi and one low) or a single combined hi/lo fixture shall be provided.

REACH RANGES

Forward Reach

If the clear floor space only allows forward approach to an object, the maximum high forward reach allowed shall be 48 inches. The minimum low forward reach is 15 inches.

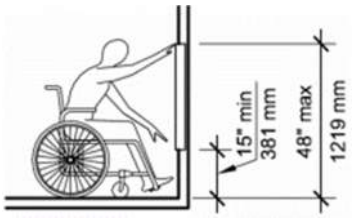

Figure 1 - Forward Reach Limits

If the high forward reach is over an obstruction, reach and clearances shall be as shown below.

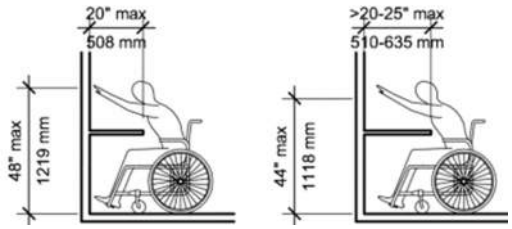

Figure 2 - Maximum Forward Reach Limit over an Obstruction

Side Reach

If the clear floor space allows parallel approach by a person in a wheelchair, the maximum high side reach allowed shall be 54 inches and the low side reach shall be no less than nine inches (above the floor (See Fig. 6m). If the side reach is over an obstruction, the reach and clearances shall be as shown in Fig. 6n.

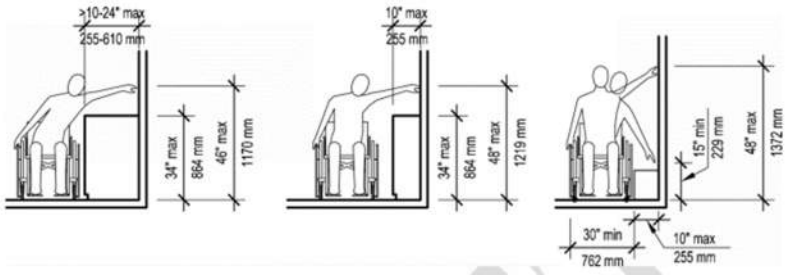

Figure 3 - (521 CMR Figures 6m & 6n) High and Low Side Reach & Maximum Reach over an Obstruction

TRANSACTION COUNTERS

Where counters have cash registers and are provided for sales or distribution of goods or services to the public, at least one of each type shall comply with the following.

a) Location: The counter shall be on an accessible route
b) Length: A portion of the counter shall be at least 36 inches in length and be located closest or nearest the cash register.
c) Height: That portion of the counter shall not exceed 36 inches above the finish floor

PLUMBING FIXTURE REVIEW (248 CMR)

A plumbing fixture review was completed against Section 10:10 (18) and 10:10 (18): Table 1.

The plumbing code requires fixtures to be provided based on the uses in the building and the occupant load established for the uses. The plumbing code contains a number of provisions specific to Educational uses. One of the most impactful provisions is the criterion to require separate facilities for students and staff:

> *248 CMR 10.10 (18) (h) (3) - Separate toilet facilities shall be provided for teachers and other staff employees. These toilet facilities shall be in addition to the requirements of 248 CMR 10.10(18): Table 1, See Educational Use Group E (staff) for teacher occupancy toilet facility requirements.*

In addition, for cafeterias where cooking and/or preparation of food is performed, separate facilities must be provided for cafeteria staff.

PLUMBING FIXTURE FACTORS

The factors for Educational uses are as follows:

Fixture	Kindergarten	Elementary School	Faculty (Staff)	Multi-Purpose
Women's Water Closets	1/20	1/30	1/20	1/200
Men's Water Closets	1/20	1/60	1/25	1/600
Men's Urinals	-	1/60	33% substitution	1/200
Lavatories for Each Sex	1/20	1/60	1/40	1/200
Water Fountains	1/75	1/75	-	-
Service Sinks	One Service Sink is required for each floor			

Table 4 - Plumbing Fixture Factors

DRINKING FOUNTAINS

Hi/lo drinking fountains are required per 521 CMR and ADAAG. Numerous hi/lo fountains utilize separate hi and lo bowls with individual spouts for each bowl. If a "hi/lo" fountain is provided but utilizes a single supply line and a single drain, it has been interpreted to be counted as a single fixture. If however, separate supply and drain lines are provided for each bowl, then it may be counted as two fixtures.

OCCUPANT LOADS

The occupant loads to be used in determining fixtures must be established by the authority having jurisdiction. Frequently, the calculated occupant loads are used in the absence of the approval of the authority to use actual programmed occupancy. In the case of schools, it is not uncommon for actual populations to be used. In these cases, the authority must still provide approval. In recent discussions with the plumbing board staff, it has been noted that in no case should the fixtures provided serve less than 50% of the calculated occupant load. In any case, once the occupant load is established, if the application of the factors results in a fraction, the fraction is to be rounded up.

EXISTING CONDITIONS

The existing fixtures for the various grades and staff are not compliant with current code.

END OF REPORT

Building, Fire & Access, Inc.

3A.7 Existing Civil

Nitsch Engineering

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MEMORANDUM

TO: Jessica Bessette, AIA, LEED AP BD+C

FROM: Deborah M. Danik, PE, LEED AP BD+C

DATE: November 2, 2018

RE: 150 Jackson Road, Newton, MA
Existing Conditions Report

Nitsch Project #13033

Nitsch Engineering has performed research of the existing site conditions and anticipated site permitting requirements for the redevelopment of the former Aquinas College site located at 150 Jackson Road (also known as 15 Walnut Park) in Newton, Massachusetts. The site is being evaluated for the use of the relocated Lincoln Eliot Elementary School and potentially the Newton Early Childhood Program (NECP). Information included in this report is based on a site visit on October 5, 2018, review of record plans and compiled documents from Arrowstreet, and the City of Newton and State Geographic Information Service (GIS) data.

A summary of Nitsch's observations and findings are listed below.

SITE CONDITIONS AND OPERATIONS

The existing approximately 5.7-acre site is located in an urban area and bounded by the public road Jackson Road to the west, private properties and access to Pearl Street to the north, the public roads Waban Street and Walnut Park to the east, and a private site to the south. The majority of the site is covered by paved and gravel parking lots located on the west side of the site. The existing building is located on the east side of the site, with the main entrance to the building on the west side adjacent to the main parking lot. The northern portion of the site is densely vegetated and wooded. The existing site generally slopes up from the west along Jackson Road to the high side of the site at the east on Walnut Park. Record documents indicate there is approximately a 25-foot elevation change between the two streets. The majority of the site is steeply sloped, with the building providing the change in elevation from the western portion of the site to the eastern portion of the site.

VEHICULAR ACCESS

The site is accessed by vehicles for parent and bus drop off, those parking at the site, maintenance and operations, and deliveries through one (1) two-way driveway entrance on Jackson Road. Signage and striping direct vehicles once they enter the site, with buses and vans traveling in the right lane to drop off students at the main entrance and other vehicles in the left lane to access the main parking lot. There is no non-bus student drop off area near the building entrance, and non-bus vehicles were observed parking in the main parking lot and walking the students into the building during drop off.

ON-SITE PARKING

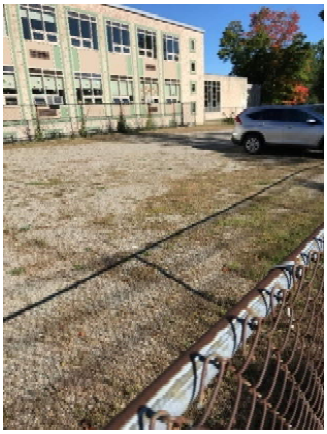
The majority of the non-building and non-wooded portions of the site are taken up by parking lot areas. The main parking lot on the west side of the site has approximately 140 striped parking spaces, including accessible parking spaces. At the time of the site visit, approximately 55% of the parking spaces were full. Signage observed at the site and building personnel indicate that some parking spaces in the main parking lot are used by commuters, who use the site as a daily parking location for access to the nearby Massachusetts

Bay Transportation Authority (MBTA) train. Accessed from the northwest side of the main parking lot, an area that was previously used as a basketball court has been converted to a gravel parking lot with approximately 40 striped parking spaces. At the time of the site visit, 25% of the parking spaces were full. On the northeast side of the parking lot and the north side of the building, there is access to four (4) parking garage doors attached to the building.

Separate from the main parking lot, there are also approximately nine (9) parking spaces located on the south side of the building, which are also accessed by the Jackson Road driveway. Located on the east side of the building and accessed from Walnut Park is an additional unstriped gravel parking lot that appears to be currently used by the abutters on Walnut Park.

There are six (6) signed and striped accessible parking spaces located on the eastern portion of the main parking lot near the main building entrance and the dumpsters. The accessible parking spaces meet the code required number of parking spaces, but the dimensions and grades of the parking spaces and access walkways to the main entrance will need to be evaluated to determine whether the areas meet current code requirements of the Americans with Disabilities Act (ADA) regulations.

The existing main parking lot pavement is old and shows indications of previous repairs including patching, seal coating, and crack sealing. The existing pavement should be further evaluated for rehabilitation given the existing poor condition.



Photos 1 & 2: Gravel parking lots at northwest side of site (left photo) and east side of site (right photo)

Photos 3 & 4: Entrance signage and striping for vehicular access (left photo) and parking garage doors (right photo)

Photos 5 & 6: Main parking lot pavement surface condition (both photos)

PEDESTRIAN ACCESS

Pedestrians can access the main entrance to the site by the driveway on Jackson Road or two (2) pedestrian entrances on Waban Street with one (1) to access to the main parking lot and one (1) to access the building, and three (3) entrances on Walnut Park with one (1) to access to the gravel parking lot and two (2) to access the building. There is no sidewalk to connect the building entrance to the public way sidewalk on Jackson Road along the main parking area and through the main driveway entrance. There also is not a sidewalk adjacent to the bus drop off at the main entrance. The main entrance to the building from the parking lot requires a ramp due to the large grade change from the existing parking area to the entrance door. It does not appear that the existing ramp to the main entrance or the pedestrian entrance to the parking lot from Waban Street meet current ADA regulations due to the slope and lack of level landings.

Pedestrian entrances from Waban Street to access the parking lot and the building do not appear to meet current ADA regulations due to the slope of the walkways and/or stair access into the building. One (1) of the entrances to the building from Walnut Park has been retrofitted with a ramp, in order to provide ADA access up the entrance stairs to the lobby. The ramp should be reviewed for compliance with current ADA regulations.

Photos 7 & 8: Pedestrian access from Waban Street to the main parking lot (left photo) and Waban Street pedestrian access to the building (right photo)

DUMPSTERS/RECYCLING

Trash dumpsters and recycling storage and pickup for two (2) large containers is located in the main parking lot, close to the building and adjacent to the main entrance and the accessible parking spaces.

Photos 9 & 10: Accessible parking spaces and one (1) of the dumpsters located near the main entrance

EXISTING SITE UTILITIES

Bases on observations made in the field and review of record documents, Nitsch's observations and findings are noted below.

WATER

Record documents indicate the building's 4-inch (4") domestic water service enters at the southwest side of the building and connects to the City of Newton water main located in Jackson Street. A water gate cover was observed in Jackson Street in the approximate location of the building service. There were no fire hydrants observed on the private site. There is one (1) hydrant on Jackson Road located approximately in the middle of the western side of the site, and there were no observed hydrants on Waban Street or Walnut Park near the site.

SANITARY SEWER

Record documents indicate that the building's sewer service is routed to the City main by a private sewer main leaves the northern portion of the building, running southerly parallel to the west side of the building and then turning west to connect to the City of Newton sewer main system in Jackson Road. Once connecting in Jackson Road, the City sewer main continues westerly to a main in Wilshire Street. Sewer manholes indicated on record documents with the routing above were observed in the field. Large, mature trees were also observed near the existing sewer main and would need to be evaluated if modifications to the existing sewer main were proposed. Record documents indicate the existing sewer pipe is a 6-inch vitrified cay pipe. Vitrified clay pipe does not meet current code and would need to be replaced if improvements were proposed to the building.

Record documents also note that the sewer service for the abutter to the south of the site connects to the sewer manhole within the private site. A manhole was observed on the abutters property in the approximate location shown on record plans. Additional sewer main video inspection should be conducted to determine the condition existing private main's pipe material, condition of the pipe, and routing of pipe through the site and from abutters.

Photos 11 & 12: Sewer and drain manholes observed at the site in the location noted on record documents (left photo) and large, mature trees located near the existing sewer and drain mains (right photo)

STORM DRAINAGE

Record documents indicate that the building's roof drain service is connected to a closed drainage system and a private drain main running southerly parallel to the west side of the building and then turning west to connect to the City of Newton drain main system in Jackson Road. The private drain main system runs parallel to the private sewer main system. Record documents indicate the existing roof drain pipe is a 10-inch vitrified clay pipe. Drain manholes indicated in record documents were observed in the field. Large, mature trees were also observed near the existing drain main and would need to be evaluated if modifications to the existing sewer main were proposed.

The existing site has minimal existing closed storm drainage facilities onsite according to record documents and site observations. Two (2) catch basins were observed on the western and lower side of the site. One (1) was located in the main parking lot and one (1) was located in the parking lot on the south side of the building. Neither catch basin appeared to provide enhanced level of pre-treatment, and record documents do not indicate that the site has a stormwater management system to mitigate for stormwater peak rates of runoff or stormwater volumes leaving the site. Stormwater that hits the vehicular traveled portions of western side of the site sheet flows westerly to the catch basin or into the landscaped areas adjacent to the Jackson Road property line. No catch basins or a closed drainage system were observed on the eastern side of the site. Stormwater that hits the eastern side of the site sheet flows into the landscaped areas adjacent to Waban Street and Walnut Park.

Stormwater runoff from the site ultimately drains to the Charles River. A redevelopment of the site would require the installation of a stormwater management system to meet the Massachusetts Department of Environmental Protection's Stormwater Standards as it applies to the proposed redevelopment.

Photo 13: One of the observed catch basins on site located near the parking on the south side of the building, covered in leaves

ELECTRIC

Refer to the Electrical Engineer's Existing Conditions report for information about the existing electrical service and site lighting at the site.

TELECOMMUNICATIONS

Refer to the Mechanical Engineer's Existing Conditions report for information about the existing telecommunications service at the site.

GAS/OIL

Record documents indicate an existing underground oil tank at the southwest side of the building near the main driveway entrance. Covers for the underground tank were observed at the surface of the parking lot during the site visit. Record documents also indicate a gas service enters the building at the southwest corner of the building. Refer to the Plumbing Engineer's Existing Conditions report for information about the existing gas and oil services at the site.

SOILS

A Geotechnical Engineering study of the site shall be prepared to provide information about existing soil conditions at the site and recommendations for design and construction at the site. The following record reports may be used as references:

- "ASTM Phase I Environmental Site Assessment and Phase II Limited Subsurface Investigation, Former Aquinas College, 15 Walnut Park, Newton, Massachusetts," prepared by Ransom Consulting, Inc., dated March 3, 2015;
- "Release Abatement Measure Plan, For the Site, Former Aquinas College, 15 Walnut Park, Newton, MA," prepared by Universal Environmental Consultants, dated May 23, 2016; and
- "Revised Polychlorinated Biphenyl Abatement Plan, For the Site, Former Aquinas College, 15 Walnut Park, Newton, MA," prepared by Universal Environmental Consultants, dated March 4, 2016.

The site is listed as a 21E waste site by the Massachusetts Department of Environmental Protection (MassDEP) under DEP Site Number 3-0033782. Based on the Natural Resources Conservation Service (NRCS) Middlesex County Soil Survey, the majority of the site is classified as Urban Land under the Unified Soil Classification (Surface).

PRELIMINARY PERMITTING CONSIDERATIONS

Wetlands Protection Act (310 CMR 10.00)

The Wetlands Protection Act ensures the protection of Massachusetts' inland and coastal wetlands, tidelands, great ponds, rivers, and floodplains. It regulates activities in coastal and wetlands areas, and contributes to the protection of ground and surface water quality, the prevention of flooding and storm damage, and the protection of wildlife and aquatic habitat.

Massachusetts Geographic Information System (MassGIS) Record Information indicates that there are no Wetlands Protection Act resource areas within the project site. Therefore, there are no permits anticipated through the Wetlands Protection Act or the Newton Conservation Commission.

Surface Water Supply Protection (310 CMR 22.20)

The Massachusetts Department of Environmental Protection (DEP) ensures the protection of surface waters used as sources of drinking water supply from contamination by regulating land use and activities within critical areas of surface water sources and tributaries and associated surface water bodies to these surface water sources. A review of the Massachusetts DEP resource layers available on the MassGIS indicates the site is not located within a Water Supply Protection Zone, and appears to not require permitting under 310 CMR 22.20.

National Heritage and Endangered Species Program

A review of the 14th Edition of the Massachusetts Natural Heritage Atlas prepared by the Natural Heritage and Endangered Species Program (NHESP), dated August 1, 2017, indicates that the site is not a Priority Habitat of Rare Species or an Estimated Habitat of Rare Wildlife. Therefore, there are no permits required through the NHESP.

Area of Critical Environmental Concern (ACEC)

A review of the Massachusetts Geographic Information System (MassGIS) indicates that the site is not located within an Area of Critical Environmental Concern.

Floodplain

Floodplain information was obtained from the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community Map number 25017C0552E, effective June 4, 2010. The site is within an Area of Minimal Flood Hazard Zone X, which is identified as an area outside the 100-year floodplain. Therefore, there are no permits required with respect to the floodplain.

Environmental Protection Agency National Pollutant Discharge Elimination System Permit

Construction activities that disturb more than one acre of land are regulated under the United States Environmental Protection Agency (EPA) National Pollution Discharge Elimination System (NPDES) Program. In Massachusetts, the EPA issues permits to operators and owners of regulated construction sites. Regulated projects are required to develop and implement stormwater pollution plans (SWPPP) in order to obtain permit coverage. The proposed renovation project will disturb more than one acre of land, therefore, the project will require filing an Electronic Notice of Intent (eNOI) for a Construction General Permit (CGP) and compliance under the NPDES program.

Newton Department of Public Works

The design of the sanitary sewer, water, and storm drainage services and connections to the City of Newton mains will need to be reviewed and approved by the Department of Public Works Water and Sewer Division.

As part of their Site Plan Review process the Department of Public Works will review the water demand and sewer flows for the site as it relates to their water distribution system and sanitary sewer conveyance systems. They will also review the proposed stormwater management design for compliance with their regulations and the Massachusetts Department of Environmental Protection's Stormwater Standards.

Newton Department of Public Works will also review the project for any improvements proposed to the public sidewalks abutting the site or within the public ways.

Massachusetts Environmental Policy Act (MEPA) Regulations (301 CMR 11.00)

Development of this site does not appear to trigger the following MEPA thresholds and will likely not require an Environmental Notification Form (ENF) or Environmental Impact Report (EIR) to be filed with MEPA:

- Land
- Rare Species
- Wetlands
- Water
- Wastewater
- Area of Environmental Concern (ACEC)

3A.8 Existing Structural

150 Jackson Road

Newton, Massachusetts

Structural Assessment

November 2, 2018

Engineers Design Group Inc.
Structural Engineers
350 Main St, 2nd Flr
Malden, Ma 02148
(781)396-9007
(781)396-9008 (FAX)
EDG@EDGINC.COM

STRUCTURAL ASSESSMENT

The purpose of this report is to describe, in broad terms, the structure of the existing building; to comment on the condition of the existing building; and on the feasibility of renovation and expansion of the building.

Scope

1. Description of existing structure.
2. Comments on the existing condition.
3. Comments on the feasibility of renovation and expansion.

Basis of the Report

This report is based on our visual observations during our site visit on October 5, 2018; a review of the existing drawings of the original construction prepared by the Maginnis and Walsh and Kennedy Architects, dated February 26, 1965.

During our site visit, we did not remove any finishes or take measurements, so our understanding of the structure is limited to the available drawings and observations of the exposed structure and the exterior facade.

Building Description

The school is located on Jackson Road in Newton, Massachusetts. The entire school along with the chapel and convent is a two or three story concrete structure.

The building was originally constructed in 1965 for the Aquinas School, a private Catholic school, and in 2000, it was occupied by the Rashi School. Currently the school is home to an early childhood program for the City of Newton.

The building is organized in a linear fashion. It has a three story academic wing and a three story cafeteria/auditorium wing. The cafeteria is located on a lower level, with a mechanical space below, and the double story auditorium is located at the upper level. The two story chapel and four story convent is located at one end of the school. Due to the topography of the site, the structure has various floor levels connected by internal stairs.

The lower level of the structure is typically a concrete slab on grade. One exception to this is a portion of the slab on the lowest level below the footprint of the auditorium stage, it is a two way reinforced concrete slab supported on reinforced concrete grade beams spanning between concrete piers and footings.

The typical floor and roof slab of the academic wing is a one way concrete rib slab spanning between reinforced concrete beams and columns.

The cafeteria floor is a reinforced concrete flat slab supported on concrete columns.

The auditorium floor is a reinforced concrete slab spanning between wide flange steel beams and columns.

The roof above the auditorium is 2 in. thick light weight concrete plank spanning between structural steel trusses.

The convent and the chapel floor and roof construction is similar to the academic wing construction.

There are no additions to the school since it was originally constructed.

EXISTING CONDITIONS

Based on our observations, the building structure is performing well based on the age of the building. We observed signs of water leakage at a few locations. We observed cracks in the interior masonry walls at some locations. We observed cracks in the exterior masonry façade and signs of past repairs. We observed some minor spalling of concrete at the corners.

We did not observe any signs of foundation settlement. We did not observe any undue vibrations due to footfall on the supported floors.

PROPOSED SCHEMES

Based on our observations and our analysis of the existing drawings, no structural upgrades are required for any proposed scheme that has limited renovation scope and does not require any structural modifications. The extent of the code required structural upgrades is dependent on the extents of the proposed renovations. The following is a description of the compliance methods that may be triggered depending on the extents of the proposed schemes as dictated by other disciplines.

GENERAL CODE CONSIDERATIONS

Primary Structural Code Issues Related To the Existing Structure

If any repairs, renovations, additions or change of occupancy or use are made to the existing structures, a check for compliance with 780 CMR, Chapter 34 “Existing Building Code” (Massachusetts Amendments to The International Existing Building Code 2015) of the Massachusetts Amendments to the International Building Code 2015 (IBC 2015) and reference code “International Existing Building Code 2015” (IEBC 2015) is required. The intent of the IEBC and the related Massachusetts Amendments to IEBC is to provide alternative approaches to alterations, repairs, additions and/or a change of occupancy or use without requiring full compliance with the code requirements for new construction.

The IEBC provides three compliance methods for the repair, alteration, change of use or additions to an existing structure. Compliance is required with only one of the three compliance alternatives. Once the compliance alternative is selected, the project will have to comply with all requirements of that particular method. The requirements from the three compliance alternatives cannot be applied in combination with each other.

The three compliance methods are as follows:

1. Prescription Compliance Method.
2. Work Area Compliance Method.
3. Performance Compliance Method.

Comment

The approach is to evaluate the compliance requirements for each of the three methods and select the method that would yield the most cost effective solution for the structural scope of the project. The selection of the compliance method may have to be re-evaluated after the impact of the selected method is understood and after analyzing the compliance requirements of the other disciplines, Architectural, Mechanical, Fire Protection, Electrical and Plumbing.

Since the existing building contains un-reinforced masonry wall structures, the anchorage of the walls to the floor and roof structure will have to be evaluated if the work area of the project exceeds 50 percent of the aggregate floor and roof area of the building.

Prescriptive Compliance Method

In this method, compliance with Chapter 4 of the IEBC is required. As part of the scope of this report, the extent of the compliance requirements identified are limited to the structural requirements of this chapter.

Additions

Based on the project scope, the following structural issues have to be addressed:

- All additions should comply with the code requirements for new construction in the IBC.
- For additions that are not structurally independent of an existing structure, the existing structure and its addition, acting as a single structure, shall meet the requirements of the Code for New Construction for resisting lateral loads, except for the existing lateral load carrying structural elements whose demand-capacity ratio is not increased by more than 10 percent, these elements can remain unaltered.
- Any existing gravity, load-carrying structural element for which an addition or its related alterations causes an increase in the design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.

Alterations

- Any existing gravity, load-carrying structural element for which an addition or its related alterations causes an increase in the design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.
- For alterations that would increase the design lateral loads or cause a structural irregularity or decrease the capacity of any lateral load carrying structural element, the structure of the altered building shall meet the requirements of the Code for New Construction, except for the existing

lateral load carrying structural elements whose demand-capacity ratio is not increased by more than 10 percent, these elements can remain unaltered.

Work Area Compliance Method

In this method, compliance with Chapter 5 through 13 of the IEBC is required. As part of the scope of this report, the extent of the compliance requirements identified are limited to the structural requirements of these chapters.

In this method, the extent of alterations has to be classified into LEVELS OF WORK based on the scope and extent of the alterations to the existing structure. The LEVEL OF WORK can be classified into LEVEL 1, LEVEL 2 or LEVEL 3 Alterations. In addition, there are requirements that have to be satisfied for additions to the existing structure.

The extent of the renovations (includes Architectural, FP and MEP renovations) for this project exceeds 50 percent of the aggregate area of the building, thus, the LEVEL OF WORK for this project would be classified as LEVEL 3 Alterations. This would require compliance with provision of Chapter 7, 8 and 9 of the IEBC. If the scope of the project includes new additions to the existing structure; this would trigger compliance with provisions in Chapter 11 of the IEBC.

Level 3 Alterations

- Any existing gravity, load-carrying structural element for which an alteration causes an increase in the design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.
- For alterations where more than 30 percent of the total floor area and roof areas of a building or structure have been or proposed to be involved in structural alterations within a 12 month period, the evaluation and analysis shall demonstrate that the altered building complies with the full design wind loads as per the code requirements for new construction and with reduced IBC level seismic forces.
- For alterations where not more than 30 percent of the total floor and roof areas of a building are involved in structural alterations within a 12 month period, the evaluation and analysis shall demonstrate that the altered building or structure complies with the loads at the time of the original construction or the most recent substantial alteration (more than 30 percent of total floor and roof area). If these alterations increase the seismic demand-capacity ratio on any structural element by more than 10 percent, that particular structural element shall comply with reduced IBC level seismic forces.
- Existing anchorage of all unreinforced masonry walls to the structure have to be evaluated.

Additions

- All additions shall comply with the requirements for the Code for New Construction in the IBC.
- Any existing gravity, load-carrying structural element for which an addition or its related alterations cause an increase in design gravity load of more than 5 percent shall be strengthened, supplemented or replaced.
- For additions that are not structurally independent of any existing structures, the existing structure and its additions, acting as a single structure, shall meet the requirements of the Code for New

Construction in the IBC for resisting wind loads and IBC Level Seismic Forces (may be lower than loads from the Code for New Construction in the IBC), except for small additions that would not increase the lateral force story shear in any story by more than 10 percent cumulative. In this case, the existing lateral load resisting system can remain unaltered.

Performance Compliance Method

Following the requirements of this method for the alterations and additions may be onerous on the project because this method requires that the altered existing structure and the additions meet the requirements for the Code for New Construction in the IBC.

PARTICULAR REQUIREMENTS OF COMPLIANCE METHODS

For our project, in order to meet compliance with one of the two compliance methods "Prescriptive Compliance Method" or the "Work Area Compliance Method", we have to address the following:

Prescriptive Compliance Method

Additions

The proposed additions would be designed structurally independent of the existing structures, thus, would not impart any additional lateral loads on the existing structure.

If the proposed alterations are such that the alterations increase the design lateral loads on the existing building or cause any structural irregularity of decrease the lateral load carrying capacity of the building, the structure of the altered building shall meet the requirements of the Code for New Construction in the IBC.

If the proposed additions increase the design gravity load on portions of the existing roof members, these members would have to be reinforced and this incidental structural alteration of the existing structures would have to be accounted for in the scope of the alterations to the existing school and would trigger requirements for alterations.

Alterations

Alterations that would increase the design gravity loads by more than 5 percent on any structural members would have to be reinforced.

If the proposed alterations of the structure increases the demand-capacity ratio of any lateral load resisting element by more than 10 percent, the structure of the altered building or structure shall meet the requirements for the Code for New Construction.

Work Area Compliance Method

Level 3 Alterations

If the proposed structural alterations of an existing structure are less than 30 percent of the total floor and roof areas of the existing structure, we have to demonstrate that the altered structure complies with the loads applicable at the time of the original construction and that the seismic demand-capacity ratio is not increased by more than 10 percent on any existing structural element. Those structural elements

whose seismic demand-capacity ratio is increased by more than 10 percent shall comply with reduced IBC level seismic forces.

If the proposed structural alterations of an existing structure exceed 30 percent of the total floor and roof areas of an existing structure, we have to demonstrate that the altered structure complies with the IBC for wind loading and with reduced IBC level seismic forces.

Existing anchorage of all unreinforced masonry walls to the structure have to be evaluated. If the existing anchorage of the walls to the structure is deficient, the tops of the masonry walls will require new connections to the structure.

Additions

Any proposed additions would be designed structurally independent of the existing structures, thus, they would not impart any additional lateral loads on the existing structures.

Comment

The compliance requirements of the two methods, in most respects, are very similar. The Prescriptive Compliance Method would require that the existing lateral load resisting systems meet the requirements of the Code for New Construction of the IBC, even for small increases of design lateral loads. The requirements of both methods will require anchorage of all existing masonry walls. Based on this, we would recommend the Work Area Compliance Method for the project.

SUMMARY

The existing school structure appears to be performing well. All of the structural components that are visible appear in sound condition.

Any major, proposed renovations and additions would likely require that the structure be updated to meet the requirements for Code for New Construction. This may require addition of some shear walls, connecting the roof diaphragms to the existing masonry walls and the clipping of non-structural masonry walls to the structure. All of the existing masonry walls would have to be adequately connected to the roof structure.

3A.9 Existing Mechanical

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HEATING, VENTILATION, AND AIR CONDITIONING (HVAC)

The majority of the building HVAC systems are approximately 52-years-old, in poor condition and have exceeded their expected service life. The main building is currently only heated and ventilated from central heating and ventilation systems. Several rooms are provided with window AC units. The Classrooms, Cafeteria and Auditorium rooms are heated and ventilated by a combination of hot water air handling units, unit ventilators and radiation heating equipment. The administration areas are heated by hot water fin tube radiation and convectors. Hot water is generated by a gas fired boiler plant. The heating plant also serves the Convent/Chapel building, which is heated primarily by hot water radiation heating equipment and air handling units. The Chapel and Rectory also appear to have an air conditioning system installed, however it is our understanding that the system has not be operational in recent years. The building control system is a pneumatic ATC control system, which has continually experienced many air leaks and corresponding temperature control issues. Due to the old age of the HVAC systems and overall poor performance in maintaining proper temperature and ventilation control, we would recommend that the existing building HVAC system is replaced with a new high efficiency HVAC system.

Heating Plant Building:

The building is primarily heated by an oil-fired hot water boiler plant located in the Lower Level Boiler Room. There are two boilers, however one of the boilers is no longer functional and has been abandoned in place. The boilers were originally installed circa 1966, are over 50 years old. and in need of replacement. The operable boiler has had some burner and control work performed on it in more recent years. The boiler provides heating hot water for the building's space heating equipment and air handling units.

The boiler is vented by steel breeching that is routed to a masonry chimney. Combustion air is provided by sheetmetal ductwork that is connected to a wall intake louver and damper assembly. Fuel oil is provided by a 10,000 gallon underground fuel oil tank, and there is a VeederRoot fuel oil tank monitoring panel installed in the boiler room. We are unsure of the age of the fuel oil tank.

There are two (2) 10 HP hot water pumps located in the Lower Level Boiler Room. The pumps circulate hot water from the boilers to the building heating equipment. In addition, there is an inline hot water booster pump which serves the Convent/Chapel hot water heating system. In general, the main hot water pumps appear to be in poor condition, and nearing the end of their expected service life, and the booster pumps appear to be in fair condition as it has been replaced in recent years.

The majority of hot water piping is original to the building and over 50 years old. Several sections of piping appeared to have damage or missing insulation. Several sections of piping and several valves observed appear to show signs of corrosion. Several sections of piping are routed in crawlspace areas or encased within concrete floors. It is our understanding that these sections of piping have experienced leaks over the years and are difficult to access.

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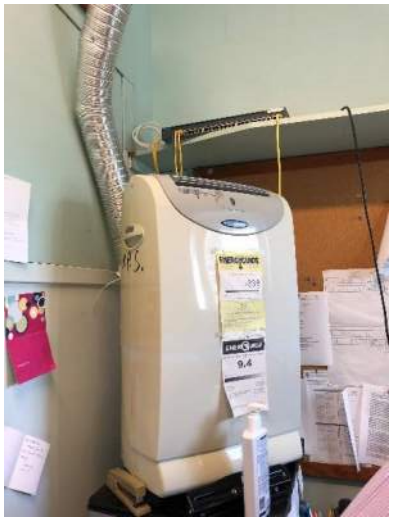
Hot Water Boilers

Hot Water Pumps

Convent Hot Water Circulator Pump

Air Conditioning:

The main building does not have a central air conditioning system. Many rooms are air conditioned by window AC units. The Custodian's office has a portable AC unit installed.



Custodian Office - Portable AC Unit

Window AC Units

The Chapel and Rectory areas appear to have an air conditioning system installed. However, it is our understanding that the system is not utilized. There is a Carrier indoor split chiller installed in the mechanical room which is connected to a ducted air cooled condensing unit that is connected to intake and relief air louvers in the mechanical room. The chiller appears to be in good condition and was installed in recent years. The associated condensing unit appears to be older and in poor condition. The chiller is capable of providing chilled water to the Chapel/Rectory area air handling units.

Chapel – Chiller

Chapel – Air Handling Unit

Administration:

The administration areas are typically heated by a combination of hot water fin tube radiation heating and convectors. The majority of administration offices appear to be ventilated naturally through the use of operable windows, and general exhaust air fan systems.

Hot water Fin tube Radiation

Classrooms:

The majority of classrooms are heated and ventilated by classroom vertical wall mounted unit ventilators with hot water heating. The units appear to be originally installed equipment from 1966, and were manufactured by Nesbitt. The unit ventilators are in poor condition, past their expected service life and in need of replacement. There are approximately 42-unit ventilators located throughout the building (including unit ventilators that serve the Cafeteria). The upper level classrooms and library are no longer occupied. There have been numerous piping and valve leaks associated with the unit ventilators that serve these areas. Several of the unit ventilator filters observed in unoccupied areas were extremely dirty and have been disassembled.

First Floor – Unit Ventilator

Second Floor Unit Ventilator

Exhaust air from most of the classrooms is exhausted by sidewall exhaust grilles that are ducted to roof mounted exhaust fan ventilators. Most of the exhaust fans observed appear to be originally installed equipment and beyond their expected service life.

Cafeteria:

The Cafeteria is heated and ventilated by ten (10) vertical hot water unit ventilators. The unit ventilators are original installed equipment from 1966 and need replacement.

The kitchen is adjacent to the Cafeteria and is served by a kitchen hood exhaust air fan, and associated make-up air unit that serves the kitchen exhaust hood and a dishwasher exhaust system. The kitchen exhaust hood appears to be originally installed equipment that is in poor condition, and the dishwasher exhaust appears to be in good condition and was installed in more recent years.

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Convent Building:

The majority of the Convent building is heated by hot water radiation and convectors. Supplemental electric heating was also installed in areas. The Chapel and Rectory areas of the building are served by air handling units that appear to have both heating and air conditioning capability. However, it is our understanding that the air conditioning system is not utilized. The heating and air handling equipment is originally installed equipment that needs replacement.

Hot Water Convector

Convent Kitchen Range Exhaust Hood

Kitchen Make-up Air Unit

Restrooms:

Restrooms are typically heated by hot water radiation heating and are exhausted by rooftop exhaust air fan systems. Restroom heating and exhaust ductwork appear to be original to the building, generally in poor condition, and in need of replacement. Some new exhaust fans have been installed in recent years.

Corridors and Entryways:

Corridors and entryways are heated by hot water radiation heating equipment that is original to the building. Several fin tube radiation and cabinet unit heater enclosures appear to be missing or damaged.

The majority of corridors are not provided with code-required ventilation.

Hot Water Convector

Exhaust Systems:

The majority of exhaust air ventilation for the building is provided by roof mounted exhaust air fans. Approximately half of the existing exhaust air fans appear to have been replaced in recent years.

Roof Exhaust Fans

Controls:

The building control system is a pneumatic control system. The control system consists of air compressors, air dryer, pneumatic control panels and pneumatic air tubing system. The main control panel was manufactured by Honeywell. The majority of control system components are originally installed equipment and systems. It is our understanding that the control system experiences numerous air leaks and does not provide adequate temperature control for many areas of the building.

ATC Control Panel

Recommendations:

1. The existing HVAC equipment including the boiler plant, classroom unit ventilators, indoor air handling units, older AC condensing units, exhaust fans, intake hoods and hot water radiation heating equipment should be replaced.

2. The existing hot water piping system and associated insulation should be replaced.

3. The existing chilled water piping and insulation should be replaced.

4. The exhaust ductwork system should be replaced.

5. Older exhaust air fans should be replaced.

6. The building pneumatic control system should be replaced with a new DDC building energy management control system.

7. Replacement HVAC systems should incorporate high efficiency equipment and energy conservation measures such as a high efficiency boiler, air conditioning, energy recovery ventilation, demand control ventilation, variable volume air flow and variable flow hot water distribution.

3A.10 Existing Electrical

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ELECTRICAL:

Executive Summary:

In general, the electrical systems have reached their life expectancy and are in poor condition. Life safety lighting is a normally off system and is fed from a generator and is not compliant with today's codes. The fire alarm system is in good condition; however, it is not code compliant and would require a complete replacement. Lighting systems, in general, are in poor condition and typically consist of fluorescent lamps and ballasts in most spaces; the fixtures are antiquated and in poor condition. The facilities service is undersized for any substantial renovation/addition program and the existing distribution system is in poor condition and should be replaced in its entirety.

The lightning protection system has not been modified to provide proper protection; no air terminals are located on any roof top equipment.

The security system consists of access control and an intrusion detection system. The system is in fair condition. The overall security scheme should be reviewed as it is not configured to current security recommended practices for the current occupancy.

The communication system infrastructure is antiquated by today's standards and should be replaced in its entirety.

Electrical Distribution System:

The service is fed from Jackson Road from an overhead utility pole riser to a transformer vault below grade, the service is then fed to the building's Main Electric Room located in the lower level adjacent to the building's Boiler Room.

A 1,200 ampere, 120/208 volt, 3 phase main switchboard is located in the Main Electrical Room. This service is undersized for any substantial renovation/addition program. The current Main Electric Room does not meet current code requirements and the remainder of the branch circuit panels which are mostly installed in corridors are in poor condition and should be replaced. The building contains a single secondary utility meter, meter #5080081 located within the Main Electric Room.

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Main Switchboard

Original Sub-Panel

Original Kitchen Sub-Panel

Utility Meter

Branch Circuits/Wiring Devices:

The quantity of receptacles is not adequate in most spaces. The quantity of technology devices in the classroom is minimal. Excessive use of extension cords is prevalent throughout the school and is considered a safety concern. Circuits are not separated based upon load type. New receptacles have been added in some areas over the years. The convent is setup as residential and would require complete replacement of branch circuitry. Both Kitchens, one that serves the Convent and one adjacent to the Cafeteria, are not in use; however, they are not in compliance with ground fault (GFCI) protection code.

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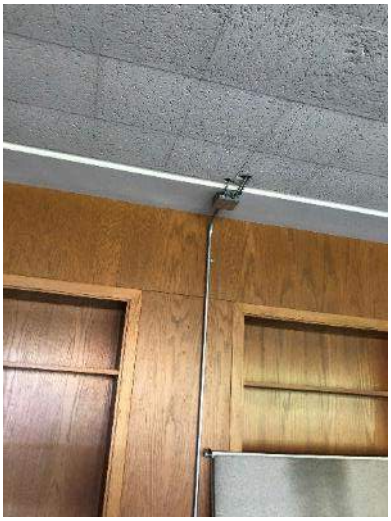
Extension Cord

Added receptacle that is full



Added surface receptacle

Kitchen Non-GFI Receptacle

Interior Lighting System:

Lighting in corridors is typically a surface mounted fluorescent wraparound fixture with a single T8 lamp down the center of the corridor and recessed 2x2 and 2x4 fixtures in lobbies.

Classroom lighting consists of two or three continuous rows of surface mounted fluorescent wraparound fixtures with single cross section T8 lamps. Each row is separately switched. No occupancy sensors are installed in classrooms.

Many fixtures were damaged and missing components, etc. In general, the lighting was in poor condition. Some exit signs are illuminated and are in poor condition. The Convent and Chapel contains obsolete incandescent lighting.

Corridor Lighting

Classroom Lighting

Lobby Lighting

Damaged Light

Convent Light

Exit Sign

Emergency Lighting System:

The emergency lighting throughout the facility is fed via the emergency generator. The emergency lighting system is a normally off system. The custodial staff noted that the light levels were very low. There is no separation of life safety and optional standby loads. The emergency generator is located in the Boiler Room. The generator is beyond its useful life. The emergency system should be replaced in its entirety. Battery units have been added throughout the facility to supplement the failing normally off emergency lighting.

Normally Off Emergency Light Fixture

Generator

New Battery Unit

Generator Nameplate

Site Lighting System:

The lighting at the site consists of building mounted flood lights around the perimeter and utility pole lighting on utility poles. The lighting ranges from poor to good condition depending on when the lights were installed.

Fire Alarm System:

The fire alarm panel has recently been upgraded to an addressable Notifier panel. The system consists of addressable devices and horn strobes. Pull stations are mounted above 54" A.F.F. which is an ADA violation. The coverage of detection devices and the notification method is non-code complaint. The fire alarm system should be replaced in its entirety.

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FACP

Fire Alarm Notification Appliance & Non-ADA compliant pull stations

Classroom Intercom System/Clock System/Security System:

The master clock system is original vintage Lathem LTR 2-3845 and is beyond its serviceable life.

The intercom system consists of a wall mounted speaker and a telephone handset in each classroom.

The handset is mounted above 54" A.F.F. which is an ADA violation. The system is antiquated and beyond its useful life. The paging system should be replaced in its entirety. The paging system is a Bogen Model MCP25A.

Clock/ Speaker

Classroom Handset

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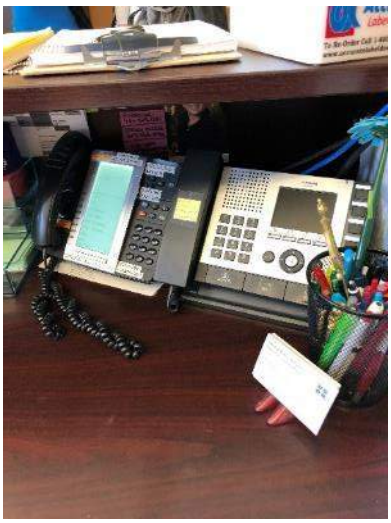
Clock System

Intercom System Head End

An intrusion system is present along with access control at key entry points. The access control system is Lenel and is a district standard. There are also Aiphone video intercoms on key entry points.

Intrusion Keypad

Aiphone



Intercom System

Tel/Data System:

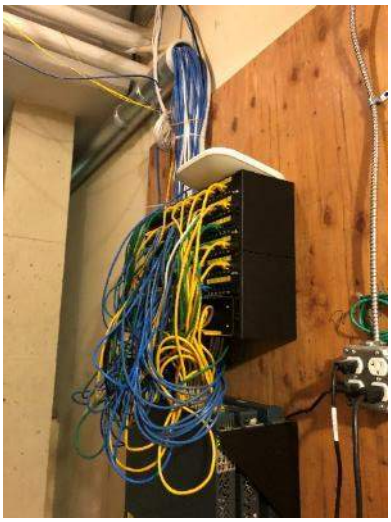
Communication service is fed from a utility pole on Walnut Park Road.

The school has a district fiber optic connection.

There is a single data wiring closet adjacent to the Auditorium that serves all data in the building. Wiring is a combination of CAT5 and CAT6.

A single closet is unable to serve the entire school due to ethernet wiring distance limitations. There is no active data on the third floor for this reason. Wireless access points are limited, there is not 100% coverage in the building.


Mitel VOIP System


MDF Data Rack


Wireless Access Point

Recommendations:

For any substantial renovation/addition program, the following would be recommended:

1. A service upgrade with a new pad mount transformer and 1,200-amp, 277/480 volt service would be recommended, along with a new distribution system with lighting, power, and mechanical panels to serve their respective systems.
2. New energy efficient LED lighting and energy code compliant lighting control system.
3. New fire alarm system with voice evacuation required for E-Use groups.
4. New generator with optional standby and life safety distribution system separated per NEC Section 700.
5. New clock system and IP paging system.
6. Additional IDF closets and new CAT6 tel/data infrastructure.
7. Expansion of existing level access control system as required to meet the security requirements.
8. A new bi-directional antennae system will be required to meet fire department two-way communications requirements.
9. An area of rescue assistance system will be required with all stations at each proposed elevator lobby and a master substation adjacent to the fire alarm annunciator panel.

3A.11 Existing Plumbing/ Fire Protection

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Existing Fire Protection Systems

There is no active fire suppression system in the building located at 150 Jackson Road. Building has no automatic sprinklers, no hose cabinets or fire department standpipes present. The existing kitchen located adjacent to the Cafeteria, has a High Pressure CO_2 system, which appears to be still in use.

High pressure CO_2 System storage tanks

Recommendations:

- If the existing building is renovated to any substantial degree, the entire building needs to be upgraded with fire suppression system per latest Massachusetts Building Code 780 CMR Chapter 9.
- The existing site water service and capacity needs to be evaluated for new requirement and to comply with the latest Commonwealth of Massachusetts building code and the National Fire Protection Association (NFPA).
- Exact static and residual flow values will need to be determined from a hydrant flow test. Fire Pump may be required if the hydrant flow test result shows inadequate flow and pressure.
- A new dedicated fire service to the building will be required from the site and which then feed the automatic fire sprinkler and standpipe systems covered throughout the building.
- NFPA-13 standard would require that all areas of the building shall be protected with wet fire suppression sprinklers. Unheated area will require a dry system.
- NFPA-14 standard would require standpipes in all egress stairs of the building.
- The CO_2 system at the kitchen, adjacent to the Cafeteria, shall be removed and replaced with a kitchen hood system.

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Existing Plumbing Systems

The building at 150 Jackson Road has received minimal maintenance on the plumbing systems and equipment over its occupied years. It appears systems will gradually deteriorate due to scale and poor water conditions. Although most of the systems are working adequately at this time, the major equipment and systems are near the end of their useful life. Along with aging systems, many of the systems are not up to current codes. If it is anticipated that if major modifications are planned for this building than the plumbing systems should be considered for an overall upgrade.

Domestic Cold Water

The domestic cold water service entrance to facility is located in the boiler room in the basement. It is 4" in size with a new backflow preventer installed recently. The domestic cold water system consists of copper pipe with soldered fittings. It is expected that the solder used in the system has a significant lead content. A couple of drinking fountains were shut down due to lead content in water. In addition, existing domestic cold water piping appears to be original and in poor condition, has outlived/exceeded its useful life and is not expected to last more than a few years without exhibiting possible failures. Infact, one of the bathrooms in the first floor was closed because of pipe break.

New backflow preventer with concrete block used as support.

Pipe insulation and valves appear to be original, in poor condition. Pipe insulation is possibly asbestos and should be evaluated for abatement. Pipe labels, flow arrows and valve tags are in limited locations throughout the system.

The existing facility has backflow preventer assemblies as required by DEP. Boiler make up water and Dishwasher is protected with backflow preventer for non-potable cross contamination. Janitor sink faucet has no vacuum breaker as required by code. The soap detergent connection to faucet is not protected and violates the plumbing code requirement.

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We recommend water quality shall be tested and monitored for any possible lead contamination and corrected if found to be at unsafe levels. If the project involves substantial renovation, we would recommend complete replacement of all domestic water piping, valves and accessories.

Domestic Hot Water

Domestic hot water for the facility is supplied from gas fired hot water boiler and is stored in two (2) 115 gallon storage tanks. The storage tanks appears to be installed in 2007. Original hot water storage tank is abandoned in place. The hot water boiler appears to be original to the building and is located in the boiler room in basement, below the cafeteria.

155 Gallon storage Tanks

Original storage tank abandoned in place

Hot water Heater

Hot water heater tag

Pipe insulation and valves appear to be original and in poor condition. Asbestos pipe insulation is suspected. Pipe labels, flow arrows and valve tags were not installed. Separate backflow preventers for non-potable hot water to the dish washer is installed. The temperature of the hot water supply is maintained through master thermostatic mixing valve. No problem with pressure, quality and hot water temperature were reported during our site visit. However, due to the pipe age, there is a probability that the water service line could be deteriorated and lead containing solder may exist in

the fittings or contain high lead content brass pipe. We recommend pressure test and water quality test and monitor for any possible lead contamination. If the project involves substantial renovation, we would recommend complete replacement of all domestic water piping, valves and accessories and install dual temperature system which would be required to satisfy code requirements for occupant fixtures (bathroom sinks) to discharge hot water at a temperature no greater than 110-112°F for safety reasons, whereas the service fixtures (janitor's sinks, kitchenette sinks, etc) are required to have hot water temperatures in excess of 120°F for sanitation reasons. The two temperature tempering system can be addressed via a separate pipe system or locally at individual fixtures.

Fuel – Natural Gas

There are two gas service entrances and are installed inside the building. One serves the old convent area boilers and convent kitchen appliances. The other gas service has two meters with one serving the emergency generator and the other serving the hot water heater, boilers and kitchen appliances near the cafeteria. Gas piping within the mechanical boiler room appears to be in fair condition.

Gas meters in boiler room, below cafeteria

Gas meter in the old convent area

Sanitory Waste and Vent

The sanitary sewer flow is by gravity and exits the building to a municipal sewer system at three locations with two 5” cast iron lines and one 4” cast iron line. Soil piping observed was a combination of extra heavy cast iron, with bell and spigot joints. Visible vents are galvanized steel with threaded fittings. The existing sewer piping, hangers in boiler rooms of building are in fair condition. No separate kitchen waste system is present in the facility.

There are two above ground grease interceptors in the kitchen near the cafateria and one above ground grease interceptor in the kitchen at the old convent. Point-of-use grease traps are located in the kitchen at the pot sink and there is no evidence of exterior grease interceptors. Art room sink does not have inline plaster trap as required per code.

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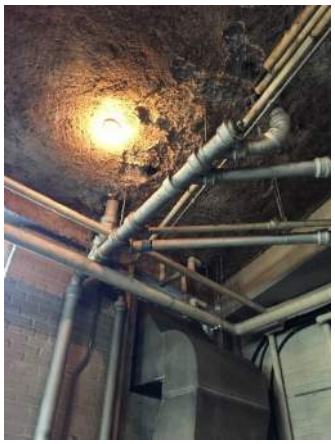

Cast Iron Waste pipe

Greese interceptor in kitchen, near cafeteria

Greese interceptor in convent side

Greese interceptor in kitchen, near cafeteria

Waste pipe in boiler room

floor drain in boiler room

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Storm Drainage

The building has a flat roof with different levels and roof drains for storm drainage. Storm drainage piping is original and has outlived/exceeded its useful life. It is not expected to last more than a few years without exhibiting widespread problems and possible failure. The roof drains all seem to be bad condition. The drains consisted of cast metal dome tops with cast iron bodies and some were not clamped to the roof. Piping observed was No-Hub cast iron soil pipe and fittings. No problems with the roof drain system were observed. If areas have had blockages in the past we would recommend video inspection of those, underground lines to verify their condition and address them accordingly.

Roof drain above school

Roof drain above old convent

Roof drain above school

Roof drain above cafeteria

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Plumbing Fixtures

Most of the fixtures are of original vintage condition. All observed fixtures are not of water saving type. Due to the fixture age, maintenance is routinely required on faucets, toilet fill valves, to keep fixture operational. Water closets are not of consistent style in the building. All fixtures are wall mounted type. Most of flush valve are not equipped with water conserving 1.6 gallon per flush type valve. The lavatory sinks are of the wall hung type and has manual faucet. The faucets are not metered and do not comply with latest water conservation requirement. Majority of toilets are not equipped with ADA / MA accessibility compliance toilet fixtures. Urinals have flush valve. The existing buildings plumbing systems will need to be verified for adequacy in quantity based on planned occupancy use. Drinking fountains observed are not ADA compliant. There are no sinks in classrooms. In the kitchen near the cafeteria, three-bowl pot/scullery sink has above ground grease trap connection prior to regular sanitary connection. Janitor closets in the facility has wall mounted utility sinks. The faucet of janitor sink has no vacuum breaker for backflow prevention. The old convent building has showers, which are not used.

Lavs at the boy's room

Urinal in boy's room

Water closet and lavatory in toilet room

Lavs in boy's room

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Drinking fountain

Sinks in old labs

Mop sink in janitor's closet

Three-bowl pot/scullery sink in kitchen, near cafeteria

Cleaning room mop sink in convent

Shower room in convent

During a substantial renovation and addition project, code would require that all the water closets, lavs, etc. be modified to be of the water conservation type and that of those, a certain percentage would be required to be ADA complaint. In addition, water of the appropriate temperature would be required to be supplied to fixtures whether by a dual temperature piping system or with the use of tempering valves and/or fixtures.

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Summary of Existing Systems

- Existing building does not have a sprinkler/standpipe system. Any substantial renovation to the building will need to provide a new sprinkler/standpipe system.
- The domestic hot/cold water pipes are lead soldered and water shall be periodically tested for quality. The hot water boiler is original to building and near its useful life. Any substantial renovation will need to upgrade the systems.
- The waste/vent system are original to the building and kitchen waste is not seperated. Any substantial renovation will need to upgrade the systems.
- The storm piping system are original to the building and some storm drains are not securely clamped. Any substantial renovation will need to upgrade the systems.
- Most plumbing fixtures are original to the building and near its useful life. Any substatial renovation will need to meet ADA /energy code requirements and plumbing fixture quantity will be required to be reviewed to meet population counts.
- Recommend video inspection of underground sanitary and storm piping to verify their condition and address them accordingly.